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KEY TO DATES AND PAGES

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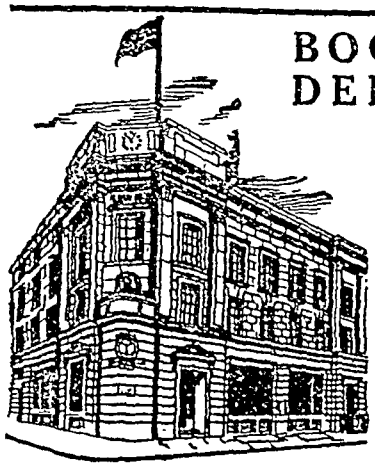
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Chapter VII. Contraceptives in Use, Intra and Inter.
,, VIII. Contraceptives in Special Cases.
,, IX. Early History of Family Limitation.
,, X. Contraception in the Nineteenth Century.
,, XI. Contraception in the Twentieth Century.
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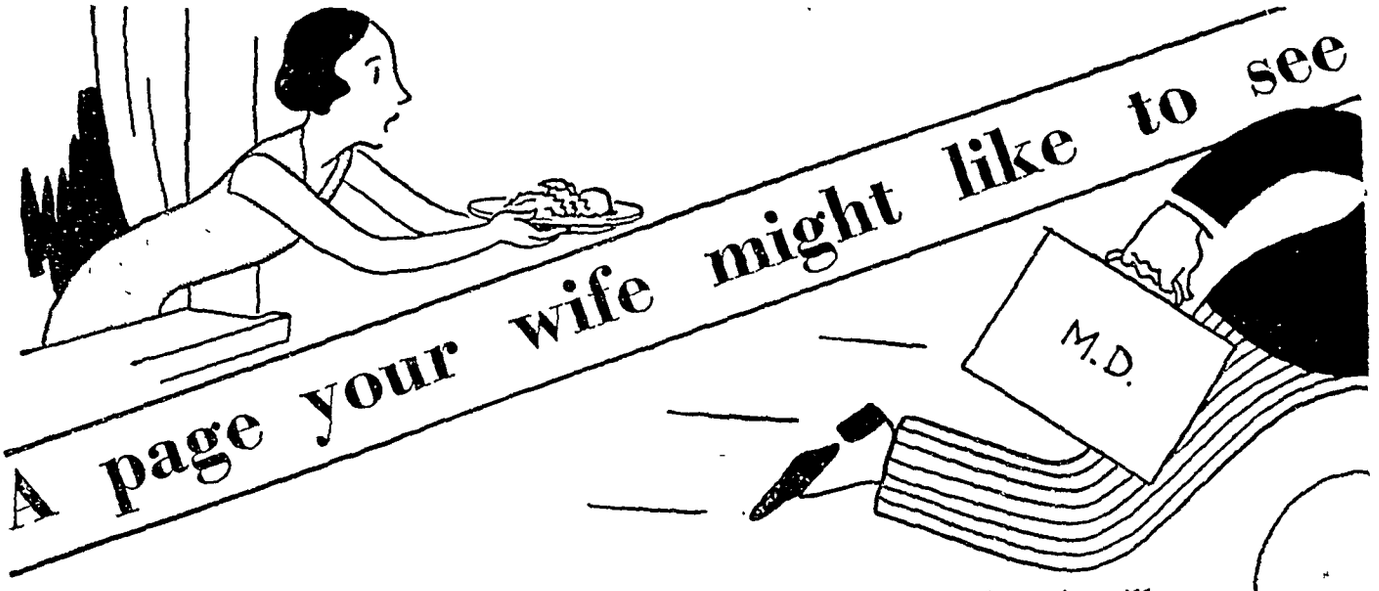
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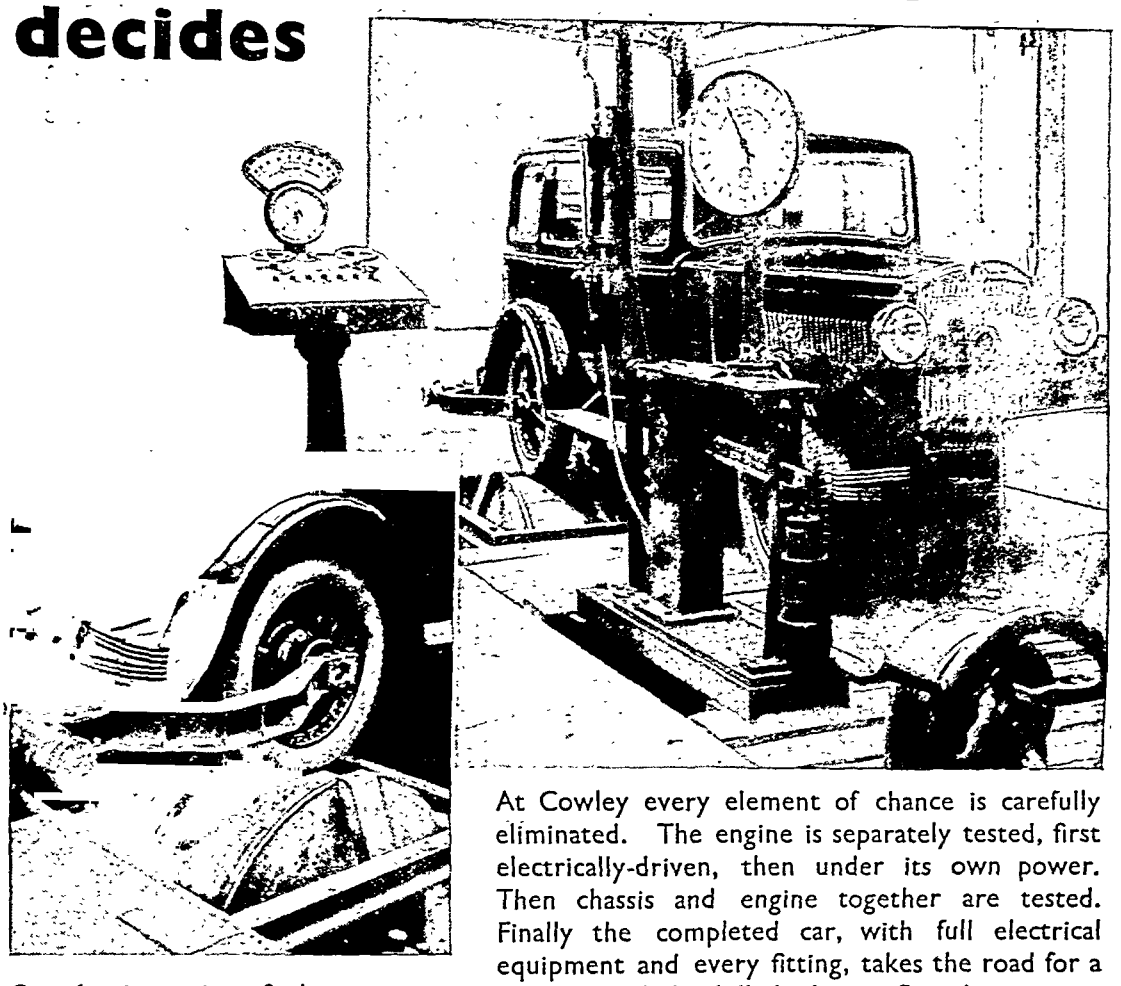
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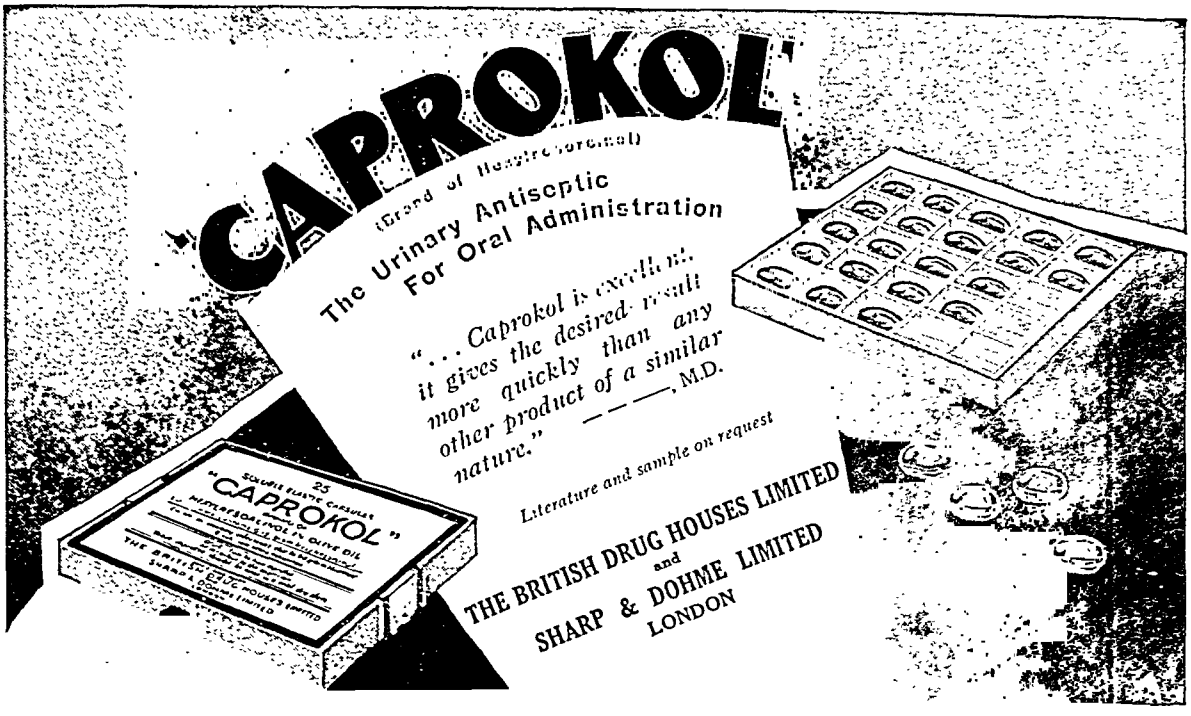
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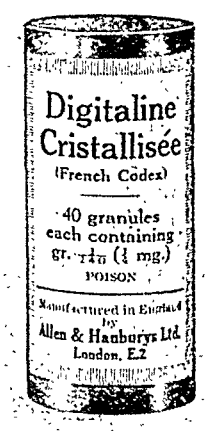
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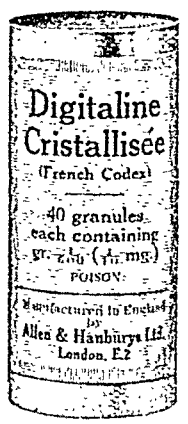
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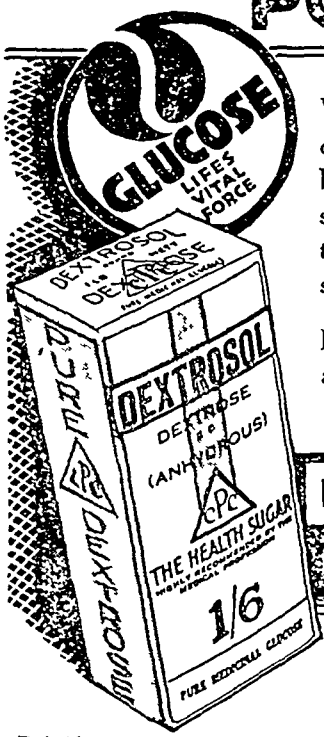
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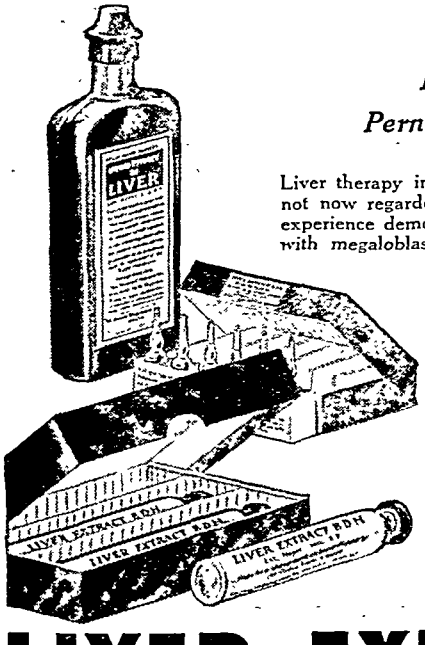
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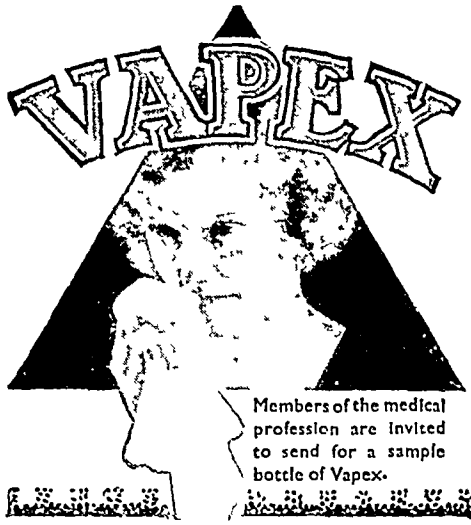
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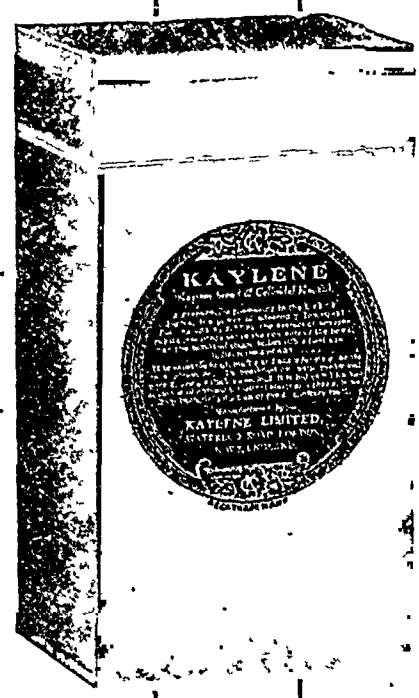
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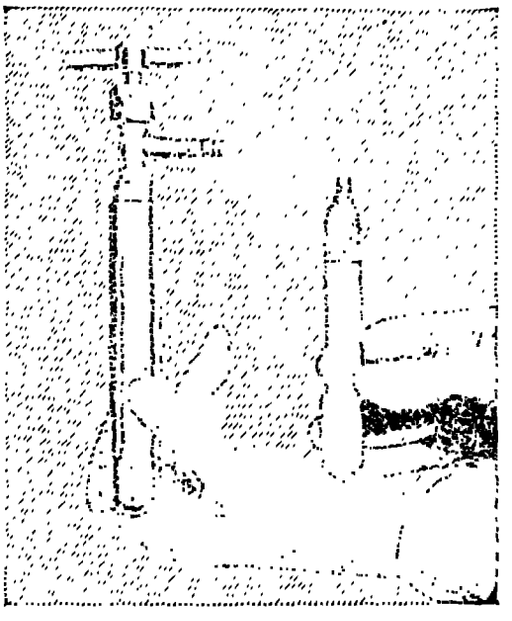
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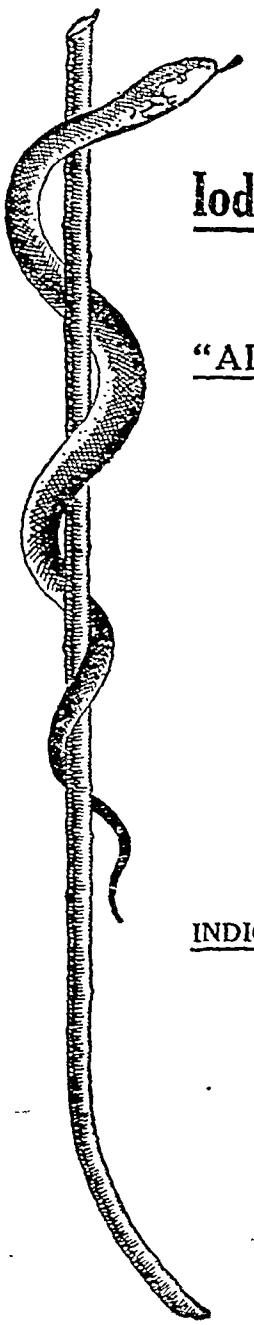
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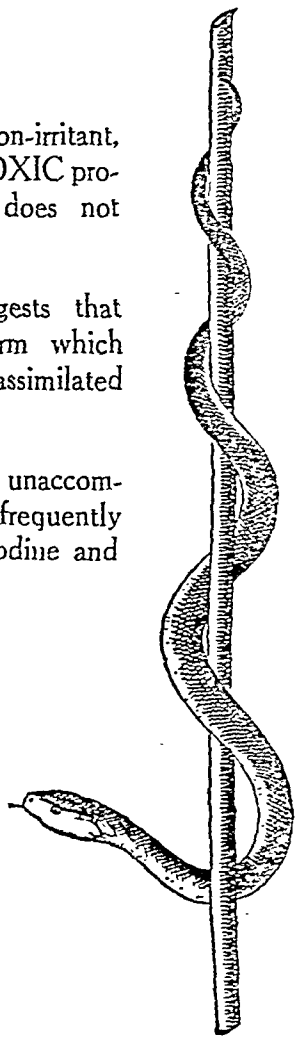
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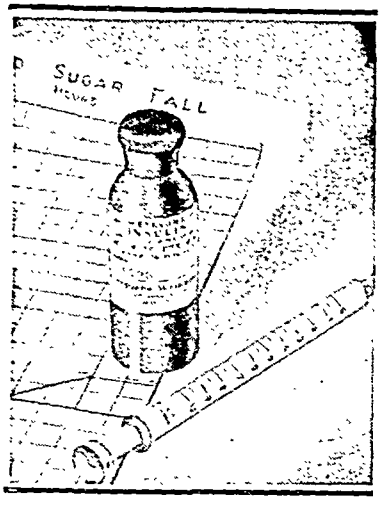
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THE
British Medical Journal
THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

LONDON: SATURDAY, JULY 1st, 1933

A Paper
ON
OBSTETRICAL ERRORS*

BY

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It is important that the art of obstetrics should be as highly organized as possible. If engaged for a case we must assume full responsibility and not relegate to a nurse or midwife those matters which are essentially medical and obstetrical. Again, if we are usually called in by a certain midwife and find a condition which could have been recognized, and possibly prevented, at an earlier stage, then it is our duty to educate that midwife to the value of closer co-operation. One of the biggest errors made, and still being made, by the profession is that of allowing obstetrics to drift into the hands of midwives, clinics, and whole-time officers. Some of this may be inevitable and even desirable, but doctors are losing the supervisory and consultative interest in this work to the detriment of their practices. The backbone of a successful practice is midwifery, followed by child welfare.

Ante-natal Care

The supervision, manipulations, and decisions concerned with ante-natal care form one of the most fascinating studies in medical art. The absence of this care is a big error. The multitude of normal labours which occur without such supervision tend to belittle its value and to make people somewhat sceptical. Sooner or later a most devastating tragedy will shock the most casual in this regard. Such comparatively simple and not infrequent matters as the recognition of an occipito-posterior, a breech in a primipara, or a contracted pelvis which invites obstruction may, when properly dealt with, make all the difference between a triumphant success and maternal and foetal exhaustion, bruising, and even death. Ante-natal care is not merely safeguarding the lives of the mother and her child, but also making certain that they will emerge from their joint experience—the confinement—as undamaged from wear and tear as possible. What we have to aim at is that every baby is presenting head first as a polar lie and with its back anterior, and that the relation of the head to the pelvic cavity shows no unfavourable disproportion.

Occipito-posteriors are best dealt with by applying a pad over the child's back, and it is fixed in position with a tight binder. The bladder and bowels are kept empty, and the patient remains in bed for twenty-four hours. If the procedure fails, repeat it at the next week-end; and if it still fails, then apply it at the onset of labour.

In breech cases the error is often in diagnosis: the buttocks are mistaken for the shoulders. Palpate for the head at the fundus, and dip the fingers into the pelvis behind the pubic bones to feel for a deeply engaged head. Finally, make a vaginal examination. By one or other of these means it should be possible to arrive at a diagnosis. In cases of breech with extended legs, the lower pole of the foetus feels very like the foetal head. If faced with a breech presentation in a primipara ask yourself "Why is it presenting as a breech?" and exclude the presence of a contracted pelvis. If the pelvis is badly contracted leave alone and arrange for a Caesarean section, but if normal or doubtful then do a version and test the head to the brim. In carrying out a version always lubricate the abdomen with soap or oil; this makes the version easier. If failure results then try under anaesthesia. If there is still failure, then by means of external measurements and a careful estimation of the pelvic capacity per vaginam decide whether or not there is sufficient room for the breech to come through, always allowing for manipulations for possibly extended arms or legs. Failure of judgement in this respect will end in a very difficult extraction with a stillborn child, or, in gross cases, in retention of the head above the brim. Lubrication of the hands, gloved or otherwise, with ethereal soap makes the corrective manipulations during delivery much easier.

Contracted pelves are usually contracted at the brim or throughout. Some are only contracted at or towards the outlet, and they are the more treacherous, as the head engages well and gives an appearance of normality, while late in labour the moulding and caput may suggest proximity and invite a delivery with forceps. Pelvic measurements, therefore, should always be taken of the outlet as well as of the brim. With the more common types of contracted pelvis the head is high and even overriding the brim. This in a primipara is always suspicious, as the head is usually deeply engaged for some weeks before term. Measure the pelvis and test the head to the brim, if necessary under anaesthesia. With a reasonable degree of care it is possible to divide cases into those that *will*, those that *won't*, and those that *may* come through. The first are normal, the second are for Caesarean section, and the third group should be as small as possible. Such a thing as a trial labour should not be allowed to occur outside a home or hospital, unless expert assistance is available. There is a place for induction of premature labour, but only in cases with minor degrees of contraction, occasionally in primiparae, and rarely in atypical forms of deformity.

* Read at a meeting of the Border Division, March 23rd, 1933.

Absence of ante-natal care may allow the toxaemia of pregnancy to produce the kidney of pregnancy and its major crisis, eclampsia. Regularity of the bowels, routine urine testing every fourteen days till the last weeks, when it is done weekly, and, most important of all, encouraging the patient to report any unusual symptom will modify this danger. Oedema is not, as commonly believed by the laity, due to pressure, but is really a manifestation of renal deficiency. Don't hesitate to starve an albuminuric patient. Fluids are essential, and food may be withheld for a week or more with impunity. Fruit juice and stewed fruit and sugar may be given after a period and before proteins are added to the diet. In actual practice the routine testing of urine specimens would be best dealt with by the nurse if it can be so arranged.

The utmost need for ante-natal care is in the case of primiparae, as their first pregnancy and labour is a trial of their pelvic girdles and their metabolism. Multiparae must be watched carefully also. Their kidneys may be damaged, their lax uteri may allow malpresentations. Four such, with previously normal histories, arrived at a hospital with ruptured uteri. They had malpresentations which had been corrected by version. Three of them died. The *malpresentations or the versions should* have been dealt with earlier.

LABOUR

The dramatic obstetrics which impressed us as students, the difficult versions, embryotomies, decapitations, and so on, were largely owing to the absence of organized ante-natal care. The contrast between a timely Caesarean section in a case of badly contracted pelvis and a similar case dealt with late in labour *per vias naturales* requires no comment.

A great error during labour is to withhold chloroform. The patient's cries are unnerving the household, the atmosphere is tense, the doctor may be urged to terminate labour. Delivery may be the worse possible treatment in such a case. The patient, a primipara, may be only half-way through the first stage of a perfectly normal labour. Put her and the family to sleep by administering chloroform to the patient. Do not forget to do this when called in by a midwife to a case which you have never seen before. Quieten the household, get the history, and make a careful abdominal examination ; then wash up and make a careful internal examination, and arrive at *your final decision after sizing up the general* condition of the mother and the child. Morphine may be given, and also bromides and chloral ; but morphine should not be given if delivery is likely to take place within four hours of the injection.

Failed forceps, when analysed, are divisible into those due to errors of omission and those due to errors of commission. The former are neglect of ante-natal care, and the latter are forceful attempts to anticipate natural processes or incorrect attempts to remedy the neglect of ante-natal care. Cases admitted to hospital with the os uteri one-third or one-half dilated are merely given time to complete the natural process. The injection of pituitary extract is open to criticism. Having known of it being given to primiparae, and even primiparae with badly contracted pelves, I believe that the following is fairly sound advice: never give pituitary extract until you are fully conversant with obstetrics, and never to a primipara. Reserve its use for multiparae with a fully dilated os, and a head well engaged or low down, when it is merely a question of pushing or gently pulling the head over the perineum. Always dilute the extract and inject it gradually under anaesthesia. Another common cause of failed forceps is failure to recognize that the baby's head in an occipito-posterior case is not yet in the antero-posterior of the outlet. It is not always easy to detect, especially if there is much of a caput. It is still more difficult if the patient is lying in the left lateral position. Great help is obtained by delivering these patients in the cross-bed position, using either Clover's crutch or the obstetric straps to obtain the lithotomy position. The exact relation of the head to the outlet is then easily detected by inserting the left hand in the vagina in order to palpate it thoroughly, or even to feel for the ears. Once the condition is recognized, rotate into the correct position and apply forceps, but if impossible to correct manually then correct with the forceps and reapply them, after correction, before extracting the head. Another error is to attempt extension of the head with the forceps before the occipital protuberance on the child's head has descended below the symphysis pubis: feel for it. In the third group of failed forceps are degrees of pelvic contraction. Gross cases are obvious by abdominal examination alone. Moderate cases require a careful examination under anaesthesia of the pelvic girdle and foetal head. Ask yourself what has already been done and what remains to be done. The only possible alternative at this stage, provided the child is alive, may be a Caesarean section or, occasionally, a version. Do not be misled by the small size of the os in bad cases of contracted pelvis into imagining that the patient is still in the first stage. The os may never dilate any further owing to non-descent of the head.

It is a mistake to allow tears to occur, to fail to repair those that do occur, and to admit that they have occurred. The vexed question of tears is so bound up in the public mind with neglect that it is useful to be frank with ourselves and admit that they do arise in a very large number of primiparae. Much can be prevented, much is inevitable. The really important point is to realize when a tear is likely to be inevitable, and to anticipate it by a timely episiotomy, which should be median in position. The indication for this is a tense ostium vaginae which has produced a secondary caput on the child's head, and where, with each pain, there is blanching of the vestibule. This may, if neglected, lead to two sequels: a bursting tear of the perineum, vagina, and labia, and such laceration of the sphincter urethrae as to result in laxity and incontinence of urine later. Failure to repair tears adds to the risk of puerperal sepsis, and possibly, later, of prolapse developing. As a gynaecologist as well as an obstetrician, and knowing how uniformly well properly repaired lacerations heal, I cannot but believe that, whether the blame rests with the profession or, more likely, with the midwives, there is simply no attempt to repair much vaginal trauma. One error might be excused—namely, failure to recognize that an intact perineal surface is associated with concealed lacerations. Always examine for them. Repair cannot, with rare exceptions, be accomplished by means of silkworm-gut sutures ; they produce an external appearance of approximation, but they rarely manage to produce actual anatomical apposition. In order to effect this catgut should be used, either buried or superficial. Repair the vaginal tube, repair the rectal tube and sphincter when necessary, bring the levators together between them, and finally repair the skin edges. Tell your nurses not to count the stitches or to admit tears. Tell them to admit bruising ; the patient and her husband will thoroughly understand, and their minds be peaceful. This is not duplicity, it is common sense. A " tear " sounds horrible, a " bruise " sounds reasonable. When the baby has arrived examine at once for tears. If trivial, repair at once with catgut ; but if severe, then wait until the placenta has arrived and do a proper and deliberate repair in the cross-bed position.

Another error is mismanagement of the third stage. The main danger is at night when time hangs heavy and one wants to " get it over." We are all human ; but

unless an anaesthetic has been administered, then it is useful to note the time of delivery and to allow at least fifteen to twenty minutes to elapse before worrying about the placenta. Leave the uterus alone, or at most feel it from time to time. It will not let you down. If an anaesthetic has been given, then the uterus *may* let you down, so it is best to massage it gently and note when the placenta has left. Should it be necessary to go in for the placenta, then always give an intrauterine douche afterwards. Failure to do this is asking for sepsis. Never allow a binder to be applied until at least one hour after delivery, and palpate the uterus from time to time.

PUERPERIUM

The first three days are probably the most important. Get the bowels open early. An enema is an adjuvant, not an essential. Opening medicine should be given in twenty-four hours' time or earlier. Always be on the look out for sepsis. Influenza; pneumonia, debility, yellow atrophy of the liver, and breasts are often provided as an explanation for a sequence of events which are in reality due to septic processes. The headaches, shivers, malaise, and temperatures of a septic process are often attributed to influenza if it is prevalent. Chest conditions of septic origin are often manifest within three days of delivery, and to the inexpert might be believed to be of accidental origin. Rapidity of pulse, with practically no other symptom than increasing weakness, can be due to hyperacute sepsis, but may be attributed to shock or haemorrhage. Jaundice, with only moderate pyrexia, or even in the absence of pyrexia, can be due to a hyperacute haemolytic streptococcal infection and not to hepatic derangement. Septic temperatures and engorgement of the breasts are common on the third day. Always be on your guard about sepsis; always suspect it; and always look at the perineum and lochial discharges. Never give a vaginal douche without clear proof of vaginal sepsis. In the vast majority of cases it is merely perineal sepsis; therefore arrange for local swabbing with peroxide, 20 volumes, three times a day, followed by a jug douche of boric or weak lysol; and this is all that is needed. If there is vaginal infection apply similar treatment to the vagina. Very occasionally the uterus is to blame, but only rarely in the first instance. The difficulty of adequate nursing in outlying areas is obvious. The fact remains that such may be essential.

Three errors remain to be dealt with, although there are many others. Lysol, or any other such substance, is quite useful as an inhibitor of bacterial activity. It does not, except in its pure state, act as a reliable antiseptic. The only reliable antiseptic is a preparation of mercury, such as the perchloride (1 in 1,000) or the biniodide (1 in 1,000). Swabs, hands, and individuals passing from case to case can never be efficiently disinfected if they depend on lysol. With rare exceptions, never examine a patient when she comes to book you. She is nervous and self-conscious, especially if she is a primipara. Internal examinations are a rarity under modern conditions of ante-natal care. Do not tell a woman that she must never have another baby unless such an edict is based on the soundest medical, surgical, or obstetrical grounds. Such advice—in cases met with—has rarely been justified. The patient fears falling pregnant, and is panicked if she does. If such advice is given, whether justified or not, it is strangely out of place that no further advice follows. Finally, we must realize that the very essence and ethics of our existence are based upon the conservation of life itself. Therefore, safeguard the mothers with ante-natal care. Remember, when you are called in to see a case, the importance of time, sedatives, and careful decisions in labour, and always be on the look out for sepsis during the puerperium.

PANCREATIC LITHIASIS

BY

S. N. SENNETT, M.B., B.S.LOND., M.D.BERL.

CAPETOWN

Pancreatic lithiasis is a rare condition; the symptomatology is bewildering and the diagnosis beset with many difficulties. A review of the history and symptomatology may therefore prove interesting inasmuch as it may enable a diagnosis to be made more frequently in the living. Although pancreatic lithiasis was first observed by Regnerus de Graaf in 1664, its great rarity is such that nearly two and a half centuries later (in 1903) Lazarus was able to collect only eighty such cases described in the literature. In most of the cases the calculi were found at necropsy; in some the diagnosis was made of chronic pancreatitis of probable calculous origin, and in several instances the diagnosis was only made at operation (Lindsay, Link, Seeger, Hartman, etc.). In recent years, however, with the aid of roentgenology, a few more cases have been described, so that the condition is not quite so rare as had been supposed. Out of 11,000 necropsies at Guy's Hospital there were three cases only, and Opie in 1910 found two among 1,500 necropsies at the Johns Hopkins Hospital, all in elderly men. Rindfleisch, in 2,000 necropsies at Königsberger Medical Clinic, found only three cases. In the Mayo Clinic, where at every laparotomy of the upper abdomen the pancreas is palpated, eight cases have been discovered in fifteen years. Pancreatic calculi occur more frequently in men than in women: this is also consistent with the observation that chronic pancreatic disease is much more frequent in males than in females. Among the fifty-seven cases collected by Lazarus, forty-seven were in men and ten in women, and of these, thirty-seven were between the ages of 30 and 50 years.

The number of calculi varies greatly: usually five to ten are present; in rare instances there is a solitary calculus, but as many as 300 have been found (Lancereaux). A characteristic of multiple pancreatic calculi is that they are usually not faceted (unlike gall-stones). They vary in size from mere sand to masses the size of a walnut, and may be smooth or rough, soft or hard, and white, brown, or yellow. They consist chiefly of calcium carbonate or calcium phosphate, or even occasionally of calcium oxalate, which is somewhat surprising, as the pancreatic juice does not contain these salts, and is strongly suggestive of an inflammatory aetiology. This fact is, however, of great importance, as it is the lime salts which make the stones opaque to *x* rays. Rarely they consist of organic substance, and occasionally of lime salts, together with organic protein debris. It is of interest to note that pancreatic calculi have also been repeatedly found in animals, particularly in cattle.

Calculi probably never form in a healthy pancreas. All the evidence points to primary inflammatory changes in the ducts and in the parenchyma of the gland, with occlusion of the ducts (stasis) or invasion by bacteria as a secondary factor. Giudiceandrea demonstrated the colon bacillus with numerous long bacilli in pancreatic calculi, while in a second case he found numerous cocci and bacilli in the centre of a stone. On the other hand, Lindsay could not discover any bacteria in his calculi.

SYMPTOMS

Pancreatic lithiasis may be unaccompanied by noteworthy local symptoms indicating disease of the organ. Lazarus gave an account of such a case, in which death occurred with diabetes and pulmonary tuberculosis. At necropsy the pancreas was found to be converted into a

fibrous sac, and, notwithstanding the fact that the duct contained numerous jagged concretions, there had been no pain. In another instance (Wolf and Tietze) a man, 45 years old, who had never had any colic—in fact, no real pain at all—complained of an insatiable hunger and the passage of bulky stools. On *x*-ray investigation he was shown to have pancreatic calculi. Nevertheless, the most important and frequent symptom is pain. It is usually epigastric, and may be dull and continued, or intermittent, occurring in colic-like attacks, similar to those of gall-stones. In the case I described, a man, aged 37, complained for some four months of pain in the epigastrium, which radiated to both sides of the abdomen. The pain was dull and practically continuous, and was worse soon after food: it gradually became more severe, so that he was afraid to eat. He had no attacks of colic. Attacks of colicky pain have been characteristic of many of the cases reported (Lacoutre and Charbonnel, Einhorn, Pitt). Sometimes it is agonizing in character, and may be associated with vomiting, hiccup, tachycardia, cold sweat, and collapse. Chills and fever may at times occur. Severe attacks of colic-like pain may accompany the passage of calculi. In a case of Leichtenstern's, symptoms of biliary colic without jaundice were followed by the passage in the faeces of three concretions, the largest the size of a pea and composed of calcium carbonate without traces of bile pigments or cholesterol. In some cases pain has been localized in the epigastrium and under the left costal margin in the nipple line and radiating to the left side of the spine or the left shoulder-blade, or there may be, as Seeger has stressed, a left lumbar radiation. It is interesting to note that many of the cases recorded within recent years have had no typical colic attacks, but more of a dull continuous pain in the epigastrium, made worse some ten minutes after food (Sennett, Link, Orth, etc.), or simply a feeling of pressure in the upper abdomen (Meyer). Although the attacks of pain associated with the passage of pancreatic calculi are often accompanied by vomiting, which may be quite severe, in some cases there were attacks of colicky pain but no vomiting. Lindsay's patient had abdominal pain about half an hour after food, beginning as an ache in the region between the gall-bladder and the umbilicus, culminating in paroxysms of severe pain, doubling him up, and radiating to the left. The paroxysms were accompanied by nausea, but he never vomited. In my case there had also been no vomiting.

The passage of a pancreatic calculus through the diverticulum of Vater may cause temporary jaundice. A patient of Leichtenstern's suffered for two years attacks of a severe abdominal pain and vomiting, and on one occasion jaundice; at operation no gall-stones were found, and necropsy revealed numerous pancreatic calculi. In my patient there was no jaundice until shortly before death. In several instances a diagnosis of pancreatic lithiasis has been made during life from the passage in the faeces of calculi composed of calcium carbonate or phosphate, and free from bile: Leichtenstern made his diagnosis in this way. In a case of Minnich's, soft, friable concretions, as large as a cherry pip and containing carbonate and phosphate of calcium, were found for twelve days after an attack of colic.

Glycosuria has been a symptom of pancreatic lithiasis in a large proportion of the recorded cases. Lancereaux reports twelve cases in his series of forty; Lazarus, thirty-six in his series of eighty. Pancreatic lithiasis may exist for years without diabetes, and in the case described by Caparelli glycosuria appeared six years after the first attack of colic. Since glycosuria is not the result of occlusion of the pancreatic ducts, but of consequent chronic interlobular inflammation, diabetes results only after the lesion has become far advanced and has injured the islets of Langerhans (Atkinson and Hirsch). In Lindsay's second case the destruction of the pancreas was advanced and the pancreatic juice did not digest protein and fat at all, and starch only slowly. The urine contained sugar and acetone bodies in small amount. In his first case there was no glycosuria, and the pancreatic fluid showed rapid starch and slow protein and fat digestion. In Link's case there was also no glycosuria, and at operation, when he removed the calculi, he could demonstrate that there was little damage to the gland substance, although some chronic interstitial pancreatitis, chiefly of the interlobular type, was present. My patient also had no glycosuria at the time he was examined.

Changes in the stools due to disturbance of the pancreatic function are occasionally noted, but are not common. Fatty stools (steatorrhoea) were present in ten of the cases collected by Lazarus. Azotorrhoea, shown by the presence of undigested muscle fibres in the faeces, is even less common than fatty stools, and in only one of the eight instances in which this accompanied well-authenticated pancreatic disease was the pancreatic lesion caused by calculi. In my case the stools examined were certainly not "pancreatic fat stools," and showed no steatorrhoea or azotorrhoea. The loss of weight in association with pancreatic lithiasis in the absence of diabetes or disturbances of digestion is probably referable, in part at least, to inflammatory changes or other complications of the disease.

DIAGNOSIS

Although Friedrich stated that it was impossible to diagnose pancreatic lithiasis, there are now several cases on record in which the diagnosis has been made during life. The reason that diagnosis causes such great difficulty is, as Moynihan points out, because the recorded cases are so few as to leave the symptomatology indefinite. As, however, cases of pancreatic calculi have been diagnosed, one has to reckon with the possibility of such diagnosis, even if it is rare. In 1906 Zesas collected in the literature seventy cases of pancreatic calculi, of which only seven had been diagnosed during life. Since then other cases have been reported, especially during the past few years, in which the diagnosis has been made by radiology.

In cases of colic, particularly in those which make one think of possible pancreatic affections, the stools should be carefully examined for concretions, especially for the sandy formations which readily pass through the sieve, as larger concretions are frequently absent. In fact the diagnosis has been repeatedly made from these stone formations (Minnich, Glaessner, Leichtenstern, and others). No conclusion can be drawn from the chemical examination of organic stones, but from the much more common inorganic calculi—notably those chiefly consisting of calcium carbonate—and from the absence of faceting the diagnosis becomes very probable, although it is still possible for such concretions to have formed in the bowel.

Within recent years several cases of pancreatic calculi have been diagnosed by means of radiography (Meyer, Lindsay, Jacquelin and Quénu, Morrison and Bogen, Zukschwerdt, Gross, Wolf and Tietze, Haudek, Friedrich and Hoesch, Orth, Ohnell, Sennett), and in some instances it has been possible to confirm the diagnosis at either operation or necropsy. To demonstrate the fact that pancreatic calculi show up on a skiagram, Assman *x*-rayed a cadaver in which a pancreatic tumour was found containing calculi in the ducts, and obtained quite definite shadows in the photograph. In a case of Pforringer's a diagnosis of renal calculus was made in a patient who had suffered for some time from severe, sudden, colicky pains, which were getting more frequent, were localized in the right side of the abdomen, and were associated with vomiting. There was no jaundice. On

x-ray examination an intense shadow the size of a cherry was seen in the right renal region, although lying somewhat nearer the vertebral column than usual. The patient was operated on, but died from a post-operative haemorrhage. Post mortem a roundish concretion, which coincided both in size and in shape with the shadow seen in the skiagram, was found in the pancreatic duct. In the case of Ackman and Ross's, shadows were noted at the level of the first and second lumbar vertebrae. These were thought to be calcified glands, but on post-mortem examination were identified as pancreatic calculi. In Lacoutre and Charbonnel's case and in one of Hartman's cases, after pancreatic calculi had been removed at operation, the post-operative *x*-ray examination revealed stones which had been overlooked. On the other hand, Glaessner has shown that in a case in which he had diagnosed pancreatic calculi because of the finding of concretions in the faeces and the suggestive typical clinical course of the case, the *x*-ray diagnosis was negative, in spite of the fact that the calculi consisted mainly of calcium carbonate. Also, in Hartig's case the *x*-ray findings were negative, but stones were found at operation. Moreover, the interpretation of shadows found in the upper abdomen is often difficult, so that before making a diagnosis of pancreatic calculi it is necessary to exclude the possibility of the shadows originating in the kidney, gall-bladder, or calcified lymph glands. If there is any suspicion of pancreatic calculi the *x*-ray examination and the searching for and the chemical examination of any concretions in the stool are of prime importance in diagnosis.

In addition, any possible disease of the pancreas should be carefully investigated. The clinical course of the case should be watched, especially as regards colicky pains, jaundice, composition and appearance of the stools, examination of the urine, salivation, etc. If the question of a renal calculus should arise it should be excluded by cystoscopy and ureteral catheterization. If cholelithiasis has been diagnosed and the patient operated upon the pancreas should be examined, particularly if gall-stones are not found, although even in the presence of gall-stones the pancreas should be carefully palpated if there is any suspicion of pancreatic disease.

TREATMENT

Statements concerning the treatment of pancreatic lithiasis are necessarily vague, since few cases have been recognized during life. Glaessner, however, claims to have cured his two patients by medical means—namely, a ten-days' course of olive oil followed by a course of Carlsbad salts, since when his patients have kept perfectly well. The efficacy of this form of treatment is, however, open to grave doubts. In most cases surgery seems the best hope, and cases of operative removal of the calculi have been not infrequently recorded in the literature (twenty-six in all, according to Seeger), and in most cases with excellent results. It must be noted that, even at operation, stones may be missed owing to the extensive fibrosis making palpation of the pancreas difficult. Rink and Sistrunk have called attention to a peculiar crepitus that often exists when there are multiple stones.

CONCLUSIONS

1. The symptoms of many of the cases described are diverse. Pancreatic lithiasis may be unaccompanied by noticeable local symptoms indicating disease of the organ, and, on the other hand, very definite symptoms may show that the pancreas is diseased.

2. In many of the cases recently diagnosed by radiology the absence of colic is a noteworthy feature. In the earlier cases, which were mostly diagnosed by the passage of inorganic calculi following attacks of colic resembling biliary colic, these attacks were stressed as a feature in its symptomatology.

3. Radiology, especially if carried out in conjunction with the other methods of investigation outlined above, offers the best means of diagnosing an undoubtedly very rare condition.

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ACUTE PSOAS ABSCESS

BY

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STAFFORD

The great majority of psoas abscesses are chronic in nature, and usually secondary to a tuberculous focus in the vertebral column or pelvic bones. A certain number, however, are more acute. The fact that the correct diagnosis is seldom made in these cases seems to be due mainly to the possible existence of the condition not being realized ; for the clinical signs are constant and characteristic. Although the older textbooks, such as Erichsen's *Surgery*, contain a fairly comprehensive list of the possible sites of origin of psoas abscesses other than the spine, and the signs which may be of help in their differential diagnosis, most of the modern textbooks give the impression that the condition is practically always associated with spinal disease. Some of them do not even mention any other cause, while others briefly refer to the possibility of the abscess being secondary to lesions such as suppurative appendicitis, perinephritis, or sacro-iliac disease. The references in the literature are scanty, but there are indications that this is due more to the condition being overlooked than to its rarity.

Baer, Bennett, and Nachlas[1] discuss forty-two non-tuberculous psoas abscesses seen at an orthopaedic department. Of these, twenty-four were seen in four years. They state that the cases were incorrectly diagnosed by good clinicians and sent to an orthopaedic surgeon, because it is generally believed that such abscesses must be due to disease of the spinal column or the skeletal portion of the pelvis. A summary of the possible primary lesions is given, and special attention is drawn to those abscesses following suppuration in the retroperitoneal lymph nodes, but there is no indication of the number which were thought to have arisen in this way. Behrman[2] describes four cases seen at a children's hospital during one year. Of these, two were operated on for acute appendicitis ; one was diagnosed as acute arthritis of the hip and the other as Pott's disease. He suggests that the abscesses might be secondary to lower pole perinephric suppuration, since the arrangement inferiorly of Gerota's fascia readily permits spread of an infective process downwards. He quotes Israel[3] and Wolkow and Delitzen[4] in support of this view, admitting, however, that the only positive evidence was the presence of a raised cellular count in the urine of three of his cases. One case of staphylococcal psoas abscess is reported by Rocher and Malaplate.[5] A thorough examination of this patient disclosed no primary infective focus, and although there is no mention of a blood culture having been done, these writers appear satisfied that the condition arose in the course of a staphylococcal septicaemia. They mention that before operation it was undecided whether the abscess was primary or due to spread from a perinephric focus, but no evidence of the latter was found during the exploration. Damm[6] also described a case of acute psoas abscess in which the origin could not be traced from the vertebral column or sacro-iliac joint. The author did not consider that it was of a tuberculous nature, but the actual bacteriological cause does not seem to have been established.

CASE RECORDS

The following three cases were seen by myself during the course of one year, and in each case the abscess appeared to be definitely pyaemic in type.

CASE I

F. Q., female, aged 1 year 3 months. Admitted to hospital on February 4th, 1932. The child was very ill. A superficial abscess was found over the upper part of the back. This was drained, and a haemolytic streptococcus was cultured from the pus. On February 12th the left hip was found to be in fixed flexion of about 75 degrees ; other movements were normal. A radiogram of the spine, pelvis, and hip showed no bony abnormality. A left psoas abscess was opened and drained through an inguinal incision on February 15th. Haemolytic streptococci were cultured from the pus. A few days later a superficial abscess developed over the left pectoral muscle, and a similar organism was recovered from the pus. The abscesses cleared up satisfactorily after drainage, but the child continued very ill with a typical septicaemic temperature, which only gradually subsided after about four weeks. The hip remained flexed, and a radiogram taken on March 17th showed a separation of the upper epiphysis of the left femur. There were no signs of an acute infection of the joint. The limb was put up in a plaster-of-Paris splint, and a satisfactory position was obtained. The patient then developed measles, but made a good recovery.

CASE II

S. C., female, aged 11 years. Admitted February 11th, 1932. Febrile attack five weeks before, followed by stiffness and pain in the right hip. State on admission: temperature 101.4°, pulse 108, pale and ill. Right hip held flexed nearly to a right angle ; other movements at the hip were normal. Blood count: 20,000 white blood cells, 80 per cent. polymorphs. Urine contained a trace of albumin ; there were no other abnormal constituents. A radiogram of the spine, pelvis, and hip-joint showed no bony change. On February 18th a right psoas abscess was drained through an inguinal incision. *S. aureus* was cultured from the pus. Discharged on March 3rd. General condition very good. Hip straight.

CASE III

B. B., male, aged 62 years. Admitted February 12th, 1933. No previous illness of importance. Indefinite onset of pain in the right groin two weeks before, which had become steadily worse. For the last few days the patient had been unable to straighten his right hip. A swelling had been noticed in the right groin for three to four days. State on admission: general condition fairly good ; temperature 99°, pulse 100. Fixed flexion of the right hip to about 40 degrees. Other movements of the hip were normal. A rather hard mass could be felt in the right iliac fossa running down almost to Poupart's ligament. No definite fluctuation was obtained, and the mass was at first thought to be enlarged glands. Nothing abnormal was found in the rectum or on examination of the spinal column. A radiogram of the spine, pelvis, and hip showed no bony abnormality. On February 18th fluctuation was obtained in the swelling in the right side, and a right psoas abscess was opened through an inguinal incision after aspiration with a needle. *B. pfeiffer* in pure culture was recovered from the pus. Discharged on March 4th with no symptoms. Flexion deformity of the hip quite cleared up.

Note by Dr. J. Menton

"The isolation of *B. influenzae* from the pus of this psoas abscess is interesting, especially in view of the fact that your patient does not give a history of recent influenza. I have encountered instances where the same organism appears to have caused meningitis, and in several of these cases the meningitis seemed to be the outstanding lesion, and no evidence of general infection was forthcoming. I am stressing these points in view of the present controversy on the role of this organism in the cause of disease."

DIAGNOSIS

The correct diagnosis of an acute or subacute psoas abscess should be fairly simple if the possibility of the condition is borne in mind. As a rule the patient has been ill for at least some days before the abscess appears, and complains of pain on the affected side running down into the groin or leg. This pain may be neuralgic in character and due to involvement of the lumbar nerves running in intimate relation to the muscle. The outstanding clinical sign is fixed flexion of the hip, and the degree of flexion is considerably greater than is likely to be found with simple spasm of the psoas from the irritation of a neighbouring inflammatory lesion, such as an acute appendicitis. Occasionally this sign may be present with an acute inflammation of the muscle without abscess formation, as in the case described by Nicolas, Lebeuf, and Charpy.[7] In addition to the amount of flexion found in these cases, the deformity will usually persist even under full general anaesthesia. The fixed flexion of the

hip, and pain on attempted extension, not infrequently leads to a diagnosis of acute arthritis, but thorough examination of the hip will show freedom of all other movements if the flexion of the joint is respected. Where the condition is not too acute for the patient to walk, a limp is always complained of, and there is considerable apparent deformity in the standing position. This, however, readily disappears when sitting, although a slight scoliosis may persist. There is no tenderness on percussion over the vertebrae, and no spasm of the erector spinae muscles, but occasionally deep tenderness may be elicited in the lumbar triangle.

Examination of the abdomen reveals some muscular rigidity on the corresponding side, and an underlying tumour may be felt. If the upper part of the psoas sheath is involved the thickening and tenderness found on bimanual palpation of the loin are strongly suggestive of a perinephric abscess. The acute abscess tracks outwards into the sheath of the iliacus, and, unlike the chronic one, seldom passes deep to Poupart's ligament into the thigh. A radiogram of the spine and pelvis will be negative, but it is said that there may be haziness of the sacro-iliac or hip-joints if the abscess overlies them, and this may be sufficient to cause a suspicion of early involvement of these joints.[1]

TREATMENT

Treatment consists, in the first instance, of aspiration of the abscess, and—if the pathological examination confirms the diagnosis by demonstrating pyogenic organisms in the pus—adequate drainage. The usual incision is one made parallel, and slightly internal to, the anterior third of the crest of the ilium, cutting through the muscles and opening the abscess behind the peritoneum. If the case is one of pyaemia, the best results are often obtained, as in other pyaemic abscesses, by withholding drainage until a definite abscess has formed. The subsidence of the local condition is usually satisfactory and rapid. A light extension may be applied to the thigh to overcome the flexion at the hip; this is especially indicated in children, in whom a pathological dislocation may readily occur, a complication which is extremely easily overlooked.

SUMMARY

The true origin of the acute psoas abscess may be difficult to decide, and although most of them are said to be secondary to a perinephric abscess or to suppuration in the iliac glands—diagnoses which are difficult to disprove—yet there can be little doubt that a certain number are pyaemic abscesses commencing within the muscle sheath. In favour of this supposition are: the antecedent illness so often present; the not infrequent occurrence of other pyaemic abscesses; the rapid subsidence of the local condition, so characteristic of the pyaemic abscess; and the lack of evidence of perinephric suppuration.

In one of the reported cases[5] the perinephric tissue was explored by the lumbar route, and it was not until the psoas sheath was opened that pus was found.

The three cases described in this paper are almost certainly pyaemic in origin, the abscesses being limited to the muscle sheath, no communication with surrounding structures being found.

I wish to express my gratitude to Mr. C. M. Page for permission to publish the first two cases, which were under his care at St. Thomas's Hospital, and to Dr. J. Menton for his advice and help.

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RECURRENT VOLVULUS OF THE PELVIC COLON

BY

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(With Special Plate)

It is perhaps justifiable to state that recurrent volvulus of the pelvic colon has not yet attracted a great deal of attention. Although its existence as a clinical entity has long been recognized, it seems likely that a considerable number of cases escape notice. The clinical features are inconstant, confusing, and evanescent, and, in addition, are often overshadowed by those of some intercurrent lesion. Also, it is not perhaps too much to say that recurrent sigmoid volvulus does not immediately occur to the investigator as a probable cause of obscure abdominal symptoms. Such cases are not invariably subjected to radiological investigation, and even when this is carried out the methods adopted are not always those best suited for the display of colonic anomalies. In our experience, however, recurrent sigmoid volvulus is not an extraordinary rarity, and it is our belief that, apart from the danger of fatal strangulation, it is responsible for a considerable amount of avoidable disability. The diagnosis in such cases can be of great difficulty; the clinical picture can easily be confounded with that of abdominal neurosis, colitis, or some pelvic trouble in women; and the differentiation from such conditions can only be effected by a close study of the clinical history, supplemented by a radiological investigation along modern lines.

LITERATURE

The standard textbooks of surgical and radiological diagnosis give adequate descriptions of the signs to be observed when the acute abdominal emergency has arisen. They are, however, unsatisfactory guides to the recognition of the recurrent type of sigmoid volvulus. Reference to the works of such authorities as Miles and Paterson Brown, Schinz, Baensch and Fnedl, Albrecht, Kantor, Cawadias and Rankin, Bargen and Buie, shows that the special syndrome presented by this condition is either ignored completely or dismissed as a rarity of small practical importance. Edgren studied the previous clinical history in acute volvulus, obtaining prodromal signs in a large number; these might be either attacks of abdominal distension or simply obstinate constipation. The hereditary factors were emphasized by Greiffenhagen, and by Plaut, who attended both a father and a son with sigmoid volvulus. Lockhart-Mummery also described the two types of chronic volvulus, one with attacks of pain and distension, the other with attacks of obstinate constipation and discomfort. Radiograms illustrating potential volvulus were published by Jordan. The chronic obstruction due to incomplete volvulus has been described by Zachary Cope and by Braun. A helpful account of the syndrome of recurrent volvulus is given by Hamilton Bailey, who notes, besides the previous constipation and pain, the diarrhoea and passage of flatus following spontaneous reduction. Berg records a case of recurrent volvulus occurring in a megasigmoid in a young woman, with attacks of pain and distension in the left iliac fossa—the radiogram showed actual torsion of the mucous folds of the colon. Retzlaff has noted cases of this condition with attacks of pain and distension and obstinate constipation. The most important contribution to the study of sigmoid volvulus was made by Laurell, who described two cases, showing pain and watery blood-stained diarrhoea without local distension (von Wahl's syndrome). His article contains a full discussion of the pathology and symptomatology of sigmoid

volvulus, with an interesting account of the radiological signs. Adamson and Aird have shown, by section of the presacral nerves, that the condition of megasigmoid is due to over-action of the sympathetic system.

ANATOMY AND PATHOLOGY

The pelvic colon is that part of the great gut lying between the brim of the true pelvis and the third piece of the sacrum: it generally conforms to one of three types: (1) The first and commonest type is that in which the pelvic colon lies at first in contact with the left pelvic wall; it then runs across to the right side of the pelvis, and bends back towards the middle line, where it turns down to join the rectum at the third piece of the sacrum. (2) In the second type it is longer. It passes over to the right as before, and then crosses over to the left pelvic wall, thus making an S-curve before joining the rectum at the usual level. (3) In the third type it is abnormally short and may be devoid of mesentery.

The mesentery of the pelvic colon is a fan-shaped fold, attached to the posterior abdominal wall. Its arrangement gives the pelvic colon a narrow pedicle, which can be further narrowed by fibrotic contraction due to chronic inflammation. The pelvic colon has only one function, which is to act as a storehouse for faecal matter: it has practically no absorptive functions, and its secretory powers are probably limited to the production of mucus for lubrication.

Excessive length of the pelvic colon may be regarded under three heads:

(1) *Persistence of a Foetal Type.*—Congenital elongation of the pelvic colon, apparently due to arrested development, occurs as a sporadic variation and is hereditary. It may take the form of an inverted U, lying in the right side of the abdomen. As the limbs of this U are closely approximated, an axis of rotation is present from birth. Sir Arthur Keith has informed us that this type corresponds in many respects to the normal foetal condition. The enormous elongation of the sigmoid colon, in which this part of the bowel may exceed the rest of the colon in length and may wander into any part of the abdomen, has been described by Kienböck as the "sigma elongatum mobile," and by Lardennois and Aubourg as "dolichocoly."

(2) *The Megasigmoid.*—This condition, associated with gross dilatation of the lumen, may occur by itself or in conjunction with the general colonic changes of Hirschsprung's disease. It does not seem to be in itself a definitely predisposing factor for volvulus. It appears to be due to a neuro-muscular imbalance between the sympathetic and parasympathetic systems.

(3) *The Acquired Type.*—This is an elongation of the pelvic colon due to an adaptation to dietetic habits. The redundant pelvic colon found in Russia and the Baltic States has long been familiar to Russian and German surgeons, and is responsible for the extraordinary frequency of sigmoid volvulus as an acute abdominal emergency in eastern Europe—some Russian hospitals showing it as forming 30 per cent. of all cases of acute intestinal obstruction. It is not a racial characteristic, as it is common among Russian Jews as well as among Slavs, while it is rare among Jews elsewhere. It is attributed to the coarse vegetable diet, rich in indigestible cellulose, which would make greater demands on the pelvic colon as a faecal storehouse.

Volvulus of the pelvic colon consists in a torsion of the gut, either on its mesenteric axis or on its own long axis. These two forms of torsion may coexist. Torsion to the extent of a half-circle may occur without any interference with normal function. More complicated types of volvulus are sometimes encountered. The factors underlying the genesis of a volvulus are primary, secondary, and tertiary, or directly exciting. The primary factor is the abnormal length of the pelvic colon. The secondary factors are: (1) elongation of the pelvic mesocolon, (2) narrowing of the base of attachment of the pelvic mesocolon to the sacrum, and (3) the formation of an axis of rotation by adhesions or by close approximation of the entrance and exit loops of a coil of bowel.

For the actual crisis to arise the directly exciting cause is most often a physical strain, but violent peristalsis from the abuse of purgatives and other causes may also play a part. It appears reasonable to regard sigmoid volvulus as essentially a dormant condition, subject to sudden crises, which latter may assume either a major or a minor form. Clinical attention has been chiefly focused on the major type of crisis, in which the degree and duration of the torsion are sufficient to interfere seriously with the function and circulation of the bowel. Such a case is characterized by enormous abdominal distension and absolute obstruction, while pressure on the veins leads to congestion, and eventually gangrene, with resulting peritonitis. The minor type of volvular crisis is, in our opinion, very much more frequently encountered than the major type, though it is more difficult to diagnose, as the patient is nearly always seen during a latent period. No physical signs are present at this time, so that the clinician is dependent on the history, which may be extremely difficult to elucidate. Also, the clinical history may be variable in accordance with the special features of the case.

VARIETIES AND INCIDENCE OF VOLVULUS

The clinical types of recurrent sigmoid volvulus can hardly yet be defined, but certain features appear with sufficient frequency to suggest a provisional classification.

1. The first type of case shows severe and continuous constipation, perhaps with some discomfort or aching in the back or abdomen. Some are chronic and do not show anything in the way of a crisis, in others a minor crisis occurs periodically, in which the symptoms are accentuated. Constant or recurrent constipation may occur in any type of volvulus.

2. The second group of cases may either have some constipation during the latent period or may be free from symptoms during this time. These patients are subject to recurrent attacks of torsion, causing severe spasmodic pain and local distension of the bowel, but the torsion is not sufficient to occlude the veins.

3. In the third group, which is really only a severer form of the second, the torsion during a crisis is more marked and causes interference with the venous return. Such cases have recurrent attacks of severe pain with local distension and watery or blood-stained diarrhoea. The venous congestion induced by the twist causes a transudation into the bowel lumen, which is stored in the affected loop until it is set free by spontaneous reduction, when it appears as diarrhoea, watery or blood-stained according to the degree of torsion. The occurrence of the diarrhoea *after*, rather than during, the attack of pain is thus a point of diagnostic importance. The pain is very severe and may cause fainting. The cases showing von Wahl's syndrome of pain and diarrhoea without distension belong really to this group; the absence of distension is more apparent than real, as the affected loop may be incarcerated in the pelvis and so give little evidence as to its condition. The loss of fluid caused by the diarrhoea accounts for the extreme emaciation shown by patients in whom the attacks are severe and frequent.

The usual figures give a proportion of 4 males to 1 female as sufferers from the acute abdominal emergency,

or major crisis of sigmoid volvulus. It will be seen that in our own series there is a slight female preponderance. We do not attempt to draw any far-reaching conclusions from such a short series, but this finding is at least suggestive of the idea that the predisposing factors are fairly equally distributed between the two sexes, and that it may be the more energetic life led by the average adult male that renders him more liable to the major crisis.

RADIOLOGICAL INVESTIGATION

Fischer was the first to evolve a satisfactory technique for the examination of the air-and-barium-filled colon, which has been well described by Fleischner as the transformation of the colon into a translucent tube. From another angle the researches carried out on the digestive relief pattern by Forssell, Berg, Chaoul, Albrecht, and many others led finally to the work of Knothe, who has elaborated the methods of demonstration of the colonic relief. These methods have recently been ably summarized by O'Sullivan and Kadrnka.

Our own technique is based on those of the workers already mentioned, and generally comprises three stages:

1. The filling of the colon with a watery solution of barium containing tragacanth, and the study of the colonic contours.

2. The evacuation of the barium and the study of the colonic mucous membrane in sections, with the aid of graduated compression.

3. Fractional inflation of the colon with air to obtain a clear view of the anatomical relationships of the colon.

The radiological signs may be direct or indirect. Direct signs can naturally only be seen when the bowel is actually undergoing a crisis, or when the anatomical features keep it perpetually on the verge of one. Two direct signs have been observed by us: (1) actual screwlike torsion of the mucous folds of the colonic relief. (We have only observed this sign twice; it is seen in Case 2. As far as we are aware this sign has been previously described only by Berg. Manifestly it can only be due to torsion of the bowel on its long axis.) (2) The coils of bowel may be seen twining over one another as in Case 3. Indirect signs are afforded by a study of the anatomical features of the colon, which may result in the discovery of a loop of bowel with fixed and approximated limbs, or some other cause for a potential axis of rotation. It must be remembered that we are dealing with a dynamic and not a static condition, and that to arrive at a diagnosis an effort must be made to understand the potentialities as well as the actual anatomical facts. Naturally, the accidental discovery of a potential volvulus in a patient who has never had any symptoms attributable to it is of no significance, but when the clinical history is suggestive of volvular attacks, such a finding becomes of great importance.

A short account of some illustrative cases is given below.

CASE RECORDS

Case 1.—Jane D., aged 18. History: constipation in infancy, recurrent attacks of pain in left iliac fossa since age of 3, also attacks of severe constipation, fainting attacks at stool, and a visible swelling in left iliac fossa. The attacks of pain and distension are getting more severe, they are frequently brought on by physical strain, and the distension is described as a sausage-shaped swelling in the left iliac fossa, the appearance and disappearance of which was sudden. A barium enema (see radiogram, Fig. 1 on Special Plate) showed a redundant pelvic colon with a loop fixed at its two extremities, forming a suitable axis of rotation for a volvulus. A diagnosis of recurrent sigmoid volvulus was made. A preliminary caecostomy was performed, with a view to excision of the loop. This was badly borne, and the second operation was abandoned. The attacks of pain and distension continued, and six months later the excision of the redundant loop was carried out and end-to-end anastomosis performed. Since this the patient has been free from symptoms, and the most recent report states that she has gained over twenty pounds in weight, and is able for the first time in her life to lead an active open-air existence.

Case 2.—Katherine F., aged 26, a trained nurse. For about a year had suffered from periodical attacks of severe abdominal pain with distension. Attacks were brought on by physical strain, and on account of them she had had to give up the practice of her profession. Much loss of weight and some vomiting. Tenderness in both iliac fossae. Severe constipation. Barium enema (Fig. 2, Special Plate) showed a long sigmoid colon of the second type, with torsion of the mucous folds higher up. Recurrent sigmoid volvulus was diagnosed. The redundant sigmoid was excised and end-to-end anastomosis performed; the appendix was also removed. Her most recent report states that she has been free from symptoms since the operation (ten months), that she has been back at full work for several months, is feeling perfectly well, and has gained weight.

Case 3.—Charles P., aged 19, complained of aching pains about the umbilicus since he was 14. Recurrent attacks of pain set in about a year ago, and were always followed by copious watery diarrhoea. An inflamed appendix was removed nine months ago. Six months ago the attacks began to increase in frequency and severity, and were now accompanied by distension as well as by the diarrhoea. A particularly severe attack led to his admission to hospital. A barium enema (Fig. 3, Special Plate) shows an enormous loop of pelvic colon on the right side, and the actual twining over of the coils to form a volvulus. The diagnosis of recurrent volvulus occurring in a congenitally elongated pelvic colon was made. The redundant loop was excised and lateral anastomosis performed. There has been no return of symptoms during the five months following this operation.

Case 4.—Leonard E., aged 3½, was admitted with an eight-day history of severe constipation and intermittent pain in right and central abdomen. On examination he was seriously ill, with much abdominal distension. The symptoms subsided and the barium enema (Fig. 4, Special Plate) showed a large redundant loop of pelvic colon running up into the right abdomen. This was considered a potential volvulus of the same type as Case 3, and the opinion was formed that he had passed through a minor crisis of torsion. He presented other stigmata of degeneration, and his intelligence seemed subnormal. It was not considered advisable to intervene, but a very guarded prognosis was given. Since then he has again been admitted to hospital with a similar attack, which also subsided spontaneously.

These last two cases are instances of persistence of a foetal condition.

In addition to the foregoing, the following cases also came under our notice during the period from February, 1932, to April, 1933.

Case 5.—Female, 41 years. Always very constipated, for last two months attacks of pain, distension, and watery diarrhoea, also rectal haemorrhage. Very emaciated.

Case 6.—Male, 34 years. Occasional attacks of severe abdominal pain with distension, followed by watery diarrhoea; duration over last ten years.

Case 7.—Female, 46 years. Attacks of severe pain, during which she faints, followed by copious watery diarrhoea (two years). Much emaciation.

Case 8.—Female, 64 years. Severe constipation, continuous for last two years; also attacks of severe pain with great distension and copious watery diarrhoea, which has been blood-stained. Much emaciation.

Case 9.—Female, 12 years. Seen in attack of severe abdominal pain with distension in left iliac fossa.

Case 10.—Female, 19 years. General peritonitis three years ago; always constipated since then; also attacks of pain in left iliac fossa. During attacks constipation is accentuated.

Case 11.—Female, 61 years. Attacks of pain with local distension in left iliac fossa, followed by watery diarrhoea and sometimes by dark red haemorrhage.

Case 12.—Male, 63 years. Attacks of pain and local distension in left iliac fossa, followed by watery, sometimes blood-stained, diarrhoea.

In each of the above cases a potential volvulus of the pelvic colon was demonstrated by air-and-barium filling, except in Case 12, in which the pelvic colon proper was unusually short, but the iliac colon was redundant with a loop in the form of a U with closely approximated limbs. In this case torsion of the colonic mucous folds was also seen.

CONCLUSIONS

The study of the cases enumerated above has convinced us that recurrent sigmoid volvulus, far from being a mere curiosity, is a frequent source of obscure symptoms, which may prevent the patient leading anything like a normal, useful life. We do not wish to claim for this lesion an unduly prominent place, and by no means do we underestimate the important parts played by infective and by neuropathic elements in the genesis of abdominal symptoms. We feel, nevertheless, that this anatomical factor has been to some extent overlooked in the search for the solution of intestinal problems, and that this neglect is responsible for an appreciable number of diagnostic errors, with resulting therapeutic failure. We have endeavoured to show that the correct interpretation of these cases depends on correlating or, one might say, in bridging the gap between the clinical history and the radiographic signs elicited by the application of Fischer's method. In the three patients in whom this diagnosis was followed by operative intervention our diagnosis was confirmed by a complete disappearance of symptoms, and by the restoration of an invalid patient to a normal life.

The diagnosis made, the question of treatment arises. The gratifying results following excision of the redundant loop have confirmed us in the opinion that this is the method of choice. Cases are, of course, encountered in which, for one reason or another, this operation is contra-indicated. In such instances an attempt should be made to relieve the symptoms by fixation of the loop, while in those patients who are obviously bad surgical risks recourse must be had to such methods as colonic lavage and mild aperients, with avoidance of violent purgatives and physical strain, and the adoption of a diet in which the indigestible residue is reduced to a minimum.

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A CASE OF OSTEITIS DEFORMANS TREATED WITH PARATHORMONE

BY

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(With Special Plate)

The great impetus that has been given in recent years to the study of skeletal disease by the isolation of the parathyroid hormone by Collip, and by the recognition of the hyperparathyroid syndrome, has drawn renewed attention to a wider field in the pathology of diseases of bone. Numerous experimental studies in calcium and phosphorus balance and in blood chemistry have added to existing knowledge, and a new conception of bone pathology is taking shape. So far, however, the aetiology of osteitis deformans has escaped detection. It would seem clear from the investigations of several workers that, whatever be the true pathogenesis of this disease, the end-result is a gradual accumulation of calcium and phosphorus in the thickened and deformed bones. This is particularly true in the later stage. Thus, in the case investigated by Cuthbertson,[1] there was a daily retention of 0.4 gram calcium oxide and 0.2 gram phosphorus pentoxide, and in the metabolic experiment carried out by Rabinowitch[2] on a well-developed case, calcium and phosphorus retentions of 40 and 36.3 per cent. respectively were found.

When the patient whose record is given below came under observation in 1931, it appeared to us that the administration of parathormone might cause mobilization of the stores of calcium and phosphorus in the bones, and might relieve symptoms. We were particularly anxious to decrease the size of the cranium and face, and prevent, if possible, further implication of the cranial nerves. The effect of parathormone was reinforced by the administration of acid sodium phosphate by mouth.

CASE HISTORY

A married woman, aged 54 years, was admitted to the Aberdeen Royal Infirmary on February 28th, 1931, suffering from a fracture of the right femur caused by a fall when lifting a tub. The fracture was at the junction of the upper and middle thirds of the shaft. It was reduced, and skeletal traction applied. By May 17th the patient was walking with a calliper splint, and there was a firm union of fragments. The patient had been a healthy woman until the age of 31 years. She had one child, a daughter, in good health. The family history revealed no data of value. She had suffered from uterine haemorrhage in 1908, and states that both ovaries were removed for cysts. There are no notes available of the operation. The monthly periods continued for ten years after this. About 1920 she had attacks of abdominal pain after food, and the appendix was removed. In 1922 she fractured the right tibia by a fall. There was no evidence, in the notes relating to the case at that time, of any generalized bone disease. About 1923 she noticed that her head was *increasing* in size and, in particular, that the forehead was becoming broad. She complained of headaches and numbness over the right side of the face, and deafness in the right ear. The bony deformity of the skull gradually increased. The photographs show the patient in 1906 (Fig. 1 on Plate) and in 1931 (Figs. 2 and 3).

Findings

Upon examination in 1931 the skull was found to measure 26½ inches in circumference, 14 inches over the vertex from pinna to pinna, and 17 inches from atlanto-axial joint to nasion. By radiological examination the calvaria was seen to be thickened, and showed patchy ossification. The pelvis showed the same appearances, and the shaft of the right tibia

was enlarged and thickened, and showed some cyst formation. A metal pin was *in situ* through the old fracture of the bone, which was not tender. The eighth left rib was thickened in its whole length. There was no deformity of the humerus, radius, ulna, scapula, sternum, clavicle, or other ribs. There was no gross abnormality of the heart and lungs. The blood pressure was 150/94. The blood count showed no anaemia and no abnormal cells. The Wassermann reaction was negative on several occasions. The urine contained no abnormal constituent. On vaginal examination no abnormality could be discovered. The muscular power in the arms and legs was fairly good, and the limb reflexes were present and equal. The plantar reflexes were flexor. There was no loss of skin sensation. The pupils reacted sluggishly to light and on accommodation. The eye movements were full, and no nystagmus was present. The fields of vision showed temporal contraction for white, and in the right eye a marked contraction for red. The optic disks were much cupped, and the right somewhat paler than the left. There were some unusual bands of optic atrophy radial in the optic disk. Left facial paralysis was present and an intermittent tic of the right facial muscles. The tongue was protruded in the mid-line, and the palate moved normally. Bilateral nerve deafness was present, the hearing being slightly more acute in the left ear.

The blood chemistry showed the following values in milligrams per cent.:

Date	Phosphate	Calcium	Sugar	Urea
10/9/31	2.0	10.0	—	—
2/12/31	—	11.0	—	—
30/1/33	4.8	9.3	81	32
3/2/33	4.5	9.4	—	—
8/3/33	4.4	10.0	—	—

The plasma phosphatase was 3.96 units.

Treatment

The administration of parathyroid extract (Collip) was commenced in March, 1931, and has been continued in dosage of from 5 to 10 units daily, with periods of intermission, during the past two years. Acid sodium phosphate, 30 grains, taken three times daily, well diluted in water, was given as an adjuvant to depress the absorption of calcium in the intestine, decrease the serum content in calcium, and promote the excretion of calcium in the urine. Sodium phosphate alone was found to be effective by one of us in the mobilization of calcium deposits in a case of calcinosis.[3] We had no facilities for estimating the effect of parathormone treatment by a balance experiment, but comparison of a series of *x*-ray films of the head suggests that there is now less calcification present in the skull than there was two years ago. We are supported in this by the opinion of Dr. Middleton Connon, honorary radiologist to the Royal Infirmary. The skull measurement has probably not increased. In 1926 the circumference of the head measured 25½ inches; in 1927, 25¾ inches; in 1930, 26½ inches; and in February, 1931, 26¼ inches. Six months after treatment was commenced the head measured 25¼ inches. Such measurements are subject to a certain amount of error.

The following measurements were made by Professor Alexander Low on January 27th, 1933:

Cranial circumference	678 mm.*	Face length	110 mm.
Nasio-inional arc ...	416 ,,	Face breadth	145 ,,
Nasio-inional chord ...	211 ,,	Interocular breadth ...	39 ,,
Cranial length	225 ,,	Bigonial breadth ...	101 ,,
Cranial breadth ...	190 ,,	Height standing ...	1,537 ,,
Cranial height	142 ,,	Span of arms ...	1,646 ,,

* 26.4 inches.

These measurements, contrasted with the average figures for a female, show that the cranial circumference is increased by at least 100 mm., the cranial length by 40 mm., the cranial breadth by 45 mm., and the face breadth by 20 mm. On the other hand, the face length and bigonial breadth are not increased. The breadth of skull in proportion to length is relatively great, so that the cranial index is 84.4—that is, brachycephalic.

The patient herself claims to have felt better during the past two years, and has been able to carry out her housework and go out walking without fatigue, which had not been the case before treatment. Her general appearance is markedly better. No renal calculus is to be seen on *x*-ray examination.

COMMENTARY

It is interesting to note the effect of parathyroid administration on the callus formation and consolidation during the healing of the fracture of the femur (Fig. 6). Consolidation was rapid, and the repair of the fracture ran a normal course. There has been no yielding of the bone at the site of the fracture since. Hueper[4] found that parathyroid administration increased the rate of calcification of fractures in animals by from 20 to 35 per cent., and Ross[5] noted that partial removal of the parathyroids resulted in delay in the union of fractures in experimental animals. If attention is directed to one particular area of diseased bone, and the penetration factors in the *x*-ray examinations are carefully controlled, it may also be possible to see if the pathological changes in the tissues of the bone are influenced by the removal of calcium and phosphorus.

Although parathormone has been used therapeutically in the present case, it is not claimed that osteitis deformans is associated with hypoparathyroidism. In this case the serum calcium has been within normal limits. This is in accord with the findings of O'Reilly and Race[6] in the investigation of a series of twenty-one cases of varying severity, where the serum calcium lay between 9.5 and 10.6 mg. per cent. Nor would parathyroid treatment be rational in all stages of the disease, since at the onset there may be increased excretion of calcium. But where excessive storage of calcium and phosphorus is occurring it may be possible to keep it in check by the mobilization and excretion of part of the accumulated stores.

SUMMARY

A case of osteitis deformans is described.

The effect of treatment with parathormone is discussed.

We have to thank Dr. Middleton Connon for his unremitting attention in obtaining a large series of films of the skull and fractures taken with comparable exposures; Professor Alexander Low of the anatomy department, Aberdeen University, for his careful measurements of the skull; and Dr. W. Clark Souter for his ophthalmological reports on the case.

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A CASE OF MULTIPLE GASTRIC ULCERS

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(With Special Plate)

A disease of such widespread interest as peptic ulcer appeals alike to the physician and the surgeon. When manifested in the very menacing form illustrated by the following case it demands extra respect, and seems to call for a special communication.

CASE REPORT

E. B., a man aged 30 years, was sent up by Dr. G. L. Ormerod of Westbury-on-Trym. For about four years epigastric pain had ensued after meals and was often relieved by vomiting. During recent months the trouble was accentuated and much weight had been lost. The patient's appearance accorded with the history and he was an unfavourable subject for major surgery. The pulse and temperature were normal, and the Wassermann reaction negative.

Slight exophthalmos was present. On December 7th, 1932, *five-sixths of his* capacious stomach and a large cluster of *lymph glands*, one of which was the size of a walnut, were removed. Inspection of the mucosal aspect of the resected portion showed four ulcer craters along the lesser curve, varying in diameter from about one to two centimetres; closer examination revealed two scars of former ulcers. The open end of the duodenum was closed, and the jejunum joined to the residue of the stomach, after the method of Polya. Healing was by first intention. He now looks well, eats a suitable diet, and remains free from all gastric symptoms. His weight was steadily increasing on May 10th, 1933.

COMMENTARY

Owing to the infrequent occurrence of multiple gastric ulcers there is a paucity of literature on the subject, but I have extracted a few illuminating facts, which are incorporated in the following observations.

Clinical: The history and findings of my case were those of an ordinary solitary peptic ulcer, and were in no way commensurate with the multiplicity of the lesions. This corroborates the evidence of Judd and Proctor[1] in a series of cases recently reported from the Mayo Clinic. *Radiology:* After an opaque meal there were visible three excrescences on the stomach shadow near the distal end of the lesser curvature (see Special Plate). These indications of ulcer craters are seen to correspond to the defects in the lining of the ablated organ. For this invaluable evidence I have to thank Dr. Mayes. It is highly interesting and significant to note, from Judd and Proctor's report, that in only two cases of their series did the *x*-ray examination reveal definitely two ulcers in the stomach. *Morbid anatomy:* The outstanding interest of the case of E. B. lies in the great rarity of such multiplicity of chronic ulcers as his stomach exhibits. Four craters are obvious, and small scars of former ulcers are visible on careful inspection. They lie, as in a chain, along the lesser curvature (see Special Plate). The occurrence of acute perforation was a not unlikely complication to expect in the case, for the stomach was not adherent. The exceptional swelling of the adjacent lymph glands in the lesser omentum bore eloquent testimony to the intense activity of the pathological process. Mr. A. D. Fraser has kindly verified the simple character of the condition in his histological report: "Simple peptic ulcers—no evidence of malignancy."

Number of Ulcers: Judd and Proctor analysed 1,475 cases of gastric ulcer operated on in the Mayo Clinic from 1914 to 1924. Of this total there were eighty-seven with two or more ulcerations in the stomach—that is, 6 per cent. Only about fifteen times in the vast array of nearly 1,500 cases were more than three ulcers present. Portis and Portis[2] quote Fenwick's search of post-mortem records, in which he found *867 cases of two or more* ulcers reported in 19.5 per cent., four or more ulcers in thirty-seven cases—that is, 4.2 per cent. These were all cases with active or open ulcers. A comparison of these figures suggests that the actual proportion of multiple to solitary gastric ulcers is well over the number met with surgically. The disparity is, perhaps, due to the different social categories from which the two sets of figures were collected. The Mayo Clinic draws its patients from a class which takes earlier and more notice of disease. *Site:* The situation of the lesions in the multiple as in the solitary ulcers reveals a predilection for the lesser curvature. This is demonstrated remarkably in the specimen here reported. *Associated disease:* The association of syphilis with multiple ulceration is slight, according to Judd and Proctor's findings. They report only six such cases in their series. The remainder of their cases were of a simple nature, apart from two. Cancer was definitely present among the ulcers of two cases, and was indefinitely diagnosed in three others. *Liability to acute perforation:* Instances of this complication figure relatively more prominently in the literature. Perhaps it is the more dramatic character of the symptoms and pathology of the acutely perforating ulcers that explains this distinction. Julian Taylor[3] reported perforation of peptic ulcers; Skemp and Skemp[4] and Drury[5] report multiple perforated gastric ulcers, as do Masson and Simon.[6]

In the present case such diffuse ulceration, with the dangers of blood vessel erosion, perforation, and malignant transformation multiplied proportionately, justified surgical measures of corresponding magnitude. The extensive resection which was undertaken has been well justified by the sequel. Once again the experience of this case corresponds with the main findings of Judd and Proctor, who report that some form of resection was performed in the majority of their series of cases. The hospital mortality was notably low—3.4 per cent.

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CHRONIC PERFORATING ULCERATION OF THE FOOT

OBSERVATIONS ON A CASE TREATED BY LUMBAR SYMPATHECTOMY

BY

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(With Special Plate)

W. Mayo[1] has pointed out that negative and positive results are necessary in assessing the value of any therapeutic measure, and nowhere is this better illustrated than in the surgery of the sympathetic nervous system. The observations made in the following case may therefore be of interest.

C. W., a male aged 56, was admitted to hospital in March, 1932, with ulcers of the left foot, which had been present for a period of three years. He had been treated on many occasions, but the ulcers were constantly breaking down. He had been under treatment in this hospital two years previously, and, with rest in bed and palliative measures over the long period of six months, the ulcers healed, but broke down again on the resumption of activity. The big toe of the left foot had been amputated some years before, for a condition the nature of which could not be definitely ascertained, *but which* appeared to be a hallux valgus with ulceration. On examination three perforating ulcers were found on the sole of the left foot, two situated anteriorly on the under aspect of the fourth and fifth metatarso-phalangeal joints, and one on the under aspect of the heel (see Special Plate, Fig. 1). The latter was more superficial, but the other two were about three-eighths and one-quarter of an inch deep respectively, and surrounded by a ring of heaped-up white skin. The margins were hard, and the callosity extended for about an inch around the ulcers. The discharge from the ulcers was thin and watery. Although the ulcers were deep, *x* rays revealed no abnormality in the underlying bones. The arteries of the limb appeared normal. The Wassermann reaction was

negative, and general examination, including a careful investigation of the nervous system, was also negative. Each foot showed a slight degree of pes cavus. There was no clinical or *x*-ray evidence of spina bifida occulta, or of any other lesion that might have a bearing on the aetiology.

Palliative treatment was adopted for four weeks, with complete rest in bed. There was no improvement in the local condition. The patient's incapacity for work, owing to constant attention to the ulcers, made other treatment desirable. Periarterial sympathectomy of the femoral artery having proved of uncertain value in other lesions, it was thought that neurectomy of the left lumbar sympathetic, with consequent permanent vaso-dilatation (or at least vaso-dilatation of prolonged duration), would be likely to lead to some nutritional improvement with permanent healing. The operation was performed on April 23rd, 1932. The left lumbar chain was exposed through the peritoneal cavity, and the portion of the sympathetic cord from just below the fourth ganglion, up to and including the second lumbar ganglion, was removed.

Following operation the usual effects were observed in the affected limb—increased temperature, increased warmth, absence of sweating, and dryness of the skin. An improvement in the appearance of the ulcers was noted six days after the operation. The surrounding skin appeared less hard, and the discharge from the ulcers was definitely increased, although it was still thin and watery. On May 20th, about four weeks after the operation, the ulcers were much smaller (see Special Plate, Fig. 2), and one week later almost healed. Healing was complete six weeks after the operation (see Special Plate, Fig. 3). The healed areas became firmer, and remained healed for a period of two months, when both anterior ulcers again broke down. Four days after operation the patient complained of an induration which he felt in the glans penis. This had not been noticed by the patient before operation. Examination showed an indurated area on the right side of the glans the size of a threepenny piece. The area was not ulcerated. Two months later the indurated area on the penis had become ulcerated. The lesion suggested a syphilitic origin, either a primary or a recurrent chancre, but Wassermann tests, before and after a provocative dose of N.A.B., were negative. A section of the edge of the ulcer was taken, and microscopical examination revealed the appearance of a typical squamous carcinoma (see Special Plate, Fig. 4).

COMMENTARY

From these observations it will be seen that, while healing was rapid after the improvement in the circulation to the foot, the vascular changes, although persisting, were not sufficient to maintain healing. In this type of ulceration there is some factor at work which causes repeated breakdown, despite even the maximum effects that can be produced by sympathetic denervation. Although the onset of carcinoma in this case must at present be regarded as a coincidence, it may be noted in view of the increasing number of operations performed on the sympathetic nervous system. The surgery of this system is still in its infancy, and any unusual feature is worthy of record.

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Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

A CASE OF DIAPHRAGMATIC HERNIA

(With Special Plate)

In view of the unusual position of the hernial orifice the following case appears to be worth recording.

A male child, aged 2 months, was attending the orthopaedic out-patient department of the Croydon General Hospital in December, 1932, on account of a talipes equino-varus. While waiting to be seen the mother fed it, and, soon after, it had a convulsion and ceased breathing. After artificial respiration it recovered, and was admitted to the hospital. The mother gave a history of similar attacks before, which had been less severe. On examination the child looked extremely ill. Respiration was laboured, and about 40 a minute; the temperature was 98.2° F., the pulse feeble at 160. The apex beat was in the anterior axillary line, but little else could be made out, as any movement of the child seriously embarrassed respiration. It died twenty-four hours later, no diagnosis having been made. A post-mortem examination revealed the following condition. The peritoneal cavity was almost entirely occupied by a large liver and a greatly distended stomach. Save for six inches of jejunum, all the small intestine, caecum, and ascending and transverse colon had herniated through the right side of the diaphragm. The intestine returned to the abdomen near the splenic flexure. Only a small portion of the right lung was visible at the apex, the heart was displaced well over to the left, and only a small portion of the left lung could be seen. No definite peritoneal sac could be seen round the hernial contents. The case appeared so interesting that a flash-light photograph was taken before the viscera were disturbed.

The hernial orifice had apparently resulted from a lack of fusion of the splanchnic mesoderm and the right pleuro-peritoneal fold. Such a hernia is much commoner on the left side, according to the literature on the subject. It is interesting to speculate whether artificial respiration would have further reduced the hernia.

We are indebted to Dr. Genge for permission to publish this case.

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J. STEPHENS, M.R.C.S., L.R.C.P.
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A CASE OF DIAPHRAGMATIC HERNIA

The following case appears to be of sufficient rarity to merit description.

A Somali, male, aged about 25, was admitted to the Burao Hospital on December 25th, 1932, giving the following history. About seven years previously he had had an attack of what he thought was pneumonia. Apart from that he had kept in perfect health until just over a year before admission, when, in a fight, he was struck by a stick on the upper part of the chest. This caused some localized swelling, which subsided in a few days. No history of any wrench or strain could be obtained. There were apparently no further symptoms until a month before admission, when he began to get some colicky pain, and to notice a lump in the abdomen. The bowels were constipated, but there was no vomiting and no urinary symptom.

On admission the patient was a well-nourished young man, and he did not appear to be very ill. The abdomen was flaccid, and on the right side there was a large, hard, freely movable tumour, extending from the right iliac fossa upward to about the level of the umbilicus. Rectal examination and examination of the blood and urine were negative. An enema gave a good result, and did not affect the size of the tumour. No *x* rays were available. The tumour was thought to be of either caecal or renal origin. Operation was advised, but not regarded as urgent. On December 31st his condition suddenly became worse, and it was obvious that he had a general peritonitis, a tympanitic, immovable, tender abdomen, and a pulse of 130. An enema still gave a good result. Operation was now urged, but refused. The patient died during the night.

Post-mortem examination showed a general peritonitis. The caecum was distended with hard faeces to the size of a small coco-nut, and its anterior wall showed several greyish gangrenous patches, one of which had perforated and caused the peritonitis. Numerous stercoral ulcers were found in the mucous membrane. The ascending colon was distended with hard faeces to the diameter of about two inches. The transverse and descending colons were almost empty. On opening the chest the hepatic flexure was found protruding through the right side of the diaphragm as a small loop, measuring about three inches on its convexity. It was flaccid, healthy, and showed no sign of strangulation. It was contained in a hernial sac of diaphragmatic pleura. There was no peritoneal covering.

Death was due to perforation of a stercoral ulcer of the caecum, the result of chronic intestinal obstruction from a diaphragmatic hernia, and the cause of general peritonitis.

Diaphragmatic herniae are of considerable rarity, and the majority of cases have been in infants, born dead, or dying soon after birth. Few of the congenital cases can survive to adult life, at any rate without symptoms, and most cases in adults are due to injuries to the diaphragm. In the case described above there is no history of any injury which could involve the diaphragm, and the presumption is that the hernia was a congenital one. There was certainly no penetrating wound, and apparently no wrench or strain which could have affected the diaphragm.

I am indebted to Dr. A. W. H. Donaldson, medical officer in charge, British Somaliland, for permission to publish this case.

A. H. MORLEY,
East African Medical Service.

Reports of Societies

ENTAMOEBA HISTOLYTICA CARRIERS

At the annual general meeting of the Royal Society of Tropical Medicine and Hygiene the retiring president, Dr. G. Carmichael Low, welcomed the new president, Sir Leonard Rogers. Subsequently Professor Gordon Thomson received the Chalmers medal on behalf of Dr. Adler.

A paper by Colonel H. W. ACTON, on *Entamoeba histolytica* carriers and their treatment, was read by Dr. D. PANJA. Acute amoebic dysentery was estimated to occur only in about 5 per cent. of cases of amoebic colitis in an ordinary well-fed population, but its incidence might rise to 25 per cent. following malnutrition or intercurrent disease. As a rule the lesions in the bowel were trivial, producing at first constipation, which later might alternate with diarrhoea; sometimes morning diarrhoea with mucoid stools resulted. This was the picture in the common type of carrier. *E. histolytica* could live a purely coprozoic life in the colon without producing bowel lesions; two necropsies on amoebic carriers were cited in support of this view. Factors that permitted penetration of the healthy columnar cells included superficial trauma induced by either helminths or dysentery bacilli. As stasis continued the bacterial flora changed, streptococci replacing coliform organisms; the more numerous these streptococci colonies on culture, the more extensive the ulceration of the gut. In the mixed type of bacillary and amoebic carrier, a varying number of non-lactose-fermenting colonies might be seen; they included typical dysentery bacilli, *Bacillus pseudo-carolinus*, and *B. morganus*, as well as late lactose-fermenters such as the meta-dysentery group. Three different types of carriers were recognizable: (1) Coprozoic carriers, who showed neither symptoms nor lesions. (2) Pathogenic carriers, who had pathological lesions and slight symptoms. Here a breaking-down of the local defences in the base of the ulcer resulted in embolic manifestations such as sciatica, myositis, arthritis, or even myocarditis, and haemolytic streptococci were often found in the urine. Symptoms due to stasis followed: these included dysfunction of the thyroid and adrenals, with harsh cold skin and low blood pressure. Leucodermia, food idiosyncrasy, urticaria, eczema rubra, and asthma might also be encountered. (3) Mixed carriers of amoebic and bacillary infection constituted about 15 per cent. of the Calcutta cases, and they were difficult to cure with either emetine or bismuth emetine iodide alone. Reflex spasms at the pylorus, caecum, and transverse and descending colon occurred; a few developed signs of duodenitis and duodenal ulcer. The invading Gram-negative bacilli from these ulcers—for example, *B. asiaticus*—did not cause emboli, but occasionally gave rise to continued fever. More commonly, such organisms were excreted in the bile or in the urine, when they might produce cystitis. Routine treatment consisted of 1/6 grain of omnopon (Roche) at night, followed one hour later by 2 grains of bismuth emetine iodide in 1 oz. of paraffin. This was continued for twelve nights, the stools being subsequently examined for cysts on six consecutive days. About 5 to 8 per cent. failed to be cured, mostly owing to concomitant bacillary infection. Mixed infections in addition were treated with a vaccine prepared from the causative organism, and with 10 grains of calcium lactate and 1/4 grain of parathyroid night and morning, while starches were eliminated from the diet. Bismuth kurchi bark and carbasone had recently been tried with promising results, both methods being very effective without producing toxic symptoms.

Professor WARRINGTON YORKE, in opening the discussion, said the immediate symptoms in amoebic dysentery were readily cleared up; the difficult thing was to produce permanent sterilization. In following up cases the real issue was not what happened up to nine days subsequent to treatment, but what took place after nine months. Another point of interest was why infected people in England and other temperate zones failed to develop symptoms yet did so on proceeding to the Tropics. It would appear that some concurrent infection must be necessary. Dr. CARMICHAEL LOW doubted whether the symptomless carrier had lesions in the bowel. He mentioned the case of a patient dying of liver abscess in whom he had failed to find bowel lesions at necropsy, despite having examined every inch of the bowel. He agreed with Professor Yorke that cases should be examined over longer periods, at least for twenty-one days. Professor GORDON THOMSON cited Sellards's experiment as evidence against the coprozoic or contact carrier, the difference between the symptomless carrier and the case with clinical manifestations, in his opinion, depending on host resistance. To exclude invasion of the gut in the contact carrier it would be necessary for serial sections to be cut throughout the colon.

Dr. C. M. WENYON agreed with Professor Thomson as to the difficulty of excluding lesions in the gut in contact carriers. Certainly naked-eye examination was not enough, as was shown in the section of a very small ulcer which he (Dr. Wenyon) had put out for inspection and which had been found by accident. He agreed with other speakers that six days was a quite inadequate time in which to estimate whether infection had been eradicated, but in Calcutta reinfection might continually be taking place, so it was probably not worth while prolonging observations. Dr. MANSON-BAHR agreed with Dr. Wenyon about the minute nature of bowel lesions which were frequently revealed in life during sigmoidoscopy, especially if a magnifying attachment was used. He did not think haemolytic streptococci had any significance in amoebic colitis, and estimated that the patient should be watched for at least two years before deciding whether he was cured. The immediate success of treatment could best be gauged by periodical sigmoidoscopic examinations. Sir ALDO CASTELLANI agreed with Colonel Acton that mixed carriers occurred, and that though Shiga and Flexner bacilli were rarely isolated meta-dysentery bacilli were common. He advocated vaccines in these cases.

Dr. HAMILTON FAIRLEY pointed out that in many symptomless carriers the sigmoidoscopic appearances of the bowel were absolutely normal, and there was neither pathological exudate nor occult blood in the faeces. Evidence that the gut wall was invariably invaded was still inconclusive, and more pathological data on the carrier state were necessary before the question could be considered settled. He did not regard *Bacillus pseudo-carolinus* and meta-dysentery organisms as pathogenic, while metastatic complications due to streptococci were in his experience rare. Captain D. D. LAMBERT pointed out that as about 50 per cent. of the people resident in Calcutta were cyst carriers, such conditions as constipation, fibrositis, and the various clinical syndromes described were probably fortuitous associations with the *E. histolytica* carrier.

Sir LEONARD ROGERS stressed the difficulty of keeping patients long under observation in Indian hospitals, and agreed that trauma of the mucosa induced by ankylostomes would favour amoebic invasion and so explain the greater frequency of bowel lesions in the Tropics. In amoebic abscess of the liver scars or actual ulcers were present in the caecum in forty-nine out of fifty of his cases.

Reviews

GENETICAL SCIENCE

The unique place which the science of genetics holds in the public mind is due to the direct and tangible nature of its appeal to human interests, and also to the fact that its technicalities are relatively simple and easily grasped by the non-specialist. Furthermore, as Dr. C. C. HURST explains in his latest book, *The Mechanism of Creative Evolution*[1], it provides a most satisfactory account of a mechanism through the functioning of which evolution has proceeded. The gene rather than the cell has come to be regarded as the ultimate unit of life, and therefore is the necessary and ultimate basis for the creation of new species. In this book, which indeed is a most magnificent specimen of the publisher's art, the whole achievement of genetical science through its thirty years of experimentation is admirably presented. The principles of Mendelism are set forth with economy and precision. It shows how, in the early days immediately following the rediscovery of Mendelism, the enthusiasm of a small group labouring in a special field led to an isolation which favoured the development of simply and clearly defined concepts, and also to the development of routines of procedure which tended towards eventual stagnation. Next it is shown that from this stagnation genetics was rescued through its contacts with cytology. It was found that genetic phenomena could be referred to, and had to be explained by, corresponding cytological phenomena. A comprehensive survey of the results of genetical and cytological inquiry leads into attractive fields of interpretation and speculation which render this book both enjoyable and stimulating.

THE STREPTOCOCCUS

From the standpoint of human pathology the streptococci constitute one of the most important genera. Not only are they responsible for an enormous amount of disease, but the body's defences seem ill designed to meet their onslaught, and one encounter with them only too commonly leaves behind it permanent damage and a heightened susceptibility rather than an immunity. Our knowledge of the streptococci has not advanced as rapidly as in the case of some of the other pathogenic bacteria. They are elusive subjects to study, and their instability has rendered their classification a matter of supreme difficulty. During the last few years, however, considerable progress has been made in unravelling some of the problems connected with these micro-organisms, and the time is opportune for a review of the situation. It is for this reason that we welcome Dr. ANNA W. WILLIAMS'S monograph entitled *Streptococci in Relation to Man in Health and Disease*.[2]

Dr. Williams is entitled to speak with authority on this subject, for she has made it one of special study. Her monograph is not a colossal compendium of the literature, but a broad review of the subject in which the points of practical importance are not buried in a welter of facts. Opening with an historical sketch and a general classification in the first chapter, the author considers in turn the general characteristics of streptococci, their incidence and their effect on man, and streptococci in local infections. Elective localization is treated in an eminently sound and well-balanced manner, and in the discussion of local immunity due prominence is given to the excellent work of Gay on the part played by the cells of the reticulo-endothelial system in this respect. Chapter IV concerns streptococci in general infections, and following this are chapters devoted to erysipelas, scarlet fever, and septic sore throat. No doubt Dr. Williams is right in stressing the need and value of antibacterial serums—anti-endotoxic serums, to use her terminology—in combating infections due to haemolytic streptococci whose production of exotoxin is of a low grade, but not everyone will agree with the statement that scarlet fever is the only condition in which antitoxic serum is of use. Chapter IX is devoted to the relation between the various haemolytic streptococci, a tentative classification being given, and following this is a discussion of that difficult question of the relation of streptococci to rheumatic fever, arthritis, and allied conditions. This latter account is clear and unbiased, though one wonders how far the statement that the removal of tonsils and adenoid tissue has been followed by a lower incidence of rheumatic fever is supported by clinical experience. The aetiological relation between streptococci and such diseases as measles, epidemic encephalitis, influenza, poliomyelitis, and the common cold—usually considered as virus diseases—is accorded a separate discussion. This question is treated conservatively, and rightly so, and the opinions expressed in it will meet with widespread agreement. General considerations bearing upon our knowledge of streptococci terminate this valuable monograph. It has a good bibliography and an adequate index.

HAEMATOLOGY

It seems to be the custom for university professors of medicine and physicians of medical schools to publish treatises on haematology for the use of their own pupils. The personal mutual understanding between pupil and teacher is always desirable. *Practical Hematological Diagnosis*,[3] by Professor O. H. PERRY PEPPER and Dr. DAVID L. FARLEY, is an example of this class of book. Simply written, and following well-beaten orthodox lines, it will prove a useful guide to knowledge of haematological methods and diagnosis. In a future edition the authors should study compression—by deleting references to discarded methods and views, and by removing the frequent repetitions and redundancies, which are tiresome and only serve to swell the size of this volume. We do not need to be told at page 312 that evidence of blood regeneration is shown " by the presence of nucleated red cells and the increase in the reticulocytes." This has already been told in previous pages, and is a haematological commonplace. Generally, perhaps wisely, the authors are afraid of dogmatizing, and personal views are disappointingly absent or vaguely expressed. The uses of the haematocrit are strongly advocated ; it is admittedly an easy and rapid method for estimating roughly the blood cell volume, but the values obtained must of course be qualified by the degree of variability in size of individual cells. A similar qualification is necessary with the use of refractometers, which also measure blood cells in mass, and do not, as stated on page 55, measure single cells. The authors most justly have a lack of confidence in haemoglobinometers ; they agree that determination of oxygen capacity by the Haldane-Van Slyke method is best, but not practical for clinical application No mention, however, is made of Haldane's haemoglobinometer so much in use in this country. The expression of Hb in grams is difficult for those who are more familiar with percentage values. The old estimation of 5,000,000 per

[1] *The Mechanism of Creative Evolution.* By C. C. Hurst. London: Cambridge University Press. 1932. (Pp. xxi + 365 ; 199 figures. 21s. net.)

[2] *Streptococci in Relation to Man in Health and Disease.* By A. W. Williams, M.D. London: Baillière, Tindall and Cox. 1932. (Pp. xii + 260 ; 8 plates. 29s.)

[3] *Practical Hematological Diagnosis.* By O. H. Perry Pepper, M.D., and D. L. Farley, M.D. Philadelphia and London: W. B. Saunders Company. 1933. (Pp. 582, illustrated. 30s. net.)

c.mm. as the number of red cells in normal blood is maintained in spite of recent observations by Osgood and others that the mean normal value is much greater than this; the limits for normal colour index now accepted are 0.84 to 1.11. The statement on page 351 that acute poisoning by carbon monoxide gas "changes the haemoglobin to methaemoglobin" is not correct, and should read "carboxy-haemoglobin." Much of Part III is of the nature of a catalogue to be used for reference; the footnotes will be very helpful for this purpose.

Those who need to economize time will welcome *General and Child Haematology*,[4] by Dr. W. M. FELDMAN, one of the Pocket Monographs on Practical Medicine series. The title is rather ambitious. It is a comprehensive collection of generally accepted statements about the blood, shortly and clearly expressed, and unencumbered by descriptions of methods or apparatus employed in blood examinations. The section on blood diseases is necessarily limited by space. The clinical haematology of Addison's anaemia and the effect of liver treatment in this disease are not described, probably because this is not a blood condition met with in children. The chapter on blood groups, dealing with the requirements of transfusion and with social and biological interests, are useful, though students of the subject will consult more extended treatises. This is a compact vade-mecum which will probably help the busy physician.

THE SOCIAL SERVICES

We have a remarkable book in *British Social Services: the Nation's Appeal to the Housewife and Her Response*.[5] It is by the Rev. J. C. PRINGLE. Those who are acquainted with the author's work as secretary of the London Charity Organization Society and rector of St. George's-in-the-East will not need the assurance given by Sir Charles Mallet in his "Foreword" that "it is packed full of practical and first-hand knowledge, based on continuous and sympathetic observation of the daily lives of working people," and that the pronouncements it contains are "both fearless and vivacious." To the less informed prospective reader this assurance can be renewed and the epithets confirmed. The book is the acceptance of a challenge, and the greater part of it is itself a challenge. At an international congress on social work in Frankfort last year Professor Gösta Bagge of Stockholm declared that "the decline in the feeling of personal responsibility and the extension of public relief" threatens the existence of modern society, that "complete reorganization and reform of present social policy can alone avert impending disaster," and that what is needed is "a characteristic criticism based on popular psychology . . . and a social policy inspired thereby." Such a criticism and the basis of such a policy are what Mr. Pringle sets out to supply and establish. He offers a forceful and thought-provoking challenge in defence of a position which has not recently been very popular in the field of social work in general, and which has been assumed by many people to be no longer tenable.

Mr. Pringle's thesis may be described as a development of the following propositions: (1) that the voluntary and individual supply of social needs is always and everywhere preferable to the compulsory and collective; (2) that the sympathetic and intelligent administration of the Poor Law is more effective for a large section of the people than even the best scheme for compulsory insurance; (3) that the family or household, and not the individual, must be taken as the essential economic unit, and that, within the family, it is the housewife and mother, and not the wage-earner, who should be regarded as of paramount importance; (4) that any successful efforts for promoting social welfare must be based upon an understanding of the psychology of the poor family and not upon a misunderstanding of its economics. The mere enunciation of such propositions by one of the most experienced of social welfare workers (though it should be said that the form in which they have just been stated is the reviewer's and not the author's) will itself be refreshing to many readers, and there is none but must be intrigued and interested by the vigour, ingenuity, and knowledge displayed in their support. Particularly will most medical readers be engaged by the way in which the author deals with some questions of national health insurance and with recent developments in public health services. Not everyone, even if he starts out free from socialistic or communistic bias, will be persuaded, but there is scarcely a page in the first 116 of Mr. Pringle's book which will not carry the conviction that he is displaying at any rate one aspect of the truth which must not be ignored.

Unfortunately after the eighth chapter there is a change. What has previously been a point of view becomes an obsession. The arguments and the principles advocated are applied to subjects and conditions which are not similar to those previously dealt with. The book loses its interest and effectiveness because it ceases to consist of arguments which, even if they be considered mistaken, have to be understood, weighed, and met, and becomes, for the most part, the vehicle for suggestions which the ordinary intelligent reader cannot regard seriously and can only smile at as extravagant or absurd.

SOME RECENT WORK IN PRACTICAL THERAPEUTICS

General Therapeutics,[6] by Drs. B. FANTUS and L. B. KARTOON, is a volume of the Practical Medicine Series of Year Books (series 1932). This book provides an account, with references, of some of the important advances in therapeutics made in 1932. The advertisement states that the authors give an account of 333 articles drawn from forty-two American, fourteen German, and six English, and various other journals. Inspection of the references shows that in fact about three-quarters of these are to American work. The volume therefore gives a partial rather than a general survey of recent advances in therapeutics. For example, no reference is made to any work on the new quinine substitutes plasmoquine and atebrin. Subject to this caveat regarding its restricted scope, the volume can be recommended to all who desire a short and readable summary of many of the important recent discoveries in practical therapeutics. The chief point that strikes the reader is the remarkable enterprise of American physicians and surgeons in applying advances in biochemistry and physiology to therapeutic purposes. The authors have shown good judgement in compiling their abstracts, for they give adequate details of all the work that they consider of sufficient importance to deserve mention. Moreover, they have included in their text reproductions of forty-two illustrations. The increase by geometrical progression of scientific literature is steadily increasing the difficulties of those who wish to keep in touch with important advances, and hence a critical and selective review of recent progress such as is furnished in this volume is extremely useful.

[4] *General and Child Haematology*. By W. M. Feldman, M.D., B.S. London: J. Bale, Sons and Danielsson, Ltd. 1933. (Pp. 96 2s. 6d. net.)

[5] *British Social Services: the Nation's Appeal to the Housewife and her Response*. By Rev. J. C. Pringle. Foreword by Sir Charles Mallet. London, New York, and Toronto: Longmans, Green and Co. 1933. (Pp. xv + 175. 2s. 6d. net.)

[6] *General Therapeutics*. Edited by B. Fantus, M.S., M.D., and L. B. Kartoon, B.S., M.D. The Practical Medicine Series of Year Books. Series 1932. Chicago: The Year Book Publishers, Inc.; London: H. K. Lewis and Co., Ltd. 1933. (Pp. 448; 42 figures. 13s. 6d. net.)

DRUG ADDICTION IN EGYPT

In the Treatment of Drug Addiction by Phlyctenotherapy[7] Dr. P. MODINOS of the European Hospital of Alexandria gives a short but graphic description of the chief forms of drug addiction. He mentions in particular the appalling ravages of this vice in Egypt and quotes the official estimate of 500,000 addicts, which represents 3.8 per cent. of the population. His special method of treatment "phlyctenotherapy" consists in the injection of blister fluid. A blister of some 10 sq. cm. is produced on the patient, which yields from 10 to 15 c.cm. of serum, and this is injected intramuscularly. This method, which is a form of autotherapy, the author has used since 1929 in the treatment of seventy-six cases of drug addiction. He claims thirty-two cures out of forty-three heroin addicts treated, which is a very remarkable result. Details are given regarding the history of twenty-four cases. The author quotes evidence regarding the success of his method in other Egyptian hospitals, in Bangkok, and in America.

Towards the close of his book Dr. Modinos discusses how the traffic in dangerous drugs can be controlled, and asks why Egypt should be more plagued with drug addiction than any other country in the world. He points out that a few years ago this vice was threatening the national life of Egypt. In 1930 the number of addicts was estimated at 500,000, while 10,000 convictions were obtained in the indigenous courts for drug trafficking; moreover, the hospitals and asylums were flooded with addicts seeking cure. He pays a high tribute to the work of Russell Pasha, who has produced an enormous improvement in the past two years, and also to the excellent work done by the League of Nations. In the final chapter there is an interesting discussion on whether in the case of cannabis indica it is better to attempt to abolish its use or to control its consumption by a Government monopoly, and the author decides in favour of the former mode of action.

Notes on Books

In this country we are often accused of not taking our play seriously, and if such a statement is open to correction we can at least claim that we do not take it so seriously as our friends in America. In *The Child and Play*[8] the earnest student of this subject will find nothing left unsaid on this question from the scientific aspect. The material is based on the reports of many committees and subcommittees which were considered at a conference on child health and protection in Washington in 1930, and it will appeal chiefly to those interested in education and child welfare.

In *Golf Made Easy*[9] Dr. FORREST returns again to the theme of his previous publications, *The Basis of the Golf Swing* and *The Golf Stroke*, in which we are encouraged to believe that the way to become scratch players is simple if we can only acquire the method of turning the hands at the right moment in the right way. With minute instructions and many excellent photographs this solution of all golfing ills is set forth, though the earnest seeker after truth will need no small amount of mental concentration to get full benefit from the work. Golfers are, however, notoriously the most optimistic of mankind (if we except entrants for the Irish sweepstakes), and many will be ready to sample this medicine, though the reviewer himself, stricken with disease long reckoned constitutional, is not too sanguine of a cure.

Mountains may seem as far removed from medical science as chalk from cheese, but since the *London Mercury* has devoted an editorial page to the review of a mousetrap, we feel it excusable to give a few lines to the recently published book, *Alps and Men*,[10] by G. R. DE BEER. Switzerland claims many friends in this country, both as a holiday ground and as a health resort. Those who love it and are interested in its history during the last 200 years will find plenty of entertainment in this work. It draws largely upon the diaries of famous travellers and tourists in the country from 1750 onwards—British aristocrats on the "grand tour," refugees from the French Revolution, generals, scientists, explorers, schoolmasters, poets, writers, and composers—even the famous Bishop of Derry and Earl of Bristol, to whose memory there is an "Hotel Bristol" in almost every city in Europe. Copious illustrations are provided, and the author, with his expert knowledge of the country, has succeeded in producing a pleasing volume.

The tenth volume (Scurvy–Pineal Gland) of the New German Dictionary of Practical Medicine,[11] edited by Professor GEORG KLEMPERER and the late Professor FELIX KLEMPERER, marks the conclusion of this monumental work, which began five years ago. Supplementary volumes, however, will be published at regular intervals. The tenth volume contains the following contributions by well-known writers: scurvy, by Professor W. Stepp and Dr. Voit of Breslau; scrofula, by Dr. K. Klinke of Breslau; parasitic stomatitis, by Professor A. Buschke and Dr. A. Joseph of Berlin; social hygiene, by Dr. A. Fischer of Carlsruhe; sporotrichosis, by Dr. A. Joseph; disorders of speech, by Professors E. Forster of Greiswald and T. S. Flatau of Berlin; sprue, by Professor C. Hegler of Hamburg; syphilis, by Professor Buschke and Dr. A. Joseph; syringomyelia, by Professor H. Schlesinger of Vienna; tabes, by Professor A. Goldscheider of Berlin; tetanus, by Professor H. Hetsch of Frankfurt; thymus, by Professor W. Berblinger of Jena; rabies, by Professor Hetsch; trauma as cause of internal diseases, by Professor R. Stern of Breslau; trichinosis, by Professor J. Bongert of Berlin; tropical diseases, by Professor P. Mühlens, Dr. E. G. Nauck, and Dr. Curt Sonnenschein of Hamburg; soft chancre, by Professor W. Frei of Berlin; uraemia, by Professors F. Volhard and E. Becher of Frankfurt; urticaria and Quincke's oedema, by Professor Hansen of Heidelberg; varicose veins, by Professor Baetzner of Berlin; dental diseases and internal medicine, by Professor J. Citron of Berlin; diseases of the teeth and jaws, by Professor G. Axhausen of Berlin; and the pineal gland (zirbel), by Professor Berblinger of Jena. A list of the contributors and a subject index are contained in a special volume.[12]

Not least among the activities of the Council for the Preservation of Rural England is the publication from time to time of literature which is designed both to further the principles for which the council stands and to draw public attention to the beauty and interest of the English countryside. Both these objects have been achieved in *The Penn Country of Buckinghamshire*[13]—issued by the Penn Country Branch—an attractive volume of 128 pages, with sixty-two illustrations, many of which have been specially produced and are of great charm. A foreword is supplied by the Prime Minister, whose home is in the heart of this country, and among the prominent contributors are Mr. G. K. Chesterton, Major Conings-by Disraeli (on Hughenden and Disraeli), the Hon Sir Frank MacKinnon, Mr. C. H. Biddulph-Pinchard, and Mr. Clough Williams-Ellis.

[7] *Le Traitement des Toxicomanes par la Phlycténothérapie*. Par Dr. P. Modinos. Paris: J. B. Baillière et Fils. 1932. (Pp. 107. 24 fr.)

[8] *The Child and Play*. By James E. Rogers. Based on the reports of the White House Conference on Child Health and Protection. New York: The Century Company; London: D. Appleton and Co. 1932. (Pp. 205; illustrated. 8s. 6d. net.)

[9] *Golf Made Easy*. By J. Forrest, M.B. London: T. Murby and Co. 1933. (Pp 68; 214 photographs. 10s. net.)

[10] *Alps and Men*. By G. R. de Beer. Pages from forgotten diaries of travellers and tourists in Switzerland. London: Edward Arnold and Co. 1932. (Pp 255. 16s. net.)

[11] *Neue Deutsche Klinik*. Herausgegeben von Professor Dr. Georg und weiland Felix Klemperer. Zehnter Band. Berlin und Wien: Urban und Schwarzenberg. 1932. (Pp. viii + 797. 181 figures, 2 plates. Geh. RM 30, Geb. RM 36.)

[12] *Sachverzeichnis*. (Pp 143. Geh. RM 6, Geb. RM 8. Gesamtwerks, Geb. RM 368.)

[13] *The Penn Country of Buckinghamshire*. With a foreword by the Prime Minister. Published for the Penn Country Branch of the Council for the Preservation of Rural England by Ernest Benn, Ltd., London. 1933. (Pp. 128; 62 figures. 5s. limp covers, 7s. 6d. cloth; 21s. limited *edition de luxe*.)

WHAT TROPICAL MEDICINE OWES TO ANIMAL EXPERIMENT

STEPHEN PAGET MEMORIAL LECTURE BY SIR LEONARD ROGERS

In connexion with the annual meeting of the Research Defence Society on June 22nd, with Lord LAMINGTON presiding, Sir LEONARD ROGERS lectured to a very large audience in the theatre of the London School of Hygiene and Tropical Medicine on "The Saving in Suffering of Man and Animals due to Medical and Veterinary Research, with Special Reference to the Tropics." The lecture was illustrated by lantern views.

Sir Leonard Rogers began by saying that the sufferings of animals, as well as of man, had been immensely reduced through animal experiment. This might safely be affirmed as the universal opinion of all the scientists who were best qualified to judge at the present day. It followed that if the opponents of research had succeeded in their long-sustained efforts to prevent such experiments they would have been guilty of the most appalling and wholesale cruelty, not only to mankind, but to the animals they professed to love. The saving of life and suffering due to physiological and therapeutic experimental research had been dealt with by previous Stephen Paget lecturers, but in no field had this been more conspicuous during the last three decades than in tropical diseases, and of the work in this field he proceeded to give a brief account.

Dealing first with snake bites, Sir Leonard Rogers said that all the essential knowledge of antidotes and treatment was due to animal experiments. Many years ago Calmette had made an anti-cobra serum which could neutralize the venom in the system, and save life if given in time. It became also known that permanganate of potash mixed with the venom of any snake rendered it inert, and Sir Lauder Brunton invented a small sheathed lancet with a compartment for permanganate for immediate use in the absence of serums, by incising the site of the bite. The Humane Act of 1876 prevented Sir Lauder from testing its practical value on animals, and it was not until 1903 that, at Sir Lauder's suggestion, the lecturer demonstrated its value by a few experiments, with the result that within two years he was able to record ten recoveries among twelve persons who had been bitten by deadly snakes. And what was the suffering inflicted in those few experiments? The few cats which were permitted to come round from the chloroform had very small wounds—of course, dressed antiseptically—and showed no evidence of pain. The only trouble he had was that several of them would come up to him to have their heads rubbed.

In the case of cholera, the most serious epidemic disease in India, the lecturer showed tables illustrating the striking reduction in case mortality among Calcutta hospital patients. This had been brought about by the use of intravenous injections of hypertonic and alkaline salines and the oral administration of permanganate pills. The clue to the use of permanganates was furnished by the snake venom work just mentioned, and he had been able to show by a few simple experiments on pigeons that small quantities of permanganate would neutralize the toxins of the cholera bacillus. He also showed the statistical results of the use of anti-cholera inoculation. A single dose of the present improved vaccines had afforded very valuable protection. In short, experimental research had offered the means of checking the spread of cholera and of treating effectually the sufferers from the disease. The virulent type of small-pox was now more prevalent in India than elsewhere, so that it might be looked upon as mainly a tropical disease. He showed figures illustrating the great reduction in the severity of the Indian outbreaks, coincidentally with a rise in the yearly vaccinations. As there had been no appreciable change in the sanitation of the Indian villages these data exposed the fallacy that the reduction in small-pox in the second half of last century was due to sanitary improvements and not to vaccination.

The only specific curative treatment in the dangerous toxic forms of bacillary dysentery was the antitoxic serum, which had to be made by injecting horses with increasing doses of the bacterial toxins, to which they soon became accustomed. After speaking of amoebic dysentery and liver abscess and its scientific treatment, he passed on to plague, and gave an account of the discovery of an efficient plague vaccine by Haffkine and its subsequent improvement. With regard to Malta or undulant fever, all the most important knowledge of this disease had been derived from animal experiments; for the causative organism was discovered in 1886, and was proved to be such by experiments on monkeys carried out by one of the greatest of British research workers, David Bruce. The same worker discovered the mode of infection to be the milk of perfectly healthy goats. Sir Leonard Rogers next retold the story of anti-typhoid inoculation in the Army during the great war, and of how the work might readily have been frustrated had the strenuous efforts of fanatics been successful. Apparently these fanatics had persuaded themselves that all the medical expert advisers of every army in Europe and America were wrong as regards the protective value of anti-typhoid inoculation, and that they, the prohibitionists, only were right, although presumably it was against their principles to have any scientific experimental investigations carried out, whereby alone such a complicated subject as the production of immunity in the animal system could be elucidated.

More specific curative remedies for widespread diseases had been discovered by animal experiments in about thirty years than had accrued from three thousand years of empiricism. Cinchona bark for malaria and ipecacuanha for amoebic dysentery appeared to be the only really curative remedies for serious specific diseases that had been discovered by empirical measures. Moreover, there was scarcely an important and commonly used drug in the *British Pharmacopoeia* the efficient employment of which did not depend on knowledge obtained by animal experiment. He instanced in this connexion the salvarsan group of drugs used in yaws and relapsing fever, the cure of sleeping sickness by Bayer 205 and tryparsamide, the antimony cure of kala-azar or black fever, and carbon tetrachloride in hookworm disease. Finally, he mentioned the two invaluable synthetic remedies, plasmoquine and atebrin, in the treatment of malaria. If the abolitionists had succeeded in their efforts fifty, or even thirty, years ago these potent new remedies would never have been discovered.

THE DEBT OF VETERINARY MEDICINE

Passing on to the benefits which animals themselves had derived through animal experiments, he mentioned first the instance of rinderpest or cattle plague, and the wonderful results which had followed the use of anti-rinderpest serum. Still better results were being obtained from protective inoculation against haemorrhagic septicaemia of cattle and against black quarter, another soil infection disease of young cattle. In the half-century that had elapsed since Pasteur's dramatic demonstration in sheep of the life-saving value of his protective vaccination against the invariably fatal effects of the inoculation of virulent anthrax bacilli, untold millions of animals had been saved from suffering and death by the use of his and later improved vaccines. He went on to mention swine erysipelas, braxy of sheep, joint-ill of foals, tetanus, swine fever, tropical ulcers, and many other conditions of animals in which immense relief had come about as the result of scientific experiment. The latest illustration of this was in connexion with the work done on distemper of dogs. It had been found that a healthy dog could be given lasting protection against distemper by the inoculation of a vaccine containing the killed distemper organisms, followed by inoculation of living virus a fortnight later. A survey undertaken in connexion with the recent *Field* investigation had shown that the incidence of distemper among 650 inoculated hounds belonging to twenty-three different hunting packs was only 1.4 per cent. and the death rate 0.3 per cent., whereas without inoculation the incidence among young foxhounds in this country was nearly 100 per cent., while the death rate was usually 50 per cent.

In conclusion, Sir Leonard Rogers said that literally millions of animals were being saved in civilized countries every year by the use of serums and vaccines discovered and made by means of animal experiments and in no other way. No scientist of standing would deny that some suffering was inflicted on animals in this work, but he maintained, with confidence, that the reduction of the sufferings of aimals as a class was many thousand times greater than any suffering inflicted on them in the discovery and preparation of these substances. Their opponents accused the scientists of cruelty. Surely the boot was on the other foot, for it was the prohibitionists, if they could have had their way, who would have added enormously to the sufferings of the animals which they held in such regard.

At the conclusion of the lecture a vote of thanks to Sir Leonard Rogers was moved by Sir THOMAS BARLOW and seconded by the Hon. Sir ARTHUR STANLEY.

The annual report presented to the business meeting of the society which followed drew attention to three outstanding reprehensible types of activity by the anti-vivisectionists: (1) active opposition and canvassing against the appeals for funds by hospitals and veterinary institutions; (2) propaganda implying that patients in the poor wards of hospitals were liable to be vivisected; and (3) canvassing consumers and friends to boycott manufacturing firms which scientifically tested their food or drug products before allowing them to be offered for sale to the public. In regard to the last-named activity, the committee trusted that no reputable firm would be intimidated by such actions, as the general public fully realized that the scientific standardization of drugs and food products was essential for the public good.

ST. GEORGE'S HOSPITAL

BICENTENARY COMMEMORATION

St. George's Hospital has just celebrated its bicentenary by a religious service at St. Paul's, Knightsbridge, and a reception at the hospital, besides which there is to be a festival dinner at the Mansion House on July 5th, from which it is hoped that the funds of the charity may substantially benefit. Since these celebrations were announced last March a leading article and a special article in the *Times* of June 13th have semi-officially informed the public that the hospital authorities are contemplating the sale of the site of the buildings at Hyde Park Corner and their re-erection in enlarged and more modern form on a more spacious site further from the centre of London. No more appropriate occasion could have been found for the writing of a short history of St. George's Hospital and its Medical School, and Dr. Joseph Blomfield has availed himself very acceptably of it in the commemorative volume published this week.[1]

FROM PETTY FRANCE TO HYDE PARK CORNER

Any history of St. George's, if it is to be adequate, must begin with the foundation of the Westminster Infirmary, the first general hospital in London to be supported by voluntary contributions, which was established in Petty France, Westminster, a street made famous by the one-time residence of John Milton and more recently familiar by the louring bulk of Queen Anne's Mansions. The infirmary was opened in the year 1720 under the name of the Westminster Public Infirmary. After two removals the governors of the charity, in 1733, found themselves in danger of having their house collapse, and other premises were sought for. Houses in James Street (now called Buckingham Gate) and in Castle Lane were offered, near where the Congregational Church and schools now stand, and this site was favoured by a majority of the governors. Westminster was at that time much more crowded than it is now and by a poor labouring class. The situation, moreover, was low and not far removed from the marshy ground around the Tyburn stream. These reasons moved an influential minority of the governors, including all the physicians and surgeons to the infirmary, to recommend removal from the slums to what was then the semi-rural suburb of Knightsbridge. Here, on higher ground at Hyde Park Corner, stood Lanesborough House, which was to be let at a rental of £60 per annum and which, in the opinion of the physicians and surgeons, was

"so near that the Governors might attend without inconvenience and yet far enough for the patients to have the benefit of a country air; which in the opinion of the physicians would be more effectual than physick in the cure of many distempers, especially such as mostly affect the poor, who live in close and confined places within these great cities."

This expression of opinion is surprising in that age of active treatment with drugs and counter-irritants. There followed a lively dispute carried on in a paper war. It ended in the majority establishing the infirmary at Castle Lane, which was afterwards to be removed to the present site of the Westminster Hospital in Broad Sanctuary, while the minority with substantial financial backing opened what was at first called "the Hospital near Hyde Park Corner."

Lanesborough House was a substantial three-storied red-brick building standing on the south side of Knightsbridge, at the corner of Grosvenor Gardens and subsequently just to the west of the Hyde Park Corner turnpike. In plan it may be represented as an upright H, with its central block and front door looking north across Knightsbridge to Hyde Park. After various alterations and additions this was the form it assumed, as may be seen in Horwood's plan of 1792, which was reproduced on a reduced scale in this *Journal*.[2] At length the old building became beyond repair, and Mr. Wilkins, the architect of the National Gallery, was commissioned to erect a new hospital. This he did at a cost of £40,000, and apparently without its becoming necessary to close the hospital at any time. This seems to have been achieved by changing the position of the entrance from the north to the east, so that access could be obtained behind the old building. The new building was complete in 1834, and still stands, although with many additions.

That the physicians were justified in claiming the benefits of country air for the new hospital may be concluded from a study of the maps of the period. Then, as now, Hyde Park and Kensington Gardens stretched uninterruptedly to the north-west; to the south and west there were fields and market gardens. To the east, as now, were the Green Park and the gardens of Buckingham House On the north side of Piccadilly building had not then extended beyond Clarges Street, where, until 1761, the turnpike-gate was situated. Although Grosvenor Square was built, most of Mayfair was open fields, with only occasional buildings. Beyond the boundaries of Hyde Park and Kensington Gardens, which are the same now as then, lay open country and villages such as Paddington and Kensington

The first general board of the founders of the hospital was held at the house of Mr. Carey, in Golden Square, on October 19th, 1733. Six physicians and three surgeons were elected medical officers, all of whom declared their "willingness to serve without fee or reward" These were the forerunners of a notable band of men, some of whom became world-famous. Space will not allow us to follow Dr. Blomfield in his interesting biographical sketch of them, but the names of Thomas Young, of John Hunter, who died in the hospital, of Brodie, Edward Jenner, and Baillie, must not escape mention.

THE MEDICAL SCHOOL

The physicians and surgeons established the Medical School in buildings in Kinnerton Street, Knightsbridge,

[1] *St. George's, 1733–1933.* By J. Blomfield, O.B.E., M.D. Copies can be obtained from the Medici Society, 7, Grafton Street, W.1, or St. George's Hospital, S.W.1. (Pp. 120; illustrated. 5s., or de luxe £2 2s.)

[2] *British Medical Journal*, 1929, i, 984.

rented from Sir Benjamin Brodie, including a lecture theatre and dissecting room, in the year 1836. These premises continued to be used until 1868, when new buildings were erected adjoining the hospital on land leased at a nominal rent by the Grosvenor Estate. These new buildings included a museum and library.

Before the establishment of this hospital school St. George's students were dependent for their scientific education on Lane's Grosvenor Place School, which continued to exist concurrently with it until it was closed in 1863.

In 1904 the then Prince of Wales (now King George V), appointed a committee to inquire into the financial relations between hospitals and medical schools in London. In accordance with the report of this committee St. George's gave up the teaching of anatomy and other allied sciences and became a clinical school. Relying on certain supposed assurances which were not carried into effect, the school at first suffered a great loss in numbers. It is now flourishing, and looks forward to a long career of usefulness, wherever the situation of the hospital may be.

HOSPITAL MIGRATIONS

If, and when, St. George's migrates from Hyde Park Corner, it will not be the first of the London medical schools or hospitals to do so. One of the most ancient, St. Thomas's, under the pressure of necessity, severed its long association with its neighbour, Guy's, and moved from Southwark to Lambeth more than sixty years ago. King's College Hospital, which is one of the younger hospitals, left the neighbourhood of the Strand, whence the slum dwellers of Clare Market and Drury Lane had disappeared, and removed a few years ago to Denmark Hill, whither its medical school is now following it. In neither case, we believe, has the removal been regretted by those most concerned.

It has been obvious to even the casual observer that St. George's has for years been occupying a valuable site which is too small for it, and it has seemed equally obvious that the site might be sold for a large sum and the proceeds devoted to the purchase of a larger yet less costly site near the middle of the area which the charity serves. But until lately it has not been found possible to put such a plan into practice. Now, however, the authorities have assured themselves that in the course of the next few years such a transaction will become possible. If so, another of the remaining landmarks of the neighbourhood of Hyde Park Corner will disappear.

HEALTH OF SCOTLAND

DEPARTMENT'S ANNUAL REPORT

The fourth annual report of the Department of Health for Scotland, dealing with the year 1932, has just been issued.[1]

Maternity and Child Welfare Services

The year 1932 showed the lowest birth rate recorded in Scotland, and a maternal mortality rate which, although higher than that for 1931, was lower than the average of the preceding five years. The infant mortality rate increased to 86 per 1,000 births as against 82 for 1931, and 85 for the average of the preceding five years. There were 579 deaths of women from diseases and accidents of pregnancy and childbirth, representing a rate of 6.4 per 1,000 registered births ; 246 of the deaths were attributed to puerperal sepsis. An inquiry has been undertaken into the circumstances attending births in Scotland over a period of six months from the middle of December, 1932, and it is hoped that this will throw some light on maternal mortality and morbidity. Deaths of children under 1 year numbered 7,841 ; the most important causes were congenital debility, premature birth, malformation, etc., in 43 per cent., bronchitis and pneumonia in 24 per cent., and diarrhoea, measles, and whooping-cough in considerably smaller numbers. Schemes for maternity and child welfare services are now in operation in all areas in Scotland except one, and the school health schemes have been continued by the reconstituted education authorities. With a view to securing a higher standard among midwives in Scotland a grant has been offered by the Department since 1927 to encourage trained nurses to undertake midwifery training, and the number of applications for this grant during 1932 was seventy-seven, making a total of 347 since 1927. The number of practising midwives in Scotland is estimated at 5,500, of whom 1,400 are in independent practice. Applications by midwives for medical assistance, which are on the increase, are made in approximately one out of every four confinements. The Department's regulations requiring notification of puerperal pyrexia in addition to puerperal fever have been effective in securing that cases of sepsis are brought earlier to the notice of medical officers of health, and arrangements have been made by most local authorities for consultant service, bacteriological examination, skilled nursing for home cases, and hospital treatment to be available for practitioners in these cases. The provisional figures for 1932 have shown a total of 1,206 notifications of puerperal fever and 1,081 of puerperal pyrexia. During the year 1,652 cases of ophthalmia neonatorum have been notified—as compared with 1,443 in 1931—of which 805 were notified in Glasgow. A clinical analysis of the 805 notifications, however, has shown that only 5 per cent. were of gonococcal origin. The number of schools inspected was 3,400, with a total of 831,792 children on the registers, of whom 247,272 in selected age groups were examined ; in addition, 128,021 referred by teachers or parents were examined, and 101,456 previously found defective were re-examined. The total number of examinations therefore dealt with 65 per cent. of the children. A distinct improvement in nutrition has been observed, despite the economic depression, and the percentage of children of " average or above average " nutrition has risen from 91.9 in 1923 to 94.5 in 1932, while the proportion of " below average " has diminished from 7.9 to 5.3 per cent., and of " very bad nutrition " from 0.3 to 0.2. Throughout Scotland generally there has been a gradual and consistent fall in the percentage of cases showing marked rickets. It is noted, however, that the medical officer of health for Glasgow reports that there are indications that rickets among pre-school children shows a tendency to increase, and the same fact has been noted in other industrial areas. Enlarged tonsils and adenoids have shown a definite increase over the past ten years ; some of this, however, is due to more frequent diagnosis and to the extension of facilities for treatment.

Infectious Diseases

There were increases in scarlet fever and pneumonia, and decreases in diphtheria and tuberculosis. The total number of all known cases of tuberculosis of various forms was 16,064, giving an incidence of 3.32 per 1,000 of the population. The total accommodation of beds reserved for tuberculosis is approximately 5,000, and the dispensaries and clinics now number forty-two. The number of centres for the treatment of venereal disease remains at fifty-two, as in the previous year. New patients to the number of 9,759 came forward, of whom 6,307, or 65 per cent., were found to be infected with venereal disease ; 284,372 attendances were made by infected persons for treatment. The report regards as a satisfactory feature of the work of these centres, indicating a growing confidence among the public to secure early and competent treatment, that an increasing number of patients who apply are found not to be suffering from venereal disease. On the other hand, the total number of defaulters who ceased to attend before being discharged as cured amounted to 53 per cent. ; this, however, was smaller than in previous years.

Hospital Services

Owing to considerations of economy there were few proposals for development of hospital facilities involving immediate expenditure, and only one scheme of

[1] Cmd. 4338. H.M. Stationery Office, 1933. (3s., postage extra.)

reorganization, that of Edinburgh, was formally approved by the Department during the year. This scheme removed from the category of Poor Law hospitals the institutions formerly known as Craigleith and Seafield Hospitals, and Pilton Infectious Diseases Hospital; these institutions have been converted to the purposes of general hospitals, and, to a certain extent, have been adapted for the instruction of students and the provision of facilities for clinical research. The Department has suggested the constitution of a Hospital Advisory Council for the south-eastern region of Scotland to the favourable consideration of the Town Council of Edinburgh.

Highlands and Islands Medical Service Fund

At the end of the year the doctors under agreement to render service under this scheme numbered 153. Surgical services, based on the voluntary hospitals at Stornoway, Kirkwall, and Lerwick, continue to demonstrate that they are indispensable to the communities they serve, and the grants are being continued, though at a somewhat reduced rate. Surgical services have also been inaugurated in Caithness, in the Lochaber district, in Sutherland, and in South Uist. Assistance has been granted by county councils in Inverness and Zetland for the provision of houses for doctors, and on the island of Eriskay for a district nurse. The expenditure, including the grant-in-aid of £70,000 and £10,000 transferred from the Scottish national health insurance in respect of mileage, amounted to £81,870.

National Health Insurance

Important developments of the national health insurance scheme were made by the National Health Insurance and Contributory Pensions Act, 1932, which for the most part came into effect on January 1st, 1933. The principal changes made by the Act relate to the rates of sickness benefit for women, the extent of free insurance to contributors who have ceased to pay contributions owing to cessation of employment, and arrangements in regard to arrears of contributions. The rates of disablement and sickness benefits were reduced, but it was pointed out by the Government actuary that the new rates would only be able to support the benefits if the claims were maintained at a level at least 10 per cent. lower than the average claims for 1928–30. As a result of the passing of the 1932 Act, an unemployed person who at the time of his becoming unemployed had acquired a fairly substantial standing in insurance, will be retained in full insurance for a period of from two and a half to three years if he is unable to continue insurance payments owing to inability to obtain work. This will carry on free insurance up to not later than December 31st, 1935. The membership of approved societies under the insurance scheme amounted to 1,195,000 men and 630,000 women, a total of 1,825,000 insured persons. An upward movement in the rate of expenditure on cash benefits during 1932 is recorded, the total for sickness and disablement benefits during 1932 having been £1,786,000 as compared with £1,664,000 in 1931. The excess was mainly among the insured men, and from the Department's investigations appears to have been due largely to the severe epidemic of influenza which ran its course towards the end of the year. Examinations of insured persons by the Regional Medical Service showed that the great bulk of cases referred were submitted by approved societies; the falling off in the number of references submitted by practitioners, however, has continued. The total number of cases referred was 62,294; in 26,019 of these the practitioner's certification was upheld, and in 11,987 it was reversed. The charge on approved societies for medical benefit was maintained during 1932 at the same rate as in recent years—namely, 12s. 1d. per person—and from the fund so provided there was made payable to insurance practitioners £863,550 in capitation payments, £52,500 in payment for mileage, and £10,000 in respect of medicines and appliances provided by dispensing doctors. The payments to chemists and doctors in respect of medicines included sums totalling £9,200 for insulin. The report judges that the medical service given by insurance practitioners may be regarded as of a satisfactory standard from the fact that during the year under review only thirty-two cases of alleged failure on the part of practitioners to carry out their obligations were reported. Twelve of these were dismissed, and in nineteen penalties were inflicted aggregating £159 8s. In one case only was the practitioner's name removed from the list in consequence of breaches of his term of service.

[To be concluded]

THE UNIVERSITY OF LONDON

FOUNDATION STONE OF BLOOMSBURY BUILDINGS LAID BY THE KING

On Monday last, June 26th, with appropriate ceremonial, the foundation stone of the new home for the University of London in Bloomsbury was laid by the King. The Queen was also present, and a great assembly, principally representative of British, Imperial, and foreign universities and learned societies, gathered in honour of the occasion. The ceremony took place at the south-western corner of the new site, opposite the northern façade of the British Museum. Here a dais was erected confronting a gigantic semicircular marquee accommodating three thousand guests and students, and the academic gowns everywhere worn made it a brilliant spectacle. The principal procession to the dais to await the King and Queen was formed at the London School of Hygiene and Tropical Medicine, which is adjacent to the site. It was led by the official staff of the University, the standing committee of Convocation, the Senate, and the Court. It included four former Vice-Chancellors (Sir Holburt Waring, P.R.C.S., Professor E. A. Gardner, Sir William Beveridge, and Dr. J. Scott Lidgett), and the Chancellors of many sister universities, among them those of Dublin (Lord Iveagh), Aberdeen (Lord Meston), Glasgow (Sir Donald MacAlister), Leeds (Duke of Devonshire), Birmingham (Lord Cecil of Chelwood), Victoria University of Manchester (Lord Crawford and Balcarres), Durham and Queen's University, Belfast (Lord Londonderry), Cambridge and St. Andrews (Mr. Baldwin), and the Vice-Chancellor of Oxford (Rev. F. J. Lys). After these came the Chairman of the London County Council, the Lord Mayor of London, the Mayor of Holborn, the Public Orator (Professor Harold Butler), the Principal of the University (Dr. Edwin Deller), Sir E. Graham-Little, M.P., the Chairman of the Court (Lord Macmillan), the Chairman of Convocation (Mr. S. L. Loney), the Vice-Chancellor (Professor L. N. G. Filon), and the Archbishop of Canterbury. The Chancellor of the University, the Earl of Athlone, brought up the rear. In all, nearly 150 universities and academies joined in the celebration, and the colours of the East were very noticeable.

Their Majesties, who were accompanied by Lord Irwin, the Minister for Education, were received by the Chancellor of the University and the Mayor of Holborn, and after certain presentations had been made the Chancellor in an address to the King spoke of the abiding faith which those to whom the affairs of the University were entrusted felt in her great future. The University, he said, had never lacked friends, and, with great and honoured exceptions, those friends had been mainly members of her own family; yet she had never possessed a home of her own, suited to her special needs, and worthy both in spirit and in form of the great city whose name she bore.

"The ceremony which your Majesty has graciously consented to perform this afternoon marks the commencement of a new era, for the University of London is standing upon the threshold of the great inheritance she has built up for herself, a heritage which means nothing less than that she shall become not only the University of London in name but in deed and in reality London's University. That London and the City of London are awake to this fact is evidenced by the enthusiasm with which they have welcomed the idea of a central home for their University and by the most generous manner in which they are helping to further that

end. The splendid buildings which will arise here in the heart of London above and around the stone which your Majesty is about to lay will be the living embodiment of that idea. . . . We may not all be here to see the completion of those buildings, but we are well content that what is being done to-day marks the beginning of one of the greatest periods in the history of the University of London."

THE KING'S SPEECH

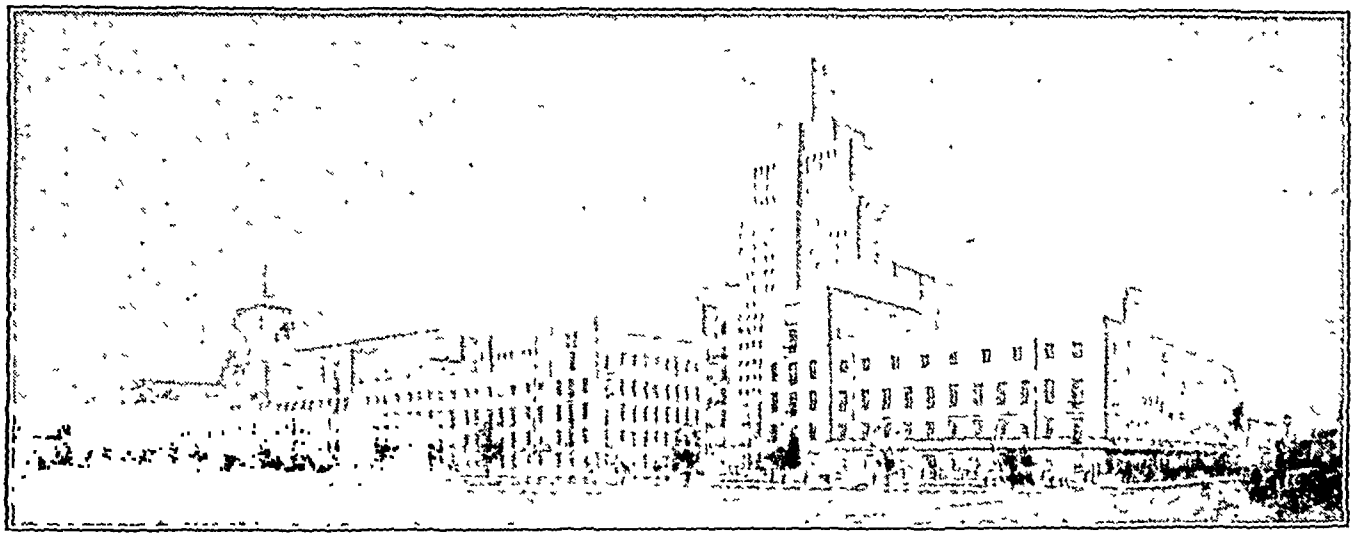
The King, after expressing his pleasure at being present, and thanking the Chancellor for his loyal address, said that the University "has waited long for a home that she could truly call her own, and we all now rejoice to see the beginning of a finely planned group of buildings which will serve as headquarters for her far-reaching work and influence. I count it of good omen that in these difficult times we have the opportunity of showing an unshaken faith in the inestimable benefits of knowledge and education. No less auspicious is the alliance in this good cause between friends of education in the Old World and the New. The Rockefeller Foundation, our own Government, the citizens of London in corporate and in private capacities, all share in a memorable achievement." After a welcome to the representatives of Dominion and foreign universities, his Majesty concluded: "Bloomsbury has long been a centre of learning, and it is appropriate that we should inaugurate here, on this great site, a stately plan of buildings worthy of London and of her University. I hope that this noble enterprise, which has begun so well, may attain an early and triumphant completion."

After prayers by the Archbishop of Canterbury, the King duly laid the foundation stone, first depositing in a cavity under it a casket containing the University Calendar, the Order of Proceedings, a copy of a brochure issued for the occasion, a newspaper of the day, and certain current coins. The trowel was handed to him by the architect, Mr. Charles Holden, and a silver mallet and spirit level by the Vice-Chancellor. His declaration that the stone was "well and truly laid" was followed by a fanfare of trumpets. Before their Majesties left, a number of further presentations were made, and they signed the visitor's book, and accepted specially bound copies of a descriptive account of the new buildings.

THE BLOOMSBURY SITE

The scheme thus inaugurated, whereby a new centre of University life in London is established, and some 10½ acres of Bloomsbury will be entirely rebuilt, has already been outlined in these columns. As the Earl of Athlone stated in his address to the King, although the University will in a few years' time celebrate its centenary, its first charter having been granted at the end of the reign of William IV, up to now it has had no worthy centre or focus. In 1927 the Rockefeller Foundation made a magnificent offer of £400,000 towards the purchase of a site on which adequate headquarters for the University might be built. The site in Bloomsbury was acquired for £525,000. It is bounded on the south by Montague Place, on the east by Russell and Woburn Squares, on the north by Gordon Square and Byng Place, and on the west by Malet Street, which, from being a commonplace thoroughfare, bids fair to become in a few years' time one of the great streets of the capital. Although the students of the University are scattered over a large number of schools and institutes, the greater number attend colleges situated within a radius of one mile, and University College itself is at the northern extremity of the site.

The work of development will be carried out in stages spread over many years. The vertebrate type of planning has been adopted for the whole area, so that the composition will be impressive even while incomplete. Excessive height on all frontages has been avoided, and the adjacent houses will not be overlooked. The exterior of the buildings will be faced to a height of about 15 feet with granite, and above with Portland stone; the core of the main structure will be of brick. A series of quadrangles will be laid out as gardens, with grass lawns. The first building to be erected will be the senate house and official headquarters; adjoining this will be the University hall, where ceremonials will be staged. The library, where for the first time the literary and other treasures of the University can be displayed to advantage, will probably be placed above the senate house and will occupy part of the tower, which, 200 feet in height, will dominate the whole group.



ARCHITECT'S PERSPECTIVE DRAWING OF THE NEW BUILDINGS IN BLOOMSBURY FOR THE UNIVERSITY OF LONDON.

There is an idea in some quarters that all the colleges and institutions of the University will be transferred to this site. Such a plan would be quite impossible; the sites of some of the colleges are themselves as large as the University site. Moreover, such a concentration, even were it feasible, would not be advantageous, for the needs of the vast number of students who live in all quarters of London at home or in lodgings or hostels have to be considered. Again, the medical schools must, of course, continue to be attached to the great London hospitals. But from the very fact that some of its constituent elements must be considerable distances apart, the establishment of a worthy centre of the University becomes all the more important.

The returns from universities and university colleges in receipt of Treasury grants for the academic year 1931–2 has just been issued by the University Grants Committee (H.M. Stationery Office, 1s. 3d.). Of the 48,510 full-time students to which this publication relates, medicine and dentistry claims 10,379; of these 9,107 were men and 1,272 women. The schedule of degrees and diplomas obtained during the year and analysed according to faculties gives a total of 960 degrees and 1,176 diplomas under "medicine including dentistry" in Great Britain.

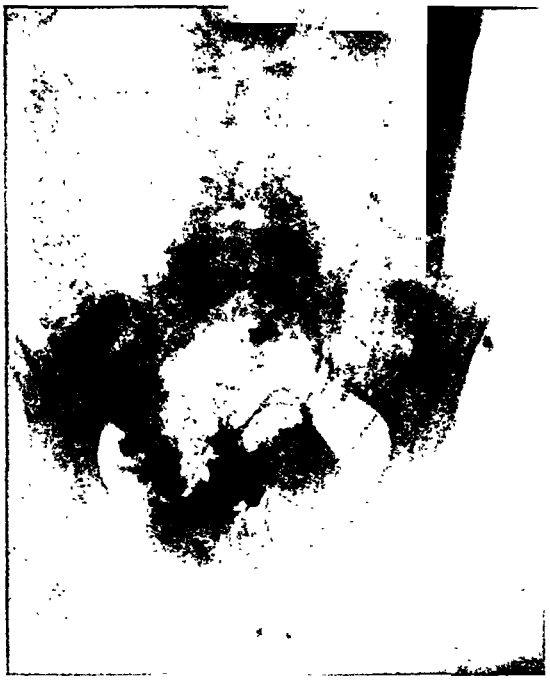


FIG. 1.—Jane D. Showing redundant pelvic colon with loop fixed at two extremities—a suitable axis of rotation for a volvulus.



FIG. 2.—Katherine F. Showing long sigmoid colon (of second type) with torsion of mucous folds higher up.



FIG. 3.—Charles P. Showing enormous loop of pelvic colon on right with twining over of coils to form a volvulus.

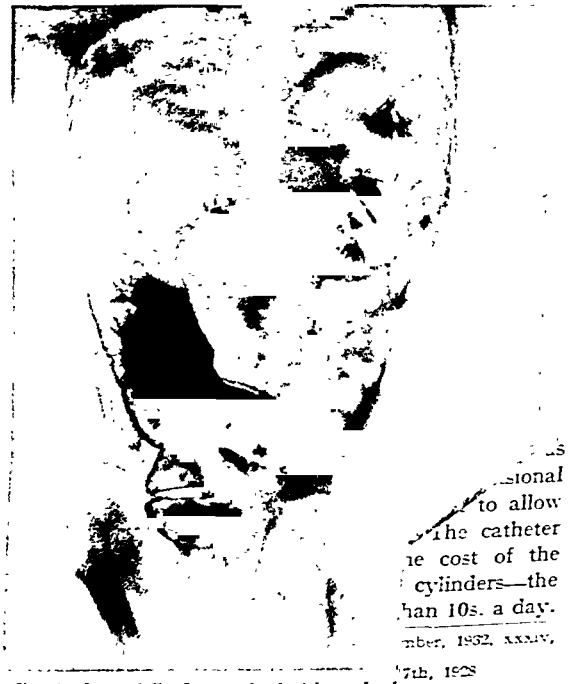


FIG. 4.—Leonard E. Large redundant loop of pel up into right abdomen—potential volvulus.

G. H. COLT AND A. LYALL: OSTEITIS DEFORMANS TREATED WITH PARATHORMONE



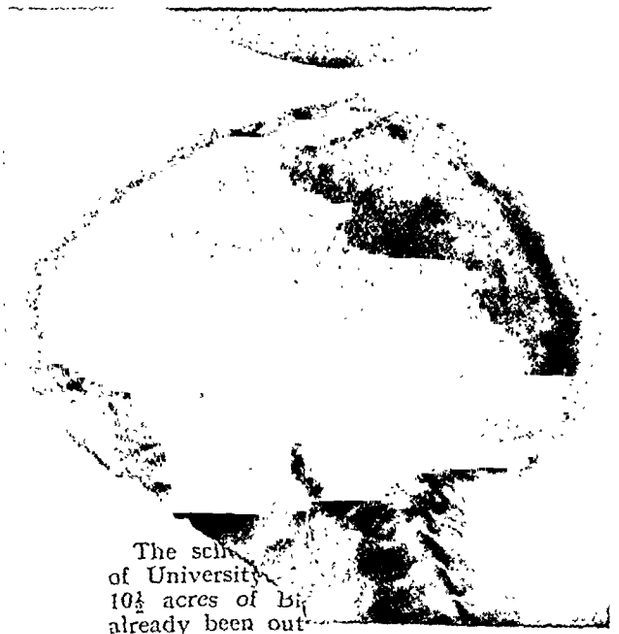
Fig. 1.—The patient in 1906.



FIG. 2.—The patient in 1931.



FIG. 3. The patient in 1931.



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skull, May 15th, 1931

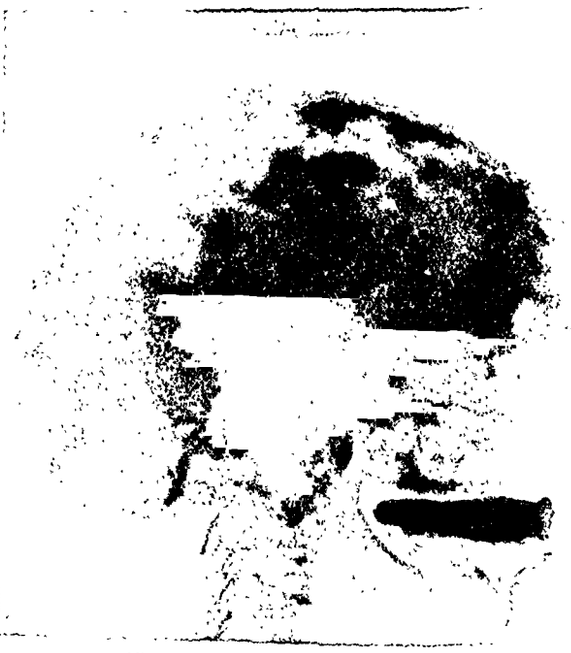


Fig. 5.—Skiagram of skull, July 9th, 1932



FIG. 6.—Skiagram of femur
September 28th, 1932.

A. WILFRID ADAMS: MULTIPLE GASTRIC ULCERS



FIG. 1.—Before operation. Showing three ulcer craters near distal end of lesser curvature.



FIG. 2.—After partial gastrectomy (Polya) six months later.

J. R. CRUMBIE AND J. STEPHENS: DIAPHRAGMATIC HERNIA

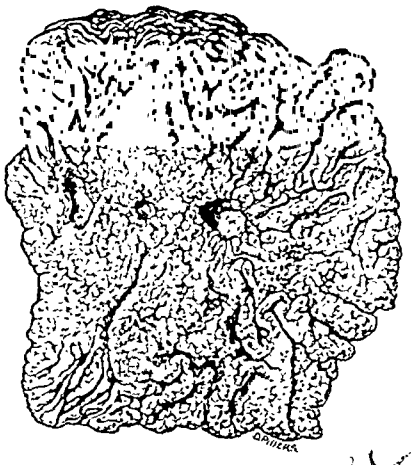


FIG. 3.—Resected portion of stomach.



Showing herniation of small intestine and cae cavity, displacement of heart to left, and abdc entirely occupied by large liver and stomach.

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...ber, 1932, xxxiv,
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FIG. 1.—Before treatment.



FIG. 2.—Four weeks after sympathectomy.



IX weeks after sympathectomy.



FIG. 4.—Microscopical section of edge of ulcer, showing appearance of squamous carcinoma.

British Medical Journal

SATURDAY, JULY 1st, 1933

OXYGEN THERAPY

As a general rule useful additions to our therapeutic knowledge are taken up quickly by the profession, but it is open to doubt whether oxygen is employed as much as it should be. During the war continuous administration of oxygen was widely practised in the treatment of pulmonary oedema from poison gases. The experience then obtained of the great value of oxygen in cases of gas poisoning encouraged its use in civil practice, and its importance as a therapeutic agent became more widely recognized during the ten years between the close of the war and the discussion held in the Section of Therapeutics and Pharmacology at the Annual Meeting of the British Medical Association in Edinburgh. Since 1918 there have been published a large number of clinical and experimental studies, recently summarized by Boothby.[1] The theoretical basis of arterial anoxaemia and its effects on the body have been expounded by Haldane and other workers,[2] and the indications for the use of oxygen in disease, with the evidence of its beneficial action, have been laid down by Stadie,[3] Meakins and Davies,[4] and many other English and American observers. It has been shown that anoxaemia is insidious in its onset and can exist without cyanosis. Indeed, when cyanosis first appears in the anoxaemia of lung disease the arterial blood is already seriously lacking in oxygen. Anoxaemia must be treated early, for if it goes on too long irreparable damage may be done to the respiratory centre and other parts of the central nervous system, on which falls the brunt of oxygen shortage. The causes of insufficient oxygenation of blood in the lungs may be put briefly under two headings: first, when enough oxygen fails to reach the alveoli; and, secondly, when there is interference with the passage of the gas to the blood. Inadequate ventilation may be either local, as in areas of collapse, or general, as in shallow breathing. Pulmonary oedema or other alveolar exudate is considered to cause delay in the passage of oxygen, so that venous blood passes through the pulmonary capillaries without receiving enough oxygen to saturate it. This makes a sort of venous short circuit. In pneumonia both these factors may be operative. This disease and pulmonary oedema constitute the commonest indications for oxygen therapy. They occur frequently after major surgical operations, and it is in this group of cases that oxygen is of greatest value, because the virulence of the infecting organisms is commonly less than in cases occurring spontaneously in healthy people: the anoxaemia, therefore, assumes a greater relative importance. In lobar pneumonia there are so many complex factors influencing the mortality that the exact part played by oxygen is difficult to assess; the effect of anoxaemia is mingled with that of the toxaemia.[5] In these circumstances an immediate and dramatic result of oxygen therapy is seen only occasionally: however, it needs but a few trials to convince any unprejudiced observer of the beneficial effect on the circulation and on the nervous system.

Why is it, then, that oxygen is not more widely used in practice? It may be that the significance of acute cyanosis is not generally recognized because chronic cyanosis is common and harmless in conditions such as emphysema and congenital heart disease, in which a compensatory increase of haemoglobin occurs. There can be little doubt that the extra attention needed for continuous oxygen administration, combined with the difficulty of obtaining the oxygen and other necessaries, is in some instances enough to prevent its use. Perhaps it is not sufficiently recognized that the good obtained from oxygen is not proportional to the amount given. The oxygen chamber or tent is by far the most agreeable and effective method, but this for the present is employed only in institutions, at least in this country. What complicates this method is the necessity for keeping the carbon dioxide at a proper level and also for regulating the temperature. The administration of carbon dioxide as well as of oxygen is very beneficial in carbon monoxide poisoning, but has not yet been proved to be of value in the majority of cases of pneumonia.

The simplest and cheapest way of giving oxygen is by the nasal catheter; this has been shown to have a definite effect on the oxygen content of the arterial blood, even when quite small quantities of oxygen are given.[6] At its simplest it consists merely of a fine rubber tube inserted three inches into the nostril, held to the cheek by plaster and connected to an oxygen cylinder. A reducing valve is desirable; and other refinements include a blunt-ended rubber tube with a hole lateral instead of terminal and smeared with cocaine ointment. To warm the gas and also to provide a visible flow, it can be passed through warm water. A glass jam jar capped with strong sheet rubber, pierced to receive two pieces of glass tubing, will outlast an expensive Woulfe's bottle. The flow of oxygen should be as fast as can be comfortably borne. Once the oxygen is flowing no attention is needed beyond a cautious turn of the valve to maintain the flow and the occasional detachment of the tube from the water flask to allow of the removal of condensed moisture. The catheter may be left in position for days. The cost of the oxygen, given continuously from small cylinders—the most expensive way—need not be more than 10s. a day.

[1] Boothby, W. M.: *Journ. Amer. Med. Assoc.*, December 10th, 1932.
[2] Haldane, J. S.: *Respiration*, Yale University Press, 1922.
[3] Stadie, W. C.: *Journ. Exp. Med.*, 1919, xxx, 215.
[4] Meakins, J. C., and Davies, H. W.: *Respiratory Functions in Disease*, London, Oliver and Boyd, 1925.
[5] Potts, W. H.: *Amer Journ. Med Sci.*, November, 1932, xxxiv, 616.
[6] Hilton, R.: *British Medical Journal*, March 17th, 1928

SCARLET FEVER IN ENGLAND AND WALES

Miss Hilda M. Woods of the London School of Hygiene and Tropical Medicine has recently made a detailed statistical study of scarlet fever in England and Wales since 1900, under the headings of the trend of mortality and possible factors influencing this trend, changes in the age and sex distribution of mortality, morbidity, seasonal incidence, and case fatality. As the Medical Research Council points out in the preface to her report,[1] Miss Woods has had an advantage over statisticians of an earlier generation in that she has been able to study not only mortality but prevalence. In striking contrast with what happened in the second half of the last century the deaths from scarlet fever in England and Wales have shown such a remarkable diminution, due to lessened severity of the disease since 1900, as to suggest that the lowest death rate has been reached. The past history of the disease, however, should serve as a warning against excessive optimism in this respect, for variation in intensity from extreme gravity in the last years of the eighteenth century to a mild type of the beginning of the nineteenth century was followed by a severe type in the 'fifties. A study of the mortality figures for London, Liverpool, Manchester, and Birmingham reveals that the change in the trend of mortality from scarlet fever has not been uniform, but has shown more or less wide variations. In the pre-war period, for example, the greatest improvement in mortality occurred in Liverpool, whereas since the war the greatest decline has occurred in Birmingham. Contrary to what was first maintained by sanitary authorities Miss Woods found no evidence that hospital isolation has been effective in reducing the prevalence or mortality of scarlet fever. This conclusion bears out that of the Committee of Medical Officers of the Ministry of Health,[2] who reported in 1927 that "the incidence of the disease in the country generally appears to show no marked reduction as the result of hospital isolation, or indeed of any other measure of public control."

As regards the possible factors influencing the spread of scarlet fever, the prevalence of vermin, poor social conditions, and low rainfall have among others been incriminated. While it is true that in London scarlet fever was more prevalent in the poorer and overcrowded areas, in Birmingham the greatest incidence was among the better-class artisan dwellers, and in Glasgow the attack rate declined as crowding increased. In London a definite relation was shown by Longstaff in 1880 and Brownlee in 1923 to exist between wet years and low prevalence of scarlet fever, but this association did not exist in Liverpool, Manchester, or Birmingham. As regards age distribution it was found that while the absolute mortality for scarlet fever had fallen at every age, the relative mortality in the later years of life had increased. A similar shifting of the mortality in scarlet fever from the lower to the higher ages was found by Pope in Providence, U.S.A., in 1926. Although the mortality of scarlet fever has declined much in the course of the last thirty years, there is no evidence that its prevalence has diminished to any extent, the attack rate in 1911 being 2.9 per thousand and 2.76 in 1930. A study of the geographical distribution of the disease shows a high incidence in London and Essex, while in Middlesex, Bedfordshire, Wiltshire, and Denbigh the attack rates exceed 2,500 per million population. On the other hand, after the epidemics of 1920–1, there has been a marked fall in the attack rate in Wales, where in 1930 it was 2.87 as compared with 4.35 per 1,000 in 1920. In London (1930–1) and in Manchester (1896–1929) the maximum attack rate was at the age of 5 years—the age of compulsory school attendance. A study of the fatality rates at the Eastern Hospital from 1895 to 1914 showed that the greatest risk of death occurred during the first twelve months of life, though the chance of an attack was least among infants.

While the possibility of a reversion to a more dangerous type of scarlet fever in this country cannot be excluded, there seem to be ample reasons for believing that at least no sudden change is at all likely to occur. "Practical experience and statistical analysis appear to point to the same conclusion—namely, that the problem of scarlet fever *now* is an *essentially* different one from that of even a generation ago."

[1] Medical Research Council Special Report Series No. 180. H.M. Stationery Office (1s. 3d. net)
[2] Some Administrative Aspects of Scarlet Fever. Ministry of Health Reports, No. 35.

CLINICAL SIGNIFICANCE OF RETICULOCYTES

In a recent paper Tsonos[1] estimates the content of reticulocytes in normal blood as up to 5 per 1,000 red cells (25,000 per c.mm.). In most anaemias, infections, and intoxications these cells increase in number, whilst in cachectic conditions—severe chlorosis and aplastic anaemia—they occur in small numbers only or are entirely absent. Iron and arsenic medication may lead to a considerable reticulocytic reaction. The usual view taken is that the appearance of these cells in the circulation is an index of the increased function of the bone marrow, and, as such, important in the prognosis of anaemias. The author, struck by the fact that children and infants of the same age varied in their tendency to anaemia associated with infections or nutritional factors, sought to correlate this with the reticulocytic response, using brilliant cresyl-blue in the moist chamber. In eleven cases of so-called constitutional anaemia of infants without infection or nutritional disorders in which the haemoglobin content was between 50 and 60 per cent., and the red cell count between 3 and 4½ millions, he found five cases with reticulocytes up to 8 per 1,000, four up to 9 per 1,000, and two up to between 10 and 19 per 1,000. These differences could not be correlated with the clinical condition or the haemoglobin content. Treatment with iron, copper, arsenic, and, on two occasions, liver, led in ten cases to marked improvement in the blood picture, but in three cases only was there an initial rise in reticulocytes, which later regressed, and all of these cases had originally a count higher than normal: those with original

[1] *Klin. Woch.*, April 8th, 1933.

normal reticulocyte count remained unchanged, as did also a therapeutically intractable case. Examination of fifteen children, aged from 2 months to 12 years, with various infections but no anaemia, showed only three cases of increased reticulocytosis, these all being severely ill. In fifteen cases of infection with mild anaemia five showed " high-normal " values and six values between 10 and 19 reticulocytes per 1,000 R.B.C. ; and in seventeen cases with severe anaemia five were " high-normal," three between 10 and 19 per 1,000, and three between 20 and 30 per 1,000. Thus again no constant relation between degree of anaemia or severity of infection could be demonstrated. During convalescence seven children with 10 to 20 reticulocytes per 1,000 R.B.C. showed a gradual return to a normal count. Treatment with metals or liver, either in the later stages of the infection or during delayed convalescence, showed in five mild cases with a reticulocyte count between 5 and 18 per 1,000 a return to normal count without any initial rise in reticulocytes. Of seven severe cases which were followed for a considerable time there was in four cases a rise in reticulocytes up to 30 per 1,000 and in one case up to 60 per 1,000, these high values returning to normal slowly. These observations are interpreted by the author as showing that reticulocytic formation is a constitutional reaction more easily evoked in some individuals than others, and that there is a certain but not constant relation between the severity of the anaemia and the reticulocyte reaction. Very real importance is attached to the observation that improvement may occur with or without an initial rise in reticulocytes. In further support of this he cites two cases of mild and two of more severe anaemia in which recovery took place after iron medication without any change in the reticulocyte count and four severe and two mild cases in which, in spite of very marked reticulocytosis, recovery did not occur. A theory of the significance of reticulocytes in the blood is put forward which does not attribute their increase to stimulation of blood regeneration, but rather to stimuli which, acting on the bone marrow, disturb the normal inhibition of their too rapid release. Thus the author considers that causes which lead to anaemia may also lead to increased blood reticulocytes by acting in the above way. Reticulocytic reaction to certain drugs, it is suggested, may be due not to regeneration, but to toxic action on an already unstable mechanism.

THE CONDITION OF THE PROFESSION

The whole medical profession, in the English-speaking world at least, always listens with respect and admiration to anything Dr. Harvey Cushing has to say. He has written an article entitled " Medicine at the Cross-roads," which appeared in the *Journal of the American Medical Association* for May 20th last. In it he contemplates the medical profession as a patient who is supposed to be seriously ill and is menaced by a multitude of advisers. In a pleasantly cynical manner he attempts to adjudicate between, or to reconcile, a variety of diagnoses, and more than suggests that a period of quietude, even though it involves some endurance of accustomed ills, is more desirable than any application of drastic remedies, either self-administered or state-imposed. Such an opinion, coming from such a quarter, deserves, and will no doubt receive, careful consideration, both from the patient and from the rest of the consulting physicians and surgeons concerned with the case. It is scarcely to be supposed, however, that any of the parties involved will lightly acquiesce in a policy of masterly inactivity. It is probable that at least some minor adjustments of training and of environment will be adjudged to be necessary. Dr. Cushing's article is a delight to read, though perhaps a little long-drawn-out. Some few among its many wise dicta relating to questions of the day may be quoted here:

" Pressure is being brought to bear to have all bedside teaching permeated with emphasis laid on prevention, as though this were something novel. It would be a slur on the student's intelligence for a surgeon, let us say, to point out . . . that he wears rubber gloves to ' prevent ' infecting the patient, gives the anaesthetic to ' prevent ' pain, removes the appendix to ' prevent ' peritonitis, and so on *ad infinitum*."

" In actual fact, our schools no longer pretend that the degree of M.D. which students attain after four years prepares them for practice ; we merely bring them to the point at which they must on their own initiative scramble for a hospital appointment where they hope to acquire what the school has neglected to give them—the training necessary to secure a licence to practice."

" There has been much lamentation about the disappearance of the family doctor, but . . . he's not often heard from, and I am far from believing he's a vanishing species, in spite of our scholastic neglect of him in a system which, by over-emphasis on research and prevention, rather than on diagnosis and treatment, gives him while an undergraduate a sense of inferiority."

" What this puzzled world needs perhaps is more study of the past, fewer commissions and surveys of the present, and a greater number of philosophically minded, self-supporting, and law-abiding persons who can see all round their particular problem and independently devote themselves to it as do most doctors."

Yet though these passages contain important correctives to several current judgements, they are but random samples from a provocative presentation of medicine to-day as a clinical problem, which should be read in its entirety.

MEDICAL RESEARCH IN CALCUTTA

The annual report of the Calcutta School of Tropical Medicine[1] for 1932 is remarkable for the amount, the variety, and the quality of the research work reported. It is published in three volumes, one of which contains the annual reports of the directors and professors in charge of various departments, while the other two contain reprints of fifty-six published papers, and it is mentioned that fourteen additional papers were published from the school during the year. This large output is explained by the fact that the school is making an earnest attempt to grapple with the bewildering variety of diseases that afflict the Indian sub-continent. The director, Lieut.-Colonel H. W. Acton, mentions first the gratifying fact that at last the problem of the transmission of kala-azar has been solved, and that the disease has been proved to be transmitted by the sandfly *Phlebotomus argentipes*. A systematic examination has been made of a series of organic pentavalent antimony compounds in relation to their efficacy in the treatment of kala-azar, and of these stibosan has

[1] Calcutta: Bengal Government Press. 1933. (Gratis.)

been found to be the most effective. Several papers deal with the action of plasmoquine and atebrin in malaria, and the results recorded indicate the great importance of these compounds. The economic value of intelligent research is illustrated by the following facts mentioned in the director's report. A total dosage of 0.32 gram of plasmoquine had been recommended for the sterilization of gametocytes, but controlled investigation showed that 0.04 gram was equally effective. This change in dosage saved about £5,000 in a large-scale investigation of the action of plasmoquine in malaria. Hexyl-resorcinol was found to be unsuitable for the treatment of ankylostomiasis, because in comparison with other remedies it was relatively expensive and ineffective. Lieut.-Colonel Chopra, continuing his investigations on drug addiction in India, has found that during the last decade chloral hydrate has become widely used in the Punjab, apparently as a cheap substitute for alcohol in producing stupor. The points mentioned above are only a sample of the large mass of pharmacological, pathological, and bacteriological work that was produced during last year by the Calcutta School of Tropical Medicine. The director and his associates are to be congratulated on the manner in which they are advancing knowledge about the prevention and treatment of tropical diseases.

THE NATIONAL PHYSICAL LABORATORY

The yearly chronicle of work done at the National Physical Laboratory[1] covers a vast and various field. Metallurgy, aerodynamics, electrotechnics, and general physics in innumerable ramifications all come within its province. Only at a few points does it touch on medicine. The work upon the precise measurement of *x*-ray dosage and on the perfecting of protective measures is being continued. Radium to the total quantity of nearly 6½ grams was submitted to the laboratory for testing during 1932, and several hundreds of containers have been tested for leakage and repaired. At the request of the King's Fund twenty tubes belonging to the four-gram bomb were examined prior to being reissued in units of one gram to each of four London hospitals. The mounting of the one-gram units was also carried out at the laboratory. The laboratory undertakes the general arrangements for the storage and distribution of national radium, and consignments of radium have been distributed during the year to national radium centres and to three of the new regional centres. Certain of the national radium containers which were originally tested over two years ago have been retested during the past year in order to discover whether the radium supplied is free from mesothorium and its disintegration products. A number of radium containers have been inadvertently damaged by fire during the year, and the laboratory has been able to render effective assistance on occasion in recovering containers from hospital incinerators. At the request of the Otological Section of the Royal Society of Medicine, the laboratory has been carrying out experiments on the rates of decay of tuning-forks such as are used in otological testing. A simple instrumental test was devised in conditions which simulated those commonly adopted by otologists in tests of deafness, the rate of decay of a fork held in the hand being determined both in free air and with the base of the fork pressed against an artificial substitute for the mastoid bone of the skull. Attention was paid to the type of finger-grip employed, and to the effect of lack of balance of the prongs on the rate of decay. This latter condition not only gives rise to a more rapid decay than when the fork is in balance, but appears to accentuate the usual tendency of forks to decay at a greater rate when the amplitude is large than when it is small. Another piece of work has been undertaken at the request of the Dental Disease Committee of the Medical Research Council—namely, the *x*-ray study of tooth structure, in particular the difference between tooth enamel and dentine as revealed by *x* rays. The crystalline constituents of both these substances are nearly identical, but the arrangement of the crystallites differs greatly. In dentine the crystals are oriented at random, whereas in enamel there is a markedly preferred orientation, the nature of which has been determined. There is also a pronounced difference between enamel and dentine in their absorbing power for *x* rays, dentine being much more transparent. This throws some light on the amount of material other than crystalline in the different parts of the tooth. The enamel contains a higher percentage of crystalline material. Arrangements have been made for a continuation of the work, which has been extended to the study of enamel decay, and certain differences already found between normal enamel and enamel subject to decay are being further investigated. The annual inspection of the Laboratory by members of the general board took place on Tuesday of this week. Visitors were received by Sir F. Gowland Hopkins, President of the Royal Society, chairman of the board, Lord Rayleigh, chairman of the executive committee, and Sir Joseph Petavel, the director.

[1] Report for the Year 1932. H.M. Stationery Office. (14s. net.)

ANIMAL PATIENTS

Dogs fitted with prosthetic appliances are not uncommon in these days when the streets take their toll of dogs as well as of human beings, but it is unusual to hear of a dog with an artificial eye, or with a denture, including gold bridge work. Sir Frederick Hobday, who delivered the eighth Macalister memorial lecture at the National Temperance Hospital on June 22nd, described these and many other curious examples of veterinary surgery and orthopaedics. The use of *x* rays is now general in veterinary practice, chiefly for the detection of foreign bodies which have been swallowed. Sir Frederick Hobday rather suggested that dogs specialize in the things they swallow. One animal, for example, has a fancy for screws, a small collection of which has been removed from its stomach. Other dogs regard their interior as a money-box, and about sixpence in coppers, which should have been the property of the confectioner to whom the dog was sent to buy buns, was discovered in one canine stomach. A dog was recently brought to the Royal Veterinary College having swallowed a diamond stud of the value of fifteen guineas; the stud was retrieved. Among horses there were formerly many cases of swallowed foreign bodies, but this is now rare, owing to the practice among careful owners of going over the corn-feed with a magnet for the removal of small pieces of metal. Sir Frederick Hobday reminded his audience of the large amount of professional preparation which nowadays goes to the making of a veterinary surgeon. The student must

matriculate before beginning professional studies, following which a minimum period of five years is spent before the diploma of the Royal College of Veterinary Surgeons is granted; even so, a large proportion of students extend their studies for a further six months to take a university degree. After qualification the diplomate may specialize in public health, in which case he spends a further year in obtaining a post-graduate diploma, or he may decide to enter for tropical veterinary medicine, or to specialize as a consultant in a particular field, all of which entails further preparation. The veterinary course is open to women and men alike, and at present there are twenty-nine qualified women veterinary surgeons, and a good many women students in the different colleges. The Royal Veterinary College has at the moment nearly seventy women students, some of whom have already done brilliantly in examinations. The prospects of the veterinary profession for women appear to be good. Women seem capable in an unusual degree of inspiring confidence in animals, and of converting their animal patients into friends. The girl seeking a career, if she had brains and loved animals, might be well advised, said Sir Frederick Hobday, to qualify in a veterinary course, and afterwards specialize in canine medicine.

THE 1,500th SUPPLEMENT

Our *Supplement* of this week is the fifteen hundredth ordinary number. The propriety of issuing a supplement had been under consideration for some time before the first number appeared on February 5th, 1903. In October, 1901, the Council adopted a recommendation to the effect that in view of the amount of official matter which had to be published in the *British Medical Journal* it was desirable to issue from time to time supplements containing such material. The recommendation was not immediately acted upon, because it was a time of transition, and it seemed well to wait until the new constitution was in full working order. At first the *Supplement* was issued at irregular intervals as matter accumulated, but since the beginning of 1905 it has appeared, with very few exceptions, every week. It varies in size according to the exigencies of the moment; on several occasions it has contained sixty-four pages, either when the Annual Report of Council was published or when there has been a special Representative Meeting. In addition, special issues have occasionally been published, such as the *Canadian Supplement* in connexion with the Winnipeg Annual Meeting in August, 1930, the *Colonial Medical Services Supplement* in July, 1931, and the Register of Bio-Physical Assistants on several occasions. In 1912, at the height of the Insurance Act upheaval, the two volumes contained 1,484 pages. During the war the bulk was very much diminished, but it gradually grew again as the activities of the Association expanded in many directions, though the number of pages has never approached that of twenty years ago. The object with which the *Supplement* was established was that members should be able to follow every phase of the British Medical Association's work, and to appreciate its variety and extent. In this way it was believed that a larger proportion of members would be stimulated to interest themselves in the Association's efforts for the furtherance of reforms within, as well as without, the profession.

COMMITTEE ON SCOTTISH HEALTH SERVICES

The Secretary of State for Scotland has appointed a Committee "to review the existing health services of Scotland in the light of modern conditions and knowledge and to make recommendations on any changes in policy and organization that may be considered necessary for the promotion of efficiency and economy." The members of the committee are: Sir John Dove-Wilson, K.C., ex-President of Supreme Court of Natal (chairman), Mr. George Bonar, Dr. James L. Brownlie, Mr. Ian Carmichael, Professor E. P. Cathcart, M.D., F.R.S., Dr. Robert W. Craig, Provost David Fisher, Professor Alexander Gray, Sir Andrew Grierson, Dr. John Jardine, Dr. Alexander S. M. Macgregor, Lady (Leslie) Mackenzie, Mr. W. M. Marshall, Dr. Alexander Miles, Bailie Violet Roberton, Mr. J. M. Vallance, Mrs. A. M. Chalmers Watson, M.D., and Mr. Joseph Westwood. The secretary of the committee is Mr. Niven F. McNicoll of the Department of Health for Scotland, 121a, Princes Street, Edinburgh, to whom all communications should be addressed.

On March 18th we announced that arrangements had been completed, after nearly three years of consideration and postponement, for the establishment of the British Post-Graduate Medical School at Hammersmith. Work on the building has now been begun, and the foundation stone will be laid by Mr. Neville Chamberlain, Chancellor of the Exchequer, on July 17th.

The new buildings of King's College Hospital Medical School at Denmark Hill will be opened by H.R.H. Prince George on Tuesday, July 4th, at 3 p.m., when Admiral of the Fleet Earl Beatty, chairman of the committee of management, will preside.

The Buckston Browne Surgical Research Farm at Downe, Kent, will be formally opened by Sir Holburt Waring, President of the Royal College of Surgeons of England, on Wednesday, July 12th, at 5 p.m.

ORDER OF ST. JOHN OF JERUSALEM

The King has approved promotions in, and appointments to, the Venerable Order of the Hospital of St. John of Jerusalem, as follows:

Knight of Justice.—Lord Dawson of Penn, G.C.V.O., K.C.B., K.C.M.G., M.D., P.R.C.P.

Knight of Grace.—Major-General J. T. Fotheringham, C.M.G., M.D. (Toronto), Colonel Sir Edward N. Thornton, K.B.E., M.R.C.S. (Pretoria).

Commander.—Lieut.-Colonel W. K. Clayton, C.M.G., M.D., H. W. Horan, M.B., S. McCormac, M.B., H. A. Beatty, M.D., Colonel L. Drum, C.B.E., M.D., Major-General Sir John W. D. Megaw, K.C.I.E., M.B., I.M.S., A. Dobson, M.R.C.S.

Officer.—J. Cairns, O.B.E., M.B., C. Armstrong, M.B., Major J. H. Dixon, M.D., Brevet Colonel J. Wallace, O.B.E., M.D., E. A. Braithwaite, M.D., Lieut.-Colonel O. A. Cannon, M.B., Colonel J. T. Clarke, C.B.E., M.C., M.D., Lieut.-Colonel G. G. Corbet, M.D., A. J. Douglas, M.D., Ross Millar, M.D., G. D. Stanley, M.B., M.P., Lieut.-Colonel A. McPhee Warner, M.D., R. E. Wodehouse, O.B.E., M.D., R. A. Worthington, M.D., A. T. Macnamara, M.D., G. B. Horrocks, M.B., Captain F. H. R. Heath, M.R.C.S., S. L. Dawkins, M.B., Captain M. G. Louisson, M.B., F.R.C.P.

Serving Brother.—C. Gardiner-Hill, M.B., Lieut.-Colonel N. Maclaren, M.B., F.R.C.S., R.A.M.C.(T.A.), Colonel C. H. S. Redmond, T.D., M.B., A.M.S., Major M. MacEwan, D.F.C., T.D., M.B., F. L. Newton, M.B., W. T. Thomson, M.R.C.S., G. P. Huws, M.B., H. E. Thomas, M.R.C.S., A. B. Hudson, M.D., J. H. R. Bond, M.B., Lieut.-Colonel R. M. Gorssline, D.S.O., M.B., L. H. Leeson, M.D., Major S. R. Gibbs, M.C., T.D., M.R.C.S., W. H. Vickery, F.R.C.S., Major T. Russell, O.B.E., L.R.C.P., A. S. Watson, M.B., R. J. L. Sladen, F.R.C.S.

Serving Sister.—Mrs. Grace H. G. Dundas, F.R.C.S.I.

THE HARVEY MEMORIAL TOWER

BY

SIR JOHN ROSE BRADFORD, BT., M.D.

On Friday, July 7th, at 3.30 p.m., Lord Dawson of Penn, President of the Royal College of Physicians, will lay the foundation stone of the new tower of Hempstead Church, Essex, which is now in process of reconstruction. This tower will in future be known as the Harvey Tower, and will be a visible and worthy memorial to the memory of William Harvey.



Hempstead and its church are closely and peculiarly associated with William Harvey and the Harvey family. The church is beautiful and of very considerable historical interest as an example of the Early Gothic building of the Middle Ages, dating as it does from the fourteenth century; but to members of the medical profession, and indeed to all workers in biology, there is surely a most direct and moving appeal in thus associating the memory and the name of the great exponent of the experimental method with the reconstruction of a tower that will in future be known as the Harvey Tower.

The Harvey family had many distinguished members in various walks of life, and their mortal remains lie in the vault under the Harvey Chapel built by members of the family who were landowners in the vicinity, and here in 1657 William Harvey was interred, and his body remained undisturbed until 1883.

In 1882 the church tower, after developing cracks in its upper parts, fell suddenly during the night of Saturday, January 28th. The collapse was due in all probability to some weakness in the upper parts of the tower, since the excavations recently made in the course of the reconstruction have revealed that the original foundations are sound, notwithstanding their great age. The fall of the tower fifty years ago produced a result that it is to be hoped is not often to be seen, since the smallness and the comparative isolation of the parish of Hempstead were such that it was not possible to collect sufficient funds to repair the damage. It is difficult to describe adequately the scene of desolation in the churchyard, encumbered as it was with the accumulated debris of the fallen masonry and with the fallen great bells of the church, that most fortunately were not seriously damaged. All that could be done, in addition to some urgent temporary repairs, was to collect and stack the stones and flints with the hope of some day rebuilding the tower.

The Harvey vault, with lapse of time, also fell into disrepair, and in 1883 the College of Physicians felt that it was not fit that the remains of the immortal Harvey should be so little cared for, and they removed the leaden shell containing his body from the vault and placed it in a marble sarcophagus in the Harvey Chapel of the church, where it now rests. Thus Harvey's remains have been treated in a dignified manner worthy of the greatness of the man.

During the last few years a committee representative of the medical profession and of the parishioners of Hempstead has striven to raise funds to restore the tower as a memorial to Harvey, and has obtained altogether some £3,000 in cash and promises. This sum is insufficient to restore the tower to its full height, and the rebuilding of the ringing room and of the belfry will have to be postponed unless a further sum of £2,000 can be obtained. Nevertheless, the building of the tower up to the level of the ringing room floor will be a vast improvement on the existing conditions, and it is to be hoped that it will afford an inducement to others to make contributions to the fund, and so enable the committee to complete its work. Not only has the cost of the rebuilding

been much reduced owing to the fact that the great bulk of the masonry required has been provided through the care taken in the past to preserve the old stone and flints, thus avoiding largely the purchase of new stone; but in addition there will be the satisfaction that the restored tower will consist to a great extent of the old material.

The committee was fortunate in securing the services of Sir Charles Nicholson as architect, and his drawing of the restoration is exceptionally pleasing, and in complete harmony with the ancient church. In the course of the preparations for the laying of the foundation stone, not only have the old foundations been found in excellent condition, but in addition several interesting relics of a Norman church that stood on the same site have come to light, and have been examined by the Rev. T. B. Conyers Barker, the vicar of Hempstead, who describes "portions of Norman shafts with interlaced work, a cap which covered twin shafts, and two leopard heads inserted as labels over the doorway." Further, Mr. Conyers Barker mentions that six ornamental stones bearing heraldic shields will be replaced on each side of the doorway of the new tower and on the faces of the four buttresses. It is to be hoped that the occasion of the laying of the foundation stone will afford an opportunity for many to make donations and to enable the work to be completed.

THE CAMBRIDGE MEDICAL COURSE

AMENDED PROPOSALS

In the *Cambridge University Reporter* for June 17th (No. 2939) is published the amended report of the Syndicate on the Medical Courses and Examinations of the University. It will be remembered that in reviewing the proposals for a Medical Sciences Tripos at Cambridge we said: "Of the various proposals put forward exemption from the Second M.B. through the anatomy (modified for this purpose) and the physiology of the Natural Sciences Tripos would go far towards solving the main problem."[1] And this is, roughly, the conclusion arrived at by the Syndicate in its amended report.

The report states that the bulk of University opinion is against the introduction of a Medical Sciences Tripos, and that the Syndicate itself is of the opinion that it would be preferable if the necessary changes could be effected in the Natural Sciences Tripos. The Syndicate and the Natural Sciences Tripos Committee are now in agreement on the proposed changes, to which the Faculty Boards have given their general approval. If the Senate also gives its approval the introduction of a Medical Sciences Tripos will be unnecessary. The Syndicate remains unaltered in its conviction that the present duplication of courses and examinations for the Natural Sciences Tripos, Part I, and the Second M.B., Part II, must be abolished. The following proposals, whereby exemption of medical students from Parts II and III of the Second M.B. can be obtained through a modified Natural Sciences Tripos, have been formulated after consultation with the Natural Sciences Tripos Committee.

In the study of anatomy, under the existing scheme, the student spends his first two years memorizing the mass of topographical detail necessary for Part II of the Second M.B., and the last year in "getting up" the morphology and embryology required of him for Part I of the Natural Sciences Tripos. The Syndicate deprecates this artificial division, and holds that topographical anatomy and morphology and embryology should be taught together as one subject; and it advocates that the anatomy of the Natural Sciences Tripos, Part I, should consist of equal proportions of "scientific" (morphology and embryology) and topographical anatomy. Of the latter, less detailed knowledge will be required, and teaching will deal chiefly with the general architecture of the body, with more exact treatment of certain important areas such as the nervous system. The scope of physiology is to remain unaltered, but the Syndicate recommends that the chemical part of physiology be taught in the Department of Physiology, and that some of the biochemistry which is more directly related to the education of the medical student should be taught in the Department of Biochemistry. It is proposed that optional questions on pharmacology shall be included in the physiology papers of the Natural Sciences Tripos, but it is not intended that pharmacology should be a subject in Part I of the Tripos. The Syndicate recommends that the present course of pharmacology held in the Lent Term and Long Vacation should continue, and that the student should not proceed to the Third M.B. until he has attended this course (or an approved course elsewhere) and passed a *viva voce* examination at Cambridge. It is also suggested that opportunity should be given to the student to study pharmacology in conjunction with the physiology for the Natural Sciences Tripos, Part II, and that he should be allowed to substitute one or, when possible, two papers and a practical examination in pharmacology for one or two papers and the corresponding practical in physiology. Evidence from many resident and non-resident members of the University strengthens the Syndicate's opinion that general pathology and bacteriology should form a half-subject in Part I of the Natural Sciences Tripos. The Syndicate does not suggest, however, that candidates should be required to take pathology in the Tripos in order to qualify for the Final M.B., as pathology forms part of this examination. It is opposed to a student's studying pathology in his first year. Owing to the increasing importance of biochemistry in scientific research and medical practice it is recommended, with the concurrence of the Natural Sciences Tripos Committee, that biochemistry should be a half-subject in the Natural Sciences Tripos, Part I, and that medical students should be advised not to take it until their second year. To encourage those medical students who wish to offer chemistry as a subject in the Tripos, the Committee for the Natural Sciences Tripos has now agreed, at the request of the Faculty Board of Physics and Chemistry, to propose the introduction of two half-subjects in chemistry—inorganic and physical chemistry, and organic chemistry. Each half would include general chemistry, and the two halves together form the whole subject. The Syndicate has also proposed a half-subject in zoology adapted to the needs of the medical student in Part I of the Natural Sciences Tripos. The Natural Sciences Tripos Committee agrees that zoology might be divided into two sections, Zoology A and Zoology B, the former being a half-subject suitable for medical students and the two together making the whole subject. While it is admitted that psychology is becoming of increasing importance in medicine, the Syndicate does not regard this as a suitable subject for Part I of the Natural Sciences Tripos. It proposes, however, that the student should be allowed to study psychology in conjunction with the physiology of Part II of the Tripos.

GENERAL RECOMMENDATIONS

In order to proceed to the Final M.B. Examination via Part I of the Natural Sciences Tripos, the student who gets honours in the Tripos must have satisfied the examiners in anatomy, dissected the whole body, and have passed a series of practical tests to ensure that the dissection has been adequately carried out, and must also have satisfied the examiners in physiology. It may be noted that pharmacology and pathology are not compulsory Tripos subjects for such a student. The Syndicate allocates thirty hours a week to lectures and laboratory work in anatomy, physiology, and one other whole subject, or two half-subjects (twelve, nine, and nine hours, respectively); and this, it considers, will enable a "good" student who has passed the whole of his First M.B. before coming into residence to take the Natural Sciences Tripos, Part I, in three subjects at the end of his second year. The "average" student and the student who has done

[1] *British Medical Journal*, November 19th, 1932 (p. 936).

no science before coming up to Cambridge should spend three years over Part I of the Tripos.

It is therefore proposed that Parts II and III of the Second M.B. be abolished, that Part I (organic chemistry) be transferred to and become Part IV of the First M.B., and that qualifying examinations in anatomy and physiology be provided for those who have not offered these subjects in the Tripos, or who have not reached the standard required, although obtaining honours. This qualifying examination could also be taken by students not intending to read for honours, but who would proceed to the Ordinary B.A. degree: these students, however, will have to "*rely on some medical qualification other than the Cambridge M.B. Degree.*" (Italics ours.) The Syndicate wishes to make the degrees of M.B., B.Chir. "conditional on obtaining honours, or on reaching later an honours standard in a Tripos." It is "of the opinion that the Cambridge M.B. Degree should normally imply a high standard in the preclinical training in science, which Cambridge is peculiarly qualified to give, as well as a high standard in the final examination in clinical subjects." The Syndicate has also made provision for students who may wish to take up medicine after obtaining an honours degree in some Tripos other than the Natural Sciences. Such a student who has gained honours in any part of any Tripos would be allowed to proceed to the Final M.B. Examination after passing the first M.B. and the qualifying examinations in anatomy and physiology, after taking an approved course in pharmacology and passing the *viva voce* in this subject in Cambridge, and after having completed the dissection of the body and passed the necessary practical tests.

The Syndicate is strongly of the opinion that no clinical work should be done at Addenbrooke's Hospital during the three years' residence at Cambridge, which should be devoted exclusively to preclinical subjects; but it is anxious that the teaching of applied anatomy, biochemistry, pharmacology, physiology, and pathology should be developed in co-operation with the physicians and surgeons on the staff of the hospital. To ensure adequate clinical work it is proposed that a student should not be allowed to take both parts of the Final M.B. until three years, and one part until two years, after passing the last examination which qualifies him for the final examination. Modifications of the conditions for obtaining the M.D. are also put forward, as well as other recommendations.

England and Wales

International Congress of Orthopaedic Surgery

As already announced in these columns the second Congress of the International Society of Orthopaedic Surgery will be held in London from July 19th to 22nd; the president will be Professor Nové-Josserand of Lyons, and the secretary Mr. Harry Platt, surgeon in charge of the orthopaedic department of Ancoats Hospital, Manchester. The meetings will take place at the Royal Society of Medicine. After a general meeting on the afternoon of the first day, the president will hold an evening reception at the Langham Hotel. Proceedings will open on July 20th with an address by Professor Nové-Josserand on the general position of orthopaedics. This will be followed by a discussion on the general mechanism of joint movements, the first speakers being Drs. von Bayer of Germany, Delitala of Italy, and Scherb of Switzerland. In the evening there will be a reception at the Royal College of Surgeons. Tuberculous coxitis will be the subject for debate on the morning of July 21st, the first four contributors being Drs. Erlacher of Austria, Maffei of Belgium, Henderson of the United States, and Sorrel of France. In the evening there will be a dinner at the Dorchester Hotel. The morning of the last day will be devoted to short papers, the subjects including arthroplasty of the hip; hypertrophic osteopathies; a film illustrating the treatment of fractures of the spinal column; the pathodynamics of wrist and finger contractures; and gland biopsy as a means of diagnosing tuberculous osteoarthritis of the limbs. The afternoon will be spent in a visit to Alton. In connexion with this congress, tours are being arranged to Shakespeare's country, the West of England, and Scotland. Participation in the congress is limited to members of the International Society.

Epsom College

Lord Burnham, the president, was in the chair at the eightieth annual general meeting of the governors of Epsom College, held on June 23rd at the office, 49, Bedford Square, W.C. In announcing the result of the election of pensioners and foundation scholars, the president commented on the pains taken by the Conjoint Committee to elect as foundationers the most deserving boys who at the same time would appear to be the most capable of utilizing their great opportunity, and stated that the boys' fathers had practised in various parts of Great Britain: one in Glasgow, three in Lancashire, two in Yorkshire, one in Ireland, one in Sussex, one in Cheshire, one in Devonshire, and one was in the Indian Medical Service. The names of the successful candidates were:

Foundation Scholarships: Edward H. Couper, Hugh W. Macintyre, Anthony G. Quinlan, Robert S. Sunderland, Robert D. West, William J. Dunlop, William M. Pinder, George L. H. Steede, Peter B. Verver, Brian H. Harriss, Michael R. Tosswill.

Pensionerships: Mrs. Mary J. Lindsay, Dr. Herbert Blott.

Dr. R. Prosser White was elected a vice-president of the College in appreciation of his generosity in founding prizes for the study of French and German or Spanish. In presenting the annual report of the council the president asked the governors to join him in an expression of pleasure on learning that the honour of knighthood would shortly be conferred upon Dr. Raymond Crawfurd, the chairman of the council. Dr. Crawfurd then gave the governors an interesting summary of the works carried out at the College in the course of the past ten years, during which period the council had endeavoured to do what normally would have taken 100 years. The report was unanimously approved.

Mental Disease Research in Birmingham

The Joint Board of Research for Mental Disease of the City and University of Birmingham has issued its annual report for 1932–3, in which the chairman, Sir Gilbert Barling, calls attention to the increasing difficulties brought about by financial restriction. Little progress has been possible as regards the proposed central laboratories for the Midland districts and the provision of special research laboratories in connexion with the building of the new medical school of the University. An outstanding feature of the programme of work during the year under review was the continuance of the investigation of nasal sinus pathology with special reference to mental disease. The director of the research laboratories, Dr. F. A. Pickworth, contributed to the July, 1932, issue of the *Journal of Mental Science* a detailed description of the present position in this respect, including a collection of data from the existing literature and an account of original work.[1] In the *Journal of Laryngology and Otology* (1932, xlvii, p. 797) an article by him appeared on the influence of septic infection upon the cerebral blood supply, the hypothesis being put forward that the most important cause of dysfunction of the brain was to be found in the disturbance of the circulation following sepsis of the sphenoidal sinus. A necropsy on a case of post-lethargic encephalitis

[1] See *British Medical Journal*, December 31st, 1932, p. 1201.

disclosed irregularities in the sphenoids, with indications of old sepsis. The left antrum contained pus, and the mucosa was thickened. Brain sections also showed changes of considerable pathological interest. It may be recalled that there was a series of 100 specimens supplied by the Board to illustrate nasal sinus pathology in the museum at the Centenary Meeting last year of the British Medical Association. Another line of investigation continued by the Board involved the examination of thick sections of the brain for the quantitative amount of nerve cells present and the condition of the vascular supply. Pathological changes were detected in the smallest brain arteries in cases of mental disorder. In many instances the total loss of cells of the cortex was very remarkable, and could conceivably be correlated with dementia. By this intensive study also many infarcts were brought to light which would otherwise have escaped notice. The blood supply of the cortex was found to show great variation in local areas, which contrasted sharply with the even distribution in normal animal brains used as controls. A large number of catheter specimens of urine were examined for organisms on the supposition that saprophytic streptococci might have access to the brain; the number of positive findings was significant.

London Public Health Services

Most of the matters which are dealt with in the second volume of the annual report of the London County Council, 1931 (Public Health),[1] have been already recorded in these columns as they have arisen from time to time in the proceedings of the Council, but it is useful to have some complete picture of the great work for which the Council is responsible. Apart from mental institutions, the Council has under its management seventy-five hospitals, with 41,000 beds, and with a staff, including the ambulance service, of nearly 19,000. It is mentioned that during the year under review four conferences took place between representatives of the Council and representatives of the London Voluntary Hospitals Committee, and that the subjects discussed were not limited to those strictly defined under the Local Government Act, 1929, but were extended to include other matters of mutual interest, such as facilities for medical education. The achievements of the Council in regard to housing are recorded in the same publication. Up to the end of 1931 the Council has completed as part of its post-war programme 46,724 houses and flats, and the total estimated population of these "Council houses" is over a quarter of a million. The housing programme for the quinquennium 1931–5 was an ambitious one, contemplating the provision of 34,670 houses and flats, and the initiation of schemes for dealing with clearance areas affecting a population of 30,000; but it has been interfered with by the financial situation. The development of the estates known as Becontree and St. Helier (Morden) is being continued, but at diminished rates of production, and it is proposed to proceed steadily with the Council's settled programme of slum clearance and rehousing.

Livingstone College

Commemoration Day at Livingstone College, Leyton, E., was held on June 12th, when the Archbishop of York presided over a large gathering. In his sympathetic address the Archbishop said that even a short course at Livingstone College was of supreme value to all missionaries. Sometimes the missionary had to take a responsibility or to make decisions that he would rather leave to the qualified medical missionary, but at least he would know through his training at the College whether he could deal with the case or whether he must call in the doctor. Those who had been through even one month's course would have some knowledge of the way in which the missionary could deal with the misery that surrounded him in his work. If the societies would supply thirty students a year for the full course it would be possible to keep the college running without further demands on the beneficence of the general public or on any sort of missionary funds. The principal, Dr. Tom Jays, said that Livingstone College had been passing through difficult times since 1931, with lowered fees and a great shortage of students. The treasurer, Mr. R. L. Barclay, said that during the past year expenses exceeded receipts by £346, and this in spite of the utmost economy in management on the part of the Principal and Mrs. Jays, to whom a great debt of gratitude was due for their ability and self-sacrifice.

[1] *London County Council Annual Report, 1931.* Vol. ii. P. S. King and Son. (1s.)

CORRESPONDENCE

Unqualified Practice and the Medical Curriculum

SIR,—Sir Ernest Graham-Little, in his letter in the *Journal* of June 24th, argues that the Medical Acts have failed to protect, commercially and politically, the registered medical practitioner, and that therefore it is not worth while exacting the severe tests now required before admission to the *Register*; further, that the money now spent is not well spent, because it does not produce corresponding privileges. He then states that teachers and students are acutely dissatisfied with the present required course, and supports this statement by quoting a resolution passed by a medical society belonging to one of the teaching hospitals, by another resolution passed by a student society which had had the matter argued before it (wisely or unwisely?) by a member of the staff of the school, and by a reference to the appointment of a committee in London to discuss the curriculum. (In parenthesis I remark that Sir Ernest appears to be imperfectly informed regarding the primary reason for the appointment of this committee.)

To meet the political disadvantages referred to, and the dissatisfaction thus illustrated, Sir Ernest propounds a scheme of a four-years' course which should entitle to registration under the Medical Acts; he does not suggest any reform of these Acts. It will not be disputed by anyone that periodic inquiry into the relations between what is taught and what is needed for service to the public is both wise and necessary, but it is a new proposition that the length and requirements of the medical course should be settled on the basis of the commercial value of registration. A reform of the medical course may be overdue, and the particular point which deserves attention is as to whether the courses as at present given have value in reference to practice; there is a suspicion in many minds that the enthusiasm of teachers has loaded the course with matter that has no such value, and also that certain traditions, now outworn, are still retained.

Sir Ernest Graham-Little appears to me to confuse two affairs which have little or no relation to each other, the one being the protection given to the public and the profession by the Medical Acts, the other the adaptation of teaching to the needs of practice. The defects of the first cannot be remedied by altering the curriculum, and the discussion of the latter should not be clouded by political considerations.—I am, etc.,

K. W. MONSARRAT.

London, W., June 24th.

The B.M.A. Nutrition Committee

SIR,—There was a phrase, complimentary to the British Medical Association, in the *Week-End Review* of May 27th, which some of your readers may well find disquieting. Referring to the recent correspondence in that periodical on the need for a dispassionate inquiry into healthy subsistence standards for the people of this country, and to the appointment to this end of "a strong committee by the British Medical Association," the editor wrote: "No doubt the B.M.A. committee will produce an exhaustive study which will supersede previous work within its field." How much time, I wonder, would a committee need for preparing such an "exhaustive" study? And, supplementary to that question, What, however perfect academically, would be the value of such a study to our unemployed *here and now?*

You yourself, in commenting on the need for an inquiry, remarked that "malnutrition may be more widespread than some people believe," and that "even the most confirmed optimists would not like to assert that the winter of 1933–4 will see any marked amelioration of conditions in the depressed areas of this country." May I suggest, then, that if the committee is as much concerned with aiding the public as with the scholastic aspects of its inquiry, it would do well to issue an interim *strictly practical* report at once, leaving itself free to make an "exhaustive" study at the unhurried pace and in the cold, disinterested temper that befits a body of scientific workers.

One other matter: according to the preliminary announcement in the *Supplement* to the *Journal* of March 18th, it was intended that the committee should consist of "a dietician, a physiologist, a practising physician, a school medical officer, a medical officer of health of an industrial area, and a statistician." As far as it goes an excellent combination; but would it not be a good idea to empanel a human being as well? The excellent report by the *Week-End Review* "Hungry England" Committee fell short, in my opinion, because its members, all experts, could hardly have tasted, let alone tried to live on, some of the foodstuffs they recommended for the nutrition of millions of people, children as well as adults, in this country.—I am, etc.,

London, June 19th. JOAN MALLESON.

Arthritis and Allied Conditions

SIR,—It was with intense interest that one opened the *British Medical Journal* of June 17th to study the report of the Arthritis Committee, which has been eagerly awaited, and which is in so many respects the model of careful analysis and judicious criticism that was to be expected from the patient collaboration of such a distinguished group of practitioners. Nevertheless, it came as a shock to an orthopaedic surgeon to find that the seventeen physicians on the committee had taken upon themselves to include in their report what one can only describe as a pocket-manual on the orthopaedic treatment of arthritis. This suggestion, that one of the most difficult branches of a great specialty can be satisfactorily dealt with in four columns, seems to me a most dangerous one to put into the minds of the profession at large, and one which should not be backed by the authority of the British Medical Association. The fact that not a single orthopaedic surgeon was a member of a committee dealing with diseases which at all their stages provide problems for the orthopaedic mind makes the matter still more extraordinary—or perhaps one should say more comprehensible!

If the orthopaedic aspect of arthritis was to be dealt with in detail, surely the rough draft of this section should have been submitted to an authoritative body, such as the British Orthopaedic Association? Alternatively, no one could have objected to a paragraph stressing the need for attention to the mechanical aspects of all joint diseases, and encouraging co-operation with the orthopaedic surgeon.

As it stands, the section on orthopaedics at once provides details of some methods and ignores others of the greatest value. While in the sections on vaccine treatment and dieting warnings are given as to the complexity of these subjects and the difficulties of correct dosage, conversely in the orthopaedic section the provision of a spinal support, the treatment of flat-foot, the application of traction to stiff fingers, and many other difficult and controversial matters are lightly dismissed as simple affairs, within the scope of any practitioner.

Personally, as a member of the British Medical Association for the last twenty years, I feel it hard that its funds should be used to broadcast a document whose effect for years to come will be to lower the status of my own specialty, not to mention any depressing influence it may have on legitimate sources of professional income. I trust that the document, as it stands, will not be thrust further upon the profession without some judicious pruning or annotating.—I am, etc.,

M. FORRESTER-BROWN, M.S., M.D.Lond.
Visiting Surgeon, Bath and Wessex Orthopaedic Hospital and County Clinics, Somerset, Wilts, and Dorset; Honorary Orthopaedic Surgeon, Eastern Dispensary, Bath.

June 18th.

*** The memorandum on which this section of the report was based was written by a distinguished orthopaedic surgeon and approved by another. A relatively large space was given to this section after considerable discussion because the committee recognized that orthopaedic surgery had an important but not exclusive place in the treatment of arthritis.

SIR,—The British Medical Asscciation committee's report on arthritis is really valuable, and a very clearly written summary. They have excluded specific arthritis, but I wish to mention in this connexion a peculiar form of syphilitic arthritis which must always be considered in making a diagnosis. In 1925, when I was in Vienna, Professor H. Schlesinger had two or three cases in his clinic at University Hospital which he named "arthro-lues tardiva." He had observed more than thirty cases since 1921; a brief description follows.

Arthro-lues tardiva is different from an ordinary syphilitic arthritis. This is a late form of lues, and there are usually no signs of syphilis in other parts of the body; no gummata in other parts. The skin, mucous membrane, nervous system, cardiovascular system, and the viscera are usually free from syphilitic invasion. This form is very similar to other sorts of arthritis, and shows varying clinical signs. The onset may be acute or insidious; fever, exudate, and deformity are sometimes present and sometimes not. The disease attacks one joint or several. Most of the cases occur in middle age, but sometimes in old age. The joints usually affected are the sterno-clavicular, sometimes the maxillary or intervertebral, joints. It affects both knee-joints, with effusion of fluid or a fungus-like growth similar to that of inherited syphilis. The ankle, elbow, and wrist joints are occasionally affected, but never the hip-joints. When the disease travels from one joint to another, usually the first joint shows no sign of relief—unlike rheumatic arthritis. Most of the patients have severe pain, especially during the night, and usually have some pain on active movements. Joint functions are fairly well maintained; ankylosis seldom occurs. X rays show damage of periosteum, cartilage, membrane, and ligament, but, strangely enough, one articulating surface usually remains unaffected. The Wassermann and precipitation tests of the serum are usually negative, but exudate from the joint cavity is frequently positive.

For differential diagnosis, when this disease starts like an ordinary rheumatic arthritis it can be easily detected, because it is completely unaffected by salicylates. It is easy to distinguish from tuberculous arthritis with a small dose of tuberculin, and from gonococcal also with vaccine and smears. It is not likely to be mistaken for gout, with its characteristic symptoms.

There is one definite pharmacological diagnostic method. Apply plenty of mercury ointment upon the painful joint covered with lint, and leave it so the whole night. If the case is arthro-lues tardiva, two different signs occur. Either (1) the pain, which has been so severe that the patient could not sleep (in one case even for a month), disappears like a miracle; or (2) the pain will increase in the first stage and relief occur after three or four hours or two days (Herxheimer). The second sign will be more manifest when mercury, bismuth, or arsenobenzol is injected. If arsenobenzol is used besides general and focal irritating symptoms a pain may arise in joints or bones which seemed healthy before. Anti-neuralgic agents have no effect on these pains, but intravenous sodium iodide relieves it. The treatment of this disease is, of course, careful antiluetic therapy. Arthro-lues tardiva has an extreme tendency to relapse.

This is a relatively rare disease, but with the foregoing facts in mind it should be easy to diagnose. Many of these cases actually have been sent to infirmaries permanently unfit for work owing to a mistaken diagnosis. I had experience of two cases during two years in Japan.—I am, etc.,

Hampstead, N.W.3, June 22nd. DENZABURO KATO, M.D.

SIR,—In the report of the B.M.A. Committee on the Causation and Treatment of Arthritis (*British Medical Journal*, June 17th) I find the statement that "a recent writer . . . has found evidence of abnormal sulphur metabolism in arthritis . . . but other workers have failed to confirm this." I should be very grateful to the writers of the report if they could tell me who are these other workers. In my extensive study of the literature on this subject—English, American, German, and French—I have found only confirmation of the presence of sulphur metabolism disturbances in certain chronic rheumatic patients. May I suggest that in writings of such importance, when there is a question of a technical point, references should be given—I speak, of course, of references to published work, because it is the only work that counts—otherwise statements are apt to be erroneous. All those who have studied the metabolism of sulphur in chronic rheumatism have found that it is disturbed, and this is confirmed by the marvellous therapeutical action of sulphur in the hands of those who know how to use that remarkable agent.—I am, etc.,

London, W.1, June 17th. A. P. CAWADIAS.

Chloroform, the G.P., and Midwifery

SIR,—I have been much interested in the letters relating to the general practitioner and midwifery, and enjoyed greatly the papers from Professor Munro Kerr and those who followed. I do not intend to intervene in this correspondence, except to say that it has been the principle of the Rotunda Hospital for over a century to train post-graduate students and nurses to conduct an obstetrical case in hospital as they would in a cottage. The technique and ritual of the institution work for this object. It is the letter on chloroform in your issue of June 17th (p. 1079), in which my name is mentioned, that necessitates these words.

My views on chloroform are as follows: (1) It is a pleasant anaesthetic. (2) It is a dangerous anaesthetic. (3) It is quite justifiable for the general practitioner or specialist to use it when he is thoroughly trained and takes the whole responsibility. (4) In a maternity hospital, where juniors of small experience *must* give some anaesthetics, a well-nigh fool-proof substance like ether is safer, and therefore should be used. The danger is borne out by two deaths from chloroform at the Rotunda during the early years of my Mastership; it is borne out by the occurrence of deaths in that magnificent institution the Maternity Hospital in Glasgow, which may be regarded as the home of chloroform. A note of these deaths will be found in the clinical reports of these hospitals, and they are not hidden. It is borne out by the opinions of trained anaesthetists—for example, Shaw and Beckett of Dublin—and of experienced obstetricians—for example, W. Gilliatt and T. M. Healy.

I have the greatest regard and respect for the work of the general practitioner. I am perfectly certain that Dr. Welsh will continue to give chloroform with safety, and so shall I. There is, however, great danger in its indiscriminate use, and the danger may occur very early in its administration. I trust I have made myself clear, as I do not wish to be drawn again into a correspondence on this subject. I should be delighted to have a talk or a personal correspondence with Dr. Welsh at any time.—I am, etc.,

BETHEL SOLOMONS,
Dublin, June 20th. Master, Rotunda Hospital.

SIR,—I am surprised at Dr. Solomons's reported statement that deaths occurred after even a few breaths of vapour of chloroform. With all due deference to Dr. Solomons I simply do not believe it. After long experience of the administration of chloroform in midwifery and surgical and dental practice I am convinced that practically all fatal cases are due to an overdose, though it must be acknowledged that the capacity of a few persons is limited; but so it is with all anaesthesia. So far I have administered chloroform at 1,626 confinements, no deaths resulting under it, and never the slightest cause for uneasiness, even though a midwife did assist at administering. My surgical and dental cases number 1,357, again with no fatalities under the anaesthetic, chloroform alone being used, and only in the rarest instance giving any concern. Dr. Welsh is right, and he can rest assured that all that is required is faith in chloroform (administered without the use of unnecessary gadgets) and in the administrator.—I am, etc.,

Cowdenbeath, Fife, June 19th. JOHN B. PRIMMER.

"New Treatments for Old"

SIR,—One could not reply point by point to Dr. W. N. Leak's letter in the *Journal* of June 24th (p. 1126) without taxing the patience of a very long-suffering editor, but I cannot allow the assertion that I regard the members of the profession as "gullible fools" to stand uncontradicted. I would not apply such an opprobrious epithet even to the ten thousand doctors who testified to the marvellous properties of "yadil." I know that a general practitioner is not necessarily a general paralytic, but he *is* generally preoccupied, and the pressure of his life prevents him from putting into practice those excellent precepts concerning controls, etc., which he has learnt from his teachers, even as it prevents him from developing that detachment which is so necessary for the formation of judgement concerning the facts collected by experience. Dr. Leak's little story is a case in point. I congratulate Miss Leak on her rapid recovery from bronchopneumonia, but having seen, as many other practitioners have seen, equally dramatic recoveries without any medicine at all, I think it would be wise to defer judgement as to the relation between the remedy and the recovery. This does not mean that I would deny that there might be a relation. Only fools deny possibilities in medicine. But without adequate controls, it is folly to make claims for any therapeutic measure.

Dr. Leak has waxed very witty over my suggestion as to the possibility of suppressing disease. The idea, of course, invites burlesque, but I could quote numerous cases, in my own practice and that of others, which would demonstrate to any reasonable man that the idea is not so ludicrous as Dr. Leak would label it. Dr. Leak has never seen it, but then he has never entertained the possibility of its occurrence, and so would probably not recognize it even if he did see it. I know quite well why guinea-pigs and cats are used, and know, too, that the object of the profession is to make sick people well. But I seem to recall that John Hunter, and many other workers, particularly in anaesthetics, have made *themselves* temporarily ill, and have thereby made a greater contribution to medicine than a vast sacrifice of guinea-pigs could have secured.—I am, etc.,

Liverpool, June 24th. F. B. JULIAN.

Genesis of Gall-stones

SIR,—We are anxious not to occupy your valuable space with a lengthy reply to Dr. Shiskin's letter in your issue of June 17th; *in fact*, her attitude in allowing Lord Moynihan to quote her results without the details being subsequently published protects her from either adequate appreciation or criticism of her work. Nevertheless, as presented, the work is, in our opinion, full of simple statistical fallacy, of neglect of fundamental facts, and of failure to separate her categories.

From the statistical aspect we still fail completely to understand why a group of normal figures should be divided into those below the average value, which are to be called "normal," and those above the average, which are to be called "high normal." This surely brings at once an entirely unjustifiable bias into any interpretation of analytical results. Dr. Shiskin does not appear to understand our remarks about exaggeration of ordinates. We made no reflection whatever on the accuracy of the plotting of the curve; we referred to the unusual scale adopted for the ordinates, which scale is exaggerated to emphasize pictorially the trend of the results, especially as the normal values are set almost at the base line.

We have emphasized over and over again the importance of estimating the plasma cholesterol in both free and ester forms, and that the presentation of total cholesterol values alone ignores the more interesting and informative changes in the free to ester relation which throw light on the underlying factors which govern cholesterol metabolism. Dr. Shiskin persists also in ignoring the wide range of values of plasma cholesterol in healthy individuals; surely it is absurd that she should consider the extremes of normal as constituting either hypo- or hyper-cholesterolaemia when they are, nevertheless, findings in normal subjects. It is indeed fairly obvious that the distribution of her own analytical results in both gastric and duodenal ulcer cases does not show the occurrence of hypercholesterolaemia, but only a perfectly normal distribution more typical of the wide range of normal values than those figures which she obtained from the study on nine men and three women only.

In cholelithiasis it is now quite useless to determine averages of total cholesterol values in plasma without regard to the different categories into which the cases fall—especially as separation by both chemical and clinical means is generally possible.

Lastly, it is obvious to anyone reading our letter that we were not criticizing Lord Moynihan for not having read in 1925 papers which were published at a later date, but were referring to his letter published in your issue of May 27th, 1933.—We are, etc.,

J. A. GARDNER.
H. GAINSBOROUGH.

London, W., June 19th.

Treatment of Combined Sclerosis

SIR,—In your issue of June 24th (p. 1091) Dr. L. J. Witts, discussing the treatment of subacute combined degeneration, writes: "I am not convinced of the value of massive doses of iron in subacute combined degeneration, as I have seen subacute combined degeneration develop in a woman who was having massive doses of iron for a microcytic anaemia." At St. Mary's Hospital we have obtained such uniformly good results from this treatment that it would be interesting to know exactly how much iron this patient was taking. In following up our series of cases for a period of over a year it has now been found that patients will relapse should the dose of Blaud's pill be lowered below 40 to 50 grains a day. In a few cases the dose has had to be maintained at over 100 grains a day to prevent a return of symptoms.

During a discussion of this treatment at a recent meeting of the Clinical Section of the Royal Society of Medicine one speaker mentioned that he had just seen one of Dr. Witts's cases of microcytic anaemia in which subacute combined degeneration had developed in spite of treatment with massive iron therapy. He went on, however, to say that the patient had only been having 45 grains of Blaud's pill a day, which in our series of cases may constitute a "relapse" dose. I should be interested to know if Dr. Witts has ever found the development of nervous symptoms during treatment with over 100 grains of Blaud's pill a day, since some cases appear to require this amount in order to maintain the improvement in their nervous symptoms. I mention this point because in one or two instances the importance of administering the full 150 grains has been insufficiently realized by other observers, and consequently the benefit derived by the patient has been lessened.—I am, etc.,

St. Mary's Hospital, W.2, June 23rd. WILLIAM SARGANT.

Hernia and Appendicectomy

SIR,—I have followed with interest the correspondence concerning hernia and incisions for appendicitis. There seems to be a very strong case for using the gridiron incision for all cases in which the diagnosis is tolerably certain and the right paramedian for all dubious cases. Working on these lines one finds that a gridiron incision seldom proves amiss when used for men, though a paramedian is not infrequently necessary for women and children. Additional help is often afforded by palpating the abdomen when the patient has been anaesthetized—a lump previously masked by rigidity is not uncommonly disclosed, and the appropriate incision chosen. The chief objections to this practice appear to be the possibility of missing the diagnosis when using the gridiron incision and the difficulty of access to an adherent retrocaecal appendix through a paramedian incision. Actually, by selecting the cases, little trouble occurs. When a gridiron incision has been made in error any other surgical lesion can usually be excluded by looking for marked excess of peritoneal exudate; by deciding whether the appendix is inflamed from within or from without; and by exploring with a finger.

On looking through from four to five hundred personal cases of acute abdominal disease I can only find one in which the patient definitely suffered as a result of a gridiron incision. I removed an innocent-looking appendix, and could find nothing else abnormal, but one year later the patient returned with an acutely inflamed Meckel's diverticulum, which had evidently been the cause of the trouble. On those occasions when a case of supposed appendicitis proves to be, say, a perforated peptic ulcer

or a perforated gall-bladder, it seems much better to close a small gridiron incision and make a paramedian in the proper place. For many other lesions an extended gridiron gives adequate access.

Another marked advantage of the gridiron incision is its excellence from the point of view of drainage, as it is so admirably adapted to the method of delayed suture (as advocated, for instance, by Wilkie, *British Medical Journal*, February 14th, 1931, p. 253), in which the superficial parts of the wound are left unsutured at least for the first few days. Since adopting this method of delayed suture for really bad suppurating cases I have found not only that the patient gets well more rapidly, and that the wound heals more quickly, but also that incisional hernia and weakness of the scar is actually less common than is the case when the wound is sutured round a drainage tube, or when stab drainage is adopted and the wound closed. In these circumstances an abscess forms in the wound, and the stitches have to be removed just when they should be tied.

Weak scars as the result of sepsis are common, and inguinal hernia occurring as the result of any special incision must be at any rate comparatively rare, so surely one's attention should be focused on getting a sound scar rather than on the possible sequel of an inguinal hernia! In order to insert a tube through Battle's incision, where the rectus has been retracted inwards, one must either have a kinked run for the tube or use an unusually stiff tube to keep the track straight, and so not only increase the liability to faecal fistula and adhesions, but also aid and abet the suppuration.—I am, etc.,

R. K. DEBENHAM.

Birmingham, June 18th.

Prophylaxis of Malaria

SIR,—Dr. A. L. Hoops, in an interesting article on the cure of malaria with atebrin (*Journal*, June 10th, p. 993), states that it has been clearly proved that quinine prophylaxis is a delusion and a snare. This is a sweeping statement, which needs, at least, qualification.

Quinine prophylaxis may or may not be of use in the East—I am not in a position to express an opinion. In West Africa, however, where malaria is almost exclusively subtertian, it has a definite place in the maintenance of health among the European community. There the majority of Europeans take five grains of quinine daily. It is the irregular or non-quinine taker who is continually getting malaria. The regular taker is not immune, but seldom suffers from malaria. I am convinced that they do not suffer from undiagnosed malaria, as for six years I have advised people going on leave to continue their quinine during the voyage (two weeks) only. If they have had malaria during the previous six months I advise a further two weeks' quinine. I have followed up as many cases as possible, and none have developed malaria in England. I have stopped or reduced my own prophylactic quinine three times (once after two years' freedom from malaria), and each time I developed malaria within three weeks. I continue prophylaxis for two weeks only after leaving the coast, and have never developed malaria in England.

Although a small minority, the irregular or non-quinine takers account for almost all the cases of blackwater fever. I, personally, have yet to see a case of blackwater fever in a regular quinine taker. Regular quinine is, in practice, good prophylaxis against subtertian malaria. In West Africa it has stood the test of time.—I am, etc.,

O. G. WILDE,
Medical Officer, W.A.M.S.

Edinburgh, June 20th.

Pancreatitis in Mumps

SIR,—Dr. Cole's interesting letter of June 17th (p. 1080) prompts me to record a case which occurred in my practice in 1929.

A girl, aged 13, had a moderately severe attack of mumps, but without vomiting or abdominal pain: she had apparently made a satisfactory recovery when attendance was discontinued. A month or so later her mother brought her to see me, and I was astonished to find that from being a plump, well-developed girl she was now almost emaciated. Her urine was loaded with sugar. Her symptoms, in conjunction with an abnormally high blood sugar content, made it clear that she was suffering from diabetes. I sent her to the Manchester Royal Infirmary, where she was admitted as an in-patient, and after some weeks put on insulin. She now looks in perfect health, but if the insulin is reduced there is glycosuria, and a recent blood sugar estimation showed a percentage of 0.32 one hour after 50 grams of glucose. There is therefore little prospect that she will ever be able to discontinue insulin treatment without risk.

Though such a sequel to mumps is certainly rare, it is evident from this and other recorded cases that the condition of the urine during the attack, and in apparent convalescence, requires more attention than has generally been given to it hitherto.—I am, etc.,

J. STAVELY DICK.

Manchester, June 19th.

SIR,—Here's some more. Last winter a middle-aged male patient of mine had mumps. A week later he was afflicted suddenly with acute abdominal pains with tenderness over the pancreas, and urgent vomiting and pyrexia. For several days he was very ill; and convalescence, not yet complete, was accompanied by the passage of occult blood. About the same time a young man had almost precisely similar symptoms a week after starting mumps. He, however, passed no blood, and he got well quickly. Mumps does seem to be a malady of which to be wary!—I am, etc.,

FRANK G. LAYTON.

Walsall, June 25th.

Aetiology of Acute Rheumatism

SIR,—Dr. Aston Key's letter (*Journal*, June 17th, p. 1081) raised the question of the relation of dampness to the aetiology of acute rheumatism, though the importance of its association remains a mystery. Another factor which remains unsolved is the relation of rheumatism to what are called "growing pains." "Growing pains" mean something different to every observer (or else nothing at all), and may best be described as pains in the limbs susceptible of no other diagnosis—in other words, the diagnosis is a dump-heap of unexplained pains in a child's limbs. Observers are divided as to whether these pains are rheumatic manifestations or not, but the fact remains that many a case of heart disease develops as a sequel to what has amounted to nothing more, in the eyes of parents, than transient growing pains in a child.

An investigation into growing pains (taken as pains in the limbs which admit of no other diagnosis) has shown certain differences in the anthropological type from rheumatism, but in the question of damp houses there is a distinct parallel. *Out of 500 cases investigated at University* College Hospital in 1928, a history of "growing pains" having occurred was twice as common in children from damp houses as in those from dry ones, the figures being 24.3 per cent. in dry houses as against 48.3 per cent. in damp ones. This tendency may have some bearing on the relation of frank rheumatism, vague limb pains, and dampness.—I am, etc.,

J. C. HAWKSLEY.

London, W.1, June 16th.

Dyspepsia of Sympathetic Origin

SIR,—I have been greatly interested in the recent articles of Dr. F. C. Eve[1] and Mr. J. J. Robb[2] in the *British Medical Journal*. Both of these clinicians incriminate the sympathetic system as the cause of that dyspepsia which is due to a lack of relaxation of the sphincters and to sluggish peristalsis of the gut. Mr. Robb gives a very complete list of the causes of sympathetic disturbance, but omits one that is by no means rare—namely, malposition of one or more vertebrae and consequent irritation of the sympathetic. As has repeatedly been shown by E. F. Cyriax,[3] these subluxations often cause the symptoms and signs to which Dr. Eve and Mr. Robb refer. I would therefore suggest that the "small group where I have failed to demonstrate any lesion" mentioned by Mr. Robb be investigated with a view to detecting some spinal abnormality.

As regards treatment, both authors have tried atropine, Dr. Eve with success. It seems difficult to reconcile this use with the fact that atropine is not known to have any action on the sympathetic system, but only on the vagus. In any case the prolonged treatment that is necessary when medicines are employed can often be greatly shortened by a most simple procedure that anyone can adopt who has a little patience. Where there is spasm of the gut—for example, in the pyloric region or along the colon—this spasm, whatever its cause, can be relaxed by a gentle manual vibration on the spastic area, which is usually easily identified by touch. (This is by no means the whole of the treatment as I do it, but is its important central feature.) Now if this is done for ten minutes—say, every day for a week or so—the offending sphincter or piece of gut acquires once more its power to relax, and a permanent cure often results.

Naturally, when there is an obvious cause for the sympathetic disturbance, such as a chronic appendicitis or a misplaced vertebra, this treatment is unnecessary, but in the much commoner cases where the origin of the trouble is doubtful this symptomatic measure is often enough to secure a cessation of symptoms for many years. The full manual treatment of the abdominal sympathetic was described by E. F. and A. K. Cyriax in 1910,[4] and their experience during the last twenty years has confirmed them in their view of its great utility—an observation that I in my turn, though on many fewer cases, am once more corroborating.—I am, etc.,

London, W 1, June 6th. J. H. CYRIAX.

Metamorphosis of *Filaria bancrofti Cobbold*

SIR,—In the issue of the *Journal* of February 25th (p. 301) there is an interesting paper by Dr. P. Manson-Bahr on the history of British discoveries in tropical medicine. Owing, I have no doubt, to condensation, this paper hardly does justice to the discoveries of Dr. T. L. Bancroft, his part in filarial research being dismissed in the brief statement:

"The actual time-cycle development of the filaria in the mosquito was worked out first by Dr. Carmichael Low in 1900 on material sent to Manson by Thomas Bancroft, the son of Joseph aforementioned."

The great obstacle facing early workers on mosquito-borne diseases was the prevailing idea that female mosquitos only fed once and died after laying their eggs. This it was that prevented Manson, Lewis, and other early workers from discovering the full life cycle of the worm, and led them into erroneous conclusions concerning the mechanism of transmission from the insect to man. It was because of the same idea that Bancroft, in his earlier experiments with bred mosquitos, failed to find the more advanced stages seen by Manson in captured insects, a failure that puzzled him greatly. To use his own words: "It never dawned on me that my mosquitos were dying from starvation!" To my mind, the real genius of the work of the late Sir Ronald Ross and of T. L. Bancroft, working at the same time, independently, in widely separated parts of the world, was the realization that this entomological belief was untrue and the immediate experimental proof that mosquitos would live many days and feed many times.

Once he had discovered how to keep mosquitos alive for considerable periods the rest of the work was comparatively simple, and in a paper read before the Royal Society of New South Wales on June 7th, 1899, Bancroft described and figured the various stages of the larval filaria in the mosquito, giving the time of development as from sixteen to thirty-five days, according to season. He also described his methods of rearing and handling mosquitos. He did not see the larvae in the proboscis, and, in the body of the paper, suggested that infection was contaminative. However, in an addendum he pointed out that, as the full-grown larvae were killed by water, it was probable that they would be killed by the digestive juices, and he makes the following significant statement:

"It has occurred to me that the young filariae may gain entrance to the human host whilst mosquitos bearing them are in the act of biting. The entrance of warm blood into the mosquito may excite the young larvae, in consequence of which they . . . pass down the proboscis into the human skin."

In 1900 Dr. Low found the larvae in the proboscis of infested mosquitos which had been sent to London by Dr. Bancroft. Thus he completed the final chapter in the story, which was commenced by T. R. Lewis in 1872 with the discovery of the embryo filariae in the blood, continued by Joseph Bancroft in 1877 with the discovery of the adult worms, developed by Patrick Manson in 1878 with the discovery of the larvae in the mosquito, and brought to a climax in 1899 by the work of T. L. Bancroft.—I am, etc.,

Canberra, May 10th. I. M. MACKERRAS, M.B., B.Sc.

Cancer Families

SIR,—In your correspondence columns, rather more than two years ago, appeared letters on the high incidence of cancer in some families. The following history has come to my notice and seems to be worthy of record. With the death of my patient, Walter, the family is now extinct.

His mother died when about 34 of cancer of the "womb." His mother's two brothers both died of cancer of the liver when between 40 and 50 years old. (His father died of "senility" at 70.)

His brothers and sisters: Sarah died at 30, William at 38, Harry at 28, and Alfred at 30—all of cancer of the rectum. Joe died at 30 of "abdominal" cancer. Walter died at 48 of multiple abdominal secondaries (confirmed by laparotomy); the primary was not established.

—I am, etc.,

London, W.1, June 21st. HAROLD DODD.

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[1] "Disordered Regulation of Traffic in the Gut," *British Medical Journal*, March 4th, 1933.
[2] "Dyspepsia and its Surgical Significance," ibid., June 3rd, 1933.
[3] "On Various Conditions that may Simulate the Referred Pains of Visceral Disease, and a Consideration of These from the Point of View of Cause and Effect," *Practitioner*, 1919, cii, 314.
[4] "Manual Treatment of the Abdominal Sympathetic," *New York Med. Journ.*, 1910, vii, 193.

Obituary

FRANK JEANS, F.R.C.S.

Surgeon, Royal Infirmary, Liverpool.

We regret to announce the death at Harrogate, on June 21st, of Mr. Frank Jeans, whose outstanding ability as a general surgeon and urologist has made him well known and highly esteemed in Liverpool and London.

Frank Alexander Gallon Jeans, third son of the late Sir Alexander Jeans of Liverpool, was born at Derby in 1878, and received his medical education at St. John's College, Cambridge, Liverpool University, and King's College and St. Bartholomew's Hospitals. In 1904 he obtained the diplomas M.R.C.S., L.R.C.P., and two years later graduated M.B., B.Ch.Cantab. In 1907 he became a Fellow of the Royal College of Surgeons of England. After a term as house-surgeon to Sir William Mitchell Banks, he was appointed assistant surgeon to the Royal Infirmary, Liverpool, in 1909, and was elected honorary surgeon in 1924. His work at the Royal Infirmary was one of the main interests of his life. He was also consulting surgeon to the Hoylake and West Kirby Cottage Hospital, and the Waterloo and District General Hospital. For many years he maintained a close connexion with the University of Liverpool, where he had previously held a scholarship in surgical pathology and had been a demonstrator in anatomy. He was subsequently appointed lecturer in clinical surgery. A vice-president of the Liverpool Medical Institution, he was very active in the work of that society.



Soon after the outbreak of war in 1914 Jeans was placed in charge of the surgical division of the Liverpool Merchants' Mobile Hospital, with the temporary rank of Major, R.A.M.C., and served with it in France until the end; in 1916 he was appointed senior surgeon to the unit.

His special interest in urology brought him into considerable prominence, and he acted as consultant in this respect to the Liverpool Medical Research Organization. The position he held in the eyes of his colleagues in the specialty was proved by his election as president of the Urological Section of the Royal Society of Medicine for the session 1929–30.

Frank Jeans was the possessor of a lively wit and a great gift of fluent speech, which he could adapt to suit any occasion, ceremonial or informal. He was a welcome guest at social functions of all kinds, and a popular lecturer who marshalled his facts clearly and drove them home with humour appropriately introduced. As a teacher, at the bedside or in the lecture room, Jeans's vivid personality and gift of incisive phrase combined to impress his words upon the student's memory. He shone especially as an after-dinner speaker. A keen lover of music and the drama, he brought to social life a zest for its enjoyment which was infectious. His wife, who had been very active in Red Cross work during the war, died in 1928. He leaves a son and a daughter. He was for many years a member of the Lancashire and Cheshire Branch of the British Medical Association.

His death at the height of a brilliant career is deplored by a very wide circle of colleagues and friends.

[The photograph reproduced is by Burrell and Hardman Ltd., Liverpool.]

THE LATE MR. HAMILTON RUSSELL

Mr. C. H. FAGGE writes:

News has just reached me from Melbourne of the passing of Hamilton Russell. Our first personal contact was a walk across Edinburgh when the Association of Surgeons met there in 1921. Last year one of the first faces I recognized on arrival in Melbourne on the night express from Adelaide was that of Hamilton Russell, who paid me this honour in spite of the early hour and his ambulatory difficulties. I saw him daily during my visit, when he was ever helpful with a word of encouragement or appreciation. One evening, in the house of another surgeon, the Council of the Royal Australasian College of Surgeons were meeting me at dinner. Hamilton Russell came in, and was persuaded to sit down at the piano, and I am sure we all were sorry when dinner was announced. One of the extraordinarily powerful features of medicine in Melbourne is the character of its senior representatives—Sir Richard Stawell, Sir Henry Maudsley, R. Hamilton Russell, Julian Smith, and Sir James Barrett are names which come to my mind: any one of them can ill be spared. The gentleness and humility of Hamilton Russell's personality, the sweetness of his smile, and his pathetic cheerfulness, in spite of physical pain and its limitations, endeared him to everyone; though doubtless in his modesty he would barely admit it even to himself. Those of his homeland who knew and loved him extend the hand of sympathy to his friends in the land of his adoption.

Sir G. LENTHAL CHEATLE writes:

The motor accident in which Hamilton Russell was killed deprived Australia of a man whose clean, wholesome, and active life was an example to manhood. His exceptionally handsome, refined, and attractive face was a mirror of his mind. None who knew him could fail to realize from the look of that striking head that he was imbued with a terse, blunt honesty; yet the spontaneity of his merry, never boisterous, laugh, the sincerity of his genial welcome, and the charm of his presence can never be forgotten. His detached and aloof expression might have led one to suppose its possessor incapable of bearing down heavily on things he considered wrong. This supposition was immediately exploded when one of his friends or juniors was not attaining his own high standard of correct conduct. Russell had an eclectic and meticulous taste in music, morals and dignified behaviour, and any thing that offended that taste met with a sharp and peremptory reminder that such things should be neither done nor said. This influence was very salutary to those who looked upon him as an Admirable Crichton, and it was also decisive when applied to impressionable youth. By all accounts we received from his friends and admirers in Australia this influence on younger people was maintained in the country of his adoption. He was also a little dogmatic in his method and manner, but all knew that he spoke truth, and it made a lasting impression in moulding our characters. He never told us why he was going to leave England, but we knew that he went to the beautiful climate of Australia to escape from a fear of tuberculosis. It is good to know that in Australia his integrity and professional ability were as highly appreciated as they would have been had he remained in London. There would have been no opposition to his election on the staff of King's College Hospital. He was house-surgeon to Lister, but not the last one. He was followed by five others.

Russell remained a bachelor. He had friends whom he loved as deeply as they loved him; but probably his greatest companion in life was his piano. Wherever he was a piano acted as a magnet to him, and after a time he would wander up to it and begin to play, always classical music. Whether his notes were always correct I am unable to say, but he never played from score. Although Russell had retired from active practice his colleagues realized the intense interest he continued to take in the surgical work going on around him. Attractive influence of this kind would be of value and would make itself felt in any country where it existed. Australia will miss him equally with his friends at home.

Dr. GEORGE BRADLEY HOWE of Stalybridge, Cheshire, died on June 15th, after an illness lasting about five months. The son of the late Dr. John Howe, he was born in Marple in 1865, and was educated at Epsom College and Owens College, Manchester. He obtained the L.S.A. in 1888 and the M.R.C.S. in 1892. In the latter year he went to Stalybridge as an assistant in the practice to which he ultimately succeeded. Since 1903 he had been district medical officer for that locality, and a few years later was appointed public vaccinator. He became school medical officer in 1925, and played a considerable part in building up this work on a sound and effective basis. He retired from this post in 1931, when a whole-time medical officer was appointed. For three years he was a member of the town council, retiring in 1901 ; two years later he was placed on the commission of the peace in recognition of his long and devoted service. He was one of the original members of the Stamford Golf Club and the first winner of its Cheetham Cup. A keen sportsman in his earlier life, Dr. Howe did all in his power to promote local cricket and tennis clubs in his later years. He had been a member of the British Medical Association since 1895, and was chairman of the Hyde Division in 1922. His wife died last year, and he is survived by six daughters.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The House of Commons this week read the Metropolitan Police Bill a third time and the Sea-Fishing Industry Bill a second time. The vote for the Mines Department was down to be debated.

The Rent and Mortgage Interest Restrictions (Amendment) Bill and the Unemployment Insurance (Expiring Enactments) Bill passed through committee of the House of Lords, and the Blind Voters Bill was agreed to on report. The Finance Bill was read a second time and the Commons' amendments to the Pharmacy and Poisons Bill were down to be considered by the Lords.

The University Spurious Degrees Bill was down for the committee stage in the House of Lords on June 29th, but its withdrawal was expected. An agreed Bill may be substituted.

The Juries (Amendment) Bill was introduced in the House of Commons on June 20th by Mr. Holford Knight, and read a first time. One of its provisions would delete from the Rules of Court under the Sex Disqualification (Removal) Act the exemption from jury service of " any women who are for medical reasons unfit to attend." It would substitute words: " Exempting from attendance as jurors any person to whom special hardship would be caused on account of physical unfitness or business or household considerations."

On June 26th the Manchester Royal Infirmary Bill, which has been changed from the Manchester Corporation Bill, came before the House of Commons. On the motion of the Chairman of Committees, the Standing Orders were suspended, and the Bill was read a second time.

On June 26th the second reading of the Middlesbrough Corporation Bill, which contains clauses for the compulsory notification of infectious disease, was objected to, and postponed accordingly.

The Essex County Council Bill, which has passed through the House of Lords, was down for second reading in the House of Commons on June 26th, but objection was taken, and the Speaker announced that the second reading would be set down for the evening of June 28th.

Department of Health for Scotland

The Estimates for the Department of Health for Scotland in the year 1933-4 came before the House of Commons in committee on June 22nd. They included the grant-in-aid of the Highlands and Islands Medical Service and grants-in-aid of benefits and expenses of administration under the National Health Insurance Acts. Mr. A. N. SKELTON, who introduced the Vote, said that houses completed in Scotland in 1932 numbered 15,818 ; houses under construction at December 31st last, or approved and not constructed, numbered 30,777, the highest figure reached in Scotland. In the five months since that date tenders had been approved for 3,739 slum clearance houses. Local authorities in Scotland were responding fully to the task of clearing the slums. He was not satisfied with the figures for public health. Maternal mortality went up from 5.9 per 1,000 in 1931 to 6.4 in 1932. It had increased steadily since 1855—a mysterious phenomenon, not confined to Scotland. The Department had made close investigation into a number of maternity cases, but the doctors said it must supplement these with the records of all cases. In the middle of December, 1932, the Department instituted an investigation, to extend over six months, into every childbirth in Scotland. That period had just closed, and he believed they would have data more complete than existed elsewhere. Infant mortality figures for 1932 were 86 per 1,000, or 4 per 1,000 above the figures for 1931 and one above the average of the last five years. For a long period of years Scottish infant mortality had been definitely higher than English. Medical experts were not clear about the cause, but he thought the weather should be taken into account. Analysis of the English figures showed that, broadly speaking, infant mortality increased as one went North. In Northumberland and Durham the figures were almost exactly comparable with the Scottish figures. Ten years ago Sir Leslie Mackenzie came to the tentative conclusion that there was some relation between the climate and infant mortality. Not the intensity of the climate, but its variability was its evil influence on the very young. The only feature with regard to infectious diseases to which he drew attention was that last year an epidemic of scarlet fever in Scotland brought the cases from 18,000 to 28,000. When scarlet fever spread to Shetland the local authorities made available to all private practitioners means of immunizing their patients. He proposed to follow up the question whether more could be done in preventing infectious disease. In Scotland one inspection of the dairy herds annually by veterinary officers was statutory. Many counties had three. These resulted in earlier detection of the tuberculous cow and earlier elimination of the risk of infection.

Mr. DUNCAN GRAHAM remarked that of 87,903 houses inspected in Scotland last year one-sixth were admitted by the Department of Health to be unfit for human habitation. The Labour Opposition contended that single- or two-roomed houses were slums, whether in town or in country. Any doctor worthy of the name must describe these houses as unfit for human habitation. The main cause for the increase in maternal and infantile mortality was poverty. Medical authorities had stated that the infantile mortality rate was one-third in the middle classes of what it was in the ordinary working classes. In the mining villages it was as high as 260 per 1,000. Medical benefit should be secured to unemployed persons, who were threatened with the loss of it at the end of this year. He and other members for Lanarkshire had met the county medical panel committee, including representatives of the doctors, and it had expressed strong feelings on the proposed change. Doctors in the rural areas of Dumbarton, Renfrew, and Lanark should not be asked to make any more sacrifices. He urged that the National Health Insurance Act should be modified to ensure that the State paid the cost of medical attendance in the cases of men unemployed. Sir ARCHIBALD SINCLAIR welcomed the inquiry into the health services. He asked what proposals had been submitted to local authorities for the improvement of maternity services, and whether they were being put into operation. Why was the grant for the training of midwives and health visitors reduced from £3,200 to £2,700? An increase in the consumption of milk would be one of the best means of improving the diet of the people, but to do that they must eradicate tuberculosis by such means as those successfully employed on a large group of farms in Ayrshire.

Mr. MCGOVERN moved a reduction of the vote. Mr. DAVID MASON said the unemployed persons who, if the law did not change, would lapse from national health insurance medical benefit on December 31st were about 20,000 in Scotland, and 100,000 all told. Mr. HENDERSON STEWART contended that

in any county of Scotland about 50 per cent. of the cottages in the villages could be improved by the application of the Housing (Rural Workers) Act. The number of houses so improved declined last year. Rickets increased in Scotland last year, and there was a decrease in population. Part of the blame for the fall in the general health of the Scottish people rested with those responsible for housing. Mr. R. W. SMITH said the increase in maternal mortality was due principally to puerperal sepsis. Was it more common to have this infection in institutional treatment? There was a considerable increase last year of births in institutions as compared with previous years. The present policy of the Department was to encourage institutional treatment of maternity cases. Would it not be wiser to encourage home treatment till they were quite certain what they were doing?

Mr. SKELTON, replying to the debate, said the figures Mr. Smith gave on puerperal sepsis were undoubted. When the evidence of the six months' special investigation was before the experts they might trace the causes of puerperal sepsis and tell whether it was more frequent in institutions. In their opinion on the causes of infant mortality the medical profession and the medical advisers of the Department were not conclusive, but variability of type seemed a strong factor. He thought hard times also an important factor. The question of medical benefit for the unemployed would come before the Cabinet. He thought that by administrative manipulation the benefit might be continued.

Mr. McGovern's amendment was defeated.

A discussion followed on the Vote for public education in Scotland, and on the Vote for the salaries of the Scottish Office.

Road Traffic (Emergency Treatment) Bill

In the House of Lords on June 22nd Lord MOYNIHAN moved the second reading of the Road Traffic (Emergency Treatment) Bill, which, he explained, Lord Halsbury had helped to draft. It sought to redress iniquities which were admitted, considerable, and increasing. The experience of the medical profession was that since the Road Traffic Act, 1930, the public confidently believed that under the compulsory system of third-party insurance payment was made almost automatically to the out-patient departments of hospitals and to general practitioners who rendered emergency treatment. That view was inaccurate. By the help of the British Medical Association he had been able to ascertain with comparative accuracy that not more than one medical man in five who was responsible for emergency treatment received either verbal acknowledgement or payment for the services rendered by him. When a payment was secured it was only with difficulty, because the owner of the motor car lived at a distance from the place of the accident and because the insurance companies advised that any payment made by the owner of a motor car which had caused an accident admitted the guilt of the driver. The medical man who provided this aid had to supply drugs, dressings, and appliances, and might have to renew the furniture, couch, or carpets of his surgery The medical profession rendered an immense amount of gratuitous services to the public. He found roughly that 60 per cent. of the work that he had done in his profession had been unrewarded financially, and he was not distinguished from colleagues similarly placed. All the important services rendered by his profession in connexion with the voluntary hospitals, particularly the teaching hospitals, received no financial, or only a slight financial, reward. If ever there had been unanimity in the medical profession about an injustice to practitioners it was in connexion with emergency treatment. He could not say there was resentment in the profession, but dismay existed. The Road Traffic Act, 1930, made no provision for payment for services rendered in the out-patient departments of the hospitals, though these might be expensive to carry out and might save the insurance companies money by timely treatment. He was not concerned with in-patient treatment, though the loss there was considerable. It was computed that 35,000 out-patient treatments were given in a year, at a cost of £12,000, and not one penny of that sum was returned to the hospitals. The Bill proposed a maximum fee of three guineas for treatment. King Edward's Hospital Fund suggested a larger sum, but that would include massage given, if necessary, after the first attendance. A preliminary demand should be made on the driver of the motor vehicle which would pay for the out-patient department treatment and for treatment given by the general practitioner. To secure this the sum paid for a driver's licence might be increased from 5s. to 7s. 6d., or the insurance premium increased by the same amount. There were 2,800,000 motor licences in the country to-day, and a charge of 2s. 6d. on these, or on the premium charged by the insurance companies, would more than suffice for the payments he proposed.

Lord HALSBURY asked the House to support the second reading. The Bill referred to "emergency treatment" and not to "first aid," because the St. John Ambulance Association said that "first aid" ceased at the moment the practitioner came in. The Bill dealt with emergency treatment, and not with the subsequent treatment which might be given in hospital. Lord Moynihan and the British Medical Association had put their claim with extraordinary restraint. The Bill should be modified in committee to cover the case of the motor car which ran over someone and drove on without stopping. Lord ONSLOW, Chairman of Committees, supported the Bill. He believed that there were 150,000 road accidents a year, and the cost should be borne by the motoring interest as a whole. At present the burden of emergency treatment fell on the doctors, the hospitals, the ambulance, and the general public. Disputed claims for treatment could be settled in a court of summary jurisdiction with an appeal to the county court. Lord DANESFORT welcomed the Bill, and praised the voluntary services of the medical profession. Lord BERTIE OF THAME thought the word "road" should be omitted from the Bill, as being too narrow, and that the Bill should be entitled the Motor Vehicle Traffic (Emergency Treatment) Bill. Lord KINNOULL recounted a case where an insurance company made provision for the medical expenses of a person who had been knocked down, but this person spent it, and did not pay the doctor or the hospital anything. There was no way of forcing such a person to pay. Lord LUKE informed the House that the King Edward Hospital Fund had combined with the British Hospitals Association to give evidence to the committee over which Lord Iveagh presides (the committee considering the Road Traffic (Compensation for Accidents) Bill), and had submitted an amendment to that committee to meet the hospital view. If Lord Moynihan's Bill also went to that committee it would be unnecessary for the Fund and the Association to give evidence again. Earl BUXTON, for the Liberal peers, supported the Bill, and said he had never heard a private member's Bill moved in a more able manner. The vast bulk of road accidents happened to persons who could contribute something for the medical help they received. Three guineas ought to be the minimum payment. Viscount KNUTSFORD thought that only professional aid should be compensated, and that the extra tax should be put on the driver's licence. That would bring in £300,000 a year, which Lord Moynihan and the British Medical Association must agree would more than compensate doctors for first treatment.

The Earl of PLYMOUTH, for the Government, noted that the Bill provided that the remuneration should be recovered from the owner of any vehicle involved, irrespective of fault or negligence, and that an additional sixpence per mile should be recoverable for every mile above two which the medical practitioner had to travel to the accident. In such cases medical practitioners and hospitals had a serious grievance, particularly small cottage hospitals near main roads. It was difficult to find a suitable remedy. Lord Moynihan originally suggested a central fund contributed to by insurance companies. He had departed from that, and proposed to place liability upon the owner of any vehicle involved in an accident, irrespective of fault or negligence. That ran counter to the established principles of jurisprudence. The Bill would fasten liability on a man for something for which he might not be in any way responsible, but gave him no opportunity of recovering from the person who was actually negligent. An additional levy of 2s. 6d. on motor licences, producing about £350,000 yearly, would almost certainly result in reduction of the voluntary payments now made to hospitals. He also thought it possible that many owners would ignore small accounts sent in by doctors of whom they knew nothing, and that, to recover, the doctors or hospitals would have to make out particulars of claim, go to a county court, and pay various fees. If the Bill went further, the Government would

have to ask for modification of Clause 5, dealing with vehicles owned by the Crown. Though he made these criticisms he agreed that medical practitioners and hospitals had a genuine grievance and that the subject called for further investigation. The Earl of HALSBURY explained that if the Bill became law any money paid by the owner of a vehicle would be recoverable, under Common Law, from the man really responsible for the damage. To incorporate this in the Bill was unnecessary. Lord IVEAGH, as chairman of the committee to which the Bill would be referred, said that committee would welcome it and Lord Moynihan.

The Bill was read a second time without a division and referred to the same Select Committee as that to which the Road Traffic (Compensation for Accidents) Bill stands referred. The committee was given power to consolidate the two Bills, and Lord Moynihan was added to the committee.

The Select Committee of the Lords on the two Road Traffic Bills was called to consider them on June 29th.

Cost of Public Mental Hospitals.—Replying to Mr. Grenfell on June 22nd Sir HILTON YOUNG said that a figure of £500 which appeared in the report of the Board of Control for the year 1931 was the Board's estimate of the capital cost of providing a bed in a mental hospital, and was not the estimated cost of each inmate of a mental hospital per annum. The annual cost of upkeep of the public mental hospitals and maintenance, supervision, and treatment of patients was not £70,000,000 in 1931, but approximately £8,000,000, which was defrayed from rate funds. In 1932 this figure was slightly reduced, though the number of patients increased by about 1,900. The suggestion that inmates for whom detention could not be proved to be necessary should be accommodated in hostels run on a hospital footing to save expense was impracticable. The preventive treatment of such cases needed resources of staff and equipment unobtainable in hostels under whatever central system of control they might be placed.

Europeans and Indians in the I.M.S.—On June 26th Sir S. HOARE, replying to the Duchess of Atholl, stated that in 1922 there were 326 Europeans in the Indian Medical Service (Civil) and 35 Indians, making a total of 361. In 1932 there were 195 Europeans in the Indian Medical Service (Civil) and 97 Indians, a total of 292.

Report of Royal Commission on Lotteries.—Mr. DOUGLAS HACKING stated on June 22nd that the Government had not yet been able to give careful study and attention to the Report of the Royal Commission on Lotteries. The Home Secretary could not give any undertaking that it would be possible to introduce legislation in the near future to deal with any part of the field covered by the recommendations of the Commission. Mr. Hacking added that he did not suppose legislation was possible during the present session.

Medico-Legal

INFANT BLINDED IN HOSPITAL

At the Liverpool Assizes, before Mr. Justice Atkinson, on June 21st, an infant, Ivy Greta, daughter of John Lee of Birkenhead, claimed through her father damages against the Birkenhead Corporation, Dr. R. A. Grant (medical superintendent of the infirmary), and Nurse M. O. Parry, on account of an accident sustained in the hospital ten minutes after her birth whereby through the application of nitric acid, presumably instead of silver nitrate solution, the child was blinded for life. After a consultation in the judge's room it was announced that the case had been settled. Mr. Goldie, K.C., who appeared for the child, withdrew all allegations against the corporation and Dr. Grant. He said that this terrible accident was in no way due to any breach of duty by the doctor. The corporation had met the case generously. The child would go to a sunshine home for blind babies, would be educated, and later, as far as possible for a blind child, trained for a profession. If unable to obtain employment, in which respect the corporation would do its best, the maximum amount under the Blind Persons Act would be paid, without any obligation on the parents or relatives to contribute. Mr. Gorman, K.C., for the corporation, said that the terms now accepted were offered some months ago. This was no eleventh-hour offer on the part of the corporation. Here was a terrible harm done to the child of a Birkenhead ratepayer, and the corporation felt it a duty to see the child through life. Mr. Eastham, K.C., for Dr. Grant, said that there was no rule or regulation of the hospital with which Dr. Grant had not complied. At the time of the accident he was away on holiday. The action against Nurse Parry would be discontinued, and no order would be made against her as to costs. Mr. Justice Atkinson said that the corporation had acted very properly and generously. It was clear that all charges against the corporation and Dr. Grant were withdrawn. A very unfortunate slip made by the nurse had led to these terrible consequences, and he expected everybody was as sorry for the nurse as for the child.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on June 22nd the following medical degrees were conferred:

D.M.—C. W. C. Bain, A. M. Cooke.
B.M.—E. J. Baldwin.

The electors of the May Fellowship and Readership in Medicine have appointed Alexander Macdougall Cooke, B.M., of Jesus College to hold office until the first day of Michaelmas term, 1935.

UNIVERSITY OF LONDON

The title of Professor of Medical Entomology has been conferred on Dr. P. A. Buxton of the London School of Hygiene and Tropical Medicine, and that of Professor of Pharmacology on Dr. J. H. Burn, director of the pharmacological laboratory of the Pharmaceutical Society.

A university post-graduate travelling studentship of the value of £275 for one year has been awarded to A. Gilpin, M.D. (King's College Hospital), whose research will be on the physiology and pathology of the thyroid gland and on problems specially related to sporadic goitre and thyrotoxicosis, to be carried on in Freiburg and Vienna.

The university studentship in physiology, of the value of £100, has been awarded to H. A. Dunlop, M.D. (Westminster Hospital), who will carry on physiological research at King's College.

UNIVERSITY OF BIRMINGHAM

The Walter Myers travelling studentship has been awarded to E. J. Kerr, M.B., Ch.B., who will carry out research in Vienna.

Dr. O. Brenner has been appointed assistant in forensic medicine and toxicology, and Dr. A. V. Neale part-time demonstrator in practical pathology.

UNIVERSITY OF LEEDS

Professor Harold Collinson, C.B., C.M.G., D.S.O., M.B., M.S., F.R.C.S., has been elected to the chair of surgery, carrying the headship of the Department of Surgery, as from the beginning of next session, in succession to Professor Dobson.

Mr. A. Richardson, M.B., B.S., F.R.C.S., has been elected to the chair of clinical surgery as from October 1st.

Mr. E. R. Flint, M.B., Ch.B., F.R.C.S., has been appointed Director of Surgical Research in succession to Mr. Braithwaite.

Dr. S. J. Hartfall has been appointed honorary demonstrator in medical pathology.

UNIVERSITY OF GLASGOW

At the graduation ceremony on June 21st the following degrees were conferred:

LL.D. (HONORARY).—Professor William Blair-Bell, M.D., F.R.C.S., Past President of the British College of Obstetricians and Gynaecologists.

D.Sc.—Amy M. Fleming, M.D., Ch.B.

M.D.—Mary A. Griffin and D. R. MacCalman (with high commendation); J. Grant and A. W. Russell (with commendation); J. W. M. Alexander and F. W. Martin.

UNIVERSITY OF WALES

The Council of the Welsh National School of Medicine has made the following appointments, to date from October 1st, 1933: *Mansel Talbot Professor of Preventive Medicine*, R. M. F. Picken, M.B., Ch.B., B.Sc., D.P.H.; *Independent Lecturer in Materia Medica and Pharmacology*, R. St. A. Heathcote, M.D., Ch.B., D.Sc.

Medical News

H.R.H. the Princess Royal will lay the foundation stone of the Nurses' Home of the Hospital for Sick Children, Great Ormond Street, on Friday, July 7th, at 4 p.m. This ceremony marks the first stage in the reconstruction of the hospital.

The new children's wards and *x*-ray and electro-therapeutic departments of the Central Middlesex County Hospital at Willesden are being opened by Sir George Newman to-day (Friday, June 30th) at 3 p.m.

The fifty-first anniversary dinner of the West London Medico-Chirurgical Society will be held at the Trocadero, Piccadilly Circus, on Thursday, July 6th, at 7.30 for 8 p.m. The honorary secretary is Dr. W. S. C. Copeman, 15, Harley Street, W.1.

An address entitled "Medical Impressions of Soviet Russia" will be given by Sir James Purves-Stewart before the Paddington Medical Society at the Great Western Royal Hotel, Paddington Station, on July 11th, at 9 p.m.

The twenty-first anniversary of the coming into effect of the payment of contributions under national health insurance is to be celebrated on July 17th, when a luncheon will be held in the Hotel Victoria, Northumberland Avenue. Sir Hilton Young, Minister of Health, will be in the chair, and the principal guest will be Mr. Lloyd George. Representatives of the British Medical Association will be present. The actual day on which the national health insurance scheme began to operate was July 15th, 1912.

During the annual meeting of the Society of Chemical Industry in Armstrong College, Newcastle-upon-Tyne, there will be a general discussion on July 13th, at 10 a.m., on "How Science can Help the Nation to Produce More of Its Own Food," introduced by Dr. H. D. Kay and Mr. H. J. Page.

The next meeting of the Society for the Study of Inebriety will be held in the rooms of the Medical Society of London, 11, Chandos Street, W., on Tuesday, July 11th, at 4 p.m., when Dr. J. D. Rolleston will read a paper on alcoholism in mediaeval England. Each member and associate may introduce visitors. Tea and coffee at 3.45 p.m.

The fourteenth annual lecture conference of the Industrial Welfare Society will be held in the Wills Hall, Bristol, from July 7th to 11th. The programme includes lectures by Dr. J. L. Hammond, "The Historical Background"; Dr. Louis Segal, "Some Aspects of Welfare Work in Soviet Russia"; Mr. John Grierson, "Films in Industry"; M. Henri de Man, "Joy in Work"; The Hon. Mary Pickford, M.P., "Welfare Development in Industry"; and Mr. Elton Mayo, "Industry and Social Change." On July 10th and 11th visits will be paid to works in the neighbourhood.

The King Edward's Hospital Fund for London has made arrangements for tours of historic buildings of London under the guidance of distinguished experts. The following places will be visited: the Houses of Parliament (July 5th, 11 a.m.); Westminster Abbey (July 13th, 3 p.m.); India Office (July 22nd, 2.30 p.m.); Somerset House (July 25th, 2.30 p.m.). Tickets (7s. 6d. for each tour) can be obtained from the secretary, King Edward's Hospital Fund for London, 10, Old Jewry, E.C.2.

A week-end course in general medicine and surgery, arranged by the Fellowship of Medicine, will be held at the General Hospital, Southend-on-Sea, on July 8th and 9th. On July 7th, at 5 p.m., there will be an ante-natal demonstration at the Royal Free Hospital; on July 13th, at 4 p.m., a demonstration of *x*-ray films at 11, Chandos Street, W., and a course in proctology at St. Mark's Hospital, from July 3rd to 8th. Forthcoming courses include dermatology at the Blackfriars Skin Hospital, and practical pathology at the Brompton Hospital, July 10th to 22nd; ophthalmology at the Royal Westminster Ophthalmic Hospital, and urology at All Saints' Hospital, July 10th to 29th.

The twelfth annual conference of cremation authorities will be held in conjunction with the annual conference of the National Association of Cemetery and Crematoria Superintendents in London on July 10th, 11th, and 13th. A cordial invitation is extended to those who are interested in the question of disposal of the dead by earth burial or cremation. The opening meeting will be held in the Council Chamber at the Guildhall, with the Lord Mayor in the chair.

The French Orthopaedic Society has organized a congress to be held in Paris on July 17th and 18th, when demonstrations will be held in various hospitals, and be followed by a visit to Berck-sur-mer and London.

The final programme has now been issued for the sixth English-speaking conference on maternity and child welfare to be held under the presidency of Sir George Newman in the Friends House, Euston Road, N.W., on July 5th, 6th, and 7th. In conjunction with the conference a short clinical course for medical practitioners has been arranged for July 3rd and 4th, on behalf of the National Council for Maternity and Child Welfare and some of its constituent bodies, by the National Association for the Prevention of Infant Mortality in co-operation with the Maternity and Child Welfare Group of the Society of Medical Officers of Health. Those wishing to join the course should write at once to Dr. C. Isobel Wright, 121-131, Rosebery Avenue, E.C.

The thirty-eighth French Congress of Alienists and Neurologists will be held at Lyons, under the presidency of Dr. Lagriffe, from July 16th to the 22nd, when the following subjects will be discussed: the influence of psychological theories on psychiatric evolution, introduced by Dr. Répond; and tumours of the third ventricle, introduced by Dr. Desruelles.

The French Society of Restorative, Plastic, and Aesthetic Surgery adopted at its recent annual meeting a resolution condemning publications of all kinds on this subject emanating from medical practitioners and others whose scientific qualifications were inadequate. A warning was issued against consultations with unqualified and unscrupulous charlatans. This branch of surgery was defined as one which necessitated special knowledge and technical ability, and it was held that the publication of articles was only advisable after the subject-matter had been fully and freely discussed by those experienced and qualified to judge. Without such careful precautions there was danger that a young and fruitful science might be seriously hampered in its healthy development.

In aid of the funds of the college mission at Lambeth, members of Epsom College will present Massinger's *A New Way to Pay Old Debts* at the college on July 19th, and at the Mission Institute in Lambeth Road on July 21st. Tickets (5s., 3s., and 2s.) for either performance may be obtained from the secretary to the Mission Committee, Epsom College, Surrey.

Professor H. G. Greenish, dean of the School of Pharmacy and professor of pharmaceutics in the University of London, is retiring at the end of the present term. He joined the teaching staff of the school in 1890, and was appointed dean in 1914. He was joint editor (with Sir Nestor Tirard) for the 1914 edition of the *British Pharmacopoeia*, and was a member of the Commission responsible for the production of the last (1932) edition. Dr. J. H. Burn, for the past six years director of the pharmacological laboratories of the Pharmaceutical Society, has been appointed dean.

Dr. Pierre Lereboullet, professor of infantile hygiene in the Paris Faculty of Medicine, has been elected an ordinary member of the Académie de Médecine, and Dr. William Mayo of Rochester and Dr. Thorwald Madsen of Copenhagen foreign associate members.

The Secretary of State for Scotland has appointed Dr. A. G. W. Thomson to be a Deputy Commissioner of the General Board of Control for Scotland, vice Dr. G. H. Rae Gibson, deceased.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS *forwarded for publication* are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

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MEDICAL SECRETARY, Mediscera Westcent, London.

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Acute Iodism

"H. J. K." writes: The following personal experience of an asthma-like attack following painting of iodine on the skin may, I think, prove of some interest, and I shall be glad to hear of any similar experiences. A short time ago I suffered from an abscess of the forearm (unopened at that time), which was soaked in a hot iodine bath for three-quarters of an hour (strength of iodine, 1 oz. of 2.5 per cent. to half a gallon of water). A few seconds after removing the arm from the bath the area all around the abscess became intensely inflamed and covered with white, raised wheals with red margins (resembling recent flea bites); these gradually subsided during the next half-hour. Three hours later I felt increasing dyspnoea and tightness of the chest, and expiration became very wheezy and difficult. After a time expiratory wheeze became very harsh, and an intense feeling of suffocation was present; a little sticky sputum was expectorated, giving slight relief. The attack subsided after three to four hours. I have never suffered from hay fever or asthma at any other time, but have always noticed some undue sensitivity to iodine.

Alopecia Areata

Dr. J. F. BRISCOE (Newcastle-on-Tyne) writes: I believe, provided the bulbs of the hair are not destroyed, that the application of radiant heat once or twice a week for a short sitting, and then gentle massage may be of use. Castor oil is a good liniment to use with the shampooing. As a tonic I would recommend one of the iron preparations. Butcher's meat should be eaten very sparingly, and a tumbler of warm milk taken night and morning with 1 grain of calomel at bedtime. The bowels must be carefully attended to and alcohol avoided.

"R. M. R." writes in reply to "A. A. H." concerning the treatment of alopecia areata: Here is a prescription I found most successful: Acid. lactic, ʒj to ʒj; ol. ricini, ʒij; spir. vin. rect., ad ʒiv; to be painted on the bald patches once a day. My case was a young man with dark hair. After three months' treatment new growths appeared, at first fair, later dark.

Local Rating

Premises used Professionally

"L." (Essex) owns a house in which two-thirds of the rooms are used for professional purposes. He considers £50 would be a fair rent. Should the figure be increased because of the professional use of the premises?

*** The amount of the gross estimated rental (which forms the gross figure from which the rateable value is derived by the usual deduction for cost of maintenance) should be the amount of the rent which a hypothetical tenant could reasonably be expected to give. If the situation of the property be such that it could command a rent higher than usually given for similar private accommodation because of its business or professional possibilities, then the local authorities may properly take that element into account in estimating the hypothetical tenant's offer.

Income Tax

Life Assurance Allowance

"J. A. W." is being asked to refund an allowance made to him for the year following the maturity of the policy, and has protested that that is unfair seeing that he never received an allowance for the first premium, as the policy was taken out after his return for the first year was made.

*** The allowance is due in respect of payments made in the year of assessment, and, consequently, if the return has been made for the year in which the policy is taken out, a supplementary insurance claim should be made and the policy produced in proof of payment of the premium. As "J. A. W." remarks, that is a point which may not be generally understood. It follows that no allowance is due for the year following the year in which the last premium payment is made.

LETTERS, NOTES, ETC.

Herpes and Varicella

Dr. H. W. HAY (Westerham, Kent) writes: I note with interest Dr. Holloway's case of simultaneous herpes zoster and varicella in which the varicella followed the herpes after seven days (June 10th, p. 1032). Last month I had a case of a man, aged 38, with extensive almost confluent shingles over the right second lumbar sensory area. Three days later the temperature rose and varicella of medium severity developed. Recovery has been normal.

"The Naive and Sardonic Eye"

Dr. HALLIDAY SUTHERLAND (London, W.8) writes: As the subject whose eyesight and insight were thoroughly investigated by the reviewer of *The Arches of the Years* in the *Journal* of June 3rd (p. 965), I would like to thank your reviewer, whose identity is unknown to me, for his most generous criticism both of the book and of myself. In a witty letter, most appropriately written from Paris, Dr. Claude Lillingston takes your reviewer to task in the *Journal* of June 17th for his discovery of "the naive and sardonic eye." Surely Dr. Lillingston has forgotten the "mind's eye," which in all of us is capable of radiating these, and many other, moods—almost simultaneously.

Toby Venner and his "Via Recta"

Dr. F. WILLIAM COCK, F.S.A. (Appledore, Kent), writes: Some time ago I sent you a note on this. On looking again at my copy, Ed: 1650, I find that Thomas Lambards has noted its cost "2' *prim*," that is, price two shillings. I have also obtained Richardson's facsimile of the portrait. This occurs fairly often in printseller's catalogues. The original is distinctly rare.

A Warning

We are informed that a doctor in London placed some outstanding accounts in the hands of a firm of debt collectors whose headquarters were in Edinburgh. Having some doubts about the fidelity of the firm he called at the address in Edinburgh, and found the office closed. He then went to the police headquarters, where he was informed that proceedings were being taken against the proprietors, who had appropriated all the funds they had collected. He identified the photograph of the agent who had canvassed the London district, and was told that this man specialized in obtaining accounts from doctors and dentists.

Autocheques Ltd., 33, Regent Street, S.W.1, have issued a pamphlet describing the services offered by them to those desirous of taking a motoring holiday on the Continent. Books of vouchers are supplied which simplify considerably disbursement for Channel transport, accommodation, meals, tipping, etc., and enable the traveller to estimate beforehand the cost of his holiday. The vouchers are accepted in lieu of cash at hotels (totalling several thousands) in ten European countries. Information is obtainable at the address given above.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 42, 43, 44, 45, 48, and 49 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 15.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

1 Chronaxy in Prognosis of Poliomyelitis

PÉHU and G. MORIN (*Journ. de Méd. de Lyon*, March 5th, 1933, p. 137) believe that in infantile poliomyelitis more accurate results can be obtained by chronaxy measurements than by electro-diagnosis. The poliomyelitic virus causes a more or less complete section of and marked alteration in the peripheral motor neuron. The chronaxy is changed in three phases. The initial phase of slight variations lasts only for some days ; at the onset it may be slightly diminished, to fall to a third of its normal value ; it then slowly increases to four or five times its normal. Then it rapidly increases (the phase of rapid augmentation) till at the end of the second or third month 40 to 60 sigmas (forty or fifty times the normal) are registered ; this persists for many weeks. Then follows the phase of diminution ; at the sixth or eighth month the chronaxy diminishes and falls to 10 to 20 sigmas. Though no further change occurs, the excitability of the muscle should be tested by stronger currents at each examination. As the chronaxy varies during several weeks or even months, a single examination is valueless. All the fibres of a normally innervated muscle are isochronous. Owing to various causes the peripheral motor neuron may become totally (by traumatism) or partially (by pathological processes) sectioned. In the former case all the fibres of the muscle become simultaneously degenerated and isochronism persists ; in the latter different fibres of the muscles become unequally degenerated, hence their chronaxy differs and heterochronism occurs. The measures of the chronaxy in seven cases are recorded. A study of these shows that in early cases the prognosis is favourable if, during the first weeks, the chronaxies do not exceed four or five times their normal value. In chronic cases the prognosis is good if the increase of chronaxy is slight. In apparently severe cases a comparison should be made of the chronaxies in the same muscle following excitation either of the nerve or the motor point, or direct longitudinal excitation of the fibres. If the muscle is unresponsive, an evidence of complete degeneration, the prognosis is grave. If in response to these excitations the chronaxies are the same, the prognosis is serious ; if they differ, this heterochronism is a favourable sign as indicating that degeneration is not total and that recuperation can be expected.

2 Aetiology of Thrombo-angiitis Obliterans

In an investigation of two cases of thrombo-angiitis obliterans P. KALLOS and H. NUSSELT (*Klin. Woch.*, March 18th, 1933, p. 425) present evidence in support of the view that this condition is associated with metabolic characters which are referable to sympathicotonia and overaction of the thyroid. The cases ran the typical course leading to ulceration and later to gangrene. In one, amputation of the foot had to be performed, and in the other limitation of the ulceration was attained by " padutin " (a histamine-like substance) and histamine-iontophoresis, but no diminution of the pain could be obtained. Histological study of the amputated foot substantiated the diagnosis of thrombo-angiitis obliterans. The basal metabolic values in these cases were + 8 per cent. and + 26 per cent. respectively, and the specific dynamic action of protein was 20 per cent. and 30 per cent. These figures are indicative of increased rate of metabolic processes, and led the authors to investigate the reaction to adrenaline in these cases. Adrenaline 0.02 mg. was injected intravenously and the blood pressure recorded every fifteen seconds. The curves of blood pressure thus obtained were in both instances higher and more prolonged than those in normal cases, and suggested increased tone in the sympathetic and resembled the curves obtained in hyperthyroidism. Sugar tolerance tests with glucose gave curves which rose steeply and then fell quickly to subnormal values, only reaching normal levels in four and a half hours. Such curves have been found by the authors in hyperthyroidism. The steep rise is regarded as an indication of an overacting thyroid with a secondary oversecretion of the adrenals. The fall below fasting levels is explained as due to the increased avidity of the tissues for glucose, which is then rapidly metabolized. Estimations of potassium, calcium, non-protein nitrogen, uric acid, urea, and bilirubin in the blood gave entirely normal values. No abnormalities in water excretion or urinary constituents could be detected. Having regard to the fact that in the great majority of cases of hyperthyroidism there is a more or less marked constriction of the capillary system, and further that thrombo-angiitis obliterans can be induced in animals by infection with streptococci accompanied by adrenaline injections, the authors consider their findings as strong corroborative evidence that the constitutional basis of this disease is a hyperfunction of the thyroid with a secondary oversecretion of the adrenals.

3 Abdominal Thrombo-angiitis Obliterans

L. A. HULST (*Nederl. Tijdschr. v. Geneesk.*, April 29th, 1933, p. 1886) records the case of a man, aged 36, the subject of thrombo-angiitis in the lower limbs for the last two years, who suddenly developed severe abdominal pain similar to that which he had had in the limbs, and accompanied by vomiting. He had been in the habit of smoking forty to a hundred cigarettes a day. The attack lasted for two days and was little affected by narcotics, but recovery took place in a few weeks. Similar cases of abdominal thrombo-angiitis obliterans in subjects of Buerger's disease have been recorded by Farkas, who found, post mortem, characteristic lesions in the lower end of the abdominal aorta, hypogastric, and common iliac arteries, and by Norpoth, who found similar lesions in the abdominal aorta and mesenteric vessels which had caused multiple intestinal perforations.

Surgery

4 Sclerosing Solutions in Treatment of Cysts and Fistulae

E. C. CUTLER and R. ZOLLINGER (*Amer. Journ. Surg.*, March, 1933, p. 411) strongly commend the use of a modified Carnoy's solution in place of surgical operations for cases of cysts and fistulae. They report that there is less destruction of tissue, much less suffering for the patient, and a quicker convalescence. The solution is composed of 6 c.cm. of absolute alcohol, 3 c.cm. of chloroform, 1 c.cm. of glacial acetic acid, and 1 gram of ferric chloride. It penetrates the tissues moderately, fixing them and the local lining cells, and providing an excellent haemostasis, causing far less reaction than ensues with Zenker's solution or other such agents previously tried. Good results followed in the case of gliomatous cysts in the brain, and also when the treatment was adapted to cervical fistulae and pilonidal sinuses. Clinical details are given in illustration of these claims. The authors add that the cure of fistulae and sinuses along these lines is ambulatory in many cases, there being a considerable saving in expense, both of time and money, through the obviation of a radical surgical operation. Cervical fistulae frequently require a difficult and extensive dissecting process before they can be eradicated by the knife, and a most unsightly scar persists. The sclerosing solution acts more locally and less destructively so far as the adjacent tissues are concerned. The authors were surprised

at the happy results in pilonidal sinuses. After opening the sinus widely, thus allowing the fixative to reach and destroy all the epithelial surfaces, the destroyed lining of the wall was curetted away. Since the patient remains ambulatory and the results were always good, this procedure is worth while trying first, since radical surgery still remains if the success is not fully satisfactory. In neurological surgery it was found that the modified Carnoy's solution penetrated more quickly than other fluids, produced less underlying encephalitis, rendered thin cyst linings tougher and more easily handled, and was a better haemostatic agent. The authors conclude that this solution might well prove to be a valuable adjunct to surgery in the case of a typical suprasellar cyst.

5 Surgical Treatment of Graves's Disease

E. FELDMANN (*Med. Welt*, March 25th, 1933, p. 405) reviews briefly the course of events which have led to the present position in the surgery of Graves's disease, from which, it is suggested, all fear and danger has departed. In Germany the first operations on the thyroid were carried out by Ludwig Rehn in 1884, and it soon became clear that even in the most severe cases extraordinary improvement could be obtained by the method. The danger, however, was post-operative reactions, in which all the manifestations of the disease became accentuated. The mortality from the operation was, up to five or ten years ago, from 10 to 20 per cent. If the first forty-eight hours were safely passed, then recovery was probable, but the position of the surgeon was one of almost entire helplessness in the face of the syndrome. The introduction by Plummer and Boothby of the iodine treatment as a preliminary to operation is regarded by the author as the most important advance in modern times. The authority of Kocher as to the harmful effects of iodine in Graves's disease militated against the early general adoption of the new treatment, but microscopical studies showed that iodine prevents the hyperplasia of the epithelium of the thyroid and so allows storage of the active colloid in the vesicles. The result is that in two or three weeks the improvement in the condition of the patient is so marked that one may at once resect the gland without any fear of later reactions. Attention is drawn to the fact that it is better that the practitioner, after deciding that surgical treatment is necessary, should *not* administer iodine himself, for if he does the surgeon is then more likely to miss that optimum moment at which operation will be best borne. The author believes that the introduction of avertin narcosis has also contributed greatly to a better prognosis. The avertin can be given per rectum without any emotional shock being produced. He points out that these cases require very large doses of avertin, and calls for improvement in the method of administration. The application of these modern methods has lowered the mortality in thyroidectomy to so low a figure—0.5 to 1 per cent. according to American statistics—that the operation may be considered as in no wise dangerous. Of sixty-two cases operated on in the Dantzig City Hospital during the last three years, there was no instance of mortality or failure to improve. The necessity for early operation is stressed, since delay may endanger the heart, kidneys, and other organs.

Therapeutics

6 Radiotherapy in Inflammatory Affections

The general results of early attempts at radiotherapy were so disappointing that its utility appeared to be limited to a small number of cases beyond the aid of surgery or medicine. Recent experiences have, however, shown the value of this treatment in many inflammatory affections. A. PLICHET (*Presse Méd.*, March 4th, 1933, p. 349) summarizes the experience of various authorities who have treated a diversity of acute and chronic infections. In early trachoma rapid improvement followed the employment of radiotherapy, though it proved useless in advanced cases with dense scar formation. Heidenhain and Fried have reported 855 cases comprising boils, erysipelas, anthrax, frontal and maxillary sinusitis, mastitis, orchitis, epididymitis, otitis media, etc., treated with small doses of *x* rays. Of these, 76 per cent. were cured without operation, 19 per cent. were doubtful, while in 5 per cent. the treatment failed; among the latter were included acute osteomyelitis and "cryptogenic" abscesses. Another writer was very successful in the treatment of chronic gonorrhoeal infections—arthritis, prostatitis, salpingo-oöphoritis, etc. In a series of 350 gynaecological cases Wagner found that a single irradiation sufficed in the majority of cases. Treatment was successful in 92 per cent. Two French authors report 78 per cent. of cures in cases of whitlow, anthrax, tuberculous adenitis, tonsillitis, etc. The majority of these patients had had previous vaccine therapy or surgical treatment. In chronic whitlow with undermining of the skin edges ultra-violet irradiation was also employed. Some cases of tuberculous axillary abscess required from four to ten treatments. Duration of exposure should be limited to a few minutes. All authors agree that moderate doses only are required. The earlier failures were due probably to excessive dosage. The dosage recommended is 10 to 20 per cent. of the "erythema dose." Treatment should be given at intervals of three or four days. Apparently the therapeutic action is due to an abundant leucocytosis with bacterial disintegration and antibody formation. Plichet compares the action of *x* rays to that of heat and of the stasis produced by Bier's method, but radiotherapy is superior to these because the dosage and penetration of *x* rays can be regulated exactly.

7 Parathyroid Extract in Gastric Ulcer

J. M. S. RODRÍGUEZ (*Rev. Méd. de Barcelona*, February, 1933, p. 136) records six cases of gastric ulcer in patients aged from 33 to 61, whom he has treated in the course of the last two years by subcutaneous injections of parathyroid extract in doses of 0.5 to 1 c.cm. paratiroidina Byla daily. Care was taken to select only recent cases, without perigastritis or haematemesis. After a few injections the gastric pain and vomiting ceased, and in a few weeks there was a return of appetite, increase of weight, disappearance of nervous depression, and return of normal sleep. The clinical improvement was confirmed by *x*-ray examination, which showed healing of the ulcer. No cases of intolerance were observed.

8 Atropine in Parkinsonism

G. KINBERG (*Nord. Med. Tidskrift*, March 11th, 1933, p. 292) states that in Germany it has been calculated that there are more than 30,000 persons suffering from the effects of lethargic encephalitis. The treatment of these cases has hitherto been very unsatisfactory. Roemer's experience in 104 cases with large doses of atropine is encouraging, as is the author's with six cases. The rationale of this treatment is based on Bremer's observation that the tolerance to atropine in this class of patient is exceptionally great. It tends to increase with the severity of the disease, although in the acute stage atropine has no special action. While, according to Haffner, the ordinary doses of atropine act only on the peripheral nervous system, in large doses the drug acts on those parts of the central nervous system involved in lethargic encephalitis. The dosage begins with 1 drop three times a day of a 0.5 per cent. solution. This dosage is doubled on the second day and trebled on the third. This increase of the dosage by 1 drop is continued until the tenth day, when 10 drops are given three times a day. The dosage is now increased every other day by 1 drop until 20 drops are given thrice daily. It is now increased only every third day until the optimal dosage is reached. Dryness of the throat is no indication to stop raising the dosage, as this symptom usually disappears with a further increase of the drug. If, however, giddiness, palpitation of the heart, and gastric disturbances occur, it may be necessary not to increase the dosage for the next few days. The optimal dosage is reached when there is no further improvement to be noted in the signs and symp-

toms. The dosage is now decreased by 1 drop twice a day until the old symptoms begin to reappear. The process is then reversed and the dosage increased again. This treatment, it is stated, should be carried out in a hospital, and requires on the average three months.

Anaesthetics

9 A Narcotic for Short Operations

K. SPECHT (*Zentralbl. f. Chir.*, February 4th, 1933, p. 242) describes the use of a new preparation for the production of narcosis of short duration, suitable for emergency operations, punctures, incisions, reductions of fractures and dislocations, urological examinations, curetting, and investigations ordinarily involving pain. This substance, sodium evipan, is the sodium salt of *n*-methyl-cyclohexanyl-methyl-malonylurea, and is obtainable in 10 per cent. solution ready for intravenous injection. Experiments on animals have shown it to be without apparent toxic effects. No special preparation of the patient is necessary. The intravenous dose varies according to the age and weight from 0.08 c.cm. for the age of 75 to 0.16 c.cm. for children between 10 and 15 per kilogram body weight; the maximum allowable dose is 10 c.cm. The first 4 c.cm. are injected at the rate of 1 c.cm. in each fifteen seconds and the remainder at 1 c.cm. per ten seconds. The rate of injection is important, as is the case with all intravenous narcotics. Narcosis follows rapidly after the injection and may commence during it. Slight tremors of the muscles are sometimes seen, but never anything approaching convulsions. The narcosis should always be quite light, and lasts, according to the author, for from five to fifteen minutes. In about 33 per cent. of cases the patient falls into a further sleep lasting fifteen to thirty minutes after the period of true narcosis. As in the case of avertin older subjects are, weight for weight, more susceptible than young ones. There are no unpleasant after-effects such as nausea, weakness, headache, etc. If longer unconsciousness is required the narcotic may be used as a method of induction, and the anaesthesia be continued by ether or ethyl chloride.

10 Tetany during Ether Anaesthesia

According to W. N. KEMP (*Anesthesia and Analgesia*, January–February, 1933, p. 1) the occurrence of tetany during ether anaesthesia is not rightly attributable to impurities in the anaesthetic, but to some factor inherent in the patient. He has noticed that those who develop tetany at one operation are liable to do so at subsequent operations. The twitchings of the facial muscles, which are the first sign of this condition, are often followed by an extension of the movements to the muscles of the arms and even of the abdomen. Kemp records a case of perforated gastric ulcer in which tetany commenced only when the abdominal muscles were being stitched after closure of the perforation. On the assumption that the twitching was akin to the tetany of over-ventilation, the patient was allowed to rebreathe oxygen and the expired carbon dioxide, when the condition disappeared. The urine was found to be alkaline, but free from any other abnormality. At a subsequent operation the tetany recurred and was similarly stopped. The author has obtained evidence in support of the view that this condition is due to a temporary alkalosis, caused by the excessive loss of carbon dioxide and the consequent alteration in the blood *p*H. It has been experimentally shown that after twenty minutes of forced breathing a twitching of the facial nerve can be easily induced by tapping the nerve as it crosses the zygoma. Later this twitching may become spontaneous, and in the meantime other symptoms, such as visual impressions and sensations of heat and cold, may supervene, accompanied by a curious fixity of ideas which often makes it difficult to persuade the patient to discontinue the forced breathing. It has been suggested both by Collip and by Grand and Goldman that the condition of alkalosis induced by the forced breathing is the cause of the tetany. Such conditions of forced breathing are duplicated in the administration of ether through an intratracheal tube, especially when oxygen is used as the vehicle to carry the ether vapour. Kemp therefore considers himself justified in concluding that the colonic muscular movements which are sometimes seen in non-epileptic persons under open or intratracheal ether anaesthesia are due to a general alkalosis induced by the rapid elimination of carbon dioxide and the consequent severe upset in the normal respiratory quotient. He discusses the way in which the mechanism operates, and adds that an idiosyncrasy of some kind seems to be concerned.

11 Modern Aids to Anaesthesia

C. F. HADFIELD (*Brit. Journ. Anaesthesia*, January, 1933, p. 62) reviews the modifications in the administration of anaesthetics which have been introduced with the object of rendering anaesthesia safer and pleasanter for patients. Basal anaesthetics, administered by the mouth, rectum, or intravenously, relieve the patient's fears of a general anaesthetic and usually enable the anaesthetist to reduce the dosage of the latter. Administration of the various drugs now employed for this purpose is usually entirely successful. Probably finality has not been reached, nor can any preparation be always equally efficient nor entirely without disturbing sequelae. Rectal administration of paraldehyde is particularly reliable and is safer than avertin. The author states that it is rather surprising that it is not used more generally. Regarding the barbituric acid compounds, Hadfield prefers nembutal—usually in three-grain doses by the mouth for an adult—in ordinary cases. One-third of his patients were unaware of their removal to the operating room; the remainder were usually placid. In almost all cases good muscular relaxation can be obtained with gas and oxygen, combined with far less ether than would be required without nembutal. One of the greatest advantages of avertin and nembutal is the increased susceptibility to nitrous oxide. Hadfield frequently gives one capsule of nembutal overnight and two or three capsules prior to operation, according to the effect of the initial dose. In midwifery sodium amytal is preferable to other barbiturates on account of its prolonged action. Avertin and the barbiturates sometimes produce sleep so prolonged—even after moderate doses—that grave anxiety arises. Some fatalities have occurred. All basal anaesthetics may cause depression of the respiratory centre and post-operative restlessness. Carbon dioxide is invaluable in these cases, and for de-etherization, but a too rapid return to consciousness may subject the patient to much post-operative pain and discomfort.

Obstetrics and Gynaecology

12 Care of Premature Infants

E. NOBEL (*Wien. klin. Woch.*, March 24th, 1933, p. 370) gives a useful summary of the precautions indicated in the care of premature babies. The three principal causes of difficulties in these cases are inadequate heat regulation, feeding difficulties, and liability to infections of the respiratory tract. The insufficiently adapted heat-regulating mechanism becomes manifest through oscillations in temperature from abnormally high to subnormal values, and proper equilibrium is only established after the fourth or fifth week of life. Of the various methods used to correct the tendency to subnormality the author mentions the usual hot-water bottles of different materials, but condemns the use of the incubator-like chambers, since it has been found that the constant inhalation of warm air is undesirable. Modern hospitals are said no longer to use this contrivance. The breathing of fresh air appears to be essential for the normal operation of the respiratory reflexes. He therefore recommends certain types of warm chamber which allow of electrical regulation of body heat, but with the head of the child outside in the fresh

air. The asphyxial convulsions frequently met with in these premature infants can be combated by means of external stimuli such as hot baths, cold douches, and lobeline. Feeding difficulties arise often through failure of the swallowing or sucking reflex, but this is not by any means always the case ; one should always, therefore, give normal suckling a trial. If this fails artificial feeding with a small spoon must be tried, and if this does not evoke the swallowing reflex then a tube must be used via the nose or mouth. The best food is human milk: if an insufficient quantity only can be taken by the child, the milk may be drawn off from the breast and concentrated by the addition of sugar: 100 parts milk and 8.5 grams sugar made up to 150 c.cm. or 100 parts milk and 17 grams sugar made up to 200 c.cm. Long-continued use of such mixtures is not desirable on account of their relatively low protein content. Special attention is drawn to the tendency to sudden respiratory infections in premature infants which hitherto had thriven, these infections being clinically not demonstrable. In many cases such infants are diagnosed simply as debilitas vitae, but post mortem they show unsuspected pneumonic infection. Great care must be taken in the matter of the anaemias occurring in such cases (aplastic anaemias), for which the author recommends 0.3 gram fe. carb. sacchar. Rickets may readily become established in premature infants, so that early special precautions must be taken, such as high-sun radiation, cod-liver oil preparations, or a 10 per cent. emulsion of tribasic calcium phosphate.

13 Induction of Labour by Use of Parturients' Urine

S. S. BARJAKTAROVIC (*Zentralbl. f. Gynäk.*, March 18th, 1933, p. 628) quotes the observations of Guérin-Valmale, Loriot, and Verdeuil, who in two patients ten days before term found that rectal injection of urine from parturient patients was followed in twelve hours by onset of labour pains ; they ascribed this effect to the excretion in the urine of parturients of the excess of labour-determining hormones. Trying a similar method in ten patients, Barjaktarovic found it to fail in the early months, but to be followed by commencement of labour or induction of abortion in six patients who were from five to ten months pregnant ; these included cases of placenta praevia, hydramnios, or post-maturity. Large doses of urine were given, drop by drop, 400 to 500 grams at a time ; usually a daily repetition was necessary, and up to three litres were required Parenteral injections of urine from parturients induced abortion in rats and mice ; injections of ovarian or anterior pituitary hormone were ineffective. The active agent in the urine of labour patients is regarded as a hormone, probably of placental origin.

Pathology

14 Haemagglutination Reaction in Sore Throats (Angina) with Monocytosis

U. FRIEDEMANN and P. BEER (*Deut. med. Woch.*, March 24th, 1933, p. 440) report results which may prove of great interest in the differentiation of various forms of angina as between one another and from other infections. The reaction investigated was that of Hanganatziu and Deicher. The former showed that the serum of patients who had received serum injections for various reasons developed a high degree of agglutinating power for corpuscles of various animals. The reaction appears on the seventh or eighth day after the injection, reaches its maximum on the twelfth or thirteenth, and is still demonstrable after several months. It is independent of the kind of serum used and of the appearance of serum disease. The cells, which can now be agglutinated in high dilutions of serum, may be taken from the calf, sheep, horse, rabbit, guinea-pig, or pig. Isoagglutination titre is not raised. Sheep's cells are either not agglutinated by normal human serum in any dilution, or at most in a dilution of 1 in 4 ; after serum injections the titre rises as high as 1 in 250. For the purposes of the present investigation 1 c.cm. of diluted serum (inactivated at 56° C. for half an hour) is mixed with 1 c.cm. of a 5 per cent. sheep's cell suspension. The dilutions of serum are 1 in 1, 1 in 2, 1 in 4, 1 in 8, etc. The mixtures are allowed to stand twelve hours at room temperature, and the highest dilution at which agglutination takes place is read. A positive finding is recorded if agglutination occurs at dilutions of 1 in 8 or over. As a result of recent clinical experience it has become clear that the differentiation of anginas on the basis of the blood picture only is misleading. In applying the above test to anginas with monocytic reaction in the blood the authors had already the fact that Deicher had found it negative in 200 control cases of various kinds. In nineteen cases of febrile disease with tonsillar exudate and a 50 to 80 per cent. monocytosis (monocytes and lymphocytes), combined with enlargement of lymph glands, spleen, and liver, the reaction was definitely positive, both during the fever and shortly after the temperature had come down. The reaction appears early—in one case on the fourth day—but it disappears earlier than in the case of serum injection. In other diseases with mononuclear reactions—namely, whooping-cough, measles, syphilis (second stage), malaria, agranulocytosis, and lymphatic leukaemia (four cases), the reaction was always negative. Particular emphasis is laid on the fact that it is negative in lymphatic leukaemia. Monocytic reactions in angina are regarded by the authors as including all intermediate cell types from monocytes to lymphocytes ; but only in one case did they find a preponderance of mononuclears as ordinarily defined ; in the others the lymphocytes preponderated. Since some authorities identify monocytic angina with Pfeiffer's glandular fever, the authors investigated a case of the latter which came to their notice and found the above reaction positive (1/32) on the fifth day. In nine typical cases of Vincent's angina the reaction was negative.

15 Demonstration of "Positive Sputum" by Guinea-pig Inoculation

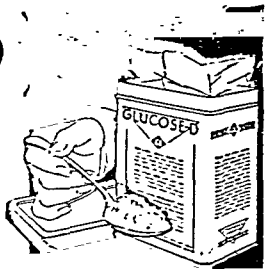
A. FARJOT (*C. R. Soc. de Biol.*, March 17th, 1933, p. 987), regarding the guinea-pig method of inoculation as the surest means of demonstrating tubercle bacilli in sputum, has endeavoured to ascertain the most suitable procedure for preparing the sputum for inoculation. Three methods were tried: (*a*) injection of 2 c.cm. of untreated sputum ; (*b*) injection of 2 c.cm. of sputum which had been left in contact with an equal volume of 4 per cent. caustic soda solution for half an hour at 37° C. and then neutralized with 33 per cent. acetic acid in the presence of neutral red ; and (*c*) injection of sputum homogenized by Petragnani's method—digestion of one part of sputum with four parts of 3 per cent. caustic soda solution for forty-five to sixty minutes at 37° C., followed by centrifugation and neutralization of the deposit with 4 per cent. HCl in the presence of litmus. Since necessity of economizing in animals prevented the inoculation of three guinea-pigs with the same sputum treated by the three methods, each specimen was treated by only one method and inoculated into a guinea-pig, reliance being placed on the examination of a sufficiently large number of animals to obtain comparative results. Using the first method, 318 guinea-pigs were inoculated ; fifty (15.7 per cent.) died prematurely, and of the remainder fifty-two became tuberculous—that is, tubercle bacilli were demonstrated in 16.4 per cent. of the total number. Sputum treated by the second method was injected into 780 guinea-pigs ; of these, forty-six (5.9 per cent.) died prematurely, and of the remainder eighty-two (10.5 per cent. of the total number) became tuberculous. Sputum treated by the third method was injected into 367 guinea-pigs ; of these, seven (2 per cent.) died prematurely, and of the remainder thirty-six (9.8 per cent. of the total number) developed tuberculosis. It appears, therefore, that though preliminary treatment with soda diminishes the number of premature deaths caused by contaminating organisms, the highest total percentage of positive results is obtained by the use of untreated sputum.

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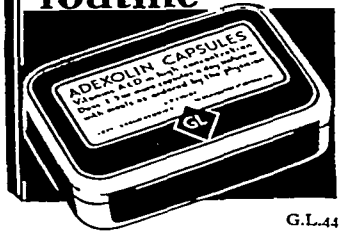
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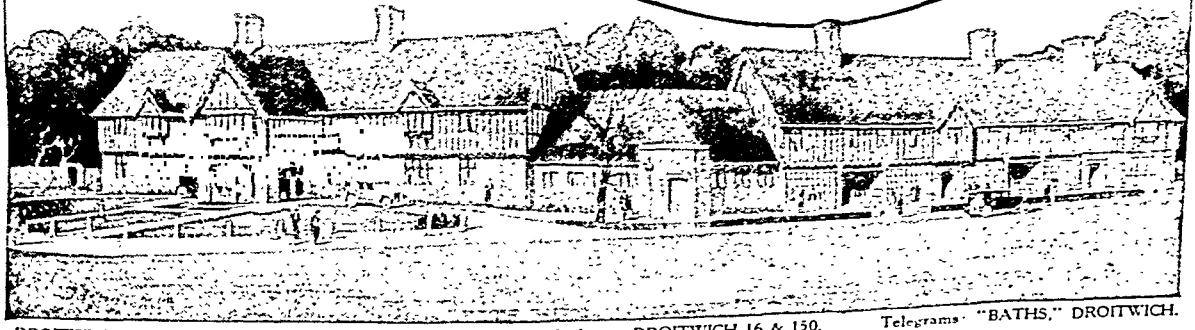
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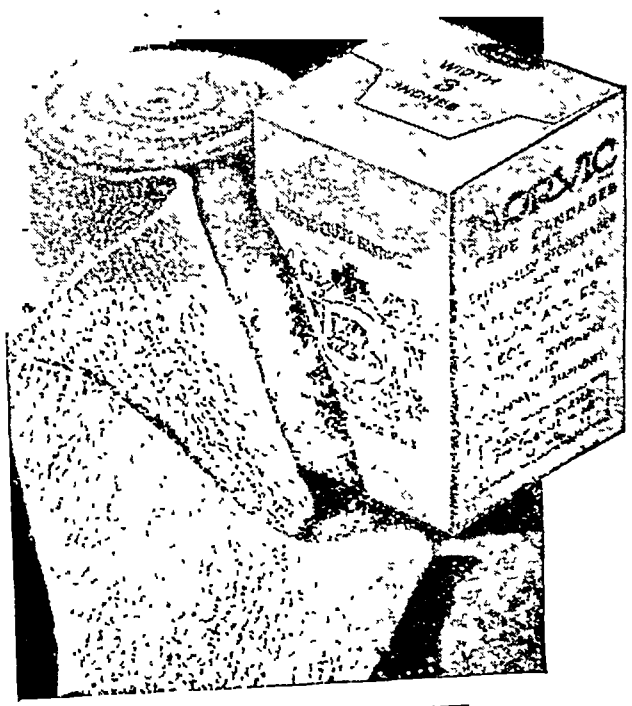
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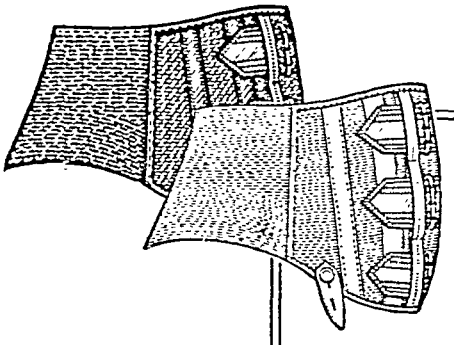
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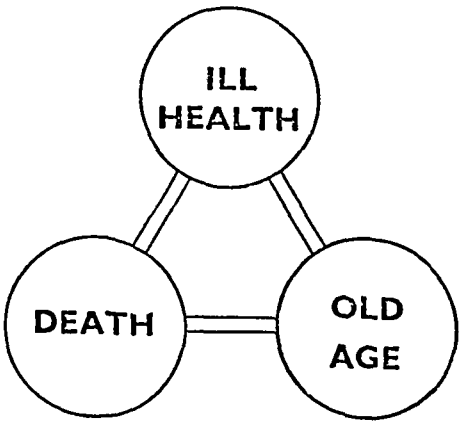
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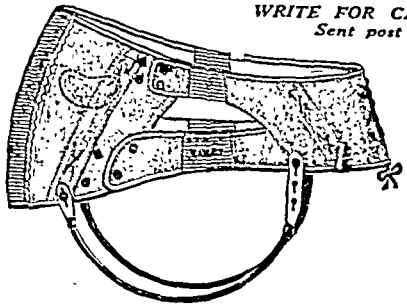
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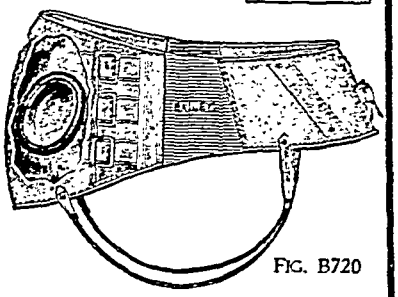


FIG. B720

(Showing Interior of Cup.)

SPECIAL BELT FOR AFTER COLOSTOMY.

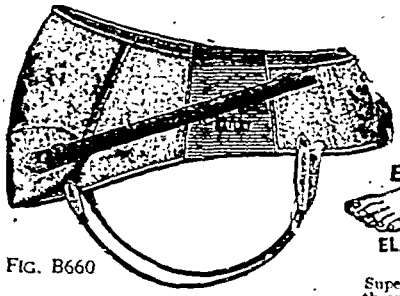
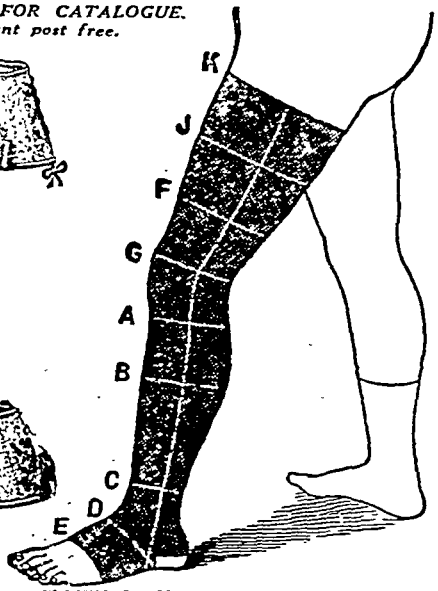


FIG. B660

BELT FOR ENTEROPTOSIS.

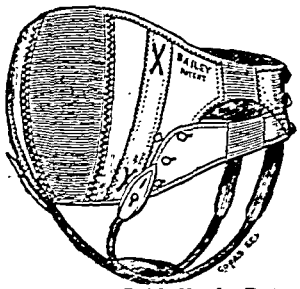


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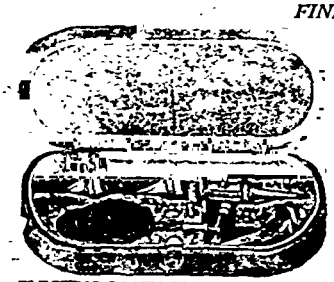
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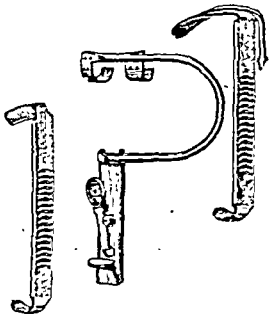
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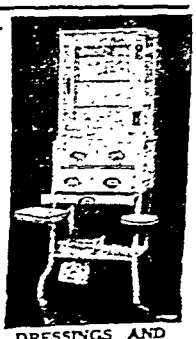
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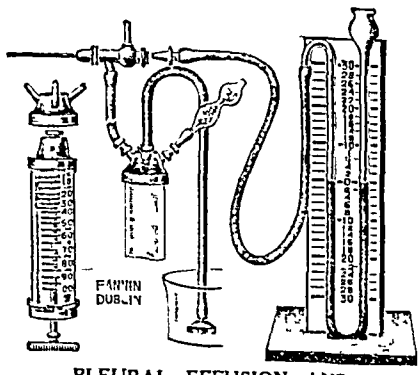
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For the treatment of GENTLEMEN. Estab. 1883 by an Association of prominent medical men and others for the study and treatment of alcohol and drug abuse. Large secluded grounds on the bank of the River Colne Voluntary Patients can be received under the Inebriates Act. Full-sized billiards, tennis, croquet, bowls. Golf (Moor Park, Sandy Lodge) close by. For parties, apply to—F. S D. HOGG, M R.C.S, &c., Resident Med. Supt. Telephone: 16 RICKMANSWORTH.

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Station: Eden Park (Southern Railway).

President: LORD WAKEFIELD OF HYTHE, C.B.E., LL.D.
Treasurer: SIR LIONEL FAUDEL-PHILLIPS, Bart.
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Applications can be considered on behalf of patients of the educated classes in a presumably curable condition.
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Every facility for specialized investigation and treatment is provided in the Lord Wakefield Science and Treatment Unit. In this unit is found the X-Ray and Dental Departments and the Bio-Chemical, Pathological, and Psychological Laboratories.
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In addition to the Resident Medical Staff, Consultants in special branches of Medicine and Surgery are available whenever required.
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Detached Villas standing in 12 acres of ornamental grounds, with tennis courts, etc., which Voluntary, Temporary or Certified Patients may visit, by arrangement, for long or short periods

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Full day and night Nursing Staff.
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Apply: The Secretary, The Cotswold Sanatorium, Cranham, Gloucester *Telephone*: 41 WITCOMBE. *Telegrams*: "HOFFMAN, BIRDLIP."

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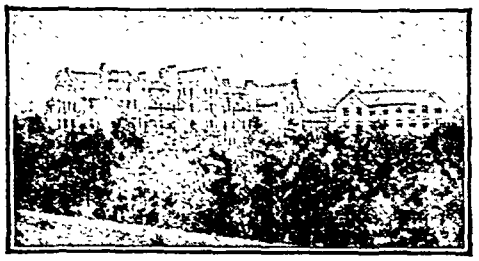
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Medical Director: David Lawson, M.D., F.R.S.E.

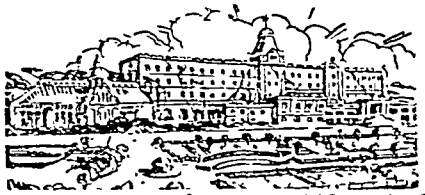
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Canvassing disqualifies

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(Incorporating the Birth Control Investigation Committee)

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on
CONTRACEPTION
will be held in
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2 30 p m	Chemical Spermicides and their effects
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Medical Practitioners of recognised consultant and specialist status required for undermentioned positions

(1) CONSULTING THO —A limited number of made and applicants sh experience in modern thoracic surgery

(2) EAR, NOSE, AND THROAT SURGEONS for Council's Tuberculosis Service A limited number of appointments will be made

(3) *CONSULTING ORTHOPAEDIC SURGEON* to St. Luke's Hospital, Lowestoft

Persons appointed required to carry out such duties as may be assigned by Medical Officer of Health Remuneration and condition subject to review. Marriage terminates contract of service of a woman.

Application forms containing particulars of remuneration, etc , obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division), County Hall, Westminster Bridge, S E 1, returnable by July 10th Candidates should specify position or positions for which they desire to apply. Canvassing disqualifies

LONDON COUNTY COUNCIL

RESIDENT MEDICAL SUPERINTENDENT required at BROOK (FEVER) HOSPITAL, Shooter's Hill, S E Person appointed will be under direction of Medical Officer of Health and must assist at other establishments Salary £1,000 by £50 to £1,250 Unfurnished house or quarters, free of rates, valued at £100 a year Candidates must be duly qualified Medical Practitioners for at least five years and have experience of administration of hospital for infectious diseases Experience in small pox desirable but not essential Remuneration and conditions subject to review Application forms obtainable (stamped addressed foolscap envelope necessary), from Clerk of the Council, County Hall, S E 1, returnable by July 14th. Canvassing disqualifies

WORCESTERSHIRE COUNTY COUNCIL.

ASSISTANT MALE COUNTY MEDICAL OFFICER.

The above mentioned Council are about to appoint a Male Assistant County Medical Officer, and applications are now invited for this post.

Applicants must be registered Medical Practitioners between the ages of 25 and 45 and preference will be given to the possessor of the D.P.H.

The duties will include those connected with the School Medical Service and the County Maternity and Child Welfare Scheme, together with any other health duties the Council may require.

The officer appointed will work under the supervision of the County Medical Officer, and will be required to reside in the district assigned to him by the County Council, and to devote the whole of his time to the work.

The salary will be £500 per annum (less a temporary economy deduction of £21 10s.) rising by annual increments of £25 to £700 per annum, with an allowance of £140 per annum for use of own motor car.

The post is designated under the Local Government and Other Officers Superannuation Act, 1922, and the successful applicant will be required to pass a medical examination.

The engagement will be subject to three months' notice on either side.

Applications (on forms to be obtained from the County Medical Officer, County Buildings, Worcester), accompanied by not more than three recent testimonials, must be received by 12 noon on Saturday July 15th, addressed to the County Medical Officer, County Buildings, Worcester.

Canvassing disqualifies, and neither the names of the members of the County Council, nor of the Committee will be supplied.

Shirehall, Worcester. (Signed) C. H. BIRD, Clerk of the County Council.
June 26th, 1933. (B.218.)

PORT OF CARDIFF.

RESIDENT MEDICAL OFFICER.

The Royal Hamadryad Seamen's Hospital invites applications from registered Medical Practitioners (male) for the whole-time appointment of Resident Medical Officer to the Hospital which consists of 70 beds and Out-patient Department with a V.D. Clinic.

Candidates must possess the certificate in Venereal Diseases prescribed by the Public Health Qualifications of Officers Regulations, 1930, and if possible have had further experience in that work. Consideration will be given to the possession of experience of administration.

The appointment will be limited to a period of three years with the option of renewal if desired by both parties.

Salary £600 to £650 per annum by annual increments of £25, with unfurnished residence, free from rates and taxes, adjacent to the Hospital, or in the case of an unmarried man, board, lodgings, laundry, and services, in either case valued at £135 per annum.

[illegible] September 1st.

[illegible], whether married or [illegible] previous medical, V.D., surgical, and administrative experience, and present occupation must be sent to the undersigned not later than July 14th.

Some experience of port work would be regarded as an additional qualification.

A print of the terms of appointment can be obtained from me.

HERBERT WHITAKER,
59, Mount Stuart Square, Secretary.
Bute Docks, Cardiff.

CITY OF BIRMINGHAM.

SELLY OAK HOSPITAL. (500 Beds.)

CASUALTY OFFICER (MALE).

Applications are invited from fully qualified Medical Practitioners for whole-time appointment as "Casualty Officer" (male) at the Selly Oak Hospital, Birmingham. The appointment will be for a period of six months in the first instance, but may be extended at the end of that time for a further period of not exceeding six months.

Salary at the rate of £200 per annum and full residential emoluments. The salary and emoluments will be subject to any "voluntary abatement" in force from time to time.

The officer appointed will be required to refund to the Council all fees, allowances and emoluments (other than the foregoing) received by him.

Further particulars may be obtained from the Medical Superintendent at Selly Oak Hospital, to whom applications, stating age, experience, and qualifications, with copies of recent testimonials, should be forwarded not later than Wednesday, July 12th.

F. H. C. WILTSHIRE,
The Council House, Town Clerk.
Birmingham. June, 1933.

CITY AND COUNTY OF KINGSTON-UPON-HULL.

ANLABY ROAD INSTITUTION (HOSPITAL).

ASSISTANT MEDICAL OFFICER.

The Corporation of Hull invite applications from registered Medical Practitioners (men or women), under the age of 40 years, for the appointment of Assistant Medical Officer at the above-named Hospital for a period of one year.

Salary is at the rate of £350 per annum, together with an allowance at the rate of £150 per annum for board and residence outside the Hospital. The salary will be subject to any temporary deduction which the City Council may authorise on the grounds of economy.

The Hospital Section contains 540 beds, and is equipped with modern X-ray and Radium Departments.

A form of application, together with conditions of appointment and list of duties, may be obtained from the undersigned, to whom completed applications should be returned not later than 10 a.m. on Monday, July 17th.

NICOLAS GEBBIE, M.D.,
Health Department, Medical Officer
Guildhall, of Health.
Hull. June 26th, 1933.

COUNTY BOROUGH OF HALIFAX. ST. LUKE'S HOSPITAL.

CONSULTING SURGEON (Male).

The Health Committee of the Halifax Corporation invite applications for the position of Consulting Surgeon at St. Luke's Hospital, Halifax, at a remuneration of £4 4s. per session. Candidates must possess a M.S. and/or F.R.C.S., and must not be engaged in general practice.

Forms of application and conditions of appointment may be obtained from the Medical Officer of Health, Powell Street, Halifax.

Complete applications, endorsed "Consulting Surgeon," together with copies of three recent testimonials, must be forwarded to the undersigned not later than first post on July 10th.

Canvassing, either directly or indirectly, will be a disqualification.

Town Clerk's Office, PERCY SAUNDERS,
Town Hall, Town Clerk.
Halifax. June 26th, 1933.

WORCESTERSHIRE EDUCATION COMMITTEE.

WEST MALVERN RESIDENTIAL OPEN-AIR COUNCIL SCHOOL.

APPOINTMENT OF MEDICAL OFFICER.

Applications are invited for the post of Part-time Medical Officer to the School. The officer appointed should have had special experience in Children's diseases and fevers, and must reside in or near Malvern. He will be required to take up his duties not later than October 1st. Forms of application, particulars of duties, and conditions, may be obtained from the undersigned, and should be returned on or before July 15th.

A. W. PRIESTLEY,
County Education Office, Director of
County Buildings, Education.
Worcester. (Correspondent of the
(B 218.) School.)

NORTH ORMESBY HOSPITAL, MIDDLESBROUGH.

HOUSE PHYSICIAN required, male and unmarried. Salary £120 per annum, with board, residence, and laundry. There are three Residents, and the successful candidate will be eligible for the post of House Surgeon in due course.

Applications, stating age, qualifications, previous experience (if any), with copies of three recent testimonials, should be sent to the undersigned not later than July 8th.

GEORGE WATTS,
June 6th, 1933. Secretary-Supt.

SOUTHPORT GENERAL INFIRMARY. (150 Beds.)

Special Departments for Eye, Ear, Nose, and Throat, X-rays, Massage, Skin, Pathology, etc.

Wanted to take up duties on August 1st, a SENIOR HOUSE SURGEON, fully qualified and registered, unmarried. Salary £200 per annum, with residence, board, and laundry.

Applications, stating age, nationality, and experience, with copies of testimonials, to be sent in by July 8th, to the Secretary, Infirmary Office, Pilkington Road, Southport.

BRISTOL EYE HOSPITAL.

Applications are invited for the post of ASSISTANT RESIDENT HOUSE SURGEON. Salary £100 per annum, vacant August 1st. Senior post available after six months. Applications and testimonials, to be received by the Secretary not later than Monday, July 3rd.

CITY OF NOTTINGHAM.

ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited for the appointment of Assistant Medical Officer of Health (male) to commence duty on October 1st.

The duties will include assisting the Medical Officer of Health in the administration of the Maternity and Child Welfare Department, taking medical charge of certain Infant Welfare sessions, undertaking medical duties of a non-specialist type at the Tuberculosis Clinic, together with such other duties as may from time to time be allotted.

The possession of a Diploma in Public Health is essential.

Service with other Local Authorities will be taken into consideration in fixing the commencing salary, which will be on the scale £500, rising by annual increments to £700.

The appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and to one month's notice on either side.

The successful candidate will be required to live within the City Boundary and to pass a medical examination.

Applications must be made on a form to be obtained from me and must be addressed so as to reach me not later than July 15th.

Guildhall, W. J. BOARD,
Nottingham. Town Clerk.
June 19th, 1933.

SURREY COUNTY COUNCIL.

SCHOOL DENTAL SURGEON.

Applications are invited from qualified registered Dental Surgeons, preferably under 35 years of age, for whole-time dental work in the County.

The officer appointed will be required to act under the supervision and control of the County Medical Officer, and to live at some centre to be approved by the Council.

Commencing salary £500 per annum, rising by increments of £20 for each year of approved service to £600 per annum, but subject to a reduction of 5 per cent. on the amount in excess of £150 until October 31st.

The appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922.

Form of application, together with further particulars, may be obtained from the County Medical Officer, County Hall, Kingston-upon-Thames, and must be returned duly completed, not later than Friday, July 7th.

Communications must be endorsed "School Dental Surgeon." Canvassing will disqualify.

County Hall, DUDLEY AUKLAND,
Kingston-upon-Thames. Clerk of the
June 16th, 1933. Council.

COUNTY BOROUGH OF HALIFAX.

ST. LUKE'S HOSPITAL.

JUNIOR RESIDENT MEDICAL OFFICER.

The Health Committee of the Halifax Corporation invite applications for the post of Junior Resident Medical Officer (male, unmarried) for St. Luke's Hospital (containing 448 beds for Medical, Surgical, and Maternity cases). The salary will be £250 per annum, together with board, residence, and laundry. The appointment will be for a term not exceeding one year and is not renewable.

Applicants must be duly qualified, registered Medical Practitioners.

Forms of application and conditions of appointment may be obtained from the Medical Officer of Health, Powell Street, Halifax.

Completed applications, together with copies of three recent testimonials, endorsed "Junior Resident Medical Officer" must be forwarded to the undersigned not later than first post on Monday, July 17th.

Canvassing, either directly or indirectly, will be a disqualification.

Town Clerk's Office, PERCY SAUNDERS,
Town Hall, Town Clerk.
Halifax. June 26th, 1933.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

NEWCASTLE GENERAL HOSPITAL. (650 Beds.)

ONE HOUSE SURGEON AND ONE HOUSE PHYSICIAN (Male).

The above posts will become vacant on August 1st, and applications are invited from duly qualified and registered Medical Practitioners.

The salary in respect of each of the appointments, which are tenable for six months, is at the rate of £150 per annum, with board, lodging, etc.

Applications, stating age and qualifications, together with copies of not more than three recent testimonials, to be addressed to the Medical Officer of Health, Town Hall, Newcastle-upon-Tyne.

June 19th, 1933.

CHESTERFIELD AND NORTH DERBYSHIRE ROYAL HOSPITAL
(220 Surgical and Medical Beds)

CASUALTY OFFICER (DEPUTY RESIDENT SURGICAL OFFICER)

Applications are invited from fully qualified men for the above post The appointment is for six months. Candidates must have held previous Hospital appointments.

Duties include House Surgeon to the Ear, Nose, and Throat Department

Salary at the rate of £200 per annum, with board, apartments, and laundry.

HOUSE SURGEON.

Applications are also invited from fully qualified men for the above post

The appointment is for six months Salary at the rate of £150 per annum, with board, apartments, and laundry.

Applications for these posts, stating age, together with copies of three recent testimonials, should be sent to the undersigned as soon as possible

G SUNNUCK,
June 26th, 1933 Supt. & Secretary

ROYAL EDINBURGH HOSPITAL FOR SICK CHILDREN.

Wanted for this Hospital, TWO HONORARY RESIDENT HOUSE SURGEONS and THREE HONORARY RESIDENT HOUSE PHYSICIANS, one of the latter shall have charge of both a medical ward and an ear and throat ward, the appointment shall commence on October 2nd, and shall be for a period of six months information as to duties, etc, can be obtained from the ordinary physicians and surgeons at the hospital Thirty copies of applications and relative testimonials to be lodged, on or before July 22nd, with Messrs HENRY & SCOTT, W S, 56, Frederick Street, Edinburgh No application will be received after that date

GENERAL HOSPITAL, NOTTINGHAM.

A HOUSE SURGEON is required at the above Institution The appointment is for six months, with salary at the rate of £150 a year, with board, residence, and laundry Candidates, who must have had previous Hospital experience, are desired to send applications and full particulars as to age, qualifications, and experience, together with copies of testimonials to the undersigned, not later than Saturday, July 22nd Duties to commence on or about Tuesday, August 8th

PETER M. MacCOLL,
House Governor & Secretary

WARNEFORD GENERAL HOSPITAL, LEAMINGTON SPA

RESIDENT CASUALTY HOUSE SURGEON AND HOUSE RESIDENT to Special Departments required on August 1st next Salary £150 per annum with board and laundry

Applications from qualified and registered Medical Practitioners (single men) should be sent to the undersigned by July 12th, accompanied by copies of at least three recent testimonials

EDWARD L WIRGMAN
House Governor & Secretary

VICTORIA HOSPITAL, ACCRINGTON

The Governing Body of this Hospital invites applications for the post of HOUSE SURGEON

Candidates must be duly qualified and registered Number of beds 50 Salary £150 per annum, with board and lodging

Conditions of appointment and particulars of duties may be obtained from the undersigned, to whom applications, with copies only of testimonials should be sent on or before July 10th

Town Hall W H WARHURST,
Accrington Hon Secretary

ST MARY'S HOSPITAL FOR WOMEN AND CHILDREN Plaistow, E 13

Applications are invited for an HONORARY GYNAECOLOGIST (In and Out patients) Candidates must be Fellows of a Royal College of Surgeons

The Hospital is close to Plaistow Station thirty minutes from Charing Cross (Underground)

Applications, with copies of three recent testimonials, to be sent on or before July 8th to the undersigned

A. ERNEST WILKES, Secretary

KENT AND CANTERBURY HOSPITAL, CANTERBURY.

HOUSE SURGEON (male) required, to commence duties as soon as possible. Six months' appointment. Salary payable at the rate of £125 per annum, plus board, residence, and laundry.

Applications, stating age and particulars of qualifications, and enclosing copies of testimonials, should be forwarded to the undersigned.

W. T. SOUTHWOOD,
Superintendent & Secretary.

THE ROYAL HOSPITAL, WOLVERHAMPTON.
(Incorporated under Charter.)

HOUSE SURGEON required, duties to commence early in July. The Hospital contains 300 beds, includes the usual special departments and is recognised by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice

Candidates must be registered under the Medical Acts, and unmarried.

The appointment is for six months Salary at the rate of £100 per annum, board, furnished rooms, and laundry provided

Applications, with copies of testimonials, to be forwarded to the undersigned

Wolverhampton. W. H. HARPER,
June 26th, 1933 House Governor.

THE ROYAL INFIRMARY, SHEFFIELD.
(500 Beds)

The Weekly Board of Management invite applications for the undermentioned posts:

HOUSE SURGEON;
ASSISTANT CASUALTY OFFICER; and
ASSISTANT AURAL AND OPHTHALMIC HOUSE SURGEON.

The salary attached to each appointment is £80 per annum, with board and residence: after six months' service £100 per annum.

Applications, with copies of testimonials, to be sent to the undersigned.

JNO. W. BARNES, F.C.I.S.,
Board Room Gen Supt & Secretary.
June 26th, 1933

LONDON LOCK HOSPITAL AND HOME.
(Founded 1746.)

HONORARY SURGEON.

The Board of Management invite applications for the above appointment. Candidates must be Fellows of the Royal College of Surgeons of England. Applications, stating full particulars and enclosing copies of three testimonials, must be lodged with the undersigned on or before Monday, July 3rd The appointment will be made at a Special Court of the Governors on July 6th.

By Order of the Board,
283, Harrow Rd, W.9 J F MORTON,
June 1st, 1933 Secretary.

SANATORIUM, BRIDGE OF WEIR.

COLONY FOR EPILEPTICS, BRIDGE OF WEIR.

ASSISTANT MALE RESIDENT MEDICAL OFFICER wanted, to commence duties in August.

Keen evangelical, and keen research worker preferred. Appointment for six months in first instance, at rate of £200 p.a (renewable by mutual agreement) with board and laundry.

Applications to Medical Superintendent, stating age, experience, and qualifications, and enclosing references

SCUNTHORPE AND DISTRICT WAR MEMORIAL HOSPITAL (86 Beds)

Applications are invited for the post of RESIDENT SURGEON Salary £250 per annum, with board, residence, and laundry (Resident Surgeon expected to perform emergency operations) Applications, stating age, experience, and qualifications, enclosing copies of recent testimonials, and giving earliest time for commencing duties, to be forwarded to the undersigned not later than the first post on Monday, July 10th, when the post will become vacant

ARTHUR E MAW, Secretary

ST MARY'S HOSPITALS, MANCHESTER

TWO HOUSE SURGEONS for the WHITWORTH ST. WEST HOSPITAL (Maternity); and two for the Whitworth Park Hospital (one Children's Dept. and one Gynaecological Dept) each for a period of six months from August 1st next Salaries at the rate of £50 per annum, with board and residence

Applications, with copies of three testimonials, to be sent to the undersigned on or before July 15th

R RATCLIFFE, Secretary

HOUNSLOW HOSPITAL, STAINES ROAD, HOUNSLOW, MIDDLESEX (70 Beds)

Wanted July 10th, MALE HOUSE SURGEON. Appointment at £150 p.a, with board, residence, etc, for six months

Applications, stating qualifications, age, and experience, and enclosing copies of three recent testimonials, should be sent forthwith (marked "House Surgeon" top left hand corner) to W T ROSS, Secretary, Hounslow Hospital

CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd Street, W C 1

There will shortly be a vacancy in the Orthoptic Department for a STUDENT (female). Full particulars may be obtained on application to the Secretary.

WEST END HOSPITAL FOR NERVOUS DISEASES.
In-Patient Department, Gloucester Gate, Regent's Park, N.W.1.
Out-Patient Department: 73, Welbeck St, W.1.

The Committee of Management invites applications for the post of HONORARY ASSISTANT OPHTHALMIC SURGEON The date by which applications must be received has been extended to Monday, July 10th Candidates, who must be Fellows of the Royal College of Surgeons, Eng, are requested to send eleven copies of their application, with recent testimonials, by July 10th, to the undersigned from whom further particulars should be obtained

J. P. WETENHALL,
Welbeck Street, W.1. Secretary

GENERAL INFIRMARY, SALISBURY.
(Voluntary General Hospital—170 Beds)

HOUSE PHYSICIAN (male) required, to commence duty July 31st

The appointments are for six months, with the right of applying for re-appointment at the end of that period for a further period of six months.

Candidates must be unmarried, fully qualified, and registered Salary £150 per annum, with board, etc

Applications, with copies of testimonials, to be sent to the House Governor and Secretary at the Hospital, from whom a copy of the rules may be obtained

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.11.
(121 Beds)

HOUSE PHYSICIAN (Male) required The appointment is for six months, commencing on August 1st Salary £120 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered

Applications, stating age, qualifications and experience, with copies of not more than three testimonials, should be sent to the undersigned on or before July 12th

W. S RANDOLPH BISS,
Secretary-Superintendent

ROYAL HAMPSHIRE COUNTY HOSPITAL, WINCHESTER. (158 Beds)

HOUSE SURGEON.

Applications are invited from fully qualified men for the above post to take up duties on August 1st. Six months' appointment. Salary £125 per annum, with board, residence, and laundry.

Candidates, who must be of British nationality, to make application at once to the undersigned enclosing copies of three testimonials

HERBERT MASLEN, Secretary.

BRIDGWATER HOSPITAL, SALMON PARADE, BRIDGWATER, SOMERSET
(62 Beds, including Male, Female, and Children's Wards)

Wanted, HOUSE SURGEON Salary £130 (rising to £150 after six months), with board and residence. Applications, with copies of three recent testimonials, stating age, qualifications, nationality, and experience, to be sent to the Secretary by July 15th.

Appointment made on July 20th for duties not later than August 18th

THE INFANTS HOSPITAL, Vincent Square, Westminster.

Applications are invited for the post of MEDICAL REGISTRAR The appointment is for one year in the first instance, renewable annually on application for a period not exceeding three years in all The remuneration is at the rate of £120 per annum

Applications should be sent, with copies of three recent testimonials, not later than July 10th to the undersigned

ALFRED J SMALL, Secretary

ROYAL EYE HOSPITAL, St George's Circus, Southwark, S E 1.

The Council invite applications for the appointment of HONORARY PHYSICIAN to the above Hospital. Candidates must be a Graduate of Medicine of a British University and a Fellow or Member of the Royal College of Physicians of London

Applications, with copies of testimonials, to be sent to the Secretary on or before July 1st.

F E D'ALTON, Secretary

THE NORTH STAFFS ORTHOPAEDIC HOSPITAL, STOKE-ON-TRENT.

Applications are invited for a HOUSE SURGEON (male) to this Hospital at a salary of £150 per annum, plus board, residence, and laundry Applications, accompanied by three recent testimonials, to be sent to the Secretary, Orthopaedic Hospital, Hartshill, Stoke-on-Trent.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE	**CONTRACT PRACTICE** *(contd.)*	**PUBLIC HEALTH**
EBBW VALE, MON. *(Workmen's Medical Society.)*	MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	COUNTY BOROUGH OF SOUTH SHIELDS. HARTON INSTITUTION AND CLEADON COTTAGE HOMES. *(Medical Officer.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	HERTFORDSHIRE COUNTY COUNCIL. WARE SANATORIUM. *(Assistant Medical Officer.)*
LLWYNPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	
LOWESTOFT MEDICAL INSTITUTE. *(Medical Officer.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	FULHAM BOROUGH COUNCIL, Maternity and Child Welfare Department. *(Assistant Medical Officer—Woman.)*

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. J. G. HUNTER (Medical Secretary, New South Wales Branch), 135, Macquarie St., Sydney, N.S.W.	**QUEENSLAND.** *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	**WELLINGTON, NEW ZEALAND.** *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.
VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. J. P. MAJOR (Hon. Sec., Victorian Branch, British Medical Association, Medical Society Hall, East Melbourne, Victoria.	*(Toowoomba Associated Friendly Societies, Medical Institute, Toowoomba.)*		**WESTERN AUSTRALIA.** *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.

June 28th, 1933. By Order of the Council. G. C. ANDERSON, Medical Secretary.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

Applications are invited for the following posts:

(1) HOUSE SURGEON, vacant on August 15th. The appointment is for nine months (six months as House Surgeon and three months as Casualty Officer), with salary at the rate of £70 per annum, with board, residence, and laundry.

(2) OBSTETRIC HOUSE SURGEON, vacant on September 15th. The appointment is for nine months (six months as Obstetric House Surgeon, three months as Casualty Officer). Salary as above.

(3) HOUSE PHYSICIAN, vacant on September 1st. The appointment is for nine months three months as Out-patient Casualty Officer and Anaesthetist and six months as House Physician. Salary as above.

Applications, with copies of testimonials, should be sent by July 8th to the undersigned from whom forms of application and rules can be obtained.

GILBERT G. PANTER, Secretary.

LIVERPOOL HEART HOSPITAL.

ASSISTANT PHYSICIAN.

Applications are invited for the position of Assistant Physician to the above Hospital. The Hospital is run as one unit and is particularly well equipped for Research. The Assistant Physician will be eligible for a part-time Research Fellowship of £200 per annum, tenable for five years. Outside candidates will receive the same consideration as local men. Applications to be sent to the Secretary, Miss LEWIS, 14, Cook Street, Liverpool.

ROYAL SALOP INFIRMARY, SHREWSBURY. (150 Beds.)

APPOINTMENT OF RESIDENT HOUSE PHYSICIAN.

Applications are invited from fully qualified men for the appointment of Resident House Physician, vacant July 1st. Salary £160 per annum, with board, residence, etc. The appointment is for six months in the first instance, subject to re-appointment for a further period of six months. Resident Staff comprises Resident Surgical Officer, House Physician and Casualty Officer and Resident Anaesthetist. The Resident House Physician is Resident Officer to the Medical Wards of the Hospital under the direction of three Honorary Physicians, and is also Resident Officer to the Maternity Department for difficult cases under the direction of the Honorary Obstetrician.

Applications, stating age, qualifications, experience, nationality, and accompanied by copies of three recent testimonials, to be sent to the undersigned forthwith.

Board Room. J. W. NOBLE,
June 13th, 1933. Secretary-Supt.

HARROGATE AND DISTRICT GENERAL HOSPITAL (140 Beds.)

Applications are invited from British subjects (male) for the post of SECOND RESIDENT MEDICAL OFFICER. The duties include those of House Physician and Casualty Officer.

Salary at the rate of £150 per annum, with board and lodging.

The post will become vacant on July 31st, and the appointment is for six months. Applications must reach the undersigned not later than July 8th.

GEO. BALLANTYNE, Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

RESIDENT MEDICAL OFFICER required on August 1st.

The appointment is made for six months, and may be extended for further periods of six months, but cannot be held for more than two years.

The Resident Medical Staff consists of the Resident Medical Officer as above, three Casualty Officers, two House Physicians, and one House Surgeon.

Salary (inclusive of panel fees) £200 per annum, with board, residence, and laundry. Candidates must have held a responsible Resident appointment at a recognised hospital.

Forms of application may be obtained from the undersigned, and must be completed and returned on or before July 8th.

CHARLES H. BESSELL,
June 12th, 1933. Secretary.

RADCLIFFE INFIRMARY AND COUNTY HOSPITAL, OXFORD.

Applications are invited for the following posts on the Honorary Medical Staff of the above Hospital.

1. HONORARY SURGEON.
2. HONORARY SURGEON to the Ear, Nose, and Throat Department (with charge of sixteen beds).

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(Appointments continued on p. 48.)

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The duties include attendance in the Out-patient Department on four mornings a week, acting as deputy for the Assistant Physician to the Children's Department when required and such teaching for the Post-graduate College as the Board may approve.

Candidates, who may be male or female, must be registered under the Medical Act, and should have had wide experience in Children's work. Membership of one of the Royal Colleges of Physicians of London, Edinburgh, or Ireland is desirable

Applications, with copies only of testimonials, should reach me not later than Thursday, July 20th. Candidates must attend the Meeting of the Medical Council at 4.30 p.m. on Friday, July 21st, and prior to that date send copies of application and testimonials to each member thereof. They must not canvass members of the Board but, nevertheless, should send copies of their applications and testimonials to each member thereof, and if so notified, be in attendance at a Meeting of the Board at 5.15 p.m. on Tuesday, July 25th, when the election will be made

H. V. MADGE, Secretary.

YORK DISPENSARY.

Applications are invited for the post of RESIDENT MEDICAL OFFICER (Female) to commence duties as soon as possible.

The Directors expect the post to be held for not less than one year though this is not a condition precedent to the appointment

The resident staff consists of two medical officers, whose duties are to visit and attend the sick poor in their own homes, and to assist the honorary staff. Some experience of the administration of anaesthetics is essential. Salary £175 per annum, with board, lodging, and attendance, and allowance for laundry. Applications with testimonials, to be sent on or before July 8th, to—

4, New Street, York. JOHN C. PETERS, Secretary.

KENT COUNTY MENTAL HOSPITAL, *MAIDSTONE*

ASSISTANT MEDICAL OFFICER (Male) required. Commencing salary, inclusive of emoluments, £509 per annum, rising to £659 per annum. Excellent facilities for attending lectures for the Diploma in Psychological Medicine, and an additional £50 per annum for that Diploma

The appointment is pensionable under the Asylums Officers Superannuation Act, 1909.

Candidates must be fully qualified, single, and not more than 30 years of age

Applications, giving full particulars, with copies of three recent testimonials, and endorsed "A.M.O.," on envelope, should be sent to the Medical Superintendent of the Hospital at an early date

THE CANCER HOSPITAL (FREE) (Incorporated under Royal Charter), Fulham Road, London, S.W.3

The Committee are prepared to receive applications for the post of HOUSE SURGEON, to commence duties on August 1st. Salary at the rate of £100 per annum

The appointment is for six months, and subject to rules a copy of which may be obtained from the Secretary

Previous experience as a House Surgeon is indispensable

Applications, with three (copies only) testimonials, to be sent to the undersigned not later than the first post on Monday July 17th

CLEMENT COBBOLD, Secretary

DERBYSHIRE HOSPITAL FOR SICK CHILDREN (80 Beds)

Wanted at once, a RESIDENT HOUSE PHYSICIAN (Lady). Salary £130 p.a. The appointment is for six months but may be extended by mutual arrangement. Applicants must be fully qualified. Applications, with three testimonials, one relating to anaesthetics, to be sent to the undersigned

ARTHUR N. WHISTON, 25, St. Mary's Gate, Derby. Secretary.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN. (80 Beds)

Wanted at once, a RESIDENT HOUSE SURGEON (Lady). Salary £130 p.a. The appointment is for six months but may be extended by mutual arrangement. Applicants must be fully qualified. Applications, with three testimonials, one relating to anaesthetics, to be sent to the undersigned

ARTHUR N. WHISTON, 25, St. Mary's Gate, Derby. Secretary.

MANCHESTER ROYAL INFIRMARY. CENTRAL BRANCH, ROBY STREET, MANCHESTER.

HOUSE SURGEON (LADY).

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment. Applicants must be registered and hold a medical and surgical qualification.

The appointment is tenable for nine months, commencing at once, three months as Junior at £100 per annum, three months as Assistant at £100 per annum, and three months as Senior at £200 per annum, together with board and allowance for laundry.

Applicants must state age and qualifications and send twelve copies of their application and testimonials to the undersigned by 9 a.m. on Thursday, July 6th.

By Order,

[illegible]

POST OF RESIDENT MEDICAL OFFICER.

The periodical vacancies for the Three Resident Medical Officers, either sex, occur in February, June, and October in each year, the appointment being for twelve months. Four months as House Surgeon, four months as Gynaecological and Casualty Officer, and four months as Medical Officer, with salary at the rate of £100 per annum, and board, apartments, and laundry.

Candidates must be legally qualified and registered

Applications for JUNE APPOINTMENT, stating age, with copies of testimonials, to be sent to the Secretary.

EDWARD A. ATTWOOD, Secretary.

VICTORIA HOSPITAL, BURNLEY. (126 Beds)

HOUSE SURGEON (Male).

Applications are invited for the above post, which will become vacant on July 1st next. The appointment is for six months in the first instance, at a salary of £150 per annum, together with board, residence, and laundry. At the end of this period re-appointment for a further period may be applied for, and if confirmed, the salary for the second six months will be at the rate of £200 per annum.

Applications, with full details of qualifications and experience, and stating nationality, together with copies of recent testimonials, should be addressed to the undersigned forthwith.

J. E. WHEATCROFT, Secretary.

HULL ROYAL INFIRMARY. (370 Beds)

Applications are invited from registered Medical Practitioners for the post of CASUALTY OFFICER (male) vacant now.

Salary at the rate of £150 per annum, plus residence, board, and laundry

The officer appointed will work mainly under the direction of the Resident Surgical Officer.

The appointment will be for six months but will at any time be determinable by one month's notice on either side.

Applications, stating age, qualifications, and nationality, together with copies of testimonials, should be addressed to the undersigned.

R. J. CARLESS, House Governor.

June 17th, 1933

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.3

The [illegible] of Management invite applications for the [illegible] PHYSICIAN (for which [illegible] es). The duties include [illegible] Department as well as in the Wards. The appointment is for six months commencing on August 1st, with an honorarium of £50

Applications, with copies of testimonials, must reach the undersigned not later than Saturday, July 8th

Brompton, S.W.3. FREDERICK WOOD, Secretary.

June, 1933

ROYAL INFIRMARY, BLACKBURN. (240 Beds—Five Residents)

FOURTH HOUSE SURGEON (male) required at a salary of £150 per annum, with board, residence, laundry, etc. To commence duties as soon as possible.

Applications, with copies of testimonials, stating age, nationality, experience, etc., to be sent at once to the undersigned

Royal Infirmary, Blackburn. NATHAN A. SMITH, Gen. Supt. & Secretary.

This Institution is recognised for the Surgical practice required for the F.R.C.S. final examination.

HEREFORD COUNTY AND CITY MENTAL HOSPITAL.

Wanted, a SECOND ASSISTANT MEDICAL OFFICER (male, unmarried) not exceeding 40 years of age, doubly qualified, and registered under the Medical Act. Salary £350, rising by increments of £25 to £400, subject to a temporary reduction of 4 per cent., with board, furnished apartments, laundry, etc.

Ample opportunities exist for research with trained laboratory assistance in bacteriology, pathology, and biochemistry. Preference will be given to a candidate with laboratory experience, and to one holding a diploma in Psychological Medicine.

The appointment is subject to the provisions of the Asylum Officers Superannuation Act, 1909.

Applications, with one or more personal references to be made to the Medical Superintendent, County and City Mental Hospital, Burghill, Hereford

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, Chelsea, S.W.3. (138 Beds.)

The Committee of Management invite applications for the posts of HOUSE PHYSICIAN and HOUSE SURGEON (both vacant, August 1st). The appointments are for six months. Salaries at the rate of £100 p.a., with board, lodging, and washing

Candidates must attend the hospital for the purpose of an interview at 4 p.m. on Tuesday, July 11th. (No travelling or other expenses will be paid). They must hold medical and surgical qualifications and be registered under the Medical Act.

Applications, with copies of three recent testimonials, should be sent to the Secretary not later than first post on Monday, July 10th.

By Order,

D. ST. JOHN RAMFORD, Secretary.

PADDINGTON GREEN CHILDREN'S HOSPITAL (Incorporated), London, W.2.

HOUSE PHYSICIAN.
HOUSE SURGEON.

Applications are invited for the above appointments, which will become vacant on September 1st. Gentlemen (unmarried) are invited to send in their applications, with copies of three testimonials, to the undersigned not later than first post on Friday, July 14th. Salary of each at the rate of £150 per annum, with board and residence. Candidates who have held a responsible Resident Hospital appointment are preferred. The appointments are for a period of eight months.

JAMES A. HAMLIN, Secretary

STOCKTON [illegible] HOSPITAL, [illegible] s)

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER (male) for a period of at least six months. Duties to commence about July 14th. Salary £175 per annum, with board, residence, and laundry. Candidates must be duly qualified and unmarried. Applications, stating age, nationality, and experience, together with copies of three recent testimonials, to be sent to the undersigned.

J. WILKINSON, Secretary.

THE CHILDREN'S HOSPITAL, SHEFFIELD. (110 Beds—Three Residents)

Applications are invited for the post of HOUSE SURGEON, vacant August 1st

The appointment is for six months. Salary £100 per annum, with board, residence, and laundry.

Candidates (male and unmarried), who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of three recent testimonials to the undersigned.

T. H. G. GARTLAND, Secretary

COVENTRY AND WARWICKSHIRE HOSPITAL.
(307 Beds Main Hospital—40 Beds Alcock Convalescent Hospital.)
(Seven Resident Medical Officers)

RESIDENT CASUALTY OFFICER (Male) wanted. Salary £125 per annum, with board, laundry, and attendance provided. Candidates must be duly qualified and registered

Applications, stating age and enclosing copies of recent testimonials, should be sent to the undersigned immediately.

(Miss) R. HOOPER, Secretary.

June 17th, 1933

ECCLES AND PATRICROFT HOSPITAL, near MANCHESTER.

HOUSE SURGEON required, July 15th. Good general surgical work. Commencing salary at rate of £150 p.a., plus usual Six months' appointment. Apply, with copies of testimonials, to the Secretary at the Hospital.

STAFFORDSHIRE COUNTY COUNCIL.

STANDON HALL ORTHOPAEDIC HOSPITAL.

LADY HOUSE SURGEON.

Applications are invited for the post of Lady House Surgeon at the above Hospital, at a salary of £200 per annum, with full board and lodging. Previous professional experience not necessary. The appointment is for one year and is not renewable.

Applications, stating age and qualifications, accompanied by three recent testimonials, must be delivered to the undersigned not later than July 13th.

County Buildings, Stafford. H. L. UNDERWOOD, Clerk of the County Council.

June 26th, 1933.

HUDDERSFIELD ROYAL INFIRMARY. (240 Beds.)

MALE HOUSE SURGEON required to commence duty on July 6th.

Salary £150 per annum, with board, residence, and laundry. Appointment for six months, subject to renewal at the discretion of the Board of Management.

The Hospital is officially recognised for the surgical practice required of non-members before admission to the Final Fellowship Examination of the Royal College of Surgeons of England.

Applications, with copies of three recent testimonials, to be addressed to the undersigned immediately.

H. E. G. HALL, *Gen. Supt. & Secretary.*

THE GENERAL INFIRMARY AT LEEDS. (627 Beds.)

RESIDENT MEDICAL OFFICER, IDA AND ROBERT ARTHINGTON HOSPITAL (Branch Hospital).

Applications are invited for the above post. Salary £100 per annum, with board, residence, and laundry.

The appointment is for six months, subject to renewal. Candidates must be legally qualified and registered.

Applications, with copies of testimonials, to be sent in at once to the House Governor & Secretary.

PUTNEY HOSPITAL, The Lower Common, Putney, S.W.15.

Applications are invited for the post of RESIDENT MEDICAL OFFICER, which will become vacant on September 1st, at Putney Hospital (53 beds). Salary £150, with rooms, board, and emoluments. Appointment for six months, renewable on recommendation of the board. It is desirable that applicants should have held some previous hospital appointment. Apply, stating age, and with copies of testimonials to the undersigned, not later than July 20th.

H. SEYMOUR HADWEN, Secretary.

KING EDWARD VII HOSPITAL, WINDSOR. (181 Beds.)

RESIDENT MEDICAL OFFICER required (Senior of five Residents). Applicants (male or female) must be fully qualified, registered, and have held a resident appointment.

Salary at the rate of £200 per annum, together with board, residence, and laundry allowance.

Applications, with copies of recent testimonials, should be sent to the undersigned not later than July 8th.

ARTHUR E. CHURCHER, Secretary.

ANCOATS HOSPITAL, MANCHESTER.

HOUSE PHYSICIAN.

House Physician required for a period of six months to commence duty immediately. Salary £100 per annum, with board, residence, laundry, etc.

Applications, stating age, qualifications, and experience, to be forwarded to the undersigned, together with copies of three recent testimonials, immediately.

By Order of the Board, HERBERT J. DAFFORNE, *Gen. Supt. & Secretary.*

CLAYTON HOSPITAL, WAKEFIELD.

There is a vacancy for a HOUSE SURGEON (male, British) for which post applications are invited. The appointment is for six months in the first instance, and the salary is at the rate of £200 per annum, together with board, residence, and laundry.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should be sent to the undersigned as early as possible.

H. J. LANCASTER, General Superintendent & Secretary.

NATIONAL HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, Queen Square, W.C.1.

HOUSE PHYSICIAN.

Applications are invited for the post of House Physician, and should be sent to the undersigned, accompanied by three recent testimonials, not later than Monday, July 3rd. The salary is £150 per annum, with board and lodging.

GODFREY H. HAMILTON, Secretary.

ROYAL SURREY COUNTY HOSPITAL, GUILDFORD. (182 Beds.)

WANTED, AUGUST 1st, HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry. Applications, stating essential particulars, with copies of not more than three testimonials, to be sent to the Secretary-Supt. on or before July 10th

ROYAL SURREY COUNTY HOSPITAL, GUILDFORD. (182 Beds.)

Applications are invited for the post of HON. ASSISTANT PHYSICIAN from Practitioners living in the neighbourhood of the Hospital. Candidates should hold University degrees in Medicine or membership of the Royal College of Physicians.

Applications to be sent to the Secretary-Superintendent on or before July 7th.

Telephone: WELBECK 2728.
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W. J. HICKS, *Secretary.*

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EASTERN COUNTY, IN VERY PLEASANT locality, about £300 p.a. Panel 180 and small club. Fees 3/6 to 21/-. House in open situation, with 2 recep., 3 bed., attic, etc. Surgery, garage, and nice garden. Rent £60 on lease. Suit semi-retired man, with private means.—No. 9172.

LONDON, N.W. — VERY FINE OUTLYING district. About £1,000 p.a. No panel taken, but ample scope. Some dispensing. Expenses low. Corner house in excellent position on main road, 4 bedrooms, etc. Long leasehold for sale at £2,220. Vendor giving up general practice. Premium for goodwill 1½ years' purchase.—No. 9170.

LONDON, S.W.—ABOUT £1,200 P.A. PANEL over 2,000. No midwifery. Visits from 3/6. Surgery from 2/-. Modern corner house, with 3 bed., 2 recep., surgery, etc. £100 on good lease. Premium £2,850, or less if furniture purchased.—No. 9168.

SOUTH WALES. — PANEL AND COLLIERY PRACTICE. About £1,300 at present, depressed owing to local unrest, now overcome. Showing increase this quarter. Panel of 1,400, worth £600. Clubs, etc., about £200. About 10 midwifery cases at 2 gns. Visits 3/6 to 7/6. Premium £1,700 cash. Good detached corner house in excellent repair, 4 bed., 2 recep. rooms, separate surgery suite, garage, and garden. £60 on lease.—No. 9166.

MANCHESTER. — UPPER WORKING AND middle-class PRACTICE. Nearly £1,000 p.a., plus Poor Law appt. £100. Panel of 463, increasing. Opposition weak. Visits mostly 5/-. Some 3/6 and 7/6. Surg. 3/6 to 5/-. Premium £1,750 to include book debts (£400—£500), drugs, furniture, and fittings worth £150. Well-built corner house, 5 bed, surgery, etc., to rent.—No. 9163.

LONDON, W.C. — CENTRALLY SITUATED. £600 p.a., increasing. Estab. only 2½ years. Vendor accepting appt. abroad. Panel 180. Visits 5/-. Conv. 2/6 up. Children 2/6. House on lease at £160, part sublet at £1 per week. Premium only £500.—No. 9161.

RESIDENTIAL SEASIDE RESORT.—WITHIN easy reach of London. £700—£800 p.a., suffered through Vendor's ill-health. Ample scope. New estate building. Small panel. No dispensing. Midy. not sought. Attractive freehold house, built by Vendor, 5 bed., etc., garden, and garage.—No. 9158.

CHESHIRE.—TOWN PRACTICE WORTH £550 p.a., including panel of 530. Scope for increase, midwifery refused. Visits 3/6 up. Conv. house, 3 bed., 3 attics, recep., and professional rooms. Rent £70. Premium £700 or near offer.—No. 9155.

KENT.—ABOUT 30 MILES FROM TOWN—Residential country. Half share of £2,300 after preliminary Assistancy. Good fees. Not much midwifery. New house, specially built, to rent or buy. Further share later. Partner to be Lond. or Camb. Graduate, aet. 30 to 35.—No. 9152.

MANCHESTER. — ABOUT £650 P.A., INcreasing, old-established PRACTICE. Panel 790. Opposition less than usual. Visiting fees 4/6 and 5/-. Lowest surgery fee 2/6. House off main road, 4/5 beds., 2 recep., and sep. surgery. Rent £60 on lease.—No. 9144.

MANCHESTER.—£1,300 P.A. PANEL 1,776. Well-estab. working and middle-class Practice. Very few midwifery, at 2 and 3 gns. Visits 3/6 to 5/-. Premium 1½ years' purch. Double-fronted main road house, with 6 bed., etc., for sale at £1,150, good mortg.—No. 9143.

LONDON, N.W. — SUBURB. — RECEIPTS average last three years £540. Panel 150. Visits 5/- up. Surg. 3/6 to 5/-. Mids. 8 to 10 p.a., fees 3 to 6 gns. Premium £900 or offer. Good house, with garden. Five bed., 2 recep., sep. surg., and garage. Price £1,600, of which £1,000 could remain on mortgage.—No. 9142.

WANTED.

REQUIRED BY M.D., A MIDDLE-CLASS AND panel PRACTICE (Partnership considered). Provincial town preferred, but country near town entertained. £1,200—£2,000 p.a. Detached house in own grounds.—No. 1451

REQUIRED BY OXFORD GRAD. (ST THOS.), aged 33, PARTNERSHIP in good mixed Practice in Southern Counties. Town preferred or near large town. Income £1,050—£1,200 Would consider single practice.—No. 1441.

Both the above have ample capital. Details may be sent in confidence to PERCIVAL TURNER, LTD., as above.

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MANCHESTER.—Well-established upper, middle, and working-class G.P. in residential district. Well-built corner house to be rented on lease at £60 p.a. Receipts nearly £1,000. Panel 463 (increasing). Fees 3/6 up. One appointment. Premium £1,750, to include all outstanding accounts, fixtures, and fittings.

SOUTH COAST.—OPHTHALMIC PRACTICE situate in fashionable seaside resort. Excellent freehold house available, large garden. Receipts over £700. Fees 1 to 2 gns. Scope for Surgery. Premium 1 year's purchase; freehold house, £2,500.

WEST END.—ELECTRO-THERAPEUTIC PRACTICE, complete with very full equipment. Rooms rented on agreement. Fees 10/6 upwards. Trained staff. Receipts average £800 p.a. Suitable for either sex. Premium £1,000, or near offer.

LONDON, W.—Middle-class G.P. situate in the heart of West End. Three first-floor rooms to be rented on lease. May be used as Lock-up if desired. Receipts average £460 p.a. (cash). Panel 184. Two appointments. Scope for Surgery. Premium £250, to include furniture, drugs, instruments, etc.

DURHAM. — Middle class and industrial PRACTICE. Average receipts £550 p.a. Panel 380. Medium sized house to rent on lease at £52 p.a. Branch Surgery. Fees 2/6 up. Premium £450.

LONDON, E.C.—Mixed cash and panel Lock-up PRACTICE with living accommodation if desired, facing main thoroughfare, held on lease at £95 p.a. Receipts approx. £700. Panel 500 (growing steadily). Fees 1/6 to 10/6 (almost entirely cash down). Midwifery not undertaken. Premium £1,000 or near offer.

LONDON, E.—Old-established mixed G.P. in thickly-populated locality. Receipts over £900. Panel nearly 1,000. Fees 2/- up. Three appointments. Within easy access of City and West End. Suitable house to rent at £100 p.a. Good scope. Prem. £1,800 or near offer.

LONDON, E.—Suburban middle-class G.P. Medium-sized house to rent on lease at the low rental of £30 p.a. Fees 2/- up. Average receipts £450 p.a. Panel 300. Excellent scope for young man. Premium for Practice and lease £1,000.

LONDON, N.W.—Lock-up NUCLEUS, situate in residential locality. Suitable accommodation if desired. Receipts £230. Panel 180. Fees 2/6 up. Premium 1½ years' purchase or near offer.

LONDON, W.—Old-established middle-class G.P. situate in well-populated locality within 15 minutes of West End. Suitable house to rent on lease at £150 p.a. Receipts £1,600. Panel approx. 950. Fees 3/6 up. Premium 2 years' purchase or near offer.

SALOP.—PRIVATE MENTAL HOME, established for over 50 years. Country mansion commanding magnificent views of mountain scenery to be rented. Large grounds and garage. Receipts £3,561. Premium to be arranged.

LONDON, S.W.—NUCLEUS mixed G.P. in thickly-populated locality. Convenient flat available to rent at 2 gns. per week inclusive. Large garden. Receipts £350 p.a. Panel approx. 550. Fees 2/6 up. Premium to include drugs and certain furniture, £450.

CUMBERLAND. — PARTNERSHIP (after short Preliminary Assistantship) in very old-established industrial Club and Panel G.P. Good house available to rent (garden, garage). Receipts average £5,263 p.a. Panel 2,488. Fees 3/6 up. Two appointments. Premium for one-fourth share 1½ years' purchase, with option of increase within 6/12 months.

BEDFORDSHIRE — Middle-class Country PRACTICE. Conveniently situated house available to be rented on lease at £56 p.a. or purchased for £900. Receipts over £500. Panel 100 (increasing). Scope for increase. Premium £500 for quick sale.

LIVERPOOL.—PARTNERSHIP in good middle-class G.P. in Suburban district. Excellent detached house for sale or rent (furnished or unfurnished), garden, garage. Receipts approx. £2,000. Panel 700—800. Fees 3/6 up. Hospital appointment. Excellent scope. Premium for one-half share, £2,100.

KENT.—Well-established Country Practice in growing locality. Suitable house available on main road to rent at £65 p.a. Garden and garage. One Branch Surgery. Receipts approx. £630 p.a. Panel 350. Fees 2/6 up. Several appts. Ample scope. Prem. £1,300.

LONDON, W.C.—Better middle-class G.P. with scope. Choice of accommodation on rental. Receipts approx. £600. Panel 180 (increasing). Fees 3/6 up. Premium £600, or near offer, to include all furniture, drugs, fittings, and fixtures.

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1. BIRMINGHAM (or within 50 miles thereof). —Mixed PRACTICE, with a panel of 1,000 upwards and receipts of £1,500—£3,000. Urgently required. Capital available.
2. LAKE DISTRICT.—PRACTICE, with receipts of about £1,000 upwards. Cash available.
3. SCOTLAND.—PRACTICE with an income of £1,000 upwards. Capital available.

FOR DISPOSAL.

1. BIRMINGHAM.—Panel and private PRACTICE. Receipts about £500. Panel about 80 and both increasing. Good scope. Nice house, 4 beds, etc.
2. MANCHESTER. — Well-estab. mainly industrial panel and private PRACTICE. Receipts about £1,200 p.a., panel about 1,200, and both increasing. Nice modern house to rent, *5 bedrooms, etc.*
3. LANCS.—FASHIONAI SEASIDE TOWN. — *ing panel and privat* £874. Good house. Garage, etc.
4. NORTH OF ENGLAND. — Panel, Colliery, and Club PRACTICE. Receipts about £500 p.a. Panel about 500. Appointments £200. Good house to rent. Considerable scope for energetic man. Low Premium for quick sale.
5. SOUTH WALES.—Well-estab. mixed PRACTICE. Receipts about £800 p.a. Suitable house.

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LARGE LANCASHIRE TOWN near MANCHESTER.—Sound mixed-class PRACTICE. Average cash receipts £1,480. Panel 1,466. Good detached corner house, 2 reception, 4 bedrooms; garage and garden. Premium 1½ years' purchase.—No. 466.

LIVERPOOL.—Old-established PRACTICE, offering great scope for increase. Av. cash receipts £500 p.a. Panel 495. No midwifery. Good house, 2 reception, 7 bedrooms, and 3 professional rooms; small garden. Rent £63 p.a. Premium 1½ years' purchase. Vendor retiring.—No. 475.

LANCS TOWN, nr. Manchester.—PARTNERSHIP in sound mixed Practice. Cash receipts last year £2,200. Panel 1,800. Scope for increase. Suitable accommodation can be secured. Premium —one-third share—2 years' purchase.—No. 468.

MANCHESTER. — Established panel and private PRACTICE, averaging about £1,300 p.a. Panel 1,800. Good scope. Excellent house in main road, 3/4 bedrooms, reception room, and professional rooms. Price for freehold £1,150. Premium 1½ years' purchase.—No. 451.

LARGE LANCS TOWN, near Manchester. — Old-established mixed PRACTICE. Average cash receipts £1,080 p.a. Panel 1,060. Scope. Good house, 2 reception, 4 bedrooms, garage, and garden to rent. Premium 1½ yrs.' purchase.—No. 457.

MEDICAL WOMAN'S PRACTICE.—MANCHESTER.—Cash receipts last year £645. Panel 450. Good scope. Excellent house, 3 reception, 6 bedrooms; garage. Rent £80 p.a. on lease. Prem. best offer.—No. 330.

NORTH-WEST COAST. — PARTNERSHIP (after six months' assistantship) in mixed panel and private Practice, averaging £5,263 p.a. Panel 2,500 and appointments. Good house, with garden and garage, to rent. Salary £500. Premium—1/4 share—1½ years' purchase. Further share later. —No. A.15.

LARGE LANCS TOWN.—Old-established PRACTICE. Cash receipts last year average £1,100 p.a., excluding appointment £160 p.a. Panel 770. Nice house, 2 reception, 5 bedrooms; garage and garden, to rent. Premium, best offer.—No. 472.

MANCHESTER. — PRACTICE on large Housing Estate offering great scope. Cash receipts last year £647. Panel 430. Good house, 3 bedrooms, etc. Rent 22/7 per week, clear. Premium, best offer.—No. 474

NORTH-WEST COAST.—Large residential and seaside town.—Old-established PRACTICE. Cash receipts about £1,200 p.a. Panel 1,500. Excellent detached corner house (freehold), 3 professional rooms, 5 bedrooms, and 2 reception rooms, garage, and good garden for sale. Premium—Practice—1½ years' purchase.—No. 417.

LAKE DISTRICT.—Small Seaside Town.—Beautiful district.—Middle-class PRACTICE. Cash receipts over £800 p.a. Panel 250. Excellent freehold house (on sea front), 3 reception, 7 bedrooms, garage, and nice garden. For sale or may be rented on lease. Premium 1½ years' purchase.—No. 388.

LANCS TOWN.—Sound middle and good working-class PRACTICE. Av. cash receipts £1,844 p.a. Panel 2,205. Good house, 3 professional rooms, kitchen, scullery, sitting-room, 3 bedrooms, bathroom; small garden; for sale or would rent for a time at £65 p.a. Garage rented. Premium 1½ years' purchase.—No. 476.

MANCHESTER.—Middle-class PRACTICE, in pleasant suburb. Cash receipts last year £1,327. Panel 625. Charming house to rent, 3 reception, 6 bedrooms, billiard room. Large garden and garage. Premium—Practice—1½ years' purchase.—No. 322.

EAST YORKS. — Country Town, near Coast.—Unopposed mixed PRACTICE. Cash receipts last year £960. Panel 630. Excellent detached house, 3 reception, 4 bedrooms; garage and large garden. Premium 1½ years' purchase.—No. 345.

NEAR HULL.—Mixed General PRACTICE, in pleasant district near Housing Estate. Cash receipts last year £953. Appointments £82 p.a. Panel over 500. Scope for increase. Vendor retiring. Premium 1½ years' purch.—No. 463.

MANCHESTER. — Old-established panel and private PRACTICE. Cash receipts last year £642. Panel 788. Scope Good corner house, 2 reception, 4 bedrooms; garage. Rent £60 p.a. Premium 1½ years' purchase or near offer.—No. 437.

NR. MANCHESTER. — Old-established mixed PRACTICE, offering great scope. Average cash receipts over £500 p.a. Panel 625. Good house in main road, 2 reception, 4 bedrooms. Rent £49 p.a. Premium, best offer. Vendor retiring.—No. 450.

LARGE LANCS TOWN.—Very old-established middle-class PRACTICE, averaging £3,267 p.a. Panel 500. Appointments £300 p.a. Partnership, with succession in 12/18 months, suggested. Good semi-detached house, 3 reception, 6 bedrooms, garage, and garden. For sale, or would rent on lease. Vendor retiring. Premium 1½ years' purchase.—No. 464.

NEAR NEWCASTLE-ON-TYNE.—Mixed General PRACTICE, averaging £800—£850 p.a. Panel 600. Scope for increase. Good house, 3 reception, 5 bedrooms, garage, and garden. Premium £950.—No. 422.

LANCS TOWN.—Mixed general PRACTICE. Cash receipts last year approx. £1,500. Panel 829. Scope for surgery, if desired. Good house, containing Operating Theatre, 3 professional rooms, 2 small wards, and living accommodation. Rent £60 p.a. on lease. Premium £1,500.—No. 460.

MEDICAL WOMAN'S PRACTICE.—YORKSHIRE CITY.—Cash receipts last year £415. Panel 140. Modern house in growing residential district, 2 reception, 3 bedrooms; garage and garden. Premium, best offer.—No. 471.

LARGE LANCS TOWN.—Old-established PRACTICE, averaging £859 p.a. Panel 1,265. Scope. Excellent house, 2 reception, 5 bedrooms. Garage and garden. Prem., best offer.—No. 467.

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1 SURREY—STEADILY INCREASING PRACTICE IN PLEASant growing District Cash receipts year ended March 31st, 1933—£1,855 Panel 1,300. The private house is in a good residential neighbourhood where there is scope for further increase. The property could be either purchased or rented. Good social advantages Practice capable of rapid increase. Premium £3,000.

2 HOME COUNTIES—WELL-ESTABLISHED PRACTICE OF over £1,700 p.a. in growing Residential District within 13 miles of London. Panel about 1,000 Visiting fees 2/6 to 10/6. Very little midwifery. Nice house (7 bedrooms, dressing rooms, etc) with separate entrance to surgery, acre of garden, garage, etc, to rent on lease. Premium 2 years' purchase.

3 LONDON, N.W. — WELL-ESTABLISHED PRACTICE ABOUT £650 p.a. in Residential District. Panel 300. Visits chiefly 5/-, including medicine, others 3/6 to 7/6 Not much midwifery House, containing 3 bedrooms, etc, to rent. Considerable scope for young energetic man. Premium £900.

4 S. WALES—IMPORTANT SEAPORT TOWN—PARTNERSHIP in sound old-established Practice averaging £3,500 p.a. Panel 2,800 Incoming Partner should be a Scotsman aged about 30—35, and preferably Edinburgh or London trained. There is a nice house for sale To a suitable man a share would be sold at 1½ years' purchase

5 LONDON, S.W.—WELL-ESTABLISHED PRACTICE OF £1,200 p.a. in Suburban District, close to the West End Panel over 2,000 No midwifery House (2 bedrooms, etc) with garage to rent on lease Premium £2,700

6 S. AFRICA—RADIOLOGICAL PRACTICE IN A MOST DElightful Town with excellent climate Cash receipts last year £1,450 Scope.

7 EASTERN COUNTIES — OLD-ESTABLISHED COUNTRY PRACTICE Cash receipts about £720 p.a., including appointments over £150 and a panel of about 590 Attractive detached house (6 bedrooms) Price £1,150 Premium for Practice £650

8 FAMOUS INLAND WATERING PLACE AND HEALTH Resort—Well-established non-dispensing PRACTICE Receipts last three years averaged £986 p.a., including a select Panel of 280. Fees 5/- to £1 1s. Particularly attractive house with large garden, for sale Scope. Premium £750.

9 BIRMINGHAM. — PARTNERSHIP (AFTER PRELIMINARY Assistantship) in Suburban Practice of about £2,500 p.a. Increasing Panel of 2,400. House (5 bedrooms, etc) with garage accommodation to rent at about £65 p.a. Applicant should have held Hospital Appointments and have experience in General Practice Two-fifths share would be sold at first to suitable man at 2 years' purchase.

10 LONDON, E.—OLD-ESTABLISHED CASH AND PANEL PRACTICE of about £1,200 p.a. in residential part of populous district Good appointments and panel 950. Small house (3 bedrooms, etc.) in pleasant road to rent on lease Scope for increase. Premium 2 years' purchase.

11 SUFFOLK AND NORFOLK BORDERS—SMALL PRACTICE IN Market Town. Cash receipts 1932, £285, including panel of 80 Nice house (6 bedrooms), garage, and good sized garden. Price of freehold £850. Excellent schools. Plenty of sport. Cottage Hospital. Premium £450.

12 LONDON, E.—CASH AND PANEL PRACTICE OF OVER £600 p.a. in populous district. Panel 590. Small house to rent on lease. Premium £800.

13 S. WALES—PARTNERSHIP (AFTER PRELIMINARY ASSISTantship) in well-established Practice of nearly £5,000 p.a. in important Industrial Town. Good appointments and panel of nearly 3,000. After Preliminary Assistantship a one-third share would be sold at first to a suitable man who should have held Hospital Appointment and have some knowledge of Midwifery and Anaesthetics

14 N.W. OF ENGLAND—SEAPORT TOWN.—PARTNERSHIP IN well-established Practice of about £1,500 p.a. Panel 1,660. Great scope for increase Premium two-fifths share £1,000.

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Practices and Partnerships for Disposal (continued).

15 W. OF ENGLAND. — PARTNERSHIP IN OLD-ESTABLISHED Practice of about £1,200 p.a. in picturesque Seaside Place. Panel 690. Unique house (6 bed and dressing rooms, etc.) in excellent state of repair with every modern convenience. Beautiful garden and garage to rent on lease. Hunting, yachting, fishing, etc. Premium one-half share 2 years' purchase.

16 WEST OF ENGLAND.—PARTNERSHIP IN OLD-ESTABLISHED PRACTICE over £2,200 p.a. in County Town. Panel about 1,000. *Premium one-half share 2 years' purchase. Good prospects for* well-qualified physician (preferably M.R.C.P.), who should be an R.C. and who would have *opportunity of getting on Staff of* Hospital in near future.

17 LONDON, N.—PRACTICE CARRIED ON BY MEDICAL WOMAN in populous area. Cash receipts average £480 p.a., including panel 527. Visits 2/6 to 3/6. Small house (6 rooms) to rent at £50 p.a. on lease. Practice capable of increase. Premium 1½ years' purchase.

18 LONDON, N.—PRACTICE CARRIED ON BY MEDICAL WOMAN in populous district. Cash receipts average £270 p.a., including panel 360. Scope for midwifery. Six-roomed house to rent at £70 p.a. on lease. Premium 1½ years' purchase.

19 BORDERS OF SHROPSHIRE AND CHESHIRE.—OLD-ESTABlished PRACTICE averaging £1,055 p.a. in Market Town. Panel 850. Nice detached house (5 bedrooms, attics, etc.) with garage and old world garden, etc., for sale. Educational facilities. Well-equipped Cottage Hospital offering scope for one keen on Surgery. Premium £1,580

20 PARTNERSHIP (WITH VIEW TO SUCCESSION) IN OPHTHALmic Practice, about £1,530, in delightful Southern Seaside Resort. Applicants must have sound practical experience in Ophthalmic work. Premium—half-share—1½ years' purchase.

21 PRIVATE MENTAL HOME (FOR LADIES ONLY).—EXCEPtionally nice house and grounds. A considerable sum required for the purchase. Further particulars on application.

22 CO. DURHAM.—PRACTICE OF £540 P.A. IN RESIDENTIAL Colliery District near two large Towns. Panel 380. Well-situated house (7 rooms) with good Surgery and Dispensary, for sale or rent. Scope for substantial increase. Premium only £500.

23 S. WALES. — PRACTICE BETWEEN £250—£300 P.A. IN beautifully situated village about 4 miles from important town. Small panel. Nice house (6 bedrooms), electric light, gas, and company's water for sale or rent. Premium £280.

24 S. OF ENGLAND. — PARTNERSHIP IN OLD-ESTABLISHED Practice of nearly £1,950 p.a. in important town within 80 miles of London. No panel. Attractive corner residence (7 bed and dressing rooms), in half-acre of walled-in garden, with garage, etc., for sale. Ample scope for increase. Premium one-half share 2 years' purchase.

25 ESSEX.-OLD-ESTABLISHED PRACTICE OF ABOUT £600 P.A. in Suburban District. Panel 500. Well-situated detached house (6 bedrooms) standing in own grounds with nice garden, garage, and stabling for sale Scope for increase. Premium £650.

26 SURREY.—PARTNERSHIP IN SOUND OLD-ESTABLISHED good mixed-class Practice about £3,000 p.a. in the Croydon area. Small panel. Very little midwifery. Excellent modern detached house for sale. Scope for increase. Premium one-half share 2 years' purchase.

27 LONDON, E.C.—PARTNERSHIP IN OLD-ESTABLISHED PRACtice in the City. Receipts average about £1,650 p.a., including appointments and panel worth over £500 p.a. Premium one-half share £1,000.

28 EAST COAST.—PRACTICE OF ABOUT £800 P.A. IN RESIdential Seaside District 40 miles from London. Small Panel. Detached house (5 bedrooms) for sale. Scope for increase. Pre*mium 1½ years' purchase.*

29 SURREY.—PRACTICE OF £1,000 P.A. IN RAPIDLY GROWing Residential District within 15 miles of London. Panel 400. Suitable house, with separate professional accommodation, for sale. Scope for considerable increase. Premium £1,600.

30 LONDON, W.—GOOD MIDDLE-CLASS PRACTICE £400 P.A. in suburb within easy access of the West End. Panel over 100. Attractive double-fronted house with nice garden for sale. Scope for increase. Premium 1½ years' purchase.

31 LONDON, N.—PARTNERSHIP IN PRACTICE ABOUT £5,250 p.a. in thickly populated Suburban District. Panel about 800. *One-fourth or one-third share at 2 years' purchase.*

32 HOME COUNTIES. — OPHTHALMIC PRACTICE BETWEEN £300 and £400 p.a. in desirable Residential Town, under 15 miles from London. Good detached house (4 bedrooms) with large garden for sale. *Good reasons for plenty of scope for increase.* Premium £300.

33 LONDON, E.C.—OLD-ESTABLISHED "LOCK-UP" PRACTICE of £646 p.a. Panel 459. Living accommodation to rent if desired Premium £1,000.

34 S. AFRICA. — OPHTHALMIC AND GENERAL PRACTICE about £1,400 p.a (about 60 per cent. Ophthalmic), including appointments £400. No Ophthalmic opposition. Premium £400.

35 N. OF ENGLAND. — OPHTHALMIC PRACTICE OF OVER £1,600 p.a. in an important town. Excellent scope for one keen on clinical and operative Ophthalmology. Large house in *first-class condition for sale.* Purchaser should be well qualified Premium £2,500.

36 S. AFRICA. — PRACTICE OF ABOUT £2,000 P.A. IN A famous town. Pleasantly situated detached bungalow (5 bedrooms), garage, and *small garden for sale. Good hospital* (with private wards). Premium £1,100.

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1. HOME COUNTIES.—PARTNERSHIP.—A one-third share (with increase up to one-half later) is offered, owing to the retirement of the senior partner, in an old-established good mixed Practice, situated in favourite residential town within easy reach of London. Gross cash receipts average approximately £4,000 p.a. Panel of 3,200. Visits and medicine from 4/-. Suitable house, with garden and garage, can be rented at £70 p.a. Sport of all kinds, and good schools. Ingoing partner must be about 30 years of age, married or engaged, and experienced in major surgery, and pref. hold the F.R.C.S. Premium for share, two years' purchase.
2. KENT.—WITHIN TWENTY-FIVE MILES OF LONDON.—PARTNERSHIP.—A one-third share (with increase to one-half later) is offered in an old-established good mixed-class Practice, with a large percentage of good-class patients, and situated in a very attractive country and market town (pop. over 3,000) amidst beautiful surroundings. The income is steadily increasing, and there is good scope for further development with the aid of a suitable partner, who should be about 30 years of age. Cash receipts last year nearly £2,400. Visits 3/6 to 21/-, medicine extra. Choice of suitable houses ranging from £1,000 upwards. Premium for share £1,600. Sport of all kinds. Good schools.
3. WITHIN FIFTEEN MILES OF LONDON.—PARTNERSHIP.—A share producing about £1,300 p.a. is offered in a very sound old-established Practice, producing for the last 12 months approximately £5,200, and offering excellent scope for increase. Panel of 2,500. Fees from 3/6 to 21/-. Very nice house, with ample accommodation, or smaller one if desired. Ingoing Partner should be experienced, accustomed to better-class work, able to undertake major surgery, and pref. hold a Fellowship. Premium 2 years' purchase.
4. PARTNERSHIP.—LONDON SUBURB.—A one-third share (with increase up to one-half later) is offered in a very old-established good mixed-class Practice, situated in well-populated district, and offering good scope for development. Gross cash receipts average between £4,000 and £4,500 p.a. Guaranteed income of £1,500 for the first year. Panel of 800. Suitable accommodation available. Premium for share £3,250. Ingoing partner must be experienced, and qualified about four years.
5. CORNISH RIVIERA.—Old-established PRACTICE, in very favourite resort, having exceptionally mild climate. Income over £1,150, including panel of 450, and appts. worth £40 p.a. Fees 3/6 to 21/-. No opposition within 4 miles. Well-situated house, with 2 reception, 6 bedrooms, etc., and professional rooms. Good garden. Rent on lease £52 p.a. Premium £1,650.
6. NORTH OF ENGLAND.—PARTNERSHIP.—A five-twelfths or seven-twelfths share is offered in a well-established sound mixed-class Practice, averaging approximately £2,400 p.a. Panel produces £850 p.a. and P.M.S. £720 p.a. Appointments worth £120 p.a. Succession to the whole Practice can be obtained in about four years, or sooner as agreed. Good house, specially built, with ample accommodation, for sale. Situated in growing area, and offering excellent scope for further development. Premium for share 2 years' purchase.
7. EASTERN COUNTIES.—Very old-established PRACTICE, unopposed, and situated in pleasant agricultural district, within reach of two good towns. Average gross cash receipts for the last three years £1,849 (last year £2,237). Panel with mileage produces over £900 p.a., and appts. are worth about £130. Fees from 3/6. Comfortable house, with 2 reception 6 bedrooms, etc. Garden. Garage. Price (freehold) £1,500. Premium £3,200.
8. LONDON SUBURB (EAST).—In a clean and well-populated district an old-established PRACTICE worth about £1,200 p.a., including transferable appt. of £150 and panel of 950 is for immediate disposal, owing to ill-health of Vendor. Small house (3 bedrooms, etc.), with fair-sized garden. Rent on lease £78 a year, inclusive of rates and taxes. Premium 2 years' purchase.
9. LIVERPOOL. — Old-established PRACTICE, averaging £1,046 p.a. including panel of about 1,500. Fees from 2/6. Midwifery refused. Eight-roomed house, with professional accommodation, electric light. Small garden. Price £500. Premium 1½ years' purchase.
10. PARTNERSHIP.—RIVERSIDE SUBURB (WEST).—A fourth Partner (who should be married and about 35 years of age) is required in a very old-established mixed-class Practice, situated in pleasant residential suburb. Cash receipts for past three years average £6,879 p.a. A three-twentieths share is offered, with option in four years to increase up to equal shares with the other Partners. Appts. held and panel of about 3,000. Visits 3/6 to 21/-. Modern house, with good accommodation (5 bedrooms, garden). Price (freehold) £2,000, or would be let at £125 p.a. Premium 2 years' purchase.
11. WITHIN THIRTY-FIVE MILES OF LONDON.—Very old-established country PRACTICE, in pleasant residential district. Gross cash receipts for the last twelve months approximately £1,800. Panel brings in over £650 p.a. and appts. are worth nearly £200 p.a. Fees from 2/6 to 15/-. Midwifery 3 to 10 gns. Nice house in one acre of garden and 2 acres of orchard, and containing 3 reception, 6 bedrooms, etc., and professional rooms. Electric light. Main drainage. Garage. Price for freehold £2,500, £1,000 on mortgage. Golf, tennis, and other sport. Premium £2,500.
12. LONDON, WEST.—PARTNERSHIP.—A half share, producing about £750 p.a. (which will be guaranteed for the first year) is offered in a very old-established better-class non-panel and non-dispensing Practice, having exceptional scope for increase. Fees from 10/6 to 5 guineas. Suitable Flat is available for ingoing Partner who must be experienced in better-class work, and preferably hold the M.R.C.P. Premium for share 2 years' purchase.
13. SOUTH WALES.—Pleasant Coast Town (pop. 40,000).—Old-established PRACTICE, held ten years by present Incumbent, and averaging over £1,000 p.a., including panel of 1,275. Visits 5/- to 10/6. Good house, having charming views of English Channel, and surrounding country. Contains professional rooms, 3 reception, 6 bedrooms, 2 bathrooms. Garden, with tennis court. Garage. Price for leasehold (60 years to run at ground rent of £20 a year) £1,800. Premium 1½ years' purchase.
14. LONDON, S.W.—Well-established PRACTICE, worth about £350 p.a. including panel of 550, and capable of increase. Rent of Flat, consisting of two floors, containing 2 professional rooms, dining room, kitchen, two other rooms and bathroom, £2 2s. a week, inclusive of rates and taxes. Lease 5 years to run, and renewable. Premium £450, or near offer.
15. EASTERN COUNTIES.—ASSISTANTSHIP with view to Partnership (after a preliminary period of six months at a salary of £440 p.a., with free house) is offered in an old-established good mixed-class Practice, situated in pleasant residential and agricultural district within about 15 miles of the coast. Gross cash receipts approximately £3,000. A third share is for disposal at a premium of 2 years' purch.
16. NORTH WALES.—ASSISTANTSHIP with view to Partnership (after a preliminary period of about six months at a salary of £300 p.a., all found) is offered in a better-class non-panel Practice, situated in attractive seaside resort. A one-third or three-sevenths share is for disposal (producing £800 to £900 p.a.) at a premium of 2 years' purch. Ingoing Partner should be English, and pref. London trained.
17. PARTNERSHIP. — WEST OF ENGLAND, SEASIDE RESORT. — A share worth about £600 p.a. (with succession to the whole Practice eventually) is offered in a very old-established mixed-class Practice situated in very attractive small coast town, with beautiful surrounding country. Gross cash receipts approximately £1,200 p.a., including panel worth about £420. Visits 5/- to 30/-. Midwifery from 3 gns. Exceptionally nice house, with 2 reception, 5 bedrooms, etc., and usual offices. Half an acre of garden. Can be rented on lease. Premium 2 years' purchase.
18. RIVERSIDE SUBURB.—Middle and working-class PRACTICE, averaging £1,033 p.a., including panel producing about £340, and appts. nearly £100 p.a. Fees from 3/6. Detached house, with nice garden, and containing 4 reception, 6 bedrooms, etc., for sale. Premium 2 years' purchase.
19. OPHTHALMIC PRACTICE.—Within eighty miles of London.—Practice is increasing, and offers good scope for further development. Average gross cash receipts for the past three years £554. Last year over £700. Fees 1 to 2 guineas. Opposition slight. Choice of houses. Premium £700.
20. LONDON, EAST.—Middle and working-class PRACTICE, producing £1,000 p.a., including panel of about 1,100. Suitable small house with sitting room, 2 bedrooms, and attic, waiting room, surgery, and dispensary. Rent £52 p.a.
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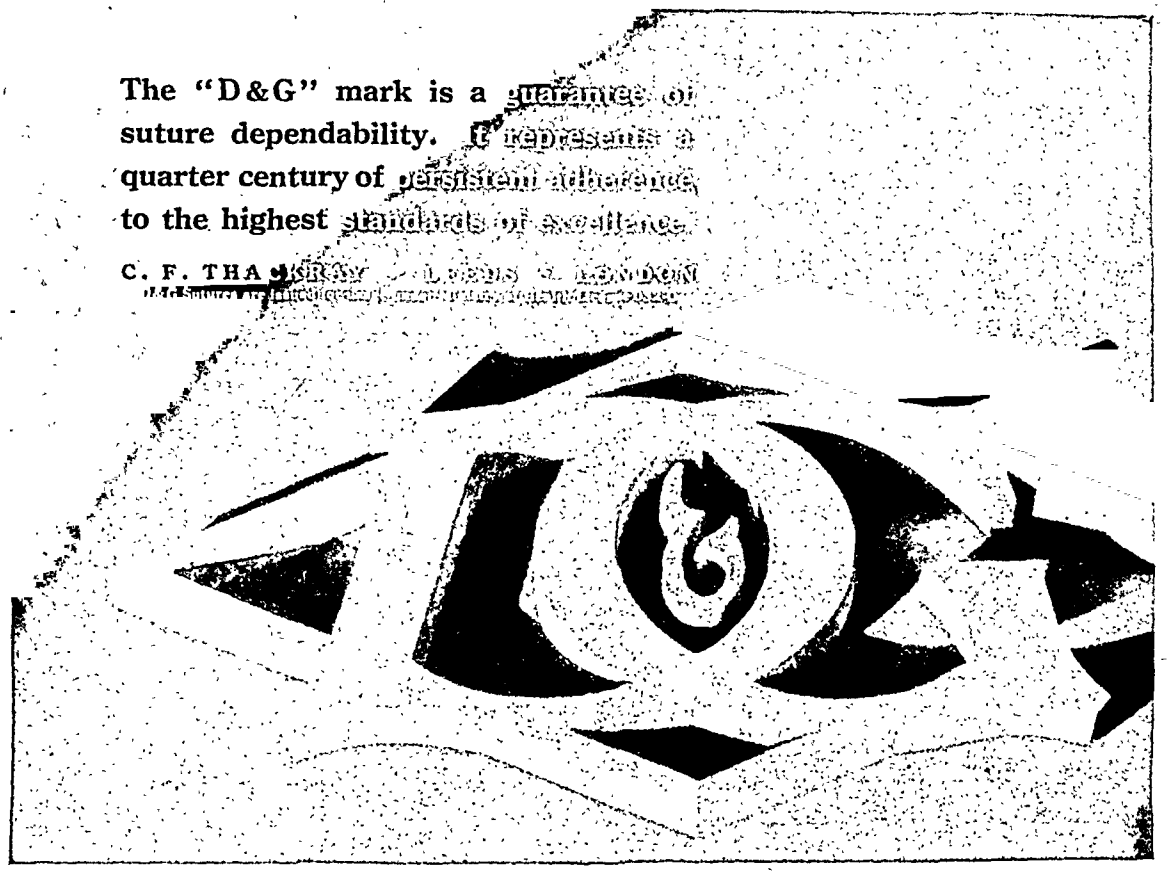
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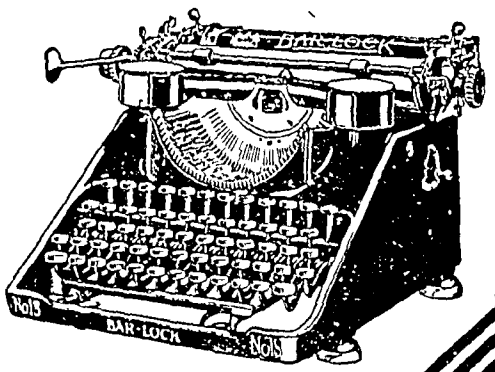
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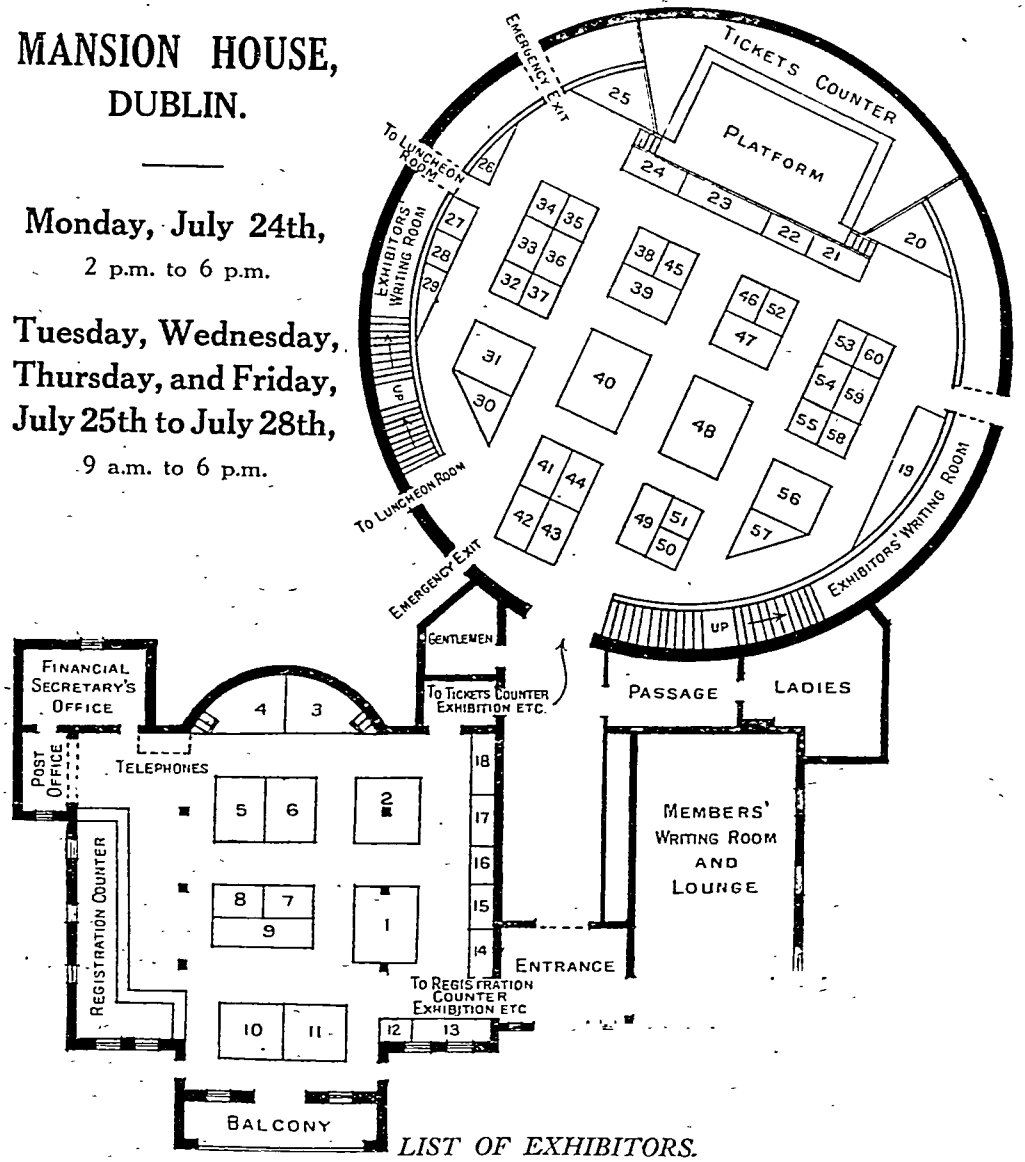
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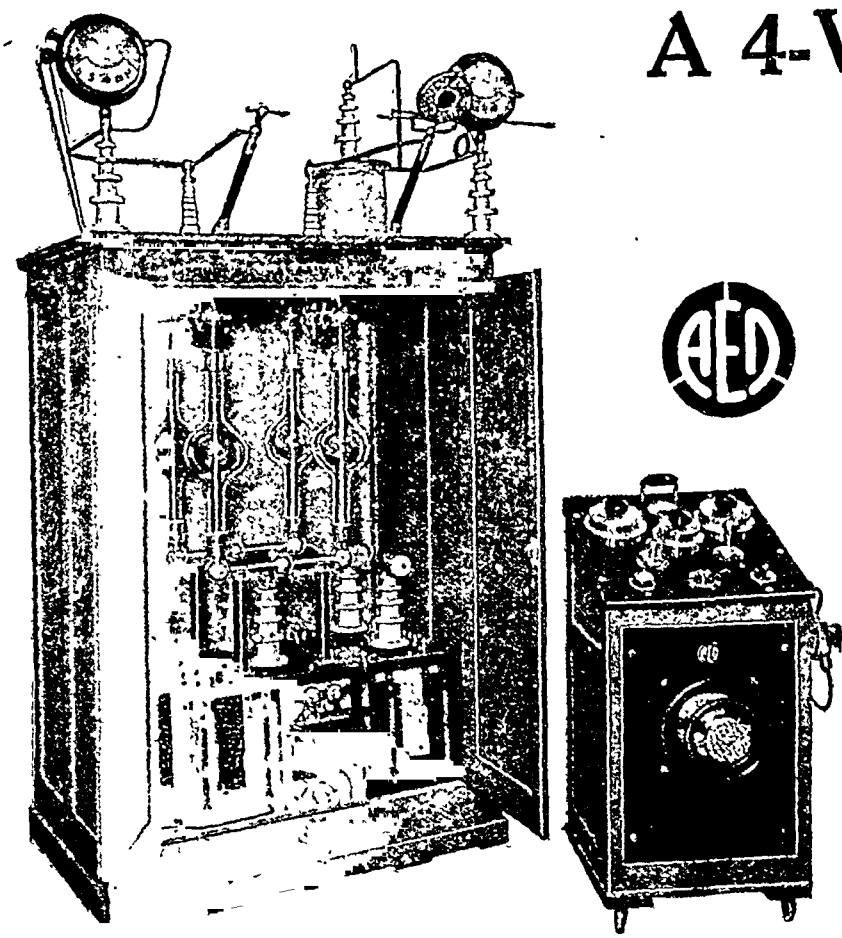
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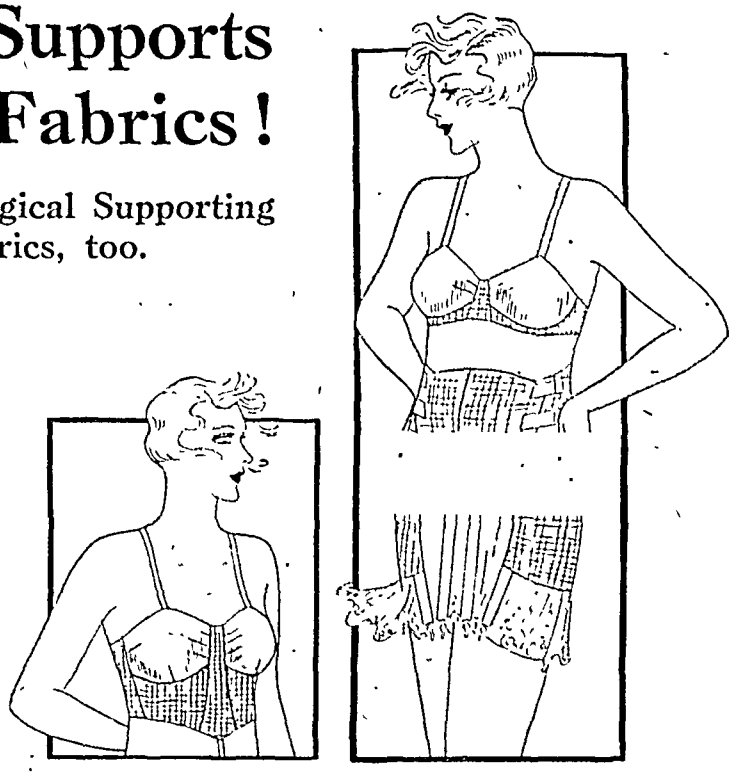
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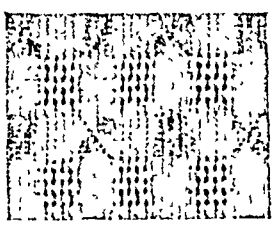
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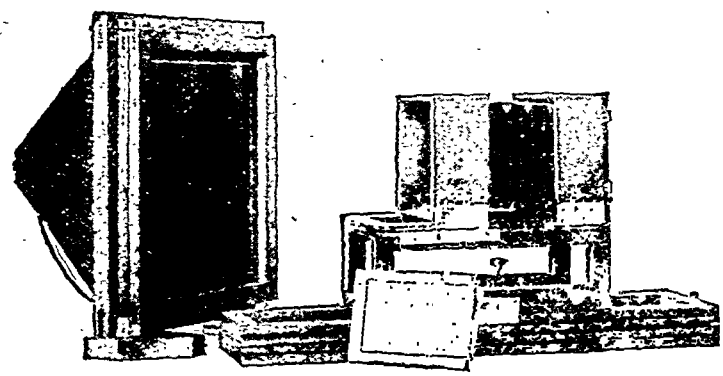
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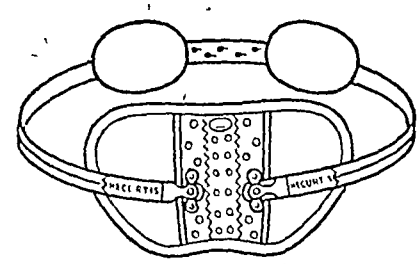
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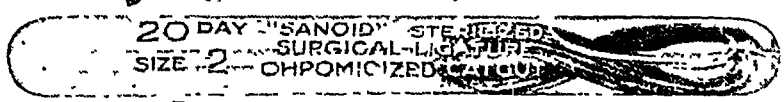
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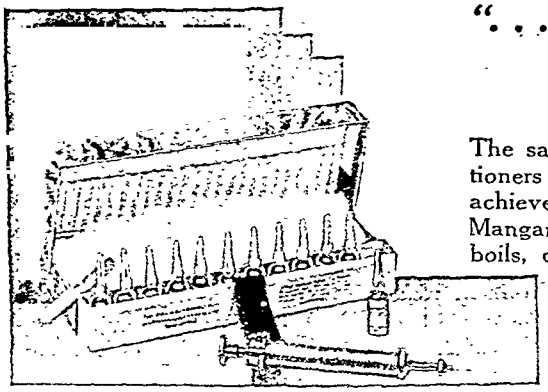
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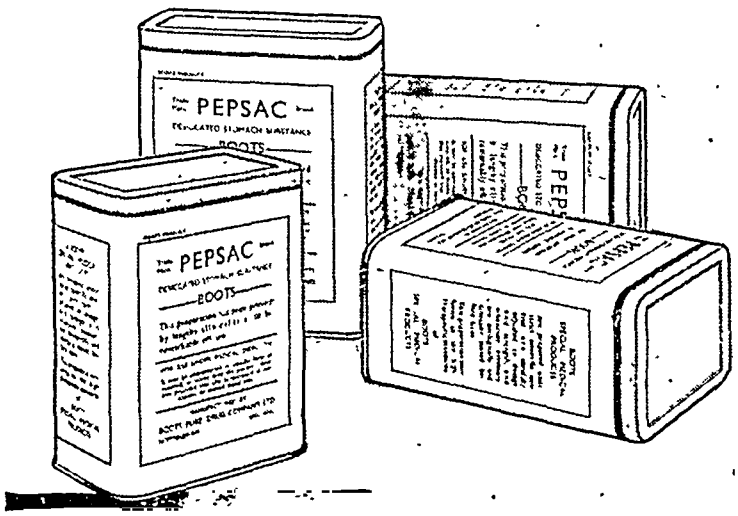
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The Lancet, January 14th, 1933, p. 84

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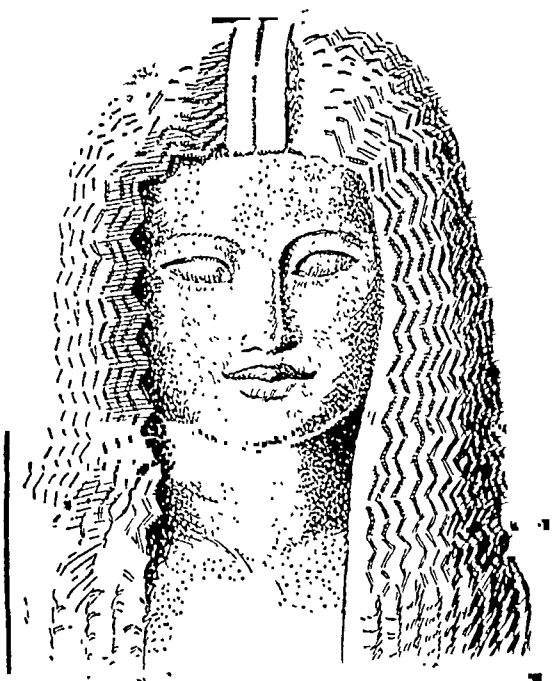
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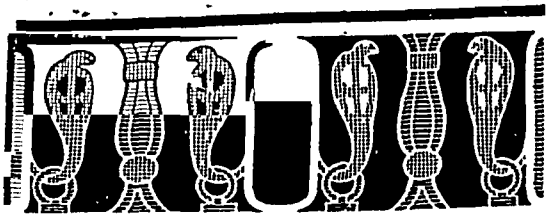
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Supplied in boxes containing 6 and 12 Tubes.

The contents of one Tube will peptonise one pint of milk.

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IN Typhoid and other Fevers, Extreme Exhaustion, Critical Conditions, Before and After Surgical Operations, when Other Food Fails to be Retained, Valentine's Meat-Juice demonstrates its Ease of Assimilation and Power to Restore and Strengthen.



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HEPATEX For oral administration

One fluid ounce equals 16 ozs. mammalian liver. It contains not only the pernicious anæmia factor but is also rich in vitamin B.

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For the treatment of severe secondary anæmias when liver requires fortifying with extra Iron.

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SAFETY or Baby!

Be warned by this bitter experience

Extract from "THE MANCHESTER GUARDIAN"
January 9th, 1933.

To the Editor:

Sir,

Most of your correspondents take it for granted that cow's milk is a natural food for infants in its raw state. Certainly we have found it the most useful and adaptable of foods, but with most infants care has to be exercised in its use and fruit juices are usually added to the infants' diet, whether the milk is raw or pasteurised

My own experience of the dangers of raw milk is, I think, a more telling one than Mr Barrow's is of pasteurised milk.

Some years ago I was in the habit of giving my child of two fresh milk in the evening. It was almost warm when we received it, but I had not then heard of any danger from bacilli. The child sickened and died of tubercular meningitis.

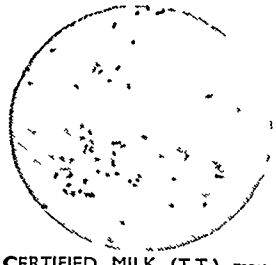
Only three weeks afterwards I received a circular issued by the Manchester Public Health Department recommending the boiling of all milk owing to the prevalence of tubercular infection, especially after measles and whooping cough.

Had I known beforehand of this danger I have no doubt my child's life would have been saved. There must still be many mothers unaware, although nowadays the clinics have done much to instruct them, of this danger.

Yours etc.,
An Interested Mother.

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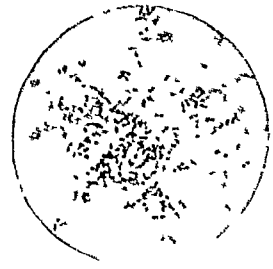
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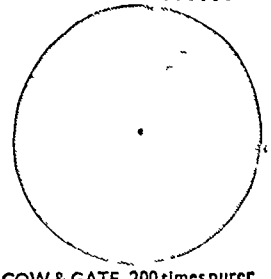
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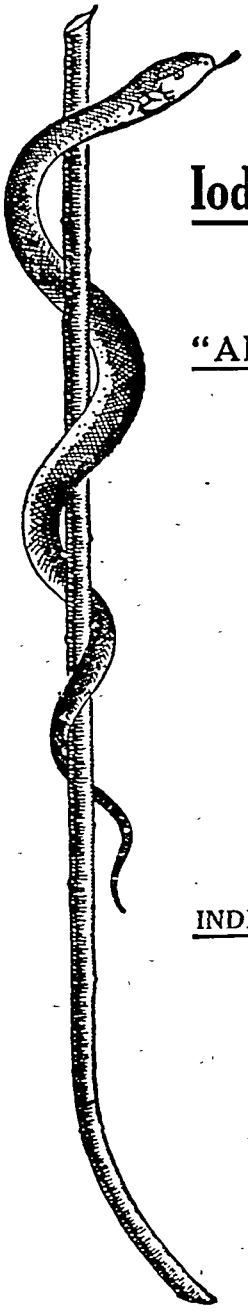


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from

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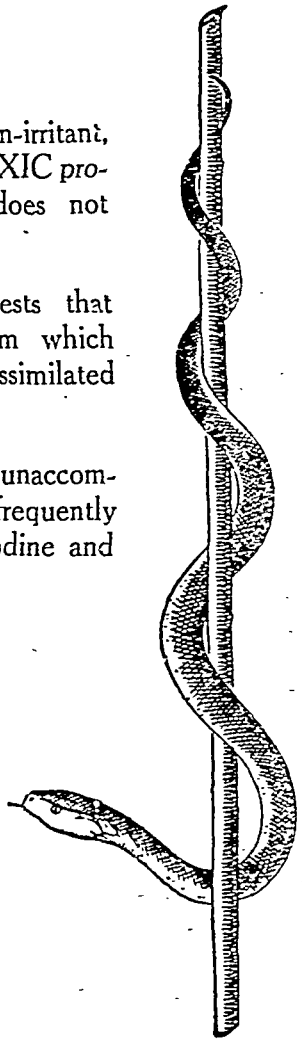
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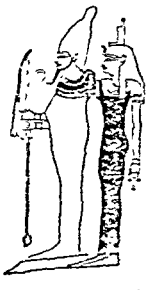
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ISIS, ONE OF THE PRINCIPAL DIVINITIES TO WHOM THE ANCIENT EGYPTIANS APPEALED IN SUFFERING.—Isis was extraordinarily beloved and venerated throughout Egypt as a beneficent, healing goddess and as the ideal wife and mother. Healing was obtained of Isis in various ways; by prayer, such as, "O, Isis! Thou great enchantress, heal me, save me from the evil things of darkness, from the epidemic and deadly diseases and infections of all sorts that spring upon me"; through dreams, by incubation in her temples; by pronouncing her "words of power"; by wearing her amulets and possessing her talismans. The illustration shows Isis wearing a vulture head-dress with the uræus and a crown which consists of a seat or throne, the symbol of the sound of her name. She holds in her left hand the symbol of life while the right embraces her husband, Osiris.



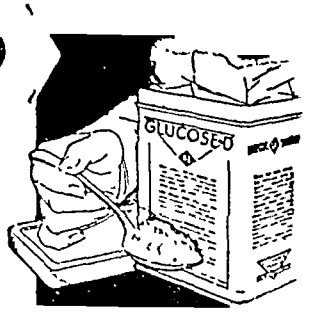
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Even these extremes meet in their need for:
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Could any ante-natal routine be more definite—or simpler?

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Ostelin vitamin D LIQUID

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An Address
ON
THE TREATMENT OF ALLERGIC DISEASES IN GENERAL PRACTICE*

BY
GEORGE W. BRAY, M.B., M.R.C.P.
ASTHMA RESEARCH SCHOLAR, HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET
(Working with a grant from the Asthma Research Council)

An individual is said to be "allergic" when he manifests an exaggerated susceptibility to substances innocuous to normal persons in the amounts commonly encountered. This hypersensitiveness or "allergy" on the part of the sufferer to many usually harmless articles commonly contained in his diet or environment manifests itself in such numerous and apparently diverse conditions as asthma, hay fever, eczema, urticaria, and migraine, as well as in an ever-increasing host of minor affections.

At first it was thought that only protein substances could act as "allergens" or originators of these reactions, but recent observations have shown that many non-protein factors, such as carbohydrates, drugs, and even physical agents, can lead to identical reactions. When we analyse these allergic responses we find that they usually originate in one of two ways, either as a definite inheritance of the predisposition to manifest a specific hypersensitiveness of some type to some substance, or acquired as the result of tissue damage or excessive irritation. During childhood the chief aetiologic factor is the hereditary tendency, which can be demonstrated in from half to two-thirds of all cases; but in the majority of adults post-natal factors have been particularly severe and constant—for example, the continual association with a particular allergen either by occupation or by environment, combined possibly with extensive tissue trauma. Such a mode is exemplified in cases in which asthma has followed such lung damage as pneumonic processes complicating infections, in which a succeeding sensitization occurs to feather pillows or horsehair bedding on which the patient has lain during the illness, or in cases in which paroxysmal rhinorrhoea follows some nasal infection upon which a sensitization to dust, animal emanation, or face powder later develops. Such a division of cases, if possible, into primary (or hereditary) and secondary (acquired, or post-traumatic) is of great importance in determining the causative allergen, as the latter group is practically always inhalant or occupational in nature. For this reason a thorough history of the time and mode of onset is essential.

Allergic diseases have several characteristics in common. They are essentially periodic in nature, with apparent intervals of complete freedom. Symptoms generally have their onset during the night, or are most distressing during those hours. They have their maximum age at onset during childhood or adolescence—with the exception of hay fever—and each manifestation appears to have definite sex and seasonal variations. Besides the common history of allergic complaints obtainable in relatives or offspring, the patients usually give an account of some other allergic manifestation in their present or previous history. Finally, allergic diseases are greatly affected by varied states of health of the sufferer, and especially by indigestion, menstruation, and pregnancy; by intercurrent disease such as fevers, exanthemata, or following operations; by emotion, excitement, or exhaustion; or by a change of climate, locality, altitude, or environment.

Their treatment involves a very definite routine, so that reliance on one therapeutic agent for all cases, irrespective of their aetiology, or the "shot-gun principle" of an assemblage of many in the hope that one will hit the mark, is to be deprecated. Again, the treatment sought from the specialist differs from that sought from the general practitioner, for whereas the latter is commonly called from his slumbers to relieve each acute exacerbation, the former is generally consulted during periods of relative freedom as to the means of preventing further relapses. I hope to show how the general practitioner can combine both functions.

* Read before the Leicester Medical Society.

ASTHMA

In the treatment of asthma, as in all allergic diseases, the first essential is to determine the cause. Often this will be indicated if a careful history is taken, but in other cases no clue is afforded, and skin tests, or the use of elimination diets, are advisable. But for the general practitioner skin tests are not practicable owing to their cost, the question of which to use, the number necessary, the technique required, and, in general, the impotency and worthlessness of proprietary preparations.

It is easier for the practitioner to make sure that the sufferer avoids the common agents that lead to attacks, which are either of an inhaled or ingested nature. The inhalants are the more common cause of allergic reactions at all ages except infancy, when foods predominate, and include feather, down, and horsehair pillows and bedding, animal pets, house dust, and orris root, the basis of all common cosmetics and toilet preparations. To remove these irritants the patient's pillow, mattress, bolster, and eiderdown should be filled with the best Java kapok, which can be obtained from the Witney Blanket Co. of Witney, Oxon. Animal pets should be kept out of the house, and always away from the sufferer, and children should not have toys stuffed with animal hair. House dust is difficult to eradicate; the bedroom should be well ventilated, with a minimum of ledges, carpets, curtains, and other dust-holding surfaces; the furniture should be scanty, and of the plain wooden type rather than upholstered; cleaning should be done with some electrical suction apparatus in preference to the common methods of dusting, which disperse the dust through the atmosphere; and, if cloths must be used, they should be damp, so that the dust can adhere, and the process should be carried out at times when the asthmatic is away from the house. Orris-root-free cosmetics may be obtained from Messrs. Boutalls, Ltd., chemists, 150, Southampton Row, London, W.C.1.

Dietetic Principles

If skin tests are not available to determine causative foods the simplest procedure for the practitioner to adopt is the prescription of a diet which is free from the common causes of asthma. In such a diet wheat, barley, and oats should be avoided as much as possible, and the remaining cereals should be employed after heating, puffing, or toasting. It should exclude egg and foods containing egg—especially egg-white. In many cases egg-yolk, if freed from white, can be used. It should avoid cow's milk in its natural state. The lactalbumin is commonly the part that leads to the reactions, and, as it is heat-coagulable, if the milk is well boiled, cooled, and the coagulated scum which forms removed, it can frequently be tolerated. Allergilac (Cow and Gate, Ltd.) is a lact-albumin-freed, half-cream, acidified dried milk that is applicable in cases of *milk sensitivity*. Condensed and evaporated milks can be used at times, as they have been modified to some extent by prolonged exposure to heat. Vegetable "milks," as can be made from soya bean flour, are useful at times. The diet should avoid beef, and especially pork, ham, bacon, and lard. It should also avoid many other less common foods that do not agree

with asthmatics, such as shellfish, nuts, cocoa and chocolate, fruits, such as fresh strawberries, apple, and banana, and vegetables, such as beans and peas, potatoes, and tomatoes, cabbage, and celery. Such a basic diet for an asthmatic child is set out below, and it is easy to modify it for an asthmatic adult. The patient is placed on the diet until free from symptoms, then one of the excluded foods is added each few days until symptoms recur, when generally the latest addition is the causative food. But this does not mean that it is the sole food, for patients are generally multi-sensitive, so that the process must be continued until all the excluded foods are reintroduced except those that lead to reactions.

BASIC DIET FOR AN ASTHMATIC CHILD

Breakfast

Vitamins.—Some concentrated preparation as adexolin, ostelin, or radiostoleum. Orange juice, grape fruit.

Cereal.—This should be made with water, covered with prunes or other cooked fruits and their juice, and sweetened. The following are advised in this order of preference: tapioca, sago, arrowroot, rice (boiled, puffed, toasted flakes, or "crispies"), rye (crisps or toasted flakes), corn (flakes or "post-toasties").

In place of wheaten bread—ryvita crispbread, oatmeal biscuits, or very thin crisp toast. Buttered when cold, and covered with honey, treacle, or syrup.

Beverage.—Allergilac (Cow and Gate, Ltd.), or a small cup of warm, weak tea, with a small teaspoonful of condensed or evaporated milk.

Dinner

Soup.—A small quantity of clear, sieved bone and vegetable soup.

Meat.—Lamb chop, grilled or stewed, or roast lamb. Brains. Chicken or other poultry. Occasionally steamed or boiled fish.

Vegetables.—Sweet potato, turnip, carrot, sprouts, soya beans, squash, artichoke.

Salad.—Beetroot, lettuce, watercress, or asparagus tips covered with olive oil or lemon juice.

Sweets.—Baked or stewed pears, peaches, or apricots. Custard made from powder, not egg. Fruit jellies. Tapioca or other pudding, cooked with water, not milk. Dates or dried figs, soaked in water for forty-eight hours.

Tea

Soup.—Bone and vegetable or other clear soup.

Cereal.—Ryvita, oatmeal biscuits, or crisp toast, with butter or margarine and honey or seedless jam.

Sweet.—Stewed fruit or fruit jelly, or other simple dish prepared with gelatin.

Beverage.—Allergilac. Tea with condensed or evaporated milk.

Other Measures

Besides the avoidance or removal of common specific causes there are several contributory factors that need our attention. The sufferer should not be confined to bed except in the presence of fever, or progressive loss of weight), for confinement to house or bedrooms tends to prolong attacks. Asthmatics should always be allowed up and about when the weather is fine. A warm or tepid morning bath should be followed by a cold sponge and a brisk rubbing with a rough towel; hot evening baths commonly provoke attacks. In avoiding constipation drastic purgatives are not advisable, especially the common "once or twice a week" kind, which are usually taken overnight; an early morning saline, or glass of fruit juice, is preferable. Among poorer children the hot bath and dose of syrup of figs on a Friday night are the commonest causes of week-end asthma.

In addition to the avoidance of specific foods to which the patient is hypersensitive, the diet of the asthmatic patient should be regulated according to such complicating conditions as gastric anacidity, flatulence, and over- or under-feeding. Gastric or rectal distension commonly precipitates an attack, so should be avoided. Flatulent dyspepsia and chronic gastritis are common, and may be alleviated by ensuring thorough mastication, by gastric lavage each morning with a dilute solution of hydrogen peroxide, or by administering dilute hydrochloric acid by the mouth—one or two aklorep tablets, placed on the tongue and swallowed with a little water, immediately before meals (made by Roberts and Co., 76, New Bond Street, W.1). Three small, easily digested, simply compounded meals a day are best—a good early breakfast, a substantial hot midday meal, and a light early supper several hours before retiring should be the rule. Late meals, heavy meals, bulky diets, or mixed cooking should be avoided. No food or drink should be taken after supper, and especially not just before or after getting into bed.

Reflex irritation may precipitate asthmatic attacks, so that foci of infection should be removed. With regard to nasal abnormalities, it is essential to realize that they are commonly the result of allergic reactions, and rarely a primary cause. It is pitiful to hear of the number of useless operations that many asthmatics have had on their noses. Whilst infected tissues should be removed or drained, boggy tissues will usually subside following therapy based on allergic principles. It should be remembered that a function of the turbinals is to warm and moisten the inspired air, so that after their removal asthmatics are particularly prone to attacks from breathing cold air, and we are at a loss to help them further. Though occasionally asthmatics show evidence of endocrine dysfunction statistics bear out the fact that such dysfunction is rarely the primary cause of the asthma. In asthma commencing at the menopause thyroid and ovarian substance are frequently beneficial adjuvants. The common mental states that precipitate attacks of asthma are emotion, exertion, and excitement, so that these should be guarded against. Fussing and over-anxiety should be avoided, and attempts made to divert the sufferer's attention into other channels. Other less common psychic factors include grief, fear, mental depression, sex conflict, or worry.

The majority of asthmatics look forward with some apprehension to the night, and often when changing from a warm sitting-room to a cold bedroom an irritating cough is initiated. It is therefore advisable to give a sedative in the form of a strong linctus at bedtime each night. For children I order:

Compound tincture of camphor ...	20 minims
Tincture of stramonium	5 minims
Pure dextrose	30 grains
Oxymel of squill	15 minims
Chloroform water	to 2 drachms

At bedtime.

To adults I give:

Tincture of stramonium	15 minims
Syrup of Virginian prune... ...	to 2 drachms
Syrup of codeine phosphate ...	

Early morning breathing exercises, especially of a counting, humming, or hissing type, are very beneficial if not continued up to the point of fatigue. They teach the sufferer to concentrate on breathing out rather than breathing in; they train the diaphragm and abdominal muscles to contract properly and harmoniously; and they counteract the tendency to chest deformity. Slow walking in the open air, at first on the flat and later on mild hills also assists. As regards climate, the sufferer should be shielded from extremes of temperature, draughts, cold winds, and fog. From experience it has been found that the east and south-eastern coasts are generally bad for sufferers as places of dwelling, or for convalescence or holidaying. The south and south-western coasts are preferable.

Desensitization and Drugs

If after this detailed routine has been carried out for a few months the patient has failed to improve appreciably then desensitization should be attempted. When employed it should be specific—that is, against the causative allergens—if possible. As these are most commonly inhalant, a mixture of the common feathers, hairs, dusts, and orris root is more likely to meet with success than is a shot in the dark, such as the use of a non-specific agent entails. In practice, both in adults and in children, I use this inhalant mixture solely and in very concentrated dosage. Among the non-specific agents Witte's No. 30 peptone is probably the best. Autohaemotherapy is successful occasionally. Tuberculin, milk, and vaccines are in general a waste of time and money. Physico-therapeutic methods, such as electrotherapy (diathermy), actinotherapy (ultra-violet and infra-red rays), and *x*-ray therapy should only be employed in rare cases where clinical and radiographic signs justify their use. Among the drugs ephedrine is widely used, and frequently lessens the severity of attacks, but never cures or entirely prevents them. Aspirin wards off attacks in some cases, but in others precipitates them. Glucose helps some cases. Calcium is of no value; many patients have idiosyncrasies to iodides.

SEASONAL HAY FEVER

In England the pollen cloud abounds from the end of May until the end of July, and corresponds principally with the period of pollination of the grasses. In contrast with other parts of the world trees and weeds are relatively unimportant factors. Flowers and cereals are often incriminated as causing symptoms, but the former are insect- not wind-pollinated, and the latter produce such large, heavy, sticky granules that they cannot be carried far by the wind. Hence, flowers and cereals can only be a cause of symptoms when the susceptible person is brought into contact with them either by occupation, in the adornment of the home, or by direct inhalation, as in actually smelling the flowers. The successful treatment of seasonal hay fever depends rather upon the recognition of all possible allergic causes than upon the detection of infections or structural alterations in the nose. No doubt the existence of the latter tends to accentuate hay fever symptoms when present, but if all the specific causes are recognized, and measures taken to render them void, the patient should be just as immune to symptoms in the summer as he is in the winter. In the absence of surgical intervention it is remarkable that patients can suffer from hay fever symptoms for many years without infection developing. The specific causes of hay fever include not only the pollens of the locality but also feather pillows, house dust, animal hairs, and orris root cosmetics. If the patient is sensitive to these latter inhalants their removal or substitution is essential, or desensitization necessary; and it is the recognition and removal of these other inhalant sensitizations that frequently makes the difference between a failure and a successful treatment.

The solutions of the common British pollens for testing and treatment may be obtained from Messrs. Duncan, Flockhart and Co. of 155, Farringdon Road, London, E.C.1. Skin tests are carried out with the common pollens of the district, and the solution for treatment should contain all the pollens to which the patient reacts. In the British Isles they are practically only grasses, though in special cases isolated reactions occur to trees and weeds. The most frequent reactions amongst the grasses occur to Yorkshire fog (*Holcus lanatus*), the meadow grasses (*Poa annua, pratensis,* and *trivialis*), the fescues (*Festuca ovina* and *elatior*), and to Timothy grass (*Phleum pratense*). For those that cannot afford the time and expense of a prolonged change of environment in order to avoid the pollens to which they are sensitive, desensitization is a necessary therapeutic measure. Once symptoms have commenced one is forced to undertake co-seasonal treatment, and a satisfactory course can be put through by giving injections of increasing doses of pollen solution each two hours from 8 a.m. to 8 p.m. In known cases the pre-seasonal method is that usually adopted, the course of injections commencing about the beginning of March and continuing weekly until the beginning of June. Once the maximum dosage has been reached it is often advantageous to continue the treatment perennially. In such a case one injection of the maximum dose reached at the end of the season is continued each month, and the patient is kept permanently immune for about three years, by which time all sensitivity is frequently lost. The injections may be continued over a period of years without leading to any functional or organic disturbances. Two-thirds of the cases derive great benefit immediately from the treatment, provided that it is carried out with thoroughness. The common causes of failure include: incorrect diagnosis; improper treatment, due to impotent extracts, insufficient injections, or inadequate dosage; failure to recognize multiple sensitizations to factors other than pollens; and seasonal variations in the pollen crop, leading to an extreme abundance of pollen at a given time.

Besides the preventive measures outlined there are many palliative measures that bring great relief to sufferers during the season. The eyes can be relieved by the wearing of dark glasses, which cut out the glare and diminish the amount of pollen coming into contact with the conjunctival mucous membrane. The itching and burning of the conjunctival and nasal mucous membranes can be relieved by the following ointment:

Benzocaine	1 drachm
Ephedrine hydrochloride	10 grains
Sol. adrenaline hydrochloride *B.P.*	1 drachm
Soft white paraffin	to 2 ounces

or by the use of anesthone cream (Parke, Davis and Co.).

Internally, ephedrine hydrochloride in doses of half to three-quarters of a grain orally, night and morning, is often sufficient to control the spasms, but in acute exacerbations the hypodermic injection of adrenaline solution is often necessary. Hydrochloric acid has a beneficial effect if given internally; this is best given in tablet form, one aklorep tablet three times a day immediately before meals. Inhalations of carbonic acid gas through a sparklet apparatus, as suggested by Hurst, frequently lead to an immediate cessation of nasal symptoms. Cauterization and ionization of the nose do not generally lead to any permanent benefit, though at times they are useful as palliative measures. Vaccines and non-specific therapy are again generally a waste of time and money.

PERENNIAL HAY FEVER

In many cases hay fever symptoms are present more or less all the year round, and are not restricted to the months of May, June, and July. In these cases symptoms are due to causes other than pollens. These include the common inhalants already described; such foods as wheat, egg, milk, chocolate, potato, and beans; drugs, of which aspirin is the commonest; and bacteria, though infection is the exception rather than the rule. Two additional factors, occupation and climate, play an extremely important part. Bakers develop symptoms from contact with cereal flours, though they are innocuous when taken in food form by mouth. Housewives are affected by house dust and moulds, feather and horsehair bedding, animal

emanations, and orris root toilet preparations. Chemists and doctors are affected by the powder of ipecacuanha and sodium salicylate. Rubber, shoe, and chemical workers are also frequent sufferers. A cold, changeable climate more often causes symptoms than a warm, equable one, and discomfort is more often experienced in the winter than in the summer, and especially on going from a warm room into a cold one. The treatment of perennial hay fever may be palliative or curative. The palliative treatment includes such intranasal applications as the inhalation of carbonic acid gas, the use of adrenaline, ephedrine, and cocaine nasal sprays and ointments, or the application of silver nitrate. Nasal cauterization and zinc ionization meet with occasional success, usually only temporary. Intranasal operations generally afford very little relief in the absence of sepsis. The curative treatment demands the active removal of sensitization factors, as determined by skin tests, or their passive avoidance by a change of climate or occupation. Desensitization is frequently necessary, and in inhalant sensitizations a mixture of feathers, hairs, dusts, and orris root offers the best chance of cure. If specific therapy cannot be applied one may employ the less beneficial injections of peptone or auto-serotherapy. Vaccines, either autogenous or stock, very rarely lead to any improvement.

INFANTILE ECZEMA

The treatment of infantile eczema may be discussed under two headings: the treatment of the local reaction, and the treatment of the cause.

The treatment of the local reaction depends upon the site of the lesion and upon the presence or absence of infection. The lesions are generally at different stages on the face, scalp, and body; some parts are infected, and others not. The first duty is to cleanse the surfaces, and for this purpose soap-and-water should never be used. For mild cases olive oil will suffice, but in the more severe ones a starch poultice will achieve the optimum effect. If, when the crusts have been removed, sepsis is still present, a yellow oxide of mercury paste such as the following is advisable:

Yellow mercuric oxide	15 grains
Starch, in powder	2 drachms
Zinc oxide	2 drachms
Soft paraffin	to 1 ounce

When the surface is aseptic the most useful preparations to apply are crude coal tar (1/2 drachm to the ounce) in the chronic lichenified type, and zinc paste if the surfaces are acutely inflamed and angry. If there is excessive lichenification of the skin the addition of salicylic acid (as in Lassar's paste) is advisable. Old dressings and crusts should always be removed with warm olive oil before applying new. Of equal importance with the cleansing of the surfaces and the application of medicaments is the placing of the child, as well as the part, at rest, and the prevention of scratching. A dose of nepenthe or chloral should be given at night, the face kept covered with a mask, and the elbows splinted.

The treatment of the cause involves in the first place its determination. In infantile eczema two factors are involved: the primary sensitization, and the secondary predisposing factors. As regards sensitization, most eczematous infants are sensitive to egg, whether they have ever partaken of it or not, probably due to a sensitization in utero. Other food sensitizations depend to a large extent upon the feeding of the child at the time. During the breast-feeding period, egg, milk, cocoa, wheat, or cottonseed may be factors, owing to the habit of pregnant and nursing mothers supplementing their diet with milk foods, ovaltine, cocoa, porridge, or lactagol. In such cases a careful history will frequently indicate the causative food. In the weaning stages milk protein becomes the chief offender, and in the majority of instances it is the lactalbumin fraction that is at fault. Fortunately, as already pointed out, this is a heat-coagulable protein, so that often a modified milk, such as condensed, evaporated, or acidified milk, can be used. As in cases of asthma, allergilac is very beneficial in milk-sensitive children. A similar milk can be prepared at home by boiling the milk for fifteen minutes, allowing it to cool, removing the scum, and acidifying by adding to each pint 40 minims of dilute hydrochloric acid (*B.P.*), drop by drop, whilst stirring. The requisite amount is just brought to blood heat for each feed. Children appear just as sensitive to goat's milk as to cow's. Vegetable "milk," such as may be made with soya bean flour, does not lead to such good results as the modified acidified milk. When the child commences on his baby diet such additional factors as wheat, oats, barley, bacon fat, orange, beef, potato, spinach, and corn arise. Finally, a large percentage do become, or are, sensitive to feather or horsehair bedding, so it is as well to see that the best Java kapok is installed in the cot, and animal pets and toys stuffed with hair are excluded.

Apart from these primary factors, and especially when the condition has lasted for any length of time, the skin gets into such a state that it appears to be irritated by numerous secondary non-specific, non-allergenic causes, which include (*a*) such external irritants as woollen garments, trauma, infection, mechanical irritation, chemicals (such as strong soap and various therapeutic applications), changes in temperature, and exposure to winds; and (*b*) such internal derangements as accompany teething and overfeeding. Each of these factors must therefore be considered and nullified as far as possible.

PAPULAR URTICARIA

Probably the commonest type of urticaria met with in general practice is the papular urticaria of childhood. It is extremely prevalent in England, forming at least 10 to 20 per cent. of all out-patient skin cases at children's hospitals. Very few children escape without having it in some degree. Everyone is familiar with the pea-sized red blotch that appears on the covered parts of the body, in the centre of which a minute papule or vesico-papule later develops. The wheal soon disappears, but the papule lasts several days or weeks, especially if excoriated as the result of the intense nocturnal itching. Practically all children develop lesions before the age of 5 years, and ordinarily the condition disappears before puberty, periods of quiescence being followed by relapses which are more or less confined to the warmer months of the year. Many theories have been expressed as to the aetiology. It has been thought to be a disorder associated with dentition ("gum rash"); an ill effect of vaccination; a disorder of digestion, associated with constipation, improper feeding, rickets, or the ingestion of certain acid fruits and sweets; a result of improper clothing, uncleanliness, or decomposition of sweat; a result of the bites of the flea, louse, or bed-bug; an association of worm infestations; and, finally, an allergic reaction to environment.

It is with trepidation that I suggest, as the result of studies in several hundred cases, a new aspect. In the majority of instances two factors are involved—one dietary, the other thermal. The dietary factor may be divided into two groups: (*a*) fats, especially bacon fat, which is a pronounced ingredient of a child's diet in this country; vegetable oils and fats, in Jewish children;

and cod-liver oil in a certain percentage of any nationality; and (*b*) common foods such as fish, egg, potato, oats, and chocolate in a small number of cases, as additional agents. Acid fruits and vegetables, though commonly incriminated, seem merely to aid the absorption of the nocuous fat. The thermal factor is also an important one, for the lesions generally appear only in the warmer months of the year, when the child is warm in bed at night, or following a hot bath, after exercise, or following any of the feverish ailments that are common in early childhood. The lesions cease to appear in the majority of cases when the fats outlined are removed from the diet, and when care is taken not to let the child get overheated. Though a rhubarb and soda mixture is commonly given I find a pepsin and hydrochloric acid mixture more beneficial. The lesions may be treated with naphthol ointment (1 per cent.) or 2 drachms of solution of coal tar to 8 ounces of calamine lotion. If the lesions are infected probably the yellow oxide of mercury ointment, outlined in the treatment of infantile eczema, is the best.

ENURESIS

As enuresis is a common accompaniment of papular urticaria and many allergic conditions, and has ceased when treatment has influenced these other conditions, I was led to investigate many cases of enuresis that had persisted in spite of dietary and fluid restrictions, lifting at definite hours, and large doses of belladonna, and in which no urinary abnormalities could be detected. Many of these cases have been found sensitive to common foods, especially pig products, as well as to feather and horsehair bedding. The removal of these irritants, together with the administration of large doses of ephedrine by mouth, such as 1/2 grain at the child's bedtime (repeated when the mother goes to bed) nightly for some months, rapidly cures the complaint. The sphincter-tightening effect of ephedrine on the bladder is well recognized among asthmatics. As soon as any toxic effects of the drug such as vomiting, tachycardia, insomnia, or stupor are experienced, the dose is halved.

MIGRAINE

Migraine, or sick headache, is extremely common in members of allergic families, and especially in the mothers of asthmatic children. Besides these hereditary associations there is abundant evidence in favour of many cases of migraine having an allergic basis. That allergic reactions can occur in the central nervous system is shown by the cerebral symptoms that frequently follow injections of therapeutic serums. In addition, many cases give positive skin reactions, and the headaches cease when the causative allergens are removed. In the attack the patient is forced to lie down, and the room should be darkened, and an ice cap applied to the head. The bowels should be well opened with magnesium or sodium sulphate. Probably one of the best drugs to relieve the headache is compral (Bayer and Co.), three tablets being given each six hours. Others favour bromide and chloral, sodium luminal, caffeine, and veramon. In the preventive treatment the first duty is to remove specific allergens. The commonest are foods, and include milk, wheat, eggs, pork, chocolate, nuts, peas, and beans. A few sufferers are sensitive to inhalants, such as feathers and animal hairs. Biochemical investigations have indicated that migrainous attacks are associated with a change in the blood toward the alkaline side, so that this should be combated with a ketogenic diet, with marked restriction of carbohydrates, and hydrochloric acid by mouth. In cases markedly affected by menstruation, organotherapy is indicated in addition, such as pituitary, ovarian, and thyroid preparations.

OTORRHOEA *

BY

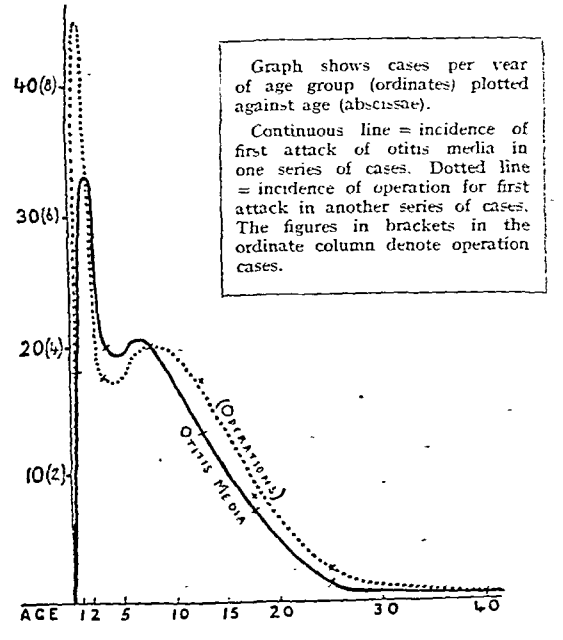
E. WATSON-WILLIAMS, M.C., CH.M., F.R.C.S.ED.

SURGEON IN CHARGE, EAR, NOSE, AND THROAT DEPARTMENT, BRISTOL ROYAL INFIRMARY

Suppurative otitis media† begins in early life. Except as a complication of severe influenza, a first attack in adult life is uncommon. The importance of the very early years is brought out in the following table of ages of first attack in a consecutive series of cases. As a check on the "sample," it is only necessary to compare the corresponding figures for a quite distinct series of patients

Age Incidence of Otitis Media

Age	First Attack of Otitis Media		Operation for First Attack	
	Cases	Cases per Year of Age Group	Cases	Cases per Year of Age Group
0-1	18	18.0	9	9.0
1-2	33	33.0	14	3.5
2-5	60	20.0		
5-10	101	20.0	20	4.0
10-15	65	13.0	17	3.4
15-20	35	7.0	8	1.6
20-30	14	1.4	5	0.5
Over 30	13	0.4	3	0.1



Graph shows cases per year of age group (ordinates) plotted against age (abscissae).

Continuous line = incidence of first attack of otitis media in one series of cases. Dotted line = incidence of operation for first attack in another series of cases. The figures in brackets in the ordinate column denote operation cases.

for whom a mastoid operation was performed during a first attack of otitis[1]: the incidence was much greater during the *first* year than at any subsequent period, and in my experience this is constant. In neither series was there an abnormal proportion of influenzal otitis.

Two-thirds of first attacks of otitis occur between the ages of 3 and 14. Scarlet fever and measles, in conjunction with "adenoids," furnish the obvious explanation. But the incidence is as high during the first year of life.

* Delivered at a meeting of the Bath, Bristol, and Somerset Branch of the British Medical Association, January 25th, 1933.

† Throughout this paper *suppurative* otitis media is implied.

and much higher during the second ; and here such an explanation fails. A very common history is: "There was never any ear trouble before, except that his ears ran with every tooth he cut as a baby." And it must be conceded that the catarrhal reactions to teething, such as coryza, bronchitis, and diarrhoea, are the starting-point of a very considerable bulk of otitis media.

Why do children exhibit this catarrhal tendency and why do they develop adenoid hypertrophy? Repeated exogenous bacterial infection is cited in explanation, but it cannot be contended that this is convincing. Rather

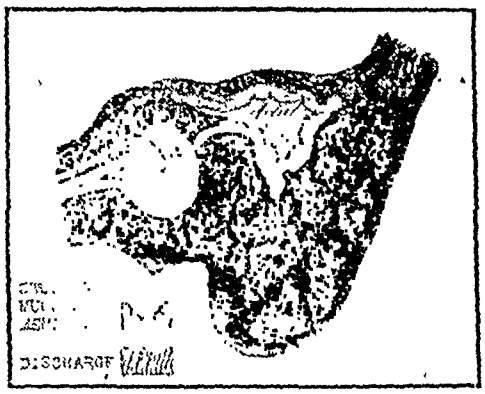


FIG. 1.—Vertical section of ear in plane of tympanum; position of membrane indicated. Cancellous acellular ("infantile") type of mastoid. At birth there is no real "process," but bone arrangement is that here shown, the antrum is higher, but as large as in adult life. Cell formation begins in second year, and is nearly complete by tenth. Occasionally this type of mastoid persists into adult life. Process smooth, cortex rather thin, interior cancellous, practically no cells.

are we disposed to inculpate a "constitutional" factor, and recent work strongly suggests that a relative hypovitaminosis is the real starting-point of these troubles. If this is so the prophylaxis of otitis—and therefore of the bulk of adult human deafness—lies in the hands of the physician during the earliest years of life. Admittedly, where chronic rhinitis or adenoid hypertrophy exists surgical treatment is generally necessary in addition to

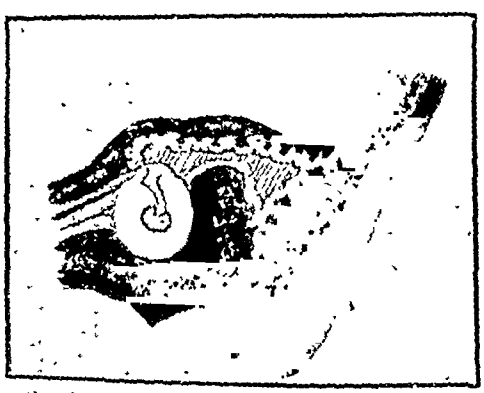


FIG. 2.—Similar section, incus and head of malleus removed. Sclerotic acellular type of mastoid (about 20 per cent. of adults). Process narrow, deeply grooved, concave above, cortex thick and dense, little cancellous bone, cell development poor.

medical, and the results as regard otitis media are as a rule strikingly satisfactory. Here I should like to digress to say that in my experience the removal of tonsils seldom benefits otitis media.

TREATMENT OF THE DISCHARGING EAR

The purpose of the present communication is, however, to discuss, not the prophylaxis of otitis media or the treatment of the acute phase before rupture or paracentesis of the membrane—a measure the value of which is well recognized—but the treatment of the patient whose ear is actually discharging. It is assumed that adenoids, nasal infection, and constitutional conditions are receiving treatment. Two points require consideration. First, in most cases the whole, or nearly the whole, of the middle-ear cleft is infected from the outset: some parts may recover more rapidly than others. Secondly, of those patients who receive no treatment at all the great majority recover completely. No doubt these cases include few of the more severe infections, but the point must be kept in mind when discussing the merits of any method of treatment.

The perforation in the membrane in a chronic case may be as large as in Figs. 2 and 3, but in an acute case it

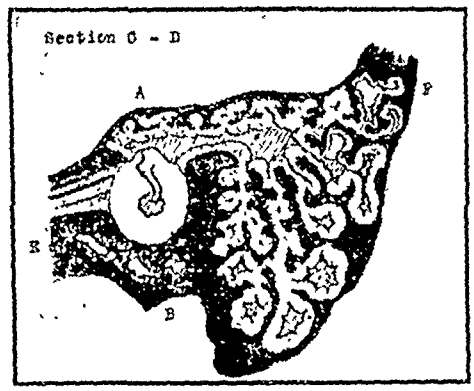


FIG. 3.—Section as Fig. 2. Common cellular type of mastoid. Process large and convex, cortex very thin, cancellous bone almost absent, cells numerous and complex (often less so than here shown). Note that the attic conforms to type of mastoid.

is more often minute, as in Fig. 1. The normally narrow slit of the tympanum is almost obliterated by swollen mucous membrane (Fig. 4), folds of which shut it off from the attic. This in turn is subdivided and nearly filled by the ossicles, their ligaments, and the reflections of mucous membrane which invest them (Figs. 4 and 5). The aditus is probably merely a potential channel during an acute infection, and beyond it lies the antrum with



FIG. 4.—Transverse section of same mastoid as Fig. 3, in nearly horizontal plane E-F. (F.R., foramen rotundum.)

its cells, generally numerous and complex, also lined with engorged mucous membrane, so that many are almost completely shut off even from the antrum (Figs. 3 and 4). The spaces that are left are filled with exudate, purulent for a day or two, but rapidly becoming glairy and mucinous. It is obvious that the scope of treatment via the meatus is strictly limited. The most we can hope to do is to promote natural drainage. We must carefully avoid anything which may increase congestion or the risk of additional infection, or which may damage the inflamed tissues, so that repair may be as rapid and complete as possible, with a minimum of scarring and damage to hearing—that is, essentially, damage about the oval and round windows (Fig. 4).

THE "WET" AND "DRY" METHODS

The closing years of last century saw a considerable controversy between two schools of teaching—the "wets" and the "drys." (Cf. *Lancet*, and *Laryngoscope*, 1899.) The "wets" had the advantages of tradition and of the more active treatment; they apparently retain a large body of adherents to this day. Syringing the ear with warm sterile saline is a tedious method of removing a viscid discharge, but unobjectionable: water, even when sterile, makes the skin sodden, and causes mucous congestion. Hydrogen peroxide alone or as an adjuvant to syringing acts mainly mechanically, its disinfectant effect being negligible. The bubbling exercises a mesmeric fascination over the lay mind. It is definitely irritant to mucous membrane, and causes many attacks of otitis externa. But the real disadvantage of these methods lies in the tendency to increase congestion, probably a more important matter than any risk of carrying infection into hitherto healthy areas. I have so often seen the need for immediate operation arise in cases, acute or chronic, directly following treatment on these lines, that I have long refused to countenance such for any patient with a perforated membrane.

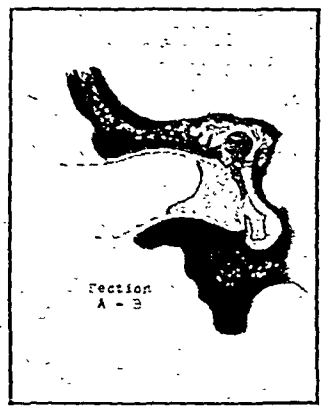


FIG. 5.—Vertical section across plane of tympanum, to show attic, Prussac's space, malleus, ligaments, etc.

Aqueous medicated "drops" are sometimes used, such as mercurochrome in 1 per cent. solution. This stains the membrane scarlet, and during the acute stage impedes observations on the progress of the disease. It is a powerful disinfectant, but the importance of disinfecting the meatus is possibly exaggerated, as the fundus is normally sterile. In the subacute stage mercurochrome often acts like a charm, though the chance of staining clothes and bedding is a nuisance. It should not be used for more than a fortnight since it is a definite tissue poison, and seems frequently to delay healing, which occurs when it is stopped. Another modern "wet" method is zinc "ionization." The ear is carefully cleansed and filled with 2 per cent. zinc sulphate solution. An anode of zinc wire is placed in the fluid and a current of 3 milliamperes applied for ten minutes: this may be omitted without influencing the result. The treatment depends really on cleansing and subsequent (chemical) surface coagulation. It is not recommended for acute cases; if applied to all "suitable" cases the results are as good as most, but very few which resist simpler treatment are cured by "ionization." The aura of mystery that surrounds all electrical treatment probably accounts for its vogue.

The "drys" treat the ear simply by inserting a loose pencil (not a plug) of sterile gauze or wool in the meatus, and changing it as often as it becomes soiled. The discharge is regarded as the best "dressing" for the inflamed mucosa. In the London County Council fever hospitals, where many hundreds of acute otitis cases are treated every year, the *only* local treatment is to wipe out the discharge at frequent intervals—a method which has been found to give results superior to any other. But in private or out-patient practice we want a method of treatment that does not depend on rigid asepsis and constant attention, and that can be applied by any moderately intelligent layman. Glycerin containing 2 per cent. phenol (the *B.P.* preparation is too caustic) used as hot as is comfortable has established its reputation as an "ear drop." It is excellent both before and after the onset of discharge, but it does not mix well with the latter, so that this must be carefully removed before use. The phenol is mildly analgesic: glycerin itself is a potent antiseptic, but its principal value is due to its hygroscopic action.

MAGNESIUM SULPHATE IN THE "DRY" TREATMENT

A hygroscopic application might be expected to promote drainage by reducing local congestion, and also to encourage a thinner and more watery discharge. It was with this object that I introduced magnesium sulphate as a dressing for the ear.[2] The essential of any "dry" treatment is thorough cleansing of the meatus, failing which applications lie inertly in the outer part, separated from the tympanum by a layer of discharge. It is worth a little trouble to learn, and to teach, how to make a suitable pencil of wool, for it is a pencil that is needed, not a spherical knob (Figs. 6 and 7). Take a thin, oblong piece of the best cotton-wool (no one can make a good mop with cheap fluff), about one inch by one and a half inches, and lay it on the left index finger. Place the end of the wool-carrier (a match or an orange stick) on it in line with the long axis, but projecting half an inch over the end (Fig. 8). With the left thumb fold the wool longitudinally round the carrier and, pressing thumb and finger together, rotate the carrier so that the wool becomes firmly attached to it. Maintain the pressure and rotation while the wool is withdrawn between finger and thumb, so as to form a uniformly thin cylinder; the free end is left fluffy, and not twisted into a point. Draw the ear out and a little back, and plunge the mop right down to the membrane and out again. If the discharge is sticky ten or twelve mops will be needed properly to cleanse the meatus. Half fill the meatus with powdered magnesium sulphate (crystals, *not* exsiccated), and cover it with a large piece of wool in the bowl of the concha. Where discharge is free, four-hourly treatment is needed, but in a day or two twice a day suffices.

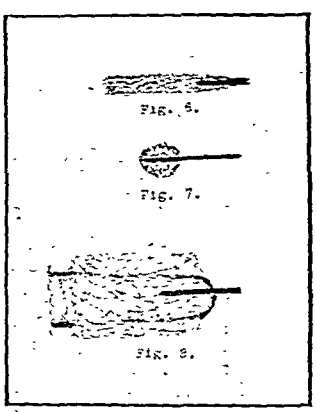


FIG. 6.—Section through good aural mop.
FIG. 7.—Section through bad aural mop.
FIG. 8.—Starting to make aural mop.

Since adopting this method two years ago the results, especially as regards hearing, have been so satisfactory that I now employ it as a routine. In chronic cases it is indicated wherever the discharge is free or gelatinous. But it is in acute and subacute cases that its value is best seen. During the recent influenza epidemic about half the cases of "acute mastoiditis" admitted to my wards for operation have recovered completely without this being required, and the method has been even more successful in private practice. As a rule the ear is dry in about three weeks, often less. If the hearing is not rapidly improving at this period it is a good plan to inflate the ear (with a Politzer bag) once or twice a week, though this is seldom necessary.

If the discharge has dwindled to a mere trace, but does not entirely cease, a more stimulating regime is desirable. Alcohol (90 per cent.) has long been employed. It is too painful for use during the acute stage, and many patients find it unpleasant even later. Iodoboric

powder* is satisfactory and well tolerated. It is used exactly as the magnesium sulphate, or applied by means of an insufflator, twice a week. One word of warning is needed. In adults with good hearing and old-standing, *minimal, inoffensive* discharge, it is sometimes best to rely on regular cleansing and not to attempt to obtain healing, since this may be achieved only at the expense of auditory function.

To treatment on these lines the response is usually rapid and satisfactory. Failure may be due to unsuspected nasal infection or to some general condition, such as debility, diabetes, syphilis, etc. Granulations ("polypi") must be removed before treatment can be effective: they are due occasionally to syphilis, but nearly always indicate osteitis. If, in a chronic case, the discharge continues offensive or frankly purulent despite six weeks of careful treatment, the cause is practically certain to be osteitis, as a rule with cholesteatoma. The question of operation should then be seriously considered. The risk of a grave complication, though not negligible, may be slight, but an enormous amount of chronic ill-health is directly due to persistent mastoid infection.[3] Almost invariably in these cases the acellular type of mastoid is found. On the other hand, one seldom has to operate for primary acute mastoiditis on persons (except infants) with acellular mastoids, probably because the aditus affords relatively good drainage for the small area beyond it. With material, old-standing deafness there is nearly always disease of the ossicles, and nothing short of the radical mastoid operation is effectual; but children show such great powers of recovery that the tympanum should be conserved unless manifestly seriously diseased.

In acute otitis media the need for operation may, of course, arise quite early, sometimes indeed before the onset of discharge. The general condition affords a better guide than local signs, pain, tenderness, or even oedema. Quite a number of "acute mastoids" recover completely without operation, though perhaps it is only after considerable experience that one can forecast the course of any given case. In influenzal otitis, when there is considerable deafness, the question of operation assumes early *importance*—I have seen irreparable damage to hearing within ten days of onset—but if four weeks from the start of any acute otitis the ear has not healed, or at least is not quite definitely healing, the decision as to operation must by no means be postponed. It is true that children often recover good hearing after many months of otorrhoea, but the proportion falls steadily month by month, and much more rapidly in adults. If the opposite ear is deaf there is an additional reason for urging early operation in the acute case. A week never passes but I see patients whose hearing has been sacrificed by a refusal promptly to recognize that meatal treatment is not in fact succeeding. The simple (Schwartze) mastoidectomy is a safe operation, and the functional results are extremely gratifying.[1] The ear is the organ of hearing, not a drainage tube for a diseased mastoid.

SUMMARY

1. Suppurative otitis media begins in early life, a large proportion during the first two years.

2. It is suggested that adenoids and teething catarrhs are symptoms of hypovitaminosis.

3. All wet meatal applications are condemned.

4. As long as discharge is free treatment should be careful removal of this, and application of powdered magnesium sulphate.

5. When discharge is less persistent a powder of iodine 1 part and boric acid 100 is recommended.

6. The importance of early operation as a means of saving hearing is emphasized.

* Iodine one part, boric acid 100; rub together into a fine powder and keep well stoppered, as the iodine is volatile. Not to be used after mercurochrome.

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SOME NOTES ON INDUSTRIAL ANTHRAX

ITS DIAGNOSIS AND TREATMENT

BY

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Bradford and district have the unenviable reputation of being the chief centre of industrial anthrax in this country. It was here that the name of "wool-sorter's disease" was coined, and "*maladie de Bradford*" is the name still given in France to pulmonary anthrax. This relative frequency of the disease in the West Riding and the courtesy of colleagues have enabled me to see and take notes of 340 cases of cutaneous anthrax and of twenty-four cases of pulmonary and gastro-intestinal anthrax.

SOURCE AND MODE OF INFECTION

The source of infection can in some cases be ascertained with certainty, as when a butcher contracts cutaneous anthrax from slaughtering a beast subsequently found to have suffered from splenic fever, or when anthrax bacilli have been cultivated from a sample of yarn previously handled by the patient. On another occasion anthrax bacilli were grown from both warp and weft handled by a patient, from the remainder of the raw material from which warp and weft had been spun, from portions of the same raw material bought by firms in two distant towns, and finally from clippings of cardigan jackets which had been made from the same material before its infectivity had been discovered. At other times the source of infection is left in doubt, either because the patient had been in contact with more than one species of dangerous wool or hair, or because the material handled by him had already been worked up and had left the factory by the time the investigation could be conducted.

The mode of infection, on the other hand, is often left in doubt. There can be none when the patient has, for example, been able to trace infection to a prick from the pin of a preparing machine through which infected mohair was found to have passed, or when a farm-hand with chapped hands and wrists had been detailed to assist a butcher, and subsequently presented five separate pustules, all of the same age, on these parts. In most cases the mode of entry cannot be determined. I have examined bacteriologically the scrapings from under the nails of all the workpeople employed in a factory from which cases of anthrax frequently reached me, without success. A schoolboy died of an anthrax pustule in the cheek: he had played football during the dinner-hour with some lads clad in the overalls worn by them while handling East Indian wool. While an abrasion here probably afforded an entry to the virus, there was no evidence as to its mode of entry in the case of a lad who died of a malignant pustule after sleeping on some sacking

which had contained Persian wool. Pimples are often claimed to be the point of entry, but it is difficult to see how they could be unless they had been injured and blood had been drawn. In many cases there is no history of a lesion of the skin, and it is supposed that the infecting spores may be passed mechanically along hairs to their roots, and thus initiate the "pustule." The clothes of workers may convey the infection: three women contracted the disease washing their husbands' overalls; and a wool-sorter who had been away from his work because of a broken arm died of pulmonary anthrax after a street fight, in which he had received a "dusting."

CUTANEOUS ANTHRAX

Cutaneous anthrax is naturally seen with greatest frequency on exposed parts, and of these some are more easily infected than others, the occupation being sometimes the determining factor—as in that of tanners, in whom, as a result of their mode of carrying the hides, the neck is a frequent site of the pustule. It is, however, a curious fact that the skin of the fingers is rarely attacked. On the other hand, I have seen "malignant pustules" on the shin, on the thigh, and even on the abdominal wall and between a woman's breasts.

The appearance of cutaneous anthrax varies. Its most common form, the "malignant pustule," is often said to be a characteristic structure when fully developed. This is an error. Given a vaccine pock on an unusual site, such as the angle of the mouth, the eyelid, or the cheek, accompanied as it often is in these situations by much redness and swelling of the surrounding parts, then mere inspection will fail to find distinguishing features. A history may help, as the vaccine pock takes somewhat longer to attain maturity: even this may deceive. The presence of a recently vaccinated member of the household may give our thoughts the right direction. The following case was more difficult. A lad employed upon dangerous wool had a "pustule" on the side of the neck; there was no one in the house who had been vaccinated. On closer questioning I discovered that the boy was wearing the clothes which his elder brother had discarded after having been vaccinated on joining the Army some weeks before. Streptococcal and pneumococcal infection of the skin may also produce lesions indistinguishable clinically from anthrax; this is true not only of the rare erysipelatous variety of anthrax, but of the "malignant pustule" also. I have once seen the hay bacillus give rise to a similar lesion. In other words, the diagnosis of cutaneous anthrax is primarily a bacteriological one. If this be applicable to the diagnosis of the mature classical "pustule," it is doubly so to the aberrant forms. Instead of the coal-black central eschar surrounded by a ring of vesicles upon an angry, red, and brawny base, we may find the eschar only without any vesicles, or the vesicles may be set some distance from the former; in other cases—and these are not necessarily early ones—bullae may predominate, a relatively small eschar lying among them; or one or two bullae may alone be present. In a fatal case of cutaneous anthrax of the wrist a white oedema replaced the red inflammatory area, and on it was one large flaccid bulla containing blood-stained serum. In another fatal case a similar white oedema disfigured a girl's chin and neck, but there was no vesicle or bulla, only a tiny black eschar, the size of a pin's head, on the point of the chin. In some instances the redness and inflammatory oedema may be almost absent, while in others it may involve a whole limb, or, extending over face, neck, and chest, give these parts gigantic proportions. If, then, a bacteriological examination is necessary for the diagnosis even of the fully developed lesion, it is more than ever necessary if the disease is to be recognized in its early stages, when most amenable to treatment. A spot not unlike a flea-bite in size, shape, and colour, crowned perhaps by a tiny vesicle or by a minute abrasion, may meet the disappointed view of the spectators of a demonstration; yet anthrax bacilli will have been found in the contents of the vesicle or in the serum obtained from the denuded area after gentle scraping with a scalpel. A further difficulty is introduced at times by the applications of homely remedies, such as cobbler's wax or poultices, which may profoundly alter the natural appearance of the lesion.

A few slides, a watery solution of methylene-blue, gentian-violet, or fuchsine, and a 1/6 inch objective are all that is needful. So rarely has the microscope failed us that it would be a mistake to postpone specific treatment until cultural confirmation shall have been obtained; but as anthrax is a disease to which the Workmen's Compensation Act applies such confirmation should always be sought. If the serum has to be sent to a distant laboratory it is best to dry some of it on threads, on slides, or on sterilized fragments of earthenware, and not to forward it in capillary tubes only, as the serum often possesses bactericidal properties. It is strange that relatively little constitutional disturbance may accompany extensive local changes, and this disproportion, though not characteristic of anthrax, is yet suggestive, especially in the erysipelatous variety, in which a "pustule" is absent.

ANTHRAX OF RESPIRATORY AND ALIMENTARY SYSTEMS

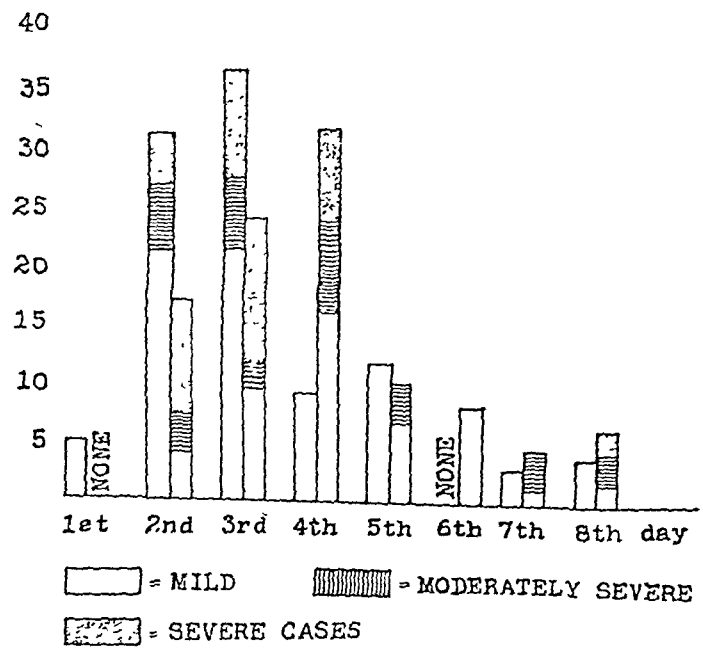
Thus, once the possibility of cutaneous anthrax occurs to the mind the diagnosis is generally easy—not so the diagnosis of anthrax of the respiratory system and of the alimentary tract. Of the latter I have seen only one case, in consultation with Dr. Marshall, late of Halifax, who had made the diagnosis by a microscopical examination of the blood-stained vomit. I have, however, seen two cases in which the stomach became infected secondarily, serum having trickled, from the nose in the one, and from the forehead in the other, into the mouth. The possibility of achlorhydria in these patients was unfortunately not considered. Three infections occurred in the upper respiratory tract—one affecting a nasal passage, a second the right tonsil, and the third the tissues between the epiglottis and the anterior pillar of the fauces: only the first case survived. The twenty-three pulmonary cases all ended fatally. In one the diagnosis was made reasonably early by use of the opsonic index, while in a second the disease was strongly suspected on clinical grounds. The diagnostic history of the remaining twenty-one cases was as follows: in four cases no medical advice was sought; in eight the patients were dying when advice was sought; in four suspicion was aroused only by sudden and unexpected death; in five no suspicion was aroused till collapse occurred. Though this shows how rarely an opportunity is given for considering the possibility of internal anthrax at an early stage, and how ambiguous and relatively innocent the initial symptoms may be, yet occasionally the constellation of the symptoms is so unusual as to call for special consideration, as when joint pains and precordial oppression, or joint pains and glandular enlargement, are complained of. It is conceivable that when suspicion has been aroused the estimation of the opsonic index, or the bacteriological examination of blood drawn from the affected lung, may confirm it. The examination of a pleural effusion will rarely benefit the patient, as these effusions are usually of late occurrence; nor will the examination of cerebro-spinal fluid when there is cerebral involvement. Recovery from internal anthrax is very rare. I find no record of such recovery in the clinical notes left by the late Dr. J. H. Bell, nor have I seen one. The late Dr. Wm. Mitchell of this city published notes of one alleged case of

recovery, but the diagnosis had not been confirmed bacteriologically.

The generalization of anthrax is largely embolic, as is shown by the distribution and structure of the secondary intestinal lesions, the emboli being derived from thrombosed veins in the area of the primary focus. It is very doubtful whether the bacilli multiply in the blood stream. Their presence in it is not necessarily a sign of impending death. I have on several occasions been able to cultivate them from the blood, and yet the patients recovered. A sign of ill omen is delirium. Consciousness to the last is a characteristic of anthrax. Often the patient feels the approach of death: "I am done for" is a common expression, but now and again this feeling is absent. "How do you feel?" a dying patient was asked, as he lay pulseless: "Oh, nicely, only a bit weak," he replied, turned on to his side, and died. On another occasion the anxious family doctor called upon his dying patient at 1 a.m., expecting to find the family about the bed. To his surprise the house was in darkness: all had gone to bed and were vexed—the patient included—at being disturbed "without reason"; the man died four hours later. Delirium almost always indicates involvement—haemorrhagic in nature—of the meninges; this pia-arachnoid haemorrhage is often so extensive as to cover the whole brain and even to extend to the coverings of the cord.

PROGNOSIS

The prognosis of anthrax, and especially of the cutaneous variety, depends largely on an early diagnosis. This is best ensured by the appointment in centres in which industrial anthrax is known to occur of a medical practitioner whose duty it shall be to examine every operative presenting suspicious symptoms. To this end the Factory Department of the Home Office has issued an illustrated monitory poster to be hung up in the factories and workshops. This plan has been adopted in Bradford, and its results are shown in the accompanying diagram,



The first of each group consists of patients first seen by specially appointed practitioners; the second of each group consists of patients first seen by other practitioners.

in which mild, moderately severe, and severe cases are arranged according to the day of the disease on which the diagnosis was made, and as to whether seen by a general practitioner or by the appointed examiner. The advantage of the system is obvious. The comparison thus made is a fair one, as all the patients were treated in the same institution and on the same principles.

TREATMENT

The treatment of cutaneous anthrax used to be excision whenever the site of the "pustule" permitted. We have now for many years discarded excision, reserving it for those cases in which the "pustule" is very small and on a site notoriously apt to favour rapid extension, such as the neck. Excision is still claimed by some to be the safer method, the accidental entry of bacilli into the operation wound being considered of no moment. It is true that successful infection depends upon the number of germs introduced into the tissues. That number may on occasion be so small as not to be dangerous, but the veins beneath the "pustule" are often extensively thrombosed, the thrombi crowded with bacilli, and I have seen disastrous results follow their section. With the abandonment of excision as a routine method of treatment our results have improved, the mortality of the last 200 cases of cutaneous anthrax being only 5 per cent. It is not possible to compare these results with those obtained by others: their figures are often too small, and prognosis depends so much upon factors not referred to in their statistics, such as the frequency with which certain sites have been affected, the stage in which treatment was begun, and the nature of the infecting material. It is obvious, for instance, that statistics which include many cases of pustules on the neck cannot be justly compared with those in which most of the lesions have occupied less dangerous sites. When excision is decided upon, the greatest possible care must be taken to avoid infection of the wound. A rise in temperature a day or two after the operation may indicate its occurrence; but fever is not a necessary accompaniment. At the Bradford Royal Infirmary excision has now been replaced in most cases by the injection of salvarsan and of anti-anthrax serum. Since 1911 it has been my practice whenever I have used salvarsan to give two moderately large doses, the size of the dose being relative to the sex, age, and constitution of the patient, generally with an interval of a day. It is rarely necessary to give more, and I have never deemed it desirable to give—as I have heard have been given elsewhere—daily injections of some magnitude for a whole week. With no other treatment but this I have seen fever subside rapidly, with a coincident general improvement; but we usually combine it with the older method of injecting, intravenously or subcutaneously, anti-anthrax serum.

First introduced in 1899 Sclavo's serum has been almost solely employed. The results attending its administration appear to us to have been so good that the use of other serums seemed scarcely justifiable. Only during the war, when Sclavo's serum was for a time unobtainable, did we employ Mulford's serum, with success in the few cases in which it was given. The initial dose of either serum has since 1908 been 80 c.cm., followed by 60 c.cm. on the following day. Sometimes the dose of 80 c.cm. was repeated, and injections up to a total of 300 c.cm. have been given with no ill effects other than the usual joint pains and urticarial eruptions. The relative values of these remedies are uncertain; salvarsan, however, offers the advantage of being easily obtainable. Whichever method of treatment is chosen, one condition must in every case be fulfilled: the part affected *must* be put at rest. The necessity of this was brought home to me many years ago by the relative mortality of patients with malignant pustules on the wrist and on the forearm: of eleven with pustules on the wrist seven died; and of a similar number with pustules on the forearm, none. The greater mobility of the former is the obvious explanation. If a limb is the site, it is carefully splinted, and if an arm, it is also supported on a pillow. If the head or neck is affected,

then sandbags are applied and the head is kept in position by a folded towel carried across the forehead and fixed beneath the sandbags.

The internal administration of sulphur has been advised; with what justification based upon experience I know not. I have used chrom-argentum in one case, which ended in recovery; it has been claimed that very severe cases have been cured by the sole administration of it intravenously. In China (Hankow), I am told by Dr. E. F. Wills, certain leaves are credited with curative properties, and samples have reached me; but as only two authenticated cases have, to my knowledge, been so treated—with recovery, it is true—I have not felt justified in applying the leaves to the exclusion of every other remedy—the only method by which their claim to utility can be vindicated.

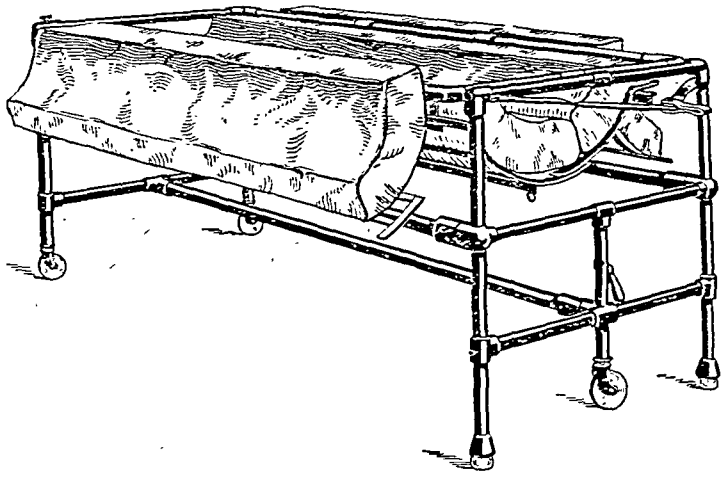
AN IMPROVED PATTERN OF THE REVOLVING SPINAL BED

BY

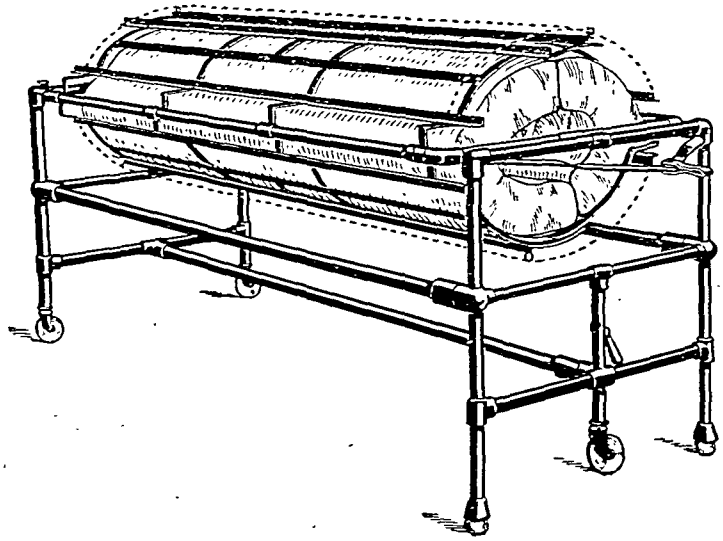
ERNEST W. HEY GROVES, M.S., F.R.C.S.

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Three years ago I published an account of a special reversible spinal bed (*Journal*, January 11th, 1930). Since that time the value and utility of this appliance has been abundantly demonstrated by the experience of others as well as myself. But a difficulty in its use has also been experienced, and this has been overcome by the design of a new model.



The principle of the bed is to enclose the patient in a cage, which, supported on a bed-frame, could be revolved. When the patient is lying on his back the front of the cage can be removed, and when he has been turned over the back can be exposed by removing the back part of the cage. In the original model the cage was flat behind and in front—that is, it was shaped like a parallelogram in transverse section. The difficulties met with in the use of this pattern were twofold. First, it was necessary to pack the patient very tightly in the cage by a number of pillows, in order to prevent him from slipping sideways in the act of turning him over. Secondly, it was difficult to adapt the same cage for thin or stout patients, and this, too, could only be done by packing with pillows in the case of a small patient.



The new model illustrated here overcomes both these difficulties. The cage is oval or elliptical in transverse section. The patient lies in a trough, formed by a shaped mattress, in two halves, lying on the curved framework of the cage. This has another advantage, in addition to the firmer fixation, when being turned. It is that the patient's body is kept more rigid when lying on his back in this trough than it was when he lay on a flat mattress: he cannot roll from side to side, and this prevention of rolling is certainly desirable in cases of spinal affections, whether tuberculous or traumatic. The front of the cage is also curved in transverse section, and this is more easily explained by reference to the illustration than by description. In the upper figure the cage is open, the front portion being thrown back and lying against the sides of the bed. In the lower figure the cage is shut, as it would be when the patient is about to be turned over. In this position the patient lies held quite snugly all round his body and legs by the mattresses, and there is no need for any packing pillows. When he is being turned he is held just as securely when half-way round, on his side, as he is when lying on his face, or on his back, so that the turning can be done as slowly as desired. The oval shape of the frame makes it easy to adapt it to patients of different girth. The curved metal bars of the frame overlap for rather more than six inches, and can be locked in any one of six different positions, so that as this varying amount of overlap occurs behind as well as in front, the circumference of the oval frame can be varied by 12 inches. The arrangement of the bedpan may be made in one of two ways. There is a gap between the back mattresses opposite to the buttocks. This can be occupied by a round cushion or the bedpan, or, if the patient is incontinent, or if a nurse is not in constant attendance, the bedpan is placed outside the cage supported on a special metal arm, which can be swung into place or outwards as may be desired.

I have found this type of bed-frame of the utmost service for all kinds of serious spinal disease, and especially for those necessitating bone grafting or laminectomy. Then, too, fractures of the spine, with or without paraplegia, almost demand some such appliance. The back, the buttocks, and the skin require daily attention to prevent bed-sores, and it is almost impossible to move such a patient without great risk and great pain, unless

some mechanical device is provided. With this bed one nurse can manage the case single-handed without effort or strain. With the ordinary hospital bed a patient with a fractured spine can only be turned by the united efforts of two, three, or four nurses, and each turning movement is painful and risky. In addition to cases of spinal disease or injury, those of fractured pelvis are most conveniently treated on this bed. The pelvis and buttocks are firmly held when the patient is turned over.

The bed is made by Messrs. Nesbit Evans of Wednesbury, and can be obtained from Messrs. Down Bros., 21, St. Thomas Street, S.E.1.

THE PERMEABILITY OF THE BODY TO INFRA-RED RAYS

PRELIMINARY COMMUNICATION

BY

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It is impossible to work with the Finsen light on lupus, or with the Kromayer lamp on tuberculous or other glands, without being convinced that clinically these apparatuses behave quite differently when compared with any of the ordinary methods of giving ultra-violet light to the body. The Kromayer lamp is essentially a mercury vapour lamp, and even when care is taken that the dose, as judged by skin erythema, is the same, the mechanical and physical differences between these two lamps are significant. In the Kromayer the rays emitted from the mercury arc travel through a very small air space, then through a circulating body of cold water; they then pass through quartz direct to the part to be treated, which is rendered as far as possible avascular by pressure. In the ordinary mercury vapour lamp the rays emitted pass through a relatively wide air gap before reaching the skin. The clinical differences observed must therefore be due either to the absorption of some ray in the air in the one case, to the removal of some other ray or rays by the water in the other, or to the greater permeability to some useful ray possessed by quartz and water in comparison with air.

Some three years ago Professor T. R. Merton kindly gave me the benefit of his technical advice on these observations, and pointed out that the water film cuts off all rays above about 11,000 Angström units, but that in the mercury vapour arc there is a strong band of infra-red rays between 7,000 and 9,000 units, and that it might be this band that accounted for the clinical differences, particularly in tissues below the skin. He supplied a filter that cut off the ultra-violet part of the beam, and experiments with this showed that his surmise was correct, and that reduction in glandular swellings could be effected without the production of the skin erythema associated with ultra-violet light irradiation. The drawback to the routine use of this filter lay in the fact that, while eliminating the ultra-violet, it also reduced the energy of the infra-red beam, and necessitated a greatly prolonged dose to produce adequate clinical response.

The production by the *Times* of their wonderful series of infra-red photographs reawakened my interest as to the possibility of using a similar process for taking photographs through the body, in the hope that, if successful, the rays would be found to penetrate tissues in a different ratio to *x* rays, and to show up structures not well delineated by the latter. They would thus form a complementary method for giving information about the internal condition of the body, particularly the soft tissues in and around joints.

PRELIMINARY INVESTIGATIONS

That rays towards the red end of the spectrum pass more readily through skin tissues is, of course, known to everyone who has held his hand to the bright sun and seen the pink appearance of the fingers. Carl Sonne[1] and Cartwright[2] have discussed the penetration of infra-red rays, and the latter, using a vacuum thermo-couple, took photographs of the spectrum on infra-red plates after passing a beam of light through the cheek. The diagnostic possibilities of the permeability of tissues to the infra-red rays do not, however, appear to have received attention, nor can any attempts be traced in the literature towards making these rays penetrate and emerge from the thicker parts of the body, and registering them on emergence.

With my experience of the Kromayer lamp, and the *Times* photographs in mind, I approached Mr. Bloch, Mr. Flower, and Dr. Harrison of Ilford Limited, who kindly endeavoured to obtain photographs through the hand, and, though these showed clearly that infra-red rays did go through the thickness of the fingers, the comparative insensitivity of the plates as at present manufactured so prolonged exposures that they made the method impracticable, even for such thin structures as the fingers, and quite impossible for the thicker parts of the body. I therefore asked Mr. Bloch if he would attempt to pick up the emergent ray on a photo-electric cell, and demonstrate its presence by a deflection, if any, on a suitable galvanometer. A diagram of the apparatus set up by Ilford Limited for picking up the emergent ray is illustrated in Fig. 1. It will be seen to consist simply of

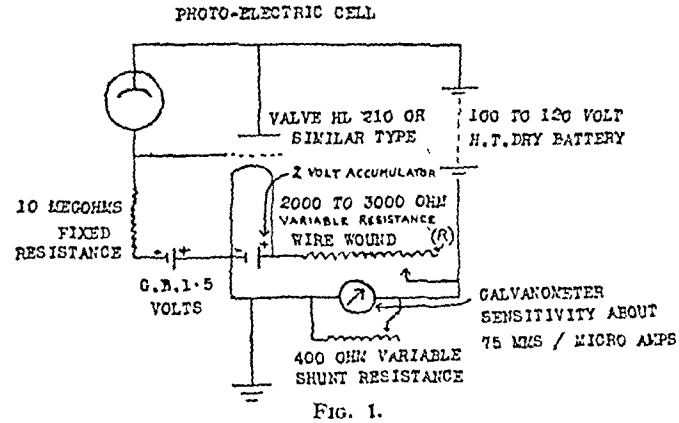


FIG. 1.

a photo-electric cell particularly sensitive in the region of 7,000 to 9,000 Angström units, and a single-valve method of amplifying any alteration in the current flowing in the filament-plate circuit, such alterations being indicated by deflections on the galvanometer inserted in this circuit.

TECHNIQUE AND RESULTS

It then only remained to provide a source of infra-red light in such a position that the beam would fall upon the photo-electric cell. This was done by an ordinary 50-watt or 100-watt lamp in a light-proof casing with an infra-red filter upon the side facing the photo-electric cell. The cell was also encased in a light-proof metal shield, with aperture to admit the incident beam. The gap between the filter and the shielded cell was sufficient to admit a wrist or forearm, and also a movable screen opaque to infra-red rays. In the preliminary investigation a reflecting galvanometer was used, and the experiments were carried out in a dark room, so that stray beams of light should not be reflected off the skin and produce misleading deflections. These experiments showed that, with appropriate sensitivity in the amplifying instrument, a wide deflection of the spot of light could be obtained after the infra-red beam had been passed through

a wrist. The next step was to endeavour to obtain a permanent record of the deflection so that variations in normals and abnormals could be measured and possibly standardized. The electrocardiograph galvanometer and recording camera appeared to provide the possibility of doing this, and the leads for the galvanometer were carried to a pair of Einthoven leads of a standard Cambridge instrument apparatus kindly loaned by Dr. Jenner Hoskin. The procedure was then to put the fibre at a prearranged position on the scale, with the infra-red opaque screen in place, and turn on the source of infra-red light to make sure that no deflection occurred. The wrist or forearm was then interposed and closely applied to the infra-red filter, so that all rays emerging through the filter were bound to fall upon the skin and skin only. The screen was then withdrawn, and the string of the galvanometer at once deflected and returned to its original position on replacing the screen. Photographs of this deflection were then taken by allowing the plate to fall in the usual way, removing the screen, and replacing it a few times as the plate fell.

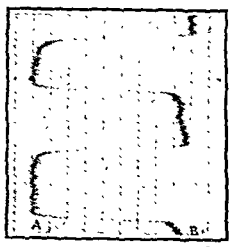


FIG. 2.—H., male, aged 50. Left wrist-joint, with centre of beam between styloid processes.

The accompanying graphs from three different individuals (wrists and forearms) with the same setting of the machine were then secured. It is not possible to state at this stage that the wide variations shown by these graphs are due entirely to differences in the permeability of the structures through which the rays pass. It is only possible to state that repeat experiments yielded similar results. In the illustrations A indicates the position of the fibre with the screen inserted; B indicates the position with screen withdrawn.

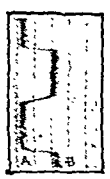


FIG. 3.

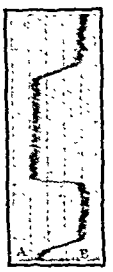


FIG. 4.

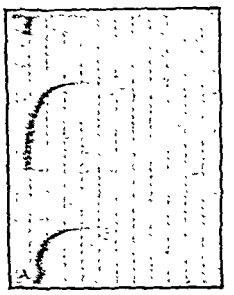


FIG. 5.

FIG. 3.—M., male, aged 30. Wrist-joint, with centre of beam between styloid processes. Transverse diameter of this wrist was 3 mm. more than in Fig. 2.

FIG. 4.—M., male, aged 30. Right forearm, a few inches above wrist-joint.

FIG. 5.—H., male, aged 21. Left wrist-joint, with centre of beam between styloid processes. In this case the subject is of altogether more slender build than either of the other two cases. The deflection of the fibre is so great that the "B" position is unknown, being off the plate.

DISCUSSION

These photographs can therefore be taken to establish the fact that infra-red rays of 7,000 to 9,000 Angström units can pass completely through the wrist and forearm. Also, as the source of energy was limited to a 100-watt lamp, and the sensitivity of the string of the galvanometer was only 3 mm. for 3 millivolts—that is, one-tenth of the sensitivity used in taking heart tracings—that, with greater incident energy and increased sensitivity of the galvanometer, thicker parts of the body than the forearm should be capable of penetration and the deflection of recording.

This preliminary communication is made in the hope that others will explore the wide field opened up by these records. Questions such as the following naturally occur:

1. Is there a "normal" for parts of a given diameter?
2. What factors influence variations from the normal other than physical thickness of the part—for example, age, sex, etc.?
3. Is there any variation in disease? For example, does an arthritis of one wrist produce a deflection different from that obtained by the wrist of the other side?
4. With increasing power and sensitivity of recording, what are the limits of thickness of the body to the passage of the infra-red ray?
5. Can anything be done to increase the speed and sensitivity of plates and films sensitive to these rays, and thereby obtain direct photographs?

Other questions also naturally suggest themselves, but I am endeavouring more particularly to obtain further information on Questions 1 and 4.

It would not be appropriate to close this communication without again extending my grateful thanks to Messrs. Ilford and their technical staff, Mr. Bloch, Dr. Harrison, and Mr. Flower; to Dr. Jenner Hoskin; and last, but not least, to Mr. Holt, whose technical knowledge and skill has materially assisted in obtaining these records.

REFERENCES

[1] Sonne, Carl: *Arch. of Phys. Ther., X Ray and Radium*, March, 1929, x, No. 3, p. 93.
[2] Cartwright, C. H.: "Infra-red Transmission of Flesh," *Journ. Optical Soc. Amer.*, 1930, xx, No. 2.

RADIUM BURNS

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The incidence of radium burns during or following surface radiotherapy by the plaque method is not often mentioned when quoting cases, but it must, of necessity, be proportionately high where a biological unit of radium exposure has not been attained. With the object of helping the radiotherapist, therefore, the following brief account has been compiled.

No statement would be adequate unless some clinical method for calculating the dosage were stated. It has been found that the skin undergoes certain changes during irradiation, beginning with an erythema towards the third day, and passing through an oedematous stage to tissue necrosis somewhere about the sixth to tenth day. The oedematous stage should be the aim of the therapist during treatment; it occurs rapidly in the course of twenty-four hours. All treatment should then cease, as the skin has reached its limit of tolerance. When this simple rule is applied the skin rarely ulcerates.

The caustic action of the β ray is too often neglected during treatment. The β ray is not tolerated nearly so well by normal tissues, and destruction must follow when the areas are exposed to high intensities for short periods or to low intensities for long periods. The burn may be immediate or latent. If the former, it develops during treatment or at any time up to three months, and may vary in form from a simple erythema to desquamating patches and finally definite ulceration. Later these may become excavated areas with a yellowish grey slough and persistent discharge (purulent or watery). Pain is usually severe and healing obstinate. The delayed burn occurs any time after three to six months, and is manifest by an ulceration of the skin following some irritation or friction.

PREVENTION AND TREATMENT

The following details have been tabulated for clearness:

1. Radium treatment should not be given to patients suffering from cachexia, anaemia, a white cell count under 5,000 per c.mm., diabetes, nephritis, extreme obesity,

Mr. A. J. WRIGLEY dealt with the management of uterine inertia in the second stage of labour. He emphasized that cases in which uterine exhaustion was secondary to a mechanical obstruction were not to be considered in the discussion; for the common type of delay due to muscular resistance he unhesitatingly recommended the application of light forceps to the foetal head. He considered that it was quite unnecessary to await the onset of maternal or foetal distress before the light forceps were applied. He demonstrated to the meeting the forceps which he used, which weighed 11 oz. instead of the customary 2 lb. He wished the meeting to consider whether it would not be better for teachers of obstetrics to advocate the more frequent use of short, light forceps in the treatment of inertia in the second stage than to teach the strictly limited use of the orthodox heavy instrument, which was far too clumsy and bulky for this purpose.

Miss BEATRICE TURNER described the management of the third stage of labour as practised in the Obstetric Unit of the Royal Free Hospital. No drugs, such as pituitrin or ergot, were ever given before the placenta had been expelled. She had attempted to analyse the causes which had produced prolongation of the third stage in a series of 400 labour cases. In her series, third-stage inertia was present in 65 per cent. of cases in which forceps were used. Analgesic drugs given in the first stage seemed to have had little effect on the expulsion of the placenta, but the anaesthetic used for the second stage had a definite effect. Gas and oxygen seemed to improve the tone of the uterine muscle, and hastened the delivery of the afterbirth. Chloroform, on the other hand, had been found to result in delay.

GENERAL DISCUSSION

Dr. J. M. WYATT was against using hyoscine and morphine in large quantities, and thought that equally good results could be obtained by giving chloral, but it must be in sufficient doses. Twenty-grain doses were not sufficient—they should be 40 grains at least, or, as an alternative, paraldehyde, 6 or 7 drachms in olive oil, could be given per rectum with good results. In cases with ruptured membranes, with the foetus alive, he had found Willett's forceps applied to the scalp of the foetus the most useful instrument. He had one comment to make on Mr. Bell's statement that if the membranes had ruptured the risk of Caesarean section was greater: he felt that it came about from the fact that, in so many cases where the membranes had ruptured, much manipulation had taken place, whereas if no internal examinations had been made there was no greater risk to the patient. For the last fifteen years he had invariably given 5 units of pituitrin as soon as the baby's head was born. During that time he had never had a retained placenta, and he had found that the third stage of labour usually lasted only five minutes, and that very little blood was lost.

Mr. CARNAC RIVETT said that he was an advocate of the administration of small doses of chloroform, given only during pains, but he wished to state that in primary inertia he considered this form of relief absolutely contra-indicated.

Dr. J. S. FAIRBAIRN congratulated the openers on their papers. He considered that the only logical method of treating uterine inertia was to prevent it or to adopt measures which would have the effect of restoring normal function. He felt that there was a great deal to learn on this subject. Mr. GORDON LUKER considered that uterine inertia was to some extent preventable, and that prophylactic treatment had an important place. In his practice this treatment consisted in the administration of calcium and quinine for the last three weeks of pregnancy, and the employment at term of castor oil, a binder, hot bath, an enema, quinine, and bihydrochloride. The speaker had no doubt about their efficacy. He agreed with the use of pituitary extract at the end of the second stage of labour. His method was to give 1/2 c.cm. of pituitary extract before resorting to forceps. If the drug did not act successfully delivery was aided by forceps without delay.

In reply, Mr. A. C. BELL said that his advocacy of pituitary extract in the first stage of labour had been questioned. He had seen dramatic results from giving it in inertia; it could do no harm in doses of 1/2 c.cm. He wished to refer to one further point: it had been claimed that atropine would relax the rigid cervix. He considered that there was no foundation for that statement. Mr. Marshall, referring to Mr. Wyatt's doubt with regard to the importance of the ruptured membranes, said he did not consider it was right to say that premature rupture of the membranes did not increase morbidity following Caesarean section, but he was certain that the lower segment Caesarean operation definitely minimized the risk. Mr. MALIPHANT said that he had not had time to mention in his opening paper the subject of heredity in connexion with protracted labour. He knew of families in which childbirth was always unduly tedious and painful. Mr. NEWTON said that he looked with apprehension on early rupture of the membrane in primigravidae. In 150 cases where the membranes were not ruptured early he never had to interfere, but in sixty cases in which there was nothing wrong except early rupture, he had had to interfere in 6 or 10 per cent. of them. Artificial dilatation of the cervix made a big difference in foetal mortality and maternal morbidity. Mr. WRIGLEY, referring to the use of the light forceps, said that he had not meant to imply that the long curved forceps should be thrown out of use, but that that instrument should be used only by those who were experts in obstetrics. It was not adapted for being used indiscriminately for high head or low head.

THE ANAEMIAS

The present state of knowledge in regard to the anaemias was reviewed at the summer meeting of the Association of Clinical Pathologists, held in the pathological department of Ancoats Hospital, Manchester, on June 24th.

Papers were read dealing with pernicious anaemia, anaemia of the so-called secondary types, and the anaemia of sprue, and evidence was produced that, thanks to the advance in knowledge in the last few years, all these anaemias were now definitely remediable. It was agreed that in the case of pernicious anaemia it was perhaps incorrect to speak of "cure," and the same applied, though to a lesser extent, in the case of some of the "secondary" anaemias, but in all it was now possible, once a correct diagnosis had been made, to restore the patient to health, and under suitable treatment to maintain him there. It was pointed out that correct diagnosis was an essential preliminary to correct treatment, and that this could only be made by the employment of laboratory methods. In the discussion attention was drawn to the deplorable wastage resulting from failure in correct diagnosis and inefficient treatment. This wastage involved material in the prescription of expensive preparations, particularly of liver, to unsuitable cases, and in the use of highly priced commercial preparations of low potency, evidence being produced that the most highly priced preparations were by no means the most efficient; it involved human efficiency in the persistence of many individuals in a state of debility who, with proper treatment, might be in good health; and it involved human life from failure of correct diagnosis and inappropriate and inefficient treatment. It was pointed out that the National Health Insurance Acts were largely ineffective in remedying this wastage, owing to the fact that they provided for treatment only and made no provision for diagnosis or for the laboratory examinations necessary for the maintenance of health in cases of anaemia. At the conclusion of the meeting the following resolution was passed:

This association is of the opinion that the failure to provide laboratory facilities for the examination of the blood in the case of patients under the National Health Insurance Acts suffering from, or suspected to suffer from, anaemia is responsible for much wastage both of material and of human efficiency and life, and considers that centres should be established at which such laboratory service be available both for initial differential diagnosis and for the periodical examinations necessary to assure the maintenance of a sound state of health.

Reviews

DISEASES OF INFANCY AND CHILDHOOD

An important and ambitious contribution to the literature of paediatrics has just appeared in the form of a two-volume textbook, *entitled Diseases of Infancy and Childhood*,[1] edited by Professors LEONARD G. PARSONS and SEYMOUR BARLING. The Birmingham school of paediatrics can justly be proud of this production, to which there are nearly fifty contributors, including sixteen or so who have some connexion with London and six from either Canada or the United States. It is difficult to judge exactly what criteria have led the editors to choose their helpers in every instance, and the omission of some names from the list, such as those of Still, Hutchison, and Fairbank, will be disappointing to many readers at home and abroad. To have secured Edwards A. Park and Martha M. Elliot to contribute the section on rickets has resulted in a magnificent article marred only by the number of black babies chosen for illustrations which are scarcely typical of what is to be seen in this country. On the other hand, it is difficult to judge why it was considered necessary to go to Canada for the section on the premature child, which, excellent as it is, could have been done equally well by J. C. Spence, who has written in the preceding pages on the neo-natal period in a masterly manner. The introductory sections on heredity (by E. A. Cockayne), growth and development, peculiarities of disease in childhood and clinical methods in paediatrics (by A. G. Maitland-Jones), and on the care and management of the infant and child (by K. Tallerman and A. Rose), are all very well done, while contributions on the State and child (by G. A. Auden) and on infantile mortality (by E. W. Hope and R. E. Bell) strike a useful note to remind readers of the wider implications of paediatrics. In about seventy pages Dr. Tallerman has packed an amazing amount of information on infant nutrition, which is dealt with on modern lines and could scarcely be bettered. Dr. Reginald Miller writes on rheumatism, and it is excellent to have this expert's views collected and presented in his own well-known style. The diseases of the blood and blood-forming organs are authoritatively dealt with by Sir Humphry Rolleston, and no doubt the Birmingham school will seek to enlarge and modify some of this in subsequent editions in light of the recent work conducted there. The disorders of the ductless glands are well described and illustrated, but the picture of a cretin at the age of 3 should be replaced by that of an infantile sufferer, since it is at this younger age so important to recognize the condition if full cure is to be achieved. Volume ii (in addition to the section on the blood already mentioned) is largely taken up with sections on the respiratory, cardiovascular, genito-urinary, and nervous systems. These are adequately dealt with, and the congenital disorders of the heart are made much clearer than usual by K. D. Wilkinson's intelligible descriptions and illustrations supplied by Maude Abbott. The surgical disorders of childhood are dealt with in close conjunction with the medical diseases with which they are associated, and the surgical editor is to be especially congratulated on the skill with which this has been carried out and on the broad outlook thus obtained. Only a few of the authors and sections have been mentioned here, and this must not be taken to mean that others are less worthy of notice. In particular, the contributions by Professor Parsons himself are of that clear and admirable quality which is to be expected from him. On coeliac disease he is thoroughly at home, and has produced a scholarly monograph in a dozen pages. To sum up, it may be said that if a new textbook of paediatrics is really required there could scarcely be a better production. The index, running to nearly ninety pages, is excellent, the illustrations throughout are well produced, and a radiographic appendix contains a series of good photographs. As works of reference, especially in view of a bibliography at the end of each section, these two volumes will be found very valuable.

[1] *Diseases of Infancy and Childhood.* Edited by L. G. Parsons, M.D., F.R.C.P., and Seymour Barling, C.M.G., F.R.C.S. Two volumes Oxford Medical Publications. London: H. Milford, Oxford University Press. 1933. (Pp. xxxvii + 1,798; illustrated. £4 4s. the two volumes.)

The appearance of a tenth edition of *Holt's Diseases of Infancy and Childhood*,[2] revised by Dr. L. EMMETT HOLT, jun., and Dr. RUSTIN MCINTOSH, challenges comparison with the new work, and from this it emerges very well. The two new authors are to be congratulated on the skill with which they have retained so much of the valuable original matter while including so much modern material. Here also an extensive bibliography renders the book a most useful work of reference, and the Johns Hopkins school of paediatrics has a worthy successor to the original authors (Holt and Howland) in the person of Edwards A. Park, who, it is stated, has read over and criticized much of the present edition. It contains much new work, and especially on disorders of nutrition and diseases of the blood and of the nervous system it is thoroughly up to date. Dr. Emmett Holt, jun., has performed his filial task in a manner which will maintain the great reputation his father's book has won.

PATHOLOGICAL ANATOMY

The tendency of modern writers is to combine the two subjects of pathological anatomy and pathological physiology; many of the later textbooks of pathology have this character. There is still room, however, for works in which the anatomical standpoint is adhered to according to the old model, and Sternberg's Pathology[3] is one of the best examples of this type. The work is a direct descendant of Birch-Hirschfeld's textbook; this was recast by Ribbert about twenty years ago, and the revised book was immediately recognized as one of outstanding merit, and has since always been referred to as "Ribbert's Pathology." It maintained its position for many years without revision, but latterly was in danger of falling out of circulation. It was felt by the publishers that this would be a matter for regret, and accordingly they approached Professor Sternberg with a view to the issue of a new edition. Professor Sternberg undertook the revision, which he completed in 1927. He found it necessary to rewrite much of the material, but an endeavour was made to preserve the general plan and character of Ribbert's work unaltered. The book at once resumed its position as one of the leading textbooks on the subject, and a second edition has now been called for. In this, Professor Sternberg has brought the subject up to date and has added a large number of illustrations, many of which are photographs of unusual excellence. At the same time the general features of Ribbert's book have still been retained as far as possible, and readers of Ribbert will be familiar with many of the illustrations of the original work.

Textbooks on pathological anatomy exhibit a close family likeness, and it is often difficult to point out in what particulars an individual work differs from its

[2] *Holt's Diseases of Infancy and Childhood.* By the late L. Emmett Holt, M.D., and J. Howland, M.D. Revised by L. Emmett Holt, jun., M.D., and Rustin McIntosh, M.D. Tenth edition. London and New York: D. Appleton and Co. 1933. (Pp. xix + 1,240; 205 figures. 42s. net.)

[3] *Lehrbuch der Allgemeinen Pathologie und der Pathologischen Anatomie.* Zweite, vollstandig umgearbeitete auflage. Von Dr. C. Sternberg. Begrundet von Professor H. Ribbert. Berlin: J. Springer. 1933. (Pp. 650; 759 figures. RM 38; Geb., RM 39.80.)

contemporaries, and what are its particular claims. This appears to have been felt by the author, for he states in his preface that he had some doubt, considering the number of published works on the subject, whether another was required. Sternberg's Pathology is, however, a serviceable book. It is very complete and accurate as regards the information it contains, has the advantage of being of moderate size, and is written in a manner which renders the subject-matter readily assimilable. The descriptions are direct and concise, and free from discursiveness; they leave a vivid impression, and essential features are readily grasped. On the theoretical side also the author shows great judgement; here again essential points are clearly and briefly indicated, to the exclusion of all that is of doubtful value. The publishers have done well to revive this standard and authoritative work.

CRIME AND THE STATE

Penal reform has made strides during the last quarter of a century; there are even signs that its advance has been in some ways rather more rapid than is altogether desirable. Fewer people have been sent to prison, sentences have been shorter, and the conditions of imprisonment have been much improved. Probation has been increasingly used, especially for young offenders. On the other hand, public interest of recent years has been focused more and more closely on crime, and the impression has grown up that crime is far more prevalent than it really is. For this state of affairs it is impossible for the Press to escape responsibility. The popular newspapers make much of their profit out of reporting crime news in a sensational manner, and it is largely due to this immoral practice that crime has become romanticized and over-emphasized. As E. R. and T. CALVERT show in their interesting study,[4] the increase is far less in numbers than in popular interest. Unfortunately, there is a tendency to blame the reforms of this century for such increase in crime as there has been, and to complain that the treatment of crime has lost its deterrent effect. The task of penal reform is most complicated and heart-breaking, and the reformer probably meets more determined opposition than he would in any other field. The Calverts have attempted to examine the whole question critically in order to permit a clearer understanding of the problem. They have written their book in a live and interesting way. Books on reform are interesting in proportion to their content of facts as against theories and opinions, and the fact-content of this volume is exceptionally high. It is no small achievement to be able to compress into three hundred pages of large, clear type a survey of the reasons for punishment in general and of the present state of crime and criminal procedure, a critical essay on the prison system, and a marshalling of the chief arguments against corporal punishment and the death sentence. The Calverts conclude that the present system offends in many ways against science, reason, and humanity.

"A system which sends 20,000 people to prison every year not for crime but for poverty; which punishes people for physical and mental abnormality and judges sanity by a legal definition nearly a century old; which retains corporal and capital punishment; which seeks to train thousands of antisocial persons in citizenship by subjecting them to a prison regime which deprives them of the only conditions under which they can learn self-control; and which sets them free again by order of a judge who fixes the end of the sentence before the treatment has even begun; such a system is obviously still rooted in mediaevalism."

Moreover, these authors hold that the great reforms of recent years have been made in the right direction. They consider that in penal matters the nation stands at the cross-roads. The increase in crimes against property, largely due to post-war depression, has led to an ignorant demand for a return to old and bad methods. They see a paramount necessity for every citizen to understand the true facts about crime and to resist a stampede into measures which will only aggravate the great evils of the present. This is easily the best book on penal reform that has been published in the last year or two. It has been criticized, probably with justice, by those who actually have to administer the penal system as being destructive and unpractical. Nevertheless, it is necessary to understand an evil before a rational attempt can be made to deal with it, and the book abounds in constructive suggestions which, even if they are not within the realms of immediate possibility, should at least be kept in view as ideals.

Dr. W. A. WHITE is a psychiatrist of very long experience in dealing with insane prisoners in America. He indicates[5] that the problem in the United States has the same elements as in this country, but is much graver. He writes from the point of view of the psychologist—in fact, he describes the book as an essay on the wide topic of human relations, illustrated from the field of criminology. The result is that, although most of his argument is well founded, it is so largely general and theoretical that its appeal as a practical contribution to the problem must be very limited.

OPERATIVE SURGERY

In the third edition of Mr. E. W. HEY GROVES's textbook of *Surgical Operations*[6] some new sections have been included, and a number of illustrations have been redrawn or added. The book is designed for nurses and for medical students, and aims at presenting a simple account of general and special surgical technique. That it has reached a third edition shows that it has proved its use. The general plan remains unaltered, the operations described are those which the student and nurse will see performed frequently in any modern hospital, and the aim of the author has been to make their purpose intelligible as well as to describe their steps in order. There are a few additions which seem worth suggesting. A description of the citrate method of blood transference might be included in the paragraph on blood transfusion in view of its common use and simplicity. The only method described is that by means of the paraffined cylinder. Some further information might advantageously be given about the use of the diathermy knife, and a reference be made to it in connexion with brain surgery; there is no reference to the use of the current for haemostasis. It may not be the author's custom to perform gastro-enterostomy in cases of perforated gastric and duodenal ulcer, but mention might well have been made of it in view of its frequent practice. Special sections are devoted to general technique and sterilization and to the after-treatment of abdominal operations, and at the end of the book there is an appendix of illustrations of instruments.

The amount of surgical knowledge which is expected by the Examining Boards who control the registration of nurses is considerable. The standard which should be

[4] *The Law-breaker.* By E. Roy Calvert and Theodore Calvert. A Critical Study of the Modern Treatment of Crime. London: G. Routledge and Sons, Ltd. 1933. (Pp. xiv + 294. 7s. 6d. net.)

[5] *Crimes and Criminals.* By William A. White, A.M., M.D. New York: Farrar and Rinehart. 1933. (Pp. viii + 276. 2.50 dollars net.)

[6] *Surgical Operations.* By E. W. Hey Groves, M.D., B.Sc., M.S., F.R.C.S. A textbook for students and nurses. Third edition. London: H. Milford, Oxford University Press. 1933. (Pp. 263; illustrated. 18s. net.)

expected is a matter on which opinions differ ; as requirements stand to-day the nurse needs a textbook of this kind if she is to acquire a sufficiency of knowledge during her theatre training. Mr. Hey Groves has done the difficult task of simplification well, and the book deserves its popularity.

DRUGS IN INDIA

In compiling so thorough a work of reference as his *Indigenous Drugs of India*[1] Lieut.-Colonel CHOPRA has thought fit to consult numerous works—some of them now difficult to obtain—and to embody the results of the last ten years' research on this subject, as carried out by him in the Calcutta School of Tropical Medicine. The result is of considerable interest. In the first fifty pages of his book he deals with the cultivation of plants in India, its medicinal exports and imports, drug adulteration, and the important problem of what economies might be effected by the use of indigenous drugs of proved value. As the Hindu, Ayurvedic, and Mohammedan systems of medicine appear to have made no progress in the last 1,500 years, the author urges the testing of the more promising of their innumerable preparations by modern scientific methods. It is of interest to note here that such methods have, with few execeptions, proved the drugs so far tried to be valueless. In Part II he deals with the Indian drugs which are of some value, and gives good accounts of our knowledge of such important ones as the aconites, the cinchona derivatives, digitalis, ephedra, cocaine, and opium, etc. Part III comprises a list of drugs which have been used in indigenous medicine—of the value of which little or nothing is known—and includes three pages of the names of drugs recommended for snake bite, many of which have been found by work in the Bombay Research Laboratory to be useless. Six pages are devoted to animal products. We note, however, that rhinoceros urine, the sale of which as a specific for rheumatism furnishes a considerable income to the Calcutta Zoo, has been omitted.

Notes on Books

The Swelling of Proteins and Allied Phenomena[4] is a volume of 124 pages issued by the International Society of Leather Trades' Chemists, which contains the papers read at a conference of the British section of that body last year. The volume comprises ten papers, all of which are of a high standard. Among the contributors are Professor Donnan, Mr. Adair, and Dr. Dorothy Jordan Lloyd. The contributors deal with some of the most difficult problems in colloidal chemistry, and it is interesting to find that definite conceptions regarding the nature of imbibition are gradually being formed. These hypotheses are based on schemes which depict the way in which the polypeptide chains of proteins are packed in gels. The matters discussed are of more immediate concern to the leather industry than to medicine, but they are also important to all who are interested in the problem of the structure of living protoplasm.

The *British Guiana Medical Annual*[5] has reappeared, and its twenty-fifth issue is dated 1932. It is issued by a committee of which the local Branch of the British Medical Association appoints a majority of members. A portrait of Dr. E. D. Rowland, the founder of the *Annual* and a most distinguished member of the British Guiana Medical Service, is reproduced as a frontispiece, with a short biographical note. The contents of the present issue include a record of the *Transactions* of the Branch in chronological order for the years 1925-32, the last three years being dealt with in fuller detail. The bulk of the volume is occupied by clinical articles. In one contribution the development of leprosy work in the colony is traced during the past six years. The range of the topics in this issue indicates the progressive nature of clinical practice and scientific research in British Guiana.

The approach of the holiday season has brought us two books which will be of interest to a good many members of our profession. *The Fisherman's Vade-Mecum*,[10] by G. W. MAUNSELL, is truly an encyclopaedia of fishing for salmon, sea-trout, trout, and pike, compiled from notes and the experience of a practical fisherman and arranged in a very convenient way. It is full of valuable and useful "tips," and should be in every fishing library. *The Angling Resorts of Scotland*,[11] by W. ROBERTSON, is a useful guide to fishing in Scotland. It is conveniently arranged, with a summary of the lochs and streams and particulars of the fishing hotels.

Classified Doses of the British Pharmacopoeia,[12] by B. L. STANTON, is a brochure containing the official doses, a list of the standardized preparations, and the strengths of the galenicals, etc., as given in the new *British Pharmacopoeia*.

[1] *Indigenous Drugs of India*. By R. N. Chopra, M.A., M.D. Calcutta: The Art Press. 1933. (Pp. 650. Rs.15.)

[4] *The Swelling of Proteins and Allied Phenomena*. International Society of Leather Trades' Chemists. 1933. (5s. 6d.)

[5] *The British Guiana Medical Annual for 1932*. Edited by G. H. Stevan, M.B., Ch.B., and A. G. Coia, M.B., Ch.B. Demerara: *Daily Chronicle* Office. 1933. (Pp. 187.)

[10] *The Fisherman's Vade-Mecum*. By G. W. Maunsell. London: P. Allan and Co., Ltd. 1933. (Pp. 474. 12s. 6d. net.; leather, 17s. 6d.)

[11] *The Angling Resorts of Scotland*. By W. Robertson, M.D. Edinburgh and Glasgow: W. Hodge and Co., Ltd. 1933. (Pp. vi + 139. 2s. 6d. net.)

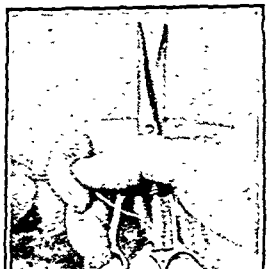
[12] *Classified Doses of the British Pharmacopoeia*. Compiled by B. L. Stanton, M.R.C.P. Melbourne: W. Ramsay Pty., Ltd. 1932. (Pp. 45. 2s. 6d.)

Preparations and Appliances

"LIGATURE SCISSORS"

Mr. C. ALEX. WELLS, F.R.C.S. (Liverpool), writes: The "ligature scissors" shown in the accompanying figure, which Messrs. Thackray of Leeds have made for me, are peculiar in that the blades are disproportionately long, which results in a bigger movement at the points than occurs at the rings. The shanks are made "bow-legged," and in between them a spool of thread is carried. This turns upon a spindle, which screws into a block fixed to one of the rings, and can be changed with ease.

The scissors are carried on the ring and little fingers of the operator's right hand, in the palm of which they lie, the points emerging between the forefinger and thumb. Some surgeons might consider it worth while having the spools wound with catgut, but personally I use the scissors only with thread, which is previously put through the autoclave. At the time of operation the scissors and thread are boiled up together with the other instruments, and, using a rustless steel pair, I have not found it necessary to resharpen the blade even after two years' constant use in all such perfectly clean and extensive operations as a radical breast, thyroidectomy, or gastrectomy. I cut the knots very short and have had no difficulty from the discharge of fragments, except in one thyroidectomy. The amount of thread contained in one spool is sufficient for any one of these operations.



A considerable economy in catgut is effected, but the real value lies in the time saved when the surgeon ties and cuts his own ligatures, more especially if a regular trained assistant is not always available. Surgeons who are accustomed to carry their own scissors and tie and cut their own knots will find the extra convenience of carrying the ligature material and the scissors together, in this way, well worth while.

STATE MEDICINE AND THE DANGERS OF BUREAUCRACY

A very outspoken address was delivered from the chair of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on June 23rd by Dr. WILLIAM BUTLER, the outgoing president. Dr. Butler retires from the service of the London County Council at the end of July under the rule as to the age limit. Before entering the Council's service in 1912 he was medical officer of health for Willesden. In recording the fact of his retirement, the Central Public Health Committee states that in the performance of his responsible duties Dr. Butler has rendered the London County Council able and devoted service.

THE REIGN OF LIBERTY

In the course of his address Dr. Butler said that the penetration of medicine into the domain of statecraft had resulted in the most profound modifications in the nature and conduct of its practice. Medicine to-day was the collective outcome of personal effort. It was a body of knowledge built up by individual pursuit and instructed practice, the issue of private investigations and findings open and free for all to adopt or reject. The fellowship of medicine had been, perhaps, the freest and most individualistic society that had ever arisen above the horizon of unintegrated anarchism. By no means structureless, it had no heresies or orthodoxies; there was no upsetting view it might not accept under the persuasion of evidence, no tenet it would not forgo under the constraint of fact. Medical practitioners in the widest sense had been the freest and most private of persons, observing, thinking, and doing as they would. The great discoveries of medicine had been conditioned by the assumption of this freedom. Whatever the future might show, medicine as we had it to-day was the embodiment of knowledge and practice that had grown under this reign of liberty. Such liberty as had been enjoyed was very likely only possible because medicine for the most part had been administratively unorganized. Primitive and slightly organized societies permitted a freedom perforce denied to complex communities.

State medicine in respect of liberty was antithetic to private medicine. Medicine in our own time had been private, independent, and aloof from the regulations which civic control imposed, self-determined in a way and degree that no organized State could countenance. And State medicine grew apace. Already it had submerged great tracts of the private field, and threatened to claim the whole domain. Of less than a century's growth, it had in the last two decades advanced its dominion far across the private frontier. Under these conditions would medicine sustain its triumphs? Was there ground for misgiving that under the new regime the fruits of endeavour would wilt, the endeavour itself be stifled, originality of thought, initiative, and the opportunity for their exercise be overgrown by mechanized systems wherein man was replaced by an impersonal team and a soulless administration?

THE OLD ORDER AND THE NEW

In its earlier phase State medicine claimed only the part-time service of a practitioner. Whole-time appointments when they arose were confined at first to Government departments, and presently were extended to the larger local authorities. Whole-time medical officers multiplied, justified their existence, and extended their field of operations. Instinctively antagonisms developed between the old order and the new. The solidity of medicine was threatened, and the disruption into official and private branches had culminated at times in mutual distrust and recrimination. There had developed—by no means universally, but enough to be mischievous—a lack of tolerance by the newer for the older forms of practice. The private practitioner had felt this growth of hostility, this lack of sympathy with him in his difficulties, which were so very much greater in his wide field and with his limited resources than those of his official brethren, with their narrower outlook and State-supported reserves; and he had not been helped by the exclusive turn which in relation to him had been given to the development of the State medical service. To take only one example, the tuberculosis officer was efficient in his restricted domain, but disease presented to him only one face, not the multiplicity of problems inevitably forced upon the practising physician, and he was apt, therefore, to direct the organization of medical services at the dictation rather of facility of administration than of an embracing outlook bringing in the essential unity of medical work. Dr. Butler made it plain that he was only taking the tuberculosis officer as an illustration of what was equally true in other departments.

Greatly as national health insurance practice had been criticized, and grave as might have been many of the defects in so wide an absorption into a State service of the poorest-paid work in medicine, the line of advance by inclusion of the established practitioners, rather than by the creation of new and independent officers to the exclusion of the existing profession, was in contrast to the development of the preventive side of State medicine; these distinctive lines of development focused at this point, and State medicine would take its character from the line which at this point of bifurcation it followed. School medical inspectors, tuberculosis officers, medical officers engaged in maternity and child welfare could all be recruited by the part-time employment of medical practitioners otherwise engaged in the general and specialized practice of medicine and surgery. The benefits to the official and to the practising branch of the profession by this arrangement would be mutual, and though administration would be more difficult, that would be a small price to pay for attaining the solidity and freedom of medicine. Uniformity on these lines might not be practicable, but in large urban areas a reversal of current practice was called for if the State medical service was to be saved from degenerating into a bureaucratic system.

The recent transfer of Poor Law hospitals to the county and county borough councils marked a greater advance in the development of a State medical service than the mere transfer of institutions from one body to another would indicate, for it was an assumption by the authorities of responsibility for hospital provision to meet the needs of the community so far as they were not already met. What this might portend they were all too near to the event to judge, but State medicine in its institutional development had taken its place beside State education, and it was scarcely avoidable that in time it should become all-embracing. It was the more necessary that at this stage the bias of all that medicine needed for its fostering should be given in the trend of its prospective growth.

CONFLICTING TRENDS

Was that trend to be bureaucratic, or was there to be continued the freedom of medicine? That was the issue, and it was momentous. Centralization, subordination, control, a militarized machine, with its precision of action and red tape, was the alternative to the retention by medicine of its freedom to be developed on its own lines and by its time-honoured methods. In private medicine the practitioner found what he would, and proclaimed what he had found, though it were shattering to the politician, an affront to the ecclesiastic, or anathema to the head of a department. There was no room for such excursions in a bureaucracy. The official was no longer a doctor moved from within by the light of his profession. He was free to think what he liked, but not to say or to do. The opinions he formed on matters he was charged to deal with might be presented or suppressed, adopted without acknowledgement, or changed and mutilated without his concurrence or even his knowledge. No longer at liberty to follow his bent, to select and retain the particular field in which he loved to work, he would be directed by a will other than his own. His relation to the head of his department was not that of practitioner to

consultant. It was not necessarily that the chief officer usurped the claim of the worker to the fruits of his labour, or stole the kudos normally awarded to original accomplishment. The chief officer, like his subordinates, was the victim of a system imposed by the tradition of bureaucratic government. But medicine could be fitted into it only with loss. For its suitable organization medicine called for a different type of administrative machinery. Its association with the State might be as intimate as public requirements demanded, but its relations must be looser and freer from departmental regimentation. The most human of men, the practitioner, must be left with scope for the play of his human virtues and weaknesses. The perfection of a surgical technique within the limits of municipal appointment by monotonously repeating a single operation would be an achievement scarcely worth the sacrifice of surgical enterprise that had given surgery its astounding victories.

But there was a worse fate, Dr. Butler continued, than the bureaucratizing of the practitioners of medicine—namely, to be regimented under the heel of lay bureaucrats. Whatever the evils medicine might suffer in becoming officialized under a homogencous and uniform organization, these were nothing compared with its fate should practitioners be mobilized and subordinated under the unsympathetic aegis of lay administrators. This was still to be apprehended as a possible ultimate danger. Doctors were instinctively disliked and distrusted by local authorities, whose outlook was primarily political. The uncompromising logic of facts presented with an impartial eye and leading to the unpleasant conclusions in which truth was prone to issue was incomprehensible and repugnant to such bodies. So far the instinctive struggle incessantly waged by medical officers had warded off the aggressive encroachments of the lay officials, but the struggle went on. The medical officer had a field wide enough for all his activities and coveted no man's vineyard. He was defensive only in his own domain, and sought to invade no foreign territory. If a battle was lost, he was shorn of his own ; if gained, he only retained it. All this was part of the bureaucratic process. This vicious trend might, of course, represent only the childish ailments which followed entry upon school life. But in the world organization of social activities everywhere to be observed isolated segregation was no longer possible. In the structuring of the new world now taking place it was necessary to see that it was so shaped that it left scope for the retention of individuality. It was so easy for those in administrative work to forget that they were administrators of medicine, and served primarily in its ranks. Dr. Butler ended by saying that he had spoken "as a bureaucrat to bureaucrats."

DISCUSSION

Professor MAJOR GREENWOOD, in proposing a vote of thanks, said that those present could hardly help sharing Dr. Butler's pessimism, though he himself thought there was a tinge of optimism in the prospect. Whenever he attended a comitia of the Royal College of Physicians he realized humbly that he as one of the "bureaucrats" could hardly rise to that serene atmosphere which pervaded such a body. And yet he took heart when he noticed that, although not actually the youngest person present, he would be regarded, even though in the early fifties, as one of the juniors. When all was said about "encroachments" of bureaucracy, it would still be true that probably the majority—certainly, if not the majority, a very large minority—were what the true-blooded Socialist rudely called "private adventurers." He found a parallel to the present transition in the state of the world at the time of the break-up of paganism. At that time really educated people of the ancient school—people like the Emperor Julian, for example—must have regarded the early Christian Church with a feeling akin to physical nausea, fearing that, with its disregard of all art and literature that really mattered, it might come to dominate the world. Yet, in the Middle Ages, there was reached the freest intellectual society that had ever existed in the world, the truth being that in a State where everybody was more or less an official of the Church one got a comprehension of all intellectual society, and attained really free thought. Was it not probable that a time would come, with the advent of the new generation, when everybody was more or less in the fold of bureaucracy, and within the bureaucracy itself there would arise the same intellectual differentiation as was found among the scholastic philosophers of the Middle Ages?

Sir WILLIAM HAMER, in seconding, contrasted the address with the presidential address to the Metropolitan Counties Branch of the British Medical Association to which he had listened earlier on the same day (*Supplement*, July 1st, p. 12). To a public officer Dr. Scott's address was the Turkey rhubarb, and Dr. Butler's the comforting jam!

A REPORT ON THE CLINICAL VALUE OF "EVIPAN"

(FROM THE ANAESTHETICS COMMITTEE, MEDICAL RESEARCH COUNCIL)

Encouraging accounts of the action of yet another barbiturate anaesthetic, "evipan," which came from German surgeons and anaesthetists, seemed to the Anaesthetics Committee to warrant a thorough clinical trial. Twenty-five thousand cases are reported from that country with one death attributed to "evipan." Accordingly, the offer of Bayer Products, Ltd., was gladly accepted, and supplies of the new drug were put at the disposal of the committee. In making use of these the committee had the co-operation of a number of anaesthetists, who have sent details of their cases and the opinions which they have formed. At St. Bartholomew's, Messrs. F. T. Evans and Rait-Smith ; at Guy's, Mr. R. C. Brock ; and at St. George's, Messrs. Douglas Belfrage and E. Landau have assisted in this way; and Dr. J. M. Barlet, Mr. C. Borland, and Mr. R. Jarman are others who, with Mr. C. Pannett, Sir Francis Shipway, Dr. C. F. Hadfield, and Dr. J. Blomfield, members of the committee, have furnished the material for this report. Evipan sodium is the sodium salt of *n*-methyl-C-C-cyclo-hexanyl-methyl barbituric acid, and dissolves freely in water, but the solution is stable only for an hour or two. Thorough pharmacological work carried out in Germany showed the drug to have a high therapeutic quotient in cats and dogs. In the former 25 mg. gave full anaesthesia, while the lethal dose was from 100 to 110 mg., a quotient of 4, and in dogs the quotient was 3.3. Parsons found that in the cat 0.1 c.cm. of a 10 per cent. solution caused a fall in blood pressure of 25 mm. Hg, with slow recovery, and apnoea for twenty seconds. After a total of 0.6 c.cm. of 10 per cent. solution artificial respiration was needed and the blood pressure fell until death. The anaesthetic action of the drug was rapid in onset and short in duration. It is not a volatile anaesthetic, but it is very rapidly detoxicated by the liver. Rabbits decompose half the narcotic dose within thirteen minutes. Traces of the unchanged substance are excreted in the urine. By-effects in animals were found to be slight. The blood pressure fell 15 to 20 mm. Hg. The pulse remained regular and full. Overdose caused cessation of the breathing, the heart continuing its beat for a considerable time after. Blood sugar was unaltered and other evidence of effect on body metabolism was of the slightest.

TECHNIQUE AND DOSAGE

When used for anaesthesia evipan is given intravenously. At first the drug was issued in ampoules each of which contained 3.5 c.cm. of 33⅓ per cent. stable solution in methyl-diglycol. Three c.cm. of this contained 1 gram of evipan sodium. Ampoules containing 7.5 c.cm. were also issued, and before use 3 c.cm. of the concentrated solution were drawn into the syringe and expelled into the ampoule containing the distilled water. The evipan solution was sticky, and required, therefore, a larger needle than the ordinary hypodermic size. Now, however, the evipan is supplied in powder form in

ampoules to which the distilled water supplied in another ampoule is added. By aspirating and reinjecting once or twice a solution is obtained which passes easily through the ordinary hypodermic needle. This is inserted into a suitable vein of the arm with due antiseptic precautions. It is advisable to have the arm held steadily by a second person because of the twitching of muscle which often comes on early after injection has begun. The solution is run in at the rate of 1 c.cm. in fifteen seconds. Dosage is determined by the characteristics of the patient and the results noticed. Acting on a definite scale arranged according to body weight does not give satisfactory results. An average amount to produce unconsciousness is about 3 c.cm. A good plan, recommended by Lauber of Königsberg, who has had a big experience, is to make the patient count. When the counting ceases through sleep the amount that has been injected is noted, and the same amount is further added for a short operation, and twice as much for a long one. In elderly and feeble people, and those who have gone to sleep exceptionally quickly, only half the amount which produced sleep is added. Most patients are asleep in about one minute. There is often some twitching or jactitation, but often complete relaxation of the muscles of tongue and jaw occurs early, and care is needed to preserve a patent airway. Generally speaking, 10 c.cm. are regarded as the maximum dose. When it is desired to complete a longish operation under evipan only, the needle must be left *in situ* and a further injection made when the anaesthetic effect of the first is obviously wearing off. Used in this way as much as 20 c.cm. has been injected. There is, however, a fluctuation in the anaesthesia, and we do not see evidence of any advantage in the use of evipan for other than short operations—that is, of twenty minutes or so at the outside.

SYMPTOMS PRODUCED

A deep yawn just before the disappearance of consciousness is a common symptom. The great majority of patients fall asleep perfectly quietly. Twitching of face muscles is common, and there is sometimes jactitation of limbs. In one instance tonic contraction of many muscles and brief stoppage of respiratory movements were observed. The degree of muscular relaxation varies, but is rarely extreme or sufficient for an abdominal operation. The pupil is usually moderately dilated but active to light. In the early stages it is sometimes widely dilated. The conjunctival and, generally, the cornea reflexes have disappeared at the moment of fullest effect. Even then reflex movement at the start of operation has been seen many times. The eyelids are sometimes widely separated. The effects on blood pressure are slight. There is commonly a fall of about 20 to 30 mm. Hg, which is quickly recovered from. Respiration is often somewhat slowed, but there has been seen no serious depression except in one instance when, unknown to the anaesthetist, the patient, an elderly woman, had received a full dose of morphine and hyoscine before the evipan. The combined result was respiratory stoppage requiring, and removed by, artificial respiration and CO_2 with oxygen. It is inadvisable to give any sedative before evipan. No special preparation is needed, but it is of course desirable to have the stomach empty. Subjective symptoms as described by reliable patients are a feeling of quickly increasing lassitude which cannot be overcome and loss of consciousness in a few seconds. Experience shows, nevertheless, that it is best to wait two minutes after completing the injection before beginning to operate. The length of time of unconsciousness is usually about ten to twenty minutes after an average dose. After this time the patient can talk but is sleepy, and will drop off again if left quiet. When he finally wakes he remembers nothing after the first prick of the needle. As in the case of other anaesthetics there is considerable difference in the reaction of different persons to evipan, and the exact behaviour cannot be foretold. The patient may go to sleep with no apparent difficulty and the usual signs of anaesthesia be present, and yet there may be movement on incision to an extent demanding a supplementary anaesthetic. On the other hand, it often happens that merely 3 c.cm. give a perfectly satisfactory, though of course only a short, anaesthesia. Our experience does not corroborate the statement of Ernst that one can reckon almost always on half an hour's good anaesthesia. We are led to believe that in Germany the surgeon is satisfied with a narcosis which is not regarded as enough by most operators in this country. Certainly the German reports describe a more constant and sufficient anaesthesia than has been obtained here by the same dosage and technique.

CONCLUSIONS

It is obvious from what has been stated that evipan is not to be regarded as a basal narcotic in the sense that, for example, nembutal and avertin are. Its action is so evanescent that it cannot be employed, as are these drugs, for procuring a longish period of quiet or of unconsciousness before the administration of the anaesthetic proper, nor can it be used, as are the basal narcotics, to put the patient to sleep in his bed in order to avoid all knowledge of transference to the operating theatre. If it is used before another anaesthetic this must follow closely on the administration of the evipan, and as a preliminary, therefore, it is to be classed with nitrous oxide and ethyl chloride rather than with the basal narcotics. For those who like intravenous methods it is certainly an admirable means of inducing anaesthesia, all opinion agreeing as to the rapidity and pleasantness with which the patient becomes unconscious. Excitement or restlessness during induction have been seen only in unusually emotional subjects. After-effects also are of rare occurrence. It can be relied on for an excellent anaesthesia in minor surgery—that is, for short operations when the possibility of slight reflex movement is not a matter of great concern. It is true that often the anaesthesia is profound, and that by repeating the injection it can be prolonged; but it is not obvious that this is a better procedure than usual methods, such as gas and oxygen, for example. The recovery free from after-effects and the quiet induction make evipan a valuable agent in the case of persons gravely ill for whom a short anaesthesia is desired for any reason. There are many such instances when it would probably be preferable even to nitrous oxide. Two examples of this kind may be quoted from our series.

A man, aged 62, suffering from aortic regurgitation and arteriosclerosis, had amputation of the great toe for gangrene. He received 6 c.cm. evipan. Sleep was induced in half a minute. The operation took ten minutes, during which time the anaesthesia was all that could be required. After twenty minutes he woke up yawning and was talking a minute later. Half an hour later he fell asleep and slept for six hours.

The other example was a man of 36 years, extremely ill with empyema after pneumonia. He was regarded as unfit for a general anaesthetic. Nevertheless, it was decided to use evipan, of which 10 c.cm. were injected. Anaesthesia was good, and the operation, rib-resection, was completed without anxiety. The patient was fully awake after three-quarters of an hour, and suffered no after-effects.

A few trials have been made of the efficacy of evipan by the mouth. It is described as proving less efficient thus given than nembutal in the same circumstances. Nevertheless, two or three of the tablets in which it is provided for oral administration are a useful hypnotic, generally causing sleep in a short space of time. It is a useful agent with which to break a habit of sleeplessness.

At the annual general business meeting of Dr. Barnardo's Homes: National Incorporated Association, the report showed that 113,236 destitute boys and girls had entered the homes up to the end of 1932, and that 1,735 boys and girls and babies were admitted during that year—1,531 permanently and 204 temporarily. About 80 per cent. of the admissions came from the provinces and 20 per cent. from the metropolis. Almost every county was represented in this total of admissions. At the end of the year 8,420 children were in residence; 410 of the children are of the sick, crippled, or afflicted class, yet the death rate among the Barnardo family is remarkably low, only 3.37 per 1,000 in 1932, and this notwithstanding that the majority of the children when admitted had suffered from privation, malnutrition, or in some other way. There are several hospitals, hospital homes, and convalescent homes attached to the work, and during the year a new convalescent home was opened at Bognor Regis.

British Medical Journal

SATURDAY, JULY 8th, 1933

THE UNIVERSITY OF LONDON

On June 26th, in the presence of a company representative of all branches of learning and of many nations, His Majesty the King laid the foundation stone of London University's new buildings. "She has waited long," said His Majesty, "for a home that she could truly call her own, and we all now rejoice to see the beginning of a finely planned group of buildings which will serve as headquarters for her far-reaching work and influence." This influence has indeed been far-reaching. To thousands it has been of that noblest kind expressed in Mr. Drinkwater's Graduation Song:

> In field or market-place or mill,
> Beneath a dear or alien Sun,
> We'll build a generation still,
> Of faith and honour here begun.

Even to those to whom the University of London has been no more than a relentless setter of questions, she has at least brought home realization of the difference between knowledge and half-knowledge. Perhaps, if we could know the lives of all the thousands who have graduated in this university in the 100 years of its existence it would not be the famous scholars and scientific investigators on her roll whom we should proclaim to have been her greatest glory, but men and women who lived and died unknown to fame, yet had been encouraged by the mere "examining body" to discover for themselves something of the beauty and the marvel of science and the humaner letters.

But most of us are helped by the external symbols of spiritual things and have lamented that the metropolitan university lacked any such embodiment. A Londoner visiting Oxford or Cambridge can admire without envy, for he may reflect that in these pleasant places towns have grown up around colleges, but London could never be a pendant to any university, however august. The Londoner's admiration of the University of Glasgow's buildings might be tinged with envy, for the site has been so chosen that, although teachers and students are undisturbed, the youngest of them, looking down on the great city, could not make the mistake of thinking that the town exists for the university. The new buildings of London University will not command so fine a prospect as does the University of Glasgow, but they will enjoy a reasonable peace, and those who work in them will be in no danger of forgetting that university life is but a fraction of human experience. Those who work there will, indeed, be a very small proportion of London's university population; to most the building must be not a workplace but a symbol. London's undergraduate teaching cannot, of course, be concentrated in any one building; in the future, as in the past, the most precious memories of student life will be of that best of education gained "in the argumentative walk or disputatious lounge: in the impact of young thought upon young thought, of fresh thought on fresh thought, of hot thought on hot thought: in mirth and refutation, in ridicule and laughter"; *those* memories will, for London graduates of our profession, hallow "Bart's," "Guy's," "The London," and other schools already old when the University was in swaddling-clothes. But, just as in an alumnus of Oxford or Cambridge, love of his college feeds loyalty to his university as representing something greater still, so to a London graduate the palace which is to be built in Bloomsbury should be a symbol and an inspiration of a greater loyalty. London University is the greatest federal university in the world; no other has to shoulder such varied responsibilities. In the past, men of good will, each emphasizing unduly this or that side of the University's work, have had differences of opinion which at times became so acute as to endanger the common cause. The new building is to be a symbol that those times of dissension are over; the pledge of a new age, or, perhaps, of the return of the golden age which Mr. Drinkwater's song exhorted London maids and London men to bring in again:

Magnus ab integro saeclorum nascitur ordo.

The part of the medical faculty in the development of London University has been large. There are at present more than 500 appointed and recognized teachers of the University in the faculty of medicine; no other faculty includes as many as 400. This generation has witnessed an immense development of medical teaching in London; the teachers will not suffer by comparison with their predecessors, and they enjoy material facilities undreamed of thirty years ago. Yet the position is not wholly satisfactory. It is still true that a large proportion of those who receive the whole of their institutional and professional training in the London schools never graduate in the University of London. It is even true that a sensible proportion of the students of that University who pass the second examination for medical degrees never graduate. We believe that this can be said of no other British university, and a difficult problem awaits solution—namely, how to increase the proportion of medical graduates without lowering the standard of the degree. It is common knowledge that the present medical curriculum, not in London only but throughout the British Empire, is proving a serious strain on both teachers and taught, and that the whole subject is under the consideration of a conference appointed at the close of last year on the initiative of the University of London. The membership of this conference, which includes representatives of the Universities of Oxford, Cambridge, and London, and of the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Society of Apothecaries, was given in our issue of December 10th, 1932. A special committee on medical education has also been set up by the Council of the British Medical

Association, and its interim report appeared in the *Supplement* of June 24th, 1933 (p. 283).

The problem under the consideration of these committees is a difficult one—namely, how to frame a curriculum which, while providing adequately for technical instruction, shall be fundamentally educational, in the highest sense of the word education, and capable of completion within a reasonable number of years. But, as anybody familiar with the history of the University of London will remember, only a few years ago the stage reached on June 26th seemed impossible of attainment. We may therefore reasonably expect, as well as hope, that the university problem which is of such interest to our profession will also be solved, so that London medical students of the future *may partake more fully than now of the advantages* of a university education.

HAFFKINE'S PLAGUE VACCINE

In September, 1896, plague broke out in Bombay, the starting-point in its invasion of India. At this time Haffkine was in India engaged in field trials of his vaccine for cholera. His services were secured by the Government of Bombay, and in October he commenced his studies on the bacteriology of plague. Within three months he evolved his method of preparing a vaccine, proved that it protected animals against inoculations of virulent cultures of *Bacillus pestis*, and demonstrated the harmlessness of his prophylactic to man by experiments on himself. The value of the vaccine as a means of individual protection was effectively demonstrated before long. About half of the inmates of a certain jail were inoculated, the remainder being kept as controls. Plague invaded the jail, and of 148 inoculated prisoners only two contracted the disease, both of whom recovered; while in 172 uninoculated there were twelve cases with six deaths. The publication of these figures caused so widespread a demand for inoculation that manufacture on a large scale was begun, with the result that to-day Haffkine's vaccine holds a primary place among plague preventive measures in India, where, in all, some thirty-six million doses have been issued for use. In his memoir on the subject, Lieut.-Colonel J. Taylor[1] points out that many years of observation and experiment have confirmed the value of the methods originally adopted by Haffkine, and, although changes and improvements have been made in details, the principles laid down by him have not been departed from in any essential. The author analyses records relative to more than 300,000 persons exposed to plague risk, of whom over 40 per cent. were inoculated, and concludes that Haffkine's vaccine gives approximately a fourfold protection against attacks of plague and an eightfold protection against death.

Less striking results than these were obtained during the Java epidemic of 1920–3. Here the procedure was to inoculate half the members of each family under observation in such a way as to provide for each protected person an uninoculated control, so far as possible of the same age and sex. Some such alternate system, Dr. de Vogel[2] asserts, must be adopted in order to obtain figures which are strictly comparable. The Java records deal with nearly 80,000 persons, of whom approximately one-half were inoculated with Haffkine's vaccine. Owing to the impossibility of securing proper medical surveillance of all cases of febrile disease and the consequent uncertainty in diagnosis, these statistics include only cases of plague which ended fatally, the diagnosis being determined by spleen punctures made after death. The mortality in the inoculated was one-half of that in the unprotected, a result considered disappointing. The epidemic in Java was due to a concurrent epizootic in rats, and there was no evidence of any cycle of infection from man to flea and flea to man. Consequently, it is contended, mass inoculation failed to control the disease, for the source of infection was unaffected, and the epidemic resumed its march when the protection conferred by the vaccine diminished or disappeared. Moreover, mass inoculation is less practicable in Java than in some other countries, for, owing to the climate, plague continues unabated throughout the year, and so there is no quiescent period when organized inoculation on a large scale might profitably be undertaken. For these reasons it was considered inadvisable to harass the population any longer by inoculation propaganda. Instead, all energies were concentrated on measures calculated to expel rats from houses and huts (for the local rat responsible for human plague is dependent on man for shelter), with results which are stated to have been highly successful.

The importance of the man-flea-man route of infection is emphasized by Dr. Ricardo Jorge[3] in the course of a fascinating dissertation on the history and epidemiology of plague. Dr. Jorge argues that in epidemics such as the Black Death this method of spread played an important and often even an exclusive part. Everyone in old times, he points out, whatever his social rank, was surrounded and infested by *Pulex irritans*, and so infection would easily be transmitted from person to person. Doubtless this statement is true as regards insect prevalence, but it might equally be employed to support the contention that in such conditions rat plague would be transferred to man all the more readily. *P. irritans* is most catholic in its tastes, and animals in flea-infested dwellings can be found literally swarming with human fleas which parasitize their alien hosts with the utmost content. The man-flea-man route probably serves to spread the disease in certain circumstances, but whether an epidemic of bubonic plague could maintain itself in man without an existing reservoir of infection in animals is open to question. Whatever our views on this particular point may be, Dr. Jorge's scholarly paper is well worthy of study.

[1] Taylor, J. *Indian Medical Research Memoirs*, March, 1933.

[2] De Vogel, W. T.: Office International d'Hygiène Publique, March, 1933, p. 451.

[3] Jorge, R.: Ibid., p. 425.

CANCER OF THE SKIN

A great deal has been learnt about the aetiology of cancer by a study of cancer of the skin. Here the disease can be recognized at a comparatively early stage, and a direct relationship can be traced to influences which appear to have predisposed to malignancy. One of the most important of these predisposing influences is occupation, shown particularly in workers exposed to soot, tar, radiations, and mineral oil. In the forms of skin cancer associated with these occupations it has been comparatively easy to prove the dangerous character of the patient's work, but in other types of skin cancer no obvious relationship to occupation has been discernible by ordinary clinical methods of inquiry. It is interesting to learn from Dr. Gretta Thomas's report on cancer of the skin, recently issued by the Ministry of Health,[1] that a careful study of occupation in relation to skin cancer has not revealed any new environmental conditions which predispose to malignant disease. In the majority of cases of cancer of the skin there is no evidence of the operation of a carcinogenic agent in the industrial environment. Next to the influence of occupation on the development of cancer might be placed the knowledge we have gained from skin cancer about the general structure of tumours in their early stages and the relation of benign to malignant tumours. With cancers of internal organs we have no means of finding out what was the size or shape of a tumour a few weeks or months before its removal. It is extirpated at a certain stage of its development: its early characters can only be inferred from the clinical history. Such observations as are possible all go to show that very many malignant growths develop in pre-existing non-malignant tumours or in injured or diseased tissues. With cancer of the skin the evolution of the disease can be watched and measured. One of the subjects to which special attention was directed in the recent Ministry of Health study of skin cancer was the relation of malignant diseases to preceding lesions, and the evidence collected provides very many examples of the development of cancer in previously existing non-malignant lesions of the skin. We have mentioned two aspects of the cancer problem which have been clarified by the study of skin cancer, but there are other features of the growth of epithelial skin tumours which appear contrary to expectations. For instance, in cancer of the lip there is a very peculiar difference in sex distribution. Cancer of the lip is about twelve times as common in men as in women, and the percentage of deaths from lip cancer to the total for cancer in England and Wales is 1.1 for males and only 0.1 for females. Now cancer of the lip is twenty times as common in the lower lip as in the upper, but when the upper lip is affected it is surprising to find that the susceptibility is reversed. What factor is there which can be responsible for this unequal distribution of cancer of the lip in the two sexes? It has been suggested that the minor injuries inflicted during shaving or irritation from sessile clay pipes may be contributory factors, but such explanations seem very inadequate. This sex distribution of lip cancer is unexpected and odd, but not the only instance of the unexpected in tumour pathology. Others may be found in the detailed survey of cancer of different regions of the body which forms the main content of the Ministry of Health report. The figures and opinions are based on an analysis of 503 cases of epithelioma of the skin treated in the General Infirmary at Leeds during the period 1911 to March, 1931, inclusive. The method of investigation adopted was as follows. The names of all patients with skin cancer appearing in the histological reports were first collected and then looked up in the clinical records. Most of the patients living within about a twenty-mile radius of Leeds were personally inquired for and interviewed, or in the case of those who had died, relatives and neighbours were questioned. Other patients living further away were traced by letters to them or their doctors. The carefully tabulated information provided by Dr. Gretta Thomas is a valuable contribution to the literature of skin cancer, and will be found useful for reference purposes.

[1] Ministry of Health Reports on Public Health and Medical Subjects. No. 70. A Report on Cancer of the Skin. By Gretta M. Thomas, M.D. H.M. Stationery Office. (2s. net.)

THE DIABETIC MOTOR DRIVER

A. Norgaard[1] makes a useful contribution to knowledge in discussing the conditions under which a diabetic should be granted or refused a driving licence. In some countries the problem is of considerable numerical importance. In Denmark, for example, the number of diabetics has increased enormously since 1890: in the five-year period 1890–4, only 86 patients were admitted to hospitals in Copenhagen for this disease, while the corresponding figure for the five-year period 1910–14 was 710, and for the five-year period 1925–29 it was 2,728. At present that country probably has about 5,000 genuine diabetics between the ages of 15 and 65, and among them there must be at least 3,000 receiving insulin. Of two conditions to which the diabetic is liable—coma and insulinism—the first is not likely to cause motor accidents because it develops so gradually. Insulinism, on the other hand, may supervene with catastrophic speed. Apart from its more pronounced signs such as giddiness, tremor, diplopia, weakness, and convulsions, there is another symptom-complex to which Professor Sonne has recently drawn attention. The patient becomes dazed, does the most extraordinary things, wanders aimlessly about without knowing where he is, and lacks initiative, although his outward appearance may present nothing remarkable. Sonne observed transient psychic abnormalities in 54 per cent. of his insulin-treated out-patients, and Norgaard has observed insulinism in 220 out of 777 diabetics. It is also significant that insulinism occurs more frequently outside than inside a hospital, being often provoked by the exertions and irregularities of daily life. Some diabetics are more subject to the condition than others, and while some are warned by prodromal symptoms, others are not. Hence Norgaard's conclusion that insulin treatment would be an indication for withholding a driving certificate. Diabetics not receiving insulin are at this stage of the disease comparatively safe as motor drivers. But the overwhelming majority of young diabetics must sooner or later take insulin, and it may well be a mistaken kindness to grant a driving licence to a young diabetic who wishes to earn his living as a motor driver; for, later in life, when it may be difficult for him to change his occupation, the advent of the insulin stage of his diabetic career may, by disqualifying him for motor driving, penalize him seriously.

[1] *Hospitalstidende*, May 18th, 1933, p. 17.

SIGHT-SAVING CLASSES AND THE CLASSIFICATION OF BLINDNESS

The International Association for the Prevention of Blindness has issued two reports that are of moment.[1] The report of the annual meeting, held in Paris in November last, is a document of fifty pages devoted wholly to the consideration of sight-saving classes or myope classes. There are printed papers read by Professor Pierre Villey of the Valentine Haüy Association; Mr. N. Bishop Harman of London (whose paper was published in the *Journal* on January 28th last); Mrs. Winifred Hathaway of the National Society for the Prevention of Blindness of the United States; Professor Martin Bartels of Westphalia; Dr. Auguste Dufour of the Central Swiss Union for the Blind; MM. Redslob of Strasbourg and A. Monbrun of Paris. Each of the papers dealt with the experiences of the authors in the working of these classes in their own countries. They therefore form a representative and highly informative body of evidence as to the scope and value of these classes. It was announced that at long last the French Minister of Education had authorized the opening of a class in Paris. All these papers have been translated into English. At the general assembly of the Association held in Madrid in April last the main subject of consideration was the classification of causes of blindness. Papers were read by Professor Marquez of Madrid, Mr. Bishop Harman, and Dr. Marx of Rotterdam. There was a discussion, in which Dr. A. J. Ballantyne of Glasgow took part. The report of this meeting has been published, the papers being in French. It shows that there are two schools of thought displayed in this matter. One, as exemplified by Scottish and North English schemes, advocates a highly elaborate schedule which seeks to cover an enormous mass of detailed information; and the other, advocated by Mr. Bishop Harman, and adapted for use by the London County Council and some other councils, which seeks to bring the different causes of blindness into a minimum number of categories. The assembly appointed a commission to examine and report on the problem of the classification of the causes of blindness, with Dr. Maziny (Egypt), Professor Marquez (Spain), Dr. Park Lewis (U.S.A.), Professor de Lapersonne (France), Mr. Bishop Harman (Great Britain), Dr. Marx (Holland), and Professor Van Duyse (Belgium) as its members.

IMMUNIZATION AGAINST TETANUS

In a recent communication, E. Sacquépée[2] draws attention to the occasional failures that are encountered in the attempt to prevent tetanus by the injection of antiserum. It is known that the effect of the serum wears off in about a fortnight, and that if tetanus bacilli are still present in the wound they may give rise to disease. In such cases tetanus develops after a long incubation period, often several weeks or months. In order to prevent the development of this late tetanus Vallée and Bazy, during the late war, recommended and successfully practised the active immunization of wounded persons by the injection of iodized toxin, over and above the usual passive immunization by the injection of serum. Since that date it has been found that the treatment of toxin with formol gives rise to a non-toxic substance which still retains its antigenic activity. This so-called anatoxin has been shown to be of value in the immunization of horses and of laboratory animals. In 1931 the use of this anatoxin was officially recommended for the prophylactic treatment of wounded soldiers in the French Army. The directions were that every wounded man in whom the development of tetanus was to be feared should be inoculated subcutaneously with 1.5 c.cm. of anatoxin, followed some minutes later, and at a different site, by a suitable dose of serum. A second dose of anatoxin should be given twenty days, and a third thirty days later, 2 c.cm. being injected. To judge the efficacy of this treatment the author has tested the antitoxin titre of the blood serum of 240 patients six months after the injury. Taking one unit of antitoxin as that amount capable of neutralizing a quantity of toxin corresponding to 1,000 lethal doses for a 350-gram guinea-pig, it was found that the distribution was as follows: 1 serum contained 1 unit; 6 serums contained 2/3 U.; 120 serums 1/5 U.; 68 serums 1/15 U.; 10 serums 1/20 U.; 22 serums 1/25 U.; 4 serums 1/30 U.; 3 serums 1/40 U.; 3 serums 1/50 U.; and 6 serums less than 1/50 U. per c.cm. It is not known how much antitoxin must be present in human serum to prevent the development of tetanus, but there are grounds for believing that the quantities found in these serums do represent the existence of a definite degree of immunity. The author concludes that anatoxin vaccination can be efficaciously combined with preventive serum treatment.

HOSPITAL POLICY AT BARROW

In this week's *Supplement* (p. 20) will be found an account of the dispute between the staff and the council of the North Lonsdale Hospital, Barrow-in-Furness, which has led to the threatened resignation of the former. The staff, in accordance with the Hospital Policy of the British Medical Association, wishes to secure for reward of professional services a percentage of the money paid to the hospital under a contributory scheme: the council of the hospital is unwilling to grant its request. Since its inception in 1908 the Hospital Policy has undergone considerable modification in the light of increasing knowledge and experience, but its fundamental principles have found ample vindication in the rapid change in hospital development during the last few years. It is upon a recognition of this change that the Policy is based. In the words with which it opens:

"Among the social changes of recent years none is more remarkable than that which has taken place in our hospitals. Originally charitable institutions for the general treatment of the very poor, they have become centres of highly specialized and complex service to which four-fifths of the population look for help and where the community as a whole claims as a right services which can only be rendered by a great organization or its dependent branches. Voluntary hospitals have become increasingly the hospitals of the worker and his dependants."

While the hospitals confined their attention to one class of the community, the poor, the profession gladly gave its services without thought of payment or reward. But to-day it supplies a wider, more specialized, and

[1] Association Internationale de Prophylaxie de la Cecité, 6C, Boulevard S. Michel, Paris, VIe.
[2] *Paris Méd.*, June 3rd, 1933, p. 491.

more technical service to the vast majority of the community, including those who can contribute directly or by insurance to its cost. The medical profession can no longer offer gratuitous service to men and women who neither need nor wish for charity. The contributory schemes, which are growing with extraordinary rapidity, are organizations not of the poor but of the provident. To become a contributor is to make a wise provision on an insurance basis for the possible contingency of illness requiring hospital treatment. The medical men and women upon whose skill and knowledge the hospital provision depends are—as a direct payment for their services—entitled to a proportion of the payments made by a contributory scheme in respect of its members. In Barrow-in-Furness the council of the North Lonsdale Hospital is unwilling to make this provision for its medical staff. In this industrial area approximately 80 per cent. of the population fails within the ordinary hospital limits of income. The workman who pays 2d. a week is entitled to full hospital facilities. No income limit is imposed. As is clearly set out in the detailed statement of the present position in our *Supplement*, the local profession has been forced by the hard circumstance of dwindling private practice to recognize that it is giving in hospital, without recognition or reward, a service that it formerly gave in private practice in return for reasonable fees. The Association suggests that of the total sum paid 20 per cent. should pass to the staff fund for payment of the doctors who do the work, but the Barrow-in-Furness Division, not unmindful of local and national depression, has shown its willingness to accept a proportion as low as 1 per cent., provided the fundamental principle is conceded. This dispute is of more than local importance, and members of the Association may well await the outcome of the present conflict with interest and concern, for nothing is more certain than that ultimately the interests of many who are now but observers will be profoundly affected. The Council of the Association has been acquainted with the details of the position, and has intimated its full support of the Barrow-in-Furness Division.

BRITISH POST-GRADUATE MEDICAL SCHOOL

As briefly announced in our last issue the Chancellor of the Exchequer will lay the foundation stone of the British Post-Graduate Medical School buildings at the L.C.C. Hospital, in Ducane Road, Hammersmith, on Monday, July 17th, at 4 p.m. This ceremony marks a further stage in bringing into practical operation the scheme recommended by the Post-Graduate Medical Education Committee appointed by Mr. Neville Chamberlain in 1925 and presided over successively by Mr. Chamberlain and Mr. Arthur Greenwood. The scheme is founded upon the association of the new medical school with a public hospital administered by the London County Council. The Government has agreed to contribute a maximum of £100,000 for the building and equipment of the school, and the London County Council, which is co-operating whole-heartedly in the project and without whose assistance the scheme would be impossible of fulfilment, has agreed to incur an equivalent expenditure on such developments and adaptations of the hospital as are found to be necessary at the present time in view of its forthcoming association with the school. The Government has also undertaken to provide in due course for annual grants towards the maintenance of the school as a recognized school of the University of London. The new teaching hospital will doubtless attract medical men from all parts of the world, and especially from the British Dominions and Colonies over-seas, and it should make London one of the chief centres in the world for post-graduate medical training and research. London House, the hall of residence for Dominion students, will enable those fortunate enough to be admitted to it to enjoy the advantages of residential collegiate life. The chairman of the governing body of the school is Sir Austen Chamberlain, who succeeded the late Viscount Chelmsford on the latter's election as Warden of All Souls' College, Oxford.

ANATOMY OF HEADLINES

Writing in praise of Dr. Johnson's real humanity and gentleness of disposition, Boswell said: "I shall never forget the indulgence with which he treated Hodge, his cat." Whether Hodge felt grateful is not known. But editors are often touched by the indulgence of long-suffering readers. Not long ago some sharp things about the illegibility of doctors' handwriting appeared in this column. They might have given offence, but so far only faint chuckling sounds have been heard. From handwriting to headlines is but a short step. Readers occasionally ask whether anything can be done to unload the titles of original articles and clinical memoranda in medical journals. The answer is that much can be done, and is done every week. "Observations upon the Inhibitory Influence of Intravenous Injections of an Aqueous Extract of the Gasserian Ganglion upon the Course of Generalized Gas Gangrene: with Report of One Case: Recovery: Death," has a comprehensive air, and may be (in its author's opinion) a snappy little heading; and yet a stroke or two of the blue pencil will make it more sightly and no less explicit. In former days the headlines of the Annual Meeting papers looked like memorial tablets on cathedral walls, and the change to a simpler form called forth no protests. On the other hand, a title can err on the side of brevity. "Burns" *tout court* may be all very well for a surgical monograph of 800 pages (or for a work of literary criticism), but is perhaps not precise enough at the top of a therapeutic note of 400 words. There are also embarrassing ambiguities which a vigilant sub-editorial eye will detect in time: for example, "Haemorrhoids from the Patient's Point of View." In regard to headlines for letters, we are grateful to the doctor who asked if the recent correspondence on "Genesis of Gallstones" is to be followed by another on "Exodus of Ditto."

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement* and *Epitome* have been prepared and will be ready shortly; they will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who desires to have one or all of the indexes can obtain what he wants, post free, by sending a post-card notifying his desire to the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1.

CENTENARY OF THE BRISTOL MEDICAL SCHOOL

The centenary of the Bristol Medical School was celebrated by the University of Bristol on June 30th and July 1st. A history of the school, written for this occasion by Dr. George Parker,[1] relates its origin from the fusion of several private schools of anatomy, of which the first was started in 1744, seven years after the opening of the Bristol Infirmary. In 1815 the Society of Apothecaries of London was authorized by Act of Parliament to examine and license all new apothecaries, as the general practitioners were called at that time, and to prosecute unqualified apothecaries. This Act required that candidates for qualification should attend at proper lectures and clinics. The Apothecaries' Society gave "recognition" to some of the lecturers in Bristol as early as 1828, and by 1831 a medical student could attend the whole course in medicine at Bristol, and obtain the licence of the Society of Apothecaries without any period of residence in London. This attitude of the Apothecaries' Society made provincial medical schools possible in England. The College of Surgeons (despite its title, "of England") strenuously opposed the provincial schools, insisting on attendance at a hospital of 100 beds in London or in certain Scottish or Irish medical centres.

Bristol formed in 1833 a very strong school by the combination of lecturers from various groups, urged thereto by Dr. Carrick. He was a Scottish M.D., senior physician at the Infirmary, and a man of great foresight and character. Carrick delivered the inaugural address at the opening of the school on October 14th, 1833. In this address he observed that now for the first time instruction could be given in Bristol in every department of medical science, and he expressed the hope that the medical school would before long form an integral part of the then flourishing "Bristol College," and share in its general literary and scientific training. Soon all the rival schools disappeared, and in 1834 the College of Surgeons was forced to capitulate, offering the same recognition as the Apothecaries had done. Thus the Bristol Medical School was launched on a course which led by various stages to incorporation in the University College (founded in 1876). Ultimately, when the University of Bristol received its Charter in 1909, the old medical school became the Faculty of Medicine in the University. It is this unbroken existence during one hundred years that has just been celebrated. The dean, Professor E. Fawcett, M.D., F.R.S., has occupied the chair of anatomy during forty years of that century, and has been dean of the Medical Faculty since 1906—a record of valued service and unremitting energy that it will be hard to equal.

COMMEMORATIVE FUNCTIONS

The programme of the celebrations was as follows. Friday, June 30th: 3.30 p.m., Receptions at the Royal Infirmary and General Hospital by the respective presidents, Lieut.-Colonel P. G. Robinson, D.S.O., and Miss Hilda Wills; 7.30 p.m., dinner at the University Union under the chairmanship of Professor Fawcett; 9.30 p.m., reception at the University by the Vice-Chancellor, Dr. T. Loveday. Saturday, July 1st: 12 noon, Congregation for the conferment of ordinary and honorary degrees; 1.30 p.m., luncheon at the University Union under the chairmanship of the Vice-Chancellor; 3.30 p.m., garden party given by the Sheriff of Bristol, Dr. W. Kenneth Wills, at the Royal Fort in the University.

The celebrations attracted a large attendance of past and present students; the Lord Mayor and the Sheriff of Bristol, delegates from numerous universities and medical corporations, and many other distinguished guests, honoured the occasion by their presence. Honorary degrees were conferred as follows. *LL.D.*: The Right Hon. Lord Dawson of Penn, President of the Royal College of Physicians of London; Sir Holburt J. Waring, President of the Royal College of Surgeons of England; Sir Norman Walker, M.D., President of the General Medical Council; Sir Frank Colyer, F.R.C.S. *D.Sc.*: Emeritus Professor E. W. Hey Groves, F.R.C.S. *M.D.*: Miles H. Phillips, F.R.C.S., professor of midwifery in the University of Sheffield. Three other honorary degrees will be conferred at a later date, upon Professor G. Elliot Smith, Professor A. V. Hill, and Professor R. Muir, who were unable to be present.

Dr. Parker's centenary history gives an account of the rise and fall of the various earlier schools, and a history, with many illustrations, of the Bristol Medical School from 1833 to 1933. With amazing industry he has included a complete list of students since 1833, with a few lists prior to that date. This work constitutes a notable contribution to the general history of medical education.

The *Bristol Medico-Chirurgical Journal* is fifty years old this year, and according to present plans a special jubilee number will be issued in September, giving a full account of last week's centenary festivities and a survey of Bristol's contributions to medical science in general.

[1] *Schola Medicinae Bristol: Its History, Lectures, and Alumni, 1833-1933* Bristol: John Wright and Sons, Ltd. 1933.

HEALTH OF SCOTLAND

DEPARTMENT'S ANNUAL REPORT

(*Concluded from page 21*)

An encouraging feature of the year's work has been the increased output of houses under State-aided schemes, the number of houses built having risen from 11,056 in 1930, and 10,654 in 1931, to 15,818 in 1932, with a prospect of continued progress in the present year, in view of the fact that the number under construction at the end of 1932 was 19,732. It is pointed out that if an annual output of not fewer than 16,000 houses could be maintained, the shortage in Scotland would be wiped out in a few years. Good progress has been made with the clearance of slums under the 50 per cent. grant provided by the Act of 1923, and 15,349 houses have been constructed under this scheme. There have been certain changes in connexion with the population which have had an important effect upon the housing question. The last census showed that the population of Scotland decreased by 40,000 between 1921 and 1931, but that while the landward population had declined by 90,000, the burghal population had increased by 50,000. Accordingly, to meet the latter increase, some 11,000 new houses may have to be provided in the next ten years in the neighbourhood of the larger burghs. Some 6,100 new houses will be required annually in Scotland. The subsidies paid by the Exchequer during the year 1932 in respect of houses erected by local authorities, private enterprise, etc., amounted to £1,699,404. An important feature of housing has been introduced by the Town and Country Planning (Scotland) Act, 1932, which gives comprehensive powers to local authorities to regard planning schemes as one of their major functions, and empowers the Department to transfer to small burghs powers and duties generally held by county councils. Several schemes have already come into operation, including a large scheme covering an area of some ninety-six square miles in the counties of Aberdeen and Kincardine. Other schemes have been submitted by the burghs of Edinburgh, Glasgow, and Dunfermline, as well as by the Clyde Valley Regional Planning Committee and the Fife Regional Planning Committee.

Sanitation

During the year the Department has approved the details for thirty-one water and drainage schemes intended to provide relief for unemployment, at an estimated cost

of £280,888. Of 114 villages visited, thirty-three water supplies were found to be in need of improvement. The returns for the year have revealed a considerable disparity in the costs for cleansing, estimated per head of the population, as between one local authority and another, and the cost of all services carried out by different cleansing departments has ranged from 11¾d. to 14s. 7d. per head of the population, incineration having proved to be the most costly form of refuse disposal.

Food Supply

A survey of the annual reports of veterinary inspectors has shown that routine inspection of dairy cattle continues to achieve valuable results. The Department holds that true economy is effected by supervision of milk supply at the source with sufficient frequency, and sixteen county councils have now arranged to carry out veterinary inspection three times a year in landward areas, and four times in burghs. As an example of the importance of this matter the experience of Lanarkshire is quoted. This county had 34,000 dairy cows in 1930 and 38,000 in 1931. In the former year, when there was only one inspection, 111 cases of tuberculosis were discovered, while in 1931, when the number of inspections was increased, the cases of tuberculosis discovered rose to 245. It is stated that herds which are recruited entirely by the purchase of cows in the open market are mainly responsible for the presence of tubercle bacilli in milk, and that these herds should be given special attention by more frquent veterinary inspection. The problem of the eradication of bovine tuberculosis has continued to occupy much public and official attention. While the Department believes that only a small proportion of the dairy cattle in Scotland is at any one time capable of infecting the milk supply with tuberculosis, the problem of dissemination of infection through large quantities of milk by mixing one infected cow's milk with hundreds of gallons of pure milk, is a difficulty inherent in the modern system of distribution in cities. An investigation into the prevalence of tubercle bacilli in milk has been carried out, and the general rate of infection of milk retailed in Edinburgh, Glasgow, Dundee, and Aberdeen has been found to be a little over 5 per cent. ; the examination of a large number of samples of certified and Grade A (T.T.) milks has shown these milks to be safe. The number of herds licensed for the supply of certified milk has risen from forty-four in 1927 to eighty-seven in 1931, while that for the supply of Grade A (T.T.) milk has risen from fifty to ninety-two in the same period. There are at least eighty-five other tubercle-free dairy herds in the country, although the owners hesitate to bring them under the grading system owing to the limited demand for tubercle-free milk. It is suggested that a substantially increased demand for this milk would do more than any other single measure to eradicate tuberculosis from dairy herds. Only two education authorities—in Edinburgh and Aberdeen—have made use of the powers of the Education (Scotland) Act, 1930, to incur expenditure in supplying milk to children attending schools within their areas. With regard to meat supply it is pointed out that, owing to the low prices obtainable for live stock, many farmers have undertaken the killing of their animals and the retail of meat, and that the entry of farmers into the meat trade has given rise to difficulties in connexion with abattoirs. Amendment regulations have recently been published in draft, requiring that, in future, imports of beef and mutton shall be accompanied by a veterinary surgeon's certificate of freedom from disease. It is hoped that the necessary arrangements with the Governments of exporting countries will be completed in time to permit of the new requirements coming into force during 1933. Samples taken during the year under the Food and Drugs (Adulteration) Act, 1928, totalled 16,402, of which 7,680 were formal and 8,722 test samples. During the year there have been several small outbreaks of food infection due to pathogenic organisms of the enteric group, and one of an outbreak of milk-borne scarlet fever. Attention is drawn to the fact that some cases of illness may be due to strains of staphylococci, as well as to organisms of the enteric group.

SERUM TREATMENT OF POLIOMYELITIS

SUPPLIES FOR THE LONDON AREA

The Medical Research Council announces that, after discussion with the Ministry of Health, the Public Health Department of the London County Council, and the Lister Institute, it has been decided to issue a supply of serum obtained from patients convalescent from acute poliomyelitis, with a view to its trial in the treatment of the pre-paralytic stage of the disease.

Encouraging reports on the results obtained by this treatment have been received from Australia and Canada, but adequate data are still needed to confirm its value, particularly in view of doubts which recent experience in America has cast on the reliability of the basic data.

With the co-operation of several hospitals a limited supply of " convalescent " serum has already been obtained and prepared for issue at the Lister Institute, Elstree, Herts. The main stock of this serum has been deposited at the Western Fever Hospital, Seagrave Road, London, S.W.6 (telephone, Fulham 2105), where suspected early cases will be admitted for observation and treatment in the pre-paralytic stage, and whence supplies of serum may be obtained by other hospitals and practitioners in the London area for use in appropriate cases. When the quantity of available serum is larger it is hoped also to be able to send supplies to different university centres for issue on demand in the provinces.

The serum will be supplied gratuitously on the understanding that the case-record forms enclosed in the cartons shall be completed and sent for collation and analysis to the Medical Research Council, 38, Old Queen Street, S.W.1. Full particulars as to mode of administration and dosage are contained in the cartons. It is essential that the administration of the serum should only be done by a medical practitioner or pathologist who is experienced in the technique of lumbar puncture and intrathecal injection. The serum is issued in outfits each containing four 25 c.cm. ampoules, or sufficient serum to complete the treatment of a single case.

Owing to the limited stock of serum at present available it is particularly requested that the treatment shall be used only in the *pre-paralytic stage of the illness*, or exceptionally in a pyrexial phase when the symptoms indicate a rapidly progressive invasion of the spinal cord as shown by extension of the paresis or paralysis. The serum should on no account be used in the post-febrile stage when the infection has become quiescent and paralysis is established: the evidence does not support its employment in this stage.

The attention of physicians using this serum is called especially to the *Memorandum on Acute Poliomyelitis*, issued in 1932 by the Ministry of Health (London, H.M. Stationery Office, price 2d. net).

With a view to increasing the stock of " convalescent " serum for use during the approaching season, practitioners and public health officers who know of convalescents, or groups of convalescents, willing to be bled are earnestly requested to communicate with the Lister Institute, Elstree, Herts. Arrangements could then be made to supply apparatus for the collection of serum, or, if circumstances permitted, to send a worker to perform the actual bleeding.

The tenth annual report of the *Journal of the American Medical Association* (May 20th) on the diphtheria mortality in the ninety-three cities in the United States with a population of more than 100,000, shows that the diphtheria death rate per 100,000 of population in 1932 ranged from 8.16 in the case of the West South Central States to 2.53 in the Middle Atlantic States. Five cities did not register a single death from diphtheria in 1932. New York, for the third year in succession, reported a very low rate (2.9 per 100,000), Philadelphia had the best record (0.8) for any American city with a population of more than a million. The city of Camden had the highest rate (8.4), as it had in 1931.

insurance should be something more than mere payment when a person was sick. It should attempt to improve the health of the country as a whole, and particularly of the class which came under the insurance. It should be co-ordinated with the public health system of the country. The present Bill would create an extremely powerful body whose duty it would be to carry out only one part of the health work of the country without contact at all with the other health activities. The societies had never concerned themselves very much with the health of their members; they had contented themselves with the provision of benefit. The Government would be able to exercise greater supervision at lower cost over one society than over sixty-five small societies. There was a danger, however, that one big society might interfere in political matters and try a political "pull." It would be powerful and effective, possibly in a dangerous way. With regard to certification, he did not question that evidence of laxity and remissness in the issue of certificates could be obtained. It was not, however, representative of the present system as a whole. Mr. S. T. O'Kelly, Minister for Local Government and Public Health, said that they were attempting to deal with a crisis that was threatening in national health insurance. When he came into office he was advised by the officials of the Department, who had had long experience of insurance, that a Bill of this nature was urgent. The danger was that if they did not tackle the problem in this way there might be reduced benefits. They thought it would be equitable to bring all the insured persons into one society, sharing credits and losses all over. Senator Dowdall said there was a consensus of opinion that unemployment caused the greater drain on benefits. It had been suggested that this was due to lax certification. He himself thought that a medical officer was entitled to give a certificate on borderline cases. The Minister replied that that was a matter for the conscience of the doctor, and he believed that the mass of medical men were humanitarian. Personally, his inclination would be to act generously, but as Minister he would be bound by the law.

England and Wales

Mental Welfare

The report on the conference on mental welfare, which was held last December in British Medical Association House, has now been issued in booklet form by the Central Association for Mental Welfare (24, Buckingham Palace Road, S.W.1), price 3s. 6d. It contains the addresses delivered on that occasion, together with a verbatim report of the discussion following each paper. The main topics dealt with were: the family care of mental patients; the scope and possibilities of home training; the social control of feeble-minded children leaving the elementary schools; inheritance, with special reference to mental inheritance; the value of family histories in the study of inheritance; and school retardation as a factor in certain conduct problems of childhood and adolescence. The volume has a definite value in that it represents the focusing of very different points of view on certain problems of mental welfare, both as regards their aetiology and their treatment. One conclusion which emerges clearly is that in this department of medical practice, as in others, early accurate diagnosis, combined with the essential treatment of the causes of the morbidity, rather than of the symptomatology, opens the way to a substantial programme of prophylaxis as well as to the relief of suffering. Sir Henry Brackenbury emphasized the importance of recognizing in this connexion the biological facts concerned, which he insisted were far too often overlooked. Even where cure was apparently unlikely there was much that could be done to alleviate the condition, and the requirements of financial economy should not be allowed to shelve the problem of mental deficiency as one of relatively little significance. The whole report is an effective championship of this point of view.

London's Hills of Refuse

Speaking on June 30th at a luncheon of the Advisory Committee on London Refuse, the Minister of Health said that, without being an alarmist, he must strike a warning note about the ranges of hills of refuse which were being accumulated on the outskirts of London at the rate of about a million tons a year. Unless the work was properly done, these hills of refuse would become a sanitary danger. In the past the work had not been properly done in all cases; he could not say that it was being properly done in all cases even now. There was still room for improvement, and improvement there must be for the sake of the public health. There was also room for improvement in the methods of collection of refuse. The standards of some authorities were not in this matter equal to the best. These were matters of first importance for the health of London. The primary responsibility was with the twenty-eight metropolitan boroughs and the City Corporation, and they had to co-ordinate their work with the authorities of the districts round London where the refuse was tipped. Most certainly some co-ordinating authority was necessary to act as a meeting place for consultation and a clearing-house for information. At his suggestion the present committee had been formed, representing the twenty-eight metropolitan boroughs and the Corporation of London. The hope and intention was that by means of this committee the necessary improvements in method could be achieved by voluntary co-operation. It was far better that it should be done voluntarily than that they should be obliged to have resort to compulsory powers, with the attendant need for fresh legislation. The committee had made a beginning with its important task, and he wished it all success.

L.C.C. Consultants and Specialists

In March last the London County Council approved revised arrangements for the provision of a consultant and specialist service for hospitals and institutions under its management. Certain additional and contingent matters were brought before the Council at its meeting on June 27th. As from July 1st, 1933, and subject to review at the end of a year, the tuberculosis officers of the metropolitan boroughs are to be deemed honorary consultants for tuberculosis in the general hospitals under the Council's management. The normal number of sessions to be worked by orthopaedists at grouped general hospitals and institutions is to be reduced by one (that is, from 11 to 10). The plastic surgeon and the assistant plastic surgeon at Hammersmith Hospital are to be placed on the scale of salary for consultants, which will mean a slight increase in their remuneration. The anaesthetists who are called upon to work at the plastic surgery unit at Hammersmith are to be paid at the rate of two guineas for a session of approximately two and a half hours' duration. A consultant for venereal diseases is to be appointed at St. Stephen's and St. Charles's Hospitals, attending three sessions a week at the former and one session a week at the latter. The position of orthopaedic surgeon at Queen Mary's Hospital for Children, Carshalton, will entail two sessions a fortnight—the surgeon to be available as required for work in the appropriate group of general hospitals—and the salary will be 200 guineas a year, with meals on duty. The position of consulting thoracic surgeon at King George V Sanatorium, with which are grouped Pinewood Sanatorium and High Wood

Hospital for Children, requires attendance at seventy-eight sessions a year, and the fee is six guineas a session, with first-class railway fare. The position of ear, nose, and throat surgeon at these same institutions entails 120 sessions a year, with the same sessional fee. The position of consulting thoracic surgeon and of ear, nose, and throat surgeon at certain in-London hospitals is remunerated at three guineas a session, or in some cases £150 a year for one session a week. At St. Luke's Hospital, Lowestoft, which is also an L.C.C. institution, the position of orthopaedic surgeon will entail one visit a month and other visits as required, the salary to be £105 a year and travelling expenses, while the consulting surgeon at the same institution, who will visit as required, is to receive two guineas for a consultation, or three guineas for an operation, including consultation. It is also proposed to the Council that during the absence of a specialist or consultant owing to sickness or other cause he should provide at his own expense an approved deputy, or, alternatively, that the Council should provide a deputy, in which case the pay of the regular consultant would cease during the period of absence. Consultants and specialists who have been appointed as from July 1st have been informed of this arrangement.

Physical Exercises in Child Education

A very convincing demonstration of what physical education can accomplish in the muscular and mental development of boys and girls and as a preparation for athletics was afforded recently at the Savoy Theatre in London by Miss Margaret Morris, whose name has been associated for many years with dances and other physical activities which combine the hygienic and artistic values of movement. The exhibition was given under the patronage of many distinguished persons, including Lord and Lady Dawson of Penn and a number of leading surgeons and orthopaedists. Children from fourteen schools participated, including girls' high schools, preparatory schools for boys, and certain special L.C.C. schools, one of them for tuberculous children. Girls from the Heritage Craft School for Cripples, at Chailey, in Sussex, also contributed some exercises which were adapted to provide as far as possible normal movements for the physically defective. But the greater part of the demonstration was undertaken with normal children, for whom the exercises were a part of their ordinary education. Miss Margaret Morris, in describing her methods, explained that the exercises were carefully graded and chosen to suit each individual, so that any faults of posture, to which ill-health was often due, or any particular weakness might be overcome. At the same time the exercises were interesting to perform because they were all compositions in movment, developing a natural grace through balance and muscular control, and seeking to maintain or establish health through artistic and rhythmical means. A prominent educationist, Mr. Roger Raven, vice-principal of Goldsmith College, University of London, said a few words on the place of physical training in education, and referred especially to the power of children to create movement for themselves. He praised Miss Morris's methods because, although some general instruction was given, the music itself told the child what to do, much of the graceful posture and movement being spontaneous—the reaction of the child to the inspiration of the music. He emphasized also the value of the group in all these exercises, saying that no child properly grew up alone, and that the group or team was as essential to aesthetic grace as to achievement in sport. Mr. R. C. Elmslie also spoke briefly on the correction of minor defects by normal exercises and the value of an approximately normal exercise for children suffering from physical maladjustment. He wanted to make it plain to the public that physical education was not a stunt, and, further, that it was not a question merely of developing muscle, but that the training reacted on the vital organs and, indeed, on all the faculties, mental and physical. The aim of the teacher, like the aim of Ling himself, the pioneer of Swedish medical gymnastics, was to secure movements which were at once simple, interesting, and intelligent. The Margaret Morris movements, he said, were scientifically thought out and easily taught, and in a quiet way much clumsiness and lack of symmetry could be overcome.

Progress at the London Hospital

In the course of his annual report at the prize-giving ceremony last week, Professor William Wright, dean of the London Hospital Medical College, mentioned the formation within the hospital of two additional special departments, which will deal respectively with diseases of the heart and with brain surgery. Progress in these two branches of medicine had been so great, technical methods of examination and treatment had become so elaborate, that it was judged necessary to create these departments if one of the primary purposes of a large medical school was to be fulfilled satisfactorily—the extension of knowledge. Fortunately the London Hospital was so large that, despite the formation of these departments, there would remain ample clinical facilities for that other great purpose—the education of students in routine methods of diagnosis and treatment. These changes would result in certain additions being made to the honorary staff. In recent months they had been able to make various structural alterations in the college, providing in particular a new and well-equipped histological laboratory—an improvement rendered possible by a legacy under the will of the late Dr. Ewan Frazer. During the year the Students' Hostel Appeal Committee, mainly through the energy and enthusiasm of Mr. Lett, succeeded in obtaining a promise of an admirable site from the house committee, and in raising £15,000 among members of the house committee and of the hospital and college staffs. The services of a distinguished architect had been engaged, and the offer of a loan of £10,000 on favourable terms had been received; but the problem of raising at least a further £5,000 remained.

Extension of Maudsley Hospital

A scheme of extension for Maudsley Hospital has been approved by the London County Council, providing for a new and larger out-patient department and special treatment block, a children's out-patient department, additional accommodation for ninety-six patients, a small isolation wing, a nurses' home to accommodate sixty nurses, and an enlargement of the central pathological laboratory. The Maudsley Hospital was opened ten years ago for the reception of early cases of mental disorder, and is now reserved entirely for voluntary patients received under the provisions of the Mental Treatment Act, 1930. It has accommodation for 207 in-patients, and a ward in King's College Hospital, which for the time being is rented as an annexe to Maudsley, accommodates thirty-five more. Increasing demand for treatment at the hospital and difficulty in meeting the needs of a steadily growing out-patient department have pointed to the necessity for enlargement, and three years ago a capital estimate of £22,000 was approved in respect of the acquisition of land for this purpose. The total estimated cost of the scheme for extension, including equipment, is £121,500. It is proposed to carry out the work in sections, the first section to consist of the new out-patient department and special treatment block.

Hernia and Appendicectomy

SIR,—Recent correspondence in your columns on the association of inguinal hernia with the muscle splitting incision for appendicitis induces me to put forward a theory which I have held for some time to account for the occasional appearance of inguinal hernia after the removal of an appendix by the McBurney incision.

It seems to me to be insufficiently known that patients will complain of pain, usually of a stabbing nature, referred to the area above the inguinal ligament some time—occasionally months—before the appearance of a hernia. The type of case I am thinking of is that of a patient who is putting on fat. Attempts on the part of the swollen omentum to force its way into the mouth of a pre-existing sac after some unusual effort will give rise to pain which may be mistaken for appendicular pain. The appendix is removed, and some time later an inguinal hernia makes its appearance. Many surgeons like to use the muscle-splitting incision for so-called interval appendixes, although it is in precisely these cases where there is an element of doubt that it ought not to be used.

I should like to ask those who regard an injury to the ilio-inguinal nerve as the cause, how many times they see this nerve in the McBurney operation, and why no one seems to have recorded a left inguinal hernia following the use of a similar incision on the left side for a colostomy.—I am, etc.,

Capetown, May 23rd GEORGE SACKS, M.B., F.R.C.S.

The Word "Spontaneous"

SIR,—Is it not high time that writers on medical and scientific matters discarded that objectionable—because misleading—word "spontaneous"? It is either slackness of thought or an over-rigid adherence to routine that keeps such a word alive in any scientific connotation. A process cannot, strictly speaking, be spontaneous—that is, self-caused. It can but be the effect of a prior cause, and therefore the word is really masquerading under the guise of an assurance of an impossible state of affairs, to conceal ignorance of the *primum mobile* of the process in question. By all means concede to the lay press the right to use such expressions as "a spontaneous gift," or "a spontaneous burst of applause," despite their intrinsic incongruities, but such licence is unpardonable in science.

Biologists are constantly using the word "spontaneous" in relation to motion, action, growth, variation, generation, etc., chemists talk of the spontaneous combustion of coal or oil, physicists of the spontaneous disintegration of radio-active matter, while medical men have their spontaneous recoveries and fractures, and the spontaneous rectification, version, evolution, and expulsion of the foetus. In to-day's *British Medical Journal* are two headlines in the *Epitome of Current Medical Literature*, "Spontaneous Subarachnoid Haemorrhage" and "Spontaneous Serum Sickness." *Hinc illae lacrimae!*—I am, etc.,

CHARLES M. BEADNELL,
Ringwood, June 24th Surgeon Rear-Admiral

*** Loath to steal a march on others, whose feelings about the word 'spontaneous" may be stronger than our own, we must, however, point out (1) that in the original article of which an abstract appeared in the *Epitome* under the heading of "Spontaneous Subarachnoid Haemorrhage" the author states "By using the word 'spontaneous' I wish to exclude all traumatic cases", (2) that the second abstract, headed "Spontaneous Serum Sickness," describes two cases in which symptoms arose from the absorption of a tuberculous effusion—that is, *without the administration of serum*, and in the absence of any outside agency. It remains for us to quote the *Oxford Dictionary*, which defines spontaneous as "occurring without apparent external cause, having a self-contained cause or origin."

Arthritis and Allied Conditions

SIR,—The main object of the report of the Arthritis Committee, published in the *Journal* of June 17th, is, in the words of your leading article, 'to present to the practitioner an authoritative statement on the subject of arthritis which may serve him as a guide amongst the shoals or conflicting theories and the enthusiastic assertions of the advocates of panaceas.' This is a truly admirable object. It was a difficult one, and it is apparent from the report that this difficulty has been quite insurmountable. As medical practitioners in general and in specialized spheres we are seeking guidance as to the lines along which attacks against rheumatism are to be directed. Much information has been brought to us but we are not in a position to decide what of it is of essential, or immediate, or of possible later value. The present authoritative statement suggests little hope for an organized advance, but rather indicates a prospect of disorderly retreat. There is no wide survey of the situation giving indication where to advance, to entrench, or to retreat.

In the first paragraph, on nomenclature and classification, it is stated that subacute rheumatism, specific infections such as gonococcal, and gout have been excluded from the scope of this inquiry. The section opens with rheumatoid arthritis, "primary" and "secondary." As a clinical grouping surely this is unorthodox and unwise. Some thirty years ago Sir William Hale White drew a brilliant clinical picture which in its colour and detail is as perfect to-day, and is one which gives pleasure to those of us who are students of this subject. The clinical features of primary and secondary rheumatoid arthritis, as detailed in this report, are seemingly identical, and in the experience of some of us are present in many cases in which there is clinical, bacteriological, and radiological evidence of gout or gonococcal infection. The clinical picture that we recognize is taken away, and one that is unknown to us, and the accuracy of which we doubt, is put in its place. It is the discriminating selection of facts, as distinguished from supposed facts and fiction often associated with the diagnosis and treatment of the various stages of the rheumatic diseases, that it is the purpose of a report such as this to present. This is absent, and in its place are static pictures of worn-out diseases and lists of remedies cited with little or no indication of their place and significance in the various pictures to which they refer.

In regard to treatment, the first section following the short opening paragraph on prophylaxis is a section on vaccines (p. 1044), and the methods of treatment by vaccines and intrapelvic diathermy take an important place. In the former no indication of the type of case suitable for this treatment is given, and in the latter successful results referred to occurred in conditions such as gonococcal infection, which are admitted as being *outside the scope of this report*.

No vivid pictures of at least certain recognizable forms of arthritis are drawn and their treatment detailed. Methods of treatment which in their specific place are invaluable are, without definite reference or warning as to their limitations, allowed to usurp the place of principles and proven facts. A biased and distorted picture has been given which, if at all understandable is one that may well increase rather than diminish the difficulties of the practitioner. Within recent years much work has been done, new facts on diagnosis and treatment have been revealed, but as yet they have not been brought to the knowledge of the majority of medical practitioners.

CORRESPONDENCE

The B.M.A. Nutrition Committee

SIR,—I hope a strictly practical report may be aimed at. It is idle, as it seems to me, to imagine that an exhaustive report is possible in time for the necessary action to be taken. *Malnutrition* is widespread (in spite of statistics to the contrary) among both children and adults. An "academic" committee may lack the necessary criterion of "normality." An inquiry among selected general practitioners and welfare nurses and others actually in daily touch with the problem might produce reliable and useful information. For my part, I consider a rapid voluntary "social survey" undertaken in "typical areas" would gain in depth and precision what it might lack in academic perfection and in comprehensiveness. Naturally its results should be "criticized" by an "expert" team of experienced scientists.—I am, etc.,

Redditch, July 3rd. HOWARD E. COLLIER.

Medical Practice and the Curriculum

SIR,—I am much interested in the suggestions given by Sir Ernest Graham-Little (June 24th, p. 1124) for the reform of the medical curriculum. The continuous increase in the range of matter with which acquaintanceship is required is a process that must of urgent necessity be brought to an end in the near future. The problem is admittedly one of very great difficulty, but there seem to be some reasons for believing that insufficient search is being made in other directions than that merely of a revision of the curriculum, however independently desirable such revision may be; and that relatively too much attention is being paid to the preparation for practice and too little attention to the conditions of practice itself. The science and art of Medicine, using the word in its widest sense, is expanding at least as rapidly now as at any period in its history, and there is no reason to anticipate any early check to this accumulation of new knowledge and new disciplines. This progress, moreover, can neither be ignored nor, under existing systems, can it be adequately assimilated.

It may well be that the time has come to recognize that *general* practice has had its day, and that specialism for all, as wide as possible, but still specialism, is the only satisfactory solution. General practitioners must become either physicians or surgeons, and confine their work either to medicine (in its restricted sense) or to surgery (midwifery for this purpose falling, presumably, within the province of the surgeon), for in no other way will it be possible for even the most gifted to maintain that standard of knowledge and resource that has been achieved in the past. That there are grave objections in principle as well as serious practical difficulties to a thorough-going dichotomy such as this cannot be denied, but the apparently increasing number of partnerships of physicians and surgeons, especially in the larger towns, seems to suggest that such a scheme may be already on its way. At the present time any practitioner may, of course, restrict his practice or not in any way he may choose, but I contemplate a system under which such restriction will be virtually compulsory, and in which some knowledge of all branches of Medicine will give place to a fuller experience of fewer branches.

If such a system were universally adopted the final qualifying examinations could no doubt be modified in important particulars, for it might be possible either to allow candidates the choice of a more simple examination in medicine and its associated subjects, with a more searching test in surgery and its branches, or to allow the alternative combination to those intending to practise as physicians.

A modified form of comprehensive "specialism" such as I am suggesting, though it would doubtless stimulate the formation of partnerships, would by no means, I think, imply the elimination of the independent practitioner, though perhaps one of the greatest difficulties would be to persuade the public to co-operate in a scheme that would virtually have the effect of causing every patient to require two regular doctors; but such prejudices are probably not insuperable. Serious as the obstacles undoubtedly are to any such division of labour in medical practice, I feel that reform on some lines of this sort is the only possible solution if the highest standards of diagnosis and treatment are to remain available for all.—I am, etc.,

London, W.8, June 26th. ANTHONY W. CAMAC MELLOR.

Cortical Extract in Addison's Disease

SIR,—In the course of a leading article on "The Suprarenal Cortex" in the *Journal* of June 10th you state that treatment of Addison's disease with cortical extract "fails to remove three cardinal features of the disease—namely, hypotension, pigmentation, and hypoglycaemia." It seems to me that, so far as the hypotension and pigmentation are concerned, this statement is contrary to the bulk of the evidence. Levy Simpson[1] describes a series of six cases, all of which showed a diminution of pigmentation following treatment with cortical extract. Four of these cases also showed a definite rise in blood pressure. In their account of twenty cases treated with cortical extract, Rowntree et al.[2] state that a decrease in pigmentation was one of the effects noted, and also a rise of blood pressure in those patients who were in a state of crisis when treatment began. Unfortunately details of these changes are given in only a few of the case reports. In one of the three cases described by Benham et al.[3] a rise of blood pressure occurred following administration of cortical extract. In the case described by McCrie et al.[4] a rise in blood pressure and a decrease in pigmentation were observed. The same is true of the case described by Thompson and Russell.[5]

The evidence for the effect of cortical extract on the hypoglycaemia of Addison's disease appears to me to be too meagre as yet to permit of a conclusion either way.—I am, etc.,

Oxford, June 26th. MARY FISHER.

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Treatment of Combined Sclerosis

SIR,—Dr. William Sargant (July 1st, p. 34) is perfectly right in pointing out that my patient who developed megalocytosis and subacute combined degeneration while under treatment with iron was having a good deal less iron than he advises. I am much interested in Dr. Sargant's work on subacute combined degeneration, which seems to me a most promising research on this very obscure malady. But when there are several remedies for a disease there is a risk that the inexperienced may employ none of them to the best advantage. For this reason I stressed the value of desiccated stomach to the general practitioner in the treatment of pernicious anaemia and subacute combined degeneration, as it is a cheap and complete remedy, whereas iron is apparently of little or no value for the anaemia.—I am, etc.,

London, W.1, July 3rd. L. J. WITTS.

Hernia and Appendicectomy

SIR,—Recent correspondence in your columns on the association of inguinal hernia with the muscle splitting incision for appendicitis induces me to put forward a theory which I have held for some time to account for the occasional appearance of inguinal hernia after the removal of an appendix by the McBurney incision.

It seems to me to be insufficiently known that patients will complain of pain, usually of a stabbing nature, referred to the area above the inguinal ligament some time—occasionally months—before the appearance of a hernia. The type of case I am thinking of is that of a patient who is putting on fat. Attempts on the part of the swollen omentum to force its way into the mouth of a pre-existing sac after some unusual effort will give rise to pain which may be mistaken for appendicular pain. The appendix is removed, and some time later an inguinal hernia makes its appearance. Many surgeons like to use the muscle splitting incision for so-called interval appendixes, although it is in precisely these cases where there is an element of doubt that it ought not to be used.

I should like to ask those who regard an injury to the ilio-inguinal nerve as the cause, how many times they see this nerve in the McBurney operation, and why no one seems to have recorded a left inguinal hernia following the use of a similar incision on the left side for a colostomy.—I am, etc.,

Capetown, May 23rd GEORGE SACKS, M.B., F.R.C.S.

The Word "Spontaneous"

SIR,—Is it not high time that writers on medical and scientific matters discarded that objectionable—because misleading—word "spontaneous"? It is either slackness of thought or an over-rigid adherence to routine that keeps such a word alive in any scientific connotation. A process cannot, strictly speaking, be spontaneous—that is, self-caused. It can but be the effect of a prior cause, and therefore the word is really masquerading under the guise of an assurance of an impossible state of affairs, to conceal ignorance of the *primum mobile* of the process in question. By all means concede to the lay press the right to use such expressions as "a spontaneous gift," or "a spontaneous burst of applause," despite their intrinsic incongruities, but such licence is unpardonable in science.

Biologists are constantly using the word "spontaneous" in relation to motion, action, growth, variation, generation, etc., chemists talk of the spontaneous combustion of coal or oil, physicists of the spontaneous disintegration of radio-active matter, while medical men have their spontaneous recoveries and fractures, and the spontaneous rectification, version, evolution, and expulsion of the foetus. In to-day's *British Medical Journal* are two headlines in the *Epitome of Current Medical Literature*, "Spontaneous Subarachnoid Haemorrhage" and "Spontaneous Serum Sickness." *Hinc illae lacrimae!*—I am, etc.,

CHARLES M. BEADNELL,
Ringwood, June 24th Surgeon Rear-Admiral.

*** Loath to steal a march on others, whose feelings about the word 'spontaneous" may be stronger than our own, we must, however, point out (1) that in the original article of which an abstract appeared in the *Epitome* under the heading of "Spontaneous Subarachnoid Haemorrhage" the author states "By using the word 'spontaneous' I wish to exclude all traumatic cases", (2) that the second abstract, headed "Spontaneous Serum Sickness," describes two cases in which symptoms arose from the absorption of a tuberculous effusion—that is, without the administration of serum, and in the absence of any outside agency. It remains for us to quote the *Oxford Dictionary*, which defines "spontaneous" as "occurring without apparent external cause, having a self-contained cause or origin."

Arthritis and Allied Conditions

SIR,—The main object of the report of the Arthritis Committee, published in the *Journal* of June 17th is, in the words of your leading article, to present to the practitioner an authoritative statement on the subject of arthritis which may serve him as a guide amongst the shoals of conflicting theories and the enthusiastic assertions of the advocates of panaceas." This is a truly admirable object. It was a difficult one, and it is apparent from the report that this difficulty has been quite insurmountable. As medical practitioners in general and in specialized spheres we are seeking guidance as to the lines along which attacks against rheumatism are to be directed. Much information has been brought to us, but we are not in a position to decide what of it is of essential, or immediate, or of possible later value. The present authoritative statement suggests little hope for an organized advance, but rather indicates a prospect of disorderly retreat. There is no wide survey of the situation giving indication where to advance, to entrench, or to retreat.

In the first paragraph, on nomenclature and classification, it is stated that subacute rheumatism, specific infections such as gonococcal, and gout have been excluded from the scope of this inquiry. The section opens with rheumatoid arthritis, "primary" and "secondary." As a clinical grouping surely this is unorthodox and unwise. Some thirty years ago Sir William Hale White drew a brilliant clinical picture which in its colour and detail is as perfect to-day, and is one which gives pleasure to those of us who are students of this subject. The clinical features of primary and secondary rheumatoid arthritis, as detailed in this report, are seemingly identical, and in the experience of some of us are present in many cases in which there is clinical, bacteriological, and radiological evidence of gout or gonococcal infection. The clinical picture that we recognize is taken away, and one that is unknown to us, and the accuracy of which we doubt, is put in its place. It is the discriminating selection of facts, as distinguished from supposed facts and fiction often associated with the diagnosis and treatment of the various stages of the rheumatic diseases, that it is the purpose of a report such as *this to present*. This is absent, and in its place are static pictures of worn-out diseases and lists of remedies cited with little or no indication of their place and significance in the various pictures to which they refer.

In regard to treatment, the first section following the short opening paragraph on prophylaxis is a section on vaccines (p. 1044), and the methods of treatment by vaccines and intrapelvic diathermy take an important place. In the former no indication of the type of case suitable for this treatment is given, and in the latter successful results referred to occurred in conditions such as gonococcal infection, which are admitted as being outside the scope of this report.

No vivid pictures of at least certain recognizable forms of arthritis are drawn and their treatment detailed. Methods of treatment which in their specific sphere are invaluable are, without definite reference or warning as to their limitations, allowed *to usurp* the place of principles and proven facts. A biased and distorted picture has been given which, if at all understandable is one that may well increase rather than diminish *the difficulties* of the practitioner. Within recent years much work has been done, new facts on diagnosis and treatment have been revealed, but as yet they have not been brought to the knowledge of the majority of medical practitioners

When they have been assimilated and their relative values assessed, the early diagnosis and successful treatment of the rheumatic diseases will be more frequent. The present opportunity which has been offered to do this does not appear to have been taken. It is my sincere wish and belief that this report will in part achieve its excellent purpose by arousing interest and encouraging a critical attitude and a desire and demand for knowledge in those of us to whom it is addressed.—I am, etc.,

London, W.1, June 27th. FRANCIS BACH, M.D.

Cosmetics

SIR,—When I contributed an article on cosmetics to your issue of June 10th (p. 999) I little realized that it would bring not only the public Press and its readers about my head, but also the more Olympian thunder of Dr. MacKenna, who unkindly accuses me of being on the one hand provocative and on the other insinuating. He rebukes me first for having entirely failed to acknowledge the assistance his paper was to mine. My bibliography comprised twenty-eight references, Dr. MacKenna's included. If I had made individual acknowledgement of what I owed to each of these it could only have been done by sacrificing a considerable part of my paper, which was already too long and had to be cut down. This would, perhaps, have been no great loss, but one has an affection for one's offspring of the pen and a dislike of mutilating them. I see now that it would have been wiser and less "provocative" to have amputated my infant's legs and supplied it instead with a sound genealogical tree. I apologize to Dr. MacKenna and to the other twenty-seven authors for having failed to do so.

Dr. MacKenna goes on to say that "by making full use of fragmentary excerpts torn from their context she attributes to me a bias which is, I think, undeserved." In criticizing an article, unless one quotes it in its entirety—which is manifestly impossible—one is always open to this charge of literary assault. But in order to satisfy myself that I had not inadvertently misquoted Dr. MacKenna I have carefully re-read his original article, and it appears to me that my interpretation of it was scrupulously fair, and this, I cannot but think, must be the opinion of any unprejudiced reader. Space, and the patience of your readers, forbids my taking up every point. I will therefore confine myself to two examples. Dr. MacKenna says: "I am not, as Dr. Carleton insinuates, unaware that dirt may be removed with cold cream." What I said was: "MacKenna ridicules the cleansing properties of cold cream." But is this not the natural inference of his statement: "The majority of 'beauty specialists' suggest that soap and water should not be used, but the face should be 'cleansed' [*sic*] by the application of cold cream"? The *sic* is Dr. MacKenna's, not mine. Later he says: "I object to being classified by insinuation as a person who condemns cosmetics as wholly injurious." "On the whole, injurious," would have been more correct, and for this slip I do apologize. But may I, in my turn, deprecate the use of that word "insinuation"? "Implication" or "inference"—Yes; but not "insinuation." "*Des coups d'épée, Monsieur, pas des coups d'épingle.*"

The final sentence of Dr. MacKenna's letter appears to me to sum up our grounds of difference. "The windmill," he says, "against which I have tilted is the continuous use of cosmetic preparations—the endless application of astringent lotions and fatty and waxy ointments to the detriment of the individual and the very definite benefit of numerous commercial interests." With regard to the astringent lotions I am, as I said in my paper, in substantial agreement with his view. The benefit of commercial interests is irrelevant to the point at issue, except as a red herring of doubtful flavour. There remain the ointments. And here I can only humbly suggest that Dr. MacKenna, like Don Quixote, may be mistaken in his windmill. The women of my practice or acquaintance who for years have used cosmetics appear to me, *on the whole*, to have better-looking skins than those who do not. This is, of course, a crude and superficial observation, and many other factors obviously enter into the matter. But at least these women do not appear to have suffered as a consequence. Since I can find neither the blocking of the sebaceous glands nor the atrophy to which Dr. MacKenna refers, what can I do but invoke St. Thomas and repeat, "Show me the proof"? Dr. MacKenna's skill and experience are so much superior to mine that I should hesitate to express views contrary to his if I were not comforted by the fact that they are sanctioned, as I said in my article, by such authorities as Kromayer in Germany and Sabouraud in France. So that in dermatology, as in other matters, what is heresy in England is orthodoxy abroad.—I am, etc.,

Oxford, June 27th. ALICE CARLETON.

Treatment of Chorea

SIR,—In the *Journal* of June 10th (p. 1003) Dr. Donald Bateman, in his short paper entitled "A Treatment of Sydenham's Chorea," advocates the induction of fever by the use of injections of the triple typhoid vaccine, giving a detailed description of the routine practised at the Bellevue Hospital, New York. He advances as his reason for utilizing this drastic therapeutic measure that it shortens by more than 50 per cent. the duration of the patient's stay in hospital. During the last two or three years I have given trial to this form of non-specific therapy in treating cases of chorea, but I do not find that it shortens the stay of the patient in hospital, for the wasting and weakness consequent on the induced hyperpyrexia render it incumbent to keep the patient as a convalescent for some weeks before sending it back to an environment which all too often is unhygienic and also not conducive to that requisite rest and quiet that cases of chorea need. Again, I have not noticed that this form of therapy diminishes recurrences, but, on the other hand, I am inclined to think that the recurrence, when it happens is often more violent than in the case of those treated by the usual rest and therapeutic method. My cases are too few to be dogmatic on this point.

During the last twenty years, in the treatment of chorea, I have tried, I should imagine, every drug that has been advocated, from arsenic to nirvanol, and every method of therapy—hydrotherapy, psychotherapy, etc.—and I still wait to find a drug or treatment which will shorten the duration of this mild but important disease. The most dramatic sudden cures of chorea I have ever seen occurred in two cases in which erysipelas intervened—an interesting line of thought, remembering the possibility of the streptococcus as a causal factor. In four cases which I treated some years ago by the withdrawal of blood from the patient and the injection of the serum intrathecally, the results were also dramatic—hyperpyrexia, and after two injections a cessation of choreic movements; but just as I was becoming enthusiastic they all relapsed—relapsed badly—and one patient still attends my clinic, though her original treatment took place five years ago.

My object in writing this letter is to sound a note of warning in the general adoption of a line of treatment, especially outside hospitals, in which the end-results, in my opinion, are not justified by the attendant discomfort and danger.—I am, etc.,

LEOPOLD MANDEL, M.D., M.R.C.P.
Physician, with Charge of Children's Department, London Jewish Hospital.

London, W.1, June 22nd.

"New Treatments for Old"

SIR,—I read Lord Horder's Oration on the above subject with great interest, and, it must be confessed, with some disappointment.

I was interested to note the reference to the Abrams box —" a piece of machinery (save the mark!) "—" apparatus " would have been a more appropriate word—which offends both physical and physiological principles. There are few of us who would differ from Lord Horder's remarks on that subject. It will be remembered that he presided over the committee which investigated the alleged claims of that egregious piece of humbug ; and that there was a disposition on the part of some members of the committee to think there might be something in it.

Lord Horder very rightly deplores slovenliness " on the point of terms and definitions," yet shortly afterwards remarks that " it is Nature that cures, not we." There are some who wonder whether Nature ever really does cure or whether she merely " effects repair "—a very different matter, which necessarily depends on the nature and extent of the lesion. It would not be incorrect to say that the surgeon " cures " a hernia, but that Nature effects the repair. If a " disease process " can be arrested by the application of physiological, pathological, and therapeutic knowledge, Nature may usually be depended upon to bring about repair, but not necessarily to cure.

I notice that Lord Horder refers to the appeal to a credulous public made by what he terms " direct action " remedies—" blood mixture," " asthma cure," etc. He might preferably have called them " selective action " remedies. Even preparations used by the profession do not escape the lash of his whip. After all, What *is* in a name? I for one shall always feel grateful to one of the remedies he mentions—namely, antibacsyn. Influenza may differ from furunculosis as far as outward manifestations are concerned, but is there no resemblance immunologically, if I may use such a word without offence?

Lord Horder mentions an intestinal disinfectant which will render the faeces sterile. I know the one to which he probably refers, and have used it and been thankful for it—and so have others who have worked in the Tropics. There was no need for my imagination to " toy with what might happen to a patient with sterile faeces." My patients' faeces only remained sterile as long as I wanted them to do so ; and they recovered. It is always an advantage for patients to recover. Even Lord Horder admits that an effective intestinal disinfectant is a " consummation devoutly to be wished by many." After all, it assists Nature to effect repair. Nobody with an elementary knowledge of the physiology of digestion would contemplate the maintenance of permanent sterility of the alimentary canal.

If there is a lesson in Lord Horder's Oration it is that the clinician, while not disdaining to utilize every advantage which bacteriology, biochemistry, pathology, and radiology place at his disposal for the investigation of disease, should show discretion in the adoption of new methods of treatment. But he should keep himself fully informed of all advances made in this field, and not hesitate to use new methods if they are superior or if the old ones are of no avail ; provided that the rationale is based upon scientific foundations, that after careful consideration they appeal to the intelligence, and that they appear to offer hope to the patient.

There is no need to worry about the " mass man " and the " direct actionist." If there is any good in their methods it will compel recognition. As in politics, " left wingers " are not all bad, nor are all " right wingers " good. Many methods in daily use to-day were the revolutionary measures—the " new treatments "—of our fathers. Was it not the father of the late Sir William MacCormac who was driven from his practice because he employed the open-air treatment for phthisis? The " new treatment " of yesterday has become the routine of to-day. Advances in knowledge of disease frequently make new treatments imperative. Diphtheria is no longer regarded as a local inflammation of the throat and treated with carbolic sprays, etc., nor is kala-azar now looked upon as a particularly deadly form of malaria which must *ipso facto* be treated with quinine. As Lord Horder remarks, " the pendulum of practice still swings." Of course it does, and it always will ; but when we bleed in the twentieth century we like to think that we do so with a sounder understanding of its indications and limitations. I once saw a patient with pneumonia who was moribund with a failing toxic heart and a blood pressure of 90/50. The doctor in attendance had made a " dog's dinner " of both ante-cubital spaces in an attempt to bleed him, because it said in the textbooks that bleeding would relieve an overloaded right heart. One cannot legislate for ignorance. The march of progress must continue, as it always has done ; all that is bad being forgotten because it is bad, and all that is good proving itself good. The specific of to-day may become contraindicated by to-morrow's discoveries. The seeing eye and the thinking mind are trusty safeguards against error and disaster.—I am, etc.,

H. M. STANLEY TURNER,
Wing Commander R.A.F. (ret.).

Abingdon, Berks, June 27th.

SIR,—Dr. W. N. Leak's statement (June 24th, p. 1127) that his baby " had a temperature of 104° and well-marked bronchopneumonia," that " she was at once given an ampoule of omnadin and the more usual treatment for her condition," and that " next morning her temperature was normal and remained so," needs emphatic challenging. I congratulate him on his daughter's miraculous recovery, and compliment his fatherly enthusiasm. But how can bronchopneumonia be well marked overnight? What proof is there that there was actually a pneumonia present, and not something simulating this? If we cannot prevent or abort a mere cold, how can we claim to nip pneumonia in the bud, especially when " well marked "? It is an ever-recurring experience for children to recover spontaneously from feverish chills.

One of the most urgent needs of the day is a power to curb the activities of drug manufacturers, with their new, expensive concoctions, labelled with insane names. Steps should also be taken to hand over, like unlicensed firearms, useless drugs in the *B.P.* What earthly use is lead, for example? It is a weight on therapeutics. Many dangerous drugs have some legitimate virtue and are eliminated by the body, but lead, externally and internally, is a poison, always valueless, which accumulates in the system. Leave lead to the plumbers.—I am, etc ,

J. KELVIN, M.B.

Glasgow, June 29th.

Use of Quinine in Normal Labour

SIR,—In your issue of April 1st (p. 587) Dr. W. A. Rees reports a case of retained placenta following the use of quinine to induce labour, and he asks if any readers have come across a similar experience.

In January, 1932, the wife of my Chinese house-surgeon, a primipara aged 21, was one week over time, and the measurements were small (interspinous 9 inches, intercristal 10 inches), so I suggested quinine. She was given quinine sulphate, 10 grains three times a day, for one day, after which labour commenced. The first and second stages were normal, and a nine-pound baby was delivered naturally. The placenta, however, would not come away, and, finally, after two hours, I removed it manually from the uterus—a very difficult task. At the

time we put it down to adherent placenta, the latter being of a very fibrous type, but it is conceivable that the 30 grains of quinine given may have had something to do with it.—I am, etc.,

Mackenzie Memorial Hospital, Tientsin, June 3rd. GEORGE C. DORLING.

"Total" Hysterectomy

SIR,—I was interested to read in the *Journal* of April 29th (p. 741) Dr. Ralph Worrall's paper on total hysterectomy for non-malignant conditions. I find it very difficult, however, to appreciate how he can possibly label the technique he describes "total hysterectomy." It is well known that the cervical glands and their cystic dilatations penetrate very deeply, and I feel sure that if Dr. Worrall were to excise what remains of the cervix after his "total hysterectomy," he would have no difficulty in satisfying himself that the operation he describes does not deserve the title he gives it.—I am, etc.,

Royal Hospital, Baghdad, June 11th. G. S. WOODMAN, F.R.C.S.Ed.

Paying Patients in Voluntary Hospitals

SIR,—Since you referred in the *Journal* of August 18th, 1928 (p. 317), to the report of the Pay Beds Committee of the King Edward's Fund for London, circumstances have brought all concerned very much up against the problems involved in this proposal. You then remarked that "changes in conditions in the metropolis will certainly have their reactions upon the country generally," and you went on to state that if the proposals made in that report are to be carried into effect "the ranks of the younger consultants will be steadily thinned." It is not only the interests of this group in the profession which will be affected, but also those of the visiting medical staffs and of the general medical practitioners.

At the Annual Representative Meeting of the British Medical Association to be held in Dublin this month this question will come up again for discussion, as on the agenda there appear proposals outlining the terms and conditions under which private patients should be received in voluntary hospitals; and therefore it is to be hoped that by free discussion and clear thinking it may be possible for the medical profession to put concisely before the public proposals which will be equitable to all concerned.

The proposals outlined in the Pay Beds Committee's report, that:

(*a*) accommodation provided in voluntary hospitals should be placed at the disposal of those of "moderate means" on the same terms and conditions as apply to the "sick poor"; no payment for medical treatment being allowed;
(*b*) the general practitioners should be "kept in contact with" these patients by communication, information, and advice;
(*c*) that the committee of management should lay down certain rules or limitations as to the medical practitioners who should be allowed to attend these patients;

are such as evidently appeal to the committees of management of many voluntary hospitals. Judging by the various schemes which are being launched by these committees, it would seem that they consider

(*a*) that private patients should be a source of income to the hospitals;
(*b*) that the visiting medical staff should be expected to contract to give their services for little or nothing;
(*c*) that the general medical practitioner, and the private young consultants, should be entirely detached from any association with the private patient department of these hospitals; and
(*d*) that the consultants and specialists of the visiting medical staffs, by attendance on all these private patients for whatever may be the illness, should become to all intents general medical practitioners.

The question of providing general medical practitioners with accommodation in the private patient department for those of their patients who require only "general medical practitioner" treatment does not seem to have been considered by the boards of management, or, if it has been, then it has been turned down as either impracticable or unnecessary. It is to be hoped, therefore, that the Representative Body will in definite terms announce, on behalf of the medical profession,

(1) that in all districts there should be available accommodation in voluntary hospital, nursing home, or/and otherwise, for private patients requiring "specialist treatment," and for those requiring "general medical practitioner treatment";
(2) that if a voluntary hospital enters into the business of providing accommodation for private patients then the administration of this department should be as far as possible on the lines recognized by the medical profession as those of a private nursing home;
(3) that the manner in which the public department of a voluntary hospital is conducted should not determine the manner in which the private patient department should be conducted;
(4) that there should be for the private patient: (i) free choice of doctor; (ii) admission on the recommendation of a private doctor; and (*a*) that the private medical practitioner, whether young consultant (not attached to the visiting medical staff) or the general medical practitioner, should have the entrée to the department as a right, along with the members of the visiting medical staff, and not as a matter of courtesy; (*b*) that the fees should be a matter of arrangement with the attendant doctor, gratuitous attendance neither being expected nor given.

If the medical profession does not unite on the above principles and secure their adoption then it will not be long before the general medical practitioner finds that if his patients go into the private patient department of a voluntary hospital he will lose them, or, alternatively, that he will be obliged to use a less well-equipped nursing home.

To endeavour to dissuade the medical profession from affirming now, and in clear terms, the desired position alongside the visiting medical staff for the younger consultants and the general medical practitioner, because in the opinion of some at this moment it will not be universally obtainable, will eventuate in a condition of affairs when it will have become too late. And once more medicine will have received a set-back; the "back-bone of the profession" will have been deprived still further of the experience and remuneration to which it is entitled; and the middle-class public will lose the advantage of that efficient medical attendance which is at its disposal and to which it is entitled.—I am, etc.,

Hove, July 1st. E. ROWLAND FOTHERGILL.

The G.P.'s Proper Work

SIR,—I think the note in your issue of June 24th, headed "Fee-splitting and the Law" (from a legal correspondent), one of the finest and most explicit articles I have ever read, and very much wanted by the general practitioner, who is degenerating and looking round for some means of making a living because of the incessant inroads into his practice caused by the eternal clinics and whole-time men and women who are robbing him of his ordinary practice. Take maternity practice alone. We are surrounded by district nurses, who attend the women wholesale in their confinements; half of them do nothing but sit and watch, and long after the women should have been relieved they call on the general practitioner to come and clear up the mess. I consider every primipara ought to have a doctor in attendance during her pregnancy and at the confinement. All these clinics and nurses are kept up by robbing the general practitioner of his lawful work. The two letters on "The G.P. and Midwifery," by Dr. Terence Robinson and Dr. Kathleen Vaughan, are very much to the point.—I am, etc.,

Wallington, June 26th. A. Z. C. CRESSY.

Obituary

J. A. MITCHELL, M.B., D.P.H.

Late Secretary for Public Health and Chief Health Officer, Union of South Africa

Dr. J. A. Mitchell, formerly Secretary for Public Health and Chief Health Officer of the Union of South Africa, died at his home in Rondebosch on June 12th, after a week of critical illness. Warned some years ago of his dangerously high blood pressure by cardiologists, both in Capetown and in Johannesburg, he nevertheless continued working at the very high pitch to which he was accustomed. He had enjoyed the most robust health. His high blood pressure was discovered by accident as the result of an *x*-ray examination of the foot because of some slight tendon trouble. The plate showed a calcified blood vessel. The sphygmomanometer, then applied for the first time in Dr. Mitchell's life, revealed the startlingly high pressure. In spite of some precautionary measures it remained consistently above 240 mm. for some ten years, until after his breakdown in 1930. This took place at Bangkok, where he was representing the Union Government at a meeting of the Leprosy Commission of the League of Nations Health Organization. During a very lengthy motor trip he experienced a unilateral numbness, but was unaware of its real significance until the journey's end, when the paresis was discovered on trying to lea[ve] the car. He returned immediately to South Africa instead of going to the further Leprosy Congress convened by the Leonard Wood Memorial Organization in Manila. He made a partial recovery and resumed duty for a short time, but owing to continued ill-health he found it necessary to relinquish his office permanently in April, 1932.

James Alexander Mitchell was born in Ireland in 1876, and was educated at Foyle College, Londonderry, and at Glasgow, Edinburgh, and Cambridge Universities. He was a civil surgeon in the Edinburgh military district for a year. He went to South Africa in 1899 as bacteriologist for leprosy research, Robben Island, for which post he was selected by Lord Lister, acting on behalf of the Cape Government. His great administrative ability, however, became evident almost immediately to Dr. Gregory, who was then in charge of the Health Service of the old Cape Colony, and within two years Dr. Mitchell was appointed assistant medical officer of health for the colony. This post he held until the time of union (1910), when he became assistant medical officer of health for the Union of South Africa. He occupied this post until 1918, when he was appointed Chief Health Officer. Two years later, when the new Department of Public Health was created—following on the terrible shock sustained by the country as the result of the influenza epidemic—he was made Secretary of that Department. This post he held until his retirement.

In addition to the dual appointment as head of the Department and Chief Health Officer, he was deputy chairman of the Union Council of Public Health, chairman of the Union Leprosy Advisory Committee, and a member of the South African Medical Council. He saw service in the great war, holding the rank of lieutenant-colonel with the South African Medical Corps. During the South-West Africa campaign he was assistant director of medical services for the Southern Force and lines of communication, and was mentioned in dispatches.

Dr. Mitchell represented the Union of South Africa on many Commissions. He was mainly instrumental in placing the present satisfactory health and medical registration legislation on the Statute Book; the medical profession is particularly indebted to him for his work in this connexion.

W. W. GREER, M.C., M.D., F.R.C.S.ED.

Dr. William Wells Greer died at his residence at Bedfont, Middlesex, on July 1st. He was born in Chester in 1876, but left England with his parents at an early age to begin his general education in Queensland, where he obtained a scholarship at Townsville Grammar School, afterwards going to the grammar school in Brisbane. He returned to Edinburgh in 1899 to study medicine at the Royal Infirmary, and graduated M.B., Ch.B. in 1904, receiving the doctorate in 1906 with special commendation for his thesis. He was a member of the British Medical Association. Dr Bramwell (afterwards Sir Byrom Bramwell) invited him to become his house-physician, which post he ultimately held for a year, but not until he had first served for six months as an assistant in general practice to a Dr. Carruthers in Congleton, Cheshire. The interruption of his hospital career at this stage was a great disappointment to him, but was rendered imperative by financial considerations. It was with characteristic determination that he took up the hard apprenticeship of an assistant in order to save the means which enabled him later to accept a second invitation from his old teacher, whose clinical example and personal influence undoubtedly moulded to a large extent Greer's own practical trend of thought. After finishing his time at the Royal Infirmary he returned to Australia to practise, and settled in Kyogle, Richmond River, N.S.W., where he built and organized his own hospital and established a well-deserved reputation as a surgeon. In 1913 he returned to Edinburgh to work for the F.R.C.S., which he obtained just before the outbreak of the war. In August, 1914, he joined the 1/3 Lowland Field Ambulance, with which he served throughout the war in Gallipoli, Palestine, France, and Belgium, being twice mentioned in dispatches and awarded the Military Cross. After the war he went to practise in Australia for five years. In 1925, while on holiday in Europe, he met with a serious accident, and sustained a fracture of the skull. This was the beginning of a long series of illnesses which led to his untimely death, though for the last five or six years he was able to carry on a successful practice at Bedfont.

A colleague writes: The combination of a rare imagination with an intensely practical attitude towards life gave to Greer an intellectual outlook which would have made him an ideal teacher of surgery had he remained in the academic world. Destiny, however, had marked him for the highways and byways of practice in a country in which distances were great and where many bricks had to be made without straw. Although precluded by the circumstances of his work from the opportunities for much reading or discussion of medical problems, he never lost the fine clinical instinct which, inherent from the beginning, had developed so strongly during his association with Bramwell. His knowledge of men was deep, his sympathy immense. The affection which he felt for his patients was blended with his intellectual gifts and his practical determination, and this gave his clinical work the character which it invariably showed, and which made his reputation among colleagues and patients one of which any man might well have been proud. Of this, however, Greer was largely unconscious, and the gentle and naïve surprise that he would exhibit at any outside praise was as beautiful as it was unaffected. Truly he was a doctor of the old school, whose life and work, like those of so many whose names are not writ large in the chronicles of men, will nevertheless remain an abiding example to the multitude of those who benefited by him, and still more to the smaller band of intimates to whom, by his strength and sweetness, he was so greatly endeared.

J. FORD ANDERSON, M.D.

Dr. J. Ford Anderson, who died on June 29th at his home in London in his ninety-fourth year, was at one time active in the affairs of the British Medical Association, which he joined as long ago as 1865. It is interesting to recall that another veteran member, Sir James Crichton-Browne, ten months his junior, was elected in 1866.

John Ford Anderson, son of the Rev. A. Anderson, LL.D., was born at Boyndie, in Scotland, on January 23rd, 1840, and was a kinsman of the late Sir Hugh Anderson, M.D., F.R.S., Master of Gonville and Caius College, Cambridge. He was educated at the Universities of Aberdeen, Edinburgh, and Paris, and obtained the L.R.C.S.Ed. in 1861, graduating M.D. and C.M.Aberd. in 1863. Many years later, at the advanced aged of 86, he became a member of the Royal College of Physicians of London. Before commencing practice in London he was for a time resident physician at the Middlesex Hospital, and from 1875 to 1893 lectured in obstetrics at the London School of Medicine for Women. In 1904, when chairman of the Hampstead Division, he was elected to the Council of the British Medical Association and to the Hospitals Committee, and served again on the Council in 1909–10, while president of the Metropolitan Counties Branch. In 1921, when the Association met in Newcastle, he was a member of the Representative Body. During two years of the war he had charge of St. Marylebone workhouse infirmary.

Dr. Ford Anderson was the author of one or two short clinical papers, and of articles on provident dispensaries and on ethical aspects of the hospital question. His presidential address to the Metropolitan Counties Branch, on home and hospital treatment of the poor and the low wage-earners, appeared in the *Supplement* to our issue of June 26th, 1909. In this he dealt more particularly with recommendations in the majority report of the Royal Commission on the Poor Laws, with special reference to London conditions. He was a member of the Royal Medico-Psychological Association, and had served on the council of the Federation of Medical and Allied Services. The conduct of a large practice in Hampstead, for much more than half a century, by no means exhausted his energy and zest for life. Among other interests in later years he was highly appreciative of the radio, and in 1932 gave a number of broadcast talks which brought him friendly letters from hundreds of listeners.

THE LATE MR. HAMILTON RUSSELL

Sir STCLAIR THOMSON writes:

The obituary notice of my fellow student, Hamilton Russell, in the *Journal* of June 24th is so sympathetic and complete that there is little one can add to it. For the sake of historical accuracy it would be well to correct a mistake which appeared in the *Times* and several other journals, saying that he "was the last of the house-surgeons to work under Lister." Now Hamilton Russell was a dresser in King's College Hospital with me when W. J, Penny of Bristol—a well-known quarter-miler and footballer—was house-surgeon. In 1881 Russell was clerk when the house-surgeon was Colonel R. Pratt Bond, R.A.M.C.; and he was himself house-surgeon in the session 1883–4, the year in which Lister received his baronetcy. Many years afterwards Hamilton Russell wrote of this as follows:

"I have a very vivid memory of an incident that occurred one afternoon when I was house-surgeon. I was walking with my illustrious chief up the great staircase of King's College Hospital to the wards, when he handed me a letter he had just received. It was a letter couched in language of incomparable grace, conveying to Mr. Lister the desire of Queen Victoria that he would accept a baronetcy in recognition of his service to the cause of suffering humanity. . . . And Lister was frankly and unaffectedly delighted; there was even something a little boyish in his pleasure, which for a moment struck me with vague surprise. Needless to say, however, the real source of his satisfaction was quite devoid of any sense of personal aggrandisement; he regarded the honour as a kind of sign manifest to all the world of the rightness of the surgical principles that he had laid down, and striven for, and taught. As he put it in an amusingly homely parlance, 'I dare say it will help things along.' What he was pleased to call 'things' comprehended all that we nowadays express in the term 'modern surgery.'"[1]

But Lister did not retire from hospital work when he became a baronet in 1883. He did not terminate his active work in King's until the year 1893.

At the annual meeting of the College of Surgeons of Australasia, in March, 1930, the Fellows presented Hamilton Russell with his portrait. In making the presentation Sir Henry Newland, the president, said: "As becomes a disciple in person of Lister, the great master and maker of modern surgery, Hamilton Russell is known to be humble-minded and modest; to have wisdom and foresight; to be honest in his desire to find truth; and to be stainless in word and deed." In acknowledging the presentation of an excellent oil portrait, the recipient spoke warmly of his good fortune in having been "a student in the hands of the greatest scientific surgeon the world has known." And he added: "He was something more than a great surgeon; he was a great idealist, who set no bounds to the loftiness of his ideals. From him I learned other things than the mere science of surgery. He told me that the profession I had chosen was the most exalted of all callings . . . and that the operating theatre of the hospital was a place more sacred than a cathedral. . . . With the memory of such a master ever present with me, I could not possibly stand here and accept this splendid gift at your hands without in spirit laying it at his feet."

Like all who came in direct contact with him, Hamilton Russell was inspired by Lister with a love of learning, a patience and constancy in the pursuit of truth, a sincerity of thought and word, and a lofty idealism. Like his great master, he was devoted to children, and was a life-long friend to his pupils and all his junior colleagues. He very aptly, in one of his addresses, quoted some lines of William Watson as applying to his own old chief. All who have in any way been connected with Hamilton Russell will agree that they also well describe the feelings of those who were privileged to be his fellow students, his pupils, his colleagues, his friends, or his patients:

> "'Tis human fortune's happiest height to be
> A spirit melodious, lucid, poised and whole;
> Second in order of felicity
> I hold it to have walked with such a soul."

THE LATE SIR WALTER FLETCHER

Dr. TH. MADSEN, president of the League of Nations Health Committee, writes from the State Serum Institute, Copenhagen:

Among the many who have felt the much too early death of Sir Walter Fletcher as a very painful loss must also be counted the Health Organization of the League of Nations. In a variety of ways Sir Walter Fletcher gave us advice and assistance of important consequence, and I would particularly emphasize the interest which from the very first he took in the work that is being done by the Permanent Commission on Biological Standardization. As you will be aware, some of its most important activities are concentrated in the National Institute for Medical Research at Hampstead, under the leadership of Sir Henry Dale and his highly efficient staff, and these activities have always had the advantage of Sir Walter Fletcher's active and able support. For these reasons the Health Organization feels deeply indebted to him, and will always cherish his memory.

[1] *Journal of the College of Surgeons of Australasia*, July, 1930.

THE LATE MR FRANK JEANS

The first part of the funeral service for the late Mr Frank Jeans was held in Liverpool Cathedral on June 23rd, in the presence of a large congregation, including many representative members of the University, the Royal Infirmary, the Medical Institution, and the medical profession generally We print below extracts from personal appreciations written by leading colleagues in Liverpool

Professor R E KELLY writes Always a surgeon of broad interests, his chief work centred in urology, a specialty in which he so excelled that he was elected president of the Urological Section of the Royal Society of Medicine, an honour of which he was very proud In many ways Jeans was a true pupil of Banks Each in his turn was the best after dinner speaker in our city Jeans had a fund of humour of a whimsical flavour all his own, while his rapier like wit and felicitous turn of phrase were a constant delight He was very much loved, and will be greatly mourned A generation of medical students will remember what he said when much of their medical teaching has faded into the twilight of forgotten things

Professor JOHN HAY writes We knew him as a man of great courage, in whom there was nothing mean or paltry, outspoken, fearless, and with a soul full of kindliness His was a fine, big, generous nature, permeated with that rare quality, the gift of charity When he spoke it was as a master of happy speech and felicitous phrases, and his friends and students will always remember with pleasure and profit the witty aphorisms with which he enlivened his conversation But behind the wit and the humour was sound judgement, based on wide knowledge and an uncanny understanding of human nature, and to him to understand was to forgive

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We regret to announce the death, on June 24th, at Clapham Park, S W , of Dr J GRAY DUNCANSON, at the age of 62 He was the younger son of the late Rev P C Duncanson, and was educated at Hamilton, Glasgow Academy, and Glasgow University, where he passed his final examination for the M B and C M with commendation at the age of 20, graduating when 21 He acted as assistant to Dr Gowans of South Shields, and on returning to Glasgow was appointed resident medical officer in the Victoria Infirmary He then paid an extensive visit to the East, and in 1894 carried on a large general practice in the Woolwich, Shooters Hill, and Blackheath district with his elder brother, Dr J C Duncanson In 1914 he joined the R A M C , and organized the Auxiliary Hospital, Woolwich, later commanding the medical division at the Royal Herbert Hospital Proceeding to France he became registrar, and organized in great measure No 72 General Hospital, Deauville He rose rapidly to the rank of major, and was twice mentioned in dispatches From 1920 he held the appointment of regional medical officer at the Ministry of Health, which work he was carrying on at his death Dr Duncanson had been secretary and vice president of the Therapeutical Section of the Royal Society of Medicine, and for some years he was a member of the National Formulary Subcommittee of the Insurance Acts Committee

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The following well known foreign medical men have recently died Geh Med Rat Professor RODERICK STINTZING, formerly director of the Medical Clinic at Jena, aged 80 , Professor C E OVERTON, emeritus professor of pharmacology at Lund, aged 68 , Dr ROBERT SCHELLER, *extraordinary professor of Hygiene at Dresden*, aged 57 , Lieutenant General PAUL DEMOLDER, inspector of the health service of the Belgian Army and Commander of the Order of St Michael and St George, and Commander of the Legion of Honour ; Dr F G GADE, formerly editor of *Norsk Magasin for Laegevidenskaben*, aged 73 , Dr EDOUARD JULIAN, co editor of *L'Interprète des Chercheurs et Curieux*, aged 59 , Dr V HUTINEL, formerly professor of children's diseases in the Paris Faculty of medicine and Commander of the Legion of Honour , and Dr R SOUTTER, a Boston orthopaedic surgeon

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL

OPENING OF NEW BUILDINGS

The new buildings of the Medical School of King's College Hospital, Denmark Hill, were opened on July 4th by H R H Prince George Admiral of the Fleet Earl Beatty, the new chairman of the hospital committee of management, presided over the ceremony, which was attended by the Vice Chancellor of the University of London, the Mayors of Camberwell and Lambeth, and the members of the school and hospital staffs Lord Beatty reminded the gathering that King's College came into being in 1829, the Medical Faculty in 1830, and King's College Hospital in 1839 Until the hospital was founded the medical students had had to walk the wards of other hospitals The hospital was in proximity to the College in the Strand until 1913, when it was removed to Denmark Hill A few years ago it was decided to celebrate the centenary of the Medical School by taking in hand a much needed extension, and the new buildings resulting from that project he asked the Prince to open

Prince George said that medicine and surgery, with all their specialized branches, were progressing steadily year by year, and to keep pace with this progress the task of the teacher and the student alike grew ever more exacting It was therefore essential that the student should take full advantage of the modern methods of medical education But the school had another function in addition to the training of students—namely, the study of disease and research into its causes, with the object of advancing its treatment and prevention To celebrate the centenary of the school the authorities had wisely decided to extend its facilities for the exercise of both these functions He added that the records of the school during the past one hundred years contained the names of many distinguished physicians and surgeons, but two of them deserved special mention—namely, Lister, the association of whom with King's College Hospital and School for sixteen years would ever make it famous, and David Ferrier, who, in its neuro pathological laboratories, carried out his great researches into the functions of the brain

The Dean (Dr J A Drake) then gave a brief account of the new buildings The decision to extend the Medical School, he said, was not prompted only with the object of celebrating the centenary , additional accommodation had become essential owing to the increased number of students In planning the new buildings both the education of the student and the necessities of research had been kept in mind, and provision had been made for further extension should this be desirable in the future First and foremost, there was a large pathological museum of modern design , additional class rooms had been provided , a large laboratory had been built and equipped for biochemistry, and a number of smaller laboratories would be at the disposal of the medical and surgical staff, and also of younger men who were qualified to use them and anxious to investigate any special problem of disease In addition there were large common rooms for men and for women students, and a refectory hall, which could also be used for special lectures and meetings and for such events as the annual opening ceremony of the winter session The cost of the new buildings was approximately £40,000, towards which £10,000 had been voted by the Court of the University of London Other sums had been collected from well wishers by the Dean Emeritus (Dr Willoughby Lyle), and the building fund had also been greatly increased by the policy of financial conservatism which had been pursued by the school for some years past, but a building debt of approximately £5,000 remained

An inspection of the school was then made by the general company The teaching museum while allowing a complete general view, is arranged in separate bays for classification purposes and for the instruction of students in the various branches of medicine, surgery and obstetrics The biochemical research laboratory has been constructed on an additional floor over the original

students' pathological laboratory, and the work in it will be run in conjunction with the reconstructed diabetic clinic of the hospital. There is also a dental museum, which will provide all the accommodation necessary for the increasing number of specimens which are being collected by a growing dental school.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

THIRD M.B.—(*Part I, Surgery, Midwifery, and Gynaecology*): S. T. Anning, T. M. Bell, N. B. Betts, W. R. Billington, G. O. A. Briggs, J. C. Buckley, F. Clifton, E. L. Cohen, W. J. B. de Gruchy, J. H. Dixon, A. B. Evans, S. M. Evans, G. L. Foss, W. R. Gavin, W. E. F. Gough, E. M. Griffin, E. R. Hargreaves, N. H. Harwood-Yarred, J. D. Hay, E. C. Herten-Greaven, G. T. Hindley, A. C. L. Houlton, W. R. S. Hutchinson, L. G. Irvine, G. H. Jennings, A. Kekwick, J. H. Lankester, J. C. Lee, R. S. Lewis, W. H. Lewis, M. K. Martyn, F. S. A. Maw, W. B. Mumford, W. F. Nicholson, G. S. W. Organe, E. W. Price, E. G. Pyne, L. R. J. Rinkel, G. C. D. Roberts, H. J. M. Robinson, M. A. Rugg-Gunn, J. H. Shakespeare, J. Smart, J. T. W. Spiridion-Kliszczewski, S. M. Thompson, O. A. Trowell, J. G. Vincent Smith, E. O. Walker, G. E. Walker, H. C. M. Walton, W. F. Walton, G. L. Ward, V. H. Wilson. *Women*: P. L. Holliday, F. C. Naish, M. C. A. Robson, R. A. Rushton, E. D. Thompson. (*Part II, Principles and Practice of Physic, Pathology, and Pharmacology*): G. L. Alcock, S. T. Anning, W. T. C. Barber, H. Barcroft, G. F. Barran, C. G. Batty-Smith, W. T. C. Berry, E. J. M. Bowlby, G. O. A. Briggs, K. L. Buxton, R. Cairns, C. M. Carr, A. H. Charles, E. L. Cohen, A. G. Cross, W. Dykes Bower, G. L. Foss, P. H. R. Ghey, J. N. Groves, M. I. A. Hunter, W. R. S. Hutchinson, L. G. Irvine, J. G. Jones, D. Kyle, A. W. Langford, A. B. MacGregor, W. S. McKenzie, T. C. Maling, J. W. Maycock, A. Miller, M. P. Morel, J. G. More Nisbett, H. J. V. Morton, B. C. Murless, R. Q. Parkes, E. W. Price, J. S. M. Pringle, S. A. Propert, I. G. Robin, G. Scott, E. Sharp, E. P. Sharpey-Schafer, D. W. Smithers, J. G. C. Spencer, R. A. Sykes, E. W. Taylor, G. W. Thomas, H. B. Tipler, O. A. Trowell, T. M. Tyrrell, G. I. Watson, R. H. H. Williams, J. Wilson. *Women*: D. K. Emery, M. Sutcliffe.

UNIVERSITY OF BIRMINGHAM

At a congregation held on July 1st the following medical degrees were conferred:

M.D.—F. H. Healey.
M.CH.—W. Gemmill, B. Lloyd.
M.B., CH.B.—*D. M. Brown, *†C. S. Whitehouse, H. C. Aston, G. R. Clarke, A. C. Edwards, R. E. P. Field, J. G. H. Frew, A. Hemming, ‡J. Montgomerie, Emma D. N. Part, F. J. Rutter, W. P. Stevens, J. L. Whatley.

* Second-class honours. † Distinction in surgery.
‡ Distinction in medicine.

The following scholarships and prizes have been awarded: *Queen's Scholarships*: (Third year) L. W. Aldridge, (fourth year) H. B. Hunt, (fifth year) J. S. Mitchell, (final year) C. S. Whitehouse. *Arthur Foxwell Memorial Medal*: (Final year) J. Montgomerie. *Sampson Gamgee Memorial Medal for Surgery* (final year) and *Priestley Smith Prize for Ophthalmology* (final year): C. S. Whitehouse. *Russell Memorial Prize*: O. A. Trowell. *Peter Thompson Prize in Anatomy*: (Third year) E. J. Goldman.

UNIVERSITY OF DURHAM

At the Convocation held on June 27th, presided over by the Chancellor, Lord Londonderry, the honorary degree of D.C.L. was conferred on Lord Horder, M.D., F.R.C.P., physician-in-ordinary to the Prince of Wales and senior physician to St. Bartholomew's Hospital.

UNIVERSITY OF SHEFFIELD

Constance N. Jenkinson has been approved for the degree of M.D.

UNIVERSITY OF GLASGOW

At a meeting of the Senate on June 30th Professor D. F. Fraser-Harris, M.D., D.Sc., was awarded the triennial prize (for 1932–3) in the history of medicine for an essay on "Antiseptics before Lister."

UNIVERSITY OF WALES

The following candidates have satisfied the examiners in the examination indicated:

DIPLOMA IN PUBLIC HEALTH.—(*Part I*): G. J. Roberts, Jean J. Smith, Anne E. Williams-James.

NATIONAL UNIVERSITY OF IRELAND

HONORARY DEGREES

The Senate at its recent meeting decided that honorary degrees, as follows, should be conferred in connexion with the forthcoming Annual Meeting in Dublin of the British Medical Association:

LL.D.

Professor T. Gillman Moorhead, M.D., P.R.C.P.I., as President of the Royal Academy of Medicine in Ireland, and in recognition of his eminence in his profession.

Sir Humphry Rolleston, Bt., G.C.V.O., M.D., D.Sc., LL.D., in recognition of his services as late Regius Professor of Physic at Cambridge University, and of his association with the National University of Ireland as an extern examiner.

M.D.

Sir Robert Bolam, LL.D., M.D., F.R.C.P., in recognition of his work as former Chairman of Council of the British Medical Association.

Sir Henry Brackenbury, LL.D., M.R.C.S., as Chairman of Council of the British Medical Association.

D.Litt.

T. Percy C. Kirkpatrick, M.D., F.R.C.P.I., in recognition of his contributions to literature.

D.Sc.

Professor Joseph Barcroft, F.R.S., in recognition of his eminence as a physiologist, and of his long association with the University as an extern examiner.

Rufus Cole, M.D., Director of the Rockefeller Medical Research Hospital, New York City, in recognition of his eminence in medical research.

Professor Dean Lewis, M.D., in recognition of his work as President of the American Medical Association.

Professor Thomas H. Milroy, M.D., B.Sc., LL.D., Professor of Physiology in Queen's University, Belfast, and for many years extern examiner in the National University of Ireland.

Sir Edward Sharpey-Schafer, LL.D., Sc.D., F.R.S., in recognition of his contributions to scientific literature.

D.Sc. (*Public Health*)

Professor J. M. Beattie, M.D., in recognition of his services to public health, and of his association with the University as an extern examiner.

Sir Leslie Mackenzie, LL.D., M.D., F.R.C.P.Ed., in recognition of his services to public health.

Sir John William Moore, M.D., F.R.C.P.I., D.P.H., in recognition of his services to public health, and as Past-President of the Royal College of Physicians of Ireland.

M.Ch.

John F. O'Malley, F.R.C.S., a distinguished former student of Queen's College, Galway, and in recognition of his eminence as an oto-rhinologist.

Sir Hugh Rigby, Bt., K.C.V.O., M.S., F.R.C.S., in recognition of his eminence as a surgeon.

UNIVERSITY COLLEGE, CORK

The following candidates have been approved at the examinations indicated:

M.B., B.CH., B.A.O.—J. J. Linehan (second-class honours), J. S. Kelleher, M. F. Kelleher, J. G. O'Sullivan. (*Part I*): C. J. Cantillon, P. J. Geoghegan, H. L. Lentin, J. P. O'Leary. (*Part II*): M. Flavin.

M.D.—J. D. Riordan, R. C. Webster.

D.P.H.—Mary C. O'Connell.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Primary Fellowship Examination

The following have been successful at the First Professional Examination for the Diploma of Fellow:

E. S. Allin, G. N. Bailey, M. Baillie, Alice J. M. T. Barnes, P. Baron, R. J. V. Battle, B. J. Bickford, A. N. Birkett, A. W. Bone, Arabinda Chaudhuri, J. A. Cholmeley, E. J. Collins, W. S. Diggle, D. B. Fraser, K. D. Fraser, O. M. Galal, S. Glaser, H. C. P. Gunewardene, T. S. Heslop, L. J. Honeywill, J. S. Horn, L. J. Horn, J. Hughes, D. W. Jolly, H. Josephs, Marjorie F. Landau, V. D. Logue, J. N. Madan, I. Magdi, I. W. Matheson, D. N. Matthews, B. W. Nairn, W. McN. Niblock, J. C. Nicholson, G. W. Palmer, M. M. Pandya, Dorothy J. Perkins, S. Rameshwer, E. P. Rigby, Elaine M. K. Salmond, D. M. Samuel, D. A. Sanford, J. Scholefield, A. K. Sen, B. K. Sheorey, J. F. Shepherd, M. Z. R. Siddiqui, D. Slome, T. M. Smith, R. R. S. Strang, S. Sunkavally, W. H. Sweet, H. G. Ungley, J. R. Vaid, D. Whitteridge, D. Wilkie, B. L. Williams, R. H. Young.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—J. L. Cope, S. A. de Souza, H. M. el Magidi, T. E. Mitchell, P. J. Purcell.

MEDICINE.—W. H. Ekin.

FORENSIC MEDICINE.—E. Cohen, S. Gurevich, S. G. Nathan, A. W. Turner.

MIDWIFERY.—E. C. Dax, T. Gardner, A. E. Glanvill, N. C. Lendon, R. M. Outfin.

The diploma of the Society has been granted to Messrs. W. H. Ekin, A. E. Glanvill, S. Gurevich, and T. E. Mitchell.

The Services

Lieut.-Colonel H. M. J. Perry, O.B.E., R.A.M.C., has been appointed Honorary Surgeon to the King, and is promoted brevet-colonel, vice Major-General H. Ensor, C.B., C.M.G., C.B.E., D.S.O., late Royal Army Medical Corps (ret.).

R.A.M.C. COMMISSIONS

Twenty-five permanent commissions in the Royal Army Medical Corps will be offered on July 27th, and applications should reach the War Office not later than July 21st. Candidates will be selected for commissions without competitive examination, and will be required to present themselves in London for interview and medical examination. They must be under 28 years of age on August 1st, 1933, and registered under the Medical Acts. All particulars may be obtained from the Assistant Director-General, Army Medical Services, the War Office, Whitehall, S.W.1.

DEATHS IN THE SERVICES

Major Robert George Thompson, R.A.M.C. (ret.), died on May 15th, aged 71. He was born at Cork on November 29th, 1861, and was educated at Queen's College, Cork, graduating M.D., M.Ch. in the Royal University of Ireland in 1883. Entering the R.A.M.C. as surgeon on May 30th, 1885, he reached the rank of major after twelve years' service, and retired on January 7th, 1903, but rejoined for service on the outbreak of the great war on August 6th, 1914. He served in Burma in 1885–7, receiving the frontier medal with a clasp; in Sierra Leone in 1898–9, in the Karene expedition (medal with clasp); and in the South African war, taking part in operations in Cape Colony in 1901.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The Ministry of Health Vote was chosen for debate in the House of Commons this week. Discussion also arose on the Foreign Office Vote, the Board of Trade, the Forestry Commission, and the proposed special grant of £500,000 to distressed areas.

In the House of Lords on June 28th the Royal Assent was signified to the Finance Act, the Pharmacy and Poisons Act, and other measures. No day has yet been appointed for the Pharmacy and Poisons Act to come into force.

The Samaritan Free Hospital for Women Bill was read a first time in the House of Commons on June 28th.

On July 4th, in the House of Lords, the Manchester Royal Infirmary Bill was read a second time.

Superannuation of Mental Hospital Officers

On June 28th the House of Commons in committee considered the Local Government and Other Officers Superannuation (Temporary Provisions) Bill On Clause 1 ("Certain reduction in remuneration to be disregarded for purposes of superannuation") Mr. SHAKESPEARE, for the Ministry of Health, accepted an amendment, moved by Sir Henry Jackson, to add after the word "computing" the words "for purposes relating to superannuation." Further drafting amendments were made without discussion, and the committee agreed to substitute September 1st, 1931, for October 1st, 1931, as the start of the period to which the Bill applied. Sir Henry also proposed that the Bill should cover cases where reductions of salary were made for the first time after October, 1933. Mr. Shakespeare could not accept the amendment, because by April 1st, 1932, the various associations had been told by the Ministry that if any further arrangements regarding pensions were made they would be *ultra vires*. The amendment was negatived. Mr. GREENWOOD said he had an amendment to make it clear that officers or servants to whom the Asylum Officers Superannuation Act, 1909, applied should be in the Bill. There was doubt whether an understanding between the Mental Hospitals Association and those employed at mental hospitals was a bona fide understanding within the terms of the Bill. It might be that the Mental Hospitals Association had no authority to impose any understanding it might reach with the British Medical Association or the Mental Hospital Workers' Union. It now appeared in the opinion of the Ministry of Health that, as regards this section of the public service, an understanding was not an understanding. The Minister had refused to discuss this question with the organizations concerned. Mr. GREENWOOD thought it clear that there had been an understanding between the Mental Hospitals Association and bodies of officers and servants that, in consideration of voluntary reductions of salaries and wages, superannuation rights should be maintained. Mr. SHAKESPEARE replied that asylums officers would be treated exactly as anybody else. They would be included in the Bill if, in fact, an understanding was made in good faith between the visiting committees and their officers. If agreements had been reached between national bodies that would be evidence that there had been an understanding. Local agreements would be considered too.

Further, on Clause 1, Captain ELLISTON moved an amendment designed, as he explained, so that local authorities should have a chance to reconsider their position in respect of the Bill and to adjust the superannuation in the case of those persons whose pensions they wished to secure. He said that in September, 1931, on the publication of Memorandum No. 1122 of the Ministry of Health, the Association of Mental Hospital Workers consulted the British Medical Association and the Royal Medico-Psychological Association and other bodies interested, and submitted a scale of reductions, which was accepted by the visiting committees. In due course the Ministry of Health pointed out that, subject to the amendment of the Asylum Officers Superannuation Act, the pensions must be based on the actual salary paid. Of sixty-six hospitals outside London nine made no reductions and were unaffected by this Bill, twenty-four continued to make superannuation deductions based on the original scale, and twenty-seven acted on the advice of the Ministry. The Bill whitewashed or indemnified the hospitals which ignored the Ministry's advice, while the twenty-seven which acted in accord with it would be outside the terms of the Bill. If that were accepted, injustice would be done to a large number of local government officers. The final circular of the Ministry, issued three months ago, said that unequal treatment would give rise to discontent among the officials. Mr. SHAKESPEARE could not accept the amendment. He knew the interest Captain Elliston took in these cases. The amendment struck at the principle of the Bill. It would bring in cases that were not made with the understanding that a cut in remuneration should not affect pensions. The amendment was unacceptable because the principle was applied first to personal pension. The amendment was withdrawn. Mr. Shakespeare gave Mr. Greenwood an assurance that asylum officers, being appointed by the council or visiting committee, would be within the scope of the Bill.

The Bill then passed through committee, and was set down for report.

The later stages of the Local Government Superannuation Bill was set down for July 5th in the House of Commons.

Prison Governors and the Health of Prisoners

In moving a Vote for Police in England and Wales on June 30th, Sir JOHN GILMOUR said that traffic offences, mostly connected with motor cars, accounted for 43 per cent. of all criminal proceedings in 1931. There had been in recent years a decrease in such offences as drunkenness and sleeping out. Broadly speaking, there was improvement in social conditions and social behaviour. In crimes involving the taking of life there had been no increase over the past twenty years. Lady ASTOR said that sexual offences against young persons were increasing. Offenders—men who were not normal—were sent to prison, came out, and again committed these appalling offences. There should be some other way of treating such a man. If there was no other way but prison he ought to be kept there for life. She urged the Government to bring in a Bill incorporating the recommendations made by the Committee on Sexual Offences against

Young Persons, by the Committee on the Treatment of Juvenile Offenders, and by the Committee on Persistent Offenders.

The Vote for Police was technically withdrawn to allow a discussion on the Vote for Prisons in England and Wales. General SPEARS raised the case of an ex-soldier who was sentenced at Coltshill to fourteen days' imprisonment for sleeping out. The man went to prison quietly, but would not keep his cell door closed, and was agitated. He was brought before the acting governor and sentenced to three days' solitary confinement on bread and water. Subsequently at the inquest the prison doctor, Dr. Humphrey, said the man might have had some degree of claustrophobia, which would be aggravated by being alone and silent. That doctor gave a certificate that the prisoner was a fit man, and in a fit condition to undergo solitary confinement. The acting governor had punished the prisoner for being in a state of frenzy. During the journey to the punishment cell he took a leap forward down a flight of stone steps, and received an injury on the back of the head, behind the ear, which was not noticed. He was put into the punishment cell and died in a few minutes. This occurred in Winson Green Prison. Sir FRANCIS FREMANTLE said that governors of prisons had an immensely difficult task. Things would be carried too far if the description "claustrophobia" were applied to the objection of every prisoner to being shut in a cell. Medically speaking, the general meaning of claustrophobia was clear but indefinite. It was extremely difficult to be sure of that condition in another person. There was some claustrophobia, some feeling against being shut up, in the case of every prisoner. What was required was a close supervision of prisoners of nervous temperament during the whole of their time in prison, without waiting until they complained. There should be constant reports to the governor. The ordinary procedure was for the medical officer to keep under his supervision all the prisoners at all times. Could the governor say that he was in touch with the medical officer in regard to this case, and was alive to the medical aspect? Earl WINTERTON asked Sir Francis Fremantle to say if an injury of the kind which caused this man's death would not have been noticed by persons standing near when he fell. Sir Francis said there were many injuries, as in the hunting field, where little was apparent at the time, but where, if there had been fracture of the skull, a man might drop dead within half an hour. In the Army the commanding officer was responsible for the health of his troops, and had to take the advice of the medical officer. Was a governor of the prison responsible for the life of his prisoners and in constant touch with the medical officer? Was there any scheme for some kind of training of prison governors in the care of health and mentality? Combatant officers in the Army had to go through a regular course in this. He did not believe there was any such training for prison governors before or after appointment.

Mr. HACKING said there was no need for further inquiry into the case raised by General Spears. The prisoner had twice previously been arrested for sleeping out, but had been discharged. After he got to prison he was unruly and almost violent practically the whole time. The prison doctor said clearly that claustrophobia was not the cause of the man's death. Some of his actions might have indicated claustrophobia, but on balance the prison doctor reached that conclusion. He was glad Sir Francis Fremantle had made a statement on the number of prisoners who made out they suffered from this complaint. The governor of any prison was responsible for the health of the prisoners, but was always guided in matters of health by the prison doctor. He also gave due weight, as in this case, to the opinion of his medical officer as regards the psychology of the prisoners. It was after the man was dead that the prison officer at Winson Green agreed that claustrophobia was a possible explanation of the frenzy. The jury came to the conclusion that no blame attached to anyone, and he—Mr. Hacking—could not see that any further action was necessary or desirable. Answering Sir Francis Fremantle, he said knowledge of health condition, sanitation, and psychology was not demanded in the appointment of governors or deputy governors as a general rule, although some governors had special knowledge. Mr. Hacking mentioned that consideration was being given to the question of introducing legislation authorizing long sentences of detention for persistent offenders over 21.

Mr. RHYS DAVIES remarked that violence against the person and malicious and felonious wounding had gradually decreased since the war.

After discussion upon the treatment of young offenders the debate was adjourned.

University Degrees: A New Bill Introduced

In the House of Lords on June 29th Lord JESSEL secured permission to withdraw the Universities Spurious Degrees (Prohibition of Use and Issue) Bill. He said considerable objections had been taken to the Bill on account of its faulty drafting. He proposed, therefore, to introduce a new Bill, the University Degrees Bill, to make provision with respect to the unauthorized grant, issue, use, or assumption of university degrees, and with respect to the penalties to be imposed in respect of such unauthorized grant, issue, use, or assumption. The new Bill was then read a first time without debate, and ordered to be printed.

Disablement from Nystagmus.—On June 26th Sir J. GILMOUR, replying to Mr. Tom Smith, stated that the number of cases of nystagmus for which certifying surgeons in Great Britain gave certificates of disablement during the years 1920 to 1931 inclusive were: 1920, 2,216; 1921, 1,986; 1922, 4,047; 1932, 4,050; 1924, 3,446; 1925, 3,564; 1926, 1,863; 1927, 2,205; 1928, 2,515; 1929, 2,677; 1930, 3,248; 1931, 2,829. The tabulation of the figures relating to 1932 was not complete. In a certain number of the above cases the decision of the certifying surgeons had been reversed by the medical referee, but precise figures were not available.

Reports of Sitting Commissions.—On June 28th Mr. HORE-BELISHA furnished a list of committees and commissions still sitting. Among those which he expected to report in the course of the present year were the following: Workmen's Compensation (Industrial Diseases)—to inquire into the inclusion of turpentine poisoning and papilloma; Medical and Dental Branches of Defence Services—to investigate the cause of the shortage of officers and nurses; Mental Disorder and Sterilization of the Mentally Unfit—to consider the causation of mental disorder and the value of sterilization as a preventive measure.

Housing Progress in England and Wales.—Sir HILTON YOUNG told Mr. Price on June 29th that the number of houses completed in England and Wales during the years ended March 31st, 1932, and 1933, was:

	With State Assistance		Without State Assistance
	By Local Authorities	By Private Enterprise	
March 31st, 1932 ...	67,576	2,333	130,903
March 31st, 1933 ...	54,565	2,493	143,437

These figures referred to houses of a rateable value not exceeding £78 (£105 in the Metropolitan area).

The Boundary Limit of Ambulance Service.—Mr. DORAN asserted on June 29th that local arrangements all over the country did not permit an ambulance to render aid, even in the case of a serious accident, in an adjoining district. Sir HILTON YOUNG replied that he was unaware of this, but was causing inquiries to be made into the circumstances of a case recently reported, in which difficulty arose. He would consider whether any general action was necessary.

The Noise Nuisance.—During the twelve months ended May 31st, 1933, there were 2,930 prosecutions in the metropolitan police district for noise offences in connexion with motor vehicles.

Notes in Brief

In [illegible] colliery explosions in the United [illegible] the total deaths being sixty-[illegible]

[illegible] L. Cope, S. A. Mitchell, P. J. Purcell.

MEDICINE.—W. H. Ekin.

[illegible]SIC MEDICINE.—E. Cohen, S. Gu[illegible] report of the Chief [illegible] C. Dix, T. Gardner, A. E[illegible]onth.

London, R[illegible] Society has been granted [illegible] W. H. Ekin, A. E. Glan[illegible] S. Gurevich, and T. E. [illegible]

DIPLOMA IN PUBLIC HEALTH.—(*Part I*): G. J. Roberts, Jean J. Smith, Anne E. Williams-James.

Medical News

The new Freemasons' Hospital and Nursing Home at Ravenscourt Park, Hammersmith, of which a short account was given in the *Journal* of May 13th (p 840), will be formally opened on Wednesday, July 12th, by the King, who will be accompanied by the Queen

The fifteenth annual meeting of the Mental Hospitals Association will be held at the Guildhall, London, on Wednesday, July 12th, at 11 a m

The next series of lectures and demonstrations on tropical hygiene, intended for men and women outside the medical profession proceeding to the Tropics, will be given by Lieut Colonel G E F Stammers from July 10th to 19th The synopsis and other particulars can be obtained from the secretary, London School of Hygiene and Tropical Medicine, Keppel Street, W C 1

The Fellowship of Medicine announces a demonstration of *x*-ray films (especially suitable for M R C P candidates) by Dr Peter Kerley, on July 13th, at 4 p m , at 11, Chandos Street, W In the absence of special courses attention is called to the individual clinics which are available daily by arrangement with the Fellowship The number of post-graduates attending each clinic is strictly limited, the usual maximum being four These clinics cover almost every branch of general medicine and surgery, and a full list is printed each month in the *Post Graduate Medical Journal*, or can be obtained on application to the Secretary, Fellowship of Medicine, 1, Wimpole Street, W 1

The quadrennial meeting of the International Council of Nurses will be held in Paris and Brussels from July 9th to 16th Mlle L Chaptal, president of the National Association of Trained Nurses of France, will preside, and some 5,000 trained nurses from all over the world are expected to attend The National Council of Nurses of Great Britain has nominated Miss Alicia Lloyd Still, C B E , R R C , for the position of president of the International Council of Nurses, and has also extended an invitation to the council to meet in London in 1937 The council is to receive official recognition from the French and Belgian Governments, and members of the congress will be received by the King and Queen of the Belgians

The third International Congress for Experimental Cytology will be held at Cambridge from August 21st to 26th Among the topics to which special attention will be devoted are cell respiration and metabolism , cell form and function as demonstrated by recent advances in tissue culture , the electrophysiology of the cell , the mechanism of development , and the cultivation of animal and plant viruses Those wishing to attend the congress are asked to communicate as soon as possible with Dr H B Fell, Strangeways Research Laboratory, via Cherryhinton, Cambridge, from whom further information may be obtained

The third congress of the Societas Oto rhino laryngologica Latina will be held in Paris from July 24th to 26th, with M Justin Godard, former Minister of Public Health, as president of honour, and Dr H Bourgeois as president A report will be made on nerve deafness The subscription is 100 French francs, which should be sent to Dr Chavanne, 5, Place des Cordeliers, Lyons

The Congress of French speaking Physicians will be held at Quebec on August 27th, under the presidency of Professor Rousseau, dean of the medical faculty of Laval

The six opening papers in this month's *Practitioner* are devoted to the newly born child, his care and management, and some of the diseases and defects to which he is liable

The issue of *La Medicina Ibera* for June 10th contains an illustrated account of the seventh international congress of military medicine and pharmacy recently held at Madrid, with portraits of the principal members

The issue of the *Gazette des Hôpitaux* for June 24th is devoted to tuberculosis

Sir Richard Gregory, Bt , Editor of *Nature*, has been elected a Fellow of the Royal Society under the provisions of Statute 12, which provides for the recommendation by the Council of "persons who, in their opinion, either have rendered conspicuous service to the cause of science, or are such that their election would be of signal benefit to the Society"

Applications are invited by the Association of Surgeons of Great Britain and Ireland for a surgical scholarship of the value of £350, to be held for one year The object of the scholarship is to enable the holder to pursue a definite line of research or to study surgery in specified clinics, either at home or abroad The election will be made in November, and applications must reach the secretary of the Association, 65, Portland Place, W , by September 30th

All appeals against the sentences in the Lübeck trial have been rejected by the German High Council of Appeal

Sir Henry Lunn Ltd is arranging to run passenger aeroplanes to Dublin during the Annual Meeting of the British Medical Association The return fare will be £13, which includes road transport between London and Heston aerodrome and also between Dublin aerodrome and the centre of the city Special services can also be arranged at reduced rates if return booking is guaranteed. Sir Henry Lunn Ltd also contemplates running a service by flying boat from Blackpool to Dublin An announcement appears in our advertisement pages this week, and further particulars will be published in the *Supplement*.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B M A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W C 1 on receipt of proofs Authors overseas should indicate on MSS if reprints are required, as proofs are not sent abroad

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal* should be addressed to the Financial Secretary and Business Manager

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines)

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MEDICAL SECRETARY, *Medisecra Westcent London*

The address of the Irish Office of the British Medical Association is 18 Kildare Street, Dublin (telegrams *Bacillus, Dublin*, telephone 62550 Dublin); and of the Scottish Office, 7, Drumsheugh Gardens Edinburgh (telegrams *Associate, Edinburgh*, telephone. 24961 Edinburgh)

QUERIES AND ANSWERS

Celluloid Splints

"J H L" inquires about the method of making the celluloid splints that are used for tuberculosis joints among other purposes

*** Pexuloid—non inflammable celluloid—splints were described in the journals by the late Dr F E Batten of the Children's Hospital, Great Ormond Street some years before the war Acetone is the solvent used not ether alcohol Certalmid which is stronger than pexuloid was introduced by the Pensions Ministry for artificial limbs The materials for making certalmid may be obtained from the General Surgical Company Ltd Glensurco House Rosebery Avenue E C 1 It is scarcely necessary to state that these materials are used in bandage form applied on plaster casts of the affected parts A final external varnish of celluloid solution is used as a finish

Alopecia Areata

Dr. J. SANDISON CRABBE (Birmingham), in reply to "A. A. H.," writes: I wonder if your correspondent among the "usual remedies" has tried strong doses of ultra-violet rays preceded by the high-frequency glass vacuum tube. I have rarely failed to bring hairs on alopecia patches after twelve treatments. It generally shows up about a month after the final treatment.

Vehicle Sickness

"S. C." writes: May I suggest that "Yorkshire" (June 24th, p. 1138) should try "vasano" tablets (Schering).

Income Tax

Life Assurance Allowance

"R. H. J." has an insurance policy which provides for (*a*) a pension (or cash payment) at 65, (*b*) £50 per annum from the date of death until the date at which he would have reached 65, plus a lump sum representing his aggregate contributions accumulated at 3 per cent. per annum, and (*c*) disablement benefit. What relief can he claim for income tax.

*** Where death benefits are combined with others in a policy the income tax relief extends only to that portion of the annual premiums which represents payment in respect of death risk. The benefits covered by (*a*) and (*c*) above appear to be outside the scope of the relief, and the question to be decided is how much of that part of the premium paid in respect of (*b*) relates to death risk. The "lump sum" payment is within that category, and in R. H. J.'s case the inspector of taxes is willing to make the allowance (subject to the usual statutory restrictions) in respect of that benefit. There is another aspect of the question however. The Income Tax Acts provide that the relief shall extend to payments in respect of a deferred annuity payable on the death of the insurer or his wife, provided that the benefits are due under policies for securing a capital sum at death (which is not the case here) or are "made in connexion with any superannuation or bona fide pension scheme for the benefit . . . of persons engaged in any particular . . . profession." Whether the claim to the relief is saved by the latter proviso we do not know, and we suggest that "R. H. J." should put himself into communication with the head office of the company in question and ascertain whether representations have been made to the Inland Revenue Department for a ruling that the company's policies are within that proviso. If so the claim to relief would be appreciably greater than the amount which the inspector of taxes is at present willing to allow.

LETTERS, NOTES, ETC.

The Ionosphere

Less than ten years ago the Post Office was attempting to link up the Empire with a series of wireless stations transmitting on very long wave-lengths and employing enormous power—500 or so amperes—in the aerial. Marconi's discovery of the beam system altered the whole situation, and to-day the bulk of wireless telegraphy and telephony round the world is done by means of very short waves projected in the required direction at a slight angle from the surface of the earth and reflected downwards again by ionized regions of the upper atmosphere. The system is incomparably better than the long-wave method, and uses less power, but it is still subject to unexplained interference and fading-out, which may at times impair its efficiency. The reason for this weakness is that the system depends on a reflecting surface, which varies from hour to hour and from place to place according to laws which physicists have hardly begun to understand. Several of the men who are busy charting these mysterious regions—which have been named by Mr. Watson Watt the "ionosphere" by analogy with atmosphere—met at the Royal Society recently to compare notes in a discussion. Professor E. V. Appleton, whose name has been closely associated with the ionosphere in the loose term "the Appleton layer," described some of the results of the continuous research which has been going on at Slough by the method of wireless wave exploration. When a wave of a certain frequency is projected vertically upwards and strikes an ionized layer corresponding to its frequency it will be reflected back, having undergone certain changes which betray certain facts about the conditions it has encountered on the journey. For instance, it will have taken a certain time which, multiplied by the speed of light, will give, not the actual height, but the equivalent height of the layer which has reflected it. Some echoes are split into doublets by the earth's magnetic field, one half being of left-handed and the other of right-handed polarization. If a series of signals at a given wave-length are sent up and the wave-length is gradually shortened, the echoes will continue to return until a certain frequency is reached, when they suddenly stop. This means that the particular ionized layer has been penetrated, because the ionic density is not sufficient to reflect waves of that frequency. If, now, the frequency is raised still further, another point will be reached at which echoes start to return again. They are now being reflected from a more remote region of three or four times as dense an ionization as the nearer one. If the frequency is increased still further the waves will penetrate the whole ionosphere and go out into space. The lower region, about 105 kilometres above the earth, is called E; the upper region, at about 180 kilometres, is called F. In addition, intermediate levers of lower ionization than the E region are sometimes detected, but only when the E region happens to be absent for some exceptional reason. The limitation of the method is that if there should be a region of low ionization above a region of high ionization it will remain undetected. There is a kind of ledge on the F region: as the frequency is raised the ionization is shown to increase rapidly, then not so rapidly for a while, then rapidly again. The activity of the ionization of these levels varies with the times of day, for it is produced by the ultra-violet light of the sun. It is greatest at noon and falls off towards sunset, the minimum being reached about midnight. Ionization starts to build up an hour or so before ground sunrise, when the light is already reaching the sky sixty or a hundred miles up. The activity is greater in summer than in winter, and probably also follows the "sun-spot cycle" of eleven years, over which the sun's rays reach a maximum and minimum intensity. Sometimes quite unexpectedly high values are detected: three or four times the normal ionization for the region, and sometimes a powerful E region appears in the middle of the night. This nocturnal activity seems to be due to some kind of radiation which is bent round the curve of the earth by the magnetic field, and the abnormal intensity sometimes recorded in the summer may be due to thundery conditions. During the last few weeks these values have often been noted. It is obvious that progress in this, almost the latest branch of physical research, must be very significant for the perfection of imperial wireless communication.

A.A. London Route Map

For the motorist who requires assistance when driving into or out of London, or for traversing the metropolis in any direction, the Automobile Association has issued a route map covering an area of twenty miles square. The scale is one inch to the mile, and it has been found possible to name all the streets shown so that they are readily identified, and the routes are classified into "London Exits," "Recommended Routes," and "Lesser Roads." In view of their importance as landmarks, bridges, level crossings, golf courses, war memorials, railway stations, tramlines, etc., are specially indicated, while the Ministry of Transport numbers are given. Any motorist may obtain a free copy on request from the A.A., Fanum House, New Coventry Street, W.1.

A Warning

The local police ask us to publish a warning notice about a man who is visiting doctors in the Manchester area requesting them to subscribe to an ex-service men's athletic sports club, with which is associated a team of boy scout boxers. The literature that he presents is cyclostyled, and if carefully looked at is obviously faked. The police and the different ex-service organizations are anxious to stop him, and any practitioner whom he visits would do well to notify the police.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 40, 41, 42, 43, 44, 45, and 48 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 23.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

16 Intravenous Injections of Alcohol in Septicaemias

It has been demonstrated that intravenous alcoholic injections in broncho-pulmonary suppurations involve no risk to the patient. M. HAMBURGER and GUÉRIN (*Presse Méd.*, March 8th, 1933, p. 375) draw attention to their use in septicaemias. They are, however, indicated only in grave cases of general infection after failure of the usual remedies. The effects of alcohol on the blood are governed by the strength of its dilution and the dosage. *In vitro*, alcohol causes either haemolysis or coagulation; weak dilutions produce neither reaction, concentrated solutions above 50 per cent. cause both, while those below 25 per cent. occasion haemolysis but no coagulation. *In vivo*, other conditions arise. To inject a given quantity of alcohol weak dilutions cannot be utilized owing to the great amount of fluid that would be necessary; too strong solutions are contraindicated owing to their local action; therefore only average dilutions should be used. The present authors employ dilutions of 33 per cent., a strength which is used also by Landau and his collaborators. Bär and some German authorities report cure in cases of puerperal fever after administering 30 per cent. solutions. The dose varies from a few to 200 c.cm. The benefits of this treatment are shown in two recorded cases, one of staphylococcal septicaemia of long evolution, the other of prolonged fever of unknown origin. To avoid coagulation of the blood in the syringe, admixture of the blood and alcohol must be guarded against; a wise precaution is to smear both needle and syringe with paraffin beforehand. Immediately following the injection, pain, often localized at the shoulder, is felt along the vein, but this rapidly disappears; facial redness, sweats, etc., appear only after large doses. The pain occasionally persists for one or two days, and thrombosis occurred in one case without causing any ill effects. Besides its favourable bactericidal and other properties, alcohol exerts a marked lymphagogic action. Resulting from this treatment the temperature falls by lysis and the blood becomes sterile. The injections should be given when rigors are present, and treatment should be instituted before any organic failing (cardiac, pulmonary, renal, or hepatic) appears.

17 Visceroptosis and Recessive Status Lymphaticus

H. A. HOUGHTON (*Med. Journ. and Record*, March 1st, 1933, p. 184) believes that visceroptosis is a manifestation of a biological deficiency. He classes it with status lymphaticus, vagotonia (autonomic imbalance), cardiovascular asthenia, Addison's disease, and other analogous states—all being associated, at least in part, with chromaffin (suprarenal medullary) deficiency. This may be due to maternal ante-natal infection—syphilitic, tuberculous, or streptococcal—or to acute infections in early life. Status lymphaticus is associated frequently with more obvious disorders—for example, hyperthyroidism, gastric ulcer, appendicitis, spondylolisthesis, chronic arthritis, and pulmonary tuberculosis, as well as various osseous deformities. Many observers have emphasized the relation of lymphatism to chromaffin deficiency; the enlarged thymus, narrowed thinned aorta, cardioptosis, and visceroptosis are pathognomonic. Thymic enlargement and hypertrophy of lymphoblastic tissue has been produced experimentally by suprarenal extirpation. The clinical syndrome termed "vagotonia" is associated with visceroptosis, status lymphaticus, splanchnic neurosis, and diminished suprarenal secretion. Visceroptosis is characterized by asthenia, effort-syndrome, and gastro-intestinal symptoms. The patient's attitude suggests fatigue, the thorax is long and narrow, the epigastric angle acute, and the abdomen protruding, although some patients have rounded contours and abundant superficial fat. These patients are very susceptible to focal and general infections, especially tuberculosis, appendicitis, and chronic arthritis. The cardiovascular system is labile; the patients faint easily; they suffer from "nervous asthma," coryza and other vasomotor disturbances, cold extremities with localized sweating and transient tachycardia, and hypotension. Such symptoms are especially common among mental defectives and psychotics of the schizoid type, alcoholics, criminals, and suicides. The normal involution of hypertrophied lymphoid tissue is delayed, but in those patients who survive the characteristic symptoms tend to disappear, the blood pressure rises, and the heart and aorta approach the normal in size and configuration.

18 Polyneuritis following an Abortifacient

J. J. WUITE (*Nederl. Tijdschr. v. Geneesk.*, February 18th, 1933, p. 795) records three cases, two of which occurred in unmarried women, of polyneuritis following the use of apiol as an abortifacient. Recent investigations at Amsterdam and Leyden have shown that it is not the apiol but the presence in it of tri-ortho-cresyl phosphate that produces the toxic effect. Apiol polyneuritis is thus very similar to the ginger paralysis caused in North America in 1930 by consumption of Jamaica sugar adulterated by tri-ortho-cresyl phosphate; it is manifested by symmetrical paralysis and atrophy, with reaction of degeneration at the distant ends of the extremities and diminution of the tendon reflexes. The sensory disturbance is merely subjective and is only present at the onset. The prognosis is unfavourable, as is shown by the fact that one of the patients who had been under observation for two years was still incapacitated. In this case the presence of a bilateral ankle-clonus indicated a spinal lesion. Wuite draws attention to the fact that the dangerous drug is still obtainable.

Surgery

19 Partial Pancreatectomy in Chronic Spontaneous Hypoglycaemia

E. HOLMAN and O. RAILSBACK (*Surg., Gynecol. and Obstet.*, March, 1933, p. 591) describe ten cases of hyperinsulinism and hypoglycaemia, due to such various causes as a metastasizing tumour or carcinoma of the islets of Langerhans, a benign tumour or adenoma of the islets of Langerhans, or an overactivity of an otherwise normal-appearing pancreas. Hyperinsulinism, with its concomitant hypoglycaemia, is insidiously progressive in its course, and is characterized by symptoms of weakness and exhaustion, nervous irritability, easy fatigability, extreme hunger, muscular twitchings and tremors, imperfect and hazy vision, diplopia, unsteadiness of gait, excessive perspiration, and loss of emotional control. Disorientation is also present in the more serious cases with epileptiform attacks, seizures, syncope, and semi-stuporous states leading to coma and finally death. It was found in nearly every case that frequent meals greatly relieved symptoms, however severe, and might even avert an attack. In all but two of the ten cases surgical treatment was carried out with varying results. In four instances an apparently normal pancreas was found and part of it excised to control the hyperinsulinism. In one of these cases a second operation was necessary to remove necrotic pancreatic tissue. In this case, and one other, definite improvement was noted, but the remaining two relapsed after operation and no final improvement was observed. It is suggested that in these four cases small adenomata in the remaining pancreas may have been overlooked, and it is therefore advisable to mobilize the pancreas fairly completely and to remove at least four-fifths of the gland.

Two patients died from coma before operation, and necropsy disclosed in one case an adenoma in the mid-portion of the pancreas and in the other a small carcinomatous tumour of the islets of Langerhans. In another case a nodular pancreas was found with nodules in the liver, but the patient died a month later of carcinoma of the islets with metastases to the liver. One of the most successful cases was that in which a small adenocarcinoma of the islets was removed from the mid-portion of the pancreas. The patient, a woman of 52, had no further attacks, and this constitutes the first recorded case of a cure of this type of lesion. Of the two remaining cases one had a tumour of β cells of the islets of Langerhans which was enucleated and the other an adenoma of the islets which was excised from the pancreas. No further attacks occurred after operation in either of these cases.

20 Fracture of Tibia with Dislocation of Fibula

M. HUARD (*Bull. et Mém. Soc. Nat. de Chir.*, April 1st, 1933, p. 487) discusses dislocation of the fibula associated with fracture of the tibia and reports four cases in which this occurred. In the majority of cases the dislocation takes place upwards or outwards, and only occasionally forwards. It may hinder the flexion of the knee and may be accompanied by injury to the external popliteal nerve. The fracture of the tibia may take place in any position and an incorrect position of the lower fragment may cause shortening of the limb. In cases of open fracture there is great danger of infection which may necessitate the amputation of the leg and may even cause the death of the patient. Treatment should begin as soon as possible, and should be preceded, in the first instance, by clinical and *x*-ray examination. The reduction of the dislocation should then be carried out, and it has been found that in some cases it is possible, by external manipulation, to reduce both the dislocation and the fracture at the same time. When this fails operation is necessary to reduce the fracture as this is of primary importance. In some instances the dislocation is overlooked at first, and a secondary operation may then be necessary to carry out resection of the head of the fibula. This is a simple procedure and gives good functional results. Where the external popliteal nerve has been involved exploration should be undertaken, followed by electrical treatment, which has proved most satisfactory.

21 Carcinoma of the Colon in a Young Woman

FRIART and RAHIER (*Le Scalpel*, March 18th, 1933, p. 377) report a case of carcinoma of the sigmoid colon in a girl of 26 years. Her symptoms were diarrhoea with vomiting and raised temperature. The abdomen was not distended, but the caecum was tender, borborygmi were present, and pain was felt on pressure over the descending colon. When next seen four days later the diarrhoea had stopped, the abdomen was distended, and considerable loss in weight had occurred. The acute symptoms subsided for about two months, but then recurred. A bismuth meal showed a marked dilatation of the small intestine, but there were no definite indications as to the nature of the obstruction, which was disclosed by a bismuth enema. Laparotomy was then carried out, and showed considerable dilatation of the small intestine—which was obstructed by a band of peritoneal adhesions—and a growth was felt in the sigmoid colon. Owing to the poor condition of the patient it was only possible to make a colostomy in the descending colon above the growth. The patient died, and necropsy showed a mass in the rectum, about 25 cm. from the anus, which was producing a stricture of the bowel. Histological examination of the growth showed this to be a colloid adenocarcinoma which had invaded and extended through the muscular wall of the bowel. There were no signs of metastasis. The unusual occurrence of a carcinoma of the bowel in a patient of 26 years of age and the slight nature of the symptoms make the case of special interest. It is suggested that if a sigmoidoscope had been used the nature of the condition might possibly have been ascertained prior to operation.

Therapeutics

22 Muscle Extract in Cardiovascular Disease

Recent researches suggest that in certain regions of the myocardium substances exist which excite or stimulate systole. P.-N. DESCHAMPS (*Arch. des Mal. du Cœur*, March, 1933, p. 223) reviews the present position thus: (1) "cardiac hormones are sought no longer in the myocardium, but in the skeletal muscles," (2) "the physiological and therapeutic action is definitely vaso-dilator, especially in the coronary arteries." Indications for administration are cardiac failure, arrhythmia, angina pectoris, intermittent claudication, and (occasionally) hypertension. The introduction of these extracts coincides with the discovery that pancreatic and liver extracts have similar vaso-dilator and cardiotonic properties. There is evidence that muscular exertion liberates antispasmodic and vaso-dilator substances, which sometimes prevent anginal attacks or intermittent claudication. Muscle extracts are useful chiefly in spasmodic angina. Attacks due to cardiac dilatation or coronary thrombosis are seldom if ever relieved. One writer reports that 73.5 per cent. of cases of angina were relieved. Those whose blood pressure was only slightly raised benefited most. In another series of eighteen cases twelve were greatly improved, three somewhat relieved, and a further three unrelieved. In addition to these vaso-dilator and antispasmodic effects muscle extracts appear to have a cardiotonic and regulating action, relieving decompensation and arrhythmia. The therapeutic action sometimes resembles that of digitalis. When muscle extract is combined with digitalis the effect is very definite. In two cases, extrasystoles of many years' duration disappeared. Another writer, however, found these extracts useful only in angina. The majority of writers confirm their utility in various arrhythmias. Of other substances "padutin," found in human urine and apparently of pancreatic origin, lowers dogs' blood pressure rapidly (after intravenous injection); and "eutonin" (liver extract) appears to relieve angina, but does not influence arterial tension and rhythm. Muscle extracts are given orally, intramuscularly, or intravenously. The daily dose is 50 to 80 drops. Prolonged treatment is necessary; afterwards, daily doses are reduced gradually to 10 drops or less. Some writers inject 17 minims intravenously in arrhythmia, hypertension, and angina. It produces a sense of warmth, flushing of face, and rapid fall in blood pressure (10 to 30 mm. Hg). No ill effects have occurred. The composition of these substances is uncertain. Many amino-acids have a similar cardiovascular action. A crystalline substance, "adenosine," obtained from muscle extracts, has a powerful vaso-dilator action on the coronary arteries of the guinea-pig.

23 Sodium Barbital in Whooping-cough

A. BREMS (*Ugeskrift for Laeger*, March 30th, 1933, p. 369) reports from the Blegdams Hospital in Denmark observations on the action of luminal (barbital) in about 100 cases of whooping-cough. Only 64 of these cases were, however, suitable for statistical analysis. The preparation used was in every case a 0.5 per cent. solution of sodium luminal. This solution contained 5 mg. per c.cm.—that is, about 2.50 cg. to the teaspoonful. Usually one teaspoonful was given three to six times a day, but this dosage was somewhat reduced for the youngest patients. Children tolerate luminal surprisingly well, and in several cases up to 15 cg. were given daily over a considerable period without any ill effects. In ten of the sixty-four cases the luminal was ineffective; in all the other cases it was more or less beneficial, reducing the violence of the coughing and vomiting. There were half a score of cases in which the relief from the symptoms obtained by this drug ceased when it was temporarily withheld. It was, however, difficult to measure accurately and numerically the degree of benefit derived from this treatment. One drawback to it was the frequency with which rashes broke

out in response to the comparatively high dosage. Among the sixty-four patients there were seven with luminal rashes which passed off when the drug was discontinued. A disconcerting feature of these rashes was their likeness to a measles rash. Marked drowsiness was observed in only three cases, although the exhibition of the drug was often continued a long time.

Ophthalmology

24 Retrobulbar Injections and Seventh Nerve Block

K. K. NAYAR and G. J. NAYUDU (*Brit. Journ. Ophthalmol.*, April, 1933, p. 233) have abandoned blocking the seventh nerve at the stylo-mastoid foramen in favour of O'Brien's method (*Arch. Ophthalmol.*, December, 1929). Observations on 5,000 cases of retrobulbar anaesthesia for various intraocular operations at the Government Ophthalmic Hospital, Madras, show that a 60-mm. dental syringe and a fine needle, 40 mm. long, using 1 c.cm. of a 4 per cent. novocain solution with a few drops of adrenaline, gives the best results. A larger or longer needle is more likely to cause retrobulbar haemorrhage. Paralysis or paresis of the inferor rectus muscle from gravitation of novocain to the floor of the orbit is annoying in cataract extraction, and is best avoided by keeping the needle towards the lateral orbital wall and tilting it slightly upward just before injection. Vomiting has not been experienced. Additional conjunctival anaesthesia is required in enucleation and evisceration.

25 Leber's Disease

L. S. PETRIGNANI (*Thèse de Paris*, 1933, No. 50), who records seven illustrative cases in patients aged from 11 to 32, states that Leber's disease, or familial and hereditary optic atrophy, does not always appear at puberty, but often first occurs at a more advanced age. Its onset is most frequent between 18 and 25. The extreme limits on record are 5 and 71. With rare exceptions the disease is transmitted by maternal heredity, but sometimes it may skip several generations. The essential sign is a central scotoma, which is always bilateral and is more extensive than that due to nicotine and alcohol. It is refractory to treatment of any kind. The central scotoma causes a considerable impairment of vision, but after some months' progress no further aggravation takes place, peripheral vision persists, and the atrophy never becomes complete. The ocular symptoms are often associated with other disturbances such as nervous disorders, which are almost constant, and including headache, change of character, psychical disturbance, epilepsy or epileptic equivalents, endocrine disorders, which are sometimes very marked, and delay in coagulation of the blood. The condition is a simple degeneration and not a post-inflammatory atrophy.

26 Spontaneous Detachment of the Retina

L. PAUFIQUE (*Journ. de Méd. de Lyon*, March, 1933, p. 189), in a review of this subject, states that in idiopathic detachment the vision rarely remains stationary, but progresses to total loss of vision. To effect a cure the hole in the retina must be closed. Though most common in myopes, the condition is frequently found in senile cases with vascular lesions. Inquiry must be made as to syphilis, state of the blood pressure, urine, and the presence of septic foci. Two theories of causation now hold the field. (1) The extravasation theory holds that the retina is detached by the formation of subretinal fluid consequent on choroido-retinal changes. The retina becomes thinned, and gives way at the summit of the extravasation. Analysis of the fluid shows blood pigment and a high percentage of albumin, which point to multiple minute haemorrhages and inflammation. The integrity of the vitreous has been repeatedly demonstrated histologically. (2) By the attraction theory, the formation of vitreous bands and the contraction of the vitreous tears the retina. Through this tear the fluid vitreous pours. The supporting histological evidence has been obtained from old myopic, or disorganized, eyes. The old forms of treatment are of no practical value. Modern operations include: Sourdille's, where multiple punctures are followed by the injection of mercuric cyanide (1 in 10,000), which necessitates several months in bed, is painful, and is only successful in incomplete detachments; Gonin's deep obliterative thermo-puncture, a tedious procedure sometimes followed by large intraocular haemorrhage; Lindner and Guist's, where 15 to 20 trephine holes are made, through which the choroid is cauterized with KOH, a long complicated method, often causing much reaction; diathermic coagulation, which is still in the experimental stage; and, finally, the author's subchoroidal galvano-cauterization. This aims at obtaining choroido-retinal adherence. The site for the operation is indicated by the retinal tear. Five to six careful incisions are made through the sclera, avoiding damage to the choroid, and the point of a galvano-cautery is inserted for two to three seconds. The method is rapid, the patient is only in bed fifteen days, and the results are very satisfactory.

Obstetrics and Gynaecology

27 Diagnosis of Ectopic Gestation

R. F. MATTERS (*Med. Journ. of Australia*, March 11th, 1933, p. 314) records two cases of ectopic gestation to illustrate the difficulties which may occur in reaching a diagnosis. The first patient had no vaginal bleeding nor alteration of her periods, while the second stated that she had been pregnant and had aborted. Doubt was engendered in this respect by her asking for curettage. The provisional diagnosis in the first case was ruptured gastric ulcer. She had severe abdominal pain with tenderness in the epigastrium and free fluid in the abdomen. On vaginal examination the uterus was not found to be enlarged, but there was a boggy fullness in the pouch of Douglas, and the tube, although not noticeably enlarged, was thickened. Palpation with the finger revealed pulsation here, and led to the correct diagnosis without the need of aspirating the posterior fornix, which felt like a retroflexed gravid uterus. The cervix appeared to be soft, but bimanual examination was difficult owing to the fat abdominal wall. Ectopic gestation or ovarian cyst was suspected. On laparotomy the mass was found to be a large unruptured haematosalpinx due to extrauterine pregnancy in the ampullary end of the right tube.

28 Relief of Post-castration Symptoms

A. A. WERNER and W. D. COLLIER (*Journ. Amer. Med. Assoc.*, March 4th, 1933, p. 633) report the effect of theelin injections on women after castration. Four women who had been subjected to complete bilateral oöphorectomy, the uterus being left intact, and one whose uterus had been removed, were given injections of this preparation each day, the doses rising from 4 c.cm. (equivalent to 200 rat units) to 8 c.cm. By means of light curettings uterine material was obtained for histological examination. All the patients had had most of the usual subjective symptoms—namely, nervousness, irritability, headaches, loss of memory, formication, hot flushes, vertigo, and circulatory irregularities. One patient was freed from them in about twenty days. Another had marked improvement after the ninth day, but later developed a sinus infection which caused some trouble. The third was obviously better by the sixth day, and felt normal within a fortnight. The fourth was free from symptoms after the sixth day, and the fifth patient after the seventh day. All had atrophy of the cervix and uterus, but theelin induced endometrial hyperplasia, which was apparent within three weeks. The stroma returned to its normal type and the epithelium became better differentiated. The endometrial thickening never exceeded that of the normal resting or interval stage, but bleeding occurred from it of a type

qualitatively indistinguishable from the menstrual flow in normal women, and accompanied by the usual subjective menstrual symptomatology. In four cases of ovariectomized women to whom large doses of theelin were given libido was markedly increased. Excessive intramuscular injections were given over a period of from eighty-three to ninety-three days without discomfort, until a daily dosage of 6 to 8 c.cm. was reached. The breasts were restored to an apparently normal state.

29 Aschheim-Zondek Reaction in Chorion-epithelioma

M. DAVEO (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, February, 1933, p. 215) illustrates by a case the great value of the Aschheim-Zondek reaction in complications following a mole, where histopathological examinations of the debris of curettage are often inadequate for a precocious diagnosis. The patient, aged 48 years, sought advice for troubles which she attributed to the menopause. Until four months previously menses had been regular and normal. Clinical examination revealed a softened cervix and a globular but very soft uterus. Twenty days later the patient had a severe haemorrhage and, when seen, was in labour. A complete mole was expelled. The uterine cavity was immediately explored, and a careful curettage made. Recovery was afebrile and the patient was up on the twelfth day, although the uterus appeared slightly subinvoluted. Five weeks after the expulsion of the mole the patient reported a loss of blood. On examination the uterus was found to be slightly enlarged and rather soft. A catheter specimen was immediately taken for an Aschheim-Zondek test. This was made according to Brouha's technique and was found to be strongly positive. A hysterectomy performed several days later confirmed the diagnosis of chorion-epithelioma. A small tumour the size of a grain of maize was found in an angle of the uterus. The patient made a good recovery.

Pathology

30 Effect of Typhoid Toxin on Leucocytes

Two years ago M. Coppo stated that a progressive left-handed shift of the polymorphonuclear count could be obtained *in vitro* by treating suspensions of leucocytes in serum with typhoid toxin. He suggested that this phenomenon was due to a reversal of the usual cell developmental process. D. R. CLIMENKO (*Lo Sperimentale*, March 30th, 1933, p. 96) considered this conclusion of doubtful validity, and, in view of the important clinical considerations involved, decided to repeat the investigation with certain additions. A left-handed deflection of the polymorphonuclear count was again observed, as described by Coppo, but this was shown to be unassociated with a developmental reversal. The cause appeared to be a differential destruction by autolysis of the granulocytes, the older cells yielding more swiftly than the younger cells. With the appearance of this deflection of the count there was a concomitant diminution in the total number of granulocytes present and a relative increase in the proportion of lymphocytes. When a suspension of leucocytes in a dilute typhoid toxin was watched on a warm stage, it was noticed that even in the course of the first few minutes the myelogenous elements began to manifest signs of destruction. Cells which had previously displayed amoeboid movement became rounded and stationary, the intracellular granular movement ceased, and the cell grew more opaque. A little later it broke down completely, being replaced by an amorphous mass of granular debris. The author never saw a lymphoid cell behave in this manner, and is convinced that they are not affected to the same extent by the toxin. Various authors have demonstrated the occurrence of a marked left-handed shift in cases of pyogenic infection—that is to say, in cases where there is a stimulation of phagocytic activity—and a consequent increase in the production and liberation of leucocytes. Substances such as gelatin, nucleic acid, and colchicine, which are known to induce a transient leucocytosis, have been shown by Ponder and Flint to bring about a concomitant regenerative shift of the count. Conversely, a right-handed shift is found in pernicious anaemia, lymphatic leukaemia, sprue, and aplastic anaemia, where the leucogenic activity of the bone marrow is depressed. The reaction concerned must be irreversible, according to Climenko, and Coppo's deductions of the possibility of transformation of a cell with a polymorphous nucleus into one with a simple nucleus be rejected. Typhoid toxin, being an active biological substance, quickens the process of autolysis, and introduces an element of differentiation in this respect between the behaviour of the two types of cells.

31 Study of Gliomas by Tissue Culture

DOROTHY S. RUSSELL and J. O. W. BLAND (*Journ. Path. and Bact.*, March, 1933, p. 273) records the results obtained from the tissue culture of a series of twenty gliomas. Active migration of tumour cells was obtained in a number of types. The cells exhibited great plasticity of form during migration, but preserved their morphological characters on coming to rest, thereby emphasizing the specificity of the different types. Actual multiplication of cells was conclusively demonstrated in two examples of spongioblastoma multiforme only. Suitable fragments were selected from material obtained from the operating theatre. Explants were cut with diameters of 1 to 1.5 mm., and mounted in the usual way in media, such as the expressed serum from the clot resulting from a mixture of two parts of heparinized human plasma with three parts of chick embryo extract. Other successful media were dilute human plasma (one part to two or three of embryo extract) and, to a less extent, hen plasma. Three examples of medulloblastoma were cultivated, but in only one was an adequate demonstration of migrating cells obtained. It proved to be a spindle cell, with scanty cytoplasm and a delicate process which extended from one or both poles of the nucleus, and frequently became attached by one or both of its processes to mesoblastic cells. No neuroblasts were detected. In one probable case of polar spongioblastoma the migrating cells closely resembled those of medulloblastoma, but the nuclei were usually slightly larger, the nucleoplasm was less densely haematoxyphil, and the [illegible] a little more bulky. In one case [illegible] the migrating cells were distinctive. Satisfactory migration was obtained in six out of seven specimens of spongioblastoma multiforme, some true growth being also observable. In three out of five cases of astrocytoma good migration was observed, typical astrocytes appearing. The development of neuroglial fibrils was demonstrated by phosphotungstic acid haematoxylin. No mitoses were seen. The authors enumerate certain features common to the different types successfully cultivated. The outgrowths in their general characters have more in common with cultures of mesoblastic tissues than with those of epithelia. The specificity of the different types of glioma was fairly clear. Cells such as astrocytes do not appear to have that special rigidity of form which has been claimed for them, an explanation in some measure of the highly infiltrative character of the gliomas as a group.

32 Bacteriology of Intestinal Infections in Infants

M. M. JOHNSTON, A. BROWN, and M. J. KAAKE (*Amer. Journ. Dis. Child.*, March, 1933, p. 498) made, in the autumn of 1930 and 1931, a bacteriological examination of the stools of 111 infants under 2 years of age, and of fifty-nine children aged from 2 to 12 years. They found dysentery and paratyphoid bacilli in 113 cases (approximately 67 per cent.). There were isolated thirty-six strains of *B. dysenteriae* Sonne, fifteen of *B. dysenteriae* Hiss-Russell, seventeen of *B. dysenteriae* Flexner, forty-seven of the Schmitz bacillus, twelve of *B. dispar*, five of *B. asiaticus*, and seven of *B. paratyphosus* B. Blood and pus accompanied the infection in a large proportion of cases. The writers suggest that flies may be the possible vector of these micro-organisms, which some domestic animals have been found to harbour.

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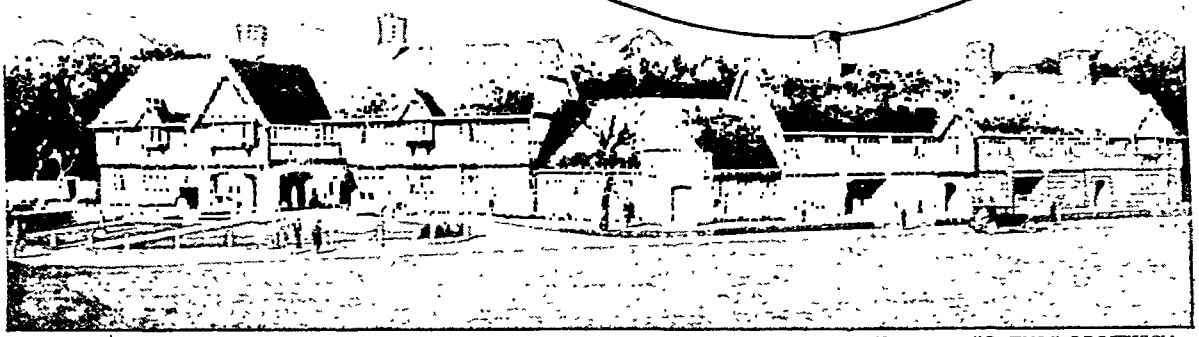
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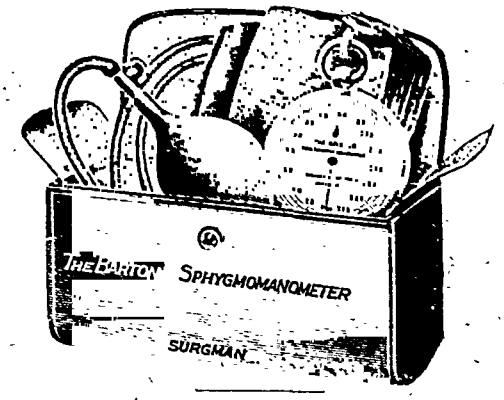
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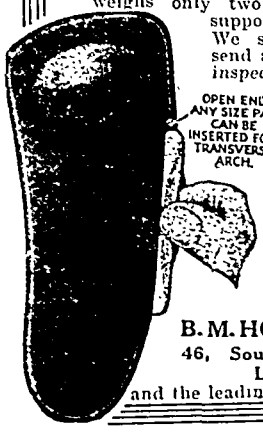
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RECREATIONS: ALL outdoor games, EXCELLENT BAND by Male Staff, for Concerts Dancing, etc.

Apply, THE MEDICAL SUPERINTENDENT, Earlswood, Redhill, Surrey, or to the Secretary, Mr. H. STEPHENS, 14-16, Ludgate Hill, E.C.4.

Telephone: REDHILL 344. *Telephone*: CITY 4697.

CALDECOTE HALL

Nr. NUNEATON, WARWICKSHIRE.

'Phone: NUNEATON 241.

Particulars may also be had from the Secretary, 40, Marsham Street, London, S.W.1.

ALCOHOLISM, NEURASTHENIA, Etc.

(For Men)

At this beautifully situated country mansion in Warwickshire (2 hrs. from London on L.M.S.R.), the residential treatment of Alcoholism, Neurasthenia, Insomnia, and Nervous breakdown is carried out on the most modern principles under the supervision of the Res. Med. Supt. Recreation and graduated occupational therapy are available in the extensive secluded grounds. Prospectus from A. E. CARVER, M.D., D.P.M., Resident Medical Superintendent.

ALCOHOLISM, DRUG HABIT, NEURASTHENIA, etc.

BAY MOUNT, PAIGNTON.

ESTABLISHED 1922. *Phone*: PAIGNTON 5110.

A comfortable private HOME, charmingly situated overlooking Torbay, near Torquay. Main line 3¼ hours from Paddington. Both Ladies and Gentlemen admitted as voluntary patients.

The treatment is the outcome of many years' experience, and besides removing all craving for drink and drugs, it has a tonic action on the system, and the general health is improved. Alcohol and drugs reduced gradually, without suffering.

FUNCTIONAL NERVOUS DISEASES AND NEURASTHENIA are also treated with excellent results. Cases with insomnia, depression, etc., do especially well.

Exceptionally good climate and ample and varied amusement. Moderate, inclusive terms. Prospectus, etc., from STANFORD PARR, M.B., Ch.B., Res. Med. Supt., Bay Mount, Paignton.

ALCOHOLISM & DRUG HABIT

DALRYMPLE HOUSE, RICKMANSWORTH, HERTS.

For the treatment of GENTLEMEN. Estab. 1883 by an Association of prominent medical men and others for the study and treatment of alcohol and drug abuse. Large secluded grounds on the bank of the River Colne. *Voluntary Patients can be received under the Inebriates Act.* Full-sized billiards, tennis, croquet, bowls. Golf (Moor Park, Sandy Lodge) close by. For partics. apply to—F. S. D. HOGG, M.R.C.S., &c., Resident Med. Supt. Telephone: 16 RICKMANSWORTH.

The MAUDSLEY HOSPITAL

DENMARK HILL, S.E.5.

Telephone: RODNEY 2101—4.

A CLINIC instituted by the London County Council for Treatment of NERVOUS and CURABLE MENTAL DISORDER. Voluntary patients ONLY received.

NEW OUT-PATIENTS: MEN — Mondays and Thursdays, 2 p.m. WOMEN—Tuesdays and Fridays, 2 p.m. CHILDREN—Mondays and Fridays, 10 a.m.

IN-PATIENTS: (*a*) 229 beds (both sexes) in wards or separate rooms, including 35 beds in a ward of King's College Hospital, which is in use as a temporary annex of the Maudsley Hospital. (*b*) 13 private rooms (for ladies) with special sitting rooms, garden, and dietary.

TERMS

(*a*) £5 a week, but in case of patients with a legal settlement in the County of London a less sum may be charged according to means.

(*b*) £6 6s. a week.

Terms include (with rare exceptions) all forms of treatment, for which unusual facilities exist—there being a staff of consultant specialists; and the central laboratory of London County Mental Hospitals being attached to the Hospital.

Inquiries of EDWARD MAPOTHER, M.D., F.R.C.P., F.R.C.S., Medical Superintendent.

ALCOHOLISM & OTHER DRUG HABITS.

THE HARE NURSING HOME.

As founded and established by the late Dr. FRANCIS HARE, for 20 years Med. Supt. of the Norwood Sanatorium, and author of "Alcoholism," etc; for the treatment of ALCOHOLISM, other Drug Habits, Insomnia, Neurasthenia, Functional Nervous Disorders.

"THE OLD HILL HOUSE," CHISLEHURST, KENT.

Fees 5—10 guineas. Ample amusements. 25 bedrooms. Annexe for mild cases. Quiet and pleasant situation.

Ladies and gentlemen admitted for treatment. For prospectus, etc., write or 'phone WALTER F. MASTERS, M.D., M.R.C.S., D.P.H., Barrister at Law (Res. Med. Supt.). Author of "The Alcohol Habit."

'Phone: Chislehurst 451 *Telegrams*: "Masters," Chislehurst.

ST. ANDREW'S HOSPITAL

FOR MENTAL DISORDERS,

NORTHAMPTON.

FOR THE UPPER AND MIDDLE CLASSES ONLY.

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary patients, who are suffering from incipient mental disorders or who wish to prevent recurrent attacks of mental trouble, temporary patients, and certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms, with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE.

This is a Reception Hospital in detached grounds, with a separate entrance, to which patients can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Diosrders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical bath, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray room, an Ultra-violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK.

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.

BRYN-Y-NEUADD HALL.

The seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (Telephone No. 2356 and 2357 Northampton), who can be seen in London by appointment.

COURT HALL, KENTON, EXETER,

SOUTH DEVON.

For the care and treatment of Ladies suffering from Mental Diseases. Limited to eight patients. Telephone: Starcross 59.

CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for early and convalescent cases. Cliffden is a large well-appointed house, with lovely views of the South Devon Coast. It is beautifully situated in grounds of 24 acres. The gardens are very attractive, and there is a private road to the beach.

Resident Physicians: BERTHA M. MULES, M.D., B.S.; ANNIE S. MULES, M.R.C.S., L.R.C.P.
Telephone: Teignmouth 289.

TYKEFORD ABBEY, NEWPORT PAGNELL,

BUCKS.

FUNCTIONAL NERVOUS DISORDERS, MEDICAL & CONVALESCENT CASES.

An Approved Nursing Home for reception of Female Cases under the Mental Treatment Act.

The Home is a Mansion of Historical interest, standing in 9 acres of garden and grounds, and is situated 14 miles from *Northampton*, and 12 *miles* from Bedford on the main London to Northampton Road, fifty miles from London. Both sexes are accommodated. Psycho-therapeutic Treatment is used extensively in suitable cases. Radiant Heat, X-Ray, and Ultra-violet Light. Diathermy and Foam Baths. Billiards, tennis, etc. Fees from five gns. per week.
Apply, Dr. D. E. M. DOUGLAS-MORRIS Telephone: Newport Pagnell 121.

HAYDOCK LODGE,

NEWTON-LE-WILLOWS, LANCASHIRE.

'Phone: 11 Ashton-in-Makerfield.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES suffering from mental and nervous diseases, either voluntarily or under Certificate. Patients are classified in separate buildings according to their mental condition.

Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

THE COPPICE, NOTTINGHAM.

HOSPITAL FOR MENTAL DISEASES.

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary and Temporary Patients received.

Tel. 64117. *For terms, etc., apply to the Medical Superintendent.*

CHISWICK HOUSE

A Private Mental Hospital for the Treatment and Care of Mental and Nervous Disorders in both Sexes.

Now removed to

CHISWICK HOUSE, PINNER, MIDDLESEX

Telephone: PINNER 234

A modern country house, 12 miles from Marble Arch, in beautiful secluded grounds. Fees from 10 guineas per week, inclusive. Cases under certificate and Voluntary Patients received for treatment. Special provision for "Temporary" patients under the new Mental Treatment Act.

Douglas Macaulay, M.D., D.P.M.

BARNWOOD HOUSE,

GLOUCESTER.

A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L.M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary Boarders of both sexes are also received for treatment.

Special accommodation for Lady Voluntary Boarders is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the main Hospital.

For particulars as to terms, etc., apply to—
ARTHUR TOWNSEND, M.D., Medical Supt.
Telephone: No. 6207 Barnwood.

HILL END AND HIGHFIELD HALL,

ST. ALBANS.

(20 miles from London.)

Ladies suffering from all forms of Mental Illness are received for treatment on modern lines, as Voluntary, Temporary, or Certified Private Patients at the Hill End Mental Hospital. Convalescent and mild cases can be treated in a delightful country mansion, with extensive grounds, known as "Highfield Hall," situate about a mile away from the Hospital.

FEES TWO TO THREE GUINEAS PER WEEK.

For further particulars apply to the Medical Supt., W. J. T. KIMBER, L.R.C.P., D.P.M., Hill End Mental Hospital, St. Albans, Herts.

FENSTANTON,

CHRISTCHURCH ROAD,

STREATHAM HILL, S.W.2.

A Private Home for the Care and Treatment of a limited number of Ladies with Mental and Nervous Disorders. Separate accommodation for Voluntary Patients. Large Mansion with 12 acres of ground. (See *Medical Directory*, p. 2294.) Apply, J. H. EARLS, M.D., Resident Physician. Telephone: Tulse Hill 7131.

HOME FOR EPILEPTICS,

MAGHULL (near LIVERPOOL).

Chairman: Brig.-Gen. G. Kyffin-Taylor, C.B.E., V.D., D.L.

FARMING and OPEN-AIR OCCUPATION for PATIENTS.
A few vacancies in 1st and 2nd Class Houses.

FEES: 1st Class (men only) from £3 p.w. upwards. 2nd Class (men and women) 32/- p.w.

For further particulars apply:
C. EDGAR GRISEWOOD, Secretary,
20, Exchange Street East, Liverpool.

WYE HOUSE, BUXTON.

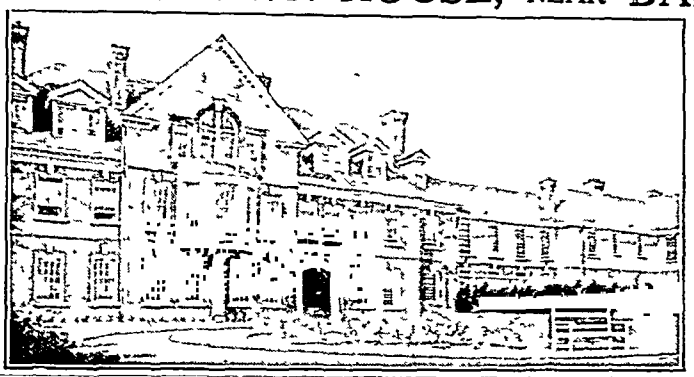
For the treatment of Ladies and Gentlemen mentally afflicted. Voluntary Boarders received. Situated 1,200 ft. above sea-level, facing S. 14 acres of grounds. — For terms, apply to the Resident Medical Superintendent, W. W. HORTON, M.D. Nat. Tel 130.

THE MOAT HOUSE,

TAMWORTH, STAFFS.

Established 1816. For the TREATMENT of a few LADIES suffering from NERVOUS and MENTAL DISORDERS. Voluntary patients received. For terms apply to the Resident Medical Attendant. Telephone: Tamworth 108.

ROOKSDOWN HOUSE, NEAR BASINGSTOKE, HANTS



FOR THE RECEPTION AND TREATMENT OF
NERVOUS AND MENTAL ILLNESS.

A Superior Modern, and Attractive Building, situated in a charming and bracing locality, 400 ft. above sea level

Extensive pleasure grounds, with croquet, tennis, bowling, and putting greens

Occupational, Light and Hydro Therapy

ONE HOUR RAIL JOURNEY FROM LONDON

Ladies and Gentlemen can be received as private patients on a voluntary basis or with certificates, written application alone is required for the former

FEES, including all necessaries except clothing, from THREE to FIVE GUINEAS A WEEK.

Brochure and information may be obtained from the MEDICAL SUPERINTENDENT
Telephone 127 Basingstoke

RUTHIN CASTLE, NORTH WALES

REDUCTION OF FEES

In view of the present economic position, the inclusive fees at Ruthin Castle, formerly from 17 guineas a week, have been reduced to from 15 guineas a week

The fees include medical attendance, all scientific investigations that may be needed, such as analyses, bacteriological cultures, the ordinary x ray examinations, and electrocardiograph readings, all treatment that may be prescribed, such as special diets, insulin, artificial sunlight, electrical treatment, baths, massage, nursing, medicines or vaccines, board, and lodging

The only extra charge is that for a complete alimentary x ray examination, or for x ray therapy

All the usual forms of treatment are given at Ruthin Castle The climate is mild The annual rainfall is 30 5 inches, that is, less than the average for England There is central heating throughout Should the accommodation in the Castle not prove sufficient, comfortable rooms can be obtained near by for those undergoing treatment

Address—THE SECRETARY, Ruthin Castle, North Wales Telegrams CASTLE, RUTHIN Telephone RUTHIN 66

BOWDEN HOUSE,

HARROW-ON-THE-HILL.

A NURSING HOME OPENED IN 1911 FOR THE INVESTIGATION AND TREATMENT OF FUNCTIONAL NERVOUS DISORDERS OF ALL TYPES.

No cases under certificate Thorough clinical and pathological examinations Psychotherapeutic treatment, occupation, and recreation as suited to the individual case

PARTICULARS FROM THE MEDICAL SUPERINTENDENT *Telephone and Telegrams* BYRON 1011

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WOODSIDE AVENUE, MUSWELL HILL, LONDON, N 10
President THE RT HON THE EARL OF ATHLONE, K G, P C.
Fully equipped with every modern appliance for the diagnosis and treatment of

FUNCTIONAL NERVOUS DISORDERS

Private Rooms, Broad Verandahs, Physiotherapy and Psychotherapy, X ray and Dental departments, Laboratories for investigation and research For terms and particulars apply to the Physician in charge at the Hospital Telephone Tudor 4211

THE OLD MANOR SALISBURY

A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds Detached Villas Chapel Garden and dairy produce from own farm Terms very moderate

CONVALESCENT HOME at BOURNEMOUTH.

Detached Villas standing in 12 acres of ornamental grounds, with tennis courts etc which Voluntary, Temporary or Certified Patients may visit, by arrangement, for long or short periods.

Illustrated Brochure on application to the Medical Superintendent, The Old Manor, Salisbury. Telephone 51.

NORTHUMBERLAND HOUSE,

GREEN LANES, FINSBURY PARK, N.4.

Telegrams "SUBSIDIARY, LONDON" *Telephone* NORTH 0888

A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses Conveniently situated four miles from Charing Cross Easy access from all parts Six acres of ground highly situated, facing Finsbury Park Private Suites. Voluntary Patients and Temporary Patients received without certification.

Convalescent Home, Kearsney Court, Dover. For further particulars, apply to the Medical Superintendent.

CHEADLE ROYAL MENTAL HOSPITAL,

CHEADLE, CHESHIRE.

This REGISTERED HOSPITAL, with a SEASIDE BRANCH at Colwyn Bay, N. Wales, is for the treatment and care of those of the Upper and Middle Classes suffering from MENTAL and NERVOUS DISEASES.
The Hospital is governed by a COMMITTEE, appointed by the TRUSTEES of the Manchester Royal Infirmary.
In addition to the Main Building there are separate villas. Extensive grounds. Hard and grass tennis courts, cricket and croquet grounds, and a court for badminton. There are also wireless installations. Golf may be had within easy distance. Occupational Therapy.
VOLUNTARY, TEMPORARY, AND CERTIFIED PATIENTS received.
The Hospital is nine miles from Manchester, 50 minutes by rail from Liverpool, and 3½ hours from London.
For terms and further particulars apply to the Medical Superintendent, J. A. C. ROY, M.B., who may be seen in Manchester by APPOINTMENT.
Telephone: GATLEY 2231 (5 lines).

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." Telephone: Rodney 4741-4742.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Certified voluntary and temporary patients are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill Tennis Courts. Entertainments, dances, and indoor amusements held throughout the year. Terms from £3 3s. per week.
Illustrated prospectus and further particulars can be obtained from the **Medical Superintendent.**

CAMBERWELL HOUSE, 33, Peckham Road, London, S.E.5.

Telegrams: "PSYCHOLIA, LONDON." **FOR THE TREATMENT OF MENTAL DISORDERS.** *Telephone*: RODNEY 4731—4732.

Also completely detached Villas for mild cases, with private suites if desired. Voluntary Patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Putting Greens, Bowls, Croquet, Squash Rackets, and all indoor amusements, including Wireless and other Concerts. Occupational Therapy, Callisthenics, and Dancing Classes, X-ray and Actino-therapy, Prolonged Immersion Baths, Operating Theatre, Pathological Laboratory, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician: Dr. HUBERT JAMES NORMAN, assisted by three Medical Officers, also resident and visiting Consultants.
An illustrated Prospectus, giving fees which are strictly moderate, may be obtained upon application to the Secretary.
The Convalescent Branch is HOVE VILLA, BRIGHTON, and is 200 feet above sea-level.

BAILBROOK HOUSE, BATH.

A PRIVATE HOSPITAL for the care and treatment of persons with mental and nervous disorders.
Voluntary Patients received in the Villas. Large Mansion on outskirts of Bath, with 20 acres of grounds (see *Medical Directory*, page 2306.)
For terms . AN, O.B.E., M.B., C.M.Edin
Telephone No.: ...189.

STRETTON HOUSE,

Church Stretton, Shropshire.

A PRIVATE HOME for the treatment of Gentlemen suffering from Mental or Nervous Illness, including the allied disorders of Alcoholism and the Drug Habit. All types of early Mental and Nervous cases are received without certificates as Voluntary Patients under the provisions of the Mental Treatment Act, 1930. Bracing Hill country. See *Medical Directory*, p. 2314.—Apply to Medical Superintendent. 'Phone: 10 P.O. Church Stretton.

THE GRANGE,

near ROTHERHAM.

A HOUSE Licensed for the reception of a limited number of Ladies suffering from Nervous and Mental disorders. Both certified and voluntary patients received. Approved for temporary Patients. This is a large country house, with beautiful grounds and park, five miles from Sheffield. Tel.: No. 40030 Ecclesfield. Res. Phys.: GILBERT E. MOULD, L.R.C.P., M.R.C.S. Sheffield. Station: Grange Lane, L. & N.E. Rly.,

CLARENCE LODGE,

CLAPHAM PARK, LONDON.

Situated in 3½ acres of secluded gardens.
HOME FOR TWELVE MENTAL PATIENTS (LADIES).
Well-appointed private house. Home comforts and Trained Nursing Staff. Eminent Mental Specialist Visiting Physician.
Station: Clapham Common Tube. *Telephone*: Tulse Hill 4913 Apply, Miss THWAITES.

THE GROVE HOUSE, CHURCH STRETTON, SHROPSHIRE.

A private Home for the care of and treatment of a limited number of Ladies, mentally afflicted. Voluntary and Temporary Patients received under the New Mental Treatment Act, 1930. —Medical Superintendent, Dr. MCCLINTOCK.

Tel. and Telegrams: "Haynes, Brentwood, 45."

Littleton Hall, Brentwood, Essex.

Large grounds, 400 ft. above sea. HOME for ladies Mentally afflicted. Voluntary Boarders received. Station: Brentwood and Shenfield 1 mile. Liverp'l St. 26 min. Apply, Dr. HAYNES.

SMEDLEY'S

Great Britain's Greatest Hydro

Unrivalled suites of Baths for Ladies and Gentlemen, including Turkish and Russian Baths, Aix and Vichy Douches, Massage, and Plombières Treatment, and Electric Installation for Baths and other Medical Purposes, Dowsing Radiant Heat, D'Arsonval High Frequency, Diathermy, Nauheim Baths, Soapless Foam Baths, etc. "Certified" Milk from our farm of 300 acres. Large Winter Garden. Special provision for Invalids. Night Attendance. Rooms well-ventilated and all bedrooms warmed in Winter. A large Staff (upwards of 60) of trained Male and Female Nurses, Masseurs, and Attendants.
Resident Physicians:
G. C. R. HARBINSON, M.B., B.Ch., B.A.O., (R.U.I.); R. MacLELLAND, M.D., C.M.(Ed.).
Illustrated Prospectus M.J. on request
Telephone: No. 17 (2 *lines*).
Telegrams: *Smedleys, Matlock.*

MATLOCK

NORFOLK BROADS

STAITHE (Private) HOTEL,

SUTTON, near NORWICH.

A really quiet and peaceful haven, recommended by Doctors for the bracing air and charming locality. This old Farmhouse, with all modern conveniences, is ideal for a holiday. Moderate inclusive terms. Own farm and dairy produce, delightful garden, two hard courts. Boating, fishing, etc. Sand Dune coast 3 miles. Write tariff.
Telegrams and Telephone: Stalham 244.

NORMANSFIELD

For Mental Defectives of either sex.
Under private management.
Apply to Dr. Langdon-Down.
Normansfield, Teddington.

BROOKE HOUSE,

CLAPTON, LONDON, E.5.

Telephone: Clissold 1648.
PRIVATE HOSPITAL for Ladies and Gentlemen suffering from Mental and Nervous Disorders. The hospital is situated in nine acres of pleasure grounds. Both voluntary and patients under certificates received. For further particulars apply Dr. GERALD JOHNSTON and Dr. ERNEST ROLLINS, Resident Physicians.

CITY OF LONDON MENTAL HOSPITAL, DARTFORD, KENT.

Ladies and Gentlemen received for treatment under certificates, and without certification, as either VOLUNTARY or TEMPORARY PATIENTS, at a weekly fee of TWO GUINEAS and upwards.

Among the Pine-clad Border Hills.

Peebles Hydro

In the winter garden of Scotland, facing the sun, 600 feet up. Tonic air, beauty in every land-cape from sheltered balconies. Dancing, winter garden, swimming bath, tennis, badminton, golf, fishing. Fully licensed. Modern baths installation. Physio-therapeutic, massage, electrical treatment, ultra-violet radiation. Physician in attendance. Write for prospectus.
PEEBLES HYDRO, PEEBLES, SCOTLAND

BOURNEMOUTH HYDRO,

with Vita-glass Sun-lounge and Marine Balcony.
Pyretic and
Every kind of Bath. Plombière Lavage.
Every kind of Massage. Ultra-violet Light.
Every kind of Electricity. Diathermy.
Every kind of Diet. Esseff Inhaler.
High Frequency. Electric Lift.
Prospectus from Secretary. *Tele.* 341.
Resident } W. JOHNSTON SMYTH, M.D.
Physicians: } L. T. ROSE-HUTCHINSON, M.D.

A comfortable London Hotel, convenient for Harley Street and Nursing Homes.

THE CLIFTON HOTEL,

WELBECK STREET, LONDON, W.1.

gives comfort, service, and cuisine equal to larger hotels at less cost. Bedrooms with hot and cold water and telephones. Centrally situated, close to Harley Street and Nursing Homes.
Grams: Cliftinton, London. *Tel.*: Welbeck 6881

Doctor's widow in North London

having large house, garden, car, good staff, would like some PAYING GUESTS. Furnished bungalow at the Sea. Terms moderate.—Address, No. 371, B.M.A. House, Tavistock Square, W.C.1.

The MUNDESLEY SANATORIUM

The newly opened central building makes the Mundesley Sanatorium the best equipped building in England for the cure of Tuberculosis. All the bedrooms have hot and cold running water, electric light, and wireless head-phones. The new public rooms are spacious and comfortable.

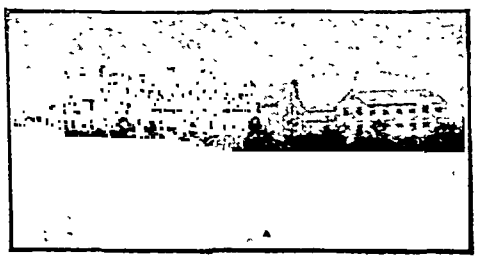
Resident Physicians:
S. VERE PEARSON, M.D. (Cantab.), M.R.C.P. (Lond.).
ANDREW MORLAND, M.D. (Lond.), M.R.C.P.
E. C. WYNNE-EDWARDS, M.B. (Cantab.).

For all information apply:
THE SANATORIUM, MUNDESLEY, NORFOLK.
(Telephone: Mundesley 94.)

The buildings face S.S.W. and are sheltered from the sea by a pine-clad ridge. The sunshine record and dry air complete a perfect site. The medical equipment is of the latest kind, and there is a day and night nursing staff.

TERMS FROM 7½ GUINEAS WEEKLY.

TOR-NA-DEE SANATORIUM
MURTLE DEESIDE ABERDEENSHIRE



Medical Director: David Lawson, M.D., F.R.S.E.

FULLY EQUIPPED WITH EVERY MODERN APPLIANCE FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS AND ALLIED DISEASES.

Physician Superintendent. J. M. JOHNSTON, M.B., D.P.H., etc.

Full particulars and Prospectus on application to the Secretary.

Inclusive Terms: SEVEN GUINEAS A WEEK.

NORDRACH-UPON-MENDIP SANATORIUM

FOR THE TREATMENT OF TUBERCULOSIS, was opened in January, 1899, by ROWLAND THURNAM, M.D.

All modern forms of treatment are available. There are X-ray and ultra-violet ray installations. Full day and night nursing staff. The Sanatorium stands in gardens and private grounds of 65 acres, at an altitude of 862 feet above sea-level, surrounded by woods and moorland. All rooms are heated by hot-water pipes and electrically lighted.

Fees 4, 5, and 6 guineas per week.

CYRIL FRANCIS ASHBY, M.R.C.S., L.R.C.P., Certificate of Sanatorium Stephani, Switzerland, *Resident Medical Supt.*
For full particulars apply to *The Secretary*, Nordrach-upon-Mendip, Blagdon, Bristol. *Telegrams*: Nordrach Blagdon *Telephone*: Blagdon 23

LINFORD SANATORIUM,
RINGWOOD, NEW FOREST, HANTS.

Established 1898 for the treatment of Tuberculosis. Radiators and Electric Light throughout. Hot and cold water and shower bath in nearly all rooms. Powerful X-ray Plant. Ultra-violet Rays. Full Nursing Staff. All forms of treatment available. Farm of 120 acres, including 40 acres of wood. Herd of Tuberculin-tested Guernsey cows kept. Resident Physicians—ARTHUR DE W. SNOWDEN, M.D., B.Ch.(Cantab.), A. G. E. WILCOCK, M.R.C.S., L.R.C.P., COLIN CASSIDY, M.B., B.Ch.(Cantab.).

THE COTSWOLD SANATORIUM

First opened in 1898 and rebuilt in 1925. On the Cotswold Hills, seven miles from Cheltenham, for the treatment of Pulmonary and all other forms of Tuberculosis. Aspect S.S.W., sheltered from North and East, elevation 800 feet. Pure bracing air. Special Treatment by artificial Pneumothorax (X-ray controlled), Tuberculins and Ultra-violet Rays is available, when necessary, without extra charge. X-ray plant. Electric light. Radiators, hot and cold basins, and Wireless in all rooms.

Full day and night Nursing Staff.
Medical Superintendent: GEOFFREY A. HOFFMAN, B.A., M.B., T.C.Dub. *Assistant Physician*: MARGARET A. HARRISON, M.B., B.S.Lond.
Consulting Laryngologist: SIDNEY BERNSTEIN, M.R.C.S.Eng., L.R.C.P.Lond. (Attends Regularly.)
Apply: The Secretary, The Cotswold Sanatorium, Cranham, Gloucester. *Telephone*: 41 WITCOMBE. *Telegrams*: "HOFFMAN, BIRDLIP."

GRAMPIAN SANATORIUM,
KINGUSSIE, INVERNESS-SHIRE.

Specially built for the Open air Treatment of Tuberculosis, and opened in 1901. Bracing mountain air. Elevation 860 ft. above sea-level. Sheltered situation in pine wood. Graduated walks. Electric light throughout building and in shelters. Central heating. Fully equipped X-ray Plant. Inoculation Treatment available for patients—24 beds. Trained Nurse on duty all night. Terms £4 7s. 6d. to £6 6s. p.w. inclusive. No extras. Med. Supt.—FELIX SALT, M.D.
For particulars apply to the Secretary.

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Built 1929-30.

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Med. Supt.: HILARY ROCHE, M.D.(Melb.), M.R.C.P.(Lond.), Tubere. Dis. Dip. (Wales).

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THE CENTRE FOR THE GLORIOUS SOUTH DOWNS. Renowned for its quiet atmosphere. Top of the British Isles (mainland) for:—

Sunshine Records in 1931, and second in 1932.
Sunshine on 297 days in 1931, and 308 days in 1932.

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Members of the Medical Profession are cordially invited to pay a visit to this BRITISH Spa. Concessions available include free use of the Baths and Waters, Golf, Concerts, etc. Considerable reductions off hotel bills, Motor-Coach Excursions, Tennis, etc.

Pullman and Fast Restaurant Car Trains Daily from King's Cross Station, London.

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Summer pleasures in Wiesbaden do not cost much. Best curative results with Rheumatism, Sciatica, Gout, etc. Inclusive terms greatly reduced. Full Board from RM.4

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Prospectus with List of Hotels (8,000 beds) from the Information Bureau of the Stadt. Kurverwaltung, and all Travel Bureaus.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION

The following arrangements have been made for POST-GRADUATE TEACHING in Glasgow during the Summer of 1933.

A. A **General Medical and Surgical Course** from August 21st to September 15th.
Fee £10 10s. or £6 6s. for first or second fortnight.

B. **Clinical Assistantships** in General and Special Hospitals.

Syllabuses and any other information may be had on application to the **Secretary, Post-Graduate Medical Association, The University, Glasgow.**

Post-Graduate Teaching, West London Hospital.

Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave," and for those wishing to take a course under the "Grant-aided Scheme for Post-Graduate Study by Insurance Practitioners."—Anaesthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

Prospectus from the DEAN, West London Hospital, Hammersmith, W.6.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL

MARYLEBONE ROAD, N.W.1

Medical Students and Qualified Practitioners admitted to the Practice of this Hospital. Unusual opportunities are afforded of seeing Obstetrical Complications and Operative Midwifery (about one half of the total admission being primiparous cases). Over 2,700 patients are admitted to the Wards annually, and in the Ante-natal Department there are over 20,000 attendances per annum.

Certificates awarded as required by the various Examining Bodies.

For rules, fees, etc., apply, H. B. STOKES, Secretary-Superintendent.

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For LADIES and GENTLEMEN of Unsound Mind, with or without certificates. Terms moderate. Apply Resident Physician.
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Telephone: No. 2 Malling.

BOGNOR REGIS.—TWO VACANCIES OCCUR for permanent chronic patients in registered NURSING HOME, 4 minutes sea, £3 3s. Also for convalescents, garden, c.l., good locality, dairy produce from local farm. —Matron, S.R.N., West Sussex Nursing Home, Felpham. Bognor 677.

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Apply for particulars and free booklet, "Hints on Writing a Thesis for the M.D. Degree," to the SECRETARY, Medical Correspondence College, 19, Welbeck Street, London, W.1.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE

(UNIVERSITY OF LIVERPOOL.)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 2nd, 1933, and January 3rd, 1934, and for the Diploma in *Tropical Hygiene on January 11th and April* 26th, 1934. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars, apply to the Hon Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

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Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, Mr E. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6315.)

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A Course in RADIOTHERAPY

especially in its relation to Malignant Disease

will be held at the above *School, commencing* Monday, October 2nd, 1933.

Copy of the syllabus and full particulars may be obtained on application to:

THOS. A. GARNER, Secretary.

MASTERY OF MIDWIFERY.

Examinations for the Diploma of the Mastery of Midwifery of the Society of Apothecaries of London will be held beginning *Monday, Novem* ber 20th, 1933, and Monday, May 21st, 1934.

For regulations, apply to the Registrar of the Society, Water Lane, E.C.4.

Preliminary Examinations.

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1

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PREP COURSE with daily Lecture Demonstrations of Museum Specimens of Surg., Path., for next Exam., will commence shortly POSTAL TUITION at any time.—Further particulars, H. C. ORRIN, F.R.C.S., Surgeons' Hall, Edinburgh

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Aeroplanes will leave London if bookings sufficient:—

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Three hours' journey.

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TRINITY COLLEGE, SCHOOL OF PHYSIC.

The usual Three Weeks' POST GRADUATE COURSE for General Practitioners will be given this Autumn from Sept. 18th to October 7th. The Course will include clinical instruction in Surgery, Medicine, Obstetrics, Orthopaedics, Laryngology, Ophthalmology, and Diseases of the Skin. Laboratory instruction will be given each afternoon in the Medical School in Anatomy, Physiology, Pathology and Bacteriology. There will also be demonstrations on the use of the Electrocardiograph and the use of Radium, and lectures on Medicine and *Therapeutics*.

For further particulars apply to—

A. FRANCIS DIXON,
School of Physic, Trinity College, Dublin.

MIDDLESEX HOSPITAL MEDICAL SCHOOL

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(UNIVERSITY OF LONDON.)

PRIMARY F.R.C.S. EXAMINATION.

The next Course will begin on September 4th, under the direction of —

Professor T. YEATES
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Professor E. C. DODDS.
Dr. J. H. WOODGER.

FEE.—20 guineas.

Applications for admission should be made to the School Secretary, Middlesex Hospital, London, W.1.

HULL ROYAL INFIRMARY.
(370 Beds.)

Applications are invited from registered Medical Practitioners for the following posts (male):

CASUALTY OFFICER, vacant now. Salary at the rate of £150 per annum, plus residence, board, and laundry. The officer appointed will work mainly under the direction of the Resident Surgical Officer.

HOUSE SURGEON to the Ophthalmic and Ear, Nose, and Throat Departments, vacant now. Salary at the rate of £150 per annum, plus residence, board, and laundry. The post is recognised by the Conjoint Board of the Royal Colleges for the Clinical work required in the regulations for the Diplomas in Ophthalmic Medicine and Surgery, and Laryngology and Otology.

HOUSE PHYSICIAN at the SUTTON BRANCH, vacant August 1st. Salary at the rate of £160 per annum, plus residence, board, and laundry. The Branch Hospital contains 100 beds, 45 of which are reserved for medical cases.

The above appointments will be for six months, but will be determinable at any time by one month's notice on either side.

Applications, giving particulars of age, experience, and nationality, together with copies of testimonials, should be addressed to the undersigned.

July 3rd, 1933. R. J. CARLESS, House Governor.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, Haverstock Hill, N.W.3.

APPOINTMENT OF HOUSE PHYSICIAN.

Applications are invited from unmarried registered Medical Men for the appointment of House Physician, vacant on August 1st next. The salary will be at the rate of £100 per annum, together with board, residence, etc., and the term will be for six months.

Applications to be made on a form which will be supplied by the Secretary, together with copies of not more than three testimonials, should reach the Secretary not later than noon on July 15th next.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, Haverstock Hill, N.W.3.

APPOINTMENT OF CASUALTY MEDICAL OFFICER.

Applications are invited from unmarried registered Medical Women for the position of Casualty Medical Officer at the Out-patient Department of the Hospital, Bayham Street, Camden Town, which will be vacant on September 1st next. The salary will be at the rate of £100 per annum, together with board, residence, etc., and the term will be for six months.

Applications to be made on a form which will be supplied by the Secretary, together with copies of not more than three testimonials, should reach the Secretary not later than noon on July 15th next.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH, 60, Grove End Road, London, N.W.8.

Applications are invited for the post of RESIDENT HOUSE PHYSICIAN (male). The appointment will be for six months from August 1st. Salary at the rate of £100 per annum, with full board. Appointment approved for M.D. examinations of the University of London.

Applications, together with copies of three testimonials, should reach the undersigned on or before Monday, July 17th.

F. DUDLEY HOBBS, B.A., Secretary.

INGHAM INFIRMARY, SOUTH SHIELDS.

Wanted, SENIOR and JUNIOR HOUSE SURGEONS (male). Salaries £200 and £150 per annum respectively, with residence, board, and washing. No out-visiting. Candidates must hold registered qualifications in medicine and surgery. The appointments will be terminable by one month's notice. Applications, stating age and accompanied by copies (which will not be returned) of recent testimonials, to be sent to the undersigned from whom further particulars may be obtained.

JOHN POTTER, Secretary.

MANCHESTER BABIES' HOSPITAL, Burnage Lane, LEVENSHULME.
(80 Beds.)

Applications are invited immediately for the post of JUNIOR RESIDENT MEDICAL OFFICER. Appointment is for six months. Salary at the rate of £50 per annum, with laundry.

Applications, together with copies of testimonials, to be sent to the undersigned.

LOUISE BAILEY, Secretary.

PUTNEY HOSPITAL, The Lower Common, Putney, S.W.15.

Applications are invited for the post of RESIDENT MEDICAL OFFICER, which will become vacant on September 1st, at Putney Hospital (53 beds). Salary £150, with rooms, board, and emoluments. Appointment for six months, renewable on recommendation of the board. It is desirable that applicants should have held some previous hospital appointment. Apply, stating age, and with copies of testimonials to the undersigned, not later than July 20th.

H. SEYMOUR HADWEN, Secretary.

PRESTON AND COUNTY OF LANCASTER ROYAL INFIRMARY.

Applications are invited for the post of HOUSE SURGEON (under Consulting Surgeon) from unmarried gentlemen, doubly qualified and registered. The Hospital is recognised for Surgical Practice by the R.C.S. (England). Salary at the rate of £150 per annum, with board, residence, and laundering.

Applications, stating age, qualifications, and experience (with copies of testimonials) to be forwarded to—

JOHN GIBSON, Supt. & Secretary.

QUEEN MARY'S HOSPITAL FOR THE EAST END, E.15.
Telephone: Maryland 2616.

Applications are invited from fully qualified and registered Medical Men for the post of CASUALTY OFFICER at the above Hospital at a salary of £150 per annum.

The Hospital contains 217 beds, including 50 for Maternity patients, and there are several other Special Departments.

Candidates, who should have held previous Hospital appointments, must send in applications, accompanied by testimonials, to the undersigned, not later than Saturday, July 14th.

RAPHAEL JACKSON (Major), Secretary.

ROYAL SOUTH HANTS & SOUTHAMPTON HOSPITAL. (275 Beds.)

Applications are invited for the following appointments for a period of six months commencing July 1st:

ONE HOUSE PHYSICIAN.
ONE HOUSE SURGEON to the Ear, Nose, and Throat Department, and Resident Anaesthetist.

Each at a salary of £150 per annum, with board, lodging, and laundry. Candidates must be male and unmarried.

Applications, accompanied by not more than three testimonials, should be sent to the undersigned at once.

HY. TRUSSON, Secretary.

SHROPSHIRE ORTHOPAEDIC HOSPITAL & AGNES HUNT SURGICAL HOME, OSWESTRY.
(320 Beds—110 Children; 210 Adults.)

TWO HOUSE SURGEONS (male) required on September 30th.

Appointment for six months, with possibility of extension. Salary at the rate of £200 per annum, with board, residence, and laundry. Two weeks' holiday for each six months' service.

Applications, stating age, qualifications, and experience, with copies of three recent testimonials, should be forwarded to the Secretary-Superintendent.

ROYAL INFIRMARY, WIGAN.
(180 Beds.)

HOUSE SURGEON (male) required immediately for a period of six months. Salary £150 per annum, with board, apartments, and washing. Staff consists of R.S.O. and three House Surgeons. Applications, stating age and qualifications, with copies of three recent testimonials, should be addressed to the undersigned as soon as possible.

A. STANLEY BRUNT, Gen. Supt. & Secretary.

June 27th, 1933.

ROYAL LIVERPOOL BABIES' HOSPITAL, WOOLTON.

Required, RESIDENT MEDICAL OFFICER for the above Hospital. The appointment to be for a period of seven months commencing September 1st. Salary at the rate of £90 per annum.

Applications, with copies of testimonials, to be sent to the Chairman of the Hospital, c/o the Child Welfare Association, 9, Copperas Hill, Liverpool, on or before July 24th.

ROYAL CORNWALL INFIRMARY, TRURO.
(84 Beds.)

HOUSE SURGEON (male) required, with experience of Anaesthetics. Salary £170 per annum, rooms, board, and washing. Apply, with copies of three recent testimonials to the Secretary, of whom further particulars may be obtained.

ROYAL SALOP INFIRMARY, SHREWSBURY.
(150 Beds.)

APPOINTMENT OF RESIDENT HOUSE PHYSICIAN.

Applications are invited from fully qualified men for the appointment of Resident House Physician, vacant July 15th. Salary £160 per annum, with board, residence, etc. The appointment is for six months in the first instance, subject to re-appointment for a further period of six months. Resident Staff comprises Resident Surgical Officer, House Physician and Casualty Officer and Resident Anaesthetist. The Resident House Physician is Resident Officer to the Medical Wards of the Hospital under the direction of three Honorary Physicians, and is also Resident Officer to the Maternity Department for difficult cases under the direction of the Honorary Obstetrician.

Applications, stating age, qualifications, experience, nationality, and accompanied by copies of three recent testimonials, to be sent to the undersigned forthwith.

J. W. NOBLE, Secretary-Supt.

June 13th, 1933.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.4.
(140 Beds.)

A General Hospital for Women and Children, including Medical, Surgical, Ear, Nose, and Throat, Ophthalmic, Orthopaedic, Urological, Skin, and Venereal Diseases Department.

Applications are invited from fully qualified Medical Women for the post of HOUSE SURGEON for six months from September 1st. Salary at the rate of £100 per annum, with board, residence, and laundry. Candidates to call upon the Surgeons on the Hon. Medical Staff before Saturday, July 22nd, by which date applications and copies of testimonials must reach the Secretary at the Hospital.

SOUTH DEVON AND EAST CORNWALL HOSPITAL, PLYMOUTH. (240 Beds.)

Applications are invited for the post of RESIDENT ANAESTHETIST AND HOUSE SURGEON to the Special Departments. (Male.) Salary £120 per annum, with board, residence, and laundry. Appointment is tenable for six months, and is subject to renewal. Duties to commence July 28th. Candidates must be registered under the Medical Acts.

Applications, stating age and qualifications, together with copies of recent testimonials, to be sent to the undersigned by July 19th.

ARTHUR R. CASH, Gen. Supt. & Secretary.

July 3rd, 1933.

SCUNTHORPE AND DISTRICT WAR MEMORIAL HOSPITAL. (86 Beds.)

Applications are invited for the post of RESIDENT SURGEON. Salary £250 per annum, with board, residence, and laundry (Resident Surgeon expected to perform emergency operations). Applications, stating age, experience, and qualifications, enclosing copies of recent testimonials, and giving earliest time for commencing duties, to be forwarded to the undersigned not later than the first post on Monday, July 10th, when the post will become vacant.

ARTHUR E. MAW, Secretary.

SOUTHAMPTON CHILDREN'S HOSPITAL AND DISPENSARY FOR WOMEN.
(45 Beds.)

The Board of Management invite applications for the post of RESIDENT MEDICAL OFFICER (lady). Six months' appointment, vacant August 21st. Salary at the rate of £150 per annum, with board, residence, and laundry.

Applications, stating age, and accompanied by copies of testimonials, to be sent to the undersigned not later than July 29th.

ELLA K. MATTHEWS, Secretary.

THE STAMFORD, RUTLAND AND GENERAL INFIRMARY, STAMFORD.

HOUSE SURGEON (BRITISH, MALE OR female) wanted for August 1st, for a period of six months. Salary at the rate of £200 per annum, with board, residence, and laundry in the INFIRMARY. Candidates to forward three recent testimonials, with particulars as to age, qualifications, and experience, to us not later than July 17th.

STAPLETON & SON, Secretaries.

Stamford.

THE WEIR HOSPITAL, Grove Road, Balham, S.W.12.

JUNIOR RESIDENT MEDICAL OFFICER (male, unmarried) required July 30th. Candidates must be fully qualified and duly registered. Salary £150 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, to be sent to the Secretary, from whom further information may be obtained.

BRISTOL GENERAL HOSPITAL.

The Committee invites applications for the following appointments, which become vacant on August 1st next.

TWO HOUSE PHYSICIANS; TWO HOUSE SURGEONS; RESIDENT OBSTETRIC OFFICER; HOUSE SURGEON to the Special Departments; and a CASUALTY HOUSE SURGEON.

The appointments will be for six months at salaries at the rate of £80 per annum, and at the rate of £100 per annum for the Casualty House Surgeon, and, in the event of second appointments being held, at the rate of £100 per annum in each case, with board, residence, etc., provided in the Hospital.

Candidates must be registered under the Medical Acts and produce testimonials of good personal character and ability, and must have recent experience in the administration of anæsthetics.

Forms of application, etc., to be obtained from the Secretary must be returned completed, with copies of testimonials, addressed to the undersigned on or before Monday, July 17th from whom further particulars may be obtained.

THOMAS W. GREGG, Secretary.

BETHLEM HOSPITAL, MONKS' ORCHARD, Eden Park, BECKENHAM, KENT.

Wanted, ONE RESIDENT HOUSE PHYSICIAN (gentleman, unmarried), recently qualified in Medicine and Surgery.

The term of residence is for six months from August 1st, apartments, complete board, and laundry being provided, and an honorarium at the rate of £150 per annum will be paid for the first three months, rising, if commendable service be given, to the rate of £200 per annum for the second period of three months. Written applications, with testimonials, are to be forwarded to the Physician-Superintendent at the Hospital, from whom copies of the duties can be obtained.

CARDIFF ROYAL INFIRMARY.
(Associated with the Welsh National School of Medicine.)

HONORARY DENTAL SURGEON REQUIRED.

Applications are invited for the post of Honorary Dental Surgeon.

The regulations provide that "Each Honorary Dental Surgeon shall hold a registrable qualification entitling him to practise Dental Surgery, and his name shall be entered in the Dental Register."

Each candidate is required to send fifty copies of his application and testimonials (for circulation amongst the Members of the Election Committee and Medical Board), stating age, qualifications, etc., and endorsed "Honorary Dental Surgeon," to reach the undersigned on or before Saturday, July 15th.

LEONARD D. REA,
July 3rd, 1933. Secretary.

CARDIFF ROYAL INFIRMARY.
Associated with Welsh National School of Medicine.
Number of available beds—490.

Applications are invited for the undermentioned post:

HOUSE SURGEON—Obstetric Department.

Salary is at the rate of £50 per annum, with board and lodging. Appointments are for six months commencing August 20th.

Forms of application can be obtained from the undersigned and should be returned, with copies of three recent testimonials, on or before July 24th.

R. ARMSTRONG,
July 1st, 1933. Medical Superintendent.

BRIDGWATER HOSPITAL, SALMON PARADE, BRIDGWATER, SOMERSET.
(62 Beds, including Male, Female, and Children's Wards.)

Wanted, HOUSE SURGEON. Salary £130 (rising with board and h copies of three age, qualification, to be sent to the Secretary by July 15th.

Appointment made on July 20th for duties not later than August 18th.

CARNARVONSHIRE AND ANGLESEY INFIRMARY, BANGOR.

Wanted, a SENIOR and a JUNIOR HOUSE SURGEON. Salary £150 and £100 p.a. respectively, with board, residence, and laundry. Duties to commence early in August. Hospital contains Orthopaedic, Eye, Ear, Nose, and Throat, Radium, X-ray, and V.D. Departments. The posts offer good opportunities for practical surgical experience.

Applications, stating age, nationality, and experience, to reach the Secretary not later than July 19th.

CITY OF CHESTER EDUCATION COMMITTEE.

CITY AND COUNTY SCHOOL FOR GIRLS.

WOMAN DOCTOR required to undertake Medical Inspection of Pupils on approximately six days a term, by arrangement. Salary 60 guineas per annum. Applications (for which no forms are provided), stating age, experience, and qualifications, together with copies of not more than three recent testimonials, to be sent to the Director of Education, Town Hall, Chester, by Friday, July 14th. Candidates receiving no communication by August 1st should kindly understand that their applications have not been successful. Canvassing will disqualify.

Town Hall, J. H. DICKSON,
Chester. Town Clerk
July 3rd, 1933.

CHESTERFIELD AND NORTH DERBYSHIRE ROYAL HOSPITAL.
(220 Surgical and Medical Beds.)

HOUSE SURGEON.

Applications are invited from fully qualified men for the above post. There are two vacancies.

The appointment is for six months. Salary at the rate of £150 per annum, with board, apartments, and laundry.

Applications, stating age, together with copies of three recent testimonials, should be sent to the undersigned as soon as possible.

G. SUNNUCK,
July 3rd, 1933. Supt. & Secretary.

HEREFORDSHIRE GENERAL HOSPITAL.
(140 Beds.)

Applications are invited for the post of HOUSE SURGEON AND CASUALTY OFFICER (male).

Salary at the rate of £100 per annum, with board, residence, and laundry.

The appointment will be for a period of six months. The successful candidate will, subject to satisfactory service, be eligible to succeed to the Resident Surgical Officer's post, with a salary at the rate of £150 per annum.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should reach the undersigned on or before July 22nd.

T. W. UPTON, Secretary.

HUDDERSFIELD ROYAL INFIRMARY.
(240 Beds.)

HOUSE SURGEON (male or female) required to commence duty on August 1st.

Salary £150 per annum, with board, residence, and laundry. Appointment for six months' subject to renewal at the discretion of the Board of Management.

The Hospital is officially recognised for the surgical practice required of non-members before admission to the Final Fellowship Examination of the Royal College of Surgeons of England.

Applications, with copies of three recent testimonials, to be addressed to the undersigned immediately.

H. E. G. HALL,
Gen. Supt. & Secretary.

DISTRICT INFIRMARY, ASHTON-UNDER-LYNE.
(General Hospital—200 Beds, mainly Surgical.)

Wanted, about August 15th, a HOUSE SURGEON. Six months' appointment. Salary at the rate of £150 per annum, with board, residence, and laundry.

The Resident Staff comprises a Resident Surgical Officer and three House Surgeons.

Applications, with testimonials, to be sent at once to the undersigned.

FRANK OLIVER,
July 3rd, 1933. Gen. Supt. & Sec.

BIRMINGHAM AND MIDLAND EYE HOSPITAL,
Church Street, BIRMINGHAM.

HOUSE SURGEON required at the above Hospital. Salary £130, rising to £150 at the end of six months, and £10 laundry allowance.

Applications, together with copies of not more than three testimonials, should be addressed to the undersigned from whom further particulars can be obtained.

J. W. PEARCE,
General Superintendent.

GOGARBURN CERTIFIED INSTITUTION, CORSTORPHINE, EDINBURGH.
(330 Beds.)

RESIDENT HOUSE PHYSICIAN (female) wanted for six months from July 16th. Salary at the rate of £100 per annum (subject to temporary cut of 4 per cent.), plus board, etc. Applications and testimonials to be sent as soon as possible to the Medical Officer of Health, Johnston Terrace, Edinburgh.

HOSPITAL OF ST. CROSS, RUGBY.

Applications are invited for the post of TWO MALE RESIDENT MEDICAL OFFICERS. Qualified (three R.M.O.'s.)

Salary to commence at the rate of £100 per annum for first three months, £125 per annum for second three months, and at the rate of £150 per annum for subsequent months.

Six months' appointment, and eligible on completion of service for further extension of six months.

One candidate must be prepared to commence duties immediately, the other candidate will be expected to commence duties on August 1st.

The practice of the Hospital offers excellent opportunities for wide experience.

Certificates and other fees shared by R.M.O.'s.

Applications, stating age, nationality, and full details, with copies of three recent testimonials, to be sent to the undersigned

(Signed) W. COCKBURN,
Supt. & Secretary.

LEICESTERSHIRE AND RUTLAND MENTAL HOSPITAL, NARBOROUGH, Near LEICESTER.

ASSISTANT MEDICAL OFFICER (Male) required.

Candidates must be registered and not more than 35 years of age, unmarried. Salary £350 per annum, rising £25 per annum to £450 (subject to small temporary deductions). In addition £50 per annum will be given if the candidate holds or obtains the Diploma of Psychological Medicine. Apartments, full board, and attendance in addition to the above, valued for Superannuation purposes at £150 per annum. This appointment is subject to the provisions of the Asylums Officers Superannuation Act, 1909, and the successful candidate will be required to undergo a medical examination. Applications, with copies of not more than three recent testimonials, to be sent to the Medical Superintendent forthwith.

LONDON HOSPITAL, E.1.

Applications are invited for the post of SURGICAL FIRST ASSISTANT AND REGISTRAR. Candidates must be Fellows of the Royal College of Surgeons. The salary is £300 per annum, payable by the Hospital and Medical College jointly.

The appointment is for one year, but is renewable annually, on application, for two further periods of one year.

Applications should arrive at the Hospital not later than by the first post on Saturday, October 14th.

Further particulars may be obtained from the House Governor.

ARTHUR G. ELLIOTT,
House Governor.

LIVERPOOL HAHNEMANN HOSPITAL, HOPE STREET.

Applications are invited for the post of STIPENDIARY MEDICAL OFFICER to the above Hospital. Duties to commence on August 1st.

Post is non-resident, tenable for six months, renewable, mornings only. Some visiting.

Salary at the rate of £125 per annum.

Candidates must be willing to study and apply Homœopathy.

Apply, stating age, sex, experience, and enclosing copies of testimonials, to the Registrar on or before July 17th.

LIVERPOOL HEART HOSPITAL.

ASSISTANT PHYSICIAN.

Applications are invited for the position of Assistant Physician to the above Hospital. The Hospital is run as one unit and is particularly well equipped for Research. The Assistant Physician will be eligible for a part time Research Fellowship of £200 per annum, tenable for five years. Outside candidates will receive the same consideration as local men. Applications to be sent to the Secretary, Miss LEWIS, 14, Cook Street, Liverpool.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

Application CATON MEMORIAL Salary £400 per a ng age, qualifications, e named of three referees, should be sent to Hon. Dean, School of Tropical Medicine, University of Liverpool.

MERTHYR GENERAL HOSPITAL.

Applications are invited for the post of RESIDENT SURGEON for the coming six months. Salary £150 per annum, plus board, lodging, and laundry.

Applications, with three recent testimonials, must be in the hands of the Secretary on or before July 15th.

NOT CLASSIFIED.

ASSISTANT EDITOR REQUIRED, FULL time, young, with medical or scientific degree, for medical department of important pharmaceutical manufacturing house, to assist in the collation and preparation of medical literature, etc. Knowledge of German essential. — Address, No. 5227, B.M.A. House, Tavistock Square, W.C.1.

HAVE YOU VISITED THE CENTRAL RESEARCH CLINIC, 20/22, Chenies St., W.C.1? ('Phone: Museum 3262.) The largest Private HOSPITAL in London.

ASSISTANCIES.

WANTED.—AN ASSISTANT, WITH VIEW to early Partnership. Large panel Practice in pleasant North Country town. State age, experience, nationality. — Address, No. 5005, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT, OUTDOOR, MAN or woman, for busy working-class Practice in S.E. London. Suit one recently qualified. Excellent prospects.—Address, No. 5208, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANTSHIP WITH CHRISTian Practitioner. Home or Colonies. From about September. Three years qualified, M.B., D.T.M.; H.S. and G.P. exp.; single.—Address, No. 5201, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANT, SEPT. 1st. SOUTH Yorkshire Town. English or Scotch, young. House and car and £350 per annum. £400 after six months. Protestant preferred. —Address, No. 5212, B.M.A. House, Tavistock Square, W.C.1.

WANTED, AN INDOOR ASSISTANT, IN A Glamorganshire Colliery Practice. A Dispenser kept. Usual bond. Salary £300 per annum.—Address, stating age, references, etc., No. 5214, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY. — INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view. Good salaries. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross St., Manchester, 2.

WANTED, END OF JULY, TEMPORARY MALE ASSISTANT, single, outdoor. Salary £350 p.a. Usual bond. Near Cardiff. —Address, No. 5289, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT, UNMARRIED, TO live in, mixed Practice in Newcastle-upon-Tyne. Salary £300.—Address, No. 5225, B.M.A. House, Tavistock Square, W.C.1.

WANTED, INDOOR ASSISTANT FOR WORKing-class Practice, near Birmingham. British, Protestant, Scot preferred. Some experience panel work. Prospects suitable man. Full particulars, photograph. — Address, No. 5288, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP WANTED BY LONDON, M.B., B.S. (male). Free in September. Home Counties or Southern England; ex H.S. and Obstetric H.P. Keen midwifery and children. Young, hardworking. Drive car.—Add., No. 5209, B.M.A. House, Tavistock Sq., W.C.1.

LABORATORY ASSISTANT.—PATHOLOGIST desires to strongly recommend young and highly efficient Laboratory Assistant. Much experience in Tropics, and in England, of clinical methods, culture media, and general laboratory technique. Now free. — Address, No. 5290, B.M.A. House, Tavistock Square, W.C.1.

OPHTHALMIC ASSISTANTSHIP WANTED in the South by M.B., B.S., D.O., D.O.M.S., aet. 28. To commence in the Autumn.— Address, No. 3302, B.M.A. House, Tavistock Square, W.C.1.

PATHOLOGICAL AND BACTERIOLOGICAL LABORATORY ASSSITANTS ASSOCIATION.—Pathologists and Bacteriologists requiring SKILLED CERTIFICATED LABORATORY ASSISTANTS are invited to communicate with H. GOODING, Hon. Sec., "Moelfre," 10, Holbeck Grove, Victoria Park, Manchester. No fees.

PARTNERSHIPS.

WANTED, BY EXPERIENCED SCOTCH Graduate, with £3,000, a PARTNERSHIP or PRACTICE, with panel preferred, in a provincial town or London, with an income of £1,000 or more. Can negotiate at once.—Details in confidence to PERCIVAL TURNER (No. 53), 4 and 5, Adam St., Adelphi, W.C.2.

WANTED. — PARTNERSHIP IN GENERAL Practice, W. or N.W. London, by experienced young Doctor, possessing Nucleus. New growing district. One year. Panel 250. Excellent prospects.—Address, No. 5203, B.M.A. House, Tavistock Square, W.C.1.

WANTED. —PARTNERSHIP, SOUND PROvincial or suburban Practice, by experienced G.P., who has held Hospital appointments. Share £1,200—£1,500. Rent house. Advertiser well received, conscientious, exper. all branches. Co-operation essen. Replies confid. —No. 5295, B.M.A. House, Tavistock Sq., W.C.1.

WANTED, YOUNG, ACTIVE MAN AS PARTNER to open branch in rising populous district in large city. R.C. preferred. Moderate capital necessary.—Address, No. 5296, B.M.A. House, Tavistock Square, W.C.1.

F.R.C.S.ENG., AGED 33, PROTESTANT, seeks PARTNERSHIP with surgical scope. Has sufficient capital available.—Address, No. 5002, B.M.A. House, Tavistock Square, W.C.1.

NORTH OF SCOTLAND.—PARTNERSHIP IN old-established Practice. Receipts average £2,100 p.a., including appointments £210, and panel worth about £600. Nice house for sale. Premium, one-half share, £1,500.—Add., No. 5215, B.M.A. House, Tavistock Sq., W.C.1.

PARTNER WANTED FOR HALF SHARE, Lanes Town mixed Practice. Cash receipts £3,200. Panel 3,500. Excellent house on lease, with later purchase. Must be experienced. Give full particulars. — Address, No. 3944, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIP.—A SUCCESSOR (MALE) TO the junior partner is required in a partnership of four (males) in an old-established Practice in the Home Counties, within 14 miles of London. One-fifth share producing about £1,300 per annum at 2 years' purchase. Good inexpensive accommodation available. Excellent hospital facilities, considerable scope, and various sports. Total panel 6,000. Some capital required and deferred payments for balance if required.—Address, No. 5226, B.M.A. House, Tavistock Square, W.C.1.

THIRD PARTNER REQUIRED IMMEDIately for well-established South London Practice. Panel over 3,000. Private averaging about £1,500. Quarter share for disposal now. Oxford, Cambridge, London, or Conjoint man preferred. Knowledge of Eyes and Throats advantageous. No agents.—Address, No. 5220, B.M.A. House, Tavistock Square, W.C.1.

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FOR LOCUM TENENS APPLY TO
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After Office Hours: Epsom 9142.

WANTED FOR LARGE RADIOLOGICAL Practice in the North of England LOCUM TENENS for July and August, during absence of one of the Partners. Excellent experience. —Address, No. 5222, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—LOCUM TENENCY BY EXPERIenced Doctor, who has recently given up his practice. Own car if desired. Fishing most acceptable (especially trout). Graduate of Oxford University.—Address, No. 5231, B.M.A. House, Tavistock Square, W.C.1.

WANTED, NORTH LONDON, WOMAN LOCUM, part-time (10—12 noon and 6—8 p.m.). Free Saturday noon till Monday morning. £3 per week.—Address, No. 5294, B.M.A. House, Tavistock Square, W.C.1.

WANTED, LOCUM OR ASSISTANTSHIP, with or without view, by M.R.C.P. (Edin.), British Indian; G.P., panel, hospital, and tropical exp. Young, energetic, abstainer, drive car; well received; refs. Free now.— No. 5291, B.M.A. House, Tavistock Sq., W.C.1.

DOCTOR, EXPERIENCED IN GENERAL Practice, wants LOCUM WORK in or near Birmingham, August 8th to 22nd, September 4th to 8th. Own car.—Address, No. 5230, B.M.A. House, Tavistock Square, W.C.1.

HOSPITALITY LOCUM WANTED, AUGUST 15th for three weeks. Charming district near Cardiff. Work light. Own car essential. Terms: hospitality for wife, three guineas, and petrol. — Dr. BEVERIDGE, Glen View, Dinas Powis, Glam.

HOSPITALITY LOCUM, WIFE, ONE CHILD, July 16th to 30th. Charming seaside; no collieries near. Small Practice; work light. Night practically nil. Golf. Bring own car.— LEIGH, Llantwit Major, Glamorgan.

LOCUM TENENS WORK WANTED, PRIVATE or Institutional Practice. Middle August onward. Competent surgeon and anaesthetist. Testimonials available. — Address, No. 5206, B.M.A. House, Tavistock Square, W.C.1.

LOCUM TENENCY WANTED FOR JULY, Scot, single, experienced G.P. and panel. Free in London. 'Phone: Finchley 1176.— Address, No. 5297, B.M.A. House, Tavistock Square, W.C.1.

LOCUM WANTED, SIX WEEKS COMMENCing August 1st, man or woman, abstainer. Nice house, 1/2 hour from Piccadilly. Practice recently started; no midwifery; very little work. Small fee offered. Suit doctor reading for higher exam., or one looking about for London Practice. Refs. and interv. essn.— No. 5202, B.M.A. House, Tavistock Sq., W.C.1.

LOCUM REQUIRED BY EXPERIENCED Medical Man during August in Maidstone or Kent coast town. Qualified 10 years, Bart's. At present taking course London.—Address, No. 5221, B.M.A. House, Tavistock Square, W.C.1.

LOCUM TENENS.—AVAILABLE FOR JULY and part of August, experienced panel and G.P. work, qual. 1907, St. Bart's. Recent refs.—Apply, stating terms, LOCUM, The Red House, Lancing, Sussex. 'Phone: Lancing 57.

OPHTHALMIC LOCUM REQUIRED FOR THE first two weeks in August. Eight guineas per week, with board and lodging.—Address, No. 5204, B.M.A. House, Tavistock Sq., W.C.1.

THOROUGHLY EXPERIENCED M.B., young, energetic, desires LOCUM for first two weeks of August, with or without hospitality for wife.—Address, No. 5224, B.M.A. House, Tavistock Square, W.C.1.

WOMAN, 31, M.D., 4 YEARS' HOSPITAL and Practice experience, desires LOCUM WORK. Free now. Awaiting own practice in November. Own car. — Address, No. 5286, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

A LADY DISPENSER - BOOKKEEPER supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations. — Write, wire, or 'phone (*Bayswater 0969*), *Secretary*, 7, Westbourne Park Road, W.2.

DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeuse-Dispensers, are invited to write, wire, or 'phone Temple Bar 5858, THE DISPENSERS' BUREAU, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

GROUP CLINIC. — REQUIRED FOR GROUP Clinic in course of formation: DENTAL SURGEON, PATHOLOGIST, and RADIOLOGIST. All participants of the Group must be on the staff of a recognised teaching hospital. For full details, Address, No. 5298, B.M.A. House, Tavistock Square, W.C.1.

LADY DISPENSER, BOOK-KEEPER, RECEPtionist, requires POST. Five years' experience, private and panel. Willing to assist Dr. in surgery, good at housekeeping & gardening. Apoth. Hall diploma. Gd. tests. Now free. —No. 5210, B.M.A. House, Tavistock Sq., W.C.1.

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 85, Eccleston Square, S.W.1 (Telephone: Victoria 2722), supplies qualified Dispensers, Book-keepers, Laboratory Assistants, Sanitary Assistants, Male Nurses, Mental and Special Treatment Orderlies, Dental Clerk Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

TYPEWRITING, DUPLICATING, AND TRANSlations. Experts in Medical work. TESTIMONIALS, THESES, etc., copied in style that commands attention. Accuracy guaranteed.— WOBURN BUREAU, 3, Upper Woburn Pl., W.C.1. (Adjoining B.M.A. House.) Euston 1775.

TRAINED NURSE DISPENSER (HALL) requires WINTER POST. South of England preferred. Resident or non-resident. Ten years' experience.—Address, No. 5219, B.M.A. House, Tavistock Square, W.C.1.

WOMAN DOCTOR, 10 YEARS' EXPER. private, panel, 3 hosp. posts, offers SERVICES to Doctor giving good midwifery experience. Salary arranged. — Address, No. 5207, B.M.A. House, Tavistock Square, W.C.1.

YOUNG LADY OFFERS SERVICES TO Medical Man (expenses only) as SECRETARY-RECEPTIONIST (slight knowledge Nursing) from 6 p.m., preferably poor district, London. References.—Address, No. 5217, B.M.A. House, Tavistock Square, W.C.1.

YOUNG LADY DISPENSER (APOTHECARIES Hall) seeks POSITION with Doctor or Institution, easy of access from Barnet. Well experienced, also some general nursing. *Ex. refs.* N. London, Barnet, or Finchley dist. preferred.— No. 5234, B.M.A. House, Tavistock Sq., W.C.1.

PRACTICES

WANTED, PRACTICE BY THE SEA Income £800 or more Panel required House to rent if possible Capital available —Address No 5013 B M A House, Tavistock Square, W C 1

WANTED BY M B, SCOT PANEL AND private PRACTICE £700—£1 000 in sea coast area (or little inland) preferably Lancashire near Fleetwood House with good garden and accom to rent or purchase f hold —No 5003 B M A House Tavistock Sq W C 1

WANTED TO PURCHASE IN AUTUMN PRACTICE or PARTNERSHIP middle working class within six miles Charing Cross Income about £1 100 Panel about 1 500 Willing to give 2½ years for really suit thing — No 5015 B M A House Tavistock Sq W C 1

WANTED — SMALL GOOD CLASS NON panel Practice in West End or Hampstead district — Address No 5211 B M A House Tavistock Square W C 1

WANTED — NUCLEUS OR SMALL PRACTICE paying expenses in decent or new district thickly populated Small house with at least two bedrooms Easy reach of centre Full particulars —Address No 5223 B M A House Tavistock Square W C 1

WANTED—INDUSTRIAL PRACTICE WITH substantial panel in England or Wales House to rent on lease Premium 1½ years Cash available — Address No 5235 B M A House Tavistock Square W C 1

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EXCELLENT OPPORTUNITY IN PROSperous Midland Town establi hed NUCLEUS with specially planned Doctor's HOUSE pleasant growing neighbourhood Low figure — Address No 5218, B M A House, Tavistock Square W C 1

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GOOD MASSAGE AND ELECTRICAL PRACTICE Well established in large town within 30 miles of London Four equipped treatment rooms in low rented house Average takings £800 Excellent reasons for selling —Address No 5001, B M A House, Tavistock Square W C 1

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MANCHESTER FOR IMMEDIATE SALE, old establi hed industrial PRACTICE doing £660, panel 790 Compact house lease Premium 1½ years cash No agents—Address, No 5287 B M A House, Tavistock Sq W C 1

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UNOPPOSED COUNTRY PRACTICE IN MID Wales Union appointment and Vaccination Small panel Midwifery refused, can be greatly extended by suitable man Established 70 years. Suitable house, nine acres of exceptional pasture land Particulars on application Price including freehold property, £1 250 a mortg can be arranged No agents —No 5213 B M A House Tavistock Sq W C 1

WANTED IMMEDIATELY, WELL QUALIfied man experienced in General Practice for 3/8 SHARE OF PRACTICE in Seaside Town, large panel Share worth over £1 000 gross Short probation Assistantship Good scope —No 5229 B M A House Tavistock Sq W C 1

HOUSES CONSULTING ROOMS

CONSULTING ROOMS (NEAR PARK LANE) TO LET—Physician Surgeon or Dentist may have a full or part time room or share a room Moderate terms—Write requirements to BM/BCGN Holborn W C 1

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CONSULTING ROOMS TO LET — HARLEY Street and Mayfair districts Particulars sent on application Those having consulting rooms to let should send particulars to ELGOOD & Co 10, Henrietta Street Cavendish Square, W 1 Langham 2601

CONSULTING ROOM EQUIPPED WITH basin, electric light heating and telephone partial use of waiting room and reception Also three fully equipped cubicles for treatment by artificial sunlight radiant heat, diathermy, galvanism faradism etc Near Harley Street Moderate rental—Write Box 015 REYNELLS 44, Chancery Lane, W C 2 Crosvenor 1122

DOCTOR IN N LONDON DISTRICT WITH accommodation to spare during months of August and September, would like to HEAR from Colleagues wishing to STAY IN LONDON Garages near Near Tube Terms moderate— No 5292 B M A House Tavistock Sq W C 1

EASTBOURNE CONVALESCENT HOME FOR DISPOSAL — Beautiful HOUSE fully furnished, quiet surroundings Suitable for nerve cases Sunny garden Five years lease Would make excellent Children's Home—Miss FLYNN 5 Prideaux Road Eastbourne

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Duties include attendance in the Ophthalmic Out patient Department on two sessions weekly and the charge of in patient subject to the control of the Ophthalmic Surgeons

Applications accompanied by not more than three testimonials must reach the Secretary by noon July 17th.

THE PRINCE OF WALES'S GENERAL HOSPITAL, LONDON, N.15.

The Governors of the Prince of Wales's General Hospital will shortly proceed to the election of an HONORARY PHYSICIAN to the Skin Department for which post applications are invited.

Candidates must be Graduates in Medicine of a recognised British University, Fellows or Members of one of the Royal Colleges of Physicians, and be engaged in Consulting Practice only.

Applications, together with copies of three recent testimonials, should be lodged with the undersigned on or before Wednesday, July 19th.

(Signed) J. C. BURDETT,
Director.

THE GENERAL INFIRMARY AT LEEDS. (627 Beds.)

RESIDENT MEDICAL OFFICER, IDA AND ROBERT ARTHINGTON HOSPITAL (Branch Hospital).

Applications are invited for the above post. Salary £100 per annum, with board, residence, and laundry.

The appointment is for six months, subject to renewal. Candidates must be legally qualified and registered.

Applications, with copies of testimonials, to be sent in at once to the House Governor & Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

HOUSE SURGEON required August 1st.

CASUALTY OFFICER required August 14th. Some Ear, Nose, and Throat work additional. Six months' appointments. Salary at the rate of £100 per year, with board, lodging, and laundry.

Applications must be made on forms to be obtained from the undersigned, and must be sent in with copies of not more than four testimonials, on or before July 18th.

CHARLES H. BESSELL,
July 1st, 1933. Secretary.

WEST RIDING MENTAL HOSPITAL, STORTHES HALL, KIRKBURTON, near HUDDERSFIELD.

Applications are invited for the position of ASSISTANT MEDICAL OFFICER, male, single, fully qualified and registered. Salary £350 per annum, rising by annual increments of £25 to £450, less temporary economy cut, with board, apartments, laundry, and attendance, valued for superannuation purposes at £120 per annum. An additional £50 per annum is paid to candidates holding a D.P.M. qualification. The appointment is subject to the provisions of the Asylums Officers Superannuation Act. Applications, with copies of three recent testimonials, to be sent to the Medical Supt.

VICTORIA HOSPITAL, ACCRINGTON.

The Governing Body of this Hospital invites applications for the post of HOUSE SURGEON.

Candidates must be duly qualified and registered. Number of beds 50. Salary £150 per annum, with board and lodging.

Conditions of appointment and particulars of duties may be obtained from the undersigned, to whom applications, with copies only of testimonials, should be sent on or before July 10th.

Town Hall, W. H. WARHURST,
Accrington. Hon. Secretary.

WARNEFORD GENERAL HOSPITAL, LEAMINGTON SPA.

RESIDENT CASUALTY HOUSE SURGEON AND HOUSE RESIDENT to Special Departments required on August 1st next. Salary £150 per annum, with board and laundry.

Applications from qualified and registered Medical Practitioners (single men) should be sent to the undersigned by July 12th, accompanied by copies of at least three recent testimonials.

EDWARD L. WIRGMAN,
House Governor & Secretary.

THE ROYAL INFIRMARY, SUNDERLAND. (290 Beds.)

ONE HOUSE SURGEON and ONE HOUSE PHYSICIAN (male) required on August 1st. Salaries £140 per annum, with board, residence, and laundry. Applications, stating age, qualifications, and accompanied by copies of testimonials, to be sent to the undersigned immediately.

J. A. BEARDSALL,
House Governor & Secretary.

THE SHEFFIELD RADIUM CENTRE.

ASSISTANT MEDICAL OFFICER wanted, commencing salary £300 per annum. Applications, stating age, qualifications, and all particulars to be sent to JNO. W. BARNES, F.C.I.S., The Secretary, The Sheffield Radium Centre, The Royal Infirmary, Sheffield, 6.

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W. J. HICKS, *Secretary.*

WEST LONDON HOSPITAL, Hammersmith, W.6. (234 Beds.)

Applications are invited for the post of HONORARY MEDICAL REGISTRAR to the Children's Department, for a period of one year, eligible for re-election annually for a total period of not more than three years. An honorarium at the rate of £100 a year is attached to the post.

The duties include attendance in the Out-patient Department on four mornings a week, acting as deputy for the Assistant Physician to the Children's Department when required and such teaching for the Post-graduate College as the Board may approve.

Candidates, who may be male or female, must be registered under the Medical Act, and should have had wide experience in Children's work. Membership of one of the Royal Colleges of Physicians of London, Edinburgh, or Ireland is desirable.

Applications, with copies only of testimonials, should reach me not later than Thursday, July 20th. Candidates must attend the Meeting of the Medical Council at 4.30 p.m. on Friday, July 21st, and prior to that date send copies of application and testimonials to each member thereof. They must not canvass members of the Board but, nevertheless, should send copies of their applications and testimonials to each member thereof, and if so notified, be in attendance at a Meeting of the Board at 5.15 p.m. on Tuesday, July 25th, when the election will be made.

H. A. MADGE, *Secretary.*

WEST LONDON HOSPITAL, Hammersmith Road, W.6. (234 Beds.)

Applications are invited for the post of RESIDENT ANAESTHETIST (male). The appointment is tenable for a period of six months, subject to one month's notice on either side. Salary at the rate of £100 per annum, with board, lodgings, and laundry allowance.

Candidates must be registered under the Medical Act. Applications (which must be on printed forms obtained from me) must reach me not later than first post, Friday, July 21st. Selected candidates will be required to call upon such members of the Medical Staff as directed, to be in attendance at the Medical Council Meeting on Friday, July 28th, at 4.30 p.m. and the House Committee Meeting at 5 p.m. the same day, when the appointment will be made.

H. A. MADGE, Secretary.

WEST END HOSPITAL FOR NERVOUS DISEASES.
In-patient Department, Gloucester Gate, N.W.1.

The Committee of Management invite applications from British male candidates for the appointment of JUNIOR HOUSE PHYSICIAN. Duties to commence August 14th. Salary at the rate of £100 per annum, with board, residence, and laundry. Appointment in first instance for six months.

Applications, with recent testimonials, must be received by the undersigned not later than first post, Tuesday, July 18th.

J. P. WETENHALL,
73, Welbeck St., W.1. Secretary.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.

HOUSE SURGEON wanted. Ophthalmic experience preferred. Duties to commence in July. *There are 50 beds for In-patients, and* large Out-patient Department. Salary £150 a year, with furnished apartments, board, and laundry. Ladies and gentlemen applying should state age and experience, and send copies of three recent testimonials, to reach the Secretary not later than July 10th.

EUSTACE LEES,
June 13th, 1933. Secretary.

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LONDON, N.W. — VERY FINE OUTLYING district. About £1,000 p.a. No panel taken, but ample scope. Some dispensing. Expenses low. Corner house in excellent position on main road, 4 bedrooms, etc. Long leasehold for sale at £2,220. Vendor giving up general practice. Premium for goodwill 1½ years' purchase.—No. 9170.

LONDON, S.W.—ABOUT £1,200 P.A. PANEL over 2,000. No midwifery. Visits from 3/6. Surgery from 2/-. Modern corner house, with 3 bed., 2 recep., surgery, etc. £100 on good lease. Premium £2,850, or less if furniture purchased.—No. 9174.

SOUTH WALES. — PANEL AND COLLIERY PRACTICE. About £1,300 at present, depressed owing to local unrest, now overcome. Showing increase this quarter. Panel of 1,400, worth £600. Clubs, etc., about £200. About 10 midwifery cases at 2 gns. Visits 3/6 to 7/6. Premium £1,700 cash. Good detached corner house in excellent repair, 4 bed., 2 recep. rooms, separate surgery suite, garage and garden. £60 on lease.—No. 9166.

MANCHESTER. — UPPER WORKING AND middle-class PRACTICE. Nearly £1,000 p.a., plus Poor Law appt. £100. Panel of 463, increasing. Opposition weak. Visits mostly 5/-. Some 3/6 and 7/6. Surg. 3/6 to 5/-. Premium £1,750 to include book debts (£400—£500), drugs, furniture, and fittings worth £150. Well-built corner house, 5 bed., surgery, etc., to rent.—No. 9163.

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LONDON, N.W. — SUBURB. — RECEIPTS average last three years £540. Panel 150. Visits 5/- up. Surg. 3/6 to 5/-. Mids. 8 to 10 p.a., fees 3 to 6 gns. Premium £900 or offer. Good house, with garden. Five bed., 2 recep., sep. surg., and garage. Price £1,600, of which £1,000 could remain on mortgage. —No. 9142.

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The business undertaken by the British Medical Bureau is divided under the following heads:—

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Medical Practitioners wishing to dispose of Practices, or desiring to take Partners, are advised to negotiate the business through the British Medical Bureau. Vendors may depend upon receiving introductions only to eligible and bona-fide purchasers. All information is treated in strictest confidence. Full and trustworthy information regarding Practices, Partnerships, etc., for disposal, supplied gratis to Purchasers.

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4. DEVONSHIRE.—WELL-ESTABLISHED COUNTRY PRACTICE in beautiful district near the Coast. Cash receipts average £1,376 p.a. Panel over 725. Nice house (7 bed and dressing rooms, etc.), with central heating, electric light, main drainage, etc. Large garden and garage for sale. Sport of all kinds. Premium £2,100.

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7. S. WALES.—IMPORTANT SEAPORT TOWN.—PARTNERSHIP in sound old-established Practice averaging £3,500 p.a. Panel 2,800. Incoming Partner should be a Scotsman aged about 30—35, and preferably Edinburgh or London trained. There is a nice house for sale. To a suitable man a one-half share would be sold at 1½ years' purchase.

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14. SUFFOLK AND NORFOLK BORDERS.—SMALL PRACTICE IN Market Town. Earnings 1932, £285, including panel of 80. Nice house (6 bedrooms), garage, and good-sized garden. Price of freehold £850. Excellent schools. Plenty of sport. Cottage Hospital. Premium £450.

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Practices and Partnerships for Disposal (continued).

15 LONDON, E.—CASH AND PANEL PRACTICE OF OVER £600 p.a. in populous district. Panel 1,590. Small house to rent on lease. Premium £800.

16 S. WALES.—PARTNERSHIP (AFTER PRELIMINARY ASSISTantship) in well-established Practice of nearly £5,000 p.a. in important Industrial Town. Good appointments and panel of nearly 5,000. After Preliminary Assistantship a one-third share would be sold at first to a suitable man who should have held Hospital Appointment and have some knowledge of Midwifery and Anæsthetics.

17. N.W. OF ENGLAND.—SEAPORT TOWN.—PARTNERSHIP IN well established Practice of about £1,500 p.a. Panel 1,660. Great scope for increase. Premium two-fifths share £1,000.

18. WEST OF ENGLAND.—PARTNERSHIP IN OLD ESTABLISHED PRACTICE over £2,200 p.a. in County Town. Panel about 1,000. Premium one-half share 2 years' purchase. Good prospects for well-qualified physician (preferably M.R.C.P.), who would have opportunity of getting on Staff of Hospital in near future.

19. LONDON, N.—PRACTICE CARRIED ON BY MEDICAL WOMAN in populous area. Cash receipts average £480 p.a., including panel 327. Visits 2/6 to 3/6. Small house (6 rooms) to rent at £50 p.a. on lease. Practice capable of increase. Premium 1½ years' purchase.

20. LONDON, N.—PRACTICE CARRIED ON BY MEDICAL WOMAN in populous district. Cash receipts average £270 p.a., including panel 360. Scope for midwifery. Six-roomed house to rent at £70 p.a. on lease. Premium 1½ years' purchase.

21. BORDERS OF SHROPSHIRE AND CHESHIRE.—OLD ESTABlished PRACTICE averaging £1,055 p.a. in Market Town. Panel 850. Nice detached house (5 bedrooms, attics, etc.) with garage and old-world garden, etc., for sale. Educational facilities. Well-equipped Cottage Hospital offering scope for one keen on Surgery. Premium £1,580.

22. PARTNERSHIP (WITH VIEW TO SUCCESSION) IN OPHTHALmic Practice, about £1,530, in delightful Southern Seaside Resort. Applicants must have sound practical experience in Ophthalmic work. Premium—half share—1½ years' purchase.

23. PRIVATE MENTAL HOME (FOR LADIES ONLY).—EXCEPtionally nice house and grounds. A considerable sum required for the purchase. Further particulars on application.

24. CO. DURHAM.—PRACTICE OF £540 P.A. IN RESIDENTIAL Colliery District near two large Towns. Panel 380. Well-situated house (7 rooms) with good Surgery and Dispensary, for sale or rent. Scope for substantial increase. Premium only £500.

25. S. WALES.—PRACTICE BETWEEN £250—£300 P.A. IN beautifully situated village about 4 miles from important town. Small panel. Nice house (6 bedrooms), electric light, gas, and company's water for sale or rent. Premium £280.

26. S. OF ENGLAND.—PARTNERSHIP IN OLD ESTABLISHED Practice of nearly £1,950 p.a. in important town within 80 miles of London. No panel. Attractive corner residence (7 bed and dressing rooms) in half-acre of walled-in garden, with garage, etc., for sale. Ample scope for increase. Premium one-half share 2 years' purchase.

27. ESSEX.—OLD ESTABLISHED PRACTICE OF ABOUT £600 P.A. in Suburban District. Panel 500. Well-situated detached house (6 bedrooms) standing in own grounds with nice garden, garage, and stabling for sale. Scope for increase. Premium £650.

28. SURREY.—PARTNERSHIP IN SOUND OLD ESTABLISHED good mixed class Practice about £3,000 p.a. in the Croydon area. Small panel. Very little midwifery. Excellent modern detached house for sale. Scope for increase. Premium one-half share 2 years' purchase.

29. LONDON, E.C.—PARTNERSHIP IN OLD ESTABLISHED PRACtice in the City. Receipts average about £1,650 p.a., including appointments and panel worth over £500 p.a. Premium one-half share £1,000.

30. EAST COAST.—PRACTICE OF ABOUT £800 P.A. IN RESIdential Seaside District, 40 miles from London. Small Panel. Detached house (5 bedrooms) for sale. Scope for increase. Premium 1½ years' purchase.

31. SURREY.—PRACTICE OF £1,000 P.A. IN RAPIDLY GROWing Residential District within 15 miles of London. Panel 500. *Suitable house, with separate professional accommodation, for sale.* Scope for considerable increase. Premium £1,600.

32. LONDON, W.—GOOD MIDDLE-CLASS PRACTICE £400 P.A. in suburb within easy access of the West End. Panel over 1,000. Attractive double-fronted house with nice garden for sale. Scope for increase. Premium 1½ years' purchase.

33. LONDON, N.—PARTNERSHIP IN PRACTICE ABOUT £5,250 p.a. in thickly populated Suburban District. Panel about 800. One-fourth or one-third share at 2 years' purchase.

34. HOME COUNTIES.—OPHTHALMIC PRACTICE BETWEEN £300 and £400 p.a. in desirable Residential Town, under 15 miles from London. Good detached house (4 bedrooms) with large garden for sale. Good reasons for plenty of scope for increase. Premium £300.

35. LONDON, E.C.—OLD ESTABLISHED LOCK-UP PRACTICE of £646 p.a. Panel 459. Living accommodation to rent if desired. Premium £1,000.

36. S. AFRICA.—OPHTHALMIC AND GENERAL PRACTICE about £1,400 p.a. (about 60 per cent. Ophthalmic), including appointments £400. No Ophthalmic opposition. Premium £400.

37. N. OF ENGLAND.—OPHTHALMIC PRACTICE OF OVER £1,600 p.a. in an important town. Excellent scope for one keen on clinical and operative Ophthalmology. Large house in first-class condition for sale. Purchaser should be well qualified. Premium £2,500.

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LARGE LANCASHIRE TOWN near MANCHESTER.—Sound mixed-class PRACTICE. Average cash receipts £1,480. Panel 1,466. Good detached corner house, 2 reception, 4 bedrooms; garage and garden. Premium 1½ years' purchase.—No. 466.

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LARGE LANCS TOWN, near Manchester.—Old-established mixed PRACTICE. Average cash receipts £1,080 p.a. Panel 1,060. Scope. Good house, 2 reception, 4 bedrooms, garage, and garden, to rent. Premium 1½ years' purchase.—No. 457.

NORTH-WEST COAST.—Large residential and seaside town.—Old-established PRACTICE. Cash receipts about £1,200 p.a. Panel 1,500. Excellent detached corner house (freehold), 3 professional rooms, 5 bedrooms, and 2 reception rooms, garage, and good garden for sale. Premium—Practice—1½ years' purchase.—No. 417.

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MANCHESTER.—Old-established panel and private PRACTICE. Cash receipts last year £660. Panel 788. Scope. Good corner house, 2 reception, 4 bedrooms; garage. Rent £60 p.a. Premium 1½ years' purchase or near offer.—No. 437.

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2 CORNWALL—Small PRACTICE, producing at present about £300 p.a. but offering scope for rapid development, situated in attractive seaside village Panel of about 160 Fees from 2/6 Midwifery not taken Suitable house can be rented Premium £350

3 MIDDLESEX—RIVERSIDE SUBURB—Old-established good mixed class PRACTICE averaging for the last three years £1,030, including panel bringing in about £340 and appts worth nearly £100 Fees from 3/6 Detached house with good garden, and containing 4 reception, 6 bedrooms, etc Price for leasehold £1,200 Premium £1,750

4 HOME COUNTIES—PARTNERSHIP—A one third share (with increase up to one half later) is offered, owing to the retirement of the senior partner, in an old-established good mixed Practice, situated in favourite residential town within easy reach of London Gross cash receipts average approximately £4,000 p.a. Panel of 3,200 Visits and medicine from 4/ Suitable house with garden and garage, can be rented at £70 p.a. Sport of all kinds, and good schools Ingoing partner must be about 30 years of age married or engaged, and experienced in major surgery and preferably hold the F.R.C.S. Premium for share two years purchase

5 KENT—WITHIN TWENTY FIVE MILES OF LONDON—PARTNERSHIP—A one third share (with increase to one half later) is offered in an old-established good mixed class Practice, with a large percentage of good-class patients and situated in a very attractive country and market town (pop. over 3,000) amidst beautiful surroundings. The income is steadily increasing and there is good scope for further development with the aid of a suitable partner who should be about 30 years of age Cash receipts last year nearly £2,400 Visits 3/6 to 21/, medicine extra Choice of suitable houses ranging from £1,000 upwards Premium for share £1,600 Sport of all kinds Good schools

6 WITHIN FIFTEEN MILES OF LONDON—PARTNERSHIP—A share producing about £1,300 p.a. is offered in a very sound old established Practice, producing for the last 12 months approximately £5,200, and offering excellent scope for increase Panel of 2,500 Fees from 3/6 to 21/ Very nice house, with ample accommodation, or smaller one if desired Ingoing Partner should be experienced accustomed to better-class work able to undertake major surgery and preferably hold a Fellowship Premium 2 years purchase

7 PARTNERSHIP—LONDON SUBURB—A one-third share (with increase up to one-half later) is offered in a very old established good mixed class Practice, situated in well populated district, and offering good scope for development Gross cash receipts average between £4,000 and £4,500 p.a. Guaranteed income of £1,500 for the first year Panel of 800 Suitable accommodation available Premium for share £3,250 Ingoing partner must be experienced and qualified about four year

8 CORNISH RIVIERA—Old established PRACTICE, in very favourite resort, having exceptionally mild climate Income over £1,150 including panel of 450 and appts worth £40 p.a. Fees 3/6 to 21/ No opposition within 4 miles Well situated house, with 2 reception 6 bedrooms, etc., and professional rooms Good garden Rent on lease £52 p.a. Premium £1,650

9 NORTH OF ENGLAND—PARTNERSHIP—A five twelfths or seven twelfths share is offered in a well established sound mixed class Practice averaging approximately £2,400 p.a. Panel produces £820 p.a. and P.M.S. £720 p.a. Appointments worth £120 p.a. Succession to the whole Practice can be obtained in about four years or sooner as agreed Good house specially built, with ample accommodation, for sale Situated in growing area, and offering excellent scope for further development Premium for share 2 years' purchase

10 EASTERN COUNTIES—Very old established PRACTICE, unopposed and situated in pleasant agricultural district within reach of two good towns. Average gross cash receipts for the last three years £1,849 (last year £2,257) Panel with mileage produces over £900 p.a., and appts are worth about £130 Fees from 3/6 Comfortable house with 2 reception 6 bedrooms, etc Garden Garage Price (freehold) £1,500 Premium £3,250

11 LONDON SUBURB (EAST)—In a clean and well populated district an old-established PRACTICE worth about £1,200 p.a., including transferable appt. of £130 and panel of 950 is for immediate disposal owing to ill health of Vendor Small house (3 bedrooms, etc.) with fair-sized garden Rent on lease £78 a year, inclusive of rates and taxes Premium 2 years purcha

12 LONDON WEST—PARTNERSHIP—A half share, producing about £750 p.a. (which will be guaranteed for the first year) is offered in a very old established better class non-panel and non dispensing Practice, having exceptional scope for increase Fees from 10/6 to 5 guineas Suitable flat is available for ingoing Partner who must be experienced in better class work, and preferably hold the M.R.C.P. Premium for share 2 years' purchase

13 SOUTH WALES—Pleasant Coast Town (pop. 40,000)—Old established PRACTICE held ten years by present Incumbent and averaging over £1,000 p.a. including panel of 1,275 Visits 5 to 10/6 Good house having charming views of English Channel, and surrounding country Contains professional rooms 3 reception 6 bed rooms 2 bathrooms Garden with tennis court Garage Price for leasehold (60 years to run at ground rent of £20 a year) £1,800 Premium 1½ years purchase

14 LONDON, S.W.—Well-established PRACTICE worth about £350 p.a. including panel of 550, and capable of increase Rent of Flat, consisting of two floors, containing 2 professional rooms, dining room kitchen, two other rooms and bathroom £2 2s. a week inclusive of rates and taxes Lease 5 years to run, and renewable Premium £450, or near offer

15 EASTERN COUNTIES—ASSISTANTSHIP with view to Partnership (after a preliminary period of six months at a salary of £150 p.a., with free house) is offered in an old established good mixed class Practice situated in pleasant residential and agricultural district within about 15 miles of the coast Gross cash receipts approximately £3,000 A third share is for disposal at a premium of 2 years purch

16 NORTH WALES—ASSISTANTSHIP with view to Partnership (after a preliminary period of about six months at a salary of £300 p.a., all found) is offered in a better class non-panel Practice situated in attractive seaside resort A one third or three sevenths share is for disposal (producing £800 to £900 p.a.) at a premium of 2 years purch Ingoing Partner should be English and preferably London trained

17 PARTNERSHIP — WEST OF ENGLAND SEASIDE RESORT — A share worth about £600 p.a. (with success to the whole Practice eventually) is offered in a very old established mixed-class Practice situated in very attractive small coast town with beautiful surrounding country Gross cash receipts approximately £1,200 p.a., including panel worth about £420 Visits 5 to 20 Midwifery from 3 gns Exceptionally nice house with 2 reception, 5 bedrooms, etc., and usual offices Half an acre of garden Can be rented on lease Premium 2 years purchase

18 OPHTHALMIC PRACTICE.—Within eight miles of London—Practice is increasing, and offers good scope for further development Average gross cash receipts for the past three years £854 Last year over £700 Fees 1 to 2 guineas Opposition slight Choice of houses Premium £700

19 LONDON, EAST—Middle and working class PRACTICE, producing £1,000 p.a., including panel of about 1,100 Suitable small house with sitting room 2 bedrooms, and attic waiting room, surgery, and dispensary Rent £52 p.a.

20 LONDON better working class PRACTICE incre populated district Gross cash receipts for uding panel of 1,370 Suitable house drooms Garden Price for freehold £1

21 MANCHESTER—Old established middle and working class PRACTICE, producing for the last twelve months about £650, including panel of 790 Fees from 3/6 Convenient house, with 2 reception 4 to 5 bedrooms bathroom, etc Rent on lease £60 Premium £950, to include furniture

22 CENTRAL LONDON—Middle and better class PRACTICE averaging for the last two years about £500 p.a. including small panel of 180 Fees 3/6 to 21/ Professional accommodation can be rented at £200 p.a. Prem. £225, to include furn., drugs, instruments, etc.

23 SOUTH EAST LONDON—Good middle and working class PRACTICE, producing last twelve months nearly £950 Panel of 986 Suitable house, with 2 reception 4 to 5 bedrooms, etc Rent on lease £70 p.a. Prem., to include drugs, etc., and surgery fittings and furn. £1,450

24 SOUTH WEST OF ENGLAND—In a thriving and pleasant seaport town, with beautiful surrounding country, a well established increasing PRACTICE worth last year over £1,100 including panel producing £286 and appts £200 Visits 3/6 to 21 Midwifery practically refused Good house in excellent position with ample accommodation small garden and garage Price freehold £2,100 or would be let on lease at £127 p.a. Premium £2,000 or near offer

25 NORTH WALES—Old established middle and working class PRACTICE, averaging for the last three years over £1,700 including panel of about 1,300 Fees from 2/6 Visits from 3/6 with medicine extra Suitable house, with good professional accommodation Electric light Garage for two cars Small garden Rent on lease £100 p.a. Premium £2,100 £1,700 down balance by instalments Good sport, etc A knowledge of Welsh is not necessary

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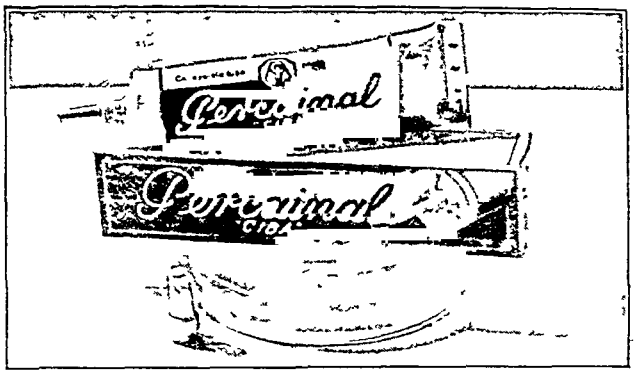
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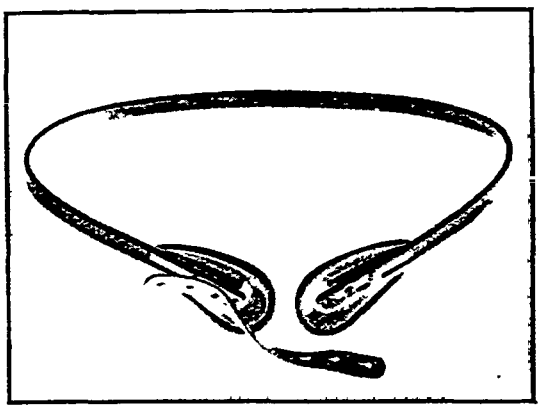
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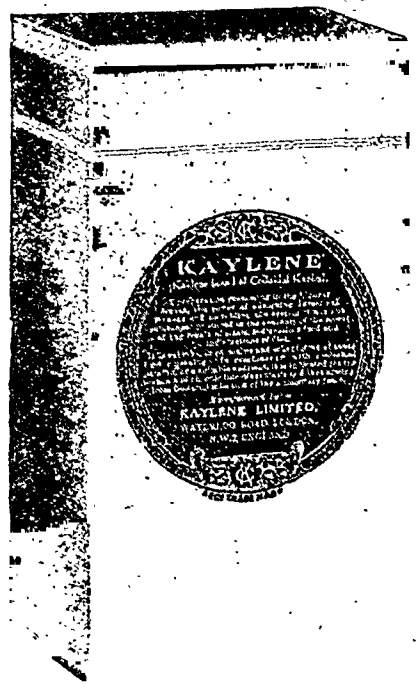


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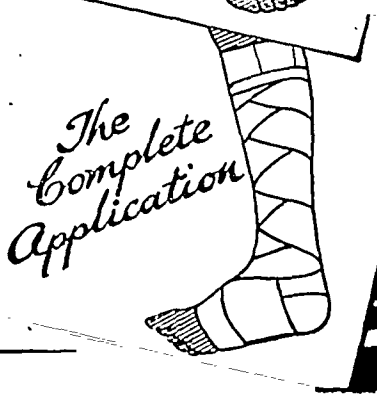
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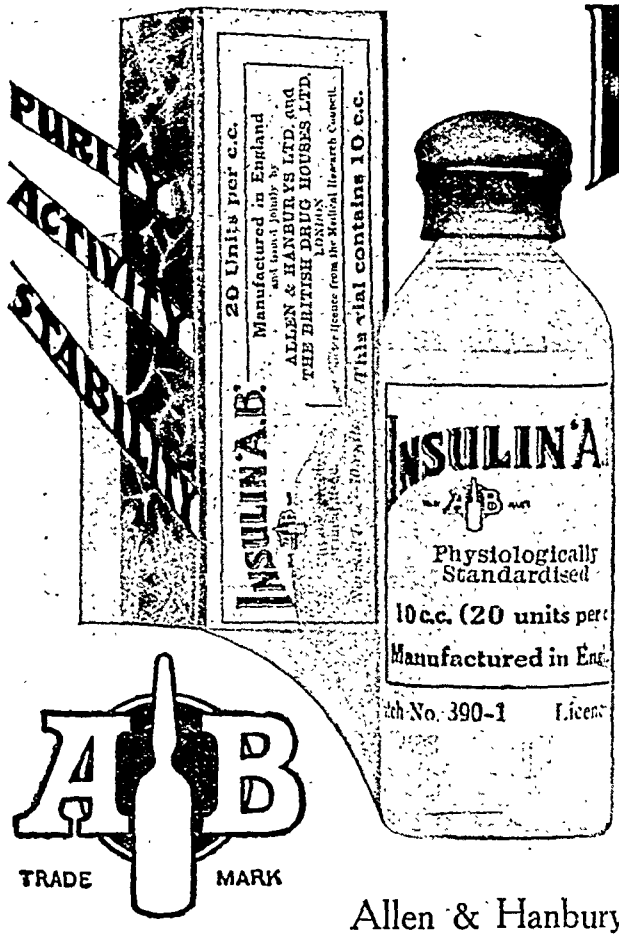
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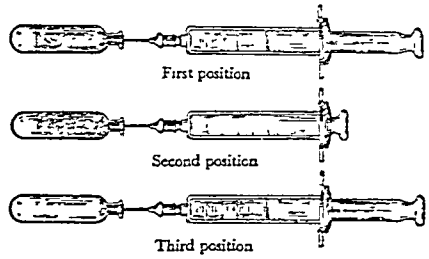
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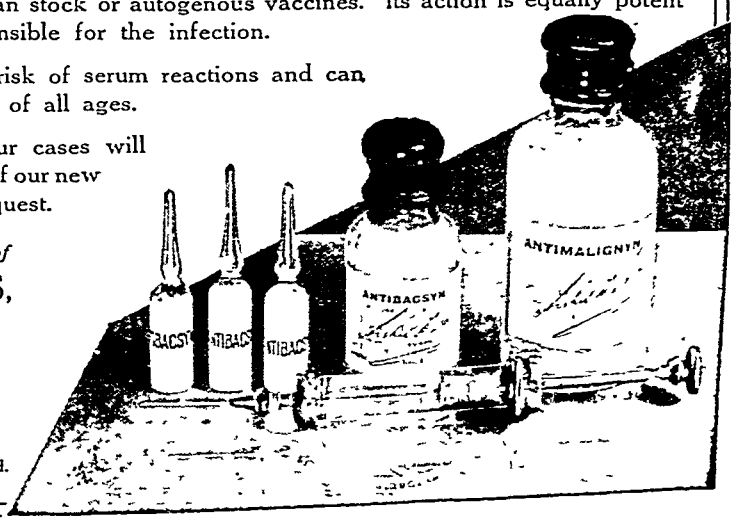
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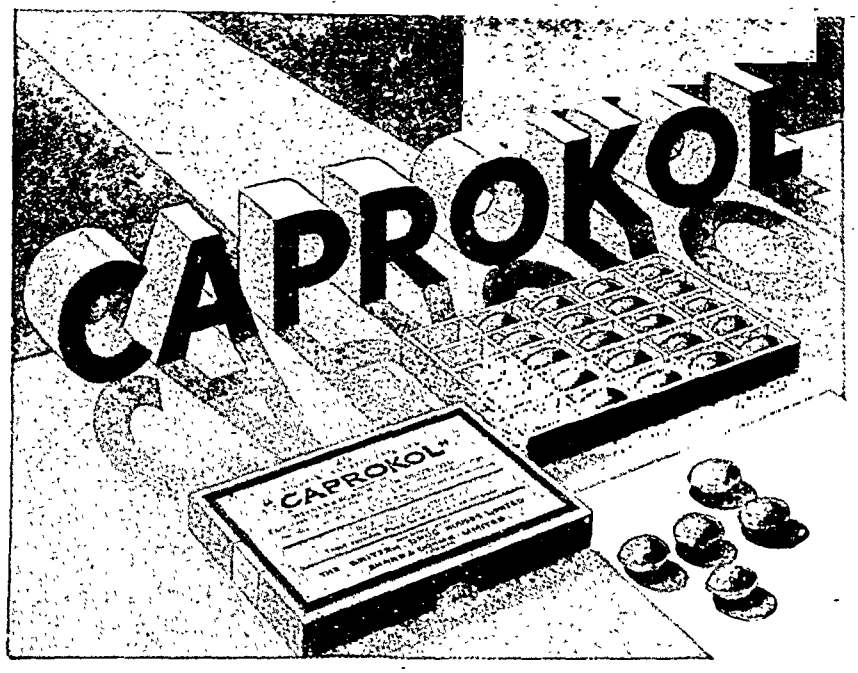


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*Evipan. An Intravenous Anaesthetic. By Ronald Jarman, D.S.C., M.R.C.S.Eng., and A. Lawrence Abel, M.S.Lond., F.R.C.S.Eng.—*The Lancet*, July 1st, 1933, p. 18.

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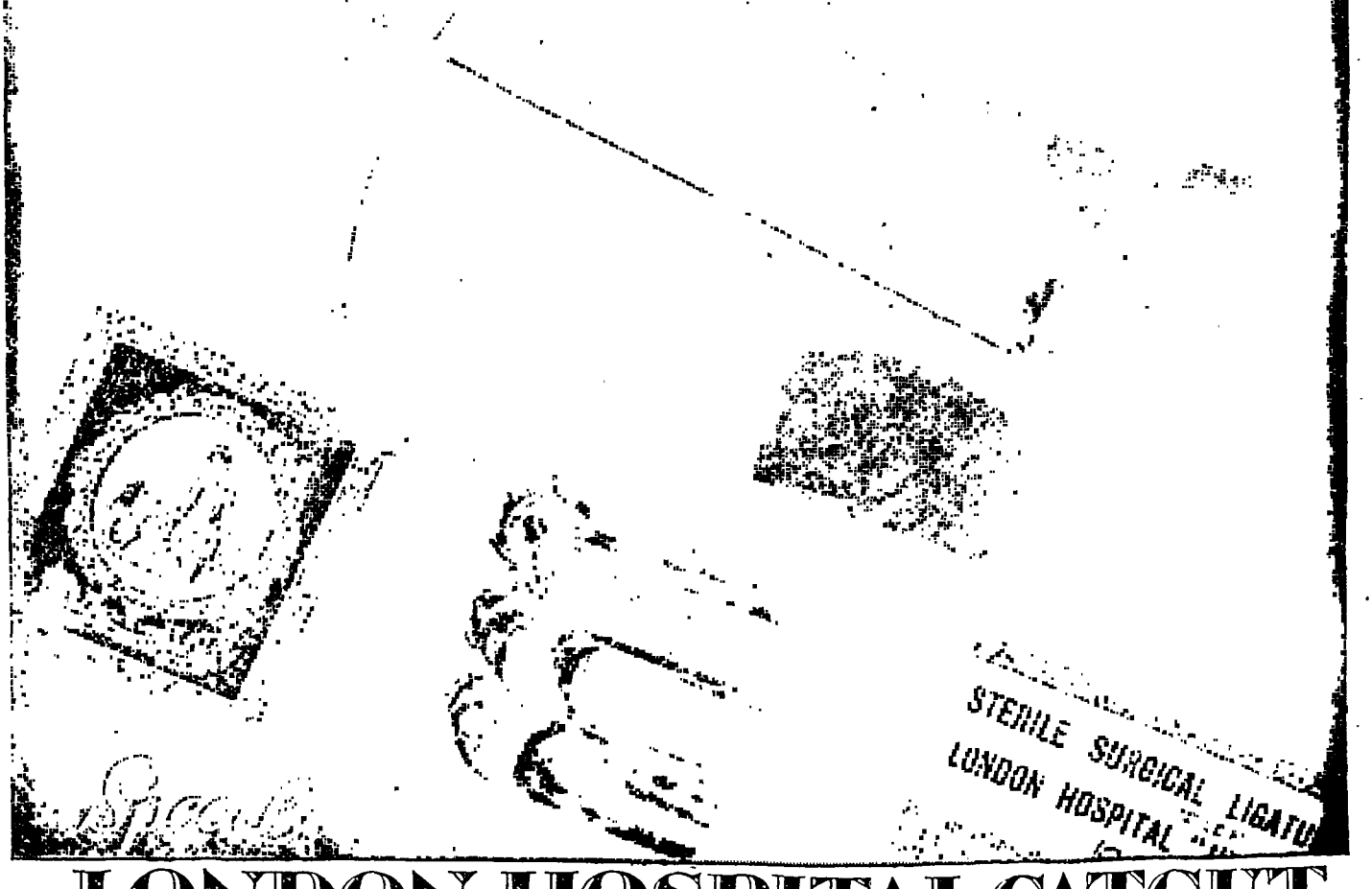
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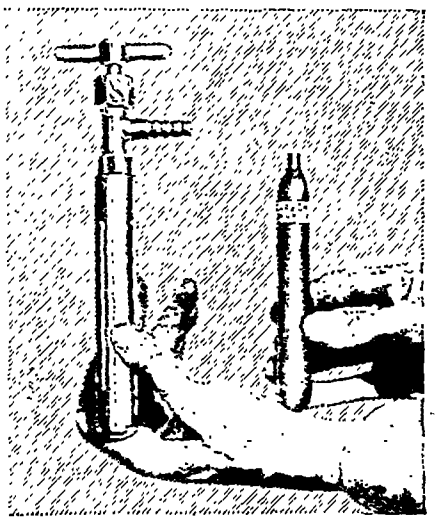


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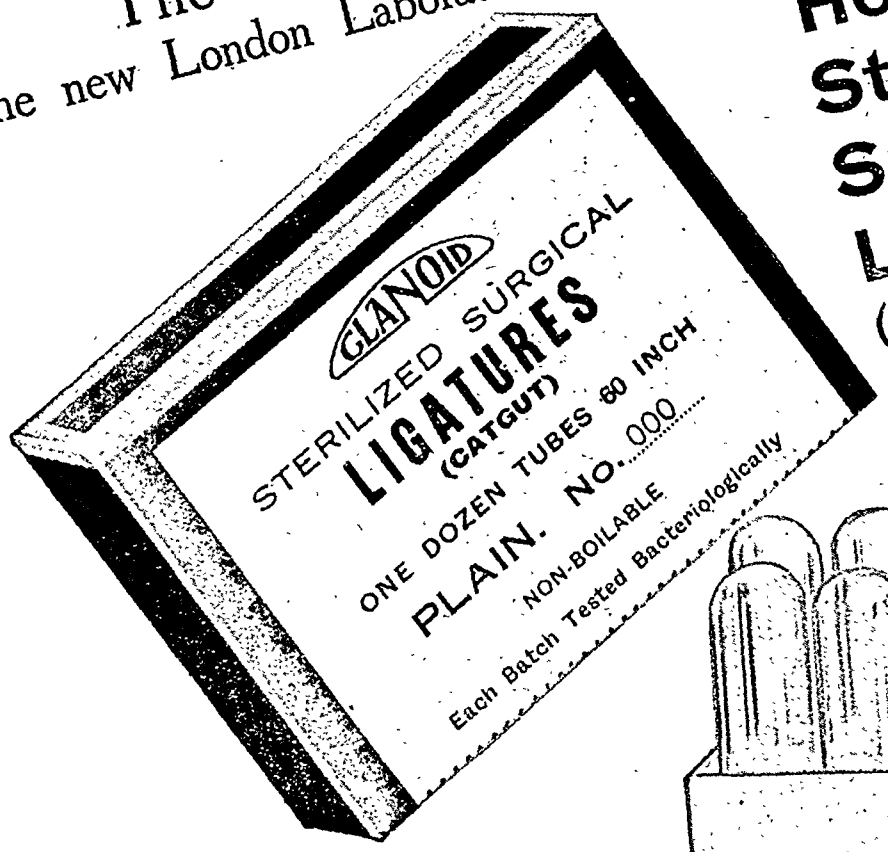
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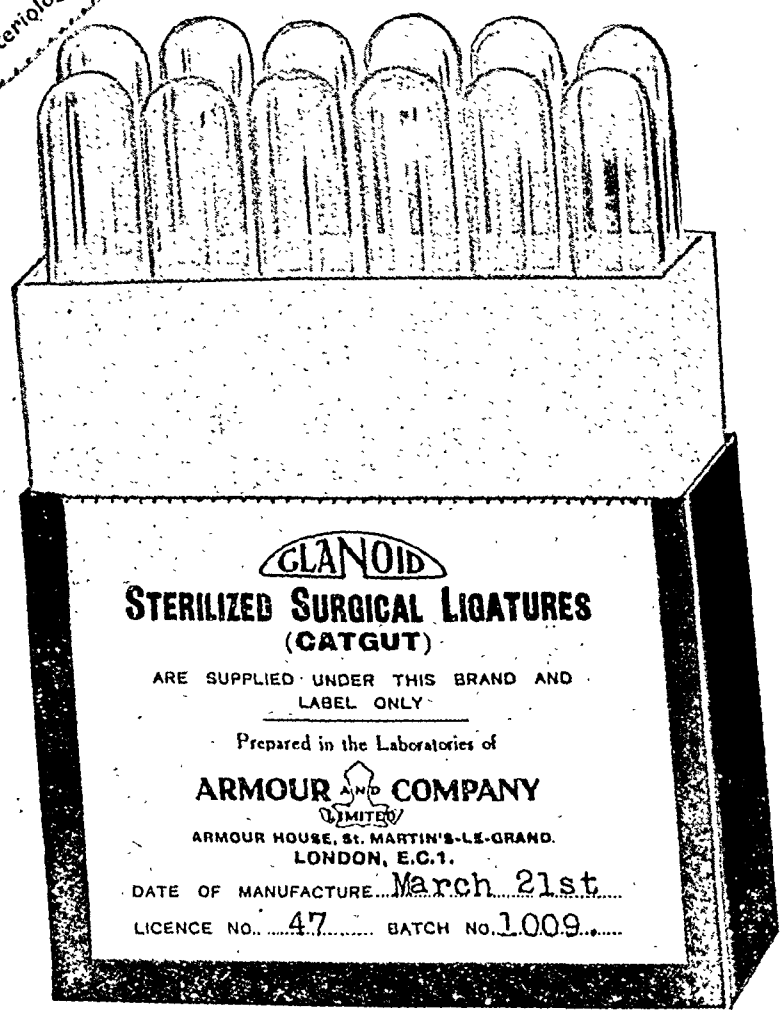
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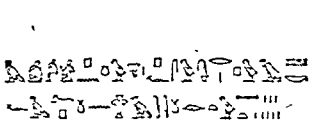
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Date: Papyrus c. 1500 B.C.

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The Alvarez Lecture

ON

THE UNITY OF GASTRIC DISORDERS *

BY

ARTHUR F. HURST, M.A., M.D.OXON., F.R.C.P.

SENIOR PHYSICIAN TO GUY'S HOSPITAL

I. THE HYPERSTHENIC AND HYPOSTHENIC GASTRIC CONSTITUTIONS

Investigations on the anatomy and physiology of the stomach of healthy young adults of both sexes show that considerable variations from the average occur under perfectly normal conditions. In about 80 per cent. these variations fall within comparatively narrow limits. This is shown, for example, in the results obtained by Bennett and Ryle (1921) with a fractional gruel test meal in a hundred healthy male students who had never suffered from any form of indigestion: the curves of free hydrochloric acid in eighty of them fell within the shaded area shown in Figs. 1, 3, and 4. The anatomy and physiology of the stomach in these 80 per cent. of healthy people are so perfectly adjusted to the exigencies of ordinary life that they are likely to reach old age without ever suffering from any form of chronic gastric disorder. Of the remaining 20 per cent., approximately one-half are born with what I have called the hypersthenic gastric constitution, and most of the other half with a hyposthenic gastric constitution—both conditions being often familial. The former have hyperchlorhydria (Fig. 1), which is often, though not invariably, associated with a short, high, rapidly emptying stomach. The latter have hypochlorhydria, which is generally associated with a long, low, slowly emptying stomach. Both constitutions are compatible with perfect health, but in unfavourable circumstances each predisposes to the development of certain organic diseases. In addition to the hyposthenic diathesis, about 3 per cent. of normal individuals have complete achylia gastrica—an inborn error of secretion—which is even more frequently familial than hyperchlorhydria and hypochlorhydria (Fig. 2).

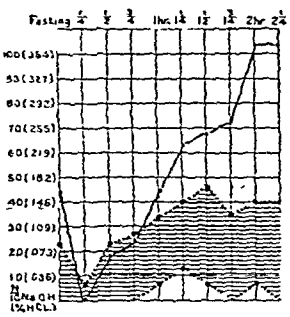


FIG. 1.—Test meal of one of the ten with hyperchlorhydria in Bennett and Ryle's 100 healthy students

It has been suggested that Bennett and Ryle's group of healthy medical students cannot be regarded as an average sample of the population, as healthy people of all ages should be included. But if, as I believe, constitutional hyperchlorhydria and constitutional hypochlorhydria predispose to a variety of diseases, including gastric and duodenal ulcer, carcinoma of the stomach, and Addison's anaemia, which become more and more frequent as age advances, it is clear that the younger the group of healthy individuals examined the fairer sample they will be of the general population before it has become affected with diseases acquired as a result of constitutional predisposition. Thus very few of a hundred unselected young men with constitutional hyperchlorhydria, who may eventually develop gastric or duodenal ulcer, and none of those with constitutional hypochlorhydria who may later develop carcinoma of the stomach or Addison's anaemia, have already symptoms of these conditions; so that the hundred selected healthy young men will be fair samples of the total male population of their age. On the other hand, if the subsequent history of the hundred could be traced, from what is known of the incidence of these diseases about 11.5 per cent. would develop one or other of them, and almost all of these would be among the constitutional hyperchlorhydrias and hypochlorhydrias. Consequently a large group comprising healthy people of all ages, such as that investigated by Vanzant, Alvarez, and their colleagues (1932), is a selected group from which many of the individuals with the hypersthenic and hyposthenic gastric constitutions are excluded, and an inaccurate picture of their incidence is obtained, quite apart from the fact that owing to the effect of long-continued gastritis the number of people with acquired low acidity makes it impossible to estimate the true incidence of constitutional hypochlorhydria.

The secretion of mucus is the normal response of every healthy mucous membrane to chemical, thermal, and mechanical irritants. The presence of mucus in the ordinary fractional test meal is, however, an indication that gastritis is present, because nothing could be less irritating than the gruel meal. But it is a matter of common experience that mucus is rarely present in much excess, except in patients with hypochlorhydria or achlorhydria. This is due to the fact that the hypersthenic stomach is capable of secreting very little mucus compared with the hyposthenic stomach, whether in response to an irritant or as a result of inflammation (Bonis).

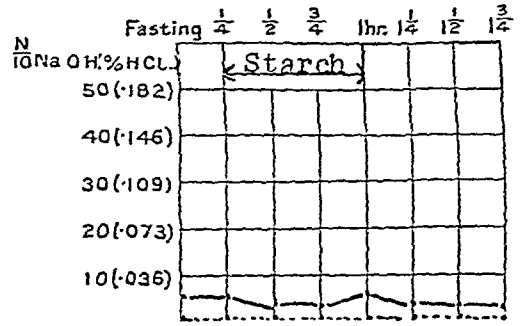


FIG. 2.—Test meal of one of the four with achlorhydria in Bennett and Ryle's 100 healthy students.

II. CAUSES OF GASTRIC DISORDERS

(A) MECHANICAL, CHEMICAL, AND THERMAL IRRITANTS

The mouth acts as the first line of defence in protecting the alimentary tract from damage by swallowed irritants. Food and drink are brought to the body temperature, chemical irritants are diluted, and lumps of food are broken up by chewing, and are intimately mixed with saliva, which softens hard particles and coats insoluble ones with mucus. An individual with good teeth, who takes the trouble to use them, and avoids grossly indigestible food and excess of alcohol, need not swallow anything until its thermal, chemical, and mechanical properties have been so altered that it will cause no irritation when it comes into contact with the gastric mucous membrane.

Though the majority of people are provided with a first line of defence which is potentially adequate, comparatively few make sufficiently good use of it. Food is swallowed without being properly chewed, with the result that the stomach is daily subjected to mechanical, chemical, and thermal irritants. It is also often damaged by excessive indulgence in alcohol, or by taking cocktails or spirits whilst fasting, when even a small quantity acts as a powerful irritant. Strong tea and coffee, curry and other spices, condiments, pickles, and excess of totally indigestible raw vegetable matter, taken in the mistaken idea that plenty of "roughage" is good for the health,

* Delivered at Washington on May 8th, 1933, before the American Gastro-Enterological Society.

may have the same effect. The stomach is frequently irritated by the unconscious swallowing of the "juice" of tobacco smoked in excess. Many people injure their gastric mucous membrane by taking drugs—often quite needlessly—for supposed constipation, rheumatism, and other self-diagnosed complaints, quite apart from those used in the treatment of definite chronic maladies, such as bromides, iodides, salicylates, mercury, digitalis, creosote, and copaiba. The contents of the duodenum and the upper end of the jejunum are gastric irritants. Gastritis is therefore a constant sequel of gastro-jejunostomy and partial gastrectomy, and is in fact partly responsible for the success of these operations, as it is an important factor in the reduction of the free acid present. Fortunately the gastritis is often completely latent, although it is a cause of post-operative symptoms much more frequently than is generally believed.

The stomach acts as a very efficient second line of defence for protecting the small intestine from irritation. Very hot and very cold food and drink are brought to the body temperature, and the gastric juice dilutes chemical irritants, such as alcohol, and softens hard particles. Peristalsis in the distal half of the stomach conveys the food to the pyloric sphincter, which does not relax if the food is insufficiently broken up, so that a churning process results, which does its inadequate best to perform the functions which the teeth should have carried out. The stomach, and especially the pyloric half in which the mucous membrane is most exposed to friction, is thus liable to suffer in its attempt to protect the small intestine. In the 80 per cent. of people with an average type of stomach the irritation of the mucous membrane is reduced to a minimum. In the 10 per cent. with constitutional hyperchlorhydria there is ample protection against mechanical irritants, and also against chemical irritants if taken when the stomach is full. But as hyperchlorhydria is generally associated with rapid evacuation, the stomach is empty for a much longer proportion of the day and night than in the average individual, so that there is more opportunity for the mucous membrane to be damaged by alcohol, tobacco, and drugs. In the 10 per cent. with constitutional hypochlorhydria and achylia the second line of defence is deficient; they are consequently very likely to develop gastritis, and in most cases the hypochlorhydria sooner or later gives place to achlorhydria. This is in spite of the attempt made by the stomach to protect itself by the secretion of mucus; but it is a remarkable fact that the type of stomach which, on account of its deficiency in gastric juice, most often requires a protective coating of mucus is the one which, as I have already pointed out, is most capable of producing it.

(B) INFECTION

Infected material is constantly swallowed by people with pyorrhoea alveolaris, infected tonsils, chronic pharyngitis, and sinusitis, and by children with adenoids. In achlorhydria, whether due to primary achylia, or secondary to chronic gastritis in individuals with constitutional hypochlorhydria, the antiseptic acid barrier of the stomach is lost, and streptococcal infection of the inflamed, and therefore abnormally vulnerable, mucous membrane of the stomach is very likely to occur. This is especially true for the most advanced stages of gastritis, in which the atrophy involves not only the secreting tubules but also the mucin-secreting cells, so that the mucous membrane is no longer protected from invasion by bacteria by a layer of mucus. In such cases a fractional test meal shows the absence of mucus as well as gastric juice. When gastric juice is secreted in normal or excessive quantities, and even when it is deficient in hypochlorhydria, swallowed bacteria are rapidly destroyed.

(C) HAEMATOGENOUS IRRITANTS

Many acute infections are accompanied by acute gastritis, which is often followed by chronic gastritis (Faber). This must be due mainly to the direct action of bacterial toxins conveyed in the blood to the gastric mucous membrane, which perhaps makes an attempt to excrete them. Possibly the toxins produced in the body tissues themselves in acute infections may be in part responsible (Kauffmann, 1929), just as the toxins of uraemia and those produced in the skin in extensive burns may cause gastro-duodenitis and acute ulcers. The vomiting in scarlet fever and the abdominal symptoms in gastric influenza are the result of acute gastritis, and acute ulcers and erosions are often found in the stomach and duodenum in fatal cases of a great variety of infections. The development of acute haematogenous gastritis is probably quite independent of any special type of gastric constitution, though it is only likely to become chronic in individuals with hyperchlorhydria, hypochlorhydria, or achlorhydria.

The causes of gastritis are so numerous and so common that few people can pass through life without being subjected to one or more of them. Fortunately the 80 per cent. of individuals with the average normal stomach are so well protected that they rarely develop gastritis as a result of these insults, but few of those with constitutional hyperchlorhydria and constitutional hypochlorhydria escape.

Faber (1908) was the first to show how common chronic gastritis is by injecting formalin into the abdomen immediately after death, in order to prevent the post-mortem changes, which had hitherto made it impossible to carry out satisfactory investigations on the condition of the gastric mucous membrane with necropsy material. Three lines of investigation have confirmed and extended his work—biopsy, gastroscopy, and radiology. Konjetzny has examined a very large number of specimens prepared immediately after partial gastrectomy, which he performs for all kinds of gastric disorders, whether there is external evidence of disease or not. Though his work appears to be totally unjustifiable surgically, it has led to results of the greatest interest and importance from a scientific point of view, as he has found various degrees of gastritis in every case. The results have been confirmed by many others, who have performed similar operations for patients with ulcer symptoms, whether an ulcer was found or not. Further confirmation comes from Professor M. J. Stewart of Leeds, and Dr. Keith Simpson at Guy's Hospital, in the investigation of specimens obtained by partial gastrectomy performed for ulcer or carcinoma, and of fragments of mucous membrane obtained from the edge of the stoma in the performance of gastro-jejunostomy for duodenal ulcer and pyloric ulcer. Schindler, Korbsch, Hohlweg, and Gutzeit have improved the technique of gastroscopy to such a degree that they have been able to perform several hundred examinations without any ill result. Though it is unlikely that the method will ever become widely used, it has led to the accumulation of a great deal of very valuable information about the appearance of the gastric mucous membrane in various disorders. It has been of special value when it has been possible to compare the gastroscopic and radiological appearances of the same case.

Lastly, the improved radiological technique, which we owe primarily to Forssell, and which has been specially developed by Berg, has led to the study of the folds of gastric mucous membrane and the recognition of departures from the normal associated with different varieties of gastritis.

III. EFFECT OF GASTRITIS ON GASTRIC SECRETION

The functional efficiency of an organ is always reduced when it is inflamed. In acute gastritis no gastric juice is secreted. This was admirably demonstrated by Beaumont (1833) in his observations on the effect of a drinking bout on Alexis St. Martin. In chronic gastritis the secretion is reduced to an extent which varies with the severity and the duration of the inflammation, the actual

amount of free acid present in the stomach in a test meal depending upon the constitutional type of stomach in each individual. Thus the hyperchlorhydria of individuals with the hypersthenic gastric constitution becomes less extreme, or may be replaced by a normal curve of acidity, or even, in exceptional cases, by hypochlorhydria. This is well seen in the gastritis accompanying chronic ulcer, as when medical treatment has resulted in the healing of the ulcer and the disappearance of the gastritis the acidity is almost always higher than it was before. Thus in sixteen cases of gastric ulcer and thirty-two of duodenal ulcer under my care, in which a second test meal was given at the end of treatment, the acidity had increased in all but eight, and six of these already had hyperchlorhydria and two high normal curves. The gastric cases comprised one achlorhydria which became hypochlorhydria, five high normals which became hyperchlorhydria, and one which remained unchanged, and five hyperchlorhydria, three of which became still higher, two remaining unaltered (Fig. 3). Of the duodenal cases one with hypochlorhydria became a high normal and one an extreme hyperchlorhydria, two low normals became high normals, one normal became high normal, and one

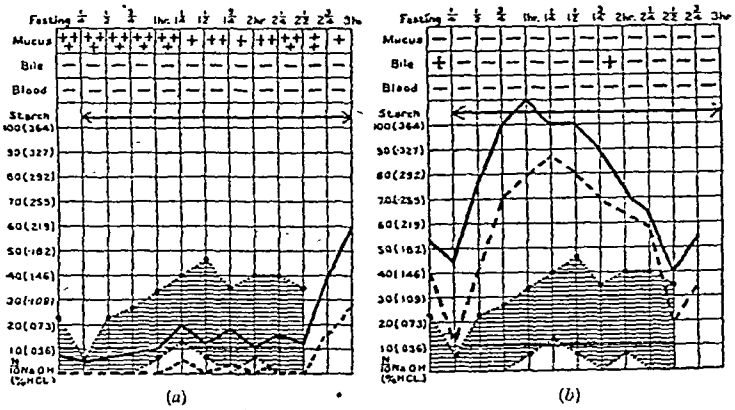


FIG. 3.—Duodenal ulcer with chronic gastritis. (*a*) July 20th, 1923; hypochlorhydria. (*b*) August 17th, 1928; after a month's treatment, gastritis disappeared and ulcer healed; hyperchlorhydria unmasked.

became hyperchlorhydria, seven high normals became hyperchlorhydria and one remained unaltered, and of twelve hyperchlorhydria eight became still higher, four remaining unaltered (Hurst and Venables, 1929).

The hypochlorhydria of individuals with the hyposthenic gastric constitution is almost always replaced eventually by complete achlorhydria. In most cases this can be overcome by removal of the exciting causes, an unirritating diet, and lavage every morning with dilute hydrogen peroxide. Thus in 82 per cent. of thirty-four of my cases of achlorhydria treated in this way free acid returned (Hartfall, 1932) (Fig. 4). The reduction in acidity in these cases is mainly due, as it is in hyperchlorhydria, to the effect of the inflammation on the activity of the secreting glands, but it is increased as a result of the excessive secretion of mucus which accompanies the inflammation. The mucus acts partly by its mechanical action in blocking the mouths of the secreting tubules and partly by its chemical action in combining with some of the free acid. The neutralizing effect is, however, comparatively slight, and due almost entirely to the sodium bicarbonate it contains and not to its own buffer action, as it almost completely disappears after the salt has been separated by dialysis (Bonis, 1930; Mitchell, 1931). In the 18 per cent. of cases in which the achlorhydria persisted after treatment the gastritis had presumably led to such a profound change in the gastric mucosa that recovery was impossible, and complete and permanent achylia resulted. It is clear that gastritis associated with high or normal acidity, so-called acid gastritis, is not an early stage of gastritis associated with achlorhydria, as has been suggested by Faber, Zweig, and others, nor is the former a result of prepyloric gastritis and the latter of fundus gastritis, as has been suggested by Porges and others. Both are due to the same causes, the amount of free acid depending upon the constitution of the individual concerned.

(A) GASTRITIS WITH CONSTITUTIONAL HYPERCHLORHYDRIA

I have already pointed out that hyperchlorhydria tends to protect the stomach from irritation when the first line of defence is inadequate. But the deleterious effect of friction on the mucous membrane of the distal half of the stomach when hard or large pieces of food are swallowed continues, and irritation by alcohol, tobacco, and drugs may occur during the many hours in which the stomach is empty. If even a mild degree of gastritis results from this, the mere presence of hyperchlorhydria is likely to aggravate it, as, although hyperchlorhydria is not itself a pathological condition, the excessive acidity

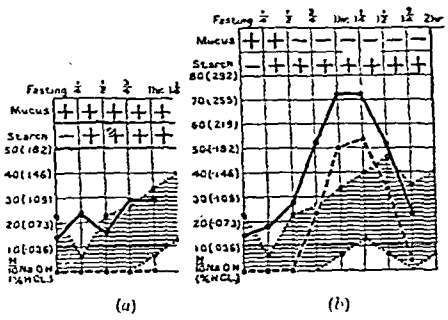


FIG. 4.—(*a*) Test meal in a case of Addison's anaemia on January 9th, showing achlorhydria and excess of mucus. (*b*) Test meal on April 2nd, showing normal acidity, and excess of mucus in only two fractions, after treatment by gastric lavage.

of the gastric juice is a potential danger. The healthy mucous membrane is always bathed in gastric juice, which is neither digested by its pepsin nor irritated by its free hydrochloric acid. After death, however, the mucous membrane is rapidly digested. During life localized necrotic areas may also undergo digestion, and possibly this also occurs in areas in which the circulation is temporarily arrested or very deficient before actual necrosis has occurred As peptic digestion is no more active with 0.3 per cent. than with 0.08 per cent. free hydrochloric acid, such digestion is not specially likely to occur in the presence of hyperchlorhydria. But although the living mucous membrane, even when abnormally vulnerable as a result of gastritis, can never undergo peptic digestion, it is very likely to be damaged by free hydrochloric acid if present in a strength greater than the average. The likelihood of this is still greater when the hyperchlorhydria is associated with hypersecretion, in which unusually strong acid continues to be secreted in the absence of food, which under ordinary conditions dilutes it and to some extent neutralizes it, owing to its alkaline reaction. According to Winkelstein (1933), the stomach secretes acid throughout the night in patients with ulcer, but never in normal people. Moreover, owing to the deficient power of secreting mucus, which is a characteristic of the hypersthenic stomach, the protection against damage afforded by a layer of mucus in the hyposthenic stomach is absent. It has been suggested that

the absence of mucus is due to its digestion by gastric juice, but mucus differs from other proteins in the extreme slowness with which it undergoes peptic digestion, and there is generally less organically combined hydrochloric acid with hyperchlorhydria than with the average normal acidity.

In the conditions already described, in which the failure of the first line of defence gives rise to chronic gastritis, the excessive acid in hyperchlorhydria gives the gastritis certain characteristics which are absent from that associated with hypochlorhydria and achlorhydria. It is very frequently associated with minute erosions, some of which may develop into acute ulcers, which may in turn become chronic ulcers. The condition may therefore be called ulcerative gastritis. When the hyperchlorhydria is associated with the rapidly emptying, short, high stomach which is often a feature of the hypersthenic gastric constitution, the duodenal bulb is equally involved, the condition thus being one of ulcerative gastro-duodenitis, in which a chronic ulcer is most likely to develop in the duodenum. When, on the other hand, the hyperchlorhydria is associated with a long, low, slowly emptying stomach, the main stress falls upon the stomach; the gastritis is likely to be more severe and a gastric ulcer may develop, whilst the duodenum is spared. At the same time the gastric stasis leads to more prolonged contact of the entire gastric mucous membrane with any irritants it may contain, so that although the distal half of the stomach is still the part most severely inflamed, the fundus is more affected than in duodenal ulcer. Consequently, the power of secreting acids by the fundus glands may be directly impaired, while their stimulation is reduced owing to the deficient production of the gastric hormone by the antral mucous membrane in response to chemical and reflex stimulation. In gastric ulcer the hyperchlorhydria which is at first present thus tends to be more or less reduced, and in very chronic cases hypochlorhydria, and very rarely even achlorhydria, may result. With treatment, however, the acidity always rises, though sufficient permanent damage may have taken place to prevent a return to the original hyperchlorhydria. Owing to the familial incidence of the hypersthenic gastric diathesis it is common for gastric or duodenal ulcers to occur in several members of the same family (Hurst and Stewart, 1929).

It is interesting to note that both Hart (1919) in Germany and Stewart (1929) in England found chronic gastric or duodenal ulcers or scars of such ulcers in about 10 per cent. of all necropsies, this being also approximately the number of healthy young adults with hyperchlorhydria. It would appear, therefore, that an individual with the hypersthenic gastric constitution is almost certain sooner or later to develop an ulcer, though I have seen two men and one woman over 70 years of age with an extreme degree of hyperchlorhydria who had never had a symptom or sign of ulcer or any form of indigestion. It is true that hyperchlorhydria may no longer be present when a test meal is given, especially in the case of a gastric ulcer, but it was probably present when the ulcer first formed, perhaps many years earlier, and has since been masked by the coexistent chronic gastritis.

(B) GASTRITIS WITH CONSTITUTIONAL HYPOCHLORHYDRIA AND ACHLORHYDRIA

Bennett and Ryle found that already at the age of 20 4 per cent. of one hundred healthy students had achlorhydria, which must have been due either to constitutional achylia gastrica or latent chronic gastritis. Hartfall has recently analysed the results of fractional test meals given to 2,448 of my private patients. Excluding twenty cases of achlorhydria artificially produced by gastro-jejunostomy, twenty-one cases associated with carcinoma of the stomach, and fifty-one with Addison's anaemia, there remain 2,356 patients, of whom 242 (10.3 per cent.) had achlorhydria. From 10 to 19 the incidence was 4 per cent., which is identical with that found by Bennett and Ryle in their normal students; there was a rise of 4 per cent. to the 30-39 period, and the same rise to the 40-49 period, but in the next three decades taken together there was a rise of only about 4 per cent. It can thus be concluded that all, or very nearly all, of the individuals with the hyposthenic gastric constitution, as well as a few with normal acidity, eventually develop achlorhydria as a result of gastritis. Gastritis with achlorhydria generally gives rise to no gastric symptoms, though it may occasionally produce a mild form of chronic indigestion, and it is not an uncommon cause of nausea.

In achlorhydria the excess of mucus is a poor substitute for gastric juice, and the consequent loss of the second line of defence leads to irritation of the small intestine, so that duodenitis and enteritis develop in addition to the gastritis. The mechanical and chemical irritation of the intestines explains why chronic and recurrent diarrhoea is often caused by achlorhydria, although in the majority of patients with achlorhydria the bowels are regular.

Swallowed bacteria flourish in the alkaline contents of the stomach, and may invade the mucous membrane, producing an infective gastritis, which may ultimately lead to atrophy of the mucous membrane. They also pass into the duodenum, which is normally sterile, but now swarms with bacteria. Knott (1927) has shown that the increased alkalinity of the intestinal contents allows bacteria which are normally confined to the colon to ascend the small intestine as far as the duodenum and stomach, both of which contain colon bacilli from the large intestine even more frequently than streptococci from the mouth. Chronic cholecystitis is generally a result of an ascending *B. coli* infection of the gall-bladder, which is especially likely to occur in the presence of achlorhydria (Hurst, 1932). This explains why free hydrochloric acid is absent from the stomach in about 50 per cent. of patients with gall-stones (Bonar, 1922). Achlorhydria is also a very important predisposing cause of intestinal infections, such as typhoid and paratyphoid fever, bacillary and amoebic dysentery, and cholera—the organisms of which are rapidly destroyed by the normal gastric juice—and its presence is therefore a constant source of danger to residents in tropical countries (Camps). The toxaemia which follows the intestinal infection resulting from achlorhydria is one factor in about 25 per cent. of cases of rheumatoid arthritis (Hurst, 1925; Miller and Smith, 1927), and in some cases of asthma, skin diseases, and other conditions associated with allergy, especially in children (Bray, 1931).

IV. EFFECTS OF GASTRITIS ON HAEMATOPOIESIS AND THE NUTRITION OF THE CENTRAL NERVOUS SYSTEM

The absence of free acid from the gastric contents may interfere with the assimilation of the iron in food, so that in individuals who take a diet in which there is only just enough iron for the needs of the body under the most favourable conditions of assimilation a simple achlorhydric anaemia develops (Faber, 1908), which differs from Addisonian (pernicious) anaemia in occurring almost exclusively in women, in whom menorrhagia is often a contributory factor, and in being curable by large doses of iron, whilst liver and stomach extract are entirely without effect (Witts, 1930).

Achlorhydria is found in about 99 per cent. of cases of the Addison's anaemia-subacute combined degeneration of the spinal cord syndrome, though it is now known that it is not the actual cause of it, the

absence of hydrochloric acid from the gastric secretion being associated with the absence of a substance, Castle's "intrinsic factor," required for the production of the natural stimulant of haematopoiesis and of another required for the normal nutrition of the central nervous system. The gastritis is the primary condition; there is, consequently, often a history of chronic diarrhoea or other symptoms to which it has given rise, dating from months or years before the onset of anaemic or nervous symptoms, and in several cases the achlorhydria has been known to exist during this time. The frequent occurrence of Addison's anaemia and subacute combined degeneration of the cord in more than one member of a family is due to the familial occurrence of constitutional achylia gastrica and hypochlorhydria, which predispose to severe gastritis. Moreover, achylia is often present without any abnormality of the blood or central nervous system in relatives of patients with these diseases (Hurst, 1927; Conner, 1930; Wilkinson and Brockbank, 1930).

The first function of the gastric mucous membrane to suffer in gastritis is the secretion of hydrochloric acid. Consequently, in the majority of cases of achlorhydria pepsin is still secreted in normal quantity, the secretion of mucus is actually increased, and the production of the haematopoietic intrinsic factor is unimpaired. If the exciting cause of the gastritis continues to be at work when complete achlorhydria has developed, the gastritis becomes progressively more severe, especially if large numbers of virulent streptococci are swallowed from the mouth or throat. After a time the damage to the secreting tubules is so profound that they can never recover their power of secreting acid, even if all active inflammation ceases, and at the same time the secretion of pepsin becomes more or less impaired. The mucus-secreting cells take part in the general atrophic changes of the mucous membrane, so that mucus disappears from the test meal, its absence being a sign of the severity of the process, and not an indication that no gastritis is present. In this advanced stage of gastritis the intrinsic factors required for the normal activity of the bone marrow and nutrition of the central nervous system may ceased to be formed, and Addison's anaemia and subacute combined degeneration of the cord develop. In a small number of cases this function of the mucous membrane is impaired at an earlier stage; thus in three of my cases of Addison's anaemia the secretion of free acid returned as a result of treatment of the gastritis, and six other similar cases have now been recorded. Moreover, in about 1 per cent. of cases of Addison's anaemia and subacute combined degeneration of the cord free hydrochloric acid is secreted. The haematopoietic and neurotrophic functions of the gastric mucous membrane are occasionally destroyed suddenly by an exceptionally severe attack of acute gastritis, the symptoms dating from an attack of food or corrosive poisoning, or from an acute infection (Hurst, 1926).

V. CARCINOMA OF THE STOMACH

I believe that carcinoma never develops in a normal stomach (1929). There is much evidence to show that in most of the 35 per cent. of cases in which free hydrochloric acid is present the carcinoma is secondary to chronic gastric ulcer. On the other hand, in the 65 per cent. of cases with achlorhydria the latter is a result of the associated gastritis and not of the carcinoma, and the carcinoma is probably a result of malignant degeneration of the chronically inflamed mucous membrane. Thus I have never seen a case—and I know of very few—in which achlorhydria has developed in a patient with carcinoma of the stomach, who was known to have free acid present at an earlier stage of the disease, although the secondary gastritis which must result from large ulcerated growths and the progressive destruction of the mucous membrane in extensive carcinoma would make it natural that such a change should occasionally be observed. There was no diminution in acidity in the three cases of gastric ulcer I have seen in which a test meal was given both before and after the onset of malignant degeneration. In one patient with ulcer-cancer who was kept comfortable by occasional lavage and an unirritating diet, the acidity actually rose in the course of six months. Polland and Bloomfield (1931) have recorded two similar cases. On the other hand, I have seen one case, and at least twenty others have been recorded, in which achlorhydria was known to be present from three to fifteen years before the development of cancer associated with achlorhydria.

Free hydrochloric acid is present in nearly all cases of carcinoma in which examination of the specimen obtained at operation shows unmistakable signs of originating in ulcer, whereas it is absent, and more extensive chronic gastritis is found, where no such signs are present. When a long history suggestive of ulcer is obtained free acid is generally present, but when the history is short and the carcinoma appears to be "primary" achlorhydria is found. The prospects of long survival after gastrectomy are better in cases with achlorhydria than with free acid (Hartman, 1921), though the reverse would be the case did those with achlorhydria represent a later stage of the same condition as those with free acid. Moreover, there is no relation between the size of a growth and the presence of achlorhydria, free acid being occasionally present with large inoperable growths and achlorhydria with very small, early, and removable ones (Polland and Bloomfield). I have seen a number of cases in which carcinoma of the stomach was preceded or accompanied by the development of Addison's anaemia or subacute combined degeneration of the cord, the gastritis having led to lack of the "intrinsic factor," and so caused the anaemia quite independently of undergoing malignant degeneration. It seems likely, indeed, that the incidence of carcinoma of the stomach in patients with Addison's anaemia, who are kept free from symptoms as a result of modern methods of treatment, will be abnormally high unless the associated gastritis is treated in spite of the absence of digestive symptoms.

CONCLUSIONS

I have brought forward evidence to show that the main organic disorders of the stomach ultimately depend upon the same exciting causes, which are so widespread in their incidence that very few people can reach old age without coming under the influence of one or more of them at some time in their lives. Fortunately, however, four-fifths of the population have stomachs which are endowed with sufficient resistance to escape damage, and it is only the remaining 20 per cent. who are likely, sooner or later, to develop some organic gastric disease.

If these views are correct, gastritis, gastric and duodenal ulcer, and carcinoma of the stomach could be prevented by the adoption of the simple hygienic measures required to avoid the exciting causes I have enumerated. It is, perhaps, too much a counsel of perfection to expect universal prophylaxis of this kind, but it might at any rate be provided for those people who can be recognized from their physical characteristics, or from their family histories, as being constitutionally liable to develop organic disease of the stomach.

Lastly, gastritis and gastric ulcer should be recognized much more frequently and at an earlier stage than in the past, and instead of simply dealing with the results of the former, such as achlorhydria or anaemia, the primary disease itself should also be treated, and steps taken to prevent its recurrence. We may thus hope that the

frequent failure of the physician to recognize cancer of the stomach sufficiently early for the surgeon to effect a cure will in the future be immaterial, owing to the success of the practitioner in preventing its development.

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TREATMENT OF CHRONIC INFLAMMATORY DISEASES OF THE MOUTH, PHARYNX, AND LARYNX BY LOCAL APPLICATION OF ULTRA-VIOLET RAYS

BY

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The object of this paper is to record some results following the treatment of inflammatory diseases of the mucous membrane of the mouth, pharynx, and larynx by means of the local application of ultra-violet rays emitted by a specially designed "throat lamp."

During the past fifteen years Strandberg, working at the Finsen Light Institute at Copenhagen, has recorded successful results in the treatment of tuberculous disease of the larynx, following the exposure of the skin of the whole body by general irradiation to the ultra-violet rays of the carbon arc. Cemach and de Wesselow have designed special quartz rod applicators attached to the water-cooled Kromayer lamp or to the carbon arc of the Finsen type, for the local application of ultra-violet rays to the larynx. Similar quartz silvered mirrors for the reflection of rays and other apparatus have been designed. All these apparatuses are cumbersome, and necessitate long exposures to the source of light, and this makes treatment tedious and tiresome for the sick patient.

In 1926 I designed a small water-cooled quartz mercury vapour lamp for the direct application of ultra-violet rays to the buccal cavity, the tongue, pharynx, and larynx. This apparatus was demonstrated in 1929 to the Section of Laryngology of the Royal Society of Medicine. Since then I have treated over sixty patients. The technique which is described is based [illegible] and observations made during [illegible] cases.

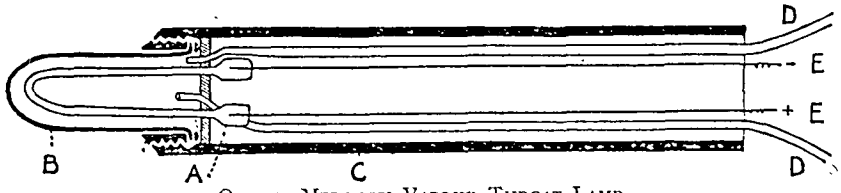
The pathologic[illegible] Ryle found that already at the age of [illegible] may be classified [illegible] one hundred healthy students had a[illegible] ...ydria, which must have been due either to constituti[illegible] achylia gastrica or latent chronic gastritis. Hartfall recently analysed the results of fractional test meals given to 2,448 of my private patients. Excluding twenty cases of achlorhydria artificially produced by gastro-jejunostomy, so-called twenty-one cases associated with carcinoma of the stomach.

The value and scope of the treatment of many diseases of the mouth, pharynx, and throat by local ultra-violet irradiation is as yet little known to many oral surgeons and laryngologists. It is hoped that the extended clinical trial of this technique of treatment will confirm my results, and help to establish a valuable additional method of treatment for lesions which often resist other established methods.

TECHNIQUE OF METHOD

THE APPARATUS

This throat lamp was designed so that it could be easily inserted into the mouth, and could be brought by direct application to the pillars of the fauces, the post-nasal space, the pharynx, or the larynx. The lamp is essentially a small water-cooled "vacuum type" quartz mercury vapour lamp, and consists of three parts: (1) a quartz mercury vapour vacuum high-pressure burner; (2) a quartz water-jacket; and (3) a metal jacket, to which the burner is cemented, and which contains water-cooling apparatus, and also insulated leads carrying the electric current. The quartz burner is U-shaped and bent at its horizontal axis to an angle of 160 degrees. It is made of a thick-walled quartz tubing about 1.5 mm. in diameter. The internal diameter of the quartz tubing is 0.5 cm. One of the limbs of the U-tube is dilated at its terminal end. The burner is constructed on the same principle as the high-pressure-vacuum mercury vapour lamp, and operates on an electric current of 1 to 1.5 amperes and 80 to 120 volts between the electrodes (direct current only). The water-jacket is made of quartz, and is the shape and size of the adult thumb. It fits over the quartz burner and is oval in shape, measuring 6 × 3 × 2 cm., leaving a space of 0.5 cm. surrounding the quartz burner in every direction. The jacket is made to taper gradually as its closed extremity; the open end is widened and made circular, so that it can fit tightly to the metal holder by means of a rubber washer and a circular screw cap. The jacket can easily be removed, and in this way the quartz burner can be thoroughly cleaned and a differently shaped jacket can be attached when necessary. The metal holder is made of nickel-plated metal and is circular in shape, roughly 3 cm. in diameter and 15 cm. in length. The quartz burner is soldered and cemented into this holder, and the electrodes are carried through it, being well insulated with rubber and non-conducting composition, and fused to two copper electric wires, also well insulated, so



QUARTZ MERCURY VAPOUR THROAT LAMP

A, Burner and metal holder; B, quartz water-jacket; C, metal jacket; D, water-tubes; E, insulated leads. (The diagram is not drawn to scale.)

as to carry the electric current from the electrodes and burner In this way the conducting leads and electrodes are thoroughly insulated and made watertight Two metal tubes 3 mm in diameter are also carried through the metal holder for the circulation of water and cooling of the burner One is an inlet tube, and passes into the cavity of the water-jacket for 3 to 4 mm , the other is an outlet tube The inlet tube is connected by strong rubber tubing to a water tap, and the outlet tube has a rubber tube passing to a sink or basin In a recent model apparatus I have designed an electrical motor water pump is connected to a reservoir containing distilled water, and thus the lamp is cooled by the motor pump forcing water through its inlet and outlet tubes The circulation of water must be thoroughly efficient, and the lamp must be tested every time before it is used for treatment It must be perfectly cold when grasped by the hand after running for five to ten minutes The danger of overheating or insufficient cooling of the lamp is important, for as a result the mucous membrane may be damaged and seriously burned Further, the lamp will be overrun and the seals of the electrodes will melt and be destroyed It is herefore essential to carefully check the cooling mechanism of the lamp

Physical Nature of Rays Emitted

The lamp emits luminous and ultra violet rays of wavelength from about 8,000 to 2,300 A U The infra red and heat rays are completely absorbed by efficient water circulation The spectrum of the lamp has the same characters as the quartz mercury vapour lamp, but is of relatively weaker intensity, since only an electric current of 80 to 100 volts and one ampere is transmitted For this reason it is seen that the shorter ultra violet rays in the region of wave length 2,500 A U are relatively weaker in intensity and the longer ultra violet rays in the region of wave length 2,700 A U are stronger in intensity than those usually transmitted by the ordinary mercury vapour lamps working at an electrical potential of 2 5 amperes and 150 volts

Manipulation of Lamp

Before the lamp is started the water is made to circulate and completely fill the jacket , all air bubbles must be cleared The current is switched on and the lamp started by tilting the arc should burn evenly in both limbs of the U tube, and if the mercury column is uneven the lamp should be switched off and restarted until the columns are even and equal in both limbs After it has been running steadily in a horizontal position for two to three minutes the arc is established, and the lamp will then keep alight when held in any position Its outer surface must always be thoroughly clean; and this can be secured by employing a weak solution of acid, which must be washed and cleared by water before use Rays from either the upper or lower surfaces, or the end of the lamp, can be used alone, by covering the remaining portions with small pieces of lead foil fixed by elastic bands This is useful when only the tongue, palate, or the right or left tonsillar fossa is to be irradiated , the remaining areas of mucous membrane can be easily protected from the rays by such simple means After treatment is completed the lamp is cleaned by washing in water and rectified spirit, and then allowed to burn for two or three minutes, for the ultra-violet rays emitted have direct bactericidal action, and in this way the lamp is automatically efficiently sterilized

Details of Administration

The area which is to be irradiated and the surrounding mucous membrane of the pharangeal wall should be anaesthetized by a local anaesthetic I usually employ a 5 per cent or 10 per cent solution of cocaine hydrochloride in saline sprayed on the mucosa by means of a Devilbiss spray attached to a motor air pump This is a rapid and efficient method, and local swabbing of the mucosa or local injection of the palate or pillars of the fauces is rarely necessary The use of synthetic anaesthetics such as novutox, etc , is not suitable for the purposes of ultra-violet therapy, as they contain a quinoline base and other chemical compounds, which absorb short ultra violet rays and inhibit their biological action on the mucosa The operator should always wear an efficient mask and a pair of spectacles, so as to be protected from any sudden spasm of coughing, and also from the ultra violet rays which might otherwise cause inflammatory reaction of the conjunctiva The patient should wear a pair of dark tinted spectacles to protect the eyes against the irritative action of ultra violet rays , he should be seated in a comfortable rather low chair, be put at ease, and made to relax as much as possible The operator should stand facing the patient The operative procedure should be fully explained beforehand, so as to obtain the help and co operation of the patient during the treatment The patient is told to open the mouth and protrude the tongue, and to breathe deeply and slowly through the mouth The tongue is grasped with the thumb and middle finger of the left hand and firmly supported The lamp is now directed towards the base of the tongue or to the lesion, and as the grasp of the tongue is relaxed the lamp is finally placed in contact with the lesion, and simultaneously the patient is told to withdraw the tongue Once the lamp is in its proper position the patient's head is bent forward and downward and the lips are made to enclose the lamp This procedure should take less than five seconds, and should be carried out so as to avoid any retching, coughing, or straining The patient is then made to relax as much as possible and to take slow, deep breaths through the mouth, in harmony with the operator, who counts aloud with each inspiration In this way the dosage is checked and regulated by the operator, though it should also be checked by means of a time clock If the patient is uncomfortable, and coughs or strains, the lamp should be withdrawn and the whole procedure be started *de novo* A little education and encouragement soon makes the technique of treatment a comfortable and fairly simple procedure

Dosage and Effects

The mucous membrane of the buccal and pharyngeal cavities is three to four times as sensitive to ultra violet rays as the normal white skin By direct contact of this quartz lamp to the normal white skin an erythema reaction is produced after sixty seconds' exposure The erythema dose for the normal mucous membrane is ten to fifteen seconds This dose of ultra violet rays applied to the mucous membrane of the posterior pharyngeal wall or to the pillars of the fauces, will cause a visible redness of the mucosa twenty four to forty eight hours after irradiation After treatment the patient will experience a dryness and irritation of the throat, somewhat similar to a sore throat, and swallowing may be painful The reaction starts after a latent period of twelve hours and increases to its maximum after forty eight hours when it gradually subsides More intensive reactions occur with increased dosage or abnormal sensitiveness of mucosa This is seen in a diffuse redness, swelling and oedema, and the mucosa may gradually become increasingly oedematous The swelling may spread to the uvula the pillars of the fauces and in the larynx and may even cause oedema of the vocal cords and epiglottis Th reaction reaches a maximum after forty eight hours a

makes swallowing painful, with irritation of the throat. This intensive reaction may cause general malaise and pyrexia (100°–101° F.), and in such cases the patient should be put to bed at rest for twenty-four to forty-eight hours, and a menthol carbolic gargle and a light, semi-solid, tepid or cold diet prescribed. The oedema invariably subsides after forty-eight hours, and so far has never needed any other treatment.

This reaction is more common when treating subacute inflammatory conditions of the pharynx or tonsils, or when intensive treatment is applied in tuberculous lesions. Some types of the haemolytic streptococcal infections of the mucosa may give rise to a severe reaction, even with mild irradiation, and may cause redness and oedema of the whole palate, and severe reaction for twenty-four hours. Similar reactions have been observed in cases of Vincent's angina, but often the presence of chronic disease of tonsils and hidden septic crypts may cause this undue reaction. The mucosa of the patient who has a " gouty diathesis," with a markedly acid saliva, is often more sensitive to ultra-violet rays than others, and in such cases treatment must be started with extreme caution, with half or a quarter " mucosa erythema " dosage. It is better to give treatment daily or on alternate days in these types of sensitive cases, and gradually work up to the erythema reaction, for the sudden acute reaction may be alarming and distressing to the patient. When this severe reaction subsides beneficial results may follow. After the erythema reaction the mucous membrane settles to normal within five to seven days, and shows a rapid hardening to ultra-violet rays, inasmuch as the dosage at the second, and subsequent, treatment may be increased to 15-30-60 seconds, and only cause mild inflammatory reactions. In the treatment of chronic tuberculous and other inflammatory conditions of the palate and larynx a full erythema and blistering dose of rays is intentionally applied locally at the site of the lesion, all other areas being shielded from the rays by covering the lamp with metal foil. Following the oedema and erythema of the mucosa round the site of the lesion, a yellow white slough may appear five to six days later, which gradually separates within ten to fourteen days. The exudative reaction is obtained with twice or three times the average erythema dose, but dosage must be carefully controlled and determined by the density and infiltration of scar tissue, and the nature of the ulceration at the site of the lesion. Enlargement and swelling of the cervical lymph glands may follow from intensive local irradiation of the mucosa. This subsides within five to seven days. The painful symptoms following the application of ultra-violet rays may be relieved by the local application of infra-red and luminous rays to the skin area of the neck at the site of pain.

The subsequent dosage is increased according to the technique of treatment which is to be adopted. The first treatment is applied so as to test the sensitiveness of the mucosa to ultra-violet rays, and the dosage is accordingly controlled by these observations. Intensive local treatment is applied once every seven to fourteen days, varying with the duration and severity of the reactions following irradiation. When intensive treatment is applied the patient must be warned, and adequate arrangements for rest in bed, careful nursing, and diet may be necessary. Intensive local treatment should not be applied unless the general resistance of the patient is fairly good, as constitutional reactions may follow. In such cases I usually advise general ultra-violet irradiation of the body two or three times a week for two weeks prior to the application of the local irradiation treatment to the throat. In the cases which have been under my care I have only experienced severe constitutional reactions after treatment of subacute tuberculous disease of the larynx, associated with miliary dissemination of active tuberculous disease of the lungs, and I am now of the opinion that such cases are unsuitable for local irradiation therapy.

THERAPEUTIC ACTION ON MUCOUS MEMBRANE

The reaction of the tissues following the absorption of ultra-violet rays may cause gradual healing of a diseased lesion, owing to the local changes in the capillary blood vessels. A prolonged hyperaemia and vaso-dilatation is produced for five to seven days following irradiation; this is associated with stimulation and emigration of leucocytes, and exudation of lymph and fibrin. It is now well established that the direct bactericidal action of ultra-violet rays destroys surface bacteria and living filter-passing viruses, and although the penetration of the bactericidal rays is small the effects may be sufficient, and the absorption of such irradiated bacteria may increase the local resistance of the tissues, and may also increase general and specific immunity. The absorption of photo-biochemical substances produced by the irradiation of living cells may also add to the increase of the immunity force of the body. In the treatment of disease of the larynx no effort has been made to concentrate ultra-violet rays directly to the lesion, but the rays emitted by the " throat lamp " have been applied to the opening of the larynx as a whole. The reaction which followed has involved, and spread beyond, the irradiated area, and at times has produced the greatest inflammatory changes at the site of the lesion. Healing has continued progressively. It is difficult to decide if the inflammatory reaction produced at the site of the lesion is in itself sufficient to cause this healing, or if the immunity mechanism of the body has been activated locally at the site of irradiation, or if the absorption of irradiated bacteria and irradiated tissue cells by a new vascular field has caused local increase of resistance and stimulation of the immune forces of the body.

OBSERVATIONS ON SELECTED GROUPS OF CASES

Chronic Tuberculous Disease of the Palate and Tongue.—This responded very well to treatment. In all, three cases were treated. In each there was an old history of tuberculous disease of the lungs, but this was well healed and fibrosed before the patients came for treatment. Intensive local treatment was applied to the lesion once every fourteen days, and in one case it was also possible to administer general ultra-violet irradiation twice a week. The dosage of local treatment started with fifteen seconds, and was increased during subsequent treatments to two minutes. Each local application of ultra-violet rays was made by direct contact of the lamp to the site of the lesion. Erythema and oedema followed twenty-four hours later, and spread to the surrounding margins of the ulcer, causing pain and soreness of the tongue and palate. Healing occurred after five or six treatments, giving a smooth, pale scar with little contraction of the mucous membrane. Two of the patients have now been healed for over five years. The third had had previous *x*-ray treatment, and the tuberculous ulcer of the tongue was indurated with hard scar tissue; this increased the resistance of the tissue to ultra-violet rays and delayed healing, and the dosage of ultra-violet rays had to be increased to ten minutes.

Chronic Tuberculous Disease of the Larynx.—Eight cases have been treated, six with successful results—restoration of voice and healing of ulcerated areas. Two patients died, but in these there was intensive involvement of both lungs, and treatment was only applied in an attempt to relieve dysphagia and painful symptoms. In these two cases there was evidence to show that the

local application of ultra-violet rays to the larynx had a sedative and analgesic effect which was of comfort to the patient, for although the reaction following treatment caused erythema and oedema, the oedema appeared to alleviate the painful symptoms for a time, and local anaesthetic spraying and gargles were unnecessary for a short time following treatment

The mucous membrane of the palate, pharynx, and surrounding areas was anaesthetized, and the lamp was inserted beyond the base of the tongue, so that rays of light were directed to the opening of the larynx The upper surface of the lamp was covered with lead foil so as to protect the uvula and soft palate from direct radiation The first treatment was applied for ten to twelve seconds, the patients were made to breathe deeply and slowly while the lamp was applied to the opening of the larynx Reaction of the mucous membrane to ultra violet irradiation was seen twenty four to forty eight hours later, and this caused redness and swelling of the post pharyngeal wall Oedema extended to the soft palate and uvula, although these areas were shaded from direct radiation Laryngoscopic examination showed redness and swelling involving the epiglottis, vocal cords, and arytenoid cartilages The patients complained of soreness of throat, dryness, and pain on swallowing Earache occurred when the irradiation reaction spread to the posterior pillars of the fauces Symptoms subsided three to four days following irradiation and were relieved by gargles, spraying of the throat, local application of infra red and luminous rays, and rest in bed for twenty four to forty eight hours In each of these cases under treatment there was evidence of ulceration, swelling and oedema, and inflammatory granulation tissue of one of the vocal cords, epiglottis, or arytenoid cartilages Healing occurred progressively, with restoration of voice, loss of symptoms, and improved general health

The cases recorded are not sufficient for statistical classification, but the encouraging and successful results should stimulate further clinical research and investigation on larger groups of selected cases

Subacute Glossitis and Ulcers of the Tongue—These lesions are due to chronic inflammatory streptococcal infections, and responded favourably after three to four local applications of ultra violet rays, but the tendency to recurrence was not arrested The lesions were a secondary manifestation of some other primary focus of infection The local treatment checked the pain and caused healing within three to four days, but all the cases I treated had recurrences of ulceration of the tongue and mucosa in other sites several months later Four cases were treated

Chronic Leucoplakia—Although only two cases were treated these have responded well to intensive local application of ultra-violet rays, and have been successfully healed Both were of undiscovered aetiology. Greater trial should be made of this method of treatment in conditions of leucoplakia, for it should prove of help if carried out in conjunction with specific medicinal treatment in cases of syphilitic origin Considerable caution is needed if there is suspicion of early malignant disease, for in such cases ultra-violet radiation is strongly contraindicated, as there is danger that the malignant tissue growth may be accelerated by ultra-violet rays

Chronic Catarrhal Pharyngitis—Forty three cases were treated Successful results have been obtained in obstinate chronic pharyngitis and nasopharyngeal catarrh which have resisted other therapeutic measures—that is, local sprays, medication, vaccines, cauterization, etc Suberythema or mild erythema doses of ultra-violet rays were applied once every week to the pharynx, the nasopharynx, or the tonsillar fossae. Usually three or four local treatments were sufficient to alleviate symptoms of catarrh, cough, or hoarseness of voice Clinically, definite healing of the mucosa was seen, and areas of chronic oedematous inflammatory tissue of the post pharyngeal wall and red eczematous patches of the mucosa of the anterior pillars of the fauces improved, showing a pink and greyish-white smooth area Thickening or scar tissue or contraction of the underlying tissues was rarely observed

Observations on the bacteriology of the mucous membrane before and after radiation therapy were disappointing Before irradiation the cultures taken from the nasopharyngeal, pharyngeal, or tonsillar swabs showed the presence of *Streptococcus haemolyticus* and *Streptococcus viridans*, *Micrococcus catarrhalis*, and Pfeiffer's and Friedlander's bacillus After irradiation the bacteriological cultures grew the same types of organisms It was observed, however, in some cases, that during the erythema stages—that is, twenty-four to forty eight hours after local irradiation—throat and post nasal swabs often grew a pure culture of a haemolytic long chain streptococcus, whereas cultures before irradiation grew a non-haemolytic short chain type of *Streptococcus viridans* These changes in the bacterial flora are difficult to explain, but the original bacterial flora were seen seven days later

Caution is necessary in the dosage of local irradiation in cases of Vincent's angina, and also during the treatment of the "gouty mucous membrane", for severe reaction causing a spreading oedema of the soft palate and uvula may follow, even with mild sub erythema dosage The local irradiation of the pharyngeal and tonsillar mucous membranes may be of great value in the treatment of chronic catarrh following colds, and of chronic infections with streptococci, Vincent's angina, and diphtheria carriers, etc Cases of chronic septic and catarrhal pharyngitis showing clinical signs of redness or oedema of the mucosa, and symptoms of persistent nasopharyngeal catarrh, hoarseness of voice, and troublesome cough, have responded well to radiation therapy after other methods have failed The results of treatment of many of these cases of chronic pharyngitis are similar to the successful results often obtained following the local irradiation of a patch of chronic idiopathic eczema of the skin or of the external auditory meatus The treatment of such lesions with full erythema doses of ultra violet rays will often completely heal a lesion of many years duration in two to three weeks

Conclusion

The cases which I have treated are relatively few, but I hope that observation and the results of the treatment will encourage further clinical research at hospitals and other clinics, where greater access to suitable cases is available

The treatment of the mucous membrane by local radiation therapy must be confined to the specialist The manipulation of the apparatus needs careful and specialized knowledge, and the application and supervision of treatment can only be carried out by fully qualified physicians

I am greatly indebted to Mr Douglas Harmer for his help and kindness During the past two or three years he has contributed some suitable cases for treatment, and checked my observations and results As he says

"In the few cases observed the results obtained by this treatment have been surprisingly good Even a short application of the light for a few seconds only may produce a sharp local reaction, but when applied cautiously the inflammation is never serious or prolonged, and in many instances is followed by rapid improvement Thus in three cases of chronic laryngeal tubercle the lesions healed much more quickly than I should have expected without light treatment Several very obstinate cases of pharyngitis have also improved enormously But the method is comparatively new and therefore requires careful investigation before one can decide which types of inflammation are best treated by it"

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ACUTE SCARLATINIFORM DERMATITIS FOLLOWING INJECTION OF TOXOID-ANTITOXIN

BY

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As I am not aware of any report of a similar reaction following the use of toxoid-antitoxin in diphtheria prophylaxis, the following record of a troublesome allergic dermatitis may be of interest to those engaged in active immunization against diphtheria.

A healthy girl, aged 16, whose work brought her constantly into contact with diphtheritic infection, wished to be immunized. She was Schick-tested on July 14th, 1932, and gave a positive and pseudo reaction. On July 21st a 1 c.cm. dose of toxoid-antitoxin was injected into the region of the deltoid insertion, and next day a reaction about 1½ inches in diameter resulted at the site of inoculation, and she had a feeling of lassitude and malaise. On July 24th a slight itching erythema (somewhat like "prickly heat") appeared on the neck and chest, but its connexion with the injection was not realized. On July 28th a second injection of 1 c.cm. T.A.M. was given, a well-marked local reaction again occurring at the site of inoculation. Two days later the skin erythema flared up in an acute dermatitis, spreading from the neck and chest to the back, the abdomen, then to the arms, legs, and head, until the whole body was involved, with the exception of the hands and feet.

The eruption was bright red in colour, the skin hot, dry, and rather itchy, though not markedly so. Peeling in moderately large flakes began about August 2nd (nine days after the onset), the skin feeling dried up and rendering movement uncomfortable, and in fact painful.

On August 9th, as the condition showed no sign of improvement, and there was marked inflammation of the skin with coarse, flaky desquamation, I sent the patient to see a dermatologist, who regarded the condition as a "sensitization" eruption, arising as an erythema scarlatiniforme.

After about a week's treatment the acute stage of the skin eruption settled down, but the coarse desquamation continued for another week. In view of the disturbance following the injections I decided it would be extremely risky to complete the immunization course by giving the third 1 c.cm. dose of T.A.M. On October 4th I again Schick-tested the patient, the result being pseudo and doubtful positive. Having given several thousand injections of toxoid-antitoxin without any more notable sequelae than in a few cases a localized reaction, and rarely a slight transient constitutional disturbance, I was interested to confirm as far as possible my opinion that the dermatitis was the direct result of the toxoid-antitoxin, and was not purely fortuitous. It was clear that the only positive way by which to confirm the T.A.M. as the exciting cause was to repeat the 1 c.cm. doses, and obviously this course was out of the question. Early in December I again Schick-tested, and, obtaining a pseudo and negative result, I decided to observe carefully the effect of a small dose of T.A.M.; 0.1 c.cm. was given subcutaneously on December 6th, and that evening the temperature rose to 101.1° F., and on the following day the site of the injection was very tender, the surrounding skin red and indurated, and there was general malaise. On December 8th the area was still well defined, about 1½ inches in diameter, the arm being stiff and tender on movement. The morning and evening temperatures were just under 100°. The temperature readings on December 9th were 99.4° (a.m.) and 100° (p.m.), and the reaction was subsiding. On December 10th the temperature remained normal, the patient felt well, and the site of injection was no longer tender or inflamed. In view of the apparent marked intolerance of the patient to the toxoid-antitoxin mixture, I decided to try the effect of a skin test, using a dilution of 1 in 100 of T.A.M. A 0.2 c.cm. intradermal injection was given in the forearm. In twenty-four hours there was a well-defined inflammatory area about 20 mm. in diameter. This persisted for about forty-eight hours, and was somewhat indurated and tender. As I had previously had injections of T.A.M., and was also a pseudo and negative reactor, I injected a similar dose of the dilute T.A.M. intradermally in my forearm as a control, and in twenty-four hours there was a faint flush, without induration or tenderness, which faded by the following day. The result of this test added further confirmation that the patient was very sensitive to even small doses of toxoid-antitoxin. A 0.2 c.cm. intradermal injection of a 1 in 100 dilution of toxoid (M.T.) gave rise in the patient, and in myself as control, to a faint 10 mm. flush, which disappeared within twenty-four hours.

After consultation with Dr. R. A. O'Brien, I carried out skin tests with dilutions of the constituents of the toxoid-antitoxin mixture in an endeavour to ascertain which of the constituents was responsible for the peculiar allergic reaction. On February 28th I made three intradermal tests, using 0.2 c.cm. of a 1 in 100 dilution of the antitoxin serum, 0.2 c.cm. of a 1 in 100 dilution of peptone, and 0.2 c.cm. of a 1 in 100 dilution of veal infusion. That evening there was a well-marked and painful reaction, 5 cm. by 3 cm., at the site of the injection of antitoxin. The following day this area was tender, with a definite palpable raised margin, similar to an urticarial wheal. By March 3rd this reaction was practically gone. There was no reaction to the injections of peptone and veal infusion. Three similar injections in my own case as a control gave rise to no local reaction whatsoever.

REMARKS

There are three methods of explaining the disturbance which commenced toward the end of July: (*a*) that it had no relation to the injection on July 21st or 28th; (*b*) that the patient showed the uncommon type of very acute sensitivity to serum; (*c*) that she was acutely sensitive to the products of metabolism of diphtheria bacillus, which are found in toxoid, and which, in very rare highly sensitive people, may cause unusually troublesome local or general reactions.

The only argument in favour of (*a*) is the extreme rarity of a dermatitis of the kind after the use of the English toxoid-antitoxin mixture or the American toxin-antitoxin mixture. Since the patient in December reacted acutely to 0.1 c.cm. injected subcutaneously, and in February showed an unusual reaction after 0.002 c.cm. of T.A.M. intradermally, it is probable that the dermatitis was due to the injection of T.A.M. In order to find out with certainty which constituent was responsible it would have been necessary to inject subcutaneously, on separate occasions, into the patient, the constituents of the T.A.M., and see whether the fraction of serum, of toxoid, of peptone, or of veal infusion would produce another attack of dermatitis. Although the patient was very helpful, it appeared quite unjustifiable to do an experiment on this scale, and the most that could be done was to carry out the intradermal tests with serum, peptone, and veal infusion in February. All that we can be sure of is that the patient was, at this date, unusually sensitive to serum, and we must rest satisfied with the possible explanation that the minute amount of serum in the original injection of 1 c.cm. of T.A.M. had caused the dermatitis. There was no trace of asthma or any other "allergy" in the previous history of the patient or of her family.

SUMMARY

A troublesome exfoliating dermatitis occurred in a girl of 16, following the injection of two doses of 1 c.cm. of T.A.M. given within a period of seven days. The dermatitis was possibly due to an acute sensitivity to serum.

I am indebted to the patient for her willing co-operation in submitting to the tests, to Dr. S. Watson Smith of Bournemouth for his clinical report on the skin condition, and to Dr. R. A. O'Brien for supplying the test constituents of the T.A.M. and for his valuable critical suggestions.

TREATMENT OF RINGWORM OF THE SCALP WITH THALLIUM ACETATE

BY

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The economic situation created by the great war was probably responsible for the rapid development of an easier method of treating ringworm of the scalp in children than the older and more tedious one of *x*-ray therapy.

Since the post-war literature dealing with thallium acetate is so extensive it is unnecessary to give an elaborate account of its history. Soon after its discovery by Crookes[1] in 1861 it was isolated in 1862 in a pure form by Lamy,[2] who recorded its toxic properties. Thallium acetate became fashionable in the field of therapeutics, and was used to control the night sweats of the consumptive, and Combemale[3] (1898) observed that his patients undergoing this treatment lost their scalp hair. In 1898 Sabouraud[4] used thallium acetate for the first time as a depilatory agent in ringworm of the scalp. He used it both locally and internally, and later abandoned it on account of its toxic properties. In 1909 Cicero[5] revived the subject of thallium therapy, and in 1918 published favourable reports on the uses of thallium acetate as a depilatory in ringworm. In the early days of the great war Buschke[6] approached the subject, and has since published periodical reports on the results of his experiments with thallium in rats. In 1922 Buschke and his collaborators administered the drug in the treatment of tinea capitis in children, giving it by the mouth, in a sweetened solution, on an empty stomach. For successful epilation he found it necessary to use a minimum dose of 8 mg. of thallium acetate per kilo of body weight (nude), and further stressed the importance of local treatment during the process of epilation.

In this country Percival[7, 8] has used the drug extensively, and in 1930 published a detailed account of his results of thallium medication in fifty cases of ringworm of the scalp. He maintains that, apart from occasional manifestations of mild toxic symptoms, the patient appears perfectly normal. Recently Ingram[9] has reviewed very lucidly the literature on the subject, particularly in reference to deaths from thallium poisoning, and has come to the conclusion that all the reported deaths have resulted from faulty technique in the administration of the drug. He believes that those who condemn its use as a depilatory agent in ringworm of the scalp do so from a limited acquaintance, and is convinced that, with care, the more the drug is used the less apparent will be the danger. The three deaths recorded by Lynch and Scovell[10] cannot be accepted as a valid objection to its use, for they were, unfortunately, due to an error on the part of the dispenser. Apparently these deaths have created a deep impression on medical opinion in this country, and the drug has gained an evil reputation. The compilers of the new *British Pharmacopoeia* have ignored it entirely. We are still ignorant of its precise mode of action, and until our knowledge has increased we cannot lay down a hard-and-fast rule for its administration. Recently Vasarhelyi[11] and Buschke have published their investigations on the changes in the skin produced by thallium. They conclude that a local application of it can cause alopecia, and also slight inflammatory changes, and that the drug absorbed from the skin causes general thallium phenomena. Thanks to the patient work of Cicero and Buschke, the experimental stage has been successfully passed, and it is evident that thallium acetate is being used more and more in the treatment of tinea capitis in children. Our knowledge of its elimination and rate of absorption is only partial, and although we have certain facts to guide us in its administration, our ignorance of its pharmacological action still awaits daylight.

Sabouraud regarded such toxic manifestations as tachycardia, cutaneous erythemata, and subcutaneous haemorrhages to be the result of impurities in the preparation he used. Other early observers maintained that the lead contained in thallium was responsible for the toxic properties of the drug. Its toxic manifestations undoubtedly simulate those of lead to a marked degree. Like lead, it is a protoplasmic poison, and a comparison of the symptomatology is interesting. Both have a predilection for nervous tissue and are cumulative in action. The cramp-like abdominal pains, peripheral neuritis, and blurred vision of lead poisoning are frequently observed in thallium poisoning. The blue line so characteristic of lead absorption has also been observed in thallium poisoning. Adler[12] refers to the changes in the finger-nails observed as a late symptom of it. About the eighth week after administration he noticed in one of his cases a white horizontal band on each finger-nail and equally distant from the base of the nail. He mentions that this band could easily be distinguished from the white zones which are often observed in some other diseases. His observation is of interest in comparing the two elements, for one of us (D. R. L.) has observed similar bands to those described by Adler on the finger-nails in a case of lead poisoning. A few of the early writers found stippling of the red blood corpuscles in thallium poisoning, but latterly Testoni[13] and other observers have failed to demonstrate stippling in their cases. The analogy between thallium poisoning and lead absorption is interesting, for it is a well-known fact that a moderate amount of lead in the system, although toxic, is not apparently harmful, and does not shorten life.

The fact that thallium is a protoplasmic poison must not be overlooked, and its administration must be carried out with care and vigilance, for it is certainly well known that the difference between the maximum therapeutic dose and the toxic dose is very small. Lynch and Scovell have objected to its use on the grounds that it might do permanent damage to the growing organism, but Percival and Ingram have found no such evidence in their extensive experience of the drug. They believe that the mild toxic manifestations observed after the proper administration of the drug are a passing phase, and of no significance.

RESULTS IN FIFTY CASES

Our report is of fifty cases of small-spored ringworm of the scalp which were treated by the oral administration of thallium acetate. Twenty of the treated children were inmates of an orphanage home in Carmarthenshire, and were under the medical supervision of one of us (W.A.Ll.). The opportunity of daily observation was valuable from the point of view of gaining first-hand information of the toxic manifestations or any other psychical disturbances. One of the children was an epileptic, and another had a spinal curvature. The ages of the children treated ranged from 4 to 12.

A routine medical examination was carried out, and particular attention was paid to the examination of the urine. The child was then weighed nude, and the weight recorded. With two exceptions every child was given by the mouth a single dose of a sweetened solution of 8.5 mg. of thallium acetate per kilo of body weight. We hesitated in giving the usual therapeutic dose in the cases of the kyphotic and the epileptic child. In the former a middle course was adopted, and we gave the child 5 mg. of thallium acetate per kilo of body weight, and a half-pastille dose of *x* rays immediately after the administration of the drug. The Kienbock-Adamson method was used in giving the *x* rays, and a half-pastille dose was given to the different areas instead of the full pastille dose. The epileptic child was given 7.5 mg. of thallium acetate per kilo of body weight. The parent or guardian was then advised to cut the hair short, if not already cut, and ordered to apply a 2 per cent. solution of iodine thrice daily

to the scalp for another four weeks. The patient was advised not to wash the scalp for the first fortnight. At the beginning of the third week the scalp was washed with soap-and-water. This is the method recommended by Ingram, and it proved a very satisfactory one, though not superior to the vigorous local application of a 10 per cent. sulphur ointment recommended by Percival. In three cases we found that even a 2 per cent. solution of iodine proved too irritating to the children, and a 10 per cent. ung. sulphuris application was applied daily for three weeks instead.

The scalp was epilated in every case except two, and in the latter the full therapeutic dose was not prescribed on account of their state of health. One of our failures was an epileptic, and the other had a spinal curvature. In the former, the drug produced no ill effects, and has not increased the frequency of the fits. Falling of the hair was first noticed on the twenty-fifth day, and the scalp was never completely bald.

In the child with a spinal curvature epilation was never complete, and for many weeks after the administration of the drug and *x* rays the bald irregular patches on the scalp presented a curious appearance. On the fifth day following the administration of the drug a scarlatiniform rash was noticed on the child's neck and face. On the eighth day the rash had disappeared, and the child complained of itchiness of the skin and pain under the heels. The child was somewhat lethargic for a few days. A rash was observed in three children.

Toxic symptoms were observed in 43 per cent. of our cases, and, with the exception of one child, were of a mild pseudo-rheumatic character. The commonest symptoms were malaise, lethargy, weakness, and loss of muscular power and pains, particularly in the legs. The lower limbs seemed to be most commonly affected.

One case only in the series gave rise to anxiety. He was a boy of 5, and on the eighth day a diffuse rash was noticed on his legs. On the eleventh day the rash appeared all over his body. The face and neck were swollen, and the legs were oedematous. The temperature was normal, and a trace of albumin was found in the urine. The child remained in bed for a week, and made an uneventful recovery. He weighed 15.9 kilos, and 15.9 c.cm. of a solution containing 8.5 mg. of thallium acetate per c.cm. was administered.

CONCLUSIONS AND SUMMARY

It is claimed that older children are more liable to show toxic manifestations. We found that no particular age period was exempt, and only a few of the children exhibiting toxic manifestations were confined to bed. They all made a complete recovery. All the children, except two, responded well to treatment, and fulfilled the usual tests for a cure. *X* rays and thallium acetate administration are the only two satisfactory methods known for treating ringworm of the scalp. Both have their firm adherents. *X* rays have proved their value, and the expert has produced perfect results. It must be borne in mind, however, that in less experienced hands they cannot be used without danger, and many partially bald heads still linger as a monument to faulty *x*-ray therapy in early infancy. The superiority of thallium acetate treatment over *x* rays is most obvious when an epidemic of ringworm of the scalp has to be combated. In the treatment of the twenty children from the Cottage Homes we were able to stamp out the disease, with the aid of this drug, in eighty-five days. With *x* rays it would have taken us a much longer time, and it would have also entailed much more labour. According to Percival, the average duration of treatment at Edinburgh, from the time of administration of the *x* rays till the cure of the disease, was 135 days. It is impossible in the average skin clinic in the course of an epidemic of ringworm to treat every case immediately by *x* rays, whereas thallium acetate can be given at once to every child as soon as the diagnosis is made. The children at the institution have been carefully watched (by W. A. Ll.) for six months, and nothing unusual has been noticed in their physical or mental development. Although the new method may prove a snare to the unwary and has been severely criticized, our results have been particularly satisfactory. The children are healthy, vigorous, and mentally alert.

To summarize. Thallium acetate is a dangerous drug, and therefore requires careful technique in its administration. Like lead it is a cumulative poison, and must not be repeated for at least four months. Toxic symptoms are rarely severe, and even the severe case encountered in our series recovered without any sequelae. When properly administered it can be used with ease and safety in the treatment of ringworm of the scalp.

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THE POSTERIOR FOSSA COMPRESSION SYNDROME

BY

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Having several times in the course of the past twelve years encountered a syndrome which, although it may occur from high generalized intracranial tension, appears to be particularly characteristic of rapidly increased intracranial pressure in the posterior cranial fossa below the tentorium cerebelli, I venture to draw attention to it in the hope that its more general recognition may lead to its effective treatment. If ineffectively treated the condition is fatal. The first case of which I had experience (when a house-surgeon) was due to a fracture of the base of the skull and ended fatally; others with a similar termination have also been related to me. Since recognizing the syndrome and its cause, I have been privileged to tide a patient through it.

THE SYNDROME

The patient collapses and respiration stops, while the heart continues to beat vigorously. If nothing is done the heart soon ceases to beat, the patient previously becoming more and more cyanosed. A failure of the respiratory centre evidently takes place; the cardiac centre being apparently less vulnerable to the effects of sudden compression, the heart action continues. Artificial respiration results in the diminution of the cyanosis, and patients have been kept alive for ten or twelve hours while artificial respiration has been kept up; but as soon as this has flagged the cyanosis has increased, the heart has slowed, and, when artificial respiration has finally ceased, the patient has died. Such a case was reported to me by Professor Sheen as having been met with in his

experience, and one occurring in my own experience and produced by haemorrhage from a fracture of the base of the skull running through the posterior fossa has already been mentioned

The cause of the syndrome would appear to be the relative vulnerability to pressure of the respiratory as compared with the cardio inhibitory centre The compression may be produced by haemorrhage into the posterior fossa or by an intracranial tumour or abscess, and in the latter instances may result from oedema in association with the lesion This was apparently the mechanism in the case which follows Recognition of the syndrome enabled one to relieve the condition and subsequently deal with its cause, a cerebellar cystic glioma

HISTORY OF CASE

The patient, a single woman aged 30, was transferred to the surgical unit from another hospital with a diagnosis of cerebellar tumour The signs and symptoms were typical of such a lesion, and there was a high degree of bilateral papilloedema A ventricular estimation had been carried out, and she was in one of the unit wards awaiting operation when one morning I had an urgent message from the house surgeon (Mr J F Meredith), asking me if I would come and see her as she had suddenly collapsed On reaching the ward I found him carrying out artificial respiration The patient was unconscious, and as soon as the efforts at artificial respiration were relaxed she would become cyanosed, the pulse would slow and eventually stop, and she would be to all appearances dead, but with renewed artificial respiration the pulse would come back, the cyanosis pass off, and her colour improve

With a knowledge of the outlook—namely, indefinitely prolonged artificial respiration and then death when exhaustion of the workers led to cessation of artificial respiration—it was realized that radical action was imperative An oxygen cylinder and a gum elastic catheter were sent for By manipulation the catheter was placed through the glottis on connecting it to the oxygen supply the colour of the patient was kept pink and the pulse remained good She was taken at once to a theatre, and without any anaesthetic and with the assistance of my colleague Mr R V Cooke and of Mr Meredith a suboccipital decompression consisting of the removal of the greater part of the post occipital bone back to the foramen magnum so as to remove its posterior margin, and a laminectomy of the atlas, were carried out When the dura mater was opened the cerebellar tonsils bulged into the wound and the medullary compression was evidently relieved At this stage respiratory movements commenced, shortly afterwards the oxygen supply was turned off, and it was found that the catheter could be withdrawn from the trachea The wound was closed and the patient returned to bed She regained consciousness and recovered from her alarming experience with no untoward effects except for a small cerebrospinal fluid fistula, which, however soon closed The decompression relieved her symptoms to a great extent, and she was discharged to her home and was comparatively well for eight months She was then readmitted and the cyst removed from the cerebellum but unfortunately she contracted bronchopneumonia from which sixteen days after operation she died The interest in the case here however lies in the appearance of the posterior fossa compression syndrome and its treatment by emergency posterior fossa decompression

COMMENT

By prompt radical treatment it may be possible to tide the sufferer from its effects through an otherwise fatal syndrome, and it would appear that, when in a case of raised intracranial tension—whether from haemorrhage, new growth, or abscess—respiratory failure occurs, prolonged efforts at artificial respiration should not be carried out, but with all possible dispatch relief of medullary compression should be secured by an emergency posterior fossa decompression Oxygen administered through an intratracheal catheter, as in this case, may enable the operation to be undertaken, but, failing introduction of a catheter in this way, an emergency tracheotomy or laryngotomy would appear to be advisable and the oxygen should be supplied by this route It might be objected that, rather than the performance of such a radical procedure, a reduction of intracranial tension with relief of medullary compression might be brought about by ventricular tap or by intravenously administered hypertonic salt solution or glucose, but such means would appear less certain, and in any case would produce only transitory effects In the posterior fossa compression syndrome, therefore, the indication would appear to be an extensive mechanical relief of pressure, as in the case to which reference has been made.

A CASE OF MALARIA DUE TO PLASMODIUM OVALE STEPHENS 1922

BY

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Stephens (1922) reported a new malaria parasite in a man coming from East Africa, and named it *Plasmodium ovale* on the basis of its morphological features in the asexual stage, pointing out that it resembled rather closely the quartan parasite, but that infected corpuscles were frequently oval in shape and showed Schuffner's dots Later, Stephens and Owen (1927) described another instance of infection with *P ovale* in a case from Nigeria, male and female gametocytes were on this occasion described which were indistinguishable from those of quartan except for the stippled, decolorized margin of the red cell, they concluded that the relationship, if any, of *P ovale* to *P malariae* remained to be demonstrated

Warrington Yorke and Owen (1930) met with an infection with *P ovale* in a hospital patient from Nigeria, and by means of direct blood inoculation passed it through a series of five general paralytics or tabetics The parasites were morphologically indistinguishable from *P malariae*, but the cycle of schizogony was completed in forty eight hours, and the temperature charts were tertian in type The infected red cells were moderately enlarged, and occasionally enormously so, they were pale, fragile, frequently oval in shape, having usually an irregular, raggy outline, and being heavily stippled, as described by Stephens

James, Nicol, and Shute (1932) obtained blood containing *P ovale* from a case of Professor Warrington Yorke's, passaged it through fourteen general paralytics, and studied the sexual form in the mosquito, the arrangement of pigment in young oocysts was found distinctive The disease was also transmitted by the bite of experimentally infected mosquitos, *Anopheles maculipennis* as well as by sporozoites obtained from the salivary glands and injected intravenously Later the same authors (1933) reviewed the whole subject, and concluded that the nomenclature of *P ovale* was correct

Since 1922 only four naturally infected cases appear to have been diagnosed in this country, and for this reason the following case, which presents several features of interest, seems worth recording

CASE RECORD

The patient, a male aged 28 years was sent by his firm on August 8th 1932, for examination regarding his suitability for the Tropics, and following a favourable report proceeded to West Africa, arriving at Lagos on September 19th 1932 and leaving Freetown on February 9th 1933 for England During this period of 143 days he visited Nigeria the Gold Coast, Gambia and Sierra Leone in this order and was quite well except at the end of October in Lagos when he was severely bitten by sand flies and suffered from an attack of

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fever lasting two days. Throughout the tour he used mosquito boots, a mosquito net at night, and took quinine (five grains daily) as a prophylactic measure. At no time was he conscious of being bitten by mosquitos.

The patient arrived in England on February 20th, 1933, and was quite fit until March 22nd, when at about 7.30 p.m. he developed a rigor lasting half an hour; this he attributed to a chill. The second attack came three days later—that is, March 25th—when a rigor occurred at 7.20 p.m. and lasted one and a half hours. The third attack occurred on March 27th, about 6.30 p.m., and by 8 p.m. the temperature had risen to 103.8° F.; on this occasion the rigor lasted two hours, and the patient sweated freely after taking hot drinks. The fourth attack, on March 29th, came on at 6.30 p.m., with a rigor lasting three-quarters of an hour; by 7 p.m. the temperature was 101°, and again profuse sweating occurred. On each occasion the patient said the rigors were of a mild character, and that the shivering could to some extent be voluntarily controlled.

On March 30th the patient was referred to me by Dr. R. H. Dixon with suspected malaria. Examination then revealed a palpable spleen, a temperature of 98.8°, a yellow skin, and a dark-brown urine, which showed urobilin (+) and a trace of bile salts and albumin. The leucocyte count was 7,200 per c.mm.; the differential count showed neutrophils 58 per cent., lymphocytes 30 per cent., monocytes 11 per cent., eosinophils 1 per cent. In blood films prepared with Leishman's stain the laboratory reported that malarial parasites, atypical in type and resembling quartan malaria, were present. Owing to the fact that the temperature, though originally quartan, now showed a tertian type of periodicity, infection with *P. ovale* was suspected on clinical grounds, and this was confirmed by Dr. C. M. Wenyon, who re-examined the blood films. Dr. Wenyon reported that the morphological appearances of the parasite were typical of *P. ovale*, that the characteristic distortion of the red cells was present, and that the infected corpuscles were heavily stippled with Schüffner's dots in films stained overnight with Giemsa, though they were not evident in Leishman-stained films.

Next day (March 31st) the patient was admitted to the Hospital for Tropical Diseases. The temperature reached 99.4° at 6 p.m., and blood films again revealed *P. ovale*. The red blood cells were 4,720,000 per c.mm.; haemoglobin 90 per cent.; colour index 0.96; diameter 7.2 μ. The urine showed bile salts (+), urobilin (+), and a trace of bile pigment, while the van den Bergh reaction gave a negative direct but a strongly positive indirect reaction of 2.5 units. Oxalated plasma collected under paraffin showed no trace of oxyhaemoglobin bands when examined spectroscopically through a thickness of 1.3 cm. The plasma urea was 38 mg. per cent., and the plasma cholesterol 109 mg. per cent. Treatment was commenced with atebrin, 0.1 gram being given per os. Next day (April 1st) there was malaise, the temperature reached 100°, but there was no rigor. Atebrin was continued, 0.1 gram three times daily, and quinine bihydrochloride, 7½ grains in 10 c.cm. of saline, was injected intravenously.

The subsequent clinical course was afebrile and uneventful, and parasites permanently disappeared from the blood. Intravenous injections of quinine (7½ grains) were continued daily until April 4th, and atebrin (0.1 gram three times daily) until April 5th. The urine had by then lost its dark-brown appearance, and though bile salts persisted only a trace of urobilin was detected; the van den Bergh reaction was also found to be normal—indirect reaction 0.2 unit. The reticulocytes equalled 3.6 per cent., and from this date until April 8th the daily reticulocyte counts were 5.7, 6.3, and 3.4 per cent. respectively. On April 10th the reticulocytes had fallen to 2.5 per cent.; red blood cells, 5,120,000 per c.mm.; haemoglobin, 102 per cent.; colour index, 1.0; average corpuscular diameter, 7.2 μ; leucocytes, 8,300 per c.mm.; the differential count was normal, the monocytes having fallen from 11 to 3 per cent. By April 11th the reticulocytes had reached a normal level—that is, 1 per cent.; the urine was also normal, the spleen was no longer palpable, and the patient was discharged from hospital.

When seen again, on April 22nd, clinical examination revealed no abnormality, the blood showed no evidence of parasites, the van den Bergh reaction was normal, and the urine contained neither urobilin nor bile salts.

COMMENTARY

This case is an instance of infection with the fourth species of malaria parasite—that is, *P. ovale* Stephens 1922—contracted during a short tour of 143 days in West Africa. Throughout this period the patient had consistently taken prophylactic quinine, and this is the probable reason for the long incubation period, unless the two days' fever in Lagos be interpreted as representing the primary malarial attack.

The species of parasite was suspected on clinical grounds when the laboratory reported atypical quartan malaria in a febrile patient who, though at onset manifesting quartan, later showed a tertian periodicity. Another peculiar feature was the late time of onset of the rigors, which occurred between 6.30 and 7.30 p.m.; generally malaria fever commences before or about midday, as emphasized by Manson.

The biochemical and haematological observations were of interest. Haemoglobinaemia was not evident at the time the plasma was examined, but the urobilinuria and hyperbilirubinaemia indicated that the blood destruction usually associated with malarial fever was going on. Bile pigments in the urine are unusual in malarial fever, and probably originated from a mild toxic hepatitis in this instance. The reticulocytosis reached a maximum of 6.3 per cent. some eight days after the initiation of specific treatment. This is usual in malaria, for once the parasites are controlled or destroyed regenerative activity of the bone marrow results in reticulocytosis and new blood formation.

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Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

RECURRENT RENAL CALCULI

NEPHROLITHOTOMY TWICE ON EACH KIDNEY IN THE SAME PATIENT

Mrs. X, then aged 37 years, was sent to me in February, 1911, by the late Dr. Sortain Hancock, with definite signs and symptoms of stone in her *right* kidney. Radiographic examination proved the presence of a large branched calculus occupying the pelvis and some of the calyces of that organ.

I performed nephrolithotomy on February 15th, and removed, as I thought whole, a large stone with four "legs." The wound was drained for the first forty-eight hours, and then healed rapidly, and she was discharged on February 25th, ten days after the operation. There was no evidence then of any calculus in her left kidney.

She was readmitted on April 25th, 1914, now with definite evidence of a stone again in her *right* kidney, and one also in her *left* kidney. On May 1st, 1914, I explored her *left* kidney, the one which had not previously been exposed, and removed a stone. The wound healed rapidly. On May 19th, 1914, I explored her *right* kidney, the one from which I had removed the large stone in 1911, and found and removed a small stone from the pelvis. This may have formed upon some debris which I had failed to extract at the first operation.

Two years later, in March, 1916, she again showed herself with evidence of stone, once more in her *left* kidney. By this time she had become an "expert" in the diagnosis of renal calculi, and she ventured to bring her brother, in whom she was sure there was a stone in his *left* kidney! And so it turned out to be. I admitted them both to the hospital on the same day, I operated on

the *left* kidney of each on the same day, the sutures were removed from each on the same day, they got up in the ward on the same day, and together they left the hospital with soundly healed wounds on the same day, eighteen days after the removal of their calculi.

Thus it will be seen that the woman is probably a unique person, having had both of her kidneys dealt with twice over. I may add that she has never had a further recurrence, and is alive and active to-day at the age of 60 years.

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ENCEPHALITIS FOLLOWING VACCINATION: WITH RECOVERY

The number of cases of post-vaccinal encephalitis recorded in this country is small. For this reason, and in view of the striking recovery, the following case appears worthy of record.

A well-developed girl of 17 was admitted under my care at the Royal Devon and Exeter Hospital on April 25th, in a stuporous condition. Fifteen days previously, while in her usual state of sound health, she had been vaccinated with Government lymph by a single insertion on the outer side of the thigh. She had never before been vaccinated. The vaccination took well, and was followed by a mild febrile reaction at the end of a week, necessitating three days in bed. On the morning of the fourteenth day she felt unwell, but did her work. That evening Dr. H. Temkin was sent for; he found her cheerful and presenting no signs other than a temperature of 103° F. and general aching. She was "noisy" that night, and was found to be stuporous when seen the next afternoon by Dr. Temkin, who sent her forthwith into hospital.

On admission she was semi-comatose, screaming, resistive, photophobic, and made no response to simple requests. Temperature was 99.6°, and pulse 68. The pupils were small, but were reacting to light, the optic fundi were normal. No cranial nerve paresis was detected; but the neck was stiff. Abdominal reflexes were absent. Biceps, triceps, and knee-jerks were very sluggish, and the ankle-jerk was obtainable only on the left side; plantar reflexes flexor. Kernig's sign was not present. Catheterization of the bladder was necessary, and an enema was retained. No feeding by the mouth was possible, except by a tube. Heart, lungs, and urine were normal. Lumbar puncture was performed that evening and again next morning (when coma had become complete), with no relief of symptoms. The cerebro-spinal fluid was under pressure, turbid, and of greenish colour, and was reported on by Dr. W. A. Robb as follows: red blood cells, 753 per c.mm.; leucocytes, 118 per c.mm., of which 82 per cent. were lymphocytes and 18 per cent. polymorphonuclears; protein, 90 mg. per 100 c.cm; globulin (Nonne-Apelt reaction) positive; glucose, 50 mg. per 100 c.cm.; chlorides, 670 mg per 100 c.cm; no organisms seen by Gram film; no tubercle bacilli found; culture sterile.

At 5 30 p.m. that day (April 26th) a third lumbar puncture was performed, when, after escape of fluid, 30 c.cm of blood serum from a nurse successfully vaccinated three and a half months previously was slowly injected into the theca. One and a half hours later I observed the patient begin to talk semi-incoherently, but for the first time since admission. By the next morning she was rational, though excited and dazed; but another similar injection of the serum was made into the theca. Temperature was normal and remained so. On the fifth day after admission (April 30th) she appeared to have recovered completely, except for control of the bladder, which she did not regain until May 2nd. On that date the tendon jerks were all normal; the abdominal reflexes, however, still remained absent at the beginning of June. Well-marked desquamation commenced at the end of the second week in hospital. On May 8th a second examination of the cerebro-spinal fluid by Dr. Robb showed: 14 leucocytes per c.mm., all lymphocytes; 4 red blood cells per c.mm.; protein 35 mg. per 100 c.cm.; globulin test negative; glucose, 70 mg. per 100 c.cm.; chlorides, 705 mg. per 100 c.cm.

Among the points of special interest in this case are: (1) the incidence in adolescence and in a person previously unvaccinated, as in the vast majority of cases reported in the literature; (2) the vaccination was by the single insertion now recommended; (3) the mild lymphocytic reaction as typically found in human encephalitis following vaccination,[1] and as also mentioned by Mackintosh and Scarff[2] and others in experimental researches; (4) the dramatic recovery immediately following intrathecal introduction of an immune serum; it appears that a smaller and single dose of the serum used would have fulfilled the needs of this case, as in that described by Lord Horder,[3] where a single introduction of 5 c.cm was successful.

I wish to acknowledge my great indebtedness to Dr W A Robb for his examinations of the cerebro-spinal fluid and preparation of the serum.

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SPINAL ANAESTHESIA IN AN INFANT

In the recent articles published in this country on spinal anaesthesia so little has been mentioned of its use in children and infants that I consider an account of the following case of some interest.

A male child, aged 27 weeks, was admitted to the Bolton Royal Infirmary on November 25th, 1932, with a history of intermittent screaming, apparent abdominal pain, and the passing of "red currant jelly" material per rectum. The screaming had commenced three hours before admission. The temperature was 103° F., pulse 128, and respiration 30. A mass was palpable in the left iliac fossa; rectal examination revealed only blood-stained material on the examining finger.

Operation under spinal anaesthesia was decided upon, and a small area of skin between the third and fourth lumbar vertebrae was anaesthetized with 1 per cent. novocain. Lumbar puncture was performed through this, and 3 5 mm. of 5 per cent. stovaine and glucose solution, mixed with an approximately equal quantity of cerebro-spinal fluid, was injected intrathecally. The child was then placed in a 10 degrees Trendelenburg position, which was maintained throughout the subsequent operation. At the end of four minutes anaesthesia was complete up to the nipple line. The abdomen was then opened, and an intussusception of the ileo-colic type, with the apex reaching almost to the brim of the pelvis on the left side, was found. This I reduced with ease. The abdomen was then closed. During the operation the child appeared much less distressed than previously, and during the suture of the wound he slept apparently undisturbed.

The anaesthesia was much more satisfactory than that usually obtained with a general anaesthetic in similar cases, and the child seemed to suffer the minimum of discomfort from the moment it took effect. This was most marked in the hours immediately following operation, when the child slept naturally and soundly. The subsequent convalescence was rapid and uneventful, the child taking the breast soon after the operation, at no time was artificial feeding employed. The child was discharged from hospital on the tenth day, and has since made an uninterrupted recovery.

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Reports of Societies

OXFORD OPHTHALMOLOGICAL CONGRESS

The twenty-third annual meeting of the above congress was held at Oxford on July 5th, 6th, 7th, and 8th. Members met informally at dinner on the 5th in the Hall of Keble College, which had, as in former years, again offered its hospitality. The proceedings of the congress were held in the Department of Human Anatomy of the University, kindly lent for the purpose by Professor Arthur Thomson, to whom the congress is under a deep debt of gratitude. In addition to the scientific museum, a commercial exhibition was on view, in which numerous well-known firms of ophthalmic instrument makers displayed the latest forms of apparatus and instruments used in ophthalmic surgery. As usual, a large number of foreign members and others resident abroad attended the congress, which emphasized once more the international character of this meeting. Among the visitors were Dr. Holth of Oslo, Dr. Uribe Troncoso of New York, Dr. Bernard Samuels of New York, Dr. Holm of Copenhagen, Dr. Van Heuven of Utrecht, Dr. Rau of Bangalore City, Dr. Van Poole of Honolulu, Dr. Pearson of China, Dr. Sohan Singh of Amritzar, and Dr. Meyer of South Africa.

PROCEEDINGS

The proceedings began on Thursday, July 6th, with a short address of welcome from the Master, Mr. CYRIL WALKER. Immediately following, Dr. S. HOLTH of Oslo opened a symposium on "The Treatment of Glaucoma, excluding Operative Details."

Dr. Holth described his speech as "historical remarks on the treatment of primary glaucoma." He fully described iridectomies before and after local anaesthesia with cocaine in 1884, and discussed the treatment by miotics since 1876. Next he dealt with anterior sclerectomies from the time of their introduction in 1904. An account was given of the tonometer, which was introduced in 1905, and with it the early treatment of chronic glaucoma. Dr. Holth then proceeded to a comprehensive discussion on "filtering scars" and the various methods by which they can be obtained.

Colonel ROBERT WRIGHT continued the discussion, citing freely from his large experience in Madras. He first discussed the non-congested type with markedly high tension, advanced field changes, and diminished visual acuity. He described the preliminary treatment to reduce tension so that operation could be performed under the best conditions, and emphasized the advantage of the adrenaline pack, together with the frequent use of eserine and massage. If the tension did not fall he preferred to perform an anterior sclerotomy, watching the effect on the iris vessel with operating lenses. He also favoured cyclodialysis, which had given astonishingly good results. In a second group of cases in which the symptoms were not so marked, careful field-taking, tonometric observations, and watching the effect of non-operative measures were recommended. The operation of iridencleisis was warmly commended, but it was felt necessary in these cases to keep in touch with the patient for some little time afterwards. Colonel Wright discussed the question of operation in mild or early cases, where the tension was only raised a trifle, and that occasionally. The treatment of acute congestive primary glaucoma was then gone into in detail, and the intravenous injection of hypertonic solution of sodium chloride was praised. Acute secondary glaucoma and its treatment was also dealt with. The discussion was continued by Dr. GEORGE YOUNG and Dr. BURDON-COOPER, who dealt with the non-operative treatment of glaucoma.

Dr. URIBE TRONCOSO of New York then gave a most interesting paper on clinical gonioscopy, introducing details as to the use of the gonioscope and the findings in normal eyes. In the second part of his remarks he described minutely the clinical appearances as seen with his instrument after operations for glaucoma. In the afternoon Dr. DOROTHY CAMPBELL gave a highly technical paper on the chemical pathology of cataract, which was followed by another on the same subject by Dr. BURDON-COOPER. Mr. H. J. TAGGART then read a well-illustrated paper on the treatment of ptosis by a modification of the Motais operation. Mr. ZORAB related a successful case which had been operated upon by this method. In the afternoon the members of the congress and their friends had tea at Wadham College, being received by the Warden and Mrs. Stenning, and were shown the beautiful gardens.

The annual dinner of the congress, at which 108 members and their friends sat down, was held the same evening, presided over by Mr. Cyril Walker, the Master.

MEMORIAL LECTURE AND OTHER PAPERS

On July 7th Dr. STOBIE, physician to the Oxford Eye Hospital, gave an interesting address on the constitutional factor in diseases of the eye. Passing from the subject of errors of refraction and the state of health, he discussed the factors in phlyctenular conjunctivitis—infection or diet. The role of tuberculous infection in iridocyclitis was also described. The speaker then dealt with the difficulty of obtaining negative blood tests in the treatment of interstitial keratitis, and the early ocular symptoms of disseminated sclerosis. Next he attempted to correlate the general picture of hyperpiesis, arterial sclerosis, and renal disease with retinal findings, and made some observations on treatment.

The Doyne Memorial Lecture was given by Mr. BERNARD CRIDLAND, the subject being "Investigations on the Aftermath of Cases of Intraocular Foreign Bodies." This lecture does not lend itself to abstraction, and should be read in the original. It embodied case records of intraocular foreign bodies which had remained in position for five years and over. At the conclusion the Master, after complimenting the lecturer, presented him with the Doyne medal.

Dr. R. S. CREED then gave a highly technical address on ocular after-images, presenting most interesting details of his experiments in these phenomena. This paper was discussed by Mr. CYRIL WALKER, Dr. YOUNG, and Mr. HARRISON BUTLER.

In the afternoon a discussion on diathermy in ophthalmology was opened by Mr. FRANK LAW of London, who described in some detail the technical side, and the clinical results obtained in various diseases—notably, glaucoma and corneal affections. He was followed by Mr. AFFLECK GREEVES, with an account of Safar's operation for detached retina. Mr. F. A. ANDERSON gave a highly technical paper on the localization of intraocular foreign bodies by the method of Professor Dr. Guido Holzknecht, describing his own modifications of this method. Dr. ROSA FORD read a paper on recovery from strabismus amblyopia after twenty-nine years by continuous drainage of the nasal accessory sinuses. On Saturday morning Dr. BERNARD SAMUELS of New York gave a very exhaustive paper on a study of eighty-five cases of necrotic sarcoma of the uvea. He pointed out that in gliomata necrosis took place early, whereas in sarcomata the toxic effect was much more marked. The paper was discussed by Mr. HARRISON BUTLER and Colonel WRIGHT. Mr. ALABASTER and Mr. STIRK ADAMS then gave, in a preliminary communication, the results of an inquiry into the conditions of the ears in miners' nystagmus.

This concluded the proceedings of the congress, which all agreed had been a most successful one. The Master stated in his closing remarks that 121 members had attended.

VENEREAL DISEASES

The sixth Imperial Social Hygiene Congress, organized by the British Social Hygiene Council, was held at the London School of Hygiene and Tropical Medicine from July 3rd to 7th, under the general presidency of Sir Basil Blackett. Reports were made and discussions took place on imperial health services, social education, the outlook on prostitution, and the teaching of biology. Two medical sessions were held, one of them dealing with problems in the treatment of acute gonorrhoea, and the other with administrative measures in connexion with venereal disease.

TREATMENT OF ACUTE GONORRHOEA

Mr. DAVID LEES (Edinburgh), in the course of some observations on the prevention of complications in acute gonorrhoea, especially in the male, said that there was no doubt that the course of a gonococcal infection could be cut short and many of the complications which followed on an established urethritis obviated if infected persons could only be educated to seek medical advice as soon as they felt the slightest discomfort in the urethra subsequent to having taken the risk of infection. In established gonorrhoea of more than twenty-four hours' duration the prevention of complications called for co-operation between the patient and his medical attendant. Avoidance of physical overstrain, complete abstinence from alcohol in any shape or form, and the avoidance of sexual excitement or excess were essential. He emphasized the importance of avoiding instrumental interference with the urethra until all acute symptoms had subsided completely, and spoke of the value of prostatic and vesicular massage in the declining stages of all cases, especially in those of posterior urethritis. On the subject of adjuvant methods of treatment Mr. Lees said that he had found uncomplicated cases of gonorrhoea in both sexes, especially those seen in the earlier stages, derive marked benefit from the administration of an appropriate vaccine. He favoured a detoxicated vaccine in that it might be given in moderately large doses without producing any severe reaction. When the urethral symptoms were very acute, and in complications such as prostatitis, vesiculitis, and prostatic abscess, he had been more successful in alleviating the acute manifestations of the disease and in preventing further complications by giving a protein. Serum treatment or passive immunity had not in his experience proved successful in gonorrhoea.

Dr. GLADYS SANDES (London Lock Hospital), in dealing with the prevention of complications in the female, said that the first essential in treatment was to establish an accurate diagnosis, and this should be done primarily by clinical observation and confirmed by pathological examination by a skilled pathologist. By the trained observer acute gonorrhoea could nearly always be diagnosed clinically. When such diagnosis was the probable one, it was much better to do too little than too much. It was quite time enough to begin active local treatment when the disease had become subacute. As for complications, these could not always be avoided even in the most skilled hands. Urethral massage and a careful search for infected Skene's ducts reduced the likelihood of the formation of a suburethral abscess, but to prevent the development of Bartholin's abscess was more difficult.

Dr. EDWARD L. KEYES (president, American Social Hygiene Association) spoke somewhat sceptically of antiseptics, which, he said, were commonly used in such dilutions as to diminish greatly any value they might possess. The drugs which did well were of the class which he was inclined to call, for want of a better word, astringents. It was not so much the claim that local remedies had antiseptic properties which appealed to him as the fact that they practically reduced the inflammation of the urethra; in this respect permanganate of potassium seemed to stand out above all others.

Dr. A. S. PLANT (Grimsby) said that the development of a peri-urethral abscess, if got under control in time, and aspirated in such a way that it did not burst into the urethra, afforded an admirable and rapid means of curing the gonorrhoea. He assumed that the abscess caused the rapid formation of antibodies, and he suggested that it might be worth while to create an artificial gonococcal abscess in some position where it could not communicate with the urethra.

The further discussion, in which several delegates from over-seas participated, tended to stray into the question of administration. Dr. E. T. BURKE (Salford) spoke in praise of detoxicated vaccines, saying that at a certain clinic of which he had had experience, during a period in which vaccines were used there were no in-patients suffering from complications in gonorrhoea, but after the vaccines were stopped on the ground of economy the number of in-patient days during the next twelve months had been 192.

ADMINISTRATION OF VENEREAL DISEASES MEASURES

Colonel L. W. HARRISON (Ministry of Health), in opening a discussion on this subject, said that there were 126 venereal diseases treatment centres in England and Wales under arrangements with voluntary hospitals, and sixty-two conducted by county and county borough councils. There were thirteen hostels for the care of certain girls, not prostitutes in the ordinary sense, and a number of other institutions, together with eighty-five approved laboratories for the examination of specimens. The quality of the work at the treatment centres, of course, depended on the convenience of the premises and the keenness of the personnel, and in both respects he thought that progressive improvement could be claimed since the venereal diseases scheme was initiated. One great obstacle was the idea still prevalent in many areas that efficient treatment of venereal diseases was within the competence of any practitioner who could put a needle into a vein and give an intramuscular injection. Another obstacle was the indifferent supply of real specialists in venereal diseases. Just after the war many medical officers who were interested and skilled in the management of venereal diseases were available, but most of the clinics were already staffed at that time with medical officers who had remained in practice, and most of these others reverted to general practice. Since then there had been no rush of young men to specialize in venereal diseases. Unfortunately this was the Cinderella of all medical specialties. It was often said that it was a narrow specialty, but, in fact, it took all one's time to keep abreast of the literature. True, there was not much attraction in venereal diseases for anyone in search of material reward. He desired to see a good working knowledge of venereal diseases made an essential qualification for entry into the public health service. On the subject of the education of the public he touched upon one very definite defect. For every woman under treatment there must be at least one other going untreated. This he concluded from the fact that while in syphilis the ratio of new female cases to new male cases was as 1 to approximately 1.6, in gonorrhoea the corresponding ratio was 1 to 3.9. Women generally were not aware of the importance of having apparently innocent discharges examined.

Surgeon-Commander R. J. G. PARNELL, R.N., gave some account of the factors influencing the decrease of venereal diseases in the Navy. During the last forty years the ratio for syphilis had declined from 51.66 per 1,000 to 5.55, and the ratio for gonorrhoea from 76.87 per 1,000 to 41.58. The factors which had led to the decrease were the changed type of man enlisted, together with his more healthy environment. Prophylactic measures also had had some effect. The naval rating to-day was better educated, more temperate, and keener on games and sport than his predecessor of forty years ago. He felt sure also that the remarkable reduction in the incidence of syphilis was in a large measure due to more efficient treatment of the civil population, whereby that population was rendered less infective.

In the course of discussion, Lieut.-Colonel A. P. G. LORIMER, I.M.S., gave an account of the position in Madras, and maintained that in India the venereal diseases problem could only be efficiently undertaken by a well-disciplined and well-organized State medical service; Dr. J. DANEEL described the conditions in South Africa, especially deploring the absence of facilities for treatment of natives on the Rand; and Dr. C. J. AUSTIN spoke of Fiji. Other speakers, notably Dr. JOHN GUY (Edinburgh) and Dr. W. G. CLARK (Glasgow), discussed the relationship of the venereal diseases officer to the medical officer of health, and a further subject of discussion, largely participated in by Scottish representatives, was as to any means of compelling the continuance of treatment until cure. Dr. Clark urged the separation of syphilis from gonorrhoea administratively, and the taking of measures to deal with syphilis by way of a scheme on a level with the tuberculosis scheme.

Mr. DAVID LEES (Edinburgh), who presided, said that he had a good deal of sympathy with such proposed separation, but more sympathy still for any proposition

to cut out the word " venereal " from the legislation on the subject and from the institutions for diagnosis and treatment. Over 60 per cent. of female patients had not acquired their infection venereally, and it was unfair to expect them to attend a department labelled with that name.

THE DIET OF ANIMALS

The Cavendish Lecture was delivered before the West London Medico-Chirurgical Society on June 29th by Sir PETER CHALMERS MITCHELL, F.R.S., secretary of the Zoological Society, his subject being " The Diet of Animals."

Sir P. Chalmers Mitchell spoke first on the relation between diet and growth. Some mammals, he said, appeared never to attain adult stature. The process of growing slowed down, but death by disease or accident generally overtook them before they had grown as big as they could become. That seemed to be true of the whale, the elephant, and probably the rhinoceros. Where growth was continuous in that way, of course, there was not the change from the fuller diet of youth to the more restricted diet of full growth. In birds the transition from the period of growth to the adult stage was always very definite. Birds attained adult stature very quickly indeed, and there was a fixed average size for every species. Reptiles appeared to have no infantile stage. From the moment of birth or hatching they were small miniatures of their parents, following the same habits and living on the same food. Amphibians, on the other hand, had a definite infantile stage. It was often stated that a number of mammals never drank water. It was true that certain mammals living in desert regions could obtain water only occasionally, but in captivity these animals took every chance of drinking, and often drank to excess. Certain animals were addicted to alcohol. With most creatures it was difficult to get them to take it medicinally, but certain groups of animals liked it instinctively ; these included the asses and zebras, and elephants also showed addiction. It was worth remembering that the digestive processes of mammals and many other kinds of animals were much more accommodating than might be supposed. A famous case was on record of a French horse which was trained for the Derby on a purely nitrogenous diet and did well. John Hunter fed a gull entirely on grain, and beyond changing the character of the lining membrane of its stomach, did it no harm. The distinction between carnivorous and herbivorous animals also was not as clear as was often supposed. Apes and monkeys as a whole were quite definitely vegetarian, but the lower ones would take a good deal of insect food and grubs, and the big apes would eat small animals. A fine pair of gorillas were brought up in the French Congo by a Frenchman and his wife on the ordinary diet of meat, fish, and vegetables which they themselves consumed. The larger carnivora—lions and tigers—seemed to be immune to the whole group of ptomaine poisons ; on the other hand, the smaller cats were extremely susceptible. The true carnivora were carnivorous with a tendency towards vegetable diet, and the big ruminants, like horses and asses, zebras, and the rhinoceros and the hippopotamus, while as a rule pure vegetable feeders, showed now and again examples of omnivorous eating.

The lecturer went on to point out that the alimentary tract of all these animals was accustomed to deal with a very rough kind of diet—a diet of large bulk for the nutriment it contained. Monkeys in the wild did not get nice tomatoes, beans, and lettuces, but fed on hard banana leaves, shoots of trees, and roots of all kinds, and the structure of their intestinal tract was arranged to deal with hard and unnutritious food. When cultivated food, such as cereals, bread, and fruit, which was very nutritious in proportion to its bulk, was given to them they tended quickly to become over-fed, with fatty degeneration of the liver ; or if a smaller bulk of food with the proper amount of nutrition was given peristalsis did not take place normally. Not sufficient attention was paid, perhaps even in human dietary, to the necessity of getting indigestible bulk with the nutritive element.

Reviews

HEART RATES

In their work *The Heart Rate*[1] BOAS and GOLDSCHMIDT have made a very interesting study. Using an apparatus which they have invented and called the cardiotachometer, they have been able to obtain records of the heart rate over long periods of time. The heart currents are led off the chest by electrodes placed over the heart and the currents activate a recording apparatus after suitable amplification. In the space at disposal it is only possible to touch briefly on the numerous interesting records obtained by these workers. They have recorded the rate of the heart in healthy and in diseased persons in almost every possible circumstance and activity. In healthy men they found that the average rate during sleep was 59, and in women 65. During the day's activities the range of the heart rate is remarkable, the average maximum and minimum rates in males being 111 and 61 respectively, with 120 and 53 for females. Attempts were made to correlate the heart rate with bodily measurements. They came to the conclusion that it was unlikely that any anatomical measurements had any direct relation to the heart rate. As regards blood pressure, the lower pressures seemed to be associated with the slower rates.

Extensive observations were made of the heart rate during sleep. The lowest rates were recorded after about five hours' sleep. The deeper the sleep the slower was the rate. Posture during sleep had no effect, but movements caused acceleration. The authors conclude that the slowing of the heart during sleep is the result of passive relaxation of activity, and also of active vagal inhibition. Many records were taken of subjects in their daily activities. Action leads to increase in heart rate by loss of vagal tone, and by acceleration due to increase in venous return. It was remarkable how the ordinary activities of the morning toilet led to cardiac acceleration. Studies of heart rate during eating, micturition, defaecation, coitus, and so forth were also made. Under anaesthesia the heart rate was usually constant once induction was complete. Interference with viscera sometimes caused slowing. In disease, confirmation of the value of ascertaining the sleeping rate in diagnosing doubtful cases of myocarditis was obtained. The persistent tachycardia of thyrotoxicosis during sleep was noted. Records demonstrating the instability of the ventricular rate in auricular fibrillation were obtained. The importance of nervous influence causing undue acceleration in this condition are well shown.

The book is full of valuable and helpful information on a subject of great practical importance. Perusal of its pages will bring home the necessity of remembering the effects of small everyday things of life upon the action of the heart. It is thus of much value, both for the cardiologist and for the ordinary practitioner.

RADIOGRAPHY OF THE LUNGS

The monograph on The Value of Radiographic Examination in Diagnosis of the Lungs,[2] by TORLEIF DALE, is published as the sixteenth supplement of the *Acta Radiologica*. The author, having found that the interpretation of lung radiographs presented many difficulties, has made a special study of the subject, extending over the past three years, with the object of correlating

[1] *The Heart Rate.* By E. P. Boas, M.D., and E. P. Goldschmidt, Ph.D. London: Baillière, Tindall and Cox. 1932. (Pp. 166 ; 30 tables, 68 figures. 18s. 6d. net.)

[2] *Der Wert der Roentgenuntersuchung in der Lungendiagnostik.* Von Torleif Dale. *Acta Radiologica.* Supplementum XVI. Stockholm: P. A. Norstedt und Söner. 1932. (Pp. 111 ; 57 figures. 10 Swedish Crowns net.)

radiographic appearances with anatomical and pathological findings. He stresses the fact that pathological anatomy is an invaluable aid to radiological diagnosis, and that this is true not only as regards the lungs but with respect to pathological changes in other organs, a correct diagnosis being arrived at only by the correlation of radiology and pathological anatomy. The work is beautifully illustrated, and the author has made use of abrodil injections of the bronchi to illustrate the main points in his thesis. Most of the inflammatory conditions of the lungs and pleura are described, and, by comparing the radiographs taken during life with radiographs taken of post-mortem specimens, much new and interesting information has been obtained. This has enabled the author to come to definite conclusions both regarding lung changes which can be diagnosed in a radiograph and, what is equally important, those changes that lie outside the realm of radiology. The monograph can be highly recommended to all those interested especially in diseases of the lungs.

CARE OF HANDICAPPED CHILDREN

The White House Conference on Child Health and Protection has been responsible for many tens of thousands of printed words and for the accumulation of much statistical and other knowledge, of more or less reliability, concerning social and educational conditions in the United States of America; but the ideas and suggestions for action arising therefrom have for the most part been of a vague, platitudinous, and axiomatic character. This remains true of the most recent report of the Committee on Physically and Mentally Handicapped Children, now published under the title *The Handicapped Child*.[3] At the beginning of the volume there are printed the names of no fewer than one hundred and forty-five persons who were members of "Committee B" in its various sections, and no doubt each of these may be credited with some measure of responsibility for the report, but a large share in shaping its final form doubtless remains with Dr. William J. Ellis, its chairman, and Emil Frankel, its research secretary. The children of America are again apostrophized as those "whose faces are turned towards the light of a new day and who must be prepared to meet a great adventure." Over and over again it is emphasized that handicapped children are entitled to care, treatment, and training, both for their own sakes and in order that they may become an asset to society instead of a liability. In this country we do not regard either the importance or the rights of childhood as needing quite so much reiteration. The varieties of handicap from which children may suffer are passed in review, each on a similar pattern—defects of hearing and of vision, crippling deformities, internal conditions such as those arising from tuberculosis, heart disease, and internal parasites, mental abnormalities, and mental deficiency. The results of inquiry into the prevalence and distribution of these in the United States are set down, their possible causation, the present means of dealing with them, and directions in which an extension of these is needed, are noted, and there is a final chapter on vocational guidance.

Apart from the convenience of an orderly assemblage of such particulars as these in one volume, the most valuable and interesting features of the book will be found in the chapters on mental health and mental deficiency. Indeed, the earlier part of the former of these chapters may be said to be of real importance, since it presents very effectively several aspects of the truth which too frequently pass unregarded or unrecognized. There is a definition of mental health as "that adjustment of human beings to themselves and to the world at large which results in a maximum of personal and social effectiveness and satisfactions," and the implications of this definition are wisely enlarged upon. "Nothing can be more fallacious than the interpretation of mental health in strictly individualistic terms. Positive mental health is but the personal aspect of a society in which personal and social values are in right relation to each other and are attainable by everyone within the limits of his biological capacities." So, with regard to mental deficiency there is reasonable estimation of its meaning and prevalence and of its relation to mere dullness and degrees of intelligence. Its hereditary causation and its social and racial consequences are not over-emphasized as is so commonly done. Though a very carefully selective sterilization is on the whole approved, its strict limitations of value, both individual and racial, are stressed, and the urgent need for further knowledge and research into the character and causation of the varieties of mental deficiency is insisted upon.

[3] *The Handicapped Child.* Report of the Committee on Physically and Mentally Handicapped Children. Chairman: Wm. J. Ellis, LL.D. White House Conference on Child Health and Protection. London: D. Appleton and Co. 1933. (Pp. xxv + 451. 15s.)

BUCCO-DENTAL PATHOLOGY

Pathologie Buccale, Péri-buccale et d'Origine Buccale[4] is the first of a series of nine volumes entitled "Pratique Stomatologique," and owes its production to Drs. ROUSSEAU-DECELLE and RAISON. The whole work is published under the direction of Dr. Chompret, who has chosen as his collaborators men having personal experience who will deal with their own specialties. The present volume is divided into two parts, the first dealing with buccal and peribuccal pathology, and the second with general pathology in relation to bucco-dental pathology. The authors throughout have justified the confidence of their chief. On every page one finds evidence of mature thought and wide observation. Of this the chapter on stomatitis is a good example. According to the authors, one form only can be considered primitive—aphthous stomatitis; the ground is generally prepared for the others by the existence of a tartar-stomatitis. Aphthous stomatitis itself is carefully compared with foot-and-mouth disease, and the conclusion is reached that it is a virus disease but that the virus is entirely distinct from that of the cattle disease. It is interesting to note that, contrary to British experience, the authors' observations lead them to conclude that a high palate is a stigma of degeneration, found in idiots, epileptics, cretins; that it is also often a consequence of rickets, and very often a dystrophic sign in hereditary syphilis.

On reading the second part of the volume it becomes evident that the authors are acutely aware of the dangers of dental sepsis, and one gathers that they regard pyorrhoea as at least as injurious as "dead teeth." In a note on edentulous dyspepsia and fetid diarrhoea the observations of Roger on the activation of pancreatic juice by salivary ferments are quoted (Roger found that the salivary ferment passes through the stomach and doubles the action of the pancreatic juice on fats) as showing the necessity for thorough mastication. To whatever disease one turns one finds the same succinct and thorough review of the salient points. The authors are to be congratulated on the good work they have done.

DISEASES AND INJURIES OF THE EYE

The new book in the Practitioner's Series on the *Diseases of the Eye*,[5] by Mr. RUGG-GUNN, presents many attractions. It deals essentially with diseases and injuries, and their prevention and treatment. So that whilst there is a good general account of the meaning and effects of

[4] *Pathologie Buccale* Par les Drs Rousseau-Decelle et Raison La Pratique Stomatologique, I Paris Masson et Cie 1933 (Pp 576; 196 figures Broche 70 fr. relie toile 85 fr.)

[5] *Diseases of the Eye* By A Rugg-Gunn, M.B., F.R.C.S. Practitioner's Series London W Heinemann, Ltd 1933 (Pp. 188. 21 figures, 8 plates 12s 6d net)

errors of refraction no attempt has been made to give instruction in the methods of determining these errors. Again, there are clear and useful accounts of the means of detecting defects of muscle balance and their treatment, and also of patent squint, but details of operative methods are omitted. This selection has allowed the author to concentrate upon the main theme of his book. In the consideration of diseases and injuries an excellent perspective is maintained. The more common diseases are described with nicety ; their causes and relations to general bodily conditions and social states are clearly and tersely indicated. Treatment is considered at length, and the lines suggested are thoroughly modern and practicable. Diseases of less frequent occurrence are brought into review more as a means of suggesting caution in diagnosis, and this is as it should be in a work of this character. Despite the necessarily limited compass of the book, it amply fulfils its purpose. It is well written, and the author has the power of conveying his meaning to his reader with a minimum of words. There are few books of this order which can be read with more pleasure and profit: it is not merely a short index of ophthalmic treatment.

The make-up of the book is excellent: good paper, legible print, and plenty of clear illustrations. The figures are all reproduced in black-and-white, including the fundus drawings, which are none the less as characteristic as though they had been done in vivid colour. In a future edition the author might consider the desirability of breaking up the series of illustrations on page 143 (showing the true and false images found in paralysis of external ocular muscles) and setting the legend of each condition under its appropriate figure. Diagnosis of paralysis is a veritable maze to the student, and grouped figures with detached captions are not helpful.

Notes on Books

In a reprint of a series of wireless talks entitled *From a Doctor to a Mother*,[6] the British Broadcasting Corporation has included short lectures by Mr. EARDLEY HOLLAND, Dr. REGINALD JEWESBURY, and Dr. WILFRED SHELDON. They deal with the management of maternal and infant health from the early months of pregnancy to the end of the second year of the child's life. Mr. Eardley Holland has dealt with the period before birth, laying down clear rules for the guidance of the mother and striking a reassuring note throughout. Dr. Jewesbury has covered the difficult ground of natural and artificial feeding concisely and with unusual simplicity ; there is nothing here to bewilder the inexperienced mother, and much to help her. He includes appropriate menus for the child from the age of 8 months to 2 years and over. In the final chapters Dr. Sheldon touches on normal development, disturbances of sleep, and the prevention of nervous habits. The book is fitted quite admirably for its purpose, which is to supplement the advice of the patient's own doctor and nurse, and it deserves to be used widely in welfare centres.

The number of names in the *Dentists Register*[7] for 1933 is 14,528, an increase of fifty-six over the figure for the preceding year. Of these there are 7,500 (51.62 per cent.) registered with medical, surgical, or dental qualifications, as compared with 7,304 in 1932. Only six out of the 248 new British entries in the last twelve months did not hold such qualifications. Death and other causes were concerned in the removal of 476 names ; 282 which had been omitted from previous editions for various reasons now reappear. The *Register* this year contains an " Important Notice " on the liability to disciplinary action in cases of covering, advertising to obtain patients, canvassing, improper announcements regarding branch practices, the incorrect use of titles, notices about insurance practice, commission paid or allowed in return for the recommendation of patients, and convictions for drunkenness as well as for graver offences.

The second volume of the *Royal Berkshire Hospital Reports*[8] has now appeared. Most of the papers were read at meetings of the Reading Pathological Society, and thus this volume serves as its Transactions. Copies may be obtained from the secretary at the hospital. For financial reasons it has been decided to issue the next two volumes together in 1935. As in the first volume, the present one comprises records of cases, as well as lectures on clinical and pathological subjects.

[6] *A Doctor to a Mother.* By E. Holland, F.R.C.S., R. C. Jewesbury, M.D., F.R.C.P., and W. Sheldon, M.D., M.R.C.P. London: E. Arnold and Co. 1933. (Pp. 96. 1s. 6d. net.)

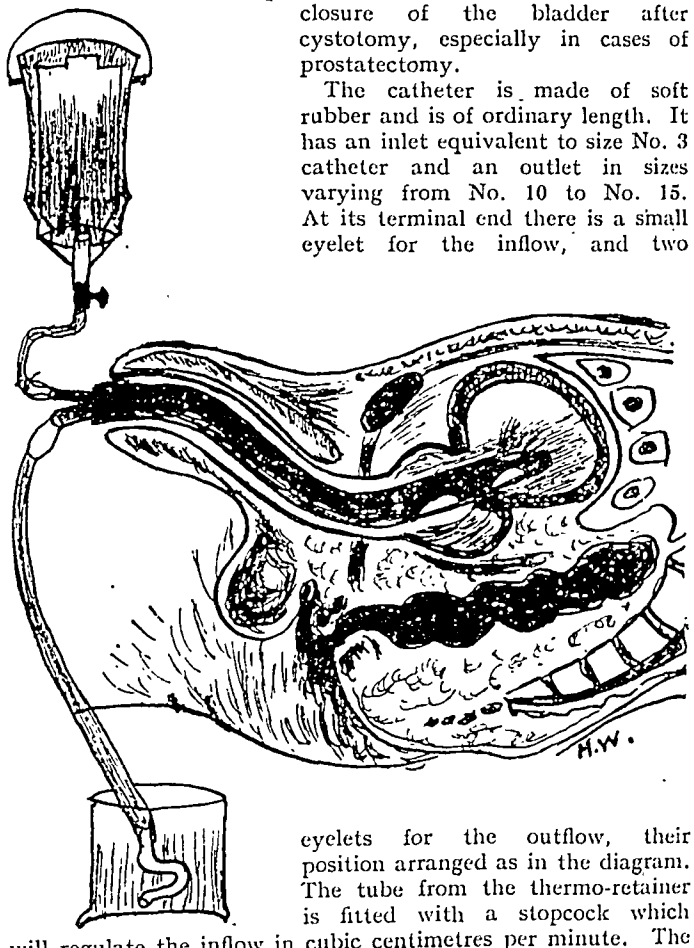
[7] Published for the General Medical Council by Constable and Co., Ltd., 10, Orange Street, W.C.2.

[8] *Royal Berkshire Hospital Reports, 1933.* Edited by H. S. Le Marquand, M.D., M.R.C.P. (Pp. 160 ; 32 figures. 10s. 6d. net.)

Preparations and Appliances

TWO-WAY URETHRAL CATHETER AND THERMO-FLASK RETAINER

Mr. MORTON WHITBY, chief assistant to the genito-urinary department, West London Hospital, writes: I have had made for me to my design a soft rubber two-way urethral catheter and thermo-flask retainer, as shown (*in situ*) in the accompanying sketch, for the purpose of obtaining heated fluid continuous urinary bladder irrigation in cystitis, preoperative treatment in bladder operations, and to enable the complete closure of the bladder after cystotomy, especially in cases of prostatectomy.



The catheter is made of soft rubber and is of ordinary length. It has an inlet equivalent to size No. 3 catheter and an outlet in sizes varying from No. 10 to No. 15. At its terminal end there is a small eyelet for the inflow, and two eyelets for the outflow, their position arranged as in the diagram. The tube from the thermo-retainer is fitted with a stopcock which will regulate the inflow in cubic centimetres per minute. The outflow passes through a tube which is connected at its end to an S-shaped tube, and passes into a pail of antiseptic fluid. The flow is started by turning on the stopcock to the required rate and, after a short flow, using suction on the outlet, when the flow will be continuous. Blockage can be prevented by reversing the flow for a few minutes every half-hour or so. The best rate is 8 c.cm. per minute, which just keeps the bladder moist and washes away all debris. If the condition of the bladder is bad the rate of flow should be increased. If it is desired to keep the bladder dry a Cathcart's apparatus can be used with the catheter. The catheter is retained by zinc plaster.

The entire apparatus is made by W. Gimber and Son (2, Queen's Road, Peckham, S.E.15).

ONE HUNDRED AND FIRST ANNUAL MEETING

of the

British Medical Association

DUBLIN, 1933

THE one hundred and first Annual Meeting of the British Medical Association will be held in Dublin this month under the presidency of Dr. T. Gillman Moorhead, Regius Professor of Physic, Trinity College, who will deliver his address to the Association on the afternoon of Tuesday, July 25th. The sectional meetings for scientific and clinical work will be held, as usual, on the three following days, the morning sessions being given up to discussions and the reading of papers, and the afternoon to demonstrations. The Annual Representative Meeting for medico-political business will begin on the previous Friday, July 21st. The lists of officers of the sixteen Scientific Sections and the subjects for discussion, together with other information about the meeting, were published in the SUPPLEMENT *of July 1st.*

We publish below the fifth of a series of descriptive articles on Dublin and its medical institutions. The first appeared in our issue of December 3rd, 1932 (p. 1026); the second, on the History of Dublin, on March 18th, 1933 (p. 476); the third, on the Dublin of To-day, on April 22nd (p. 710); and the fourth, on the University of Dublin, on May 13th (p. 837).

THE SCHOOLS OF MEDICINE IN DUBLIN IN THE NINETEENTH CENTURY

BY T. PERCY C. KIRKPATRICK, M.D., M.R.I.A.,
Fellow and Registrar of the Royal College of Physicians of Ireland

The nineteenth century witnessed many changes in the social, economic, and political conditions of Ireland, but in none of these was the change more pronounced than in the teaching of medicine. When the University of Dublin and Trinity College were founded in the last decade of the sixteenth century they were given the privilege of conferring degrees in all faculties, but this privilege was largely neglected, and the University remained content merely to grant degrees in the faculties of arts and theology, while there was little or no pretence of teaching any other subject. As Provost Bedell said in 1628, Trinity remained "one poor College of Divines." The foundation during the Commonwealth of the Fraternity of Physicians, which, after the Restoration, was incorporated as the College of Physicians, led to some teaching in medicine, but such teaching was unsystematized, and amounted to little more than a few anatomical demonstrations and an occasional public lecture. Early in the eighteenth century, mainly through the influence of Sir Patrick Dun, a medical school was started in Trinity College, and Dun bequeathed to the College of Physicians a considerable sum of money to assist the development of medical teaching.

The medical school of Trinity College, started under excellent auspices, did not fully justify its early promise. Disputes between the Board of Trinity College and the Fellows of the College of Physicians, the two governing bodies of the school, greatly hampered progress, and at one time threatened extinction of the school. In the early part of the second half of the century, while George Cleghorn was lecturer in anatomy, the school became a centre of anatomical teaching of considerable importance, but even then the want of harmony among the teachers prevented its full development in other directions. As the century drew to a close this disharmony became accentuated, and after the death of George Cleghorn the school dwindled almost into insignificance. The efforts made to develop clinical and practical teaching in medicine failed hopelessly owing to the disagreement of those who held professorial chairs in the school. In 1800 the Irish Parliament, just before it disappeared, passed an Act which alienated the greater part of Dun's estate from the teaching of medicine, and applied it to the building and the endowing of a hospital where clinical lectures might be given. This project, prompted by the jealousy of Robert Perceval, was carried out in spite of the opposition of the College of Physicians, and in spite also of the fact that there were already in the city several hospitals, each of which might better have fulfilled the purpose for which the new hospital was designed.

MEDICAL CORPORATIONS IN THE EIGHTEENTH CENTURY

During the eighteenth century whatever surgical education there was had been under the control of the barber-surgeons or the Guild of St. Mary Magdalene, which had been founded by Henry VI in the year 1446, reincorporated by Elizabeth in 1572, and granted a new charter by James II in 1687. Surgeons learned their art as apprentices to members of the Guild, and even when the Guild began to lose its authority and to become more and more a political caucus, the regulations for apprenticeship continued strictly to be maintained. An examining board, constituted by Act of Parliament to select surgeons for the newly established county infirmaries, rejected a larger number of candidates for not having fulfilled their indentures than for lack of knowledge of surgery.

On February 11th, 1784, as the result of a long-sustained agitation, a number of Dublin surgeons were incorporated by charter as the Royal College of Surgeons in Ireland, with the special objects of establishing a school for the teaching of surgery and of granting licences to practise to properly qualified surgeons. Almost immediately after incorporation the College of Surgeons started a school, but it was not until the new century had commenced that suitable premises were provided for it and a great teacher arose who was to gain for the school a world-wide reputation. Although in practice the foundation of the College had separated the surgeons completely from the barbers, yet nominally they remained united until the city guilds disappeared in consequence of the passing of the Municipal Corporations (Ireland) Act in 1840.

In 1745 George II incorporated the apothecaries, who had previously been united with the barber-surgeons, as a separate guild, the Guild of St. Luke. This was the last guild to be constituted in Dublin, and its members do not seem to have been very popular. In some verses on the Riding of the Franchises, published anonymously in 1767, it is said:

> "See, where the proud Apothecaries drive.
> Who most by fraud and imposition thrive.
> Whose monstrous bulls immoderate wealth procure
> For drugs that kill as many as they cure
> Well are they placed the last of all the rout,
> For they're the men we best can do without."

In this procession the barber-surgeons followed the smiths, fourth in the list of the twenty-five city guilds, but in describing them it was their barber-craft, and not their surgery, to which the writer of the above lines referred. In 1791 the Dublin apothecaries were incorporated as the Governor and Company of the Apothecaries' Hall, and although, like the Guild of St. Mary Magdalene, the Guild of St. Luke persisted till 1840, the new company took over any of the remaining professional activities of the guild. The Act of 1791 granted to the Apothecaries' Hall powers for licensing persons to practise as apothecaries in Ireland, but such persons, as a matter of fact, engaged largely in the practice of both medicine and surgery. Although making a licence to practise compulsory, the Act did not lay down any definite curriculum for those seeking the qualification. The Company, however, set up a Hall in Mary Street, Dublin, and appointed William Higgins as chemist. Higgins apparently had some duties to perform as a teacher, but there was no regular school attached to the Hall until 1837.

Thus at the end of the eighteenth century there were four corporations in Dublin—the University, the King and Queen's College of Physicians, the Royal College of Surgeons, and the Worshipful Company of the Apothecaries—all of which were interested in the teaching and licensing of those seeking to practise medicine and surgery. The University and the College of Physicians had joint control of the School of Physic, while the College of Surgeons had complete control of its own school. The Company of Apothecaries had not then established any school for its students, who had to learn their business as apprentices.

MEDICAL TEACHING IN THE NINETEENTH CENTURY

The great movement in the British Isles for the establishment of voluntary hospitals, which originated in Dublin in the first decade of the eighteenth century, had resulted in the foundation of six general hospitals for the treatment of the sick and poor in the city. There were, besides, a large lying-in hospital, an asylum for the reception of the insane, a hospital for incurables, a Lock hospital for both men and women, and a military hospital for the reception of soldiers of the garrison. At least two public dispensaries for the treatment of the poor as extern patients were also largely attended. Dublin had even then pledged itself to the principle of having many small institutions for the treatment of the sick rather than a few large ones, a principle which has since been maintained, not without success. Although hospital attendance was not required from the students by the licensing bodies, yet many students, especially the apprentices, attended these hospitals, and there learned, practically, their work. The number of institutions which were engaged both in teaching students and in treating the sick afforded opportunity to the physicians and surgeons of Dublin to prove their worth, and the competition for the more valuable posts encouraged hard work among those who were anxious to outstrip their rivals. The slack and the incompetent were easily detected by the public when compared with the energetic and resourceful men who were pressing forward under the stimulus of a laudable ambition. About this time, too, there grew up a tradition, which since has become well established in Dublin, that for newly qualified men private teaching is not only profitable, but is also the surest way to preferment in the profession. Private teaching was not then hampered with any strict requirements enforced by the examining and licensing bodies; provided an apprentice had properly completed his indentures, and the student could answer the theoretical questions put to him by his examiners, there was little effort made to test his practical knowledge, and no inquiry was made as to where or how he had learnt his work.

During the first quarter of the nineteenth century all these resources for teaching and for the treatment of the sick were used to their full capacity, yet, in spite of them, the demand for teaching was soon to exceed the supply. It is not possible to make an accurate estimate of the number of persons in Ireland who, during the eighteenth century, were anxious to study medicine, but that the number was considerable is shown by the figures which are available. During the fifty-two years 1748 to 1800, 293 Irish students took the M.D. degree in the University of Edinburgh, while many others graduated in Glasgow and Aberdeen; quite a large number went to universities on the Continent, where those who professed the Catholic religion had perforce to seek the education which was denied to them at home. The European war in which England was engaged at the time had created an urgent demand for Army medical officers, while the existence of that war made it more difficult for Irishmen to get medical education abroad. Dublin had also the advantage of being well supplied with the material for the study of human anatomy, and indeed for many years before the passing of the Anatomy Act a considerable export trade in that material was done from Ireland to both England and Scotland.

At the opening of the nineteenth century neither the School of Physic nor the school of the College of Surgeons was in a very active state. The latter school was hampered by insufficient accommodation—it was not till 1809 that the new buildings in Stephen's Green were ready for use. In the School of Physic James Cleghorn, nephew of the great George Cleghorn, was professor of anatomy and surgery, but he was in bad health, and his teaching work had largely devolved on his assistants, one of whom, William Hartigan, was to succeed him and to hold the chair till the end of 1812. Edward Hill and Whitley Stokes both held chairs in medicine in the school, but their lectures, both systematic and clinical, were delivered in Latin, in which language the examinations were also conducted; it was not until 1831 that the College of Physicians agreed to allow English to be used instead of Latin in the examination of candidates for their degrees. All students who wished to graduate in medicine in the University had first to graduate in arts.

It is not surprising that, with these restrictions, the classes in the School of Physic were small, and during the last fifteen years of the eighteenth century only seventy students entered the school, or less than an average of five each year. A great change took place in the second and third decades of the nineteenth century while James Macartney held the chair of anatomy, for in 1829 the number of students studying medicine in the School of Physic was 303. In the school of the College of Surgeons there was a similar expansion. In the session 1799-1800 the number studying in the school was sixty. In 1805 Abraham Colles became professor of anatomy, and in the session 1809-10 the class numbered 162; in the next year it numbered 185, and in the year after 201. Two such teachers as Macartney and Colles quickly made Dublin a favourite centre for medical students, who flocked to it from all parts of the United Kingdom. Their very number, however, seemed to be likely to prove the undoing of the schools, since it was difficult to find accommodation for them at the lectures and in the dissecting rooms, and as the choice of where he would go rested with the student, he would not attend where he thought he would not get good value.

PRIVATE MEDICAL SCHOOLS

Teaching medical students had thus proved itself to be a profitable employment, and a good teacher in anatomy or surgery or medicine could be sure of a good income. Except for anatomy, a little chemistry, and some operative surgery on the dead subject, the teaching was entirely theoretical, and did not need any apparatus. A lecture room, a dissecting room, a small chemical laboratory, and a museum fulfilled all the requirements of a school of medicine. Medical men soon recognized how easy it was to open a school to which, if they were good teachers, they could attract a large and a paying class of students. In consequence we find that quite a large number of private schools were started in Dublin, sometimes in connexion with a hospital and sometimes purely as a private venture. For success it was essential that the certificates issued for attendance at these schools should be recognized by the licensing bodies as permitting students to

enter for the qualifying examinations, and by the Army authorities as qualifying for commissions in the Army Medical Service This essential was, however, easily satisfied

Crampton's and Kirby's Schools

One of the first of these schools to be opened was Crampton s School, which Philip Crampton opened in 1804 in the stable at the back of his house at 42, Dawson Street In this school anatomy, physiology, and surgery were taught, and there quite a number of students entered This school, which was closed in 1813, was intimately connected with the Meath Hospital, where Crampton was surgeon In 1808 a school of anatomy was opened in connexion with Jervis Street Hospital, it lasted till 1833 In the following year, 1809, one of the most celebrated of the private schools, the Theatre of Anatomy, was opened by John Timothy Kirby and Alexander Read in Stephen's Street In 1810 it was moved to 28, Peter Street, its name was changed to the Theatre of Anatomy and School of Surgery, and shortly after Kirby became sole owner In order to satisfy the requirements of the Army authorities of the time Kirby found it necessary to establish a hospital in connexion with his school He dedicated it to SS Peter and Bridget, and maintained it out of the profits of the school Kirby s enemies maintained that the hospital contained only one bed Kirby's school attained a great reputation, especially with candidates for the Army Medical Service It is related that at his lectures he used to fire a pistol at a body placed against the wall, when the body fell it was examined as a soldier would be on the field, and the bullet was located and extracted in the presence of the students The entire performance was staged with great dramatic effect A successful teacher —and Kirby was very successful—was always a serious rival to the School of Physic and to the College school Such competition was usually overcome by inducing the successful teacher to join one or other of these schools, and at length, in 1832, Kirby was tempted to accept the chair of medicine in the College of Surgeons, his school in Peter Street was then closed, and his museum was transferred to the College

In 1812 a school was started in connexion with the House of Industry Hospitals, at first called the School of Medicine Hardwicke Hospital, and shortly afterwards the Anatomical Theatre of the Richmond Hospital In 1826 this school was housed in Channel Row, just opposite the Richmond Hospital, and was then known as the Richmond Hospital School One of the best known teachers in this school was Richard Carmichael, surgeon to the Richmond Hospital In June, 1849, Carmichael was drowned while riding across the strand from Clontarf to Sutton, in his will he bequeathed a sum of €10,000 to the Richmond School, and in consequence of this generous bequest the name of the school was changed to the Carmichael College The money did not become available till 1864, when new school premises were built in North Brunswick Street In 1879 the school was again moved to premises especially built for it in Aungier Street, at the corner of Whitefriar Street, where it continued to attract large classes till the schools' amalgamation in 1889 Sir John William Moore was for a time professor of medicine in the Carmichael College

Private schools were established also by A Calonne in South Great George s Street (1815 33), by William Wallace in Moore Street (1820–37), on Lower Ormond Quay in connexion with St Mary's Eye Hospital (1820–7), and in Eccles Street by Ephraim McDowel and Robert Adams (1822–6) In 1824 an important school was opened in a new building in Park Street, now Lincoln Place This school, known as the Park Street School, was founded by James William Cusack and Samuel Wilmot (surgery), Robert James Graves and Henry Marsh (medicine), Samuel Athanasius Cusack (midwifery), James Apjohn (chemistry), and Arthur Jacob (anatomy and physiology) The Park Street School attracted a large number of pupils, but its professors were rapidly absorbed by both the School of Physic and the College of Surgeons In 1849 Hugh Carlisle, who had become the chief proprietor of the school, was appointed professor of anatomy in the newly established Queen's College, Belfast, and Park Street School was closed, the museum being sold to Belfast for £250 The school building subsequently b came the home of St Mark's Ophthalmic Hospital, and now forms the chambers to the east side of the Lincoln Place gate of Trinity College

In 1827 a school was opened in Bishop Street attached to the Anglesea Lying in Hospital, the chief proprietor being George Thomas Hayden In 1836 this school was closed, when Hayden moved to 28, Peter Street, the house which had been occupied by Kirby s school At the time there was a private school next door in No 27, owned by Andrew Ellis and John Edward Brennan, in order to distinguish his school, and to attach to it some of the traditional glory of Kirby, Hayden called his the Original School of Medicine In 1849 Thomas Hawkesworth Ledwich became lecturer in anatomy in the school and one of the chief proprietors Ledwich, who was very popular, died on September 29th, 1858, and in his memory, at the request of the students, the name was changed to the Ledwich School, a name which it retained until 1889 when, with the Carmichael College it was united to the school of the Royal College of Surgeons Three other important schools were opened in Dublin during the century In 1837 the Apothecaries Hall started a school in Cecilia Street For a few years this school attracted a considerable number of pupils, but after Benjamin Alcock, the professor of anatomy and physiology, was appointed to the chair in Queen's College, Cork, the classes dwindled away, in 1854 the school was closed and the premises were sold to the Catholic University

Catholic University School of Medicine

The Queen s Colleges of Cork, Galway, and Belfast, started by Sir Robert Peel in 1845, and five years later constituted the Queen's University of Ireland, had made no provision for medical education in Dublin The whole idea of the Queen s University was repugnant to the Catholics of Ireland, and neither the University nor the Colleges received much support from Catholic students either in arts or in medicine This failure of the Queen s University to satisfy the requirements of the people led to the establishment by Pope Pius IX in the years 1851 4 of the Catholic University of Ireland, under the directorship of John Henry Newman It was hoped that this university, although supported merely by voluntary contributions and without a charter, would form a great centre for the higher education of Catholic students of Ireland In spite of the fact that in 1853 Newman had gathered a brilliant staff and was himself a most enthusiastic leader, the new university did not altogether realize the great hopes of its founders It did, however, become the Alma Mater of two great schools which have made a lasting impression, both in arts and in medicine, on higher education in Ireland From the Catholic University sprang University College, Dublin, and the Catholic University School of Medicine, both now joined as a constituent part of the National University of Ireland The premises in Cecilia Street, purchased from the proprietors of the school of the Apothecaries' Hall, were refitted, and in 1855 they were opened as the home of the medical faculty of the Catholic University From the first this school proved to be a great success, and even when the fortunes of the University were declining the medical school maintained its high reputation The Royal University Act of 1879 through which the Royal University came into being in 1882, replacing the Queen's University, brought the arts department of the Catholic University—which had then been put under the management of the Order of the Society of Jesus and renamed University College—and the medical school in Cecilia Street into close relation with the new university as its chief feeders in Dublin The closest co operation was maintained between University College and the medical school so that the students of the latter were taught the preliminary subjects of their first year in the arts classes of University College In 1909, when the National University of Ireland came into being, University College and the Catholic University Medical School united to form the faculties of arts and medicine in one of its three constituent colleges

Steevens' Hospital School

The last private medical school to be established in Dublin was the Steevens Hospital School, founded in 1857. Towards the middle of the eighteenth century the Irish Parliament had begun the practice of making money grants to certain hospitals in Dublin, and after 1800 the practice was continued by the Parliament of the United Kingdom. These grants were made to certain hospitals in quite an arbitrary manner, as the result of a petition made each year by the hospital to Parliament. The discrimination in making these grants led to much comment, and indeed it is difficult to see how the awards were justified. In 1842 the Lord Lieutenant appointed a commission to inquire into the condition of those hospitals to which grants were made, and, this being an Irish Commission, it reported strongly in favour of the continuance of the grants. In spite of this report, however, the House of Commons in 1851 resolved that a yearly reduction of 10 per cent. should be made in all the grants until they were finally extinguished, and for some years after such a reduction in the grants was made.

In 1855 the Lord Lieutenant appointed three commissioners to report on the hospitals which were receiving grants, and directed them to give special attention to two points: (1) whether any of these institutions could, with advantage, be closed, and (2) how any money which Parliament might recommend could be best spent to assist in the advancement of medical science. Of these three commissioners the active member seems to have been John Flint South, surgeon to St. Thomas's Hospital, London. In their report the commissioners stated that there were great difficulties in the way of closing any of the institutions, but they recommended certain modifications in the grants, and that a Board of Superintendence should be set up to inspect and to report on those institutions which received the money. In the case of Steevens' Hospital they recommended that the grant—then £1,080 a year—should be increased to £1,300 a year if a medical school were established in connexion with the hospital, and in an appendix to the report South submitted a detailed scheme for the establishment of such a school. The Board of the hospital accepted the proposals, and in 1857 the school was opened. During the first year seventy-four students were enrolled. At the time there were in Dublin five active medical schools—the School of Physic, the school of the College of Surgeons, the Carmichael College, the Ledwich School, and the school of the Catholic University—so that it is difficult to see why South should have wished to add to this number. Probably he was influenced by the success of the schools attached to the great hospitals of London, and, like many another Englishman before and since, he believed that all difficulties in Ireland could be solved by the adoption there of plans which had been found to suit in England. Steevens' Hospital School, however, proved to be a great success, and during the twenty-three years of its existence (1857-80) it had an average attendance during the winter sessions of sixty-nine and during the summer sessions of thirty-five students. Eventually failure of the Board of the hospital to work harmoniously with the school committee led, early in 1880, to the resignation of the professorial staff, and the Board closed the school at the end of the summer session of that year. In the last year of its existence there were in the winter session fifty-five and in the summer session thirty-seven students attending.

The College of Surgeons' School

Of the nineteen more or less complete schools of medicine which were functioning in Dublin between 1800 and 1860 five remained after 1880—the School of Physic, the school of the Royal College of Surgeons, the school of the Catholic University, and the two proprietary or private schools—the Carmichael College and the Ledwich School. The increase in practical teaching and in laboratory work, especially in the subjects of pathology and physiology, and the greater scarcity in the supply of subjects for dissection, made it more and more difficult to carry on at a profit a school which was supported merely by the fees of the students. Even the College of Surgeons felt this strain, and as early as 1882 the suggestion was put forward that the College should hand over its school to the professors, giving up all collegiate interest in it, and thus get free from all financial responsibility for it. This suggestion was bitterly opposed, and was finally abandoned. Two years later it was suggested that the College School should be amalgamated with the Carmichael and Ledwich Schools, but this proposal was also turned down. The financial difficulties in the way of such an amalgamation seemed to be almost insuperable owing to the vested interests of the proprietors and the professors in the two private schools which would have to be purchased. The matter, however, was not allowed to rest, and on May 21st, 1888, the fellows of the Royal College of Surgeons adopted the following resolution:

> "That having regard to the interests of medical education in Dublin it is desirable to diminish, as far as possible, the number of private schools; and that with a view to carrying out this principle it be an earnest recommendation to the Council to take such steps as may be necessary to effect on equitable terms an amalgamation of the existing private schools with the school of the College of Surgeons."

The discussions which the carrying out of this resolution involved continued over a year, but at last, on September 14th, 1889, the Council of the College finally approved the scheme of amalgamation, and on November 1st, 1889, the three schools started work under one management. The cost was great and for some time it proved a source of considerable financial embarrassment to the College.

The nineteenth century had opened with two medical schools in Dublin, the School of Physic and the school of the Royal College of Surgeons, neither of which was in a very efficient state; it closed with these two schools still in existence but much more efficient, and, in addition, in Cecilia Street, the active and flourishing school of the Catholic University. Looking back over the century one can see a long line of highly qualified and gifted teachers, teachers who attracted large numbers of students, and who gave to those students an individual attention and a practical education which has enabled Irish medical men to win for themselves high places in medical circles throughout the world. At the same time these teachers enriched the science which they taught with many original observations of permanent value. The education given was eminently suitable for the ordinary student; it fitted him admirably for general practice, but it did not afford equal facilities to the brilliant student who wished to become a specialist or a research worker. The education had the merit of being cheap, sound, and practical—qualities very necessary at all times. The modern tendency is different. In order to suit the new conditions which have arisen concentration in larger and more expensively equipped schools has seemed to be necessary, and has proved to be effective. Many believe that a similar concentration in a few large hospitals will be necessary also before clinical teaching in Dublin comes to its full fruition. There is no doubt that the present time, when large sums of money are being made available for the support of the voluntary hospitals, is a suitable time for considering whether or not this change should be made. If it is right that the Dublin system of hospital provision for the treatment of the sick and for teaching purposes should be changed, now is the time to make that change. If the money now being collected is spent, as it is proposed to spend it, in the reconstruction and the re-equipment of the existing hospitals, the opportunity for making such a change will have been indefinitely postponed.

The Princess Royal recently paid an informal visit to the Institute of Ray Therapy and Electro-Therapy in Camden Road, N.W., of which she is Patroness, and was escorted over the building by the hon. medical director, Dr. William Beaumont, and the hon. secretary, Miss Winifred Beaton (Mrs. Beaumont). Her Royal Highness took much interest in the various types of apparatus demonstrated to her in the treatment rooms during her one and a half hours' visit, and asked many questions.

British Medical Journal

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ROAD TRAFFIC SIGNALS

The Departmental Committee of the Ministry of Transport on road traffic signs, appointed in December, 1931, has now reported.[1] Since the purpose of traffic signs is safety on the roads and the prevention of accidents, the report is of special interest to medical practitioners, both because they are users of the roads at all hours and in all weathers and because accidents on the roads make such heavy demands upon their time and skill. The personnel of the committee, to the number of twenty-seven, would appear to be fairly representative of every class of road user, save only the medical practitioner, and of all road-controlling interests. It is a lengthy document and expensively illustrated. The members of the committee were able to furnish most of the information needed for their work; nevertheless, some evidence was received from other bodies—for example, the British Medical Association, through Mr. Bishop Harman, its representative for the purpose. The report enters into considerable detail. The illustrated plans of road junctions, one-way carriage roads, parking places, with the layout of white lines and the distribution of signal-light points in relation to the paths of movement of the traffic, suggest the possibility of the development of a fine winter evening game for the children: one that would surely keep them busy, amused, and perhaps out of mischief. Apart from that, it contains nothing of novelty. A body of practice has been growing up in this country and abroad, and the report is more or less in the nature of a "consolidating act." It seeks to bring into something like order and coherence the present-day rule-of-thumb methods.

The committee holds that traffic signs must fulfil certain requirements: (i) They must be so designed and sited as to attract the attention of the persons for whom they are intended. (ii) Their significance must be clear at a glance. (iii) They must be so placed that sufficient time is allowed for the persons for whom they are intended to adapt their course of action to the indication given. (iv) They must, so far as possible, be erected upon a uniform system, and the use of unnecessary signs should be avoided. The International Convention of 1926 pledged various countries to introduce warning signs, but there was no general agreement on the nature of these signs. On the Continent of Europe the generally adopted warning sign is a triangular plate with the appropriate symbol inside the triangle. In this country hollow triangles with a separate symbol and letters are in favour. In the United States of America there is a strong tendency to discontinue the use of symbols and to rely solely on lettering. A wise warning is given on the misuse of warning signals. If drivers are to respect them they should be significant.

> "There is a not unnatural tendency on the part of some highway authorities to exaggerate the dangerous character of particular places in their areas, and for that reason to erect special danger signals. No doubt it is possible to induce drivers to take extreme care at a particular spot by the use of a sufficiently intimidating array of signs, but such over-emphasis cannot fail to weaken the effect of standard warning signs and on the whole to cause more accidents than it prevents. A similar result must follow the use of warning signs at places where they are not justified. An accident which is due merely to bad driving affords no evidence of the need for a warning sign."

Another wise view is that taken regarding mandatory notices. Certain signs, such as "Turn left," "One way only," though apparently mandatory, are essentially directions and for guidance. Others are in a different category. The significance of the red signal with the word "STOP" fused in the lens is unmistakably mandatory and peremptory. The committee recommends that the direction on the green light of the word "GO" should be removed, because the display of the green light merely permits the driver to proceed if he can do so with safety and should not be regarded as an instruction to proceed on the assumption that the road is clear; and again, it must be clearly understood that the green signal does not imply a right to proceed without taking ordinary precautions. In the committee's opinion no wording of any kind—except the word "STOP" on the red lens—should be used on signals, either on the lenses or elsewhere, with the exception of the words "CROSS NOW" or "DON'T CROSS" on the pedestrian-operated signals. In the matter of road junctions the committee did not act up to this wise principle of throwing the onus of judgement upon the driver. It reports that in some cases it may be desirable to require drivers to stop before entering the main (or "major") road, and for this purpose there has been designed a specific sign, a red triangle within a red circle above a plate with the word "HALT." Many members of the committee, including the chairman, dissent from this view, and hold that the use of this sign would be prejudicial to the present and recommended system of warning signals and be a retrograde step. It departs from the principle of informing the driver of the character of the danger ahead and leaving him to adjust his driving accordingly.

The committee is definitely of opinion that light signals are more economical than police for controlling road junctions and that these can alternately stop and release dense streams of traffic at a more rapid rate than a constable could possibly maintain. The evidence given by the British Medical Association is accorded considerable space. It dealt with the risks of the confusion of colour signals and suggested that the red and green lights should be also distinguished by shape—a horizontal bar of red light and a vertical bar of green light. The committee considers that (despite the experience of the railways and shipping) there is a lack of evidence that colour-blind drivers do in fact find difficulty in interpreting light signals either by day or by night. It was clear, in the discussion of the matter with the committee, that the fact that so many cities and countries had already adopted the circular bull's

[1] Report of the Departmental Committee on Traffic Signs. London: H.M. Stationery Office. 1933. (3s. net.)

eyes weighted the scales against any change unless under strong pressure. The committee, however, recommends that signal heads should be banded white and black so as to indicate the position of the lights. It was also pointed out to the committee that risk arose from the confusion of other street lights, illuminated advertisement signs, and even the chemist's red bull's eye, with the signal lights, but no note is made on this point, though the reverse is provided for in the direction that care should be taken when the installation of light signals is under consideration that there is no possibility of confusing these either with navigation lights for the guidance of shipping or persons in charge of craft on inland waterways, or with railway signals. Special shields may here and there be necessary to ensure that light signals are not seen by persons other than those for whom they are intended. It is evident from comments made in the lay press that more will need to be done with regard to the excessive multiplication of illuminated advertisement signs. These may soon become so numerous as to destroy each other's effectiveness ; then, perhaps, traders will wonder if the cost is worth while. The *Times* has called attention to another point omitted from the report: the difficulty of reading lighted signals in broad sunlight.

White lines are considered with much care. The committee concludes that they are of much utility, but it adds that they should be confined to places at which it is clear that they will reduce danger or be of material assistance to traffic. An overuse of white lines in one locality will not only tend to reduce their effectiveness generally, but may give an unwarranted sense of security to drivers in adjoining districts where more restraint in their use has been exercised. The marking of the roadway should be strictly limited to directions ; an order such as " STOP " should never be on the carriageway. The committee has been commendably expeditious in the issue of its report, and the carrying into effect of its recommendations should secure such uniformity in traffic signs as will tend to the better order and safety of the King's Highway.

CANCER RESEARCH

Ten years ago the British Empire Cancer Campaign was launched, its primary objective being the discovery of the cause and cure of the disease. It was not expected, of course, that such an ambitious programme would be realized immediately: the difficulties and complexities of the subject were too well known to the experienced doctors and scientists who constituted the organizing committees. What they set out to do was to build up an organization which would encourage and co-ordinate cancer research throughout the British Empire. How far they have succeeded in this will be seen from the review of the activities of the organization furnished by the tenth annual report of the Campaign.[1] The first thing to do with an annual report is to run quickly through its pages and notice its contents and arrangement. This treatment of subjects in the present volume at once reveals the amazing complexity of the cancer problem. One worker is at it with the chemistry of dibenzanthracene; another is watching successive generations of rats with the contemplative eye of Mendel observing his peas, another is trying the effect of anti-cancer serum on human patients, others are working with radium and *x* rays, others searching for treasure in the dusty files of hospital follow-up systems.

Almost every page of the two hundred in the tenth annual report refers to some new form of activity directed to the advancement of our knowledge of the cause and cure of cancer. There must be many minor pieces of research in cancer which have only been made possible by the support and encouragement of the Cancer Campaign. The first glance through the report, then, is like a peep through the window of a factory. We see many different types of movement and no apparent unifying purpose. This, however, at once becomes obvious if we look more closely at any one of these separate operations. A good one to start with is the work on cancer-producing chemicals. This began with the discovery some sixteen years ago that mice develop cancer when the skin of the back is painted with crude tar. It led to a search for other carcinogenic substances, and concentrated attention on what particular constituent of crude tar could be responsible for this fatal change in the character of cell growth. It seems that the particular chemical constituent of tar responsible is 1:2-benzpyrene, seven grams of which can be extracted from two tons of gas-works pitch. Mice develop cancer more rapidly and more regularly after the application of this chemical in a pure state than after painting with crude tar or any of its other known derivatives. Meanwhile another substance, dibenzanthracene, has been found to have equally powerful carcinogenic properties. This is a synthetic chemical not obtained from tar. It causes carcinoma or sarcoma in several different species of animals besides mice, when applied locally or injected. It is interesting to notice that this substance has a similar molecular structure to benzpyrene, which gives tar its cancer-producing properties. One immediate object of research is the attempt to trace a relationship between human cancer and previous exposure to some such carcinogenic agent. It is possible, for instance, that minute quantities of such chemical substances may be present in materials which are used by human beings for food or clothing, or that similar substances may be formed in our bodies as by-products of activities. This is obviously an encouraging field for research.

Anti-cancer serum which had already proved successful in destroying tumours in mice has now been applied to inoperable human cases. The results are as yet too few for conclusions to be drawn, but they have been sufficiently encouraging to produce " temporary benefit in several of the cases," and to indicate a continuance of research on these lines. A good deal of new work is being done to improve existing methods of treating cancer. The disease presents a different problem in every organ of the body, and whether the treatment be surgical or medical or by radiations, there

[1] British Empire Cancer Campaign, 12, Grosvenor Crescent, S.W.1.

are particular difficulties to be overcome in each different type of tumour. The classification and grading of tumours, the manner of spread of different types of malignant disease, the careful recording of all cases of cancer which have been treated, including the following up of such cases to ascertain their subsequent history, are all very important branches of cancer research. This may appear an unromantic field to till, but it is sure of a useful, if unspectacular, harvest. One thought in conclusion before the report for 1933 is placed on the shelves beside its predecessors. The writers referred to in this document are only the agents of a much larger group of supporters who have given their time or thought or material help to create and further this great organization for the discovery of the cause and prevention of cancer. The success of the Campaign depends on continued support. This was pointed out very cogently by the Duke of York when presiding over the annual general meeting on July 10th. He suggested that in future years an appeal might be made throughout the British Empire on Empire Day to aid the work of the Campaign at home and over-seas. "The final victory over cancer would indeed be a matter for universal rejoicing, and I therefore submit that that day be considered in connexion with our appeal activities."

AETIOLOGY OF INFLUENZA

In recent years the views on the aetiology of influenza have undergone a change. The days have passed when the bacillus isolated by Pfeiffer—known now as *Haemophilus influenzae*—held first place as causal agent, and most people have come to believe that a filterable virus is responsible. There has been some experimental evidence to support this view. Nicolle and Lebailly (1918) and Yamanouchi, Sakakami, and Iwashima (1919) have reported the successful transmission of influenza to human volunteers by means of filtered material; in fact, the Japanese experiments succeeded with a regularity that investigators of biological problems hope for but rarely encounter. Then there were the claims by Olitsky and Gates (1921) and Gordon (1922) to have cultivated filter-passing organisms from cases of influenza, but in neither case were the conditions of cultivation those which have since been found necessary for so many filterable viruses, and the evidence in support of *B. pneumosintes* (Olitsky and Gates) as the causal organism of influenza is not convincing. The last few years have passed without further light being thrown on the problem of the causation of influenza, and without doubt this has been due to the lack of a suitable experimental animal. Man alone seemed to be available for this purpose, and for obvious reasons there has been a reluctance to make use of human volunteers.

Just when the possibility of any further advance seemed rather remote has come the announcement[1] that three investigators at the National Institute for Medical Research, Dr. Wilson Smith, Dr. C. H. Andrewes, and Dr. P. P. Laidlaw, have succeeded in transmitting influenza to ferrets. The whole aspect of the situation has been transformed. Profiting by the recent epidemic to reinvestigate the whole problem, these workers tried to infect a variety of laboratory animals. At first they met with the usual negative results, but, undaunted by this lack of success, they pursued their quest and were rewarded in the end by finding that the ferret was susceptible. Ferrets inoculated by nasal instillation with the filtered throat washings of early cases of influenza went down after a two-day incubation period with fever, nasal discharge, and obvious signs of illness. Not only could the condition be passed from ferret to ferret by filtered suspensions of nasal mucosa, but mere contact sufficed for the transmission of the disease. This entailed the removal of the investigation to the Institute's Farm Laboratories at Mill Hill, where all the machinery of rigid isolation elaborated for the work on distemper could be made use of. Here the work was continued, and Drs. Smith, Andrewes, and Laidlaw have established that a filterable agent is present in the throats of early cases of influenza which is capable of producing disease in ferrets. The material from five out of eight human cases proved virulent; the throat washings from four normal individuals and one with a cold gave negative results. Ferrets which had recovered from an attack proved resistant to reinfection; their serum possessed neutralizing properties for the virus; and, what was more important, the serum from human influenza convalescents, in a high percentage of cases at any rate, was similarly endowed with neutralizing power. This work leaves little doubt that influenza has been transmitted to ferrets and that the prime cause of the disease is a filterable virus.

A short while ago, at the time of an epidemic of influenza in America, Shope (1931) isolated a filterable virus from a disease in pigs known as swine influenza. This virus by itself did not reproduce the natural disease; it gave rise merely to a mild febrile disturbance with little or no obvious symptoms. But when the virus was combined with an influenza bacillus—*Haemophilus influenzae suis*—which was constantly present in the natural disease, the complete clinical picture of swine influenza was obtained. The partnership of these two factors, virus and bacillus, was essential for the production of the disease; but, as Shope showed, it was the virus which was the primary causal agent, for the influenza bacillus alone was quite avirulent. The Hampstead workers have been able to compare Shope's virus with their human strain, and find that they are closely related antigenically. Unlike its behaviour in the pig, Shope's virus produces the complete disease picture in the ferret without the collaboration of the influenza bacillus; the same is true of the human influenza virus. Whether human influenza requires for its production the close partnership between the filterable virus and Pfeiffer's bacillus which pertains in the case of swine influenza only further work will show. Many other problems present themselves for solution, and the medical profession will anxiously await the next advances which this brilliant piece of work has made possible.

[1] *Lancet*, 1933, ii, 66.

THE HUNTERIAN MUSEUM

From the preliminary statement in the annual report on the museum of the Royal College of Surgeons of England it appears that since last October the Conservator, Sir Arthur Keith, has been on leave of absence owing to illness. Happily his health is now in great measure restored, but continued residence in London has been deemed inadvisable, and he has transferred his activities to Downe, although, doubtless, he will take a continued interest in the Hunterian Museum, which had the advantage of his leadership for so many years. Fortunately, a popular and able acting Conservator has been found in Mr. R. H. Burne, the Curator of the Physiological Department, who presents the report for the past year. The museum has also suffered a heavy loss in the death of Mr. C. F. Beadles, the Pathological Curator, whose connexion with the museum dates back to the year 1909, and whose name will always be associated with the War Museum. The report is divided into two parts, the first giving details of the work of the several departments and brief descriptions of the additions made to the museum collections, the second consisting of the reports of the research workers in the laboratories, presented by Dr. G. Scott Williamson. The additions to the museum, nearly four hundred in number, have been placed in Room I, where they will remain for the inspection of visitors until August 4th. They illustrate well the varied activities and interests of the museum, including the subjects of normal and pathological anatomy, both human and comparative, physiology, anthropology, historical pathology, surgical instruments and appliances, and forensic medicine. Among the pathological specimens may be mentioned several illustrating favourable results after excision of carcinoma of the larynx, a remarkable specimen of cirsoid aneurysm of the coronary vessels of the heart, a valuable series illustrating diseases of the gall-bladder, and specimens of endometritis polyposa and "tarry cyst" of the ovary. Conspicuous in the physiological section are the beautiful preparations and injections made by Mr. Burne, particularly those illustrating the ossification of the skeleton in the embryo. Of other additions to the series of human osteology the most important are nine casts of the skeletal remains of early Pleistocene man from the Peking caves. The report of Miss Tildesley, Curator of the Department of Human Osteology, gives evidence of the great value of the anthropological collection to those engaged in biometric inquiry, and of the numerous demands made on her department for reports on excavated specimens from all quarters. The additions to the odontological department consist mainly of specimens illustrating the comparative anatomy and pathology of the subject. They occupy five pages of the report, and their number serves in some degree as a measure of Sir Frank Colyer's determination to bring his collection to perfection; it must now be the finest odontological museum in the world. A striking addition to the museum, placed in review order in Thompson's Historical Section, will arouse the tenth qualified perhaps with some reserve, of thing to do with English history. It consists of two bones through its casts of the skeleton of Queen Berengaria the supply of subject of King Richard Cœur de Lion. A more difficult to carrk has been done during the year the College. Dr. Scott Williamson and Dr. Innes Pearse have continued their studies on the relationship between the pituitary and thyroid functions; Mr. H. J. Burrows has already recorded some of the results of experiments on tissue culture in his Hunterian Lecture, and has other papers ready for publication on that subject; Mr. J. H. Thompson has continued his interesting experiments on the growth-retarding factor of parathyroid extract; Mr. Laurence O'Shaughnessy has already embodied the results of his work in his Hunterian Lecture on the surgery of the oesophagus, and has also been working on various aspects of neurectomy and on the surgery of the thoracic organs; Sir Charles Ballance has been engaged in the study of the Rolandic cortex and the cervical sympathetic, and Mr. Winsbury White on the lymphatic pathways from the genitals and lower urinary tract towards the kidneys, the results of which were set out in his Hunterian Lecture delivered last February.

ASTHMA AND AIR FILTRATION

It is becoming more and more recognized by the clinician that true spasmodic asthma must be sharply differentiated from the crippled lung type as well in treatment as in pathogenesis. The victim of the former, as Bray[1] points out, inherits his liability to anaphylactic phenomena as a Mendelian dominant characteristic; he is the subject of skin affections and exudations of various mucous membranes which, show, with the blood, a high percentage of eosinophils. Conjecture is still rife as to whether the initial change is or is not an urticaria of the bronchial mucosa leading to the secondary spasm and ultimate thickening of the muscle of the "respiratory bronchiole" with which the pathologist is familiar. The secondary spasm and thickening in the second type may arise from any lung damage, and appears (Graham) to be related to stenotic processes in the larger or smaller bronchi. It is well seen in the "asthma" of pulmonary tuberculosis, in bronchiectasis, and in the pneumoconioses. The exciting cause of an attack is related to bacterial infection of the upper respiratory tract and not to foreign protein *per se*. Interesting confirmation of this distinction occurs in two articles dealing with the treatment of hay fever and pollen asthma by air filtration by Gay[2] of Baltimore and Nelson[3] and his fellow-workers in Chicago. The relief of the current asthmatic attack of the pollen type with the patient in a chamber of filtered air is as striking as the complete failure to improve the "control" cases of bacterial asthmatic spasm. Machines admitting of adjustment of temperature and humidity were attached to one or two hospital wards containing from four to eight beds. Pollen counts on greased slides placed in the ward and adjoining passages before and after filtration showed differences from as much as 600 grains per cubic yard for the outdoor "settling" count to under 10 grains in the moving air of the large ward. The efficiency of the filter (preferably 4-ply cellulose) depended directly upon frequent changing; other disturbing factors are detailed. The conclusions reached were, in effect, that the hay fever patients were immediately benefited. The pollen asthmatics, if confined long enough (a factor varying from twenty-four hours to

[1] Bray, George W.: *Arch. Dis. in Child.*, 1930, v, 237.
[2] Gay, Leslie N.: *Journ. Amer. Med. Assoc.*, 1933, xviii, 1382.
[3] Nelson, Tell, Rappaport, B. Z., and Welker, W. H.: Ibid., 1933, xviii, 1385.

ten days), were in time relieved of their subjective symptoms, although after forty-eight hours the objective signs of asthma had disappeared in only five. The tolerance of patients to excursions into the outside atmosphere varied from one-half to twelve hours in the twenty-four, and might differ for the same patient on successive days, though it was chiefly determined by the severity of the asthma. Confinement for a time in filtered air before the seasonal onset of the asthma will not prevent its usual occurrence. When patients were discharged from the filtered chamber the asthma invariably returned with equal severity. For economic reasons, then, only those patients who could afford to install apparatus in their own homes are likely to derive permanent benefit. For hospitals, such a room might be of use for serious cases of status asthmaticus, or for a short period in which it was intended to carry out some operative procedure. Confirmation also emerged of the general feeling that weather conditions and other factors besides pollen concentration have a certain effect in precipitating an attack in pollen-sensitive patients: thus, cooling the filtered air often aggravated the asthma because of an increase in relative humidity.

A CHARLATAN EXAMINED

The widespread activities of charlatans, quacks, latter-day sorcerers, and the like on the Continent has led to the publication by an International Committee in Brussels of a review[1] which purports to concentrate attention on these practices in general, on any case which comes before the Courts, and on any scientific examination of claims made by such people. It may be doubted, however, if any practical purpose is served by such a publication. The medical man has no means of combating the sale of patent medicines and nostrums other than by publishing their composition or action (if any), and the influence of the irregular practitioner is even more difficult to deal with, as it may occasionally be beneficial—as in those cases of imagined disease or neurosis, in which sympathetic handling by a strong personality is indicated. Patients of this kind easily fall victims to quacks when medical treatment applied on orthodox lines fails, for it is in the nature of many men and women to show preference for the mysterious and incomprehensible. Great prominence is given in the review to a clear demonstration recently undertaken by Bessemans to prove that the diagnoses of a *sourcier*, who used the familiar handwriting-planchette-pendulum nonsense, bore no relation to the conditions from which the patients were suffering, and were, in fact, complete rubbish. A side-by-side comparison of the medical and quack diagnosis, in ten cases, makes amusing reading. A sample is given below, the sorcerer's comments appearing in parentheses: Case 1—Healing fracture of right elbow (heart and nerve disease) ; Case 2—Fracture of right clavicle (disease of the liver) ; Case 5—Varicose ulcer of left leg (ear disease) ; Case 6—Impetigo (" kidneys and bladder ") ; Case 7—Eczema (disease of intestines) ; Case 10—Anthrax of right shoulder (eye disease, intestinal inflammation, pain in left leg under the knee, " stomach, pyloric region "). It is improbable that such a demonstration will exert any influence on the simple-minded patients of the quack, but that seems all the more reason for the law to prohibit his practices under severe penalties.

[1] *Revue Internationale de la Lutte contre le Charlatanisme.* May, 1933. Brussels: 54, Boulevard de Waterloo.

MAN AND MACHINE

A most important theme, and a very effective presentation of it, will be found in a pamphlet by Dr. L. P. Lockhart, entitled " Mind and the Machine." It is a reprint of a lecture recently delivered under the auspices of the League of Industry.[1] The theme is the machine, not " as the destroyer of the finer and more individualistic aspects of human life," but " as an aid to fuller human development," and the need and difficulty of making appropriate and sufficiently rapid mental adjustments to this end. To plan and control material progress is not enough in itself to ensure human advancement. It is necessary to consider and arrange every aspect of life, and not one side of it or a mere selection only. " We must not only plan and organize our material advantages, but we must also apply scientific investigation to the vital question of mental adaptation." To remember that man is governed quite as much by instinct and emotion as by intelligence and reason is essential for this purpose, and the large extent to which suggestion replaces reasoned argument must never be forgotten. Incidentally, we observe that Dr. Lockhart defines " suggestion " as " a means of inculcating ideas merely by the manner of stating them without offering any logical support for the conviction enjoined." Two points are clearly brought out and strongly enforced: the need for biological knowledge, and especially for a biological outlook, for every citizen, particularly for those who hold any post of responsibility in government or in industry ; and the need for developing outside the bread-winning function other satisfactions which will not only maintain a balanced mental life, but may also help to consume some of the fruits of machine activity in mass production.

" Once we had psychological satisfaction in the midst of material scarcity ; now the problem is completely inverted . . . If employment to-day cannot give to man the full satisfaction that came to the older craftsman and to the small independent trader then merely to offer work is not to complete the mental life of man but rather to leave it still unsatisfied. . . . In all forms of education we should therefore strive, not indeed to turn out masses of half-baked technical biologists, but we should give to every boy and girl that degree of understanding of living processes as shall enable them to appreciate the evidence on vital problems as it comes to them. To say that biology regarded from this standpoint is not ' cultural ' is mere pedantry, for what can be of greater cultural value than to have insight into living phenomena without which all history, all literature, and in fact the whole of life is meaningless? "

Dr. Lockhart has on previous occasions, at Annual Meetings of the British Medical Association and elsewhere, made valuable pronouncements on the psychological aspect of problems of social welfare and industry.

MEDICAL EDUCATION: A CANADIAN STUDENT'S VIEWS

A series of articles has appeared in the *Canadian Medical Association Journal* during this year on the subject of medical education, and in the June number is one by a medical student, Mr. A. C. Corcoran, B.A. Mr. Corcoran remarks that a medical student's criticism is apt to be hasty and directed to details, but his article is free from both of these alleged tendencies, and is a considered statement written after conference

[1] League of Industry, St. Stephen's House, Westminster, S.W.1. (2d post free.)

with contemporaries in his own school of Montreal and elsewhere. The article contains criticism and suggestion. The criticism may be summarized as follows: the view is expressed that the prospective medical student's secondary education is "not good enough"; that standardization by the various universities of the teaching in chemistry, physics, and biology is needed; that there is not always the necessary continuity between the teaching of the pre-clinical period and the clinical subjects; that clinical education should be based upon learning how a patient should be approached and his symptoms and signs of disease recognized, rather than upon efforts at hasty diagnosis. This summary by no means exhausts the points raised in the article, which is well worth reading by all concerned. It adds to the evidence already to hand that medical training is in need of review *as a whole*; it should be given to the student as a whole—it is too often presented to him as a collection of disconnected parts, and the lack of connexion confuses and wearies him. To overcome the latter tendency in any particular school authority is required, and that is not always forthcoming. The authority needed must be fully alive to the purpose and end of training, and at the same time accept the fact that much instruction which has no direct and obvious application to practice is needed if the student is to be capable of forming judgements which are his own. It is only by the teachers of a school that the necessary co-ordination can be achieved—no external authority can achieve it; but external authority, if it devoted sufficient time and care to the framing of recommendations might gain the confidence of the schools and influence opinion in the right direction: unless it were successful in earning the confidence of the schools it would achieve nothing. The sequence in a curriculum should be such that the student is aware of it himself; to anyone who will take the trouble to scrutinize a series of examination papers the want of ordered sequence will be apparent in many instances; the questions of an examination paper are a fair index of the teaching. One matter to which Mr. Corcoran refers, and which is sometimes forgotten when graduation has become a distant memory, is that the mental capacity of the medical student is subject to the same limitations as that of the ordinary human being, and that he should be given not only facts but time and even leisure to digest them. A temperate and reasoned expression of opinion such as Mr. Corcoran has written is welcome; it contrasts favourably with some other critical articles on the same subject published lately.

The inaugural ceremony in connexion with the third International Paediatric Congress will take place on Thursday, July 20th, in the Great Hall of B.M.A. House, Tavistock Square, W.C., at 10 a.m. The Duke of York, accompanied by the Duchess, has consented to open the congress and make a speech of welcome. In view of the attendance of Their Royal Highnesses members of the congress are asked to be in their places not later than 9.55 a.m.

In our correspondence columns this week appears an influentially signed letter from Bristol announcing a proposed memorial to the late Dr. Carey Coombs, which we are sure will meet with a sympathetic response in places far beyond his immediate field of work.

MEDICAL PROBLEMS OF CONTRACEPTION

CONFERENCE IN LONDON

A medical conference on contraception was held at British Medical Association House on Saturday, July 8th, under the joint auspices of the National Birth Control Association and the Birth Control Investigation Committee. The discussions, each occupying one session, were concerned with recent research on temporary hormonic sterilization, information on birth control by public health authorities, chemical spermicides, and birth control instruction in general practice.

TEMPORARY HORMONIC STERILIZATION

Professor JULIAN HUXLEY, who presided at this session, said that in the view of the Birth Control Investigation Committee temporary hormonic sterilization held great promise as a method of birth control. The present mechanical methods were near the limit of their efficiency, and even chemical methods, though capable of considerable improvement, had and would always have certain inherent disadvantages. If, as was perfectly possible, a satisfactory means of inducing temporary hormonic sterility could be found which would be operative over a definite period, say for one menstrual cycle as a result of a single injection, many practical and aesthetic objections to contraception would be surmounted. Indeed, we should look back on our present methods as the motorist looked back on the bicycle age, or as the modern book trade might look back on clay tablets.

Mr. C. W. BELLERBY said that the practical application of hormonic methods was contingent on the discovery of processes for synthesizing the substances concerned or on finding cheap methods of preparing them from existing sources of supply. The main obstacles to progress along these lines had been, first, the complete side-tracking of work on the anterior pituitary hormones by the discovery in the urine of pregnancy of substances with apparently identical properties; and, secondly, the assumption by most workers on the subject that these substances were actually elaborated by the anterior pituitary lobe. No evidence had in fact been produced in support of this contention, which accordingly invalidated work on pregnancy urine which purported to throw light on the chemical and physiological properties of anterior pituitary hormones. The differences that had been found between crystalline oestrin prepared from urine and oestrin extracted from ovary served further to underline this distinction. It was now generally accepted that the periodic alternation of fertility and infertility in animals was controlled by the anterior lobe, and it therefore seemed likely that complete control over the duration of the fertility or infertility period might be obtained by isolating and administering the factor or factors concerned. Work had been held up, however, by lack of a suitable test animal; but the speaker, using the African clawed toad, had devised a reliable quantitative method of assaying the hormone and had progressed considerably in his studies on the chemistry of the anterior lobe. He had found it possible, moreover, to prepare extracts of the gland having a far greater activity than any hitherto reported. He had found no support for the view that more than one pituitary hormone was concerned in the regulation of the ovarian cycle. This work had been carried out under grant from the Birth Control Investigation Committee.

An informal discussion followed, in which Dr. C. P. BLACKER, Dr. CECIL VOGE, and Professor HUXLEY took part.

CONTRACEPTION AND PUBLIC HEALTH SERVICES

In her introductory remarks on this subject the chairman, Dr. HELENA WRIGHT, reminded the conference that under the Ministry of Health Act, 1918, local authorities wishing to give birth control advice could do so on gynaecological grounds only, and even then only in the case of pregnant married women. But the Act was by

no means uniformly interpreted and in different areas there existed vastly different conceptions of the meaning that could justly be applied to the term medical grounds"

Mrs FRANCIS IVENS KNOWLES, surgeon in charge of the Women's Clinic, Walthamstow, said that this clinic had been set up under Section 131 of the Public Health Act to conduct ante natal and post natal consultations, deal with gynaecological conditions, and advise sick persons on contraceptive methods In this last function it was limited exclusively to women who attended for advice or treatment in connexion with gynaecological disorders, or for whom pregnancy was undesirable on strictly medical grounds During the year 1932 the patients needing contraceptive advice formed 17 per cent of the total attendance In some of these, dread of another pregnancy had set up a 'fear neurosis,' which had been intensified by the use of such birth control methods as coitus interruptus, or by inability to sleep through the noise made by ailing and nervous children Others were suffering from debility brought about by frequent child bearing, this condition sometimes being intensified by the anaemia of lactation, the presence of prolapse from untreated perineal tears, and even by too early a return to the routine of household work For many such women the Mensinga type of pessary was useless without preliminary operation The speaker drew attention to the dangers that were associated with the use of septic marine sponges, there were disadvantages, too, in certain foam preparations, for these in some cases produced local pain and irritation Discussing the morbidity due to excessive child bearing, Mrs Ivens Knowles said that routine examinations conducted at the clinic revealed the presence in multiparous women of cervical lacerations which might be the precursors of malignant disease In 100 cases of carcinoma of the cervix which had been under her care the average fertility rate of the patients worked out at 6 5, twenty three of the patients having had more than twelve pregnancies, and one patient twenty pregnancies In conclusion, she suggested that the establishment of women's clinics in populous districts would do much to alleviate the sufferings of overburdened mothers, and enable them to regain their health and vitality Such clinics should be organized in close co operation with the practitioners of the district, be staffed by experienced gynaecologists and obstetricians, and be connected with fully equipped hospitals

Dr A G M SEVERN medical officer of health, Pontypridd, gave an account of the establishment of the first birth control clinic in South Wales and the experience gained since its inception In this area large families were common, and for many years the maternal mortality had been well above the average for the rest of the Kingdom For these reasons a voluntary organization had established a birth control clinic in Pontypridd in 1930, and the local authorities had permitted it to use the premises of the ante natal clinic for its sessions on condition that it bore all capital and maintenance expenses This clinic was not bound by any of the restrictions imposed by the Ministry of Health, and gave advice on economic as well as on health grounds The following year, however, the local authority, having considered the Ministry's memorandum, decided to take over the clinic as part of its maternity and child welfare service, with the result that the conditions imposed by Circular 153 became operative and patients were no longer accepted on other than health grounds The example of Pontypridd had led to a demand for similar clinics in the area, and five local authorities in South Wales had now established clinics of their own Turning to a consideration of the medical conditions on account of which the women had been referred to the clinic, Dr Severn gave an analysis of the last 100 case cards, which showed that eighteen were suffering from debility brought about by excessive child bearing, fourteen were tuberculous, thirteen suffering from renal disease, ten from anaemia, nine each from epilepsy and heart disease, five from pelvic deformity, and four from debility due to miscarriage Previous abnormal labour, severe neurasthenia, hip disease, asthma, paralysis, goitre, and uterine prolapse accounted for the rest In a few cases early disease of the uterus had been discovered and been referred for treatment to the Cardiff Royal Infirmary It was noteworthy that several women had attended for advice on sterility An examination of the records showed that the clinic was not reaching the most ignorant and physically unfit members of society the majority of the women who came for advice belonged to superior working class stocks It seemed as though there was a need for even simpler contraceptive methods than those recommended by the clinics, and perhaps in some cases nothing short of sterilization would be effective Dr Severn suggested that the results of the Pontypridd experiment demonstrated that the best way of starting birth control clinics in areas where these were likely to meet with opposition was for voluntary organizations to make a start and then convince the local authorities that they met a genuine demand Town councils were disinclined to experiment with public money but they could hardly fail to appreciate the value of a going concern

Dr LILIAS JEFFRIES describing the work of a clinic conducted by the Brighton Town Council under the terms of the Ministry of Health's memorandum said that patients were sent exclusively by the municipal health services—for instance, by the tuberculosis officer, the mental hospital, and the ante natal clinic—with a definite statement that they were medically unfit for further pregnancy General practitioners knew about the clinic, but rarely used it In most cases the appliance recommended was the Mensinga pessary, though the size —65 in the average case—was smaller than was generally favoured The best method, according to the speaker, was by the use of the sheath together with a contraceptive jelly or tablet, but she agreed that some couples disliked it on aesthetic grounds, and that many women preferred methods that kept the prevention of pregnancy within their own control It was one of the contributions of birth control clinics to the public health that they were instrumental in discovering pelvic lesions and putting women in the way of proper treatment They could, however, successfully serve this purpose only when they were conducted by qualified practitioners and the speaker deprecated the practice of placing such a responsibility upon nurses and midwives She urged that the powers of clinics should be extended to giving advice on eugenic and economic grounds, and, as an example of progressive action, she instanced a recent decision by the East Sussex County Council that she should see and help women patients of child bearing age when they were to be discharged from the mental hospital

Dr C KILLICK MILLARD said that in Leicester they had found themselves much hampered by the terms of the Ministry's memorandum, but after an interview with an official of the Ministry he concluded that 'gynaecological" was a fairly elastic term Dr VERNE BORLAND said that the Minister of Health had recently congratulated the nation on its low rate of infant mortality but maternal mortality remained high, largely owing to the prevalence of abortion as a substitute for birth control Dr C P BLACKER agreed that extended powers were needed for municipal clinics, and stated that a group of M P's had been formed to secure this end

CHEMICAL SPERMICIDES

Lord HORDER, who presided over this and the next discussion, said that the programme of the conference struck a nice balance between the theory and the practice of the subject In Dr John R Baker's absence he asked Dr Blacker to read an account of the investigations on chemical spermicides that had been conducted (under grant from the Birth Control Investigation Committee) by Dr Baker and his co-workers at the Department of Zoology, Oxford

Dr Baker had designed a new laboratory test of the spermicidal power of suppositories which by giving a much closer correspondence with clinical results than his previous test was able to provide information of value

to clinical workers. In this test one suppository was mixed with 2.5 c.cm. of a fluid representing that of the vagina, and, when the suppository had disintegrated, this fluid was mixed with 5 c.cm. of an artificial semen consisting of cavy sperms suspended in albumen-saline—a fluid consisting of beaten egg-white (23 volumes) and 0.9 per cent. sodium chloride (7 volumes). The sperms were examined microscopically five minutes later, and it had been found that cavy sperms in this suspension behaved to the most diverse spermicides almost like human sperms in human semen. Taking the concentration of one suppository to 2.5 c.cm. of artificial vaginal fluid and 5 c.cm. of artificial semen as the standard—called S—suppositories were tested at S, S/2, S/4, etc., until the lowest effective concentration (namely, the lowest concentration which killed every sperm in two consecutive experiments) was found. With suppositories that relied on their acidity to immobilize sperms a suspension fluid had to be used with the same alkaline reserve as that of human semen, Dr. Baker having devised for this purpose a mixture of beaten egg-white (16 volumes) and a 6 per cent. solution of $Na_2HPO_4.12H_2O$ (14 volumes). Acidity destroyed the spermicidal powers of some spermicides, and in some cases the vaginal fluid might be acid enough to acidify the semen, but not to immobilize the sperms. When there was reason to suspect such sensitivity to acid in a suppository it was necessary to use an artificial vaginal fluid which would just acidify the sperm suspension in albumen-saline. Such an acid vaginal fluid could be prepared by mixing a 2.7 per cent. solution in water of lactic acid (31 volumes) with 0.9 per cent. sodium chloride (69 volumes). Soap was recommended as a spermicide, though the presence of protein reduced its effectiveness. One-tenth of a gram of sodium oleate had a lower effective concentration than any of the suppositories tested, and it was insensitive to acidity.

Lord HORDER said that Dr. Baker's paper, by illustrating the complexity of the problems within its field and the difficulties that had to be met in coping with them, showed how important it was that such a body as the National Birth Control Association should keep in touch with those aspects of contraception that came within the province of the Birth Control Investigation Committee. Replying to questions by Dr. DUNLOP, Mrs. HODSON, Dr. KILLICK MILLARD, Mrs. SPRING-RICE, Dr. VOGE, and Dr. FISHER, Dr. BLACKER said that though in theory direct ejaculation of semen into the uterus was a possibility, in practice there was little evidence of its occurrence. The suggestion that spermicides might damage without killing spermatozoa and so cause the production of defective offspring seemed to him groundless, but the Investigation Committee would study this question when work designed to discover the most effective spermicide had been completed. Soap-suds were harmless as well as effective spermicides, but solid soap would be harmful. As for the vehicle, Dr. Baker favoured cocoa butter and fatty substances, but it was important to discover substances that would serve this end in hot climates. The chief disadvantage of jellies was their cost, and of the use of sponges in olive oil that they had to be boiled for five minutes after coition.

Dr. H. M. CARLETON followed with a paper on the after-effects of inserting Gräfenberg rings in the body of the uterus. During the past year two rhesus monkeys had had silver rings inserted for seven and eight months respectively. In both the endometrium was found to be flattened at its points of contact with the ring, and in one the uterine glands had atrophied. At the necropsy of one of the subjects it was found, furthermore, that the endometrium had turned dark grey and the ring was blackened. Histological examination showed a large number of dark granules, mostly extracellular, lying below this endometrium. Dr. H. J. Phelps and Dr. John Phelps had demonstrated that the pigmentation was due to the deposition of a silver salt. These results confirmed earlier investigations made with the rabbit as test animal; and the further observation by Dr. Helena Wright that the silver ring was sometimes blackened in the human female suggested that deposition of silver granules also occurred in the human uterus. The pathological import of the deposition of so insoluble a compound was possibly very small; far more important, however, was the fact that the chemically changed ring became very brittle and liable to fragmentation in the uterine cavity. When due weight was given to the fact that prolonged irritation favoured the development of cancer, it could hardly be doubted that there was a potential danger in introducing into the uterine cavity a foreign body which was apt to undergo both chemical changes and physical fragmentation. In reply to discussion (in which Dr. DAVIDSON took part) Dr. Carleton said that he would think twice before inserting either a gold or a silver ring into a human uterus; and Lord Horder added that a satisfactory solution of the practical problems of contraception could hardly be in the production of prolonged irritation of the uterine cavity.

BIRTH CONTROL IN GENERAL PRACTICE

Dr. E. F. GRIFFITH, analysing his experience as a general practitioner who had taught birth control to about 500 patients in the past two years, said that in spite of the harmfulness and inefficiency of the methods commonly in use, some 90 per cent. of married couples adopted them for lack of better knowledge. In his practice he had found it possible to obtain nearly 100 per cent. of successes, and in the course of the necessary routine examination had been able at the same time to discover gynaecological disorders. He regarded the inculcation of the idea that births should be spaced and that women should have scientific advice on contraception as an essential part of medical practice, and pleaded for a fuller sex education of the general public.

Dr. JOAN MALLESON said that in dealing with women patients, and as a way of gaining their confidence, she made a practice of herself introducing the subject of birth control even when she was being consulted on quite other matters. She was able to endorse from her experience all that had been said about the effects on the nervous system of prolonged addiction to coitus interruptus.

In the course of the discussion a number of speakers stressed the need for instructing men patients in the best way of using sheaths.

THE HARVEY MEMORIAL TOWER

FOUNDATION STONE LAID BY LORD DAWSON

In connexion with the rebuilding of the tower of Hempstead Church, near Saffron Walden, as a memorial to William Harvey,[1] an interesting and largely attended ceremony took place on July 7th, when the foundation stone was laid by Lord Dawson of Penn, President of the Royal College of Physicians of London and of the British Medical Association. Among those present were the following:

Sir John Rose Bradford (chairman of the Harvey Memorial Committee), Mr. A. W. Ruggles-Brise (treasurer), and Dr. Arnold Stott (joint honorary secretary of the committee); Lord Horder, Dr. G. F. Still, Dr. R. A. Young, Dr. H. Morley Fletcher, Dr. Sidney Phillips, Dr. Arnold Chaplin; Sir Raymond Crawfurd and Dr. R. O. Moon (representing the Royal College of Physicians); Professor W. Langdon Brown (University of Cambridge), Sir Ewen Maclean (Vice-president of the British Medical Association), Sir D'Arcy Power, Dr. Herbert Spencer, Sir Percival Horton-Smith Hartley, Dr. W. S. A. Griffith; Lieut.-Colonel E. L. Gowland, Dr. G. de Bec Turtle, and Professor Tom Hare (representing the Harveian Society of London); Dr. N. G. Horner (Editor of the *British Medical Journal*), Dr. Michael Foster, Dr. Julius Burnford, and Dr. Ivor J. Davies.

[1] See Sir John Rose Bradford's article, with architect's drawing of restored tower, *British Medical Journal*, July 1st (p. 28).

DEDICATORY ADDRESSES

The occasion was one of great local as well as medical interest, and large numbers of people from the villages for miles around were in the congregation Following a short service conducted by the Right Rev T A CHAPMAN, D D , Bishop of Colchester, Lord DAWSON OF PENN spoke as follows before laying the stone

" The pleasure falls to me first of expressing gratitude to Sir John Rose Bradford, Dr Stott, and Dr Spencer, and, through them, to the many subscribers who have made the commencement of this work possible I should also like to express our appreciation of the enthusiasm of the Rev T P Conyers Barker (vicar of Hempstead), without which this venture could not have come to fruition From William Harvey's discovery there has grown a mighty tree of knowledge, fruitful of blessings to the world His vision, his patient search, penetrated the darkness of centuries of error He had to his hand no new aids, no new methods From within or through himself came the new spirit which found truth and set it forth No darkness can be so great as that of established authority Time gives it the acceptance and the sanction of truth To attack it becomes first an impiety and then an offence During centuries the influence of Galen was paramount, so paramount as to forbid thought, and thus the lamp delivered from the ancients became extinguished Harvey unfolded discovery by his convincing directness and restraint It took but a few pages to refute centuries of tradition and error Despite ridicule, disparagement, and even damage, he implanted the new knowledge with courageous yet courteous insistence He preached that Nature must be pursued through assured, even though they be devious, paths, until the citadel of truth is reached, ' and, saith he, ' in such pursuits it is sweet not merely to toil but to become weary ' There belongs to Harvey a rare distinction, which distinguishes him from most great men who have been makers of epochs, in that there has come down knowledge to us not only of his discovery, but of the man himself Though he be dead, yet he speaketh The spirit of his teaching, his inspiration, his sense of friendship, are still living forces within the profession of medicine That leads me to suggest that this ceremony to day, in which we are all taking part, is not only a memorial It is more , it is a fulfilment of a desire, even a piety, to preserve in men's minds associations of his life and pilgrimage, and it does good to our souls to feel that Harvey is linked with this village, its soil, its landscape, its life, and its worship "

Lord Dawson then laid the stone, saying

In the faith of Jesus Christ, we place the foundation stone of this tower which is being raised to the glory of God and in memory of William Harvey renowned physician and benefactor of humanity in the name of God the Father God the Son, and God the Holy Ghost "

After some prayers, the BISHOP OF COLCHESTER expressed the regret of the bishop of the diocese, the Bishop of Chelmsford, at his inability to be present owing to a long standing engagement The Church of St Andrew, Hempstead (Dr Chapman continued), was full of historical interest as an example of early Gothic It was chiefly fourteenth century in date In 1882 the tower fell, doing much damage to the body of the church The appearance of the church after this catastrophe was deplorable in the extreme, the churchyard covered with debris, among it the fallen bells In 1887 the church, with the exception of the tower, chancel, and Harvey Chapel, was rebuilt In 1883 Harvey's coffin had been removed from the vault and placed in a handsome sarcophagus formed of a single block of Carrara marble, the work being undertaken at the expense of the Royal College of Physicians The project for the rebuilding of the tower was formulated ten years ago, and £3,000 had been raised—a praiseworthy achievement , but the amount was not enough to restore the tower to its full height, and the rebuilding of the ringing room and the belfry must be postponed until a further £2 000 was forthcoming

Of William Harvey the Bishop said that his name was on the scroll of the world's greatest benefactors " *Palmam qui meruit ferat* " This handsome memorial gift to Hempstead Church was much appreciated by the parishioners and by all who loved the ancient building He also paid a tribute to the medical profession, and trusted that there might never be wanting in the land those who gladly used heart and brain in the service of their fellow creatures Finally he prayed divine blessing upon the devoted vicar, who for the past twelve years had given himself heart and soul to this notable effort

The hymn " The Church's one foundation was then sung, and after more prayers the simple and moving ceremony concluded Tea was afterwards served in the vicarage garden

RADIUM "BEAM THERAPY" RESEARCH

Following upon the recent report of the conference on the radium " bomb, ' we are able to announce to day an important development in facilities for research in this country on massive radiation A five gram unit of the element is to be loaned for this purpose, and the research is to be controlled by a governing body representative of medicine and physical science

It will be recalled that when the Radium Commission decided to withdraw and dismantle the four gram " bomb " used for massive radiation at Westminster Hospital some doubts were expressed as to the soundness of the decision, and in any case it was widely felt to be a pity that research on a very large unit should no longer be possible A conference, called together by the Presidents of the two Royal Colleges, was thereupon set up to consider the subject It arrived at the opinion that the decision of the Radium Commission was sound, though this finding was without prejudice to the question of the therapeutic value of four gram or even larger radium aggregations An expert committee was appointed by the conference to consider the scientific case for mass radiation, its advantages and dangers, and from the report of that committee (published in the *British Medical Journal* of January 7th last) it is clear that there is a field of usefulness for massive radium units, given adequate equipment, personnel, and clinical opportunity The report stated " We adopt the view of our committee that it is desirable that a radium unit of not less than five grams of radium element should be established '

This pronouncement, backed as it was by an important body of medical and scientific opinion, led to further activity The initiative was taken by Professor J C M Lellan, F R S , lately professor of physics at Toronto, and a member of the expert committee of the conference, who, with Mr H S Souttar, had specially visited on behalf of the conference the radium institutes of Paris and Stockholm, where large units—respectively four gram and three gram—have been used for the distance therapy of cancer cases by Professors Regaud and Forssell

The Union Miniere du Haut Katanga made a tentative offer of co operation if suitable conditions could be established for facilitating and controlling research The outcome is that the research on what will in the future be termed ' beam therapy (the misleading term bomb having been dropped by something like common consent) is to be organized and sponsored by a representative body of seven members—namely the President of the Royal Society (Sir Frederick Gowland Hopkins who will act as chairman the Presidents of the Royal College of Physicians of London and of the Royal College of Surgeons

of England (Lord Dawson and Sir Holburt Waring), who will be joint vice-chairmen; Mr. Wilfred Trotter, representing the Medical Research Council; Sir George Blacker, representing the Radium Institute; Lord Rutherford, representing the Department of Scientific and Industrial Research; and Professor Arthur Hall of Sheffield, representing the Radium Commission.

Two meetings of this governing body have already been held, the second one at the Radium Institute on Tuesday of this week, when certain proposals took definite shape. It was decided that an Executive Research Committee should be set up, of which Professor M'Lellan should be chairman. The members of this committee will include two clinicians, together with a technical expert in Mr. Geoffrey Pearce, who also happens to be the representative in this country of the Belgian corporation. Another physicist will probably be added, together with two medical men, to carry out the research.

It has also been arranged that the location for the research shall be the London Radium Institute in Ridinghouse Street, Portland Place. The Institute has generously placed the whole of the accommodation necessary for the research at the disposal of the governing body.

These conditions as to effective control and adequate location having been fulfilled, M. Lechien, director of the Belgian organization, has agreed to loan at least five grams of radium, and if necessary at a later date a further five grams, for the purposes of "beam therapy." The loan is free of cost, except for insurance. The Union Minière is a commercial organization, but it is naturally interested in the progress of knowledge respecting radium and its properties, and with that in view it has agreed to make the loan for conducting research in London on mass radiation. We understand that the period provisionally fixed for the loan is two years.

The work before the Radium Beam Therapy Research will be to endeavour to discover how far the present limited field of operation for a massive radium unit in the treatment of cancer may be extended by co-ordinated clinical, experimental, and physical research. This announcement will be welcomed by workers on the non-medical as well as on the medical side, for it is known that some deplored the subdivision of the Westminster "bomb," and hoped that at some future date it might be reassembled. For a result which will place London in a line with Continental radium centres in this path of inquiry thanks are due to Professor M'Lellan for his initiative in the matter, to the Belgian corporation for the generous loan of the element, to the Radium Institute for the provision of facilities, and to the Prophet Trust and to the Royal College of Surgeons for the promise of financial assistance.

A quarterly court of the directors of the Society for Relief of Widows and Orphans of Medical Men was held on July 5th, when Dr. W. H. Kelson, vice-president, took the chair. The following half-yearly grants to widows and orphans were voted: from the ordinary funds £1,430, from the Brickwell fund £600, and as special grants £129 18s., making a total of £2,159 18s. At the present time there are fifty-two widows and five orphans in receipt of relief. The death was reported of a widow who came on the funds in 1904 and had received in relief £2,100; her late husband had paid in subscriptions £52 10s. A widow of a member recently dead applied for relief, and she was voted £50 per annum from the ordinary funds and £25 per annum from the Brickwell Fund. Membership is open to any registered medical man who at the time of election is residing within a 20-mile radius of Charing Cross. Relief is only made to the necessitous widows and orphans of deceased members of the society. Full particulars may be obtained from the secretary at the offices, 11, Chandos Street, Cavendish Square, W.1.

Scotland

Research by General Practitioners

The forms for the investigation into valvular heart disease (including treatment) to be based upon data furnished by insurance practitioners have now been issued. They have been drawn up by a Committee on Medical Investigations, comprising representatives of the medical staff of the Department of Health for Scotland and of the Scottish Committee of the British Medical Association, which was set up on the recommendation of the Department's Scientific Advisory Committee. The main objects of the present inquiry are: (1) a review of the various methods of treatment in use in general practice; (2) a comparison of the effects of such treatment in various cardiac conditions; and (3) a survey of the incidence and of the relations of the symptoms and signs found to be present. The recording of particulars on this form (M.R.3) commenced as from July 1st, and will be continued for a year, or such period as the Department may determine. The chief problem of the committee was to frame a questionary in a form which would be at once simple for the practitioner and convenient for subsequent analysis and grouping. The signs and symptoms concerning which information is desired are mainly those associated with cardiac decompensation, and these are considered to be the minimum essential data from which a comprehensive view can be obtained of the clinical condition of the patient at the onset of treatment and of the developments which take place during treatment. The form itself is neat and attractive. Information is requested on some twenty symptoms and signs, and the practitioner can record their presence or absence, on each examination, by a plus or minus symbol. Space is given for the record of examinations upon eight occasions, and, in general, the practitioner will not require to record a longer series, although, if he desires to do so, a "continuation sheet" is supplied. In regard to treatment information is sought on the general character of diet, the exercise prescribed, and the medicinal treatment by drugs intended for direct action upon the heart or for the treatment of symptoms. Brief answers to these questions can be given under the headings "drug employed," "preparation," "dose," and "frequency of administration." The last page of the form is left blank for any remarks that the practitioner may desire to make, including notes on other clinical or pathological data. It has been found by trial in several cases that the whole series of observations necessary to complete the record of one examination can be entered in approximately three minutes. The form, apart from its usefulness in relation to the general inquiry, might also be used by the practitioner as a valuable record for his own subsequent information.

Health of Edinburgh

The annual report presented by Dr. John Guy, medical officer of health for Edinburgh, to the Public Health Committee of the corporation refers to several developments of medical interest. The population of the city was estimated at 447,800, an increase of 4,758 as compared with the census population in 1931. During the year there were 6,960 births, including 3,537 males and 3,423 females, giving a birth rate of 15.5 per 1,000, the lowest recorded for the city except for 1917-18. The infant mortality rate was 73 per 1,000 births as against 69 per 1,000 in 1931, and the death rate was 13.5 per 1,000 as compared with the average for the last ten years of 13.9. Deaths from pulmonary tuberculosis

numbered 313, and for the first time in the history of the city there was one ward (Colinton) in which no death occurred from this cause. The city was comparatively free from infectious disease, except for an extensive outbreak of measles in the earlier part of the year, which severely taxed the hospital accommodation. The most noteworthy feature of the year's work was the reorganization of the municipal general hospitals. These are now named the Western, the Northern, and the Eastern General Hospitals, and an attempt is being made to classify patients so that the more acute cases, or cases requiring operation, will be sent to the Western, while the Northern will be reserved for cases of a subacute nature, and the Eastern for chronic cases. The organization and staffing of these hospitals will provide some 900 beds for teaching purposes, and, although many of the cases are chronic, they present a valuable field for medical training and research in regard to senile and bed-ridden persons. With regard to mental health services, an important feature of the year's work was the extension of Gogarburn certified institution, where the number on the register was doubled by the addition of two pavilions, and where the total population at the end of the year was 313. Attention is drawn in the report to a further increase in the number of deaths from cancer, which accounted for 849 cases as compared with 686 in 1931. The epidemic of measles early in the year was the worst ever experienced in the city, notifications numbering 8,786. This figure, however, represented only the first cases occurring in each household, so that the total number affected must have been at least double. Over 50 per cent. occurred in children under 5 years, and there were eighty-two deaths. The report deals with an investigation into atmospheric pollution in the city. The clearest portion of the day was found to be at 3 a.m., and the smokiest between 9 a.m. and 10 a.m., with a secondary maximum at 7 p.m. These maxima appeared to coincide with the times of stoking domestic fires to cook meals; the greatest volume of smoke in Edinburgh was contributed by domestic fires.

Aberdeen University Graduation

At the summer graduation of Aberdeen University the honorary degree of LL.D. was conferred upon William James Mayo, M.D., of the Mayo Clinic, Rochester, Minnesota, U.S.A. The Dean of the Faculty of Law, in presenting Dr. Mayo, said that in him Aberdeen acclaimed a surgeon of international reputation, for the Mayo Clinic had been for many years a Mecca of those who wished to be freed from suffering. The methods and resources of this clinic had always been placed unreservedly before the medical profession, and the pre-eminence of Dr. Mayo's skill had been reflected in the many honours bestowed upon him. The ties between Aberdeen and the United States were numerous, and it was interesting to remember that in 1765 the University had trained certain physicians who subsequently helped to staff the medical school in Philadelphia. The present year was the jubilee of Dr. Mayo's entrance upon the medical profession, and the University of Aberdeen wished to pay its homage to one of the greatest surgeons of his time. Principal Sir George Adam Smith reviewed the progress of the University during the academic year 1932–3; the number of students had been 1,287, as compared with 1,252 last year. The students were to be congratulated on their success in raising over £4,000 for charities, especially hospitals of the city, during their gala week. Among the ordinary degrees conferred were those of M.B., Ch.B. on twenty-one graduands and of M.D. on seven.

England and Wales

Committee on Hospital Costs

Sir Hilton Young, the Minister of Health, has appointed a Departmental Committee whose terms of reference are:

"To consider and report on the questions of the capital cost of construction and the annual cost of maintenance of the following classes of public buildings provided by local authorities—namely, hospitals (including mental hospitals), public assistance institutions, mental deficiency institutions maternity homes (including maternity departments newly constructed or added to hospitals), and baths and wash-houses special regard being paid to (*a*) the establishment and periodic revision of standards, (*b*) modern methods of construction, and (*c*) the possibility of securing a reduction in present costs without impairing the efficiency of the buildings for the purposes for which they are designed."

The Committee is appointed in pursuance of a recommendation made by the Committee on Local Expenditure in their Report (Cmd. 4200) of October, 1932, and in accordance with the announcement made in the Minister's Circular 1311 of March 22nd, 1933. Its members are: Sir L. Amherst Selby-Bigge, Bt. (*Chairman*), Mr. J. Allcock, Mr. N. B. Batterbury, Dr. H. W. Bruce, Mr R. C. Cox, Dr. J. Ferguson, Mr. J. Kirkland, Dr. T. S McIntosh, Mr. R. H. P. Orde, Mr. L. G. Pearson, Mr. A. Scott, and Dr. W. Rees Thomas. The Secretary will be Mr. J. Topping of the Ministry of Health, to whom all communications relating to the work of the Committee should be addressed.

The "West London" Dinner

The West London Medico-Chirurgical Society held its fifty-first annual dinner on July 6th, at the Trocadero Restaurant, with Dr. Julius Burnford, the president, in the chair. After the loyal toast had been honoured the health of the society was proposed in a brief speech by the Very Rev. W. R. Inge, Dean of St. Paul's, who said that he expected a medical dinner would have consisted chiefly of vitamin dishes: cod-liver oil, lettuce and lemon, and vitamin D "to preserve us from rickets." Commenting on the medical profession Dean Inge said that he and his family were deeply indebted to it. The president, in reply, remarked that, as the West London Medico-Chirurgical Society dinner came at the end of a long series of medical dinners, during which he had listened to speeches from eminent members of various callings in life, he found it difficult to think of anything new to say. Societies like the Harveian and the Hunterian lent themselves to "titular" speeches. Mentioning by name the founders of the society, Dr. Burnford went on to show that the West London Medico-Chirurgical Society had progressed on a wide front. Dr W. S. C. Copeman, proposing "The Guests," began with a quotation from the Bible, and then took refuge in *Who's Who*. Welcoming the presence of Dean Inge, he expressed the hope that when he retired from St Paul's next year he would once more delight the world with his writings. Dr. Copeman then referred to each guest by name, with apt biographical allusion. Among those present were Lord Dawson, P.R.C.P., Sir Holburt Waring, P.R.C.S., Dr. Cecil Wall, Mr Warren Low, and Lord Justice Slesser. In a witty speech Lord Justice Slesser replied for the guests. He told the story of how he once had, against the better judgement of his clerk, interviewed in his chambers a mentally afflicted lady. This had taught him that the two professions of law and medicine should not be confused. Medicine, he said, was liberal and radical; the law was conservative. The response was ably seconded by Sir Holburt Waring, and Mr. B. A. Levinson proposed the president's health.

The Wrightington Hospital

The new Lancashire tuberculosis centre at Wrightington Hospital, near Wigan, has been formally opened by Sir George Newman. Reference to this institution and to its place in the Lancashire tuberculosis scheme appeared in the *British Medical Journal* of June 24th. In his address Sir George Newman quoted the precedents of the successful campaigns of the past waged against leprosy, plague, small-pox, and cholera. These diseases, though now banished almost completely from this country, were still flourishing in some other parts of the world, where, so far, it had not been possible to combine against them that force of will and determination which had proved so successful in England. Now the turn of tuberculosis had come, and a great part of the victory had been won already, for in the last sixty years its incidence and mortality had shrunk by three-quarters. Sir George traced the origin of the hospital to the two monastic infirmaries built in Athelney by King Alfred exactly a thousand years ago, and this retrospect led him to comment on the way in which the best of the medical traditions of the past were now being associated with the most modern discoveries in the task of eradicating tuberculosis. Traces still persisted in the new institution of ancient Greek and Arabian medicine. Laennec's spirit lived on in the stethoscope; the discovery by Koch of the tubercle bacillus, and by Röntgen of x rays, had afforded the means of diagnosis and treatment which were proving so effective to-day. Wrightington owed much to Lord Lister, and should never forget the name of Sir Robert Jones, the pioneer of orthopaedic surgery. This institution, unlike any other temple of healing in the country, was being built into a great national scheme for the prevention of tuberculosis. It afforded the best example in all England of the combination of means of prevention with methods of healing. Lancashire had the best scheme for attacking tuberculosis in any county; each year it was saving a thousand lives from tuberculosis. Children born now in that county had an expectation of life sixteen years longer than their grandfathers had had. England showed the lowest death rate of any civilized country in the world. Housing had improved, the nutrition of the population was better, and even the strain of unemployment had not brought about any increase in the sickness rate. All these were now bearing the fruit of a diminishing tuberculosis incidence. The new hospital was not only a temple of healing, but also of a most liberal education. Sir George Newman concluded his address with a warm tribute to the great part being played in the hospital and the home by the devotion and efficiency of modern nursing, particularly in the campaign against tuberculosis.

Inquests by London Coroners

The number of deaths reported to London coroners in 1932 was 8,360, an increase of 205 on 1931. Inquests were held in 3,491 cases, as against 3,603 in the previous year. Post-mortem examinations were made in 2,660 of the inquest cases, and in 2,588 of the other cases in which no public inquiry was necessary. A verdict of "Murder" was returned in twelve cases (two of them newborn infants), of "Manslaughter" in four, and two inquests were held in connexion with executions. The total number of suicides was 719, an increase of eighty-four on the previous year. The number of deaths from want of attention at birth increased from twenty-eight to forty. Death by accident was recorded in 1,892 cases, as against 2,050 in 1931; injuries accounted for forty-eight deaths, and there were fifty-two deaths by drowning. A verdict of "Death from natural causes" was returned in 573 cases, and there were four verdicts of "Cause of death unknown." Inquests on newly born children increased from fifty-one to sixty-seven; in twenty-seven cases it was decided that the children were stillborn. Excessive drinking accounted for fifty-four deaths, as against fifty in 1931. The cost of inquiries and inquests, exclusive of coroners' salaries and the rent of coroners' courts, was £22,395.

CORRESPONDENCE

Memorial to Dr. Carey Coombs

SIR,—Many of the friends and patients of the late Dr. Carey Coombs have expressed the desire of establishing in his memory some form of permanent memorial. With this object in view a committee of eight has been appointed, representing the Bristol University, the British Medical Association, the Bristol Medico-Chirurgical Society, and the Bristol General Hospital. We (the members of this committee) have decided to collect funds for the purpose of this memorial, and are satisfied that whatever sum is raised it will be possible to invest it in such a way as to keep Dr. Carey Coombs's name in perpetual remembrance. We may be able to endow a research studentship (an object very dear to Dr. Carey Coombs's heart) or a lectureship, associated with the Bristol University. The income of this sum will be given to Mrs. Carey Coombs for the next five years towards the education of her children.

Promises or cheques should be sent to Dr. Elwin Harris, jun., 13, Lansdown Place, Clifton. Cheques should be crossed "Coombs Memorial."—We are, etc.,

ERNEST W. HEY GROVES,
President, Bristol Medico-Chirurgical Society (*Chairman*).
CLARE SMITH,
Committee of the Bristol General Hospital.
EDWARD FAWCETT,
Dean of Medical Faculty, Bristol University.
C. E. K. HERAPATH,
British Medical Association and Bristol Royal Infirmary.
S. MARLE,
Bath Division of British Medical Association.
C. A. MOORE,
Bristol General Hospital.
J. A. NIXON,
Professor of Medicine, Bristol University.
H. ELWIN HARRIS, jun.,
Bristol Medico-Chirurgical Society (*Secretary*).

Clifton, July 9th.

Paying Patients at Voluntary Hospitals

SIR,—Dr. Rowland Fothergill, in his letter in your issue of July 8th, states that the Pay Beds Committee of King Edward's Hospital Fund proposed:

(*a*) That the accommodation provided in voluntary hospitals should be placed at the disposal of those of "moderate means" on the same terms and conditions as apply to the "sick poor," no payment for medical treatment being allowed.

(*b*) That the general practitioners should be "kept in contact with" these patients by communication, information, and advice.

(*c*) That the committee of management should lay down certain rules or limitations as to the medical practitioners who should be allowed to attend these patients.

The actual conclusions of the Pay Beds Committee on these subjects were:

(*a*) On the question of payment of medical fees, they stated that there was a difference of principle between wards where treatment was provided by the honorary medical staff free of charge and wards where the doctors received private fees; and that it was desirable that as many prospective pay bed

patients as possible should be enabled to place themselves in a position in which they can pay the full cost of maintenance in a pay ward and a medical fee as well.

(*b*) On the question of the relation with general practitioners, they quoted numerous different arrangements in force at different hospitals, and expressed the view that the maintenance of relations with general practitioners would be most important to the success of any large extension of the pay bed system if full use was to be made of the beds.

(*c*) On the question of rules or limitations as to the medical practitioners who should be allowed to attend the patients, they discussed the numerous differences in the existing rules, and the reasons given for them, and suggested that the question whether treatment should be confined to the medical staff or should be open to other consultants or to any registered practitioner was one that the governing body of each hospital should decide for itself.

—We are, etc.,

LUKE,
H. A. WERNHER,
Honorary Secretaries.

King Edward's Hospital Fund for London, July 11th.

Medical Practice and the Curriculum

SIR,—I am glad to see Dr. Camac Mellor, in your issue of July 8th, dotting the " i's " and crossing the " t's " of the argument for specialization in the medical curriculum. In a letter which appeared in your columns on June 11th, 1932, I pointed out that specialization for the practitioner was the inevitable outcome of the trend of events, and indicated that the universities would, by the force of circumstances, be compelled to rearrange the course of teaching for the student with this end in view.

I suggested further that while the authorities were considering the possibilities of change they might also bring about badly needed reforms in the method of teaching. The customary method of expounding subjects by lectures, for example, has nothing to recommend it so long as there are good textbooks available. It is a waste of time, increasingly resented by the more intelligent type of student. Discussion classes could be arranged to take the place of lectures. These would have the important advantages of explicating and elucidating obscure and difficult points, and at the same time of providing the student with an insight into scientific method and the estimation of evidence. The need for the propagation of the scientific attitude, in view of the prevalence of the variegated mystical and sham " systems," was never more evident than it is to-day.—I am, etc.,

London, W.1, July 10th. FREDERICK DILLON.

The G.P. and Midwifery

SIR,—The recent correspondence on this subject is of interest and importance to the profession. It is not astonishing that the general public who read the figures published regarding maternal mortality and morbidity should begin to wonder where the fault lies. Very naturally they blame the supposed inefficiency of the general practitioner, not the maternity hospital presided over by experts. The blame is often unfairly placed.

Speaking for the general practitioners of the older school as well as for the younger generation, my experience during forty-five years' practice in the Highlands of Scotland has been that in this large and scattered area midwifery is conducted with skill and followed by satisfactory results. We thank Dr. E. K. Mackenzie, whose pioneer ante-natal work is known and recognized by us, for his courageous defence of the maternity work of the general practitioner (*Journal*, June 3rd, p. 983). Dr. Mackenzie says that " the bulk of my patients live in cottages with no sanitary conveniences and only outside well-water supplies." This is true of most of the patients whom I have attended in Sutherland, except in the larger villages. But there is no puerperal fever; my last case dates back to the early nineties of last century. I have never seen a maternity case go wrong in the hills far away (ten to twenty miles) from the doctor. Difficult cases causing delay and much anxiety to the doctor occur as they do elsewhere—eclampsia, malpresentations, occipito-posterior positions, etc.—yet mothers and babies seem to do well. We have always acted on the belief that an anaesthetic is necessary for the examination and diagnosis of any case in which the diagnosis is not quite certain. Chloroform is practically the only anaesthetic possible in country work. It never fails, and, with care, unsatisfactory results are almost unknown. The letter of the Master of the Rotunda (*Journal*, July 1st, p 33) admirably sums up the whole question of chloroform in maternity work.

My conviction is that, generally speaking, the country doctor conducts his midwifery cases with less haste than his busier colleague in town practice can afford to do. There is less interference with the course of nature and correspondingly good results. Midwifery is his specialty. His knowledge is above the average, his judgement sound. He works mostly alone, and courage and self-reliance are developed. Most of our districts are served by " Queen's nurses." They are fully trained, and in addition hold the C.M.B. diploma. They give valuable help to the doctors in midwifery as well as in general cases.

Pace Dr. Mackenzie, my opinion is that in a widespread and thinly populated county such as this it would be of advantage to us in our work, and possibly therefore an additional safeguard to our patients, if we had at our disposal a few maternity beds attached to our county hospital to which, at the discretion of the doctor in attendance, a complicated midwifery case might be transported by ambulance. Dr. Mackenzie says at the close of his letter: " Thank God I shall be dead before that day comes . . ." [maternity hospitals in the Highlands]. Would he consent not to leave us if we ask for only a few maternity beds? I trust he would, for we should be very unwilling to hasten an event which his colleagues fondly hope is far distant.—I am, etc.,

Golspie, Sutherland, July 1st. JAMES B. SIMPSON.

SIR,—Every general practitioner must have appreciated the recent correspondence on midwifery in the *British Medical Journal*. Dr. Mackenzie's letter was excellent; and I should like to congratulate Dr. Kathleen Vaughan on her championship of the squatting position. The psychological side of maternity is well put by Dr. G. D. Read in his book *Natural Childbirth*. I feel that many of the articles in the public press on maternal mortality only result in scaring future mothers, and so do no good. My own experience of midwifery runs to about 1,500 cases (my actual records were lost when removing to another house), and I have had four deaths (one at least of which was unavoidable, being due to intraperitoneal rupture of a small ovarian dermoid during labour). This is not an alarming mortality; and I feel sure there is a no more alarming morbidity. My cases have included all presentations except mento-posterior (the only time I have heard the vagitus uterinus was in a face presentation), and I think I have had to use every obstetric instrument except a cephalotribe. My practice is not within easy reach of any hospital.—I am, etc.,

Barton-on-Humber, July 7th F. P. H. BIRTWHISTLE

Use of Quinine in Normal Labour

SIR,—Dr. G. C. Dorling's letter in your issue of July 8th (p. 79) does not do justice to my original paper in the *Journal* of January 25th, 1930. Neither Dr. Rees's letter of April 1st (p. 587), to which he refers, nor my paper had anything to do with the question of induction of labour by quinine. Both of us referred to the method of pre-natal quininization as a routine for cases of labour expected to fall within normal limits. Without going into details, the method consists in giving a small dose of quinine (1½ grains three times a day) for a period of three weeks before the anticipated date of labour, the object being to tone up the uterus and to try to ensure good contractions and good retraction. In the first 400 cases observed by Dr. Philip Jones and myself it was specifically noted—among many other considerations—that no tendency to retained placenta occurred. In a very much larger number of cases observed since then by my colleagues and myself this claim has been substantiated, and should any individual worker see one such case it should *not, without careful analysis, be blamed to the quinine.*

About twelve years ago, when pituitary extract had a great vogue for use in the second stage of labour, I saw three consecutive cases of retained placenta, and in my own mind I blamed the pituitrin. A year later one of these same cases again had a retained placenta with no pituitrin (and no quinine). This is but one more example of the extreme difficulty in medicine of distinguishing between " impressions " and " facts."—I am, etc.,

DOUGLAS A. MITCHELL,
Bath, July 8th. M.D.Lond., F.R.C.S.Ed.

Aetiology of Acute Rheumatism

SIR,—It is a well-authenticated fact that in temperatures above about 70° F. plague cultures can be splashed and the air around inhaled with impunity, but when the same thing is done at a very low temperature the workers get pneumonic plague. There is an almost exact correspondence to this in the behaviour of natural pneumonic plague. In the Tropics pneumonic plague may kill every person in a house, and yet it never becomes epidemic, and an unmasked doctor can generally visit the cases with reasonable safety; but in a Manchurian winter pneumonic plague spreads as an epidemic, and almost all unmasked persons who handle the case get the disease and all properly masked ones escape. There are two theories to explain the above: one that warm air attenuates the bacillus in the droplet, and the other that cold air weakens the defence of the mucous membrane. When an Eskimo enters his dwelling he throws off all his clothes and lives completely naked in a temperature of about 70° F.; at other times he is mostly hunting. Thus, so far as droplet infection is concerned, he is virtually in the Tropics.

If acute rheumatism is propagated by droplet infection then the anomaly of the Eskimo, pointed out by Dr. E. C. Warner in the account in the *Journal* of June 17th (p. 1060) of " Soil and Climate in Relation to Rheumatic Diseases," disappears. It may be considered almost an axiom that if an acute febrile disease tends to be relatively rare or mild within 15 degrees of the Equator near sea-level and common in cool and temperate climates (diphtheria, scarlet fever, measles, pneumonia, whooping-cough, rubella, influenza, common " colds," etc.), or if it occurs as winter epidemics at the tropical margin which are rapidly checked by the advent of summer (small-pox, cerebro-spinal fever, etc.), then it is due to an organism which enters the body via the air. Acute rheumatism and scarlet fever stand, I believe, almost by themselves in their intense objection to tropical conditions; if the infection of the one is received via the air that of the other probably is also.

As a medical man I spent twenty-three years in Hong-Kong—about the third largest port in the world as regards tonnage of shipping and a city of more than half a million people, with heavy passenger traffic to and from North and South America, the Philippines, China, Indo-China, and Malaya—and I never saw or heard of a case of acute rheumatism arising there; nor did I ever see a lesion caused by it, though I examined about 4,000 hearts of Chinese children post mortem. Scarlet fever sometimes rages in epidemic form in Shanghai, whence there is a large passenger traffic to Hong-Kong, about four days' steaming to the south: cases arrive in Hong-Kong and have been known to infect children using the same room, but no epidemic is ever set up.

In a Hong-Kong summer dewdrops hang upon the trees all day, pillows smell of mould twenty-four hours after drying, pictures go mouldy on inside walls, match heads drop off, the clouds blow through your rooms, and the rain bird toils all day; but there is no acute rheumatism. *Rattus norvegicus* has been common in Hong-Kong for at least twenty-five years, and there are many sewers. In 1906–9 *Xenopsylla cheopis* was common and *Ceratophyllus fasciatus* very rare. The plains of India are not tropical in winter; people huddle together there for warmth in a temperature under 55° F. I have seen them in Punjab villages far from the Hills so closely packed together, in a temperature not much above freezing point, that I could not walk between them.

I have never heard of a therapeutic measure in which cases of acute rheumatism or scarlet fever were kept in a humid temperature of about 80° F. night and day, but I consider it most important to try such a measure. In acute rheumatism we might hope that it would prevent relapses and shorten the duration of the disease. In scarlet fever we might hope that the treatment would pay for itself by diminishing return cases and shortening the stay in hospital. There must, I think, be plenty of tomato houses in the hands of the banks which could be adapted to the purpose. Better grapes, better melons, better tomatoes, and better cucumbers are grown in English coal-heated fruit houses than in their native lands, because the temperature and moisture can be regulated to a nicety. Perhaps we could go one better than the Tropics in the treatment of some diseases.—I am, etc.,

Hassocks, Sussex, June 24th. C. M. HEANLEY.

Prophylaxis of Malaria

SIR,—May I be permitted to endorse the letter of Dr. O. G. Wilde in your issue of July 1st (p. 35) on the subject of malaria and quinine prophylaxis. I do so with the greater confidence since my experience covers both West Africa and Malaya, of whose medical service Dr. Hoops was until lately a most distinguished member.

I served in West Africa in a most malarious up-country district for twenty months during 1925–6. Of anti-malarial work as it is known and carried out in Malaya there was none. I accepted, in common with most others, the practice of the daily dose of quinine, and during the whole of my service took it religiously. In the small community in which I lived two of the other Europeans developed malaria. In both cases they had, against all advice, omitted to take quinine. The presence of malaria in this area was not in doubt, a very high proportion of the African children having enlarged spleens, and typical malarial attacks being common. Following my return from Nigeria I spent three years in the Malayan Medical Service. There I found that the idea of quinine pro-

phylaxis was scorned, but that attacks of malaria among Europeans in malarious areas were assumed to be almost unavoidable, and accounted for much invalidism. I could not but contrast this with the attitude to malaria in West Africa, where the individual who went down with fever was looked upon as, in most cases, one who was simply paying the penalty of neglect of an obvious precaution.

My work in Malaya took me frequently to malarious areas, chiefly on rubber estates, where it was no uncommon thing for the European staff to suffer from malaria. While on these visits I regularly took quinine. Neither then nor since have I ever suffered from malaria. On my departure from Malaya I wrote a letter on this subject, which was duly published in the *Malayan Medical Journal*. I would agree with Dr. Hoops that quinine prophylaxis as a method of *mass* attack on malaria does not in practice work, but from my experience, and from the experiences of others, I believe that to be largely due to the fact that the quinine is either not taken or else that it is got rid of at the earliest opportunity. But where quinine prophylaxis has been honestly put to the test by individuals themselves, the result, so far as I have been able to discover, has always been highly satisfactory. The personal prophylaxis of malaria by the taking of quinine badly wants a real trial in Malaya.—I am, etc.,

March, Cambs, July 1st. THOS. C. LONIE.

SIR,—Dr. O. G. Wilde's letter in your issue of July 1st (p. 35) interests me, and from my own somewhat prolonged experience in dealing with malaria in Assam I can in very large measure confirm what he writes regarding the high value of quinine prophylaxis in that disease. Without doubt it is the irregular or non-quinine taker who suffers from continual malarial attacks. The person who takes the regular daily dose of 5 grains of quinine is, as Dr. Wilde states, not immune, but gets far less frequent attacks, and attacks as a rule milder in character. My work in Assam lay for over fourteen years in highly malarious districts, where subtertian malaria was endemic and cases of blackwater fever of lamentably frequent occurrence. With Dr. Wilde, I never saw a case of blackwater fever in a person who took quinine regularly, and I proclaimed this constantly as a definite insurance against this deadly disease. Blackwater fever, I found, occurred pre-eminently in people who despised prophylactic quinine, and who suffered from repeated, more or less neglected, attacks of subtertian malaria, or, again, in persons who took heavy doses of quinine only on the occurrence of a malarial attack, dropping the treatment before the infection was completely overcome. In this type of person any prolonged fatigue, unusual exertion, or chill precipitated an attack of blackwater fever, often, in the case of members of the European community, with fatal results.

Now all this is indubitably true, although appearing much at variance with Dr. Hoops's statement (June 10th, p. 993) of the uselessness of quinine prophylaxis in malaria; but I think the secret of the divergence of opinion lies in the *intensity of infection*. I am satisfied that the results of administering quinine in prophylactic doses to a coolie population can scarcely justify the expense, and to depend on this method for the control of malaria on a tea or rubber estate is futile. Prophylactic quinine here cannot take the place of measures directed against the mosquito, although it is perhaps of some limited use as a supplementary means. Where it is of high proven value is in the case of Europeans and others who live in reasonably sanitary surroundings, who are accustomed to the use of mosquito nets, or who inhabit screened houses. In dealing with a coolie population success must be looked for primarily in anti-mosquito work, and then in the thorough treatment of malaria cases as they arise with quinine or, as Dr. Hoops suggests, with atebrin, which seems such a remarkable therapeutical advance—especially in children, the reservoirs of infection.—I am, etc.,

Newport, July 3rd. CHARLES E. P. FORSYTH.

SIR,—I am in agreement with Dr. O. G. Wilde's letter in the *Journal* of July 1st (p. 35). After nearly twenty years in Nigeria I can say that the majority of the off-duty cases diagnosed malaria were among those who did not take quinine regularly. I was in a moderately healthy district, but the malaria was always among those who were not careful to take their daily 5 grains. I am of opinion that only one salt of the drug should be taken—namely, the bihydrochloride—as I have seen the tablets of sulphate in the faeces almost as they have been taken. All my cases of blackwater occurred among persons who either did not take quinine or only took it when they felt ill. A great deal of harm is done by such sweeping statements as those referred to by Dr. Wilde. I have never suffered from malaria, but have always been careful to take quinine daily, and an extra dose if I had been exposed to rain or had done extra hard journeys. I always continued quinine daily for two months after arrival in England, and have never felt any ill effect. The wise people in West Africa are those who take their 5 grains of quinine daily.—I am, etc.,

J. R. C. STEPHENS.
St. Austell, Cornwall, July 3rd. W.A.M.S. (ret.).

Vaccines in Coryza

SIR,—I have read with interest Dr. F. Porter's remarks (June 24th, p. 1127) on my paper "Autogenous Vaccines in Acute Coryza" in the *Journal* of June 10th (p. 996). In view of the fact that three distinct groups of observers—namely, von Sholly and Park, Jordan and Sharp, and Ferguson, Davey, and Topley—all carried out investigations into the value of stock anti-catarrhal vaccines on a scale which can only be described as colossal, and came to the unanimous conclusion that the protective effect of these vaccines was *nil*, I feel justified in treating with some scepticism Dr. Porter's 70 per cent. successful protection, especially as he "cannot give any accurate statistics." Dr. Porter states that "the proof of the efficacy of vaccine treatment lies in the fact that a large number of patients demand it annually." It is also true that the demand for patent medicines is enormous, but I doubt if Dr. Porter would regard that as a proof of their therapeutic efficacy.

With regard to the stage of the disease at which treatment was given, patients were, of course, treated as far as possible in the absence of acute symptoms. The question of vaccine dosage is a difficult one, but it seems to me that vaccines may be used for two purposes in therapeutics: first, to immunize the patient against the organism in question, in which case such evidence as is available would suggest that the larger the dose and the greater the reaction obtained the more effective is the subsequent immunity; and, secondly, to desensitize a patient who is supersensitive to a bacterial toxin, in which case minute doses are necessary and reaction is to be avoided. Dr. Porter would appear to use his vaccines in the second way, and it is, of course, not impossible that sufferers from coryza may be supersensitive to the toxic products of the causal organism, though I have never heard of any evidence to that effect.

With regard to the omission of the *Micrococcus catarrhalis*, in a somewhat extensive investigation of the

bacteriology of the respiratory tract I found Gram-negative cocci of the *catarrhalis* type to be present in 100 per cent. of normal throats and about 40 per cent. of normal noses. In the very extensive work done on the aetiology of acute coryza in the last fifteen years, as far as I am aware only one observer has suggested that the *Micrococcus catarrhalis* played a primary part; and as his observations were confined to the study of a single case, I think they may be discounted. The only justification for the extensive use of vaccines for the prophylaxis of the common cold is that a certain number of individuals appear to benefit from them, and that these can only be selected at present by the process of trial and error.—I am, etc.,

Leeds, July 4th. L. HOYLE.

Perforating Ulcer of Foot

SIR,—Messrs. James and Matheson's article in the *Journal* of July 1st (p. 12) interested me greatly. Personally I have found that a periarterial sympathectomy upon the femoral artery, performed thoroughly—that is, dissecting completely the adventitia for at least three and a half inches—is an effective method in cases of perforating ulcer of the foot. My most convincing case was operated upon at Oldchurch Hospital, Romford, last December. The patient was a man of 61, and the ulcer had been present for the last thirty years. During this time it had never healed up, even for a short time, in spite of all kinds of treatment, which had included periods of rest in bed for upwards of three months. After the periarterial sympathectomy the ulcer healed completely within five weeks. I saw him a fortnight ago. The sole of the foot was quite healthy, and he had been wearing boots and walking normally during the interval.—I am, etc.,

London, W.1, July 4th. HAMILTON BAILEY.

Otorrhoea

SIR,—Mr. E. Watson-Williams, in his interesting address (*Journal*, July 8th, p. 47) refers to the treatment of chronic otorrhoea by zinc ionization, and among other things says that the result would be the same whether the electric current were used or not.

In zinc ionization two factors have to be considered—the zinc and the current. After the ear has been cleansed and filled with zinc sulphate solution (one-quarter of one per cent. in strength), the positive electrode is placed in the ear and the positive zinc ions only are introduced into the film of infected discharge adhering to the surface and into the superficial cells of the tissues. The quantity of ions introduced, and the depth to which penetration extends, depends solely on the strength and duration of the current. Tympanic cavities are approximately of the same size. The dose was determined empirically. It is found that with a current of 3 milliamperes for ten minutes the dose of zinc is satisfactory. Zinc ions readily combine with albumin to form a firm, insoluble precipitate. This precipitate is a bad culture medium for bacteria. As the firm precipitate or coagulum of zinc and albumin is insoluble, the action of the zinc is confined to the tissues into which it has been introduced. Subjacent tissues are not irritated.

The factors essential to success in local antisepsis are that the action of the drug should be inimical to the activities of bacteria, and that tissues subjacent to the surface treated should not be irritated. Zinc ionization fulfils these desiderata, and it is the only antiseptic treatment for suppuration known to me which is worthy of the name. The majority of cases of chronic suppuration in the ear, due to sepsis alone in an accessible position, cease to discharge after one treatment. Can this be said of any other method of antiseptic treatment? It is owing to its efficacy that it is of economic importance.

Nearly ten years ago an aural clinic with one session of two and a half hours a week was added to the school medical service at Tottenham. The school population was 25,000. There were a large number of cases of chronic otorrhoea. These cases were examined, and the cause of chronicity determined in each. For those cases of considerable severity, in which sepsis alone in an accessible position was considered to be the responsible factor, zinc ionization was the standard form of treatment. None of the cases received any treatment in the intervals between their visits to the clinic. In those in which there were factors additional to sepsis, such as polypi or granulations, these were first treated. The majority of those cases in which the area of sepsis was inaccessible required a mastoid operation, and were sent to hospital. There has not been a waiting list for several years. Every acute case can now be seen within a few days of its discovery. Chronic otorrhoea is almost absent from the elementary schools at Tottenham. The method which has been the basis of treatment for chronic otorrhoea is zinc ionization.—I am, etc.,

London, W.1, July 8th. A. R. FRIEL.

Glycosuria in Cerebro-spinal Fever

SIR,—We think the following case might be of interest:

On June 17th a boy of 13 travelled to the seaside, bathed, and returned home the same evening, apparently well. During the next day (18th) he vomited three or four times, complained of abdominal pain, but was better at 10 p.m. Half an hour later he became incoherent and drowsy, throwing himself about the bed.

At 4 a.m. on the 19th one of us was called in, and found a well-nourished boy in a condition of stupor, lying on his side with knees drawn up. His pupils were widely dilated, and ophthalmoscopic examination revealed no abnormality of retina or disk. The patient showed mental irritation when touched: he was incontinent of urine and the rectal temperature was 103°. Rigidity of the muscles of the neck was not present, but the boy strongly resented our attempts to move his legs. Urine was obtained through a catheter, and it was found that 8 drops were sufficient to reduce 5 c.cm. of Benedict's solution to an orange colour as soon as boiling point was reached, while the ferric chloride and Rothera tests for aceto-acetic acid were strongly positive.

We were unable to satisfy ourselves that the boy had suffered from thirst prior to the present illness, but the fact that the urine apparently contained more than 2 per cent. of sugar and also aceto-acetic acid made it seem improbable that the patient's condition was caused by meningitis; therefore the diagnosis made was diabetic coma, onset occasioned by febrile catarrh, and our treatment during the day is recorded.

June 19th	Urine		Insulin Given		Temperature
	Sugar	Aceto-acetic acid			
6.30 a.m.	++	++	40 units (intravenous)	Glucose given in amount to correspond to insulin	98.6°
9 a.m.	++	++	40 units (intravenous)		101.0°
12 p.m.	trace	—	20 units (hypodermic)		100.4°
2 p.m.	trace	—	10 units "		—
6 p.m.	trace	—	5 units "		101.0°
9.30 p.m.	—	—	5 m adrenaline given		101.6°

At the end of this time the stupor had lightened, but there was no marked improvement. We thought that there were signs of hypoglycaemia at 8 p.m., but a large amount of glucose could then be taken by mouth. Next morning (June 20th) the patient developed twitching of the face muscles, and later general convulsions. The cerebro-spinal

fluid was found to be under pressure: it was cloudy, and contained pus cells and Gram-negative cocci. Serum was administered by the intrathecal and intravenous routes, but the boy died during the night of the 21st.

It is well known that glycosuria does occur in association with meningitis, but that such a high percentage of sugar should be found seems unusual. At any rate the occurrence was sufficient to cloud our judgement for a while, and encouraged us foolishly to disparage the significance of the clinical manifestations.—We are, etc.,

G. S. W. EVANS.
O. F. SYDENHAM.

Crewe, June 24th.

"Recurrent Volvulus of the Pelvic Colon"

SIR,—The article by Messrs. Ligat and Overend under the above title (*Journal*, July 1st, p. 7) will serve a useful purpose if it brings out the fact that elongation of the pelvic colon is, under certain conditions, a potent source of trouble. The authors stress the liability of such an elongated loop to torsion either on its transverse or longitudinal axis. This, however, is not the only way in which an elongated pelvic colon can give rise to trouble. When such a loop is loaded with faeces it prolapses into the pelvis, and by making the opening up of the pelvi-rectal angle difficult, and so preventing the passage of material into the rectum, it prevents the proper establishment of the defaecation reflex and induces a particular type of constipation.

In a paper in the *Lancet* (August 7th, 1926) I pointed out this fact, and gave details of four cases in which the symptoms were severe enough to call for excision of the loop, but without the actual occurrence of volvulus. I also pointed out that in children such a loop, full of material and prolapsed in the pelvis, might give rise to anaphylactic phenomena such as asthma, urticaria, etc. Since the publication of that paper I have had cause to resect the elongated pelvic colon loop in a further eighteen cases. With end-to-end anastomosis and the passage of a tube up the anus and through the junction there has been no mortality, and the relief to the patients has been striking. Mr. Ligat, in his classification of types of elongated pelvic colon, rightly separates the megasigmoid, in which there is gross dilatation of the lumen, from the other types, and attributes it to a neuro-muscular imbalance. Such a distinction is important, as while operations on the abdominal sympathetic may, and in some cases do, improve this type of case, they can be of no value in the more usual type of elongation without dilatation, to which they are sometimes erroneously and unfortunately applied.—I am, etc.,

E. G. SLESINGER.

London, W.1, July 2nd.

Cancer Families

SIR,—The family history of cancer reported by Mr. Harold Dodd in the *Journal* of July 1st (p. 36) is remarkable, and offers further evidence, if needed, of the influence of the inherited factor in the aetiology of this disease. I have myself been acquainted with a family in which the mother died of cancer of the breast, the eldest daughter died of visceral malignant disease (cancer or sarcoma), and the second daughter also died from cancer of the breast, after operation. Such cases as these, many of which are known, indicate the importance of investigating the existence of precancerous changes in the blood and tissues, which must exist if the disease is inherited, and must long precede any outward manifestation. In this way only can any real cure for cancer be discovered. There are, however, signs of a revival of research on these lines.—I am, etc.,

C. F. MARSHALL, F.R.C.S.

Westcliff-on-Sea, July 3rd.

Obituary

THE LATE SIR WALTER FLETCHER

Dr. JOHN H. HANNAN (pathologist, Hospital for Women, Soho) writes: May I, as a research worker of some ten years' standing, pay a last tribute to the memory of one who was no "defeatist" in medical research. Sir Walter Fletcher always insisted upon the importance of strict "control" work, and it was typical of him to ask me to investigate the possibility of spontaneous cure of carcinoma before publishing my investigations concerning the various therapeutic agents used in the treatment of this disease. In these days, when the public appear to be losing confidence in qualified medical practice, we are in urgent need of men like Sir Walter. So frequently we research workers find nothing but destructive criticism as a reward for our efforts, whereas in meeting Sir Walter one could always count upon a man who listened, criticized, offered constructive suggestions, and hoped that our work would reach a successful conclusion. Men like Sir Walter Fletcher are but rarely born, and I pay my final tribute in ancient language. Let us be among those who, like Sir Walter, "at once mark the goal"—*simul ultima signant*.

THE LATE DR. FORD ANDERSON

Dr. ROBERT CARSWELL writes: The obituary notice of Dr. J. Ford Anderson would be incomplete without a reference to what was undoubtedly one of the dominant motives of the last twenty-odd years of his life. As a member of the central committee of the British Medical Association which formulated the views of the Association and of the profession generally before the passing of the National Insurance Act of 1912 he has recorded how, when the passing of the Act was imminent, the profession rose like one man to protest against it—97 per cent. being the figure. And from that time to almost the day of his death he never ceased to evince the most active and uncompromising hostility against those revolutionary measures which so fundamentally altered the practice of medicine in his time. Like his friend the late Dr. Alexander Blackhall-Morison, he considered that the National Health Insurance Act brought in its train to the medical profession loss of independence, loss of scientific spirit, and also introduced a commercial outlook which had hitherto been foreign to the profession, and he liked to compare his fellow members of the National Medical Union, of which he was one of the founders, to those clergy (of whom his father was one) who seceded from the Church and faced hardship for conscience' sake in the Disruption of the Church of Scotland in 1843. Among a number of contributions to the journal of the above society a paper of his entitled "Reminiscences of Lister" is well worth perusal. It has been reprinted by the society in pamphlet form. Also an article on the Oath of Hippocrates (January, 1930), prefaced by a translation of the Oath and a reproduction of a third century head of Hippocrates, is of much interest. The extraordinary span, not only of time but of thought, covered by his life is brought home to the reader of the last-named article by his recollection of an old gentleman-cupper in a swallowtail coat who called at the ward door of the Middlesex Hospital daily in 1863 after the physician's visit, and said, "Any orders for me, Sister?" This, he says, was probably the last of the barber surgeons These notes are written as an affectionate tribute

Dr. WILLIAM BARRON, who died last month at his residence in Letham, Forfarshire, had been engaged for fifty years in general practice in that district He received his medical education at Aberdeen, where he graduated M.B., C.M. in 1878, and proceeded M.D in 1885. He was medical officer and public vaccinator for Dunnichen and Carmylle, and part-time medical officer for Forfar. Notwithstanding the claims of a widespread practice Dr. Barron found time to identify himself actively with the social life of the community He took special interest in freemasonry, education, horticulture, and the

promoting of local athletic sports. He was a member of the British Medical Association. One of his colleagues, Dr. John Cable of Forfar, writes of him: "A man of simple tastes, wide sympathies, and modest bearing, he won and kept a large circle of friends. His intellectual acumen and wide mental vision often showed a touch of real genius. Behind a shyness and reserve of manner he could think great thoughts, and give them telling expression. A man of wonderful ability, strong tenacity of purpose, and intense human sympathy, he leaves behind him the fragrant memory of a noble life, which will always be cherished by everyone who knew him."

Universities and Colleges

UNIVERSITY OF LONDON

At a meeting of the Senate on June 21st it was resolved to institute a University Readership in Pharmaceutics, tenable at the College of the Pharmaceutical Society.

Professor A. E. Boycott, M.D., F.R.S., was reappointed Director of Research under the Charles Graham Medical Research Scheme for one year from September 1st.

The Regulations for the B.Sc. (General) Degree for Internal Students were amended by the insertion of the following after the first sentence on page 275 of the Red Book, 1932-3:

A student who, subsequently to passing the Intermediate Examination in Science as an Internal or External Student or being exempted therefrom under the Regulations for Advanced Students, had completed the course of study for the Second Examination for Medical Degrees, Parts I and II, as an Internal Student, may enter for the B.Sc. (General) Examination in Chemistry, Physiology, and Human Anatomy and Morphology, provided he has attended a further course of study for the B.Sc. (General) Examination extending over not less than one term and has complied with the Regulations in all other respects.

Professor J. M. Woodburn Morison, M.D., has been appointed representative at the Fourth International Congress of Radiology, to be held at Zürich from July 24th to 31st.

Sir Cuthbert Wallace, F.R.C.S., has been elected chairman of the Graham Legacy Committee.

The degree of Ph.D. in helminthology has been conferred upon R. K. Khanna; and M.Sc. in biochemistry upon N. F. Maclagan, M.B., B.S.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examinations indicated:

M.D.—E. T. Baker-Bates, A. B. Follows, W. W. Gerrard, B. T. J. Glover, J. H. Hughes, T. L. Hughes, E. L. Rubin.

M.B., CH.B.—*Part I* (1929 Regulations): *W. M. Beattie, *A. C. Brewer, *A. Cohen, G. V. Craine, Phillis Dingle, V. K. Drennan, B. J. Green, R. L. Hartley, Mary M. Hurst, G. E. Jones, Joan G. Jones, J. R. Jones, E. W. Knowles, H. S. Lanceley, Ethna W. Little, Sheelah Little, F. R. Neubert, W. Parke, *J. Pinkerton, J. G. Rogers, W. I. D. Scott, A. R. Sibbald, E. G. Watson. *Passed in Individual Subject:* C. F. Crampton, H. W. F. Croft, H. R. G. Davies, Clarice Hughes, A. G H. Menzies, G. S. Robinson (Pharmacology and General Therapeutics). *Part A* (1924 Regulations): J. Morgan, T. H. Pierce. *Passed in Individual Subject:* H. H. L. Pentz (Pharmacology and General Therapeutics). *Part II* (1929 Regulations): A. B. Concanon, ‡Bessie Dodd, Jannett C. Evans, F. A. Frank, F. Harrison, ‡E. W. Jones, J. R. Jones, A. O. Karstaedt, Kathleen M. Kavanagh, †A. J. McCall, †Annie A. Merrick, L. Millward, Margaret F. Proctor, W. I. D. Scott, S. Shulman, ‡A. Speight, †S. L. Strange, R. P. Tong, J. K. B. Waddington, M. M. Wallis, Margaret C. Winter. *Passed in Individual Subject:* G. S. Robinson (Forensic Medicine and Toxicology).

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—*Part B:* J. R. Burrows, T. P. Twomey.

D P H—*Part II:* §P. L. C. Carrier, P. P. Fox, D. O. Hughes.

* Distinction in Pharmacology and General Therapeutics.
† Distinction in Forensic Medicine and Toxicology.
‡ Distinction in Public Health.
§ With Distinction.

The following awards have been made in the Faculty of Medicine: *John W. Garrett International Fellowship in Bacteriology*, Dr. E. R. Jones. *Robert Gee Fellowship in Human Anatomy*, Dr. A. S. Kerr. *Holt Fellowship in Physiology*, Dr. G. R. Griffith. *Holt Fellowship in Pathology*, Dr. G. A. C. Lynch. *Johnston Colonial Fellowship in Biochemistry*, Mr. J. Devine. *Lady Jones Research Fellowship in Orthopaedic Surgery*, Dr. W. S. Creer. *John Rankin Fellowship in Anatomy*, Dr. W. Bullock. *Thelwall Thomas Fellowship in Surgical Pathology*, Dr. H. G. Hanley. *University Graduate Scholarship in Medicine and George Adami Prize in Pathology*, Mary M. Hurst. *Junior Lyon Jones Scholarship*, G. L. Manson; *proxime accessit*, C. J. Williams. *Samuels Memorial Scholarships:* (Medicine) Dr. J. Libman, (Surgery) Mr. M. Silverstone, (Obstetrics and Gynaecology) Mr. T. N. A. Jeffcoate. *William Mitchell Banks Bronze Medal*, R. R. Hughes. *Silver Medal in Forensic Medicine and Toxicology*, A. J. McCall; *proxime accessit*, Annie A. Merrick. *Kanthack Medal (Pathology) and Silver Medal in Pharmacology*, A. C. Brewer. *Owen T. Williams Prize*, J. D. Hay.

UNIVERSITY OF SHEFFIELD

The following candidates have been approved at the examinations indicated:

M.D.—Constance N. Jenkinson.

FINAL M.B., CH.B.—*Part II:* F. R. P. O'Hara-Proud (with second-class honours), L. Botros, R. M. Edelman, Ursula S. Nutt, S. J. Rabinowitz, F. Rodgers, D. C. Waddy.

VICTORIA UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—*†T. F. Heslop, W. Bradley, T. W. Brindle, Edna Circuitt, R. K. Clough, E. Davis, P. R. Evans, W. G. H. Hughes, J. F. E. Johnson, R. Judson, A. R. Kennedy, N. Launer, J. C. Morris, R. Nightingale, H. C. Palin, D. C. Racker, Florence C. Read, L. Rich, W. Sagar, J. Schofield, N. Shlosberg, J. N. Strauss, †E. Vernon, C. S. Walker, J. L. D. Williams. *(Part I) Forensic Medicine and Hygiene and Preventive Medicine:* H. Baker, A. S. Bullough, W. P. Cargill, N. Copeland, P. D. H. Cran, J. Curry, Annie M. Dawson, I. H. Flack, N. Goldstone, C. Hancock, A. Harris, H. Harris, H. Hempling, B. P. Hill, J. A. Hobson, F. Janus, R. H. Jobson, S. H. O. Jones, N. F. Kirkman, D. H. Mackay, A. E. Martin, Barbara de V. Mather, E. L. Patterson, Winifred Porter, W. K. Spencer, C. Tetlow, A. McN. Tomlinson, J. A. A. L. Woodhead. *Pathology and Bacteriology:* J. Boardman, Monica D. Boyle, G. D. Harthan, R. E. Hirson, T. S. B. Kelly, H. D. B. North, J. Starkie. *Pharmacology:* J. Cohen, F. P. Ellis, S. Franks, W. E. Kershaw, A. L. Robertshaw.

* With second-class honours. † Distinction in Obstetrics.
‡ Distinction in Medicine.

On July 8th women graduates of the Victoria University of Manchester gave a reception to celebrate the fiftieth anniversary of the admission to Owens College of women on the same terms as men. In commemoration of this jubilee the University conferred the honorary degree of D.Sc. on Dr. Harriette Chick, C.B.E., of the Lister Institute of Preventive Medicine.

UNIVERSITY OF BRISTOL

The Council of the University has appointed Miss Doris May Stone, M.D., D.Ph., junior pathologist in the Department of Preventive Medicine.

UNIVERSITY OF ABERDEEN

At the graduation ceremony on July 5th the honorary degree of LL.D. was conferred upon William J. Mayo, M.D., D.Sc., LL.D., F.R.C.S., Chief of Staff of the Mayo Clinic, Rochester, Minnesota, U.S.A.

The following degrees were conferred.

M.D.—*J. B. Ewen, *D. C. Robb, *R. D. Stuart, *R. Sutherland, J. A. Dawson, R. H. G. H. Denham, R. G. Henderson.

M.B., CH.B.—I. A. Anderson (first-class honours and passed Final Medical Professional Examination with distinction), A. M. Rennie, J. R. S. Third.

* Awarded commendation for thesis.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE-UPON-TYNE

On October 28th, 1932, the Court of Governors of the University of Durham College of Medicine, Newcastle-upon-Tyne, informed Lord Londonderry, Chancellor of the University, that they considered it advisable that he should institute an independent inquiry into the administration and constitution of the College. The Chancellor also communicated with the Council of the College asking their assistance and co-operation in the matter, and at his invitation Sir Amherst Selby-Bigge held an inquiry at Newcastle early this year. Sir Amherst [illegible] ow reported his findings to the Chancellor. [illegible] a statement by Lord Londonderry to the Newcastle *Evening Chronicle* that it is a private report and will not be published, summaries and extracts have appeared in that and other newspapers during the past few days. The report, according to the *Daily*

Telegraph of July 10th, "declares that complaints of maladministration brought against College Council were not substantiated. The hope is expressed that, the inquiry having afforded an opportunity for expression of views and ventilation of discontents, those interested in or concerned with the College will now put aside all disputes and concentrate on promoting its welfare. A definite charge of maladministration was brought against the Council, the report states, in respect of its treatment of Professor H. J. Hutchens (Heath professor of pathology and bacteriology) It was urged that the Council's action was not bona fide, reasonable, fair, and in accordance with university usage Regarding that complaint, in my own opinion, states Sir Amherst Selby-Bigge, the allegation of mala fides is not established It must be remembered that the Council's act was not to remove him as professor, but to terminate his engagement as lecturer in the College, leaving him in possession of the post of Heath professor of the University. It is not for me to say whether or not the professor was well advised in rejecting the terms of retirement offered him."

UNIVERSITY OF DUBLIN

At the degree ceremony in Trinity College on July 5th, presided over by the Vice-Chancellor, Sir Thomas Moloney, the honorary degree of Sc.D. was conferred on John Scott Haldane, M D , F.R S , Fellow of New College, Oxford, and Honorary Professor and Director of Mining Research in Birmingham University.

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following candidates have been approved at the examinations indicated:

M D —S. A. Clark, N. M'I. Falkiner, Marie A. Hadden, Hope Trant.

M CH —P A Hall.

FINAL MEDICAL EXAMINATION —*Part I, Materia Medica and Therapeutics, Pathology and Bacteriology:* *W A Gillespie, D S. Quill, H Pringle, H J. Anderson, G. W Paterson, R L Oakes, M Marmelstein, R. J. Kellett, R. H Pratt, J. Sorett, W Charney, J R M'Elroy

PART II.—M B —*Emily M Booth, D M Mitchell, H D Clarke, M J Horgan, H R. Davies, D M Ahern, W. H E M'Kee, J S M Pringle, E C. Rowlette, Marjorie R E Boyd, H. S Barber, Esther C. L Howe, W. P Griffin, N Jackson, M J Roberts, J S Ruddell, E. S. A. Ashe, J Bell, Ethel S Wilson, Mary J Ahern, G S. S. Harty, J K Lavery, Agnes Monteiro, C W. N. Smiley, E Howitt, Una M Irvine, Eileen M Kennedy, I F F Wiley, J. T M Gregg, A Dolphin

B CH —*D M Mitchell, M. J. Horgan, D M Ahern, Emily M Booth, H D Clarke, H S Barber, H R Davies, Marjorie R E Boyd, Ethel S Wilson, W P Griffin, J K Lavery, W A Clarke, H S Perrot, Eileen M. Kennedy, C W N Smiley, J S Ruddell, M J Roberts, E C Rowlette, W. F. Bermingham, Una M Irvine, H F Ryan

B A O —E E. O'Malley, Mary E Mansfield, Helena G G Bennett, Ethel S. Wilson, Sheila K Henderson, M. H. Cosbie, B E W. Aldwell.

D P H —*Part II (Old Regulations):* Frances E O'Connor (*New Regulations*) · Marjorie L Campbell, E S Duthie, W. E Holmes, C H Adderley, J V. Ryan, A. A Lisney

DIPLOMA IN GYNAECOLOGY AND OBSTETRICS —M. M. El Hennawy, V. Enok

* Passed on high marks

The following prizes have been awarded. *Cunningham Memorial Medal and Prize,* J. H. A. Jewell. *FitzPatrick Scholarship,* D. M. Mitchell. *John Mallet Purser Medal,* E W. L. Thompson. *Medical Scholarship: Physics, Chemistry, Botany, and Zoology,* R. E Taylor , *Anatomy and Physiology,* B E. O'Brien. *Stewart Medical Scholarships: Physics, Chemistry, Botany, and Zoology,* T. L Lawson ; *Anatomy and Physiology,* E W. L Thompson *Medical Travelling Prize and Banks Medal,* J A Wallace *Medical Travelling Prize (special) and Banks Prize,* A. A Cunningham *De Renzy Centenary Prize,* Marjorie L. Campbell. *Aquilla Smith Prize and Walter G Smith Prize,* W. A. Gillespie.

NATIONAL UNIVERSITY OF IRELAND

A meeting of the Senate was held on July 6th, under the chairmanship of the Chancellor, Mr. Eamon de Valera.

The reports of the examiners on the results of the summer examinations were considered, and passes, honours, etc., awarded in connexion therewith

The following appointments in University College, Cork, were made: *Lecturer in Medical Jurisprudence,* M. J. Riordan, M.B , B Ch., M A.O., F.R.C.S I ; *Lecturer in Mental Diseases,* B F. Honan, L R.C.P. and S.I., D.P.M.

A report from Dr. Denis J. Coffey, president, University College, Dublin, and representative of the University on the General Medical Council, was considered and approved

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Election to the Council

On July 6th five Fellows were elected into the Council to fill the vacancies occasioned by the retirement in rotation of Lord Moynihan, Sir John Lynn-Thomas, Mr. A H. Burgess, and Mr. V Warren Low, and by the death of Sir Percy Sargent. The result of the poll was as follows.

	Votes	Plumpers
SIR CHARLES GORDON-WATSON, K B E , C M G (St Bartholomew's)	785	29
ARTHUR HENRY BURGESS (Manchester)	773	12
HENRY SESSIONS SOUTTAR, C B E (London)	579	24
REGINALD CHEYNE ELMSLIE (St Bartholomew's)	553	8
LEONARD RALPH BRAITHWAITE (Leeds)	547	28
Charles Max Page	527	8
Claude Howard Stanley Frankau	444	24
Cyril Alfred Rankin Nitch	439	4
Duncan Campbell Lloyd Fitzwilliams	415	27
Alfred William Sheen	384	3

In all 1,420 Fellows voted, including 253 resident out of Great Britain and Ireland , in addition eight votes were found to be invalid

Mr Braithwaite becomes substitute member of Council for Lord Moynihan until 1935 Mr Elmslie becomes substitute member of Council for the late Sir Percy Sargent until 1938 Sir Charles Gordon-Watson, Mr Burgess and Mr Souttar are elected for the full period of eight years

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At the monthly business meeting of the College, held on July 7th, the following candidates who had passed the Final Professional Examination under the conjoint scheme with the Royal College of Surgeons in Ireland, were duly admitted Licentiates in medicine and midwifery of the College—namely J S Barr, C N Carroll, T W Conlin, W. P. J. Dunsmore, P W Griffin, T Healy, F. Jupe P J Kelly, R J F Matthews, P J Moore, D McAuliffe Phoebe I McKernan, D E O'Driscoll, P S O'Golain, J T. O'Hanrahan, P V O'Reilly, J J Pierse, H R Rogers, Kathleen M N Vickers, A. E Warren

The Services

BOMBARDMENT OF MEDICAL UNITS

The seventh International Congress of Military Medicine and Pharmacy, held recently in Madrid, considered the constantly increasing dangers of bombardment to which medical units and fixed hospital establishments are likely to be exposed, and adopted the following recommendations (1) That hospital areas be reserved for the exclusive requirements of the medical service and placed under the sign of the Red Cross (2) That regulations be introduced as early as possible to determine the conditions of application of this recommendation in the Geneva Convention for the amelioration of the lot of the sick and wounded in the armies in the field

DEATHS IN THE SERVICES

Major Percy Reginald O'Rourke Phillips, R A M C., died of pneumonia at York Military Hospital on June 15th aged 42 He was born on March 25th, 1891, was educated at Highgate School, at Pembroke College, Cambridge, where he graduated B.A., and at St. Thomas's Hospital and took the M.R.C.S. and L.R C P.Lond. in 1913 He held a temporary commission as lieutenant in the R A M C during the war, on April 28th, 1916, and subsequently a permanent commission from the same date, and attained the rank of major on April 28th, 1928 He served in the war of 1914-18, and, since the war, in the Egyptian Army, and at Shanghai

Lieut.-Colonel John Leopold Poynder Madras Medical Service (ret.), died at Bickington Lodge on June 26th aged 78. He was the son of the Rev Leopold Poynder was born at Bareilly on March 11th, 1855 was educated at Bart's and took the L R C P Lond the M R C S , and the L S A in 1877 Entering the I M S as surgeon on October 31st 1879 he became lieutenant-colonel after twenty years service and retired on December 12th 1909 Most of his service was spent in civil employ in the Central Provinces On June 26th 1902, he received the Kaisar-i-Hind medal first class

Medico-Legal

ALLEGED NEGLIGENCE BY "NATURE-CURER"

Patient's Claim for Damages

Before the Lord Chief Justice and a special jury on July 4th, 5th, and 6th, an action was heard in which Mrs. Eleanor May Walton of New Cavendish Street, W., claimed damages from Mr. Stanley Lief of Park Lane, W., and Natural Healing, Ltd., of Champneys, Wigginton, Herts, for personal injuries alleged to have been caused by the negligence of the defendants and for breach of warranty to cure her of lupus erythematosus. The plaintiff's case was that in February of last year Mr. Lief, who directs and substantially owns the sanatorium at Wigginton, warranted that he was in a position to cure her completely if she undertook his treatment. She remained in his sanatorium for five weeks, and afterwards underwent some further treatment from him at Park Lane, but with the result that her face and scalp became permanently disfigured. She complained that she was improperly treated by radiations, and that the diet given in the sanatorium was insufficient.

Mrs. Walton, in reply to Sir Patrick Hastings, K.C., her counsel, stated that she had suffered from lupus erythematosus since 1921. In 1931 there remained, after treatment at the hands of various doctors, one or two scars on her face, but none on her scalp. Since her treatment by Mr. Lief the disease had extended and covered the whole of her scalp and both sides of her face. She paid twelve guineas a week at the sanatorium. She was kept on a low fruit diet, and never had a real meal during the five weeks of her stay. Light treatment was started after she had been there seventeen days. The last session of light treatment at Park Lane left her in great pain, and patches appeared around the eyes.

Lord Horder stated that he saw the plaintiff in April last. In lupus erythematosus the administration of irritants was to be avoided. Ultra-violet rays were irritating unless applied in very small doses. *X* rays in very small doses might have a healing effect, but the measurement of the dose would require to be made extremely carefully. The plaintiff's was an unfortunate type of case to get into the hands of an inexperienced person. Starvation treatment was a bad preface to any local treatment, as it might make the patient more susceptible to over-stimulation. He was not prepared to agree that one of the fruitful causes of lupus erythematosus was intestinal poisoning, though, of course, the cleansing of the intestinal system was good in all diseases. Lupus erythematosus might flare up without any apparent reason, but his impression was that the application of ultra-violet rays in this case had made the disease active.

Mr. Norman Birkett, K.C., for the defence, said that he proposed to call medical evidence to show that burning by ultra-violet treatment was quite impossible. This disease was one about which medical science knew little; its cause was unknown, and it was not known why it occasionally flared up.

Mr. Stanley Lief, in the witness-box, described himself as an osteopath and naturopath, who had come to this country from America in 1914. He was questioned as to certain initials following his name. "M.N.C.A. meant "Member Nature Cure Association," of which he was president; "D.O." meant "Doctor of Osteopathy," "D.C." "Doctor of Cheiropathy," and "N.D." "Naturopathic Doctor," these three degrees having been conferred by colleges in Chicago. There was an average of sixty-five resident patients at Champneys. When he saw Mrs. Walton he told her that her condition was due to impure blood and intestinal toxaemia, and that it would be well worth while to attempt purification of the system. The question of guaranteeing a cure was never raised. The light treatment was given from a mercury vapour lamp at 30 in. from the face for one minute at first, and later in increasing doses up to eight minutes. When he treated her at Park Lane he used a Kromayer lamp, 1½ in. from the face. In cross-examination he said that Natural Healing, Ltd., the defendant company, had about a dozen shareholders; he owned more than half the shares. A newspaper, *Health for All*, was the property of the company. It was suggested to him that in this periodical it was stated that no disease was incurable at Champneys, to which Mr. Lief replied that cancer, tuberculosis, and paralysis were excepted.

Evidence in support of the defendant's case was given by Mr. Sidney Alfred Cullum, osteopath, formerly Mr. Lief's assistant, who said that the plaintiff made good progress while at Champneys, and by Dr. William Kerr Russell and Mr. J. E. R. McDonagh, F.R.C.S., the latter stating that the disease from which the plaintiff suffered might be beneficially treated by ultra-violet rays, though he would not himself now use that treatment because other treatment would achieve better results. The disease had a tendency to flare up for undiscoverable reasons, though he did not think ultra-violet rays would cause it to do so. He would not have advised starvation diet for a month.

The jury were absent for more than three hours considering their verdict. They found for the plaintiff on the question of representation and warrant that the defendant was in a position to effect a complete cure of the plaintiff's disease, and assessed damages at the amount of the bill—namely, £123 16s. They also found for the plaintiff on the question of negligence in treatment, and awarded one farthing damages. They added the rider that all institutions of this character should be subject to supervision by some Government authority. Judgement was entered for plaintiff accordingly, and the question of costs reserved for future argument.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The House of Commons has this week discussed the Estimates for Education, Agriculture, the Colonies, and the Foreign Office. On the last a debate arose on the World Economic Conference. The Samaritan Free Hospital Bill, which has passed the House of Lords, was read a second time by the House of Commons on July 10th. The committee stage of the Road and Rail Traffic Bill was completed in Standing Committee.

The Nurses Registration Act (1919) Amendment Bill, the Registration and Regulation of Osteopaths Bill, and the Shops Act (Amendment) Bill have been withdrawn.

In the House of Lords the University Degrees Bill was put down for second reading on July 13th, and the Manchester Royal Infirmary Bill for committee on the same date. The Local Government and Other Officers Superannuation (Temporary Provisions) Bill received a first reading on July 6th. The Cancer Hospital (Free) Bill was returned to the Commons, and the Road Traffic (Compensation for Accidents) Bill was reported from a committee and put down for consideration by the House on July 18th. On July 11th the Earl of Lucan presented the Firearms and Imitation Firearms (Criminal Use) Bill, which was read the first time.

On July 6th, after a division, the House of Commons approved the special grant of £440,000 to local authorities in England and Wales for out-relief expenditure. In moving the grant Sir HILTON YOUNG said a permanent scheme of relief for these authorities would be introduced in the present session.

Administration and Cost of Health Services

On July 7th Sir HILTON YOUNG presented the estimates of the Ministry of Health for the year ending March 31st, 1934. He said that, disregarding the vote of £39,000,000 for block grants to local authorities, the actual Vote of his Department was £19,000,000, a decrease of £135,800. An increase of £250,000 in housing grants was offset by a decrease of £375,000 on the Health Insurance Vote. In 1932 £120,000 had to be voted for the influenza epidemic. That epidemic had not returned, and the expenditure was not required this year. The administration of the Department showed a decrease of £2,800, although the staff of the Ministry was increasing on account of the constantly expanding health services. In administration of health services

the measures taken to ensure the future were the most important part of the work He instanced the difficult question of the sterilization of the unfit The expense of the mental deficiency service was enormous, and the disadvantage of mental deficiency to national life still graver Another example of work in which they were looking ahead was the setting up of a new consultative committee of the twenty eight London borough councils and the City Corporation to co ordinate their interests with those of the localities where the London refuse dumps were situated Another concerned the standards of construction in the public institutions of large cities, such as hospitals, workhouses, mental homes, and so on It was necessary for efficiency and economy that there should be some normal standards for the construction of these buildings, and he had started an inquiry which would establish the standards and provide permanent machinery for keeping them up to date To the actual work of town and country planning the Act passed last year had given a great impetus, and the Department was now ready to proceed without delay with any scheme which came along The end of the epoch of general subsidies for housing had been accompanied by increased activity in the building trade There had been practically no drop in the production of houses during the transition to the period of private enterprise The number of houses approved in the first five months of 1933 was 17 800, a little more than in the first five months of 1932 For the twelve months to April 1st, 1933, 200 500 houses, assisted and unassisted, had been produced Local authorities were making plans for a five year campaign against slums, and had been asked to produce these plans before the end of September Stoke on Trent, which had recently cleared houses at the rate of eighteen a year, now had a scheme to clear 3 612 houses, at the rate of 720 a year A Minister of Health must be alert for symptoms that the long depression was beginning to tell on the health of the country The result of a widespread inquiry showed that unemployment and insecurity of employment particularly in the case of the young undoubtedly told on the mental health On the physical health of the nation he could give a different account For information on nutrition the Ministry of Health had the school medical officers the medical officers of health and the regional medical officers in connexion with the health services, the inspectors of the Ministry, and, lastly, the statistics of mortality and morbidity The mortality for the whole country and for the depressed areas was steadily declining, which testified to the maintenance of the general health of the people There was an encouraging decrease *in the death rate among children* Since 1910 the infant mortality rate had been halved—a marvellous achievement for the new welfare services and the medical profession He found no evidence of increased morbidity in the country as a whole Morbidity statistics for pneumonia and bronchitis were going down In tuberculosis—most important as a barometer of health and nutrition—the death rate per million for all forms fell from 896 in 1931 to 838 in 1932 Owing to the success of the health services for children there was a marked fall in the incidence and mortality of non pulmonary tuberculosis The statistics for maternal mortality were *matter for dissatisfaction* This mortality was due to particular diseases and disorders at the time of the birth The mortality last year was 4 11, and this year 4 21 To deal with this question better education of the mother and of the midwife was necessary The Ministry constantly pressed local authorities to raise the standard of the maternity services The number of infant welfare centres was increasing and ante natal centres were conspicuously increasing He had seen the reports of medical officers of health and regional medical officers on the actual state of the physical health of the country *and of the unemployed, with special* relation to malnutrition The health of the country was normal in spite of the depression Sir Hilton advised local authorities when looking for malnutrition in a family, to look at the woman At such times as these there was a special responsibility for watching the health of the mothers of the country In these bad times the public medical services for the insured, for maternity, for infant welfare for the school child, for general and special nursing and health visitation and for the treatment of special diseases such as tuberculosis proved of inestimable service to the country Turning to economy Sir Hilton Young said local authorities had carefully surveyed the objects of outlay and the efficiency of the services and this had resulted in useful and important economies without sacrifice of efficiency

Opposition Criticism

Mr GREENWOOD approved what the Minister said about the measures taken for hospitals and for town and country planning but he thought there should have been a larger output of houses Concerning nutrition the House should consider the economic facts A report by the Sheffield Social Committee Council showed that one fifth of the working class households in Sheffield were living below or on the poverty line, with resources insufficient to cover minimum requirements in respect of rent, food clothing heat light, and household utensils In course of time the shortage of the necessities of life would show sorry results although not now reflected in the morbidity rate or the death rate Figures given by Sir George Newman on the health of the school child showed an incidence of malnutrition per 1 000 inspections of 9 5 in 1925, 10 6 in 1930 and 11 2 in 1931

Medical Benefit and the Unemployed

Mr DINGLE FOOT said the Ministry of Health should now be ready to meet the difficulties at the end of this year when persons who had been unemployed for two and a half to three years would lose their entitlement to medical benefit Many of these persons—he believed they numbered about 100,000—would continue to go for treatment to the panel doctors they had been consulting These doctors would be in a difficult position The change would simply transfer the burden from national to local shoulders Instead *of the cost of medical treatment for these people being* borne on national health insurance funds it would be borne by public assistance funds, and the principal burden would fall on the distressed areas He suggested that there should be a transitional class for health insurance as for unemployment insurance Mr TINKER suggested that besides preventing the growth of refuse dumps round London the Minister should bring about the removal of the chemical heaps round Widnes and St Helens and the colliery dumps of mining areas, the fumes from whose spontaneous combustion were often almost unbearable

Mr BUCHANAN suggested that part *of the national health* insurance reserve fund should be used to keep within insurance those who would otherwise pass out of it To tell such persons that they must have recourse to the Poor Law for a doctor would be forcing them to go to practitioners in whom they had no faith In many cases doctors who had been associated with a man or a man's family for a long time would do the work for nothing, but it was not fair that members of the medical profession should be asked to undertake a national burden as an individual one No hardship would be done to any approved society which used a proportion of its surplus to keep these people within the insurance limit

Hospital Co operation

Sir FRANCIS FREMANTLE said that the great mass of houses which were now going up were not of the low rental type *which would meet the needs of the poorer paid workers* He hoped the Government could say something on the prospect of a report from the committee which, with Lord Marley as its chairman, was inquiring into the future development of existing towns, or the development of new towns in the form of garden cities He agreed with the contention of previous speakers that it was a mistake if persons having exhausted certain rights under the national health insurance had to leave a panel doctor and go to a Poor Law doctor Why the distinction between the panel and the Poor Law when both were administered by one Department Was it *not possible to fuse the schemes for the provision* of medical benefit whether under insurance or public assistance? From the professional point of view it would be infinitely better to have a system under which one medical man would look after all the members of a family They could then decide whether he should be paid from the Insurance Fund or from some other fund Sir Francis asked if there was any [illegible] of the co operation which was promised under the Local Government Act of 1929 between the voluntary hospitals and hospitals under local authorities Rumours reached [illegible] that the co operation between the larger voluntary [illegible] of London and the London County Council was [illegible]

than nominal. He hoped the Ministry of Health would bring pressure to bear on those places where co-operation had not been brought about. At one of the smaller hospitals near London he found a scheme under which two of the hospital nurses were engaged in district nursing for the whole district. They dealt with out-patients at the hospital, followed up the cases, and also did the ordinary work of district nurses. The result was a great saving. He hoped the Department would see how far this idea could be pressed forward. The time had come for co-ordination between the voluntary hospitals and the district nursing movement, especially under the Queen's Institute. Co-ordination was required between the nurses' pensions schemes of local authorities and of the voluntary hospitals. The subject would be brought forward by those who represented the nursing profession. A further opportunity for co-ordinating and fusing the health services came under the Local Government Act, 1929. Why should the same local authority have different sets of officials to manage different branches of the health services? The education clinic, the hospital services, the tuberculosis service, were watertight compartments, each under a different committee, with practically independent officers and organization. The Minister would have to appoint a further committee with a view to a closer fusion of services under the same local authorities. A special investigation was required, going right back to what were the real requirements in the training and education of the medical services. The Minister should urge upon the General Medical Council, through his own representative, the fact that in training attention was still directed too much to the production of practitioners for the treatment of disease and not nearly enough to the training of medical men in the prevention of disease.

Dr. O'DONOVAN joined issue with the suggestion that practising doctors were not concerned with preventive medicine. His predecessors in medicine saw the need for preventive medicine, but had first to force on the people and the Government the idea that the care of the people's health could be organized. A big hospital with many beds was a sign of failure to conserve health. What was needed was not more beds but more brains applied to the preservation of the people's health and the development of out-patient departments staffed by the best physicians. He asked for more research on maternal mortality. Any action which crystallized present practice might be action in the wrong direction. He also questioned the efficiency of infant welfare centres and other clinics. They acted as nets for sorting out the sick, and difficult cases were at once sent to the voluntary hospitals for diagnosis and treatment. The consultants of London and the other great centres added the touch of efficiency which made the clinics worth while. Infant welfare centres should not claim the whole drop in infant mortality as their work. Others saw that the people had clean food and clean houses, and the herds of cows were less tuberculous. There must be some means by which proposals affecting the health of the people and the work of the medical profession could be discussed with the organized profession. He hoped the Minister would give directions that medical officers of health should have facilities for going to professional meetings to discuss with the clinicians matters that affected public health. Wing-Commander JAMES congratulated the Minister on the appointment of the Departmental committee to investigate sterilization. He asked what steps the Department took, in the course of its duties, to collect information about heredity. In the case of discharged mental defectives, what information did the Ministry collect on subsequent procreation and what the children were like? He had been told that children in special schools, when they went out into the world, tended to marry earlier than normal persons and to have a number of children. That sort of question should be under the permanent review of the Department, with the inheritance of blindness, and the results of marriage of the deaf-and-dumb. Mr. RHYS DAVIES reverted to the report by the medical officer of health for Stockton-on-Tees, to the effect that when slum-dwellers were moved into a new housing estate the infant mortality rate increased, because the people so removed and paying higher rents had not the wherewithal to buy the necessary food supplies. The experience of Manchester with people taken from slumdom belied everything that had happened at Stockton. They had not the infant mortality rates of England and Wales for 1932, but those of Scotland showed an increase of 4 per 1,000. Was the Minister of Health right in saying that infant mortality rates in England and Wales were not increasing?

Government Reply

Mr. G. SHAKESPEARE, Parliamentary Secretary to the Ministry of Health, replied to the debate. He told Mr. Rhys Davies that the infant mortality rate of 1932 was 65, the second lowest rate since the war. The Stockton report on slum clearance and health referred to 700 tenants under an old scheme, who had to pay rents higher than they had paid before. Under present conditions rents for alternative accommodation compared favourably with those paid in the slums. Reports from six cities showed that the death rate on the new estates had halved in some cases, and the infant mortality rate was one-third of its previous figure in the slums. All the health officers reported greater health of the children and brighter looks. In the Stockton case 90 per cent. of the new tenants were unemployed. The 80,000 persons who, at the end of this year, would come out of medical benefit had been generously treated. Some of these men had received thirteen years' free insurance as regards sickness benefit, and fourteen years' free insurance as regards medical benefit. They could not, in law and morality, treat 80,000 persons differently from everybody else. He did not think it a hardship to have to go to another doctor. In a large number of places the district medical officer was also a panel practitioner. If a local authority submitted a scheme whereby the district medical officers, who were also panel practitioners, could attend these men, and the men could have choice of doctors, the Minister would consider it. He thanked members who had helped in the slum clearance campaign. Since the war and until 1930 demolition was at the rate of about 1,000 houses a year. Since 1930 the rate had increased to 3,000, and now demolition in England and Wales was at the rate of 12,500. He hoped that next year, on a conservative estimate, the clearance would be not less than 24,000, and that a five-year programme would give healthier living conditions to 500,000 persons. Reverting to Mr. Tinker's suggestion about the clearance of industrial refuse tips and slag heaps, Mr. Shakespeare said the problem of dealing with these was difficult. He could not say whether it would come under town planning.

Progress was reported and the debate ended.

Increase in Silicosis and Miners' Nystagmus

On the Estimate for the Mines Department Mr. ERNEST BROWN, Secretary for Mines, said the Department had to turn its mind to the question of underground lighting, and whether it could do anything to reduce the casualties caused by falls of roof. The figures for fatal accidents in British mines were: 859 killed in 1931, and 881 in 1932. The number seriously injured in 1932 was the lowest on record, being 3,212, compared with 3,305 in 1931 and 4,163 in 1928. Non-fatal accidents involving more than three days' disablement were 161,000 in 1928, 141,000 in 1931, and 125,000 in 1932. Over the period from 1922 to 1931 10,229 persons were killed in mine accidents, 2,239 of these by haulage accidents underground, and 5,092 by falls of ground. Accidents from explosions of fire-damp and coal dust were 5 per cent. Injuries in the same period totalled 1,600,000. Surface accidents caused 127,614 injuries; miscellaneous accidents underground, 524,951; haulage underground, 406,137; and falls of ground, 555,111. The Mining Association and National Association of Colliery Managers has endorsed a report which recommended general and prompt action to improve lighting in mines. The action to be taken on that report had not been determined. Reports on pit trials of an automatic gas detector were being printed. Mr. PARKINSON said there was a case for the mines inspectorate to take up the whole question of the ventilation of mines. There was also a case for closer supervision of defective timber in mines. Mr. R. T. EVANS said there were occupations in anthracite mines which were not in the schedule of occupations for which compensation could be obtained for silicosis of the lungs. A new Order was needed, and also the compulsory use of some process for damping the drill during boring, as in South Africa. This industrial disease could be prevented and should, in any case, be compensated. Mr. TOM SMITH said

the most welcomed improvement in the pits was better lighting. Miners used to work in a light of 0.75 to 1 candle power. Now electric lamps gave beween three and four candle power; that was a useful improvement, because the number of victims of miners' nystagmus was on the increase. In the last eleven years there were 34,646 certified cases of nystagmus in this country. In 1922 4,047 miners were certified; in 1930, 3,248. Now that oil lamps had been replaced by electric lamps the use of an automatic gas alarm should be compulsory.

Replying to the debate Mr. ERNEST BROWN said he did not think a new Safety in Mines Act was required. Under that Act new regulations were made continuously. It might be advantageous to have a Consolidating Act. On the automatic gas alarm he reserved judgement.

The discussion was adjourned.

The Public and Mental Hospital Treatment.—In reply to Mr. C. Edwards, Sir HILTON YOUNG stated that he did not think it necessary to circulate a pamphlet setting forth the rights of the public concerning the treatment of patients in mental hospitals, including the right to apply under Section 79 to the Visiting Committee for the discharge of patients to the care of friends. The situation as regards Section 79 had already been met by the existing Rule, which required the managers of every institution, on the admission of every rate-aided person, to send a notice embodying the substance of that section to all persons who were named as relatives or friends of the patient in the statement of particulars accompanying the reception order.

Sewage Disposal Schemes.—Replying to Sir T. Rosbotham Sir HILTON YOUNG said he desired that every effort should be made by local authorities to carry out needed schemes of sewerage and sewage disposal. A number of county councils were already contributing towards the cost of schemes in rural and urban districts under the powers conferred on them by Section 57 of the Local Government Act, 1929, and he earnestly hoped that in suitable cases all county councils would use their powers to the full. He did not think that a special circular on the subject was called for at the moment, but would take other means of making the position known.

Glucose in Food.—Sir HILTON YOUNG told Captain Balfour on July 6th that he was advised that there was no public health objection to the use of pure glucose as a foodstuff. It was, however, generally considered that jam was better made with cane sugar.

Medical News

The official dinner of the International Paediatric Congress will be held at the May Fair Hotel, London, on Friday, July 21st, at 7.30 o'clock, with the President, Professor G. F. Still, in the chair.

Founder's Day at Epsom College will be celebrated on Saturday, July 29th, under the chairmanship of the president, Viscount Burnham. Professor D'Arcy Thompson, F.R.S., will give away the prizes and open the new biology building at 3.30 p.m. Other events of the day are the annual cricket match (The College *v.* Old Boys), service in chapel at noon, tea on the cricket ground, and a performance of *Merrie England* by the Choral Society at 8 p.m.

The annual luncheon of the Irish Medical Schools' and Graduates' Association will be held at the Hibernian Hotel, Dublin, on Wednesday, July 26th, at 1 p.m. The chair will be taken by the president, Dr. T. Gillman Moorhead. Tickets (6s.) may be obtained by members of the association resident in England from the provincial honorary secretary, Dr. Falkland L. Cary, 67, King's Road, Harrogate, and members of the association resident in Ireland may obtain tickets on application to Mr. R. F. J. Henry, F.R.C.S.I., 24, Upper Fitzwilliam Street, Dublin. The luncheon is open to non-members, and lady guests are welcome.

The next monthly clinical meeting for medical practitioners will be given at the Hospital for Epilepsy and Paralysis, Maida Vale, W.9, on Thursday, July 27th, at 3 p.m., when Dr. E. A. Blake Pritchard will demonstrate "Drowsiness and Coma." Tea will be provided, and it will be a convenience if those intending to be present will send a card to the secretary.

The ninth annual meeting of the National Institute for the Deaf was held in Church House, Westminster, on July 6th, with Lord Charnwood in the chair. Addresses were given by the Archbishop of Canterbury, Sir Francis Fremantle, and Admiral Sir Edward Bradford.

The current issue (March-April) of the Epidemiological Report of the Health Section of the Secretariat of the League of Nations is devoted to the geographical distribution of dysentery.

The tenth medical tour of the spas, climatic resorts, and sea-bathing therapeutic centres of Italy, referred to in this column on May 20th (p. 903), will be held from September 14th to 30th. The number of tourists is limited to 150, and the application list will be closed not later than July 31st. Full particulars may be obtained from the Italian State Tourist Department, Waterloo Place, Regent Street, S.W.1.

A medical tour to Bad Nauheim and Bad Wildungen is being arranged for the beginning of August. Several excursions, a drive through the Taunus Mountains, and a trip on the Rhine are included. Medical members of the party are expected to defray their own expenses from England to the German frontier and back; in Germany at the spas they will be guests of the spas. Particulars may be had from Mr. Robert O. Rohme, spa representative to the medical profession, 90, Sheaveshill Avenue, N.W.9. (Telephone: Colindale 8483.)

A paragraph in the *Journal* of January 14th (p. 76), under the heading "A Hospital for Lilliput," described the scale model of a modern hospital which has been constructed for King Edward's Fund. The model was first exhibited in Bond Street, and during the past month at the Ideal Homes Exhibition at Olympia. The committee of the King's Fund is now anxious to bring it to the notice of hospital committees in the provinces, with a view to arranging an extended tour. The committee is prepared to allow liberal terms for it to be shown under proper conditions; transport to and from places of exhibition will be arranged, and costs of insurance, etc., will be borne by the Fund. Communications should be sent to the chairman of the Hospital Model Subcommittee, G.P.O. Box 465A, 10, Old Jewry, E.C.2.

The centenary of the Association of the Practitioners of the Seine, founded by Orfila in 1833, was recently celebrated in presence of the President of the French Republic and the Minister of Public Health. Addresses were delivered by Dr. Pierre Bazy, president of the association, and Professor Rathery, the general secretary.

Dr. L. F. Beccle of Lincoln's Inn was called to the Bar on June 28th.

Dr. John A. Ferrell has been made president, and Dr. Haven Emerson president-elect, of the American Public Health Association.

Dr. Richard Pfeiffer, professor of hygiene at Breslau, and Dr. Alexander Classen, professor of inorganic chemistry at Aachen, have been awarded the Goethe Medal, founded by President Hindenburg.

An outbreak of 365 cases of typhus fever has recently occurred in Chile, affecting almost the whole of the southern part of the country.

In 1932 11,168 cases of small-pox were notified in the United States, as compared with 30,232 in 1931 and 48,907 in 1930.

The following appointments have recently been made in foreign medical faculties: Dr. Kurt Wachholder of Breslau, professor of physiology at Rostock, Dr. Oskar Seifried, professor of pathology at Munich, and Dr Eduard Pernkopf, professor of anatomy at Vienna.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

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QUERIES AND ANSWERS

Alopecia Areata

"B. B. L." (Aberdeen), replying to "A. A. H.'s" query (*Journal*, June 24th, p. 1138) asks: Does "all the usual remedies" include pituitary injections? She adds: There is an article by Bengtson in the *Journal of the American Medical Association* (1931, xcvii, 1355), which suggests a new and promising line of treatment, the condition being regarded as a result of pituitary dysfunction.

Phlebitis Migrans

"BIRKENHEAD" would welcome suggestions for radical treatment in the following case: A man, aged 58; history: enteric fever in 1899, operation for appendicitis 1916, phlebitis three weeks later in both thighs—duration two months. Subsequent attacks occurred in the right leg in 1921, '24, '26, '28. Since 1930 there have been almost continuous attacks in the same leg of about three weeks' duration. Previous treatment included stock and autogenous vaccines, iodides, mercury, citrates, etc. Local treatment has included ichthyol, glycerin, belladonna, and tinct. iodi in various strengths. Surgical measures are contraindicated; no "specific" history; heart, lungs, and urine normal.

Income Tax

Replacement of Books and Use of Car

"T. H." holds a county council appointment as A.M.O., and receives 3½d. per mile for travelling expenses. He inquires as to claims for deduction of the cost of replacing technical books, and such motor expenses as tax, insurance, and depreciation.

*** The emoluments of the employment are assessable under Schedule E, and "T. H." must show that the expenses he seeks to deduct are "wholly exclusively and necessarily" in the carrying out of the duties of his office. The position with regard to the books is that, where the local authority requires the medical officer to maintain a reference library, the cost of keeping it up to date is allowed, but not otherwise, the expense being regarded as incurred not in the carrying out of the duties, but in maintaining personal competence to carry them out. With regard to the car expenses, he can claim only the excess of his "necessary" expenses over the amount of the mileage allowance—for example, if a better or larger car than is necessary is used the claim would have to be restricted accordingly. In effect, any such claim must be tantamount to alleging that the county allowance is inadequate—usually a very difficult matter to establish to other people's satisfaction. The colleague to whom "T. H." refers, who has had deduction for motor expenses, may possibly have done so owing to some misunderstanding on the part of the income tax officials as to whether he receives a mileage allowance.

LETTERS, NOTES, ETC.

Convalescent Serum in Poliomyelitis

At a conference in Linz last autumn, Proefssor Stiefler and others gave an account of the geographical and age distribution and general epidemiology of poliomyelitis.[1] In Upper Austria between 1909 and 1913 153 attacks occurred with 15 per cent. mortality, while in 1931 288 were notified with an 8 per cent. mortality. Since approximately 1,000 infections a year occur also in Germany, leaving some 500 invalids, the need for the administration of serum in the earliest stage was strongly urged, though its uselessness after paralysis had occurred was pointed out. In one instance only eleven doses of convalescent serum were asked for by practitioners in a year, though this number represented but a fraction of the attacks. The need for organization of supplies of convalescent serum and of arrangement for emergency distribution by train or aeroplane was emphasized. Supplies of convalescent serum are kept at various centres, and it is available also from certain serum-producing firms. Following convalescent serum the blood of convalescents and finally the blood of relatives is commended. Human convalescent serum and Pettit's antiserum had been used, but the numbers were admittedly too small to justify definite deductions about the efficacy of treatment.

Treatment of Impetigo

Dr. E. M. R. FRAZER (Burton-on-Trent), after referring to recent articles in the *Journal* on this subject, especially on the use of elastoplast, writes: It may not be generally known that a cellulose seccotine (rawlplug durofix) gives very good results, particularly where the lesion is situated on parts constantly subject to movement—that is, the interdigital folds, and corner of the mouth and of the nose. The seccotine is applied direct from the tube, and dries in a few seconds. When dry it is invisible, pliable, and waterproof, even to hot water. A second application may be necessary next day. I do not think that harmful effects may be expected, as amyl acetate, which is used in cosmetic nail polishes, is apparently the base. Healing is rapid, but the crusts should be removed before application.

Injection of Varicose Veins

Dr. H. R. BARRETT (Queensland, Australia), in reply to Dr. George Gillett's inquiry in the *Journal* of April 22nd (p. 729) as to whether any reader had had any experience of extensive clotting after injection of varicose veins, writes: I injected the right saphenous vein just above the knee with quinine and urethane solution in a melancholic patient. Four days later the whole of the saphenous vein from the foot upwards was thrombosed. In addition to that there was considerable oedema of the foot and leg. He was treated with rest and firm bandaging, but the oedema lasted about three months before clearing. A second case which I saw had been injected by a friend of mine. This time the injection was below the knee. The sequel to the injection was very similar to that of the above case.

Medical Golf

Last year a new medical society was started in the Rugeley district, and Mr. Nesfield Cookson presented a cup for competition among the golfing members. The competition took place on July 2nd on the Brocton Hall golf course, when the principal scores were: Dr. Torrance (89—18), 71; Dr. C. N. Smith (86—14), 72; Dr. Frazer (88—10), 78; Dr. Gilchrist (85—7), 78.

The Late Dr. R. W. Innes Smith

Professor ARTHUR J. HALL writes: In my obituary notice of the late Dr. Innes Smith, published by you on May 27th, I stated that he presented an "engraving" of Sir Charles Scarburgh to the College of Physicians. I find now that, as a matter of fact, it was a large oil painting, which hangs in a prominent position in the entrance hall of the College to-day.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 40, 41, 42, 43, 44, 45, 48, and 49 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 32.

[1] *Wien. klin. Woch.*, May 12th, 1933.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

33 Transmission of Venereal Diseases

L. JAME and E. AUJALEU (*Rev. Méd. Franç.*, March, 1933, p. 299) discuss the problem of carriers in the transmission of venereal disease. According to Sacquépée, carriers may be divided into three groups: early ones, or those in the incubation stage of the disease; convalescents, who may be classed, according to the duration of the germ-carrying period, into temporary and chronic; and healthy carriers, without any pathological antecedents or signs of the disease. In the last-named group the virus is not a saprophyte but a specific virulent microbe which has been contracted by contagion—that is, the healthy carrier has undergone a contagion and not an infection. Durel has insisted on the existence of healthy carriers in venereal disease, an important point as concerns prophylaxis. Spillmann has also emphasized their importance in syphilis. Venereal maladies present certain epidemiological features: in large urban centres they are endemic; in smaller places, such as villages, only sporadic cases occur. Direct contagion is their usual mode of transmission; indirect contagion, as contrasted with other infectious diseases, is exceptional. The existence of healthy carriers is not easy of proof. Anatomical dispositions, especially in the female, render the search for lesions difficult and do not always permit of ascertaining the clinical integrity of the genital organs; also, identification and culturing of venereal organisms is often impossible. To substantiate the theory that healthy carriers are of actual occurrence, two cases of soft chancre are reported. In one, after cure of the first chancre, a second one appeared on the site of the initial sore, following subsequent coitus; in the second, multiple inguinal adenopathies appeared after cure, the female also showing similar signs of infection. The authors maintain that in the first case the virus persisted on the cicatrix of the first chancre and became reactivated by the subsequent coitus, and that in the second the germs persisted on the healthy mucous membrane of the male after clinical cure.

34 A Milk-borne Epidemic of Paradysentery

E. SYLVEST (*Ugeskrift for Laeger*, March 16th, 1933, p. 309) gives an account of a milk-borne epidemic of paradysentery which broke out in Denmark in the summer of 1932. The patients were mostly children, and their illness began suddenly with headache, a temperature of 40 to 41° C., vomiting, and abdominal pain. The stools were green—sometimes as green as grass—foul, watery, frequent, blood-stained, and mucous. Though there were no deaths and the acute stage of the disease passed off quickly, several of the children were limp for a considerable time. All thirty-six patients had been served by the same small dairy, which derived its milk supply from eight neighbouring farms, and, by selling milk at a relatively low rate, had acquired some 700 customers. The fact that most of the patients were children may be traced not only to their comparative lack of immunity, but also to the relatively large quantities of milk they had consumed. The incubation period was, apparently, from one-half to two days. In all the ten cases in which a search was made for Sonne's paradysentery bacilli, they were found, as well as in two persons living on the farms supplying the milk. One of these was a 3-year-old boy, the other a 15-year-old girl who seemed to be perfectly well, but had recently had some abdominal pain and diarrhoea. She had washed the milk pails every morning. She was admitted to hospital, where she soon discarded her paradysentery bacilli. Inspection of the dairy revealed bad sanitary lapses. A smelly tube, 2 to 3 metres long, composed of three pieces of rubber tubing joined end to end, connected a dirty milk receiver with a rusty and perforated receptacle for measuring milk. When the three component parts of this tubing were disjointed, stinking slimy masses of old curdled milk were found. Faced by the prospect of legal proceedings, the proprietor of the dairy closed it down.

35 Nervous Complications of Serum Sickness

J. B. DOYLE (*Amer. Journ. Med. Sci.*, April, 1933, p. 484), who records two personal cases following the use of scarlatinal and tetanus antitoxin respectively, has collected forty-nine cases from the literature of nervous complications of serum sickness: forty-four were males and only five females. The average age was 26.9 years. The average interval between the first injection and the onset of serum sickness was sixty-eight days, and the average interval between the onset of serum sickness and the nervous complication 2.1 days. In thirty-four the complication followed tetanus antitoxin, in seven diphtheria antitoxin, in five scarlet fever antitoxin, in two antipneumococcus serum Type I, and in one antimeningococcus serum. The nature of the nervous complication was as follows: unilateral motor paralysis of superior brachial plexus, thirteen cases; mononeuritis, eight cases; optic neuritis, six; brachial plexus (bilateral motor), four; brachial plexus (bilateral sensorimotor), four; superior brachial plexus (unilateral sensorimotor), four; superior brachial plexus (bilateral motor and bilateral sensorimotor), three each; and one case each of unilateral motor affection and unilateral sensorimotor affection of brachial plexus, bilateral motor involvement of C.N.S., meninges, and brachial plexus, and urticarial oedema of the brain and meninges.

36 Syphilitic Punctate Lesions of the Nails

M. SPITZER (*Thèse de Paris*, 1933, No. 72), who records fourteen cases in patients aged from 3 to 60, states that syphilis, like eczema and psoriasis, may give rise to punctate erosions of the nails. These syphilitic erosions, however, present the following characteristic features: small number, greater size and depth than that of other erosions, frequently an elongated form, longitudinal distribution, and absence of cutaneous lesions of the fingers. Their situation, distribution, and order of appearance indicate that they arise from the nail bed, which is a favourite focus for the *Treponema pallidum*. The erosion is merely an expression of the activity of the organism. The proof of the syphilitic nature of these lesions is to be found in their constant presence in syphilitic subjects, the coexistence in other nails of characteristic syphilitic changes, and their cure by specific treatment. The serological reactions are rarely positive in such cases, a fact which enhances the diagnostic value of these lesions. Their presence indicates an active syphilis, and compels the practitioner to forbid the patient to marry. The lesions are not found in primary syphilis or in the early part of the secondary stage, but are very common in the congenital disease and in all forms of late syphilis. The lesions are improved and ultimately cured by intensive antisyphilitic treatment of long duration, but at least four years' treatment is required.

37 Diagnosis of Whooping-cough

A. FASBENDER (*Zeit. f. Kinderheilk.*, March 10th, 1933, p. 595) investigated the sedimentation rate of the red corpuscles in ninety cases of whooping-cough in the paroxysmal stage. A third of the children were under 1½ years of age, the oldest being 9½ years and the youngest 5 weeks. In 93 per cent. the rate was protracted or normal. On the other hand, 24 per cent. of the cases did not show the characteristic lymphocytosis. The sedimentation was also distinctly protracted in the early stage

of the disease, when the typical blood picture was present in only one case. In ordinary bronchitis the sedimentation rate is also protracted in a third of the cases, but the absence of the typical lymphocytosis enabled the correct diagnosis to be made in such cases. Fasbender also examined thirty-six children, aged from 6 weeks to 5½ years, whose attack of whooping-cough was complicated by pneumonia, influenza, otitis, tuberculosis, or syphilis, and found an acceleration of the sedimentation rate, which, though not considerable, took several weeks to return to normal. Fasbender concludes that the combined examination of the sedimentation rate and the differential count facilitates, with certain exceptions, the diagnosis of whooping-cough.

38 Fatal Diabetes Following Scarlet Fever

J. HALLÉ and P. ARONDEL (*Bull. Soc. de Péd. de Paris*, February, 1933, p. 101) report the case of a boy aged 5 years who, on the seventeenth day of a mild attack of scarlet fever, developed symptoms of diabetes, which proved fatal in three days in spite of an injection of insulin. The child had previously been healthy, but the father had died of diabetes.

Surgery

39 Low Pericardiotomy for Pericarditis

P. E. TRUESDALE (*New England Journ. Med.*, March 30th, p. 671) records two cases of suppurative pericarditis which were treated by incision and drainage, and refers to twenty-four new cases in the literature. In his first case pneumonia was followed by empyema and pericarditis with effusion. The pericardium was opened through an incision over the fourth and fifth costal cartilages. A massive exudate of pus and fibrin welled out, but the sac could not be emptied, and the patient died sixteen days later. Arguing that life might have been preserved by proper drainage, Truesdale wished in his second case to make a low pericardial incision, but was dissuaded, the conventional procedure being again followed. Much pus escaped, and the pericardial sac was washed out, but the aperture in the chest wall contracted, and appeared to be inadequate. A self-retaining abdominal retractor was introduced, therefore, and irrigation became more effective, but the pain involved necessitated the withdrawal of the retractor. A second operation was performed, the pericardium being opened through a horizontal incision in the seventh interspace, beginning in the nipple line and extending outwards to the posterior axillary line, about two inches of the seventh and eighth ribs being resected. Pleural adhesions were then found to have been preventing the escape of more than about half the purulent contents of the pericardium. The lung edge had to be dissected upwards in order to obtain a good opening. Through-and-through irrigations of the pericardial sac followed for a few days only. The discharge rapidly diminished, and the patient recovered completely. The author summarizes his conclusions as follows. Acute suppurative pericarditis is usually a secondary infection, attacking a patient whose vitality has been reduced by the primary affection. It is insidious, concealed, progressive, and inevitably fatal unless there is surgical intervention. The infection is seldom recognized clinically, although its diagnosis is not difficult if the examiner knows what to expect. The mortality among those treated by operation ranges from 38 to 65 per cent. Next to early diagnosis and immediate intervention, adequate drainage is the essential factor in recovery. The extreme lateral and most dependent part of the pericardium is the site of election for drainage. Incision of the pericardium at its most dependent point is advocated; the length of the incision must not be less than 6 cm., and a correspondingly large opening in the chest wall is required. These conclusions are supported by discussion of 153 cases reported in the literature on this subject.

40 An Operative Treatment for Corns

The palliative treatment of corns by paring or the application of keratolytic pastes, paints, and protective pads is condemned by W. I. GALLAND (*Journ. Amer. Med. Assoc.*, March 25th, 1933, p. 889), who argues that these structures are pathologically similar to bunions, and should therefore be curable by operative intervention. The cornification is not merely attributable to chronic irritation by ill-fitting shoes, but there are present certain structural abnormalities in the toe underlying the corn which favour the continuance of the reappearance of the condition. As in a bunion, there is in a corn a definite hyperostosis, which occurs at the interphalangeal joint margins, and forms a definite though minute prominence which is frequently palpable. Over this exostosis a bursa forms; it may reach a considerable size and become infected. Similarly, hammer-toes will predispose to corns on the apices of prominent interphalangeal joints. Galland commends the following operative procedure. The toe is anaesthetized with 2 per cent. procaine hydrochloride, which is injected regionally at the base of the toe. It is inadvisable to infiltrate the area of the corn, since this renders the dissection of the bursa difficult. After removal of the keratinized epithelium by a sharp curette, a natural plane of cleavage is demonstrable between the normal and hardened skin, and the entire superficial structure of the corn can be removed *en masse*. The skin is again iodized, and the area of the corn is surrounded by a semi-elliptical incision, outlining a flap with the base proximally placed. This flap is carefully dissected so as to include skin only. The bursa is then dissected out and removed. The extensor tendons are displaced laterally or medially, and any tiny bony or cartilaginous prominences round the joint are chiselled away. The contiguous articular margins are rendered smooth so as to present no irritating irregularities underlying the skin. The wound is closed with silk sutures, which may be removed after the lapse of a week. The patients are generally able to walk about immediately after the operation provided that the shoe worn is liberally cut out over the site. It is usual to find subsequently a considerable growth of keratinized skin over the area, which may even suggest that the corn is returning, but in the course of ten days this is exfoliated, leaving a healthy skin surface. Any pre-existing fungal infections should be thoroughly treated before the operation. The soft corn can be treated similarly, since the bursa and exostosis are always present and must be eradicated. Owing, however, to the absence in this condition of heaped-up keratinized skin it is often unnecessary to do any curetting, since any present will exfoliate completely after the underlying pathological condition has been rectified.

41 Pre-operative HCl Administration for Gastric Carcinoma

The death rate after operations for gastric cancer remains high. In one clinic the mortality is 25.1 per cent., while in another it is 23 per cent., although after operations for gastric and duodenal ulcers it is 8.2 per cent. and 6 per cent. respectively. R. FRIEDRICH (*Zentralbl. f. Chir.*, April 8th, 1933, p. 801) attributes this difference to the fact that the normal stomach is sterile, owing to its HCl secretion and its motility destroying pathogenic bacteria. Gastric and duodenal ulcers are either sterile or contain non-pathogenic bacteria from the ileum, but in two-thirds of the cases of carcinoma pathogenic bacteria (*B. coli* and *B. lactis aerogenes*) are found. This is held to explain the frequent occurrence of peritonitis after operations for gastric cancer. Bacteriological examinations show that infection occurs during the suture of the mucosa after resection. Hartmann found achylia in 49.4 per cent. and hyperacidity in 15.2 per cent. of cases of gastric cancer. Seifert states that the prognosis of operation for this disease depends on the acid content of the stomach. In "anacid" cancer the post-operation mortality was 29 per cent., whereas when free HCl was present the death rate was only 13 per cent. Other writers found that when the achylic stomach was irrigated

on the day prior to operation with a 0 25 per cent HCl solution the stomach was practically sterile in two fifths of the cases Friedrich recommends that achylic patients be given the following mixture thrice daily for six or eight days concentrated HCl 15 parts, raspberry syrup 285 parts It is calculated that a tablespoonful of this mixture in 5½ oz of water gives an acid concentration of 0 5 per cent HCl In the evening before operation, and again next morning, the stomach is irrigated with 18 oz of a 0 25 per cent HCl solution This renders more than two thirds of achylic cases completely sterile ; no pathogenic bacteria were found, and peritonitis did not occur In two thirds of the non irrigated cases peritonitis followed operation The favourable results attained in a small number of cases suggests that this treatment should be adopted as a routine measure.

Therapeutics

42 Ambulatory Treatment of Haemorrhoids

For the ambulatory treatment of haemorrhoids J RACHET (*Paris Med*, April 1st, 1933, p 302) describes two methods—sclerosing injections and diathermic treatments. The choice between these lies essentially in the type of haemorrhoids to be treated The three varieties of haemorrhoids—external, internal (comprising the diffuse, angiomatous corona, and the tumoral), and mixed—are briefly described External haemorrhoids, when quiescent, need no special treatment, if they become enlarged the cutaneo mucous covering should be excised and the underlying painful ulceration treated by diathermic coagulation During congestive periods incision of the haemorrhoid with the galvano-cautery and expression of the enclosed clot followed by an analgesic antiseptic dressing usually suffices to relieve the pain Should these periods recur, diathermic or surgical ablation is indicated Sclerosing agents should never be employed Internal haemorrhoids of the coronal type are best treated by Bensaude's method This consists in injecting once every eight days, into the suprahaemorrhoidal zone, 3 to 5 c.cm of a 5 per cent aqueous solution of the double hydrochlorate of quinine and urea These injections are especially indicated in all diffuse coronal forms which bleed or prolapse and in the recurrences so frequent after surgical intervention The results are always excellent, the first symptom to disappear being the haemorrhage Diathermy is the method of choice for internal haemorrhoids of the tumoral type The following points should be observed The use of only an active electrode without an indifferent one the employment of only very weak currents, very slight local anaesthesia (1/2 per cent solution of cocaine without adrenaline, as this favours secondary haemorrhage), to treat only one haemorrhoid on each occasion, completing the treatment five days to three weeks later In treating this type Rachet first gives 8 to 10 sclerosing injections, if the trouble persists, diathermic coagulation is instituted This local treatment should be supplemented by general methods, such as attention to intestinal and circulatory troubles and to hygiene Rachet emphasizes the importance of ascertaining that the varices are haemorrhoids and not part of venous troubles associated with some other condition, as rectal cancer

43 Methods of Carbon Dioxide Administration

Carbon dioxide possesses a double therapeutic indication: it is a physiological excitant of the respiratory centres and has a vaso dilatory and cardiotonic action on the peripheral and central circulation It is the most rapidly resorbed of all gases, a fact which enhances its therapeutic value There are four methods of administering it the peritoneal or rectal, pulmonary, subcutaneous, and transcutaneous M LOEPER et al (*Presse Med*, April 12th, 1933, p 577) compares the relative advantages of each method Peritoneal or rectal injections have both respiratory and circulatory effects Experiments on dogs prove that the pulmonary ventilation is increased and that the total amount of air expired and its content of carbon dioxide is greatly augmented The healthy lung is capable of very rapidly eliminating in twenty four hours a quantity of carbonic anhydride greatly in excess of its normal production Despite the excess of the gas in the blood not the least sign of asphyxia appears The circulatory effects are a manifest increase in the venous pressure and slight changes in the arterial, due to the peripheral vaso dilatation Pulmonary administration by inhalations is the method commonly used in urgent cases It however causes a certain degree of asphyxia and arterial hypertension and decreases haemostasis and the oxygenation of the blood These effects have been ascribed to excitation of the vasomotor centres, this overcoming the peripheral vaso dilatory action Subcutaneous injections also given in urgent cases have the disadvantages of introducing only small quantities of the gas, of causing pain, of being too slowly resorbed, and of causing arterial hypertension The disadvantages of inhalations, which have already been noted, are less marked, this method, however, is only practicable after admixture of the gas with oxygen The authors consider that the transcutaneous method by dry or mineral-water baths is the one of choice for ordinary cases The former entails immersion in the pure gas itself, the effects of the latter depend on the amount of the contained carbon dioxide These are preferable to intraperitoneal and intrarectal injections, these should, however, be given in urgent cases Enemas are their simplest form For actual injections, ampoules containing the gas, attached to a flexible tube furnished with a needle or sound, may be readily employed

44 Treatment of Staphylococcic Infections

C E DOLMAN (*Journ Amer Med Assoc*, April 1st 1933, p 1007) records his observations on twenty-eight patients suffering from intractable, persistent, or recurrent staphylococcic infection including sixteen cases of boils, whom he treated by subcutaneous injections of a toxoid prepared from several strains of staphylococci selected for their high toxigenicity Alleviation followed by apparent cure of their infections occurred soon after the commencement of the treatment in each case and could be correlated with an increased titre of circulating antitoxin

45 Intracardiac Injections in Cardiac Syncope

Basing his remarks on three cases reported by NIMIER of Tripoli, SOUPAULT (*Bull et Mem Soc Nat de Chir*, April 15th, 1933, p 598) comments on the use of intracardiac injections of adrenaline and atropine in cardiac syncope In two of these cases 1 mg of adrenaline was injected the syncope having occurred during an intravenous injection and a spinal anaesthesia respectively in the latter a second injection was necessary to revive the heart Atropine sulphate, 3/10 mg, was given in the third case, a nursling of fifty six days, for syncope during a herniotomy under chloroform. Soupault states that adrenaline is indicated only in true cardiac syncope and is of little value in that due to arterial hypotension or involvement of the respiratory centres. For the former ephedrine is an excellent preventive and curative Respiratory failure is quite compatible with life for some time, and artificial respiration alone may suffice to restore this function, if it fails, lobeline a powerful stimulant of the bulbar respiratory centres should be administered Referring to the case of syncope occurring during an intravenous injection, Soupault cites cases showing the varied aetiology of syncope and the success attending intracardiac adrenaline He believes the reanimation depends on the duration of the syncope before the injection is given The dosage variously employed is from 1 to 20 mg 2 mg is here recommended Soupault considers that cardiac massage is a valueless measure Various theories have been advanced as to the mechanism of chloroform syncope Many physiologists consider that adrenaline paradoxically intensifies the action of chloroform on the cardiac centres Cuthbert and Pascalis believe that chloroform acts [illegible] and

intracardiac nervous system, exciting, especially, the inhibitory nervous system, and that it would be logical to paralyse the latter with atropine ; animal experiments have proved the truth of this. These and the result in Nini's case (the only one as yet recorded) lead Soupault to believe that atropine is a valuable remedy in chloroform syncope.

Laryngology

46 Operative Treatment of Lateral Sinus Thrombosis

Pointing out that statistics do not indicate the superiority of any particular operative measure in otogenous thrombosis of the lateral sinus, J. BAREICHNIKOFF (*Ann. d'Oto-laryngol.*, April, 1933, p. 445) states that various factors, such as the statics and dynamics of the condition, the virulence of the infection, the degree of resistance of the organism, though differing, should influence the choice of operation. In most of the interventions all the anatomical and biological varieties of the collateral branches are not foreseen, consequently their effect is insufficient, and the operative traumatism, combined with the inevitable disturbance in the normal physiological functions of the organism weakened by infection, influences the result. Bareichnikoff considers that the fundamental problem of trephining the apophysis in acute mastoiditis and otogenous endocranial complications consists in complete and scrupulous elimination of the carious focus, opening all the purulent cavities, and in a large denudation of the affected tissues. By this means the ulterior evolution of the condition can be solely controlled by the immunizing biological forces of the body, and all complementary traumatism will be nullified. His technique is summarized, step by step, as follows. A retro-auricular incision of the soft parts, the lower end of which is prolonged backwards so that a large operative field is exposed and a later additional incision avoided ; large opening of the whole cellular system ; denudation, in its entire extent, of the affected wall of the sinus ; puncture of the sinus ; opening, by longitudinal incision, of the anterior wall of the sinus, and its resection ; excision of the thrombus ; packing with short iodoform tampons to slightly compress the antrum, the opening in the sinus, and all other parts of the wound ; a moderately compressive dressing. If the thrombus is not suppurated, resection of the anterior wall of the sinus and excision of the thrombus can be omitted. Brief notes are given of twenty-nine cases in which this operation was performed, cure resulting in twenty-two and death in seven.

47 Ventilation of Nose and Accessory Sinuses

J. F. O'MALLEY (*Journ. Laryngol. and Otol.*, May, 1933, p. 309) submits a preliminary report of investigations on the behaviour of the nose and sinus air currents under varying conditions, with a view to elucidating some of the problems of infections of the accessory sinuses. Evidence has been obtained from clinical histories and findings, transillumination, *x*-ray examination, and proof puncture of the antrum or other accessible sinus in order to obtain oscillograph demonstrations. Conclusions so far indicated are as follows. The air in accessory sinuses with patent ostia is in constant respiratory phase with that of the nose, and their air-pressure variations synchronize. Such pressure variations can be shown to exist in every part of the nasal passages, even in the olfactory region, under all conditions of respiration. A partial vacuum pressure is demonstrable in the sinuses even when no sinus disease exists, as well as in acute and chronic sinusitis. This appears to be a factor in aggravating or reducing the inflammatory changes in both types of cases, and may be the cause of the periodic pain which is usually attributed to frontal sinus disease. The origination of sinus infection and its spread may be explicable on such lines. The author commends his scheme of study for the approach to such problems as the explanation of the order of frequency of sinus infections, the demonstration and diagnosis of "pyosinus" (in which the inflammatory products present in the sinus arise elsewhere), the mechanism of spontaneous cure in sinus inflammation and suppuration, the definition of the most hopeful lines of surgical intervention, and the identification of the factors underlying the maintenance of health in the sinuses.

48 Chrysotherapy in Laryngo-pulmonary Tuberculosis

J. ROZIER, W. JULLIEN, and H. MOLLARD (*Presse Méd.*, June 3rd, 1933, p. 894) present a study of the effects of chrysotherapy in pulmonary tuberculosis complicated with laryngeal lesions, based on the results obtained in thirty-eight such cases. Mineral gold salts (sanocrysin-crisalbine) and organic salts (allocrysin, oily solganal B) were employed in doses varying from 6 to 7 grams per series. Despite the opinion of some authorities that chrysotherapy is contraindicated when pulmonary and laryngeal tuberculosis are associated, the present authors found that in fourteen of their cases the laryngeal lesions were completely cured, in twelve they were markedly improved, in eleven they remained stationary, and in only one was the condition aggravated. The best results were obtained in catarrhal and simple infiltrating lesions, while the infiltro-oedematous forms often remained stationary and never showed cure. Of eight cases of the catarrhal type, six were completely cured, one was improved, and in one no result followed ; of five cases of simple infiltrating laryngitis, cure was obtained in two, improvement in two, and failure in one ; sixteen cases of the infiltro-ulcerous form showed six cures, six ameliorations, and four failures. Improvement consisted in a disappearance of the ulceration, with persistence of a partial infiltration or a chronicity of the lesions. In some cases the laryngeal lesions were cured or ameliorated while the pulmonary remained stationary ; in others the converse was the case. The authors conclude that the presence of laryngeal lesions does not contraindicate chrysotherapy in tuberculosis ; a strict supervision of the larynx to avoid focal reactions is alone necessary. Often the laryngitis benefits from this treatment, especially if the lesions are still circumscribed and not of the ulcero-oedematous type. Pulmonary and laryngeal improvement are often parallel, but are not necessarily associated with each other.

49 Ivory Implants in Rhinoplasty

J. W. MALINIAK (*Arch. of Otolaryngol.*, May, 1933, p. 649) commends the use of ivory in reconstructive surgery of the nose as a substitute for rib cartilage in cases where the latter is contraindicated or failure has followed its use. The composition of true ivory resembles that of human bone ; it does not irritate the tissues and is not absorbed. Rib cartilage has a natural tendency to bend. This is a drawback to its employment in cases where a long straight graft is required, especially as it is difficult to foresee when post-operative bending will occur. This tendency is less frequently observed when the cartilaginous graft is of equal thickness throughout ; this can be secured by resecting it with a well-balanced angular knife. Contraindications for the use of rib cartilage are also encountered in the case of nervous and hypersensitive patients who fear scarring of the chest and prolonged hospitalization. For the treatment of small depressions the auricular and nasal cartilages can be employed, but it must be remembered that the abundance of yellow elastic tissue in the septal cartilage renders its absorption certain. As the result of the extensive clinical trial of true ivory, Maliniak is certain that this is the most satisfactory substitute for cartilage. The various "vegetable ivories," which consist mostly of gum, legumin, and lignin, are unsuitable, since tissue reactions occur. Ivory is liable to infection, and must therefore not be introduced through the endonasal route. Should there be evidence of it having become infected, it must be removed. Such infection is, however, almost always due to faulty technique. Pressure necrosis may follow the introduction of an ivory implant of excessive length or of one in a position where it presses on the skin or mucous membrane.

Obstetrics and Gynaecology

50 Under-development and Fertility

W. H. CARY (*Amer. Journ. Obstet. and Gynecol.*, March, 1933, p. 335) has examined a series of 100 cases of structural and functional deficiencies of a probably hypogonadic origin in order to determine what relation such abnormalities bear to fertility, and to what extent they are curable. He believes that the degree of a uterine deformity, such as anteflexion or hypoplasia, is of more importance as regards the prevention of conception than its primary nature. In some cases, however, it appeared that such a deformity occurring early in life had resulted in retardation of sexual development. Cary suggests that many of these patients produce normal ova at infrequent intervals, and that consequently marital relations with a husband of vigorous fertility is an important factor in prognosis. He adds that in his series this consideration led to success in 39.7 per cent. of the cases. Glandular products were employed therapeutically in thirteen instances, but without evidence of their having any outstanding value. Disease, excessive work, and strenuous athletics during adolescence were probable factors in the aetiology of some cases, and Cary is convinced that more attention should be directed to this cause of interference with full maturation. Menstrual deficiency was noted far more often than excess. Cervical stenosis of varying extent seemed to be more important than fundal hypoplasia or smallness of the external genitalia. Treatment was considered possible in sixty cases of the series, and was successful in inducing pregnancy in thirty-one. The main procedures employed were dilatation and insertion of a stem pessary and the application of a vaginal pessary. Cary pleads for more attention to be directed to the possible causes of sterility which arise directly or indirectly from maldevelopment.

51 Attempted Abortion in Ectopic Pregnancy

M. MAGID and N. PANTSCHENKO (*Zentralbl. f. Gynäk.*, March 25th, 1933, p. 705), writing from Kiev, state that during nine years, in their series of 726 ectopic pregnancies, there have been fifty-one (7 per cent.) in which intrauterine trauma or other means of inducing abortion has been employed. In the vast majority the trial had been made by a medical man, and before the third month; the former circumstance is taken to explain the low mortality (one lethal case), and the latter as a contraindication to inducing abortion before diagnosis of extrauterine from intrauterine pregnancy is reasonably certain. In eleven and forty cases respectively out of fifty-one, vaginal or intrauterine measures had been adopted, but the prognosis regarding both life and infection appeared no worse than in other ectopic pregnancies. The attempted intervention was found to add considerably to the difficulties of diagnosis, the gestation sac being liable to be confused with an acute adnexal inflammation. Blood obtained after puncture of the pouch of Douglas excludes a sactosalpinx, but not the possibility of a haematoma from perforation of the uterus. In seven of the fifty-one cases the physician had done a curettage in the belief that he had to deal with an incomplete abortion. The writers note that in tubal pregnancy uterine bleeding persists after complete removal of the uterine decidua by curetting.

52 Treatment of Post-menopausal Haemorrhage

P. BURGER (*La Gynécol.*, March, 1933, p. 129) discusses the value of exploratory curetting of the uterus for bleeding after the menopause. This procedure has been condemned by J. L. Faure, chiefly on the ground that he has found about 90 per cent. of cases of post-menopausal haemorrhage to be due (in the absence of carcinoma collis) to carcinoma corporis uteri. Ducuing, however, working in an anti-cancer centre, has found 92 per cent. of cases of post-climacteric bleeding to be due to carcinoma, that of the cervix being included. Faure would dispense with preliminary curetting, and advocates operation in the first place, remarking that the one uterus in ten which is free from carcinoma is nevertheless diseased. Burger has analysed 90 cases of bleeding after the menopause; after deduction of one-third, which were caused by cervical carcinoma, he finds that of the remainder about 59 per cent. were due to benign conditions, and about 38 per cent. to malignant disease of the corpus, tube, or ovary. The benign conditions comprised eleven cases of senile metritis, and/or vaginitis, nine of cervical or corporeal polypus, seven of vascular hypertension, six of endometrial hyperplasia, and one of adenoma uteri; the malignant conditions comprised eighteen of corporeal tumour, three of the ovaries, and one of the tube. Muret, in over 300 cases of post-menopausal bleeding, found about 27 per cent. of "malignant cases," and Benthin found only 10 per cent. of cases of malignant disease of the uterus. In Burger's material, after deduction of cases of cancer of the cervix, thirty-four cases out of fifty-eight were cured by simple curetting—a strong argument, he remarks, against abandonment of the well-tried and valuable "diagnostic curetting" and its replacement by more radical operation.

53 Suprarenal Cortex in Hyperemesis Gravidarum

On the theory that the nausea and vomiting of the first three months of pregnancy is due to the presence in the blood of "toxic metabolites," resulting from a temporary relative insufficiency of secretion from the suprarenal cortex, W. N. KEMP (*Canadian Med. Assoc. Journ.*, April, 1933, p. 389) has tried, and commends, the daily oral injection of 3 to 6 grains of this glandular preparation. He finds that the vomiting usually ceases entirely within about three days. A subsequent small daily dosage of about 2 grains may be required to keep the patient free from recurrence of the symptoms. Kemp argues from the facts that the suprarenal cortex always undergoes hypertrophy during pregnancy, that vomiting is a sign of insufficiency of this gland, and that hyperemesis gravidarum originates from a deficiency of this secretion in the blood. Banting and Gairns have shown that such insufficiency throws a strain on the liver and may result in degenerative changes in it and the kidneys. Kemp suggests, therefore, that it is reasonable to postulate that the liver only exercises its manifold and essential functions in the presence of an adequate supply of a catalyst or autacoid (possibly several) which is a secretion of the suprarenal cortex. In the absence of this secretion death is inevitable. With diminution there occurs an incompleteness of liver function—and the consequent presence of varying amounts of toxic metabolites in the blood stream—resulting in vomiting. With the superimposition of starvation ketosis a vicious circle is formed—the pernicious vomiting of pregnancy—which can be broken by the intravenous injection of fluids and the exhibition of a potent preparation of cortex. Compensatory hypertrophy of the maternal suprarenal cortex renders the treatment unnecessary as a rule after the third month of pregnancy.

Pathology

54 Complement-Fixation Test in Gonorrhoea

T. THJÖTTA and E. WAALER (*Norsk Mag. f. Laegevid.*, March, 1933, p. 286) made a study of the complement-fixation test in 130 serums from patients suffering from various diseases of the urogenital tract or from arthritis. In ninety-six cases the presence of gonorrhoea was established clinically and bacteriologically, and in 81 per cent. of these patients the complement-fixation test was positive. After exclusion of those suffering from acute gonorrhoea of the anterior part of the urethra only, 96 per cent. of the rest gave a positive reaction. The reaction was positive in only four out of nineteen cases of single acute gonorrhoea, whereas nearly 100 per cent. of the cases of chronic and complicated gonorrhoea gave a positive reaction. Dried gonococcus antigen was used in all the tests.

intracardiac nervous system, exciting, especially, the inhibitory nervous system, and that it would be logical to paralyse the latter with atropine; animal experiments have proved the truth of this. These and the result in Nini's case (the only one as yet recorded) lead Soupault to believe that atropine is a valuable remedy in chloroform syncope.

Laryngology

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56 Negative Phase in Diphtheria Immunization

A. HOTTINGER and E. QUACK (*Zeit. f. Kinderheilk.*, March 10th, 1933, p. 494) performed active immunization against diphtheria on nine children aged from 12 months to 11 years suffering from chronic diseases, and a healthy student aged 24. They found considerable variations in the antitoxin content of the serum in response to the injections of anatoxin. In some cases spontaneous changes in the antitoxin values of the serum occurred. One of the nine immunized patients contracted diphtheria at the time when the antitoxin content of the serum was under 0.01 unit per c.cm. The number of children with varying antitoxin values is relatively large, as is shown by the fact that of the nine patients examined six, or more than half, reacted to a specific or non-specific stimulus with well-marked changes in the antitoxin content.

57 Pathology of Death from Electricity

M. SIROLLI (*Arch. Ital. di Chir.*, March, 1933, p. 333), in an attempt to ascertain the cause of death by electricity, has carried out a number of experiments on rabbits. Alternating currents of 190, 250, and 420 volts were used. The electrodes consisted of copper ribbons. One of them was wrapped around the left anterior paw, the other around the right posterior paw. Both paws were previously depilated and moistened. Sometimes one of the electrodes was applied to the head or over the cardiac region. Death was produced either by a single application of the current or by fractional applications. In some animals the thyroid, thymus, or spleen was removed seven weeks previous to electrification in order to determine whether the consequent changes in the glandular balance rendered the animal more susceptible. A post-mortem examination was carried out after death, and the organs were carefully examined both macroscopically and histologically. Examinations to test the functional activity of the kidneys, liver, and blood-forming tissues were made on animals that had received sublethal shocks. Apart from the gross changes that have been described by various workers, the author obtained evidence in all the internal organs examined of both structural and functional cellular alterations. Morphologically, the cytoplasmic changes consisted in vacuolation, hydropic degeneration, and a tendency of the protoplasm to separate from the rest of the cell. In muscles, including the heart muscle, there was contraction of the fibres with actual rupture of the fibrils. In the larger arteries the intima was broken, while the smaller vessels were sometimes partially or completely ruptured. The nuclei of the cells were either swollen or shrunken, and contained vacuoles of varying size; the chromatic material was in the form of very fine granules. The degree of cellular change varied with the intensity of the current to which

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J. ROZIER, W. JULLIEN, and H. MOLLARD (*Presse Méd.*, June 3rd, 1933, p. 894) present a study of the effects of chrysotherapy in pulmonary tuberculosis from a case laryngeal lesions, based produce any changes in the thirty-eight, though they may cause a general septicæmia. Adapting the strains to grow *in vivo* in pancreatic tissue—by repeated passage from animal to animal of these organisms grown in the pancreas of rabbits—did not evoke in the pancreas of the animals any necrotic, haemorrhagic, or suppurative lesions. Ligature of the duodenum and injection of the suspensions of the organisms into the lumen of the occluded gut caused no ascending infection of the pancreas. When the organisms, either stock cultures or grown on pancreas, were injected into the circulation of animals in which a necrotic haemorrhagic pancreatitis had previously been induced, a localized lesion of inflammatory suppurative character resulted.

59 Micro-incineration of Intranuclear Inclusions

E. V. COWDRY (*Amer. Journ. Pathol.*, March, 1933, p. 149) describes the use of the micro-incineration technique, introduced mainly by Professor A. Policard of Lyons, for the study of the mineral constituents of the cell. Briefly, the method used was as follows: the tissue, in this instance liver from a monkey infected with yellow fever, was fixed in absolute alcohol containing 10 per cent. neutral formalin, embedded in paraffin, and cut into serial sections 4 μ in thickness. The sections on alternate slides were treated differently. The first were stained with Giemsa and served as controls. The second were placed in an electric oven and kept at 95° to 100° C. for ten minutes; the temperature was then gradually increased at the rate of approximately 100° C. every five minutes till it reached 600° to 620° C., after which the sections were allowed to cool. The incinerated sections were examined by dark-ground illumination, the stained sections by transmitted light. Examination showed that the nucleolus was amphophilic in stained preparations, and that it yielded a heavy sharply localized ash after incineration. Chromatin was recognizable as basophilic material scattered in the nucleoplasm and applied to the nuclear membrane; after incineration the mineral residue was rather less dense than that left by the nucleolus. The intranuclear inclusions were uniformly acidophilic, and left practically no ash. Discussing the bearing of these results on the nature of intranuclear inclusion bodies the author not only disputes the probability of their being composed of elementary bodies, but doubts whether they contain the virus at all. Incidentally, it is pointed out that the micro-incineration technique should serve to distinguish, where doubt exists, between true inclusion bodies and nucleoli.

60 Agranulocytic Angina

T. FITZHUGH, jun., and B. I. COMROE (*Amer. Journ. Med. Sci.*, April, 1933, p. 552) record their observations on eighteen cases of agranulocytic angina with nine necropsies, which had been admitted to the hospital of the University of Pennsylvania since 1927. Eleven were males and seven females, and the ages ranged from 19 to 78. All but two showed complete absence of neutrophil leucocytes at some stage of the disease. The mean red cell count and haemoglobin percentage were 4,100,000 per c.mm. and 75 per cent. respectively. All but four died, and only two of the latter could be regarded as cured. Necropsies showed in more than half the cases a hyperplasia in the leucopoietic centres of the progenitors of the leucocytes in the blood.

Obstetrics and Gynaecology

50 Under-development and Fertility

W. H. CARY (*Amer. Journ. Obstet. and Gynecol.*, March, 1933, p. 335) has examined a series of 100 cases of structural and functional deficiencies of a probably hypogonadic origin in order to determine what relation such abnormalities bear to fertility, and to what extent they are curable. He believes that the degree of a uterine deformity, such as anteflexion or hypoplasia, is of more importance as regards the prevention of conception than its [illegible] nature. In some cases, however, it appeared [illegible]curring early in life had resulted [illegible]ary suggests that [illegible]ment

place, remarking that the one uterus in ten which is free from carcinoma is nevertheless diseased. Burger has analysed 90 cases of bleeding after the menopause; after deduction of one-third, which were caused by cervical carcinoma, he finds that of the remainder about 59 per cent. were due to benign conditions, and about 38 per cent. to malignant disease of the corpus, tube, or ovary. The benign conditions comprised eleven cases of senile metritis, and/or vaginitis, nine of cervical or corporeal polypus, seven of vascular hypertension, six of endometrial hyperplasia, and one of adenoma uteri; the malignant conditions comprised eighteen of corporeal tumour, three of the ovaries, and one of the tube. Muret, in over 300 cases of post-menopausal bleeding, found about 27 per cent. of "malignant cases," and Benthin found only 10 per cent. of cases of malignant disease of the uterus. In Burger's material, after deduction of cases of cancer of the cervix, thirty-four cases out of fifty-eight [illegible]d by simple curetting—a strong argument, he [illegible]bandonment of the well-tried and valu[illegible]its replacement by more





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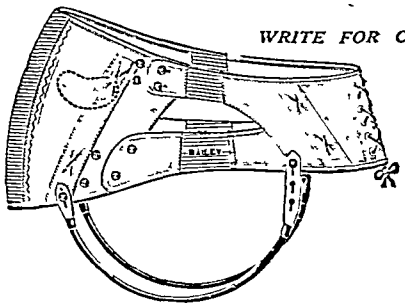
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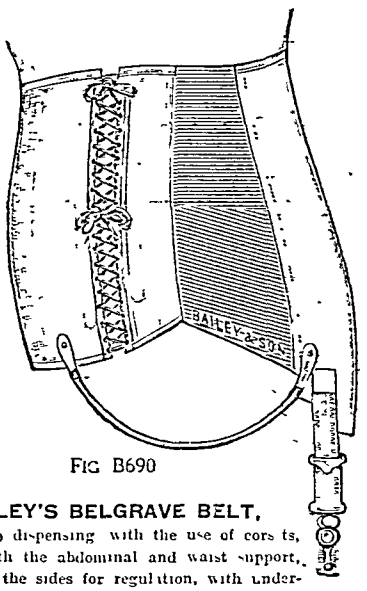


FIG B690

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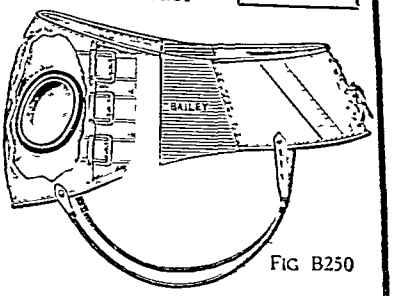


FIG B250

(Showing Interior of Cup)

SPECIAL BELT FOR AFTER COLOSTOMY.

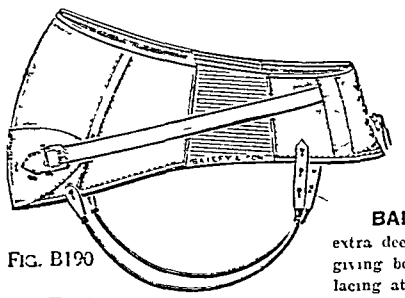
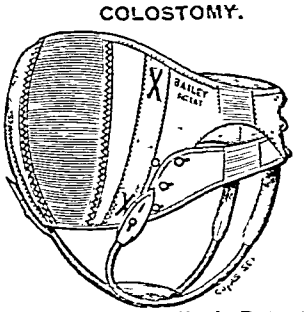


FIG. B190

BELT FOR ENTEROPTOSIS.

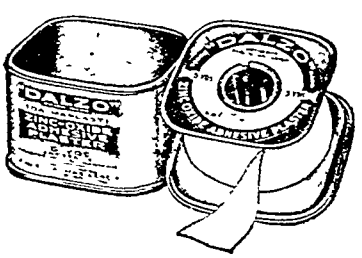


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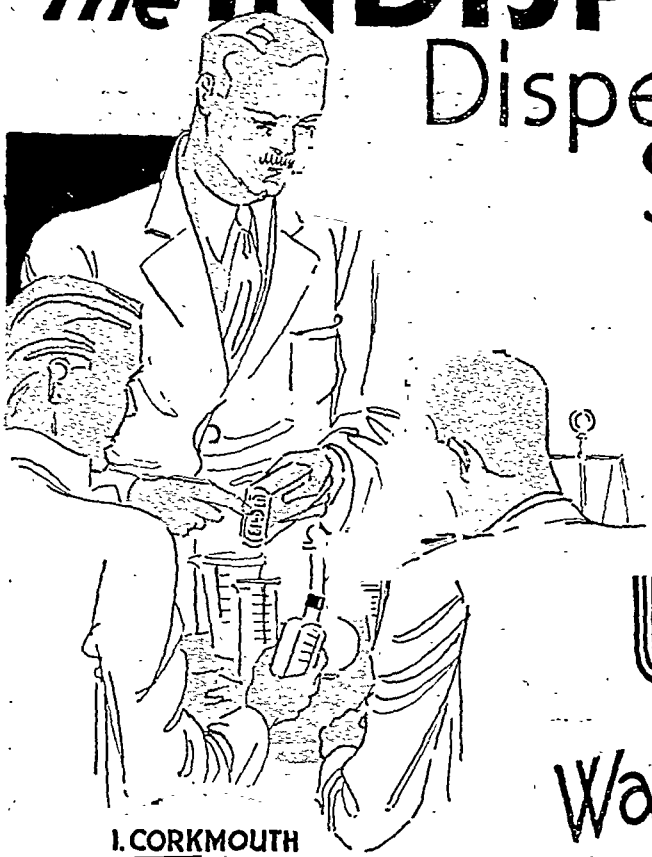
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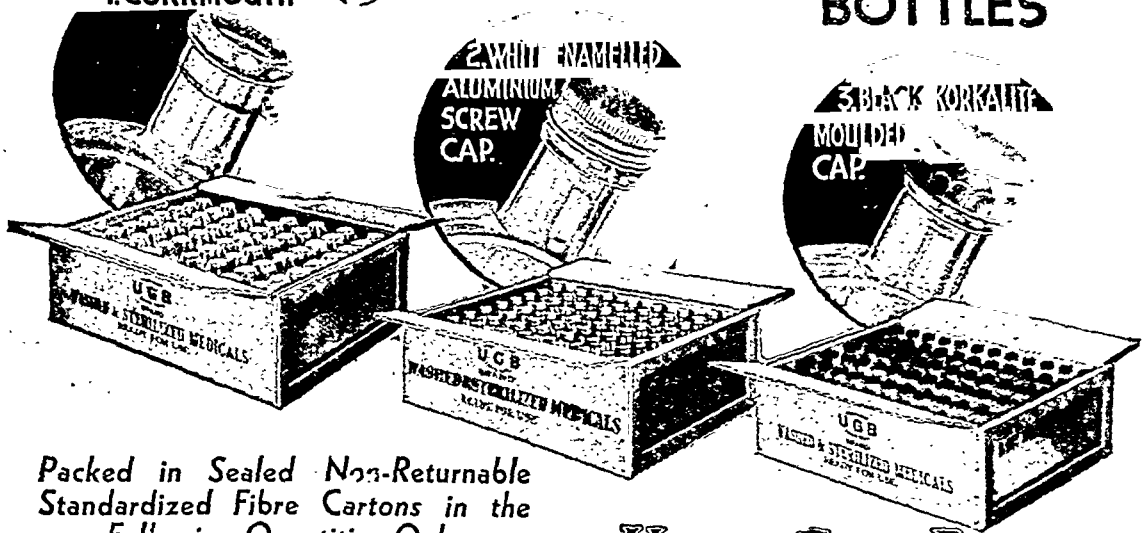
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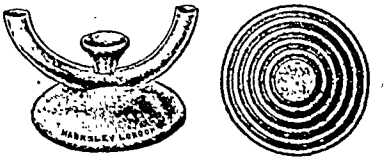
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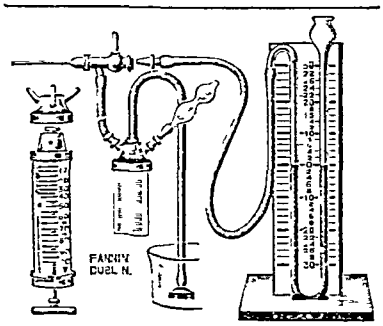
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January 22nd—*March* 23rd, 1934.
April 23rd—*June* 22nd, 1934.

FEES (inclusive):
Section A, £25; Section B, £15.

In Section A, students may enter for the whole Section at recognised intervals (of 4 or 8 weeks) after the beginning of the course. Short periods of laboratory or clinical instruction can also be taken at proportionate fees.

DIPLOMA IN PUBLIC HEALTH

(University of London.)

Course of Study (nine months for those working whole-time) commencing on October 2nd. Inclusive fee, 54 guineas.

DIPLOMA IN BACTERIOLOGY

(University of London.)

Course of Study (whole-time, one academic year) commencing on October 3rd. Inclusive fee, £47 15s.

EPIDEMIOLOGY AND VITAL STATISTICS.

Special three-monthly advanced courses. Inclusive fee, 7 guineas.

For Prospectuses and Synopses of Lectures, etc., apply to the SECRETARY, LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Keppel Street (Gower Street), London, W.C.1.

M.D. THESIS

(Camb., Edin., Glas., Durham, &c.)

SKILLED COACHING, GUIDANCE, and ADVICE from Special Tutors, in conformity with the Regulations of the various Universities.

Apply for particulars and free booklet, "Hints on Writing a Thesis for the M.D. Degree," to the SECRETARY, Medical Correspondence College, 19, Welbeck Street, London, W.1.

THE UNIVERSITY OF MANCHESTER

Applications are invited for the post of DEMONSTRATOR in Human Physiology. *Stipend* £300 *per annum*. Candidates should possess a medical qualification. Applications should be sent to reach the Registrar not later than July 20th, from whom further particulars may be obtained.

MIDDLESEX HOSPITAL MEDICAL SCHOOL

LONDON, W.1.
(UNIVERSITY OF LONDON.)

PRIMARY F.R.C.S. EXAMINATION.

The next Course will begin on September 4th, under the direction of:—

Professor T. YEATES.
Professor SAMSON WRIGHT.
Professor E. C. DODDS.
Dr. J. H. WOODGER.

FEE.—20 guineas.

Applications for admission should be made to the School Secretary, Middlesex Hospital, London, W.1.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, W.2.

(University of London.)

PRIMARY F.R.C.S. COURSE.

A Course of Instruction for the December Examination will begin on Friday, September 1st, 1933, in the following subjects:

ANATOMY AND EMBRYOLOGY;
PHYSIOLOGY AND HISTOLOGY (with Practical Classes).

The classes are conducted by the Professors and Demonstrators in the respective subjects.

Fee for the Course £16 16s., or £9 9s. for either section separately. This fee includes membership of the Students' Club during the *period covered by the Course.*

For further particulars apply to the School Secretary.

UNIVERSITY OF LONDON, KING'S COLLEGE.

The Delegacy will require in October, the services of a PART-TIME DEMONSTRATOR in the Department of Physiology. Salary £150 per annum. Preference will be given to candidates reading for a higher degree. Applications, accompanied by three copies of three recent testimonials, must reach the Secretary, King's College, Strand, W.C.2, from whom particulars and forms of application may be obtained, not later than July 21st.

THE CANCER HOSPITAL (FREE),

Fulham Road, London, S.W.3.

UNIVERSITY OF LONDON
DIPLOMA IN MEDICAL RADIOLOGY.

A course of study in Physics and Radiology qualifying for the Diploma in Medical Radiology of the University of London will begin on October 10th, 1933, at the Cancer Hospital (Free), Fulham Road, S.W.3.

Full particulars can be obtained on application at the above address to *Professor J. M. WOODBURN MORISON, or from the undersigned.*

CLEMENT COBBOLD, Secretary.

THE INFANTS HOSPITAL.

Vincent Square, Westminster.

Applications are invited for the ROBERT MOND RESEARCH STUDENTSHIP, tenable at the above Hospital. Appointment is for six months in the first instance—subsequently renewable. A grant at the rate of £100 per annum is attached to the post.

Applications should reach the undersigned not later than July 31st.

ALFRED J. SMALL, Secretary.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

Applications are invited for the CATON MEMORIAL RESEARCH FELLOWSHIP. Salary £400 per annum. Applications, stating age, qualifications, and experience, with the names of three referees, should be sent to Hon. Dean, School of Tropical Medicine, University of Liverpool.

BIRMINGHAM AND MIDLAND EYE HOSPITAL,

Church Street, BIRMINGHAM.

The Committee of Management are about to *appoint an ASSISTANT SURGEON to this* Hospital, and now invite applications for the post.

Election will be for three years as from October 1st, but the applicant appointed will be eligible for re-election.

Candidates must hold the following qualifications: F.R.C.S. of England or Edinburgh, or Membership of the Royal College of Physicians, Medicine of a British a in Ophthalmology. with testimonials, and of age, should be addressed to the General Superintendent on or before Monday, September 4th next.

A copy of the rules and regulations will be forwarded on application to the undersigned.

J. W. PEARCE,
July 8th, 1933. Gen. Supt. & Secretary.

BETHLEM HOSPITAL, MONKS' ORCHARD, Eden Park, BECKENHAM, KENT.

Wanted, ONE RESIDENT HOUSE PHYSICIAN (gentleman, unmarried), recently qualified in Medicine and Surgery.

The term of residence is for six months from August 1st, apartments, complete board, and laundry being provided, and an honorarium at the rate of £150 per annum will be paid for the first three months, rising, if commendable service be given, to the rate of £200 per *annum for* the second period of three *months.* Written applications, with testimonials, are to be forwarded to the *Physician-Superintendent* at the Hospital, from whom copies of the duties can be obtained.

BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL, BIRKENHEAD.

HOUSE SURGEON.

The Board invite applications for the post of *House Surgeon* for a period of six months from October 1st. Honorarium at the rate of £100 p.a. with board, residence, and laundry.

SECOND HOUSE SURGEON.

The Board invite applications for the post of Second House Surgeon for a period of six months from October 1st. Honorarium at the rate of £75 p.a., with board, residence, and laundry.

Applications, together with copies of testimonials, to be addressed to the Hon. Secretary, at the Hospital, not later than July 22nd.

ROYAL AIR FORCE MEDICAL SERVICE

Vacancies exist for MEDICAL OFFICERS in the ROYAL AIR FORCE.

CONDITIONS OF APPOINTMENT.

Candidates will be selected after interview by a selection board without competitive examination.

They must be of pure European descent. They must be British Subjects, the sons of British Subjects and registered under the Medical Act.

Selected Candidates will be appointed to Short Service Commissions (for 3 years extendible to 5), and those under 28 years of age at the time of entry will be eligible for subsequent selection to Permanent Commissions, should they be desirous of remaining in the service.

Hospital appointments held since qualifying, will, under certain conditions, qualify candidates for ante-date of commission; the age on entry to qualify for a Permanent Commission, if necessary, being increased by a period equal to the 'antedate.'

Excellent opportunities exist for clinical professional work, both Medical and Surgical, as well as for the study and practice of Hygiene, Pathology, Ophthalmology, and other special branches, adequate provision being made for permanent officers to attend Post-graduate courses of study.

OUTFIT ALLOWANCE.

An officer, who has not previously held a commission in H.M. Forces, will receive an outfit allowance of £50 on joining.

PAY, ALLOWANCES, PROMOTION, ETC.

The following table shows the current rates of PAY per annum for the various ranks.

IN ADDITION to pay, officers receive quarters (with fuel and light), rations and attendance, or, if these are not available in kind, they are given cash ALLOWANCES in lieu as shown in the table.

MARRIED OFFICERS who have attained the age of 30 YEARS receive either Married Quarters or ALLOWANCES at the MARRIED RATES.

Service.	Rank.	Pay.	Allowances (Home rates).		Pay plus allowances at Home rates.	
			Married.	Single.	Married.	Single.
.. .. ..	Flying Officer	£289	£190	£117	£579	£[illegible]
.. .. ..	Flight Lieut.	£422	£223	£117	£[illegible]	£[illegible]
.. .. ..	,, ...	£485	£223	£117	£714	£[illegible]
.. .. ..	Squadron Leader	£553	£231	£155	£784	£[illegible]
years to ..	,, ...	£812	£231	£155	£1,043	£967
By selection to	Wing Commander	£894	£232	£165	£1,126	£1,059
Rising by increments after 2 and 4 years to	,, ...	£1,022	£232	£165	£1,254	£1,187
By selection to	Group Captain	£1,137	£304	£246	£1,441	£1,383
By selection to	Air Commodore	£1,268	£360	£307	£1,629	£1,575
By selection to	Air Vice-Marshal	£1,624	£424	£368	£2,048	£1,992

ALLOWANCES AT STATIONS ABROAD.

In addition to the current pay shown above, officers stationed abroad are provided with furnished Quarters (with fuel and light) and rations, or allowances in lieu, and receive Colonial and servant allowances. The present total of the allowances (including Colonial and servant allowances) payable when provision in kind is not available is as follows:—

	EGYPT.		PALESTINE.		MALTA.		MALAYA.	
	Married.	Single.	Married.	Single.	Married.	Single.	Married.	Single.
Flying Officer	£435 p.a.	£222 p.a.	£428 p.a.	£228 p.a.	£277 p.a.	£133 p.a.	£627 p.a.	£274 p.a.
Flight Lieutenant	£435 ,,	£222 ,,	£455 ,,	£228 ,,	£277 ,,	£133 ,,	£627 ,,	£274 ,,
Squadron Leader	£435 ,,	£275 ,,	£455 ,,	£281 ,,	£277 ,,	£149 ,,	£627 ,,	£301 ,,
Wing Commander	£537 ,,	£329 ,,	£549 ,,	£344 ,,	£319 ,,	£163 ,,	£698 ,,	£401 ,,
Group Captain	£573 ,,	£366 ,,	£599 ,,	£355 ,,	£356 ,,	£200 ,,	£722 ,,	£427 ,,

The married rates are payable only when the officer is accompanied by his family. If unaccompanied, he is treated as unmarried for the purposes of his own accommodation, or allowances in lieu, and receives a consolidated allowance in respect of the separated family as follows:—

Flying Officer ... ... £109 per annum.
F/Lieut. & Sq. Ldr. ... ... £136 per annum.
Wing Comdr. & Grp. Captain ... ... £173 per annum.

Iraq & Sudan.—Families are normally not allowed in these countries, and officers are provided with accommodation, etc., for themselves, and receive Colonial and servant allowances. The present rates of Colonial allowance amount to £142 p.a. (Iraq) and £55 p.a. (Sudan). In addition, married officers receive the consolidated allowance for separated families at the rate shown above.

Aden & Transjordan.—Families are only allowed at these stations if public married quarters are available. Married officers, accompanied by their families, are accordingly provided with married accommodation, etc., and receive a servant allowance of 2/- a day and a Colonial allowance of 10/- a day at Aden and 7/- in Transjordan. All other officers are provided with unmarried accommodation, and receive servant allowance of 2/- a day and Colonial allowance of 5/- at Aden and 3/3 a day in Transjordan. In addition, married officers separated from their families receive the consolidated allowance at the rates shown above.

The rates of pay of the Royal Air Force Medical Branch are fixed on an inclusive basis, and the fact that specialist pay and charge pay are not payable as separate emoluments was taken into account when the rates were fixed.

GRATUITIES.

Short service officers who complete their full period of service on the active list may be granted gratuity as follows on transfer to the reserve:

After 3 completed years ... ... £350.
After 5 completed years ... ... £700.

Permanent officers who are allowed to retire voluntarily before qualifying for retired pay may be granted gratuity as follows:

After 10 but less than 15 years' commissioned service ... ... £1,500.
With 15 or more than 15 years' commissioned service ... ... £2,500.

RETIRED PAY.

The current rates of service retired pay range from £445 a year, normally earned after 20 years' service, to £899, the maximum for which an Air Vice-Marshal is eligible (at current rates).

Rates of pay and retired pay are subject to alteration, upwards or downwards, within certain limits, according to fluctuations in the cost of living.

Full particulars as to the conditions of service are contained in Air Ministry Pamphlet 25, a copy of which, together with form of application, can be obtained on application to the Secretary, Air Ministry (D.M.S.), Adastral House, Kingsway, LONDON, W.C.2.

KENT COUNTY OPHTHALMIC AND AURAL HOSPITAL, MAIDSTONE. (110 Beds.)

Applications are invited for the post of OPHTHALMIC HOUSE SURGEON, which is now vacant. Candidates must be duly qualified registered Medical Practitioners, single, and of British birth and nationality, and should have had experience of Ophthalmology. The Hospital is recognised by the Examining Board for the D.O.M.S. The appointment will be for six months, but may be renewed for a second six months. Salary at the rate of £200 per annum, with board, residence, and laundry.

Applications, stating age, together with copies of not more than three testimonials, should be sent to the undersigned without delay.

JOHN W. STRICKLAND, Secretary.

NATIONAL HOSPITAL, QUEEN SQUARE, W.C.1.

ASSISTANT PATHOLOGIST.

Applications are invited for the post of Assistant Pathologist. Candidates must be medically qualified and have had training in Clinical Pathology and Biochemistry. Attendance will be required for six half days a week, and the appointed officer will work under the Pathologist. Salary £250 per annum. The appointment is for one year and the holder is eligible for re-election.

Applications should be sent to the undersigned on or before Saturday, July 22nd.

GODFREY H. HAMILTON,
Secretary.

NORTHUMBERLAND COUNTY COUNCIL.

APPOINTMENT OF DENTAL OFFICER.

Applications are invited from fully qualified Dental Surgeons for the above post. The salary will be at the rate of £500 per annum, with reasonable travelling expenses, and the post will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922. The official appointed will be required to drive a motor dental van.

Applications, together with three recent testimonials, must be sent to the undersigned not later than August 15th. An official form will be supplied on receipt of a stamped addressed envelope.

WILLIAM F. J. WHITLEY,
South Granville House, County and
Jesmond, School Medical Officer.
Newcastle-upon-Tyne, 2.
July 4th, 1933.

NORFOLK MENTAL HOSPITAL, THORPE, NORWICH.

ASSISTANT MEDICAL OFFICER.

The Visiting Committee invite applications from duly registered Medical Practitioners for the appointment of Assistant Medical Officer. Salary £400 per annum, rising by annual increments of £25 to £500 per annum, together with unfurnished house, fuel, light, laundry, vegetables, and the privilege of purchasing from stores at contract prices, valued at £100 per annum. In the event of the selected candidate holding the Diploma of Psychological Medicine an extra £50 per annum will be paid. The appointment will be subject to the conditions of the Asylums Officers Superannuation Act, 1909.

Applications, with copies of three recent testimonials, to be forwarded to the Medical Superintendent, Norfolk Mental Hospital, Thorpe, Norwich, not later than July 29th.

NORTH RIDING INFIRMARY, MIDDLESBROUGH.
(General Hospital—150 Beds.)

Applications are invited for the post of THIRD HOUSE SURGEON (gentleman) to take up duties August 1st.

The appointment will be for a definite period of six months, renewable.

Salary at the rate of £125 per annum, with board, residence, and laundry.

Applications, stating age, nationality, and previous experience, with three recent testimonials (copies), should be sent forthwith to the undersigned.

CHARLES POSTGATE,
Secretary-Superintendent.

THE SHEFFIELD ROYAL HOSPITAL.
(340 Beds.)

Applications are invited for the post of OPHTHALMIC HOUSE SURGEON. Salary £120 per annum, with board, residence, and laundry. There are twelve resident Medical Officers. Applications should be forwarded to—

W. H. BOOTH,
Superintendent & Secretary.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN,
Park Place, Cheetham Hill Rd., MANCHESTER.

The Committee of Management require the services of a SENIOR HOUSE SURGEON and a JUNIOR HOUSE SURGEON, both duly qualified, who are to commence duties on Sept. 1st.

Senior House Surgeon, salary £130 per annum, with board and residence; Junior House Surgeon, salary £100 per annum, with board only.

Applications, stating age and experience, with copies of recent testimonials, to be sent to the Secretary, Mr. JAMES C. DANIELS, 38, Barton Arcade, Manchester, not later than the first post July 21st.

ROYAL DEVON AND EXETER HOSPITAL, EXETER. (225 Beds.)

HOUSE SURGEON (Male).

Applications are invited for the post of House Surgeon at this Hospital, shortly becoming vacant. The appointment is for six months, but candidates are eligible for re-election.

Salary at the rate of £150 per annum, with board, apartments, and washing.

Applications, giving particulars as to age and qualifications, together with copies of three recent testimonials, should be sent to the undersigned on or before Saturday, 22nd inst.

By Order of the Committee,
S. S. COLE,
July 6th, 1933. Secretary & Manager.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN,
Waterloo Road, S.E.1.

APPOINTMENT OF HONORARY SURGEON IN CHARGE OF OUT-PATIENTS.

There is a vacancy for an Honorary Surgeon in charge of Out-Patients at the above Hospital. Applicants must be a Master of Surgery of a recognized University or a Fellow of the Royal College of Surgeons, England. Applications, with copies of three recent testimonials, should reach the undersigned not later than July 24th, from whom further particulars can be obtained.

J. H. TEASDALE, Secretary.

ST. ALBANS AND MID-HERTS HOSPITAL AND DISPENSARY.

The Committee of the St. Albans and Mid-Herts Hospital invite applications from qualified ... for the post of ... AND HONORARY ANAESTHETIST at the Hospital.

The person appointed must reside within a radius of three miles from the Town Hall, St. Albans.

Further particulars can be obtained from Dr. D. S. MORGAN JONES, Hon. Sec., to the Medical Staff, Stanley Lodge, St. Peter's St., St. Albans.

W. G. MARSHALL,
38, St. Peter's St., Secretary.
St. Albans. July 7th, 1933.

SOUTH DEVON AND EAST CORNWALL HOSPITAL, PLYMOUTH. (240 Beds.)

Applications are invited for the post of RESIDENT ANAESTHETIST AND HOUSE SURGEON to the Special Departments. (Male.)

Salary £120 per annum, with board, residence, and laundry. Appointment is tenable for six months, and is subject to renewal. Duties to commence July 28th. Candidates must be registered under the Medical Acts.

Applications, stating age and qualifications, together with copies of recent testimonials, to be sent to the undersigned by July 19th.

ARTHUR R. CASH,
July 3rd, 1933. Gen. Supt. & Secretary.

SHROPSHIRE ORTHOPAEDIC HOSPITAL & AGNES HUNT SURGICAL HOME, OSWESTRY.
(320 Beds—110 Children; 210 Adults.)

TWO HOUSE SURGEONS (male) required on September 30th.

Appointment for six months, with possibility of extension. Salary at the rate of £200 per annum, with board, residence, and laundry. Two weeks' holiday for each six months' service.

Applications, stating age, qualifications, and experience, with copies of three recent testimonials, should be forwarded to the Secretary-Superintendent.

ST. JOHN'S HOSPITAL, LEWISHAM, S.E.13.

Applications are invited for the three Resident posts of HOUSE PHYSICIAN, HOUSE SURGEON, and CASUALTY OFFICER (male). Remuneration £100 p.a. Applications, with copies of testimonials, should reach the undersigned as soon as possible.

J. C. GILBERT,
Secretary-Superintendent.

THE ROYAL EARLSWOOD INSTITUTION, REDHILL, SURREY.
(Under Mental Deficiency Acts, 1913-27.)

JUNIOR ASSISTANT MEDICAL OFFICER required.

Applicants must be registered practitioners, males (British birth), unmarried, and willing to assist in the games and amusements.

The appointment is temporary for six months from September 1st. Inclusive salary at the rate of £250 per annum, with board, residence, and washing. Good facilities for post-graduate studies, classes, and examinations.

Applications, stating age, religion, and qualifications, with copies of three testimonials of recent date, and two references, to be sent to the Medical Superintendent at the Institution by July 31st. The envelope to be endorsed "Assistant Medical Officer."

H. STEPHENS,
July 5th, 1933. Secretary.

THE PRINCE OF WALES'S GENERAL HOSPITAL, LONDON, N.15.

The Governors of the Prince of Wales's General Hospital will shortly proceed to the election of an HONORARY PHYSICIAN to the Skin Department for which post applications are invited.

Candidates must be Graduates in Medicine of a recognised British University, Fellows or Members of one of the Royal Colleges of Physicians, and be engaged in Consulting Practice only.

Applications, together with copies of three recent testimonials, should be lodged with the undersigned on or before Wednesday, July 19th.

(Signed) J. C. BURDETT,
Director.

THE GENERAL INFIRMARY AT LEEDS.
(627 Beds.)

RESIDENT MEDICAL OFFICER, IDA AND ROBERT ARTHINGTON HOSPITAL (Branch Hospital).

Applications are invited for the above post. Salary £100 per annum, with board, residence, and laundry.

The appointment is for six months, subject to renewal. Candidates must be legally qualified and registered.

Applications, with copies of testimonials, to be sent in at once to the House Governor & Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

HOUSE SURGEON required August 1st.

CASUALTY OFFICER required August 14th. Some Ear, Nose, and Throat work additional. Six months' appointments. Salary at the rate of £100 per year, with board, lodging, and laundry.

Applications must be made on forms to be obtained from the undersigned, and must be sent in with copies of not more than four testimonials, on or before July 18th.

CHARLES H. BESSELL,
July 1st, 1933. Secretary.

THE CHILDREN'S HOSPITAL, SHEFFIELD.
(110 Beds—Three Residents.)

Applications are invited for the post of HOUSE SURGEON, vacant August 1st.

The appointment is for six months. Salary £100 per annum, with board, residence, and laundry.

Candidates (male and unmarried), who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of three recent testimonials to the undersigned.

T. H. G. GARTLAND, Secretary.

THE ST. HELENS HOSPITAL.

Applications are invited for the position of JUNIOR HOUSE SURGEON (male) to this Hospital at a salary of £150 per annum, plus board, residence, and laundry.

Applications, accompanied by three recent testimonials, to be sent to the Secretary, St. Helens Hospital, Lancs, not later than July 25th.

The successful candidate will be required to commence his duties on August 1st.

THE COMMITTEE OF THE BOSTON HOSPITAL invite applications for the position of WHOLE-TIME SECRETARY of their Institution of 52 beds.

Candidates should be men of about 35 years of age, and should have had some previous experience in Voluntary Hospital organization.

A schedule of duties and further particulars may be obtained of the Chairman, Boston Hospital, 23, Market Place, Boston.

HULL ROYAL INFIRMARY.
(370 Beds.)

Applications are invited from registered Medical Practitioners for the following posts (male):

CASUALTY OFFICER, vacant now. Salary at the rate of £150 per annum, plus residence, board, and laundry. The officer appointed will work mainly under the direction of the Resident Surgical Officer.

HOUSE SURGEON to the Ophthalmic and Ear, Nose, and Throat Departments, vacant now. Salary at the rate of £150 per annum, plus residence, board, and laundry. The post is recognised by the Conjoint Board of the Royal Colleges for the Clinical work required in the regulations for the Diplomas in Ophthalmic Medicine and Surgery, and Laryngology and Otology.

HOUSE PHYSICIAN at the SUTTON BRANCH, vacant August 1st. Salary at the rate of £160 per annum, plus residence, board, and laundry. The Branch Hospital contains 100 beds, 45 of which are reserved for medical cases.

The above appointments will be for six months, but will be determinable at any time by one month's notice on either side.

Applications, giving particulars of age, experience, and nationality, together with copies of testimonials, should be addressed to the undersigned.

R. J. CARLESS,
July 3rd, 1933. House Governor.

GRAVESEND AND NORTH KENT HOSPITAL.
(114 Beds)

TWO HOUSE SURGEONS.

The Committee of Management invite applications from fully qualified men for the above posts.

Salary at the rate of £125 per annum, plus board, lodging, washing, and certain fees as perquisites.

The successful candidates will be required to commence duties on August 1st

Applications, with one copy of three recent testimonials, to be sent to the undersigned immediately.

C. E. CHAPMAN, Secretary.

DORSET COUNTY HOSPITAL, DORCHESTER.

APPOINTMENT OF HOUSE SURGEON.

The Committee of Management are open to receive applications for the position of House Surgeon to take up his duties on or about August 10th.

Every candidate must be unmarried and possess a registered qualification to practise medicine and surgery from some recognised Body in Great Britain or Ireland. Salary £160 per annum, with board and lodging The appointment is for a period of not less than six months. All applications, accompanied by copies of three recent testimonials, should be sent to the Secretary, Dorset County Hospital, on or before Saturday, July 29th.

Candidates must be of British nationality.

GREENOCK ROYAL INFIRMARY, GREENOCK, RENFREWSHIRE.
(164 Beds—Three Residents)

The Directors invite applications for the posts of HOUSE SURGEONS (Two), vacant August 1st.

The appointments are for six months, with salary in each case at the rate of £100 per annum, with board, residence, and laundry

Applications, stating age, qualifications, with copies of testimonials, to be sent on or before July 18th, to the undersigned.

T COLLET,
Secretary Superintendent.

ANCOATS HOSPITAL, MANCHESTER

HOUSE PHYSICIAN.

House Physician required for a period of six months to commence duty immediately. Salary £100 per annum, with board, residence, laundry, etc.

Applications, stating age, qualifications, and experience, to be forwarded to the undersigned, together with copies of three recent testimonials, immediately.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

EASTBOURNE. PRINCESS ALICE MEMORIAL HOSPITAL. (116 Beds)

RESIDENT HOUSE SURGEON required on August 1st next for six months. Salary £150 per annum, with board, lodging, and laundry. Candidates must be unmarried, fully qualified, and registered. Applications, stating age, accompanied by copies of three testimonials (including one from a medical school), should reach the Secretary by July 18th.

HOSPITAL OF ST. CROSS, RUGBY.

Applications are invited for the post of TWO MALE RESIDENT MEDICAL OFFICERS Qualified (Three R.M.O.'s.)

Salary to commence at the rate of £100 per annum for first three months, £125 per annum for second three months, and at the rate of £150 per annum for subsequent months.

Six months' appointment, and eligible on completion of service for further extension of six months

One candidate must be prepared to commence duties immediately, the other candidate will be expected to commence duties on August 1st.

The practice of the Hospital offers excellent opportunities for wide experience

Certificates and other fees shared by R.M.O.'s.

Applications, stating age, nationality, and full details, with copies of three recent testimonials, to be sent to the undersigned

(Signed) W. COCKBURN,
Supt. & Secretary.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH.
60, Grove End Road, London, N.W.8.

Applications are invited for the post of RESIDENT HOUSE PHYSICIAN (male). The appointment will be for six months from August 1st. Salary at the rate of £100 per annum, with full board. Appointment approved for M.D. examinations of the University of London.

Applications, together with copies of three testimonials, should reach the undersigned on or before Monday, July 17th.

F. DUDLEY HOBBS, B.A., Secretary.

CHESTERFIELD AND NORTH DERBYSHIRE ROYAL HOSPITAL.
(220 Surgical and Medical Beds)

HOUSE SURGEON.

Applications are invited from fully qualified men for the above post.

The appointment is for six months Salary at the rate of £150 per annum, with board, apartments, and laundry.

Applications, stating age, together with copies of three recent testimonials, should be sent to the undersigned as soon as possible.

G. SUNNUCK,
July 3rd, 1933. Supt. & Secretary.

LIVERPOOL HAHNEMANN HOSPITAL, HOPE STREET.

Applications are invited for the post of STIPENDIARY MEDICAL OFFICER to the above Hospital. Duties to commence on August 1st.

Post is non-resident, tenable for six months, renewable, mornings only. Some visiting.

Salary at the rate of £125 per annum.

Candidates must be willing to study and apply Homoeopathy

Apply, stating age, sex, experience, and enclosing copies of testimonials, to the Registrar, on or before July 17th.

INGHAM INFIRMARY, SOUTH SHIELDS.

Wanted, SENIOR and JUNIOR HOUSE SURGEONS (male). Salaries £200 and £150 per annum respectively, with residence, board, and washing. No out-visiting Candidates must hold registered qualifications in medicine and surgery. The appointments will be terminable by one month's notice. Applications, stating age and accompanied by copies (which will not be returned) of recent testimonials, to be sent to the undersigned from whom further particulars may be obtained

JOHN POTTER, Secretary.

HERTFORD COUNTY HOSPITAL.

Applications are invited for the post of HOUSE PHYSICIAN (male) Salary £150 per annum, with board, residence, and laundry Duties to include Casualty, Obstetrics, and some surgical work. The appointment to be for six months in the first instance, commencing as soon as possible.

Applications, together with copies of three recent testimonials, should be sent to the undersigned.

PERCY G. BROOKS, Secretary.

HORTON GENERAL HOSPITAL, BANBURY, OXON.

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male or female), now vacant. The appointment is for six months Salary at the rate of £150 per annum, with suite of rooms, board, and laundry.

Applications, with references, to—
RICHARD H PRESCOTT
Secretary & House Governor

ROYAL INFIRMARY, BLACKBURN.
(240 Beds—Five Residents.)

RESIDENT HOUSE PHYSICIAN (male) required at a salary of £175 per annum, with board, residence, laundry, etc. In addition to Medical Wards to be attached to Eye, Ear, Nose, and Throat Department. To commence duties August 1st.

FOURTH HOUSE SURGEON (male) to act also as Casualty Officer required at a salary of £150 per annum, with board, residence, laundry, etc. To commence duties as soon as possible

Applications, with copies of testimonials, stating age, nationality, experience, etc., to be sent at once to the undersigned

Royal Infirmary, NATHAN A SMITH,
Blackburn General Supt. & Sec.

This Institution is recognised for the Surgical Practice required for the F.R.C.S. Final examination

THE ROYAL HOSPITAL WOLVERHAMPTON
(Incorporated under Charter)

HOUSE SURGEON required for Ear, Throat, and Nose Department, duties to commence beginning of August

The Hospital contains 300 beds includes the usual special departments and is recognised by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice

Candidates must be registered under the Medical Acts, and unmarried

The appointment is for six months Salary at the rate of £100 per annum, board, furnished rooms and laundry provided

Applications, with copies of testimonials, to be forwarded to the undersigned.

Wolverhampton W. H HARPER,
July 3rd, 1933. House Governor.

ROYAL VICTORIA AND WEST HANTS HOSPITAL, BOURNEMOUTH.

HOUSE SURGEON (male, British nationality) required to commence end of July. Salary £120 per annum and additional fees with board, lodging, and washing The appointment is tenable for six months, and candidates must be registered according to the provisions of the Medical Act Applications, stating place of birth and age, with copies of three recent testimonials, to be sent immediately to the undersigned Women and married men are ineligible

GORDON M SAUL.
July 10th, 1933. *Secretary*

THE ROYAL BUCKINGHAMSHIRE HOSPITAL, AYLESBURY.

Applications are invited for the post of RESIDENT MEDICAL OFFICER (Male) for six months *To commence duty August 1st* Salary £200 per annum, with board, residence, and laundry. Candidates must be fully qualified and registered.

Applications, stating age, qualifications, and experience, with copies of not more than three testimonials, should be sent to the undersigned at once

M W BROWN, Secretary

ROYAL INFIRMARY, WIGAN
(180 Beds)

HOUSE SURGEON (male) required immediately for a period of six months. Salary £150 per annum, with board, apartments, and washing Staff consists of R.S.O. and three House Surgeons. Applications, stating age and qualifications, with copies of three recent testimonials, should be addressed to the undersigned as soon as possible.

A. STANLEY BRENT
June 27th, 1933. Gen. Supt & Secretary

THE STOCKPORT INFIRMARY

HOUSE PHYSICIAN (male) required Salary £150 per annum, with board, residence, and laundry. Applications, with copies of three recent testimonials, stating age, University or Medical School, and experience (if any), to be delivered to the undersigned at once.

The duties to commence on August 1st

H G PRICE, Secretary Supt.

ROYAL CORNWALL INFIRMARY, TRURO
(84 Beds)

HOUSE SURGEON (male) required, with experience of Anæsthetics. Salary £170 per annum, rooms, board and washing. Applications with copies of three recent testimonials to the Secretary, of whom further particulars may be obtained

THE MARIE CURIE HOSPITAL,
2 Fitzjohn's Avenue, Hampstead

Applications for the post of ANÆSTHETIST are invited from qualified medical [illegible] Applications with recent testimonials to be forwarded before July 24th to the Secretary

BOROUGH OF ILFORD.

ASSISTANT MEDICAL OFFICER.

Applications are invited from legally qualified medical practitioners for the office of Assistant Medical Officer of Health for duties in connection with the Maternity, Child Welfare, and School Medical Services, and other Public Health work.

Candidates must have had special experience in midwifery and in children's diseases since qualification. Subject to this, preference will be given to candidates who possess the Diploma of Public Health or similar qualification.

The commencing salary of the officer will be £500 per annum, rising by annual increments of £25 per annum to a maximum of £700 per annum (no bonus).

The person appointed will be required to devote whole time to the duties of the office and to enter into a contract for the due performance and fulfilment of all the duties and conditions governing the appointment.

The appointment is subject to satisfactory medical examination, to the Staff regulations for the time being in force, and to the Local Government and Other Officers Superannuation Act, 1922.

Forms of application and list of duties may be obtained from the undersigned on receipt of a stamped, addressed foolscap envelope.

Applications, accompanied by copies of three recent testimonials (which will not be returned) endorsed "Assistant Medical Officer of Health," must be delivered to the undersigned not later than Tuesday, the 18th July.

Canvassing, directly or indirectly, will disqualify.

By Order,
ADAM PARTINGTON,
Town Clerk.

Town Hall, Ilford.
1st July, 1933.

CITY OF CARDIFF.

MEDICAL OFFICER OF HEALTH.

Applications are invited from registered Medical Practitioners holding a Diploma in Public Health or similar qualification for the post of Medical Officer of Health for the City and Port of Cardiff and School Medical Officer to the Cardiff Education Authority.

The duties will be those prescribed by statute, subject to such variations as the City Council may from time to time direct, and will include the general administrative control of the Municipal General and Isolation Hospitals, and the positions of Medical Officer for Mental Deficiency and Medical Officer for Public Assistance.

The commencing salary will be £1,200 per annum (subject to a temporary reduction of 6 per cent.), with a motor car allowance of £100 per annum.

The person appointed will be required to reside within the City and to devote his whole time to the duties of the office, except that he will be permitted to hold the post of Lecturer in Public Health to the Welsh National School of Medicine (the present salary for which is £250 per annum) if he is appointed to that position. He will also be required to pass a medical examination and to contribute 5 per cent. of his salary to the Superannuation Fund of the Council.

Applications, on forms obtainable from the undersigned, accompanied by copies of three recent testimonials, and endorsed "Medical Officer of Health," must be received by him not later than 12 noon on Monday, July 24th.

City Hall, Cardiff.
July 3rd, 1933.

D. KENVYN REES,
Town Clerk.

COUNTY BOROUGH OF MIDDLESBROUGH.

HOLGATE MUNICIPAL HOSPITAL.

WHOLE-TIME RESIDENT PHYSICIAN.

The Council invite applications from duly qualified Medical Practitioners, with actual experience in the treatment of Venereal Diseases for the post of Whole-time Resident Physician at Holgate Municipal Hospital, Middlesbrough, at a commencing salary of £500 per annum, plus board, furnished apartments, and laundry, to commence duties on or about October 1st.

The appointment is subject to the approval of the Ministry of Health, and is terminable by three months' notice in writing on either side. The person appointed will be required to work under the general supervision of the Medical Superintendent, and to undertake such duties as may be assigned to him from time to time by the Council.

Further particulars relating to the appointment may be obtained on application to the Medical Officer of Health, Municipal Buildings, Middlesbrough.

Applications, with copies of three recent testimonials, must be forwarded to the undersigned not later than Tuesday, July 25th.

PRESTON KITCHEN, Town Clerk.

Municipal Buildings, Middlesbrough.
June 28th, 1933.

LONDON COUNTY COUNCIL.

Medical Practitioners required for undermentioned positions. Remuneration and conditions subject to review. Duties assigned by medical superintendent, and include, if necessary, assistance at other establishments of the Council.

Candidates for position of Assistant Medical Officer, Grade 1, must be Medical Practitioners of at least one year's standing and have held a resident appointment in a General Hospital for at least six months. No accommodation for married men, nor, at Hammersmith and High Wood Hospitals, for women.

1. LEWISHAM HOSPITAL, High Street, Lewisham, S.E.—(a) ASSISTANT MEDICAL OFFICER (Grade 1).* Experience in Obstetrics desirable. (b) HOUSE PHYSICIAN.†

2. HAMMERSMITH HOSPITAL, Ducane Road, Shepherd's Bush, W.12.—ASSISTANT MEDICAL OFFICER (Grade 1).* Obstetrics and Gynæcology essential.

3. HIGH WOOD HOSPITAL FOR CHILDREN, Brentwood, Essex.—HOUSE PHYSICIAN.†

* Salary £350—£25—£425, with board, lodging, and washing.

† Salary £80 a year, with board, lodging, and washing. Appointment for six months in first instance.

4. ST. GILES'S HOSPITAL, Brunswick Square, Camberwell, S.E.—CLINICAL ASSISTANT. Salary £100 a year, with meals when on duty. Appointment for six months in first instance.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 3a), County Hall, S.E.1, returnable by July 21st. Canvassing disqualifies. Further inquiries should be addressed to medical superintendent at respective Hospitals.

BARRY URBAN DISTRICT COUNCIL.

SURGICAL HOSPITAL.

HOUSE SURGEON (Male).

Applications are invited for the above appointment.

Candidates must be duly qualified and registered. Salary £200 per annum, with board, and lodging.

Preference will be given to a candidate with previous experience, especially in the administration of Anæsthetics.

The successful candidate must devote the whole of his time to the duties of his office, and to assist the Medical Staff, and act under the supervision of the Medical Superintendent, who is also Medical Officer of Health and School Medical Officer.

The appointment will be for a period of six months, to be renewed, if thought fit, for another period of six months, but not for any subsequent period.

The successful candidate will be required to commence duties on August 24th.

Applications, stating age, qualifications, positions held, with copies of three recent testimonials, to be sent to Dr. P. W. KENT, Medical Superintendent, Public Health Office, Barry, by first post on July 25th.

(Signed) T. D. HOWELLS, Clerk.

July 10th, 1933.

DERBYSHIRE COUNTY COUNCIL.

LOCUM FOR SANATORIUM.

Applications are invited for the post of LOCUM RESIDENT ASSISTANT MEDICAL OFFICER (female), at WALTON SANATORIUM, near Chesterfield (130 beds), for a period of four weeks commencing August 1st. Salary at the rate of £350 per annum, with board, lodging, etc. Experience in Artificial Pneumothorax desirable.

Applications, together with copies of two recent testimonials, to be sent to the undersigned on or before July 22nd.

New County Offices,
St. Mary's Gate,
Derby. July 10th, 1933.

W. M. ASH,
County Medical Officer.

ALEXANDRA HOSPITAL FOR CHILDREN WITH HIP DISEASE, SWANLEY, KENT.

(In connection with St. Bartholomew's Hospital.)

Applications are invited for the post of RESIDENT ASSISTANT MEDICAL OFFICER. Candidates must be unmarried, fully qualified, and have held a resident surgical appointment. The successful candidate will be required to take up duty on October 1st. The appointment is for six months, with eligibility for re-election. Salary to commence at £200 a year, with board and lodging.

Applications, stating age and qualifications, with copies of two testimonials, should be sent, not later than September 11th, to the undersigned, at the London Offices, 107, Southampton Row, W.C.1, from whom particulars of the duties and conditions of the appointment may be obtained.

STANLEY SMITH, Secretary.

LONDON COUNTY COUNCIL.

TEMPORARY RESIDENT ASSISTANT MEDICAL OFFICERS required at undermentioned Hospitals until December 31st, 1933, in first instance.

Must be registered Medical Practitioners of at least one year's standing, and have held a resident appointment in a General or Maternity Hospital for at least six months. Salary £250 a year, with board, lodging, and washing. Duties include administration of anæsthesia in maternity cases. Remuneration and conditions subject to review.

1. LAMBETH HOSPITAL, Brook Street, Kennington, S.E.11.—No accommodation for a married man or for a woman.

2. ST. ANDREW'S HOSPITAL, Devon's Road, Bow, E.3.—(Woman only).

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 3a), County Hall, Westminster Bridge, S.E.1, returnable by July 28th. Canvassing disqualifies. Inquiries should be addressed to respective Medical Superintendents.

COUNTY BOROUGH OF BURNLEY.

MUNICIPAL GENERAL HOSPITAL.

JUNIOR RESIDENT MEDICAL OFFICER (Female).

Applications are invited from fully qualified Medical Practitioners (female) for whole-time appointment as Junior Resident Medical Officer at the Municipal Hospital, Burnley. The appointment will be for a period of twelve months.

Salary at the rate of £150 per annum and full residential emoluments, less economy deduction (£2 10s. p.a.). The officer appointed will be required to refund to the Council all fees, allowances, and emoluments (other than the foregoing) received by her.

Further particulars and application form may be obtained from the Medical Officer of Health, St. James' Street, Burnley, to whom applications, together with three recent testimonials, should be forwarded not later than Monday, July 24th.

Canvassing, either directly or indirectly, will be a disqualification.

Town Hall, Burnley.
July 3rd, 1933.

COLIN CAMPBELL,
Town Clerk.

GENERAL HOSPITAL, NOTTINGHAM. (386 Beds.)

A HOUSE SURGEON is required at the above Institution. The appointment is for six months with salary at the rate of £150 a year, with board, residence, and laundry. Candidates, who must have had previous Hospital experience, are desired to send applications and full particulars as to age, qualifications, and experience, together with copies of testimonials, to the undersigned, not later than Saturday, August 5th. Duties to commence on or about Friday, August 25th.

PETER M. MACCOLL,
House Governor and Secretary.

ACTON HOSPITAL, W.3.

JUNIOR RESIDENT MEDICAL OFFICERS (male, unmarried) required to commence duties August 1st, and October 1st. Salary £150 per annum, with board, residence, and laundry. Candidates must be fully qualified and registered. Applications, stating age, nationality, and qualifications, together with a copy of three recent testimonials, should reach the Secretary, Acton Hospital, Gunnersbury Lane, W.3, by Monday, July 24th.

DONALD C. D. SWORD,
Secretary.

July 10th, 1933.

NORTH ORMSBY HOSPITAL, MIDDLESBROUGH

HOUSE PHYSICIAN required, male and unmarried. Salary £120 per annum, with board, residence, and laundry. There are three Residents, and the successful candidate will be eligible for the post of House Surgeon in due course.

Applications, stating age, qualifications, previous experience (if any), with copies of three recent testimonials, should be sent to the undersigned at once.

GEORGE WATTS,
Secretary-Supt.

June 6th, 1933.

HOUNSLOW HOSPITAL, STAINES ROAD, HOUNSLOW, MIDDLESEX. (70 Beds.)

Wanted, MALE HOUSE SURGEON, British nationality. Appointment at £150 p.a., with board, residence, etc., for six months.

Applications, stating qualifications, age, and experience, and enclosing copies of three recent testimonials, should be sent forthwith (marked "House Surgeon" top left hand corner) to W. T. ROSS, Secretary, Hounslow Hospital.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands.

Town or District.	Town or District.	Town or District.
HOSPITAL	**CONTRACT PRACTICE** (contd.)	**PUBLIC HEALTH**
NORTH LONSDALE HOSPITAL, BARROW-IN-FURNESS. (*Visiting Medical and Surgical Staff.*)	LOWESTOFT MEDICAL INSTITUTE. (*Medical Officer.*)	COUNTY BOROUGH OF SOUTH SHIELDS. HARTON INSTITUTION AND CLEADON COTTAGE HOMES. (*Medical Officer*)
CONTRACT PRACTICE	MARDY, GLAMORGAN. (*Workmen's Medical Scheme.*)	HERTFORDSHIRE COUNTY COUNCIL. WARE SANATORIUM. (*Assistant Medical Officer.*)
EBBW VALE, MON. (*Workmen's Medical Society*)	NEATH AND DISTRICT. (*Medical Aid Association.*)	FULHAM BOROUGH COUNCIL. Maternity and Child Welfare Department. (*Assistant Medical Officer—Woman.*)
GILFACH GOCH, GLAMORGAN. (*Workmen's Medical Scheme.*)	OAKDALE, MON. (*Medical Officer for Medical Aid Association.*)	
LLWYNPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN. (*Workmen's Medical Scheme.*)	OGMORE VALLEY, GLAMORGAN. (*Wyndham Colliery Medical Aid Society*) (*Workmen's Medical Scheme.*)	

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch	Town or District.	Hon. Sec of Division or Branch.
NEW SOUTH WALES. (*All Friendly Society Appointments.*)	Dr. J. G. HUNTER (Medical Secretary, New South Wales Branch), 135, Macquarie St, Sydney, N.S.W.	QUEENSLAND. (*Brisbane Associated Friendly Societies Institute.*)	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. (*Contract Practice Appointments.*)	Dr. G. F. V ANSON (Hon. Sec, New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.
VICTORIA. (*All Institute or Medical Dispensaries*)	Dr. J. P. MAJOR (Hon. Sec., Victorian Branch, British Medical Association, Medical Society Hall, East Melbourne, Victoria.	(*Toowoomba Associated Friendly Societies, Medical Institute, Toowoomba.*)		WESTERN AUSTRALIA. (*Contract and Lodge Practices*)	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr, Perth, Western Australia.

July 12th, 1933. By Order of the Council. G. C. ANDERSON, Medical Secretary.

CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE, WITHINGTON, MANCHESTER.

Applications are invited for the post of ASSISTANT RADIOLOGIST TO THE RADIUM INSTITUTE (formerly the Manchester and District Radium Institute)

The appointment is on a whole time basis and offers excellent opportunity of obtaining extensive experience in Radium Therapy

Applicants must have had some general medical and surgical experience since graduation and must possess either a diploma in Radiology or a Surgical Fellowship.

Commencing salary £500 per annum.

Applications, with details of experience and qualifications, and copies of testimonials, to be sent immediately to the Hon. Secretary at the above address.

GREAT YARMOUTH GENERAL HOSPITAL. (72 Beds)

Applications are invited for the post of HOUSE SURGEON (one of two appointments). Applicants must be male and unmarried. Salary at the rate of £140 per annum, with board, residence, and laundry.

Applications, stating age and qualifications, together with copies of three recent testimonials, to be forwarded to the undersigned.

FRANK JENNINGS, Secretary.

THE SHEFFIELD RADIUM CENTRE.

ASSISTANT MEDICAL OFFICER wanted, commencing salary £300 per annum. Applications, stating age, qualifications, and all particulars to be sent to JNO W. BARNES, F.C.I.S., The Secretary, The Sheffield Radium Centre, The Royal Infirmary, Sheffield, 6.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.1.

Applications are invited for the post of HOUSE SURGEON (male) for six months from August 12th (first two months in Casualty and Out-patient Department) Salary at the rate of £120 per annum, with board and residence.

Applications, stating age, experience, and qualifications, accompanied by copies of four testimonials, to be sent to the undersigned not later than July 24th, from whom rules and other particulars can be obtained.

By Order of the Committee of Management,

W. H. SIDNELL,

July 4th, 1932. Secretary-Supt.

KING GEORGE HOSPITAL, ILFORD.

Applications are invited for the appointment of HONORARY SURGEON to the Ear, Nose, and Throat Department of this Hospital Candidates (male) must be Fellows of the Royal College of Surgeons of England. Further particulars may be obtained from the undersigned to whom applications should be sent not later than July 19th next.

G. AUSTIN HEPWORTH, Secretary.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN. (80 Beds)

Wanted at once, a RESIDENT HOUSE PHYSICIAN (Lady). Salary £150 p.a. The appointment is for six months but may be extended by mutual arrangement. Applicants must be fully qualified. Applications, with three testimonials, one relating to anaesthetics, to be sent to the undersigned.

ARTHUR N WHISTON, Secretary.

25, St. Mary's Gate, Derb.

ROYAL SALOP INFIRMARY, SHREWSBURY. (150 Beds.)

APPOINTMENT OF RESIDENT HOUSE PHYSICIAN.

Applications are invited from fully qualified men for the appointment of Resident House Physician, vacant July 15th Salary £160 per annum, with board, residence, etc. The appointment is for six months in the first instance, subject to re-appointment for a further period of six months. Resident Staff comprises Resident Surgical Officer, House Physician and Casualty Officer and Resident Anaesthetist The Resident House Physician is Resident Officer to the Medical Wards of the Hospital under the direction of three Honorary Physicians, and is also Resident Officer to the Maternity Department for difficult cases under the direction of the Honorary Obstetrician

Applications, stating age, qualifications, experience, nationality, and accompanied by copies of three recent testimonials, to be sent to the undersigned forthwith.

Board Room J W NOBLE,

June 13th, 1933 Secretary Supt.

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church Street, BIRMINGHAM

HOUSE SURGEON required at the above Hospital Salary £150, rising to £200 at the end of six months, and £10 a year [illegible] Applications, [illegible] than three testimonials, [illegible] the undersigned [illegible] can be obtained

J W PEARCE, Secretary.

(Appointments continued on

British Medical Journal
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.
T/A: ARTICULATE, WESTCENT, LONDON.
Tel.: EUSTON 2111 (4 lines).

SMALL ADVERTISEMENT RATES.

Up to Six Lines (32 Words) 9s.
Each Additional Line, 1s. 6d.
(a line averages 5 words)
Address must be paid for.

All advertisements should reach the above address by not later than first post TUESDAY preceding publication.

NOT CLASSIFIED.

COUNTRY REST HOME.—SPECIALIST OPENing, near London, home for treatment of Nervous Cases, would like to hear from another willing to take up a THIRD SHARE. Or would suit one with existing connection or small home. — Address, No. 5407, B.M.A. House, Tavistock Square, W.C.1.

HAVE YOU VISITED THE CENTRAL RESEARCH CLINIC, 20/22, Chenies St., W.C.1? ('Phone: Museum 3262.) The largest Private HOSPITAL in London.

PROPRIETRESS OF PRIVATE NURSING Home, in attractive Health Resort in the North Midlands, wishing to retire, desires to SELL as a going concern. Registered for 15 patients. Special provision for maternity cases. Price, including furnishings, £1,500. — Full parties. from J. B. BOYD, WRIGLEY & CO., Chartered Accountants, 55, Brown St., Manchester.

ASSISTANCIES.

WANTED, ASSISTANT, UNMARRIED, TO live in, mixed Practice in Newcastle-upon-Tyne. Salary £300.—Address, No. 5225, B.M.A. House, Tavistock Square, W.C.1.

WANTED, INDOOR ASSISTANT FOR WORKing-class Practice, near Birmingham. British, Protestant, Scot preferred. Some experience panel work. Prospects suitable man. Full particulars, photograph. — Address, No. 5288, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY AS OUTDOOR ASSISTANT for middle-class Practice in pleasant industrial town (2 hours from London), well-qualified man (single), with resident hospital exper. Provide own car. Salary £450, with allowance for motor expenses. Possibility of small share for suitable man. Usual bond.—No. 5301, B.M.A. House, Tavistock Sq., W.C.1.

WANTED, OUTDOOR ASSISTANTSHIP, with or without view, by a young (27), energetic, triple qualif., man (Edinburgh). Experienced locums, G.P., dispensing, and anaesthetics. Car available, if necessary. Excellent references. Anywhere, but pref. country near city. Free Nov. 1st. R.C. Newly married. —No. 5303, B.M.A. House, Tavistock Sq., W.C.1.

WANTED, ASSISTANT, SINGLE, MALE, Scotch or Irish, for private and panel Practice in large Midland town; ex H.S. and H.P. preferred. £400, outdoor. State full particulars. — Address, No. 5336, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY. — INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view. Good salaries. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross St., Manchester, 2.

WANTED, SEPTEMBER 1st, FOR MIXED PRACTICE in North London, ASSISTANT, man or women, experienced in G.P. Able to drive car. Salary £250 p.a., all found.—Address, No. 5330, B.M.A. House, Tavistock Square, W.C 1.

WANTED, ASSISTANTSHIP, PREFERably with view, by woman M.B., B.S., in or near London; ex H.S., H.P., four years' experience general practice and anaesthetic work. —Address, No. 5315, B.M.A. House, Tavistock Square, W C 1.

WANTED, INDOOR MALE ASSISTANT, Seaside Practice, under 30, active, keen, cyclist, and abstainer. Suit recently qualified. Salary according to experience. Usual bond. —Address, No. 5316, B.M.A. House, Tavistock Square, W.C.1.

WANTED, AN ASSISTANT, MIXED PRACtice, Manchester area. £400 p.a. House and travelling. — Address, No. 5327, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANTSHIP BY WOMAN Doctor, aged 28, Protestant, 5 years' experience hospital and general practice. Excellent references. Motorist. Free August.—Address, No. 5319, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — MALE INDOOR ASSISTANT, for compact mixed Practice, London, convenient to West End. No branch surgery. Few visits. Usual bond. Commencing salary £312 per annum. State age, experience, references. —No. 5325, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — ASSISTANTSHIP (WITH OR without view), English, male, single, age 30, abstainer, experienced G.P. and panel. Drive car. Free in one month.—Address, No. 5323, B.M.A. House, Tavistock Square, W.C.1.

WANTED IN OCTOBER, MARRIED ASSISTANTSHIP, preferably in Country Practice, but not absolutely essential. Scots grad., aet. 32. Hosp. and G.P. exper. Scotland or Eng. Post abroad accept. Own car if suit arrgmt.—No. 5411, B.M.A. House, Tavistock Sq., W.C.1.

WANTED IMMEDIATELY, MALE ASSISTANT, country Practice with colliery, Glamorgan. Near sea and town. House, coal, and attendance. Usual bond.—Address, No. 5413, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP WANTED BY M.B., B.CH., ex H.S., aet. 27, married, total abstainer, energetic. Excellent testimonials. Free now. —Address. No. 5318, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP WANTED BY M.B., CH.B., with or without view; ex H.S., H.P., experienced G.P. Excellent refs., married, aged 29 years, abstainer, keen. Drive car. Free now. —Address, No. 5332, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIPS.

WANTED. — PARTNERSHIP BY M.B., F.R.C.S.E., married, in middle-class and panel Practice. Many Hospital appointments, wide surgical experience, excellent accoucheur. Selling own large industrial practice. Good part London or large seaside resort. £1,500—£2,000 p.a.—Address, No. 5305, B.M.A. House, Tavistock Square, W.C.1.

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All salaries are subject to a temporary reduction of 2½ per cent.
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The appointment is subject to the Asylums Officers Superannuation Act, 1909, and will also be subject to one month's notice on either side.
Applications, giving full particulars, with copies of three recent testimonials, should be sent to the Medical Superintendent forthwith.

A. V. SIMPSON,
July 14th, 1933. Clerk to the Committee.

CARNARVONSHIRE AND ANGLESEY INFIRMARY, BANGOR.

Wanted, a SENIOR and a JUNIOR HOUSE SURGEON. Salary £150 and £100 p.a. respectively, with board, residence, and laundry. Duties to commence early in August. Hospital contains Orthopaedic, Eye, Ear, Nose, and Throat, Radium, X-ray, and V.D. Departments. The posts offer good opportunities for practical surgical experience.
Applications, stating age, nationality, and experience, with copies of three recent testimonials, to reach the Secretary not later than July 19th.

GENERAL HOSPITAL, NOTTINGHAM.

A HOUSE SURGEON is required at the above Institution. The appointment is for six months, with salary at the rate of £150 a year, with board, residence, and laundry. Candidates, who must have had previous Hospital experience, are desired to send applications and full particulars as to age, qualifications, and experience, together with copies of testimonials, to the undersigned, not later than Saturday, July 22nd. Duties to commence on or about Tuesday, August 8th.

PETER M. MACCOLL,
House Governor & Secretary.

ROYAL SOUTH HANTS & SOUTHAMPTON HOSPITAL. (275 Beds.)

Applications are invited for the following appointment for a period of six months commencing July 1st.
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Applications, accompanied by not more than three testimonials, should be sent to the undersigned at once.

HY. TRUSSON, Secretary.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.4.

The Board of Management invite applications from qualified Medical Women as CLINICAL ASSISTANTS for (a) Surgical Out-patients, (b) Ear, Nose, and Throat Department, (c) Skin Department. Further particulars may be obtained from the Secretary, to whom applications, with testimonials, should be forwarded.

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RESIDENT ASSISTANT PHYSICIAN required about the middle of September. Experience of artificial pneumothorax work, etc., essential. Salary £250 p.a. Applications should be sent as soon as possible to the Secretary, Pendyffryn Hall, Penmaenmawr, North Wales.

BRADFORD CHILDREN'S HOSPITAL.

Applications are invited for the position of HONORARY PHYSICIAN at the Hospital. Duties to commence on September 1st. Application to be in my hands on or before July 24th. The Assistant Physician is expected to be a candidate.

J. W. LONGLEY, Secretary-Supt.

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Applications (accompanied by not less than three recent testimonials, stating age, qualifications, experience, and nationality, should be addressed to the undersigned on or before Monday, July 24th. Candidates selected for interview will be required to meet the Appointments Committee at the Hospital at approximately 4.45 p.m., on Friday, July 28th.

R. S. G. HUTCHINGS, Secretary.

STROUD GENERAL HOSPITAL, STROUD, GLOS. (52 Beds.)

HOUSE SURGEON, British, required September 1st. Candidates must be fully qualified and duly registered. Appointment for six months, subject to renewal at discretion of Committee. Salary £150 per annum, with board, residence, and laundry. Applications, giving particulars of age, experience, etc., together with copies of not more than three testimonials of recent date, to be sent to the undersigned from whom further particulars may be obtained.

C. FORD SPENCER, Secretary.

BRADFORD ROYAL INFIRMARY.

TWO HOUSE SURGEONS (male) wanted September 1st (six months' appointment). Candidates must be single and legally qualified.
Salary £135 per annum, with board, residence, and washing. There are 215 beds and six resident officers.
Applications, stating age, qualifications, and previous experience (if any), with copies of recent testimonials, to be received by the undersigned not later than July 25th.

J. J. BARRON,
July 8th, 1933. Secretary-Supt.

THE ROYAL LIVERPOOL CHILDREN'S HOSPITAL.

There will be vacancies on October 1st next, for TWO RESIDENT HOUSE PHYSICIANS and TWO RESIDENT HOUSE SURGEONS at the City Branch, Myrtle Street. The appointment will be for a period of six months. Salary in each case at the rate of £100 per annum.
Applications, with copies of recent testimonials, to be sent to the Secretary, Royal Liverpool Children's Hospital, Myrtle Street, Liverpool, on or before Friday, July 21st.

THE WEIR HOSPITAL, Grove Road, Balham, S.W.12.

JUNIOR RESIDENT MEDICAL OFFICER (male, unmarried) required July 30th. Candidates must be fully qualified and duly registered. Salary £150 per annum, with board, residence, and laundry.
Applications, with copies of testimonials, to be sent to the Secretary, from whom further information may be obtained.

THE ROYAL LIVERPOOL CHILDREN'S HOSPITAL.

There will be vacancies on October 1st next, for ONE RESIDENT MEDICAL OFFICER and ONE RESIDENT SURGICAL OFFICER at the Heswall Branch of the Institution (240 beds). The appointments will be for a period of six months. Salary in each case at the rate of £120 per annum.
Applications, with copies of recent testimonials, to be sent to the Secretary, Royal Liverpool Children's Hospital, Myrtle Street, Liverpool, on or before Friday, July 21st.

MERTHYR GENERAL HOSPITAL.

Applications are invited for the post of HOUSE SURGEON for the coming six months. Salary £150 per annum, plus board, lodging, and laundry.
Applications, with three recent testimonials, must be in the hands of the Secretary on or before July 22nd.

WEST LONDON HOSPITAL, Hammersmith, W 6 (234 Beds)

Applications are invited for the post of HONORARY MEDICAL REGISTRAR to the Children's Department for a period of one year, eligible for re-election annually for a total period of not more than three years An honorarium at the rate of £100 a year is attached to the post

The duties include attendance in the Out-patient Department on four mornings a week, acting as deputy for the Assistant Physician to the Children's Department when required and such teaching for the Post-graduate College as the Board may approve

Candidates who may be male or female must be registered under the Medical Act, and should have had wide experience in Children's work Membership of one of the Royal Colleges of Physicians of London, Edinburgh, or Ireland is desirable

Applications, with copies only of testimonials should reach me not later than Thursday, July 20th Candidates must attend the Meeting of the Medical Council at 4 30 p m on Friday, July 21st and prior to that date send copies of application and testimonials to each member thereof They must not canvass members of the Board but, nevertheless, should send copies of their applications and testimonials to each member thereof, and if so notified, be in attendance at a Meeting of the Board at 5 15 p m on Tuesday, July 25th, when the election will be made

H A MADGE, Secretary

WEST LONDON HOSPITAL, Hammersmith Road, W 6 (234 Beds)

Applications are invited for the post of RESIDENT ANAESTHETIST (male) The appointment is tenable for a period of six months subject to one month's notice on either side Salary at the rate of £100 per annum, with board lodgings and laundry allowance

Candidates must be registered under the Medical Act Applications (which must be on printed forms obtained from me) must reach me not later than first post, Friday July 21st Selected candidates will be required to call upon such members of the Medical Staff as directed to be in attendance at the Medical Council Meeting on Friday, July 28th at 4 30 p m and the House Committee Meeting at 5 p m the same day, when the appointment will be made

H A MADGE, Secretary

WEST END HOSPITAL FOR NERVOUS DISEASES
In-patient Department, Gloucester Gate, N W 1

The Committee of Management invite applications from British male candidates for the appointment of JUNIOR HOUSE PHYSICIAN Duties to commence August 14th Salary at the rate of £100 per annum, with board, residence and laundry Appointment in first instance for six months

Applications, with recent testimonials, must be received by the undersigned not later than first post, Tuesday, July 18th

J P WETENHALL
73, Welbeck St, W 1 Secretary

WARRINGTON INFIRMARY AND DISPENSARY

The Board of Management invite applications for the post of HOUSE PHYSICIAN (male, unmarried) Applicants who must be of British nationality must be duly qualified medical practitioners

Salary £100 per annum with board, apartments and laundry The post is tenable for six months with probable promotion at the end of that time

The Hospital has special departments for Orthopaedic, Skin, Aural, Genito Urinary, Gynaecological, etc

Applications stating age and qualifications with copies of three recent testimonials, should be sent in at once to the undersigned

By Order,
HENRY L BOOT
July 6th 1933 Supt & Secretary

YORK COUNTY HOSPITAL (200 Beds)

The post of HOUSE SURGEON in the Eye Ear Nose and Throat Department will become vacant on September 1st Salary £150 per annum with board residence and laundry

The duties include a share of the General Casualty work of the Hospital

Applications, stating age and previous experience together with copies of not more than three recent testimonials to be sent to the undersigned not later than 9 a m on Monday, July 31st

H E RYAN, Gen Supt

THE GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION (216 Beds)

HOUSE SURGEON (male), fully qualified Salary £150 per annum, with board, residence, and laundry

The appointment is for six months which may be extended for a similar period by re-election from time to time

Application stating age, qualifications, and nationality with copies of not less than three recent testimonials should be sent to the undersigned not later than July 26th

The elected candidate will be required to enter upon his duties immediately

F J SYMONS
July 13th, 1933 Secretary

WINGFIELD MORRIS ORTHOPAEDIC HOSPITAL, HEADINGTON, OXFORD

HOUSE SURGEON required, resident Salary £100 per annum Duties to commence September 1st Applications should be sent, with testimonials, to the Clinical Director by July 24th

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LONDON, E — £1,300—£1,400 P A, INCREASING Panel of 1 000 Very little midwifery Scope to increase Fees 2/ to 3/6 Premises comprise main, cons, and surg rooms, 3 bed bath etc, gas and elec, £2 per week Lease could be arranged Premium £2,000 —No 9177

BERKS — OLD ESTABLISHED — COUNTRY PRACTICE, about £ 00 p a has been £1 100 Panel about 500 Visiting fees 5/6 to 7 6 Very little midwifery Splendid house specially built for Vendor, with two acres of grounds, 2 reception rooms, 6 bedrooms, surgery, and waiting rooms etc Consider £4 000 offer for practice and house freehold —No 9173

SOUTH WALES — NEARLY £300 P A IN agricultural and residential district Opposition not strong Fees 5/ to 10/ Two or 3 commencements at 3 to 10 gns Good house 3 rec p o bed, good garden with fruit trees etc on lease Premium £280 to include drugs Would sell house and practice for £1 700 —No 9162

KENT—ABOUT 50 MILES FROM TOWN — Residential country Half share of £2 000 after preliminary Assistance, Good fees No much midwifery New house specially built to rent or buy Further share later Partner to be Lond or Camb Graduate, age 30 to 35 —No 9175

EASTERN COUNTY, IN VERY PLEASANT locality, about £300 p a Panel 180 and small club Fees 5/6 to 21/ House in open situation with 2 rec p, 3 bed, attic, etc Surgery, garage, and nice garden Rent £60 or lease Suit semi-retired man, with private means —No 9172

LONDON, N W — VERY FINE OUTLYING district About £1,000 p a No panel taken, but ample cop Some dispensing Expenses low Corner house in excellent position on main road 4 bedrooms etc Long established for sale at £2,220 Vendor giving up general practice Premium for goodwill 1½ years purchase —No 9170

MANCHESTER — UPPER WORKING AND middle class PRACTICE Nearly £1 000 p a plus Poor Law appt £100 Panel of 463 increasing Opposition weak Visits min 5/ Some 3/6 and 7/6 Surg 3 o to 5 Premium £1,750 to include book debts (£400—£500), drugs furniture, and fittings (with £150 Well built corner house 5 bed up and down, etc, to rent —No 9163

LONDON, W C — CENTRALLY SITUATED £600 p a increasing Estab of 2½ years Vendor accepting appt abroad Panel 180 Visits 5/ Cons 2/6 up Children 2 6 House on lease at £160 part sublet at £1 per week Premium only £500 —No 9161

RESIDENTIAL SEASIDE RESORT —WITHIN easy reach of London £700—£800 p a suffered through Vendor's ill health Ample scope New estate building Small panel No dispensing Midy not sought Attractive freehold house, built by Vendor, 5 bed, etc, garden, and garage —No 9158

MANCHESTER — ABOUT £600 P A, INCREASING old established PRACTICE Panel 790 Opposition less than usual Visiting fees 4/6 and 5/ Lowest surgery fee 2/6 House off main road, 4/5 beds 2 recep, and sep surgery Rent £60 on lease —No 9144

MANCHESTER —£1,300 P A PANEL 1 ?00 Well estab working and middle-class Practice Very few midwifery, at 2 and 3 gns Visits 3/6 to 5/ Premium 1½ years purch Double fronted main road house with 6 bed etc, for sale at £1 150 good mortg —No 9143

LONDON, N W — SUBURB — RECEIPTS average last three years £540 Panel 150 Visits 5/ up Surg 3/6 to 5/ Mids 8 to 10 p a, fees 3 to 6 gns Premium £900 or offer Good house, with garden Five bed 2 recep, sep surg, and garage Price £1 600 of which £1,000 could remain on mortgage —No 9142

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REQUIRED BY MIDDLE AGED MAN PRACTICE or PARTNERSHIP within easy reach of London Income about £300—£1 200 Nice town (not large) essential.—No 1482

YOUNG QUALIFIED MAN WANTED—PRACTICE OR PARTNERSHIP in London Furnish £3 000 or more Large panel —No 1502

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LONDON, S.W.—NUCLEUS mixed G.P. in thicky populated locality. Convenient flat available to rent at 2 gns. per week inclusive. Large garden. Receipt £350 p.a. Panel approx. 550. Fees 2/6 up. Premium, best offer for quick sale.

LONDON, W.—Mixed residential working-class PRACTICE. Corner house to rent; part sub-let; net rental £37 p.a. Receipts approx. £300. Panel 215. Fees 2/6 up. No night work. Premium for Practice and lease £500 or near offer.

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LONDON, E. — Suburban middle-class G.P. Medium-sized house to rent on lease at the low rental of £30 p.a. Fees 2/- up. Average receipts £450 p.a. Panel 300. Excellent scope for young man. Premium for Practice and lease £1,000.

MANCHESTER.—Old-established industrial PRACTICE. Medium-sized corner house to be rented on lease. Receipts approx. £660, increasing. Panel nearly 800. Fees 2/6 up. Premium £950 or near offer (to include furniture).

LONDON, N.—Well-established mixed middle and working-class Lock-up PRACTICE, situate on main thoroughfare, in thickly populated locality. Professional accommodation may be rented on lease. Receipts average £750 p.a. Panel 550. Fees 2/- to 10/6. One appointment. Premium 1¼ years' purchase.

MANCHESTER.—Well-established upper, middle, and working-class G.P. in residential district. Well-built corner house to be rented on lease at £60 p.a. Receipts nearly £1,000. Panel 463 (increasing). Fees 3/6 up. One appointment. Premium £1,750, to include all outstanding accounts, fixtures, and fittings.

SOUTH COAST.—OPHTHALMIC PRACTICE situate in fashionable seaside resort. Excellent freehold house available, large garden. Receipts over £700. Fees 1 to 2 gns. Scope for Surgery. Premium 1 year's purchase; freehold house, £2,500.

LONDON, W.—Middle-class G.P. situate in the heart of West End. Three first-floor rooms to be rented on lease. May be used as Lock-up if desired. Receipts average £460 p.a. (cash). Panel 184. Two appointments. Scope for Surgery. Premium £250, to include furniture, drugs, instruments, etc.

DURHAM.—Middle-class and industrial PRACTICE. Average receipts £550 p.a. Panel 380. Medium-sized house to rent on lease at £52 p.a. Branch Surgery. Fees 2/6 up. Premium £450.

LONDON, E.—Old-established mixed G.P. in thickly populated locality. Receipts over £930. Panel nearly 1,000. Fees 2/- up. Three appointments. Within easy access of City and West End. Suitable house to rent at £100 p.a. Good scope. Prem. £1,800 or near offer.

LONDON, W. — Old-established middle-class G.P. situate in well-populated locality within 15 mins. of West End. Suitable house to rent on lease £150 p.a. Receipts £1,600. Panel approx. 950. Fees 3/6 up. Prem. 2 years' pur. or near offer.

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7. CO. DURHAM.—Well-established PRACTICE. Receipts about £550 p.a., panel 380. House £52 p.a. Premium £450.
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WARWICKSHIRE.—Country PRACTICE in delightful district. Cash receipts approx. £500 p.a. Panel 479. Scope. Modern house (built for doctor), 3 reception, 5 bedrooms, garage, and large garden, with orchard, for sale. Sport of all kinds. Premium £500. Vendor retiring.—No. 480.

SHEFFIELD. — Sound old established middle and working-class PRACTICE. Average cash receipts £1,500. Panel 1,750. Scope. Good house, 2 reception, 4 bedrooms, garage, etc. Rent £60 p.a. Premium—best offer (to include book debts, and drugs).—No. 479.

LARGE LANCS TOWN, near Manchester. — Old-established mixed PRACTICE. Average cash receipts £1,080 p.a. Panel 1,060. Scope. Good house, 2 reception, 4 bedrooms, garage, and garden, to rent. Premium 1½ years' purchase.—No. 457.

LAKE DISTRICT. — Small Seaside Town. — Beautiful district.—Middle class PRACTICE. Cash receipts over £800 p.a. Panel 250. Excellent freehold house (on sea front), 3 reception, 7 bedrooms, garage, and nice gard. For sale or may be rented on l.e. Prem. 1½ yrs.' pur.—No. 398.

LANCS TOWN — Mixed general PRACTICE. Cash receipts last year approx. £1,500. Panel 829. Scope for surgery, if desired. Good house, containing Operating Theatre, 3 professional rooms, 2 small wards, and living accom. Rent £60 p.a. on lease. Prem. £1,500.—No. 460.

NEAR NORTH-WEST COAST.—Country PRACTICE of over £800 p.a. in beautiful district. Panel 329. Scope. Good sport. Premium £1,100.—No. 477.

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MEDICAL WOMAN'S PRACTICE.—YORKSHIRE CITY.—Cash receipts last year £415. Panel 140. Modern house in growing residential district, 2 reception, 3 bedrooms, garage and garden. Premium, best offer.—No. 471.

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NORTH-WEST COAST.—Large residential and seaside town — Old established PRACTICE. Cash receipts about £1,200 p.a. Panel 1,500. Excellent detached corner house (freehold), 3 professional rooms, 5 bedrooms, and 2 reception rooms, garage, and good garden for sale. Premium—Practice—1½ years' purchase.—No. 417.

LARGE LANCS TOWN. — Old established PRACTICE, averaging £809 p.a. Panel 1,265. Scope. Excellent house, 2 reception, 5 bedrooms. Garage and garden. Premium, best offer.—No. 467.

MANCHESTER. — Established panel and private PRACTICE, averaging about £1,300 p.a. Panel 1,800. Good scope. Excellent house in main road. 3/4 bedrooms reception room, and professional rooms. Price for freehold £1,150. Premium 1½ years' purchase.—No. 451.

NEAR HULL.—Mixed General PRACTICE, in pleasant district near Housing Estate. Cash receipts last year £953. Appointments £82 p.a. Panel over 500. Scope for increase. Vendor retiring. Premium 1½ years' purchase.—No. 463.

MANCHESTER.—Old-established panel and private PRACTICE. Cash receipts last year £650. Panel 788. Scope. Good corner house, 2 reception, 4 bedrooms, garage. Rent £60 p.a. Premium 1½ years' purchase or near offer.—No. 437.

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1 WEST OF ENGLAND.—PARTNERSHIP IN VERY OLD-ESTABlished Practice of nearly £1,750 p.a. in small town in beautiful part of the country. Panel over 1,350. Fees average 7/6. Premium one-half share 2 years' purchase.

2. WITHIN 10 MILES (SOUTH) OF LONDON. — PRACTICE about £1,800 p.a. in well-populated suburban area. Panel 1,500. Surgery premises may be purchased or rented. Nice private residence (7 bed and dressing rooms, etc.) at reasonable rent. Premium £3,000.

3 S.E. COAST.—SMALL SELECT RESIDENTIAL SEASIDE Resort.—PARTNERSHIP in well-established and easily worked Practice of £2,234 p.a. Panel about 700. Fees range from 3/6 to £1 1s. (chiefly 5/- to 10/6). Very little midwifery or night work. Handsome well-built detached house standing in its own grounds containing 4 bedrooms, etc., and with good garden and garage, etc., for sale. Partner should be aged 35-45 and hold London degree and be interested in games. Premium one-half share £2,250.

4 EAST ANGLIA. — PARTNERSHIP IN OLD-ESTABLISHED Country Practice of £2,750 p.a. in most beautiful part, easy distance of the coast. Panel 1,150. Fees 3/6 to £1 1s., medicine extra. Suitable house available. Small Cottage Hospital. Good scope for increase. Premium one-third share two years' purchase.

5 S. COAST.—RESIDENTIAL TOWN AND WATERING PLACE. —PARTNERSHIP in well-established Practice of about £1,500 p.a. Panel 1,500. No midwifery. Good house to purchase, or it might be let on lease. A one-half or three-fifths share would be sold at two years' purchase.

6 DEVONSHIRE.—WELL-ESTABLISHED COUNTRY PRACTICE in beautiful district near Sea Coast. Cash receipts average £1,376 p.a. Panel over 725. Nice house (7 bed and dressing rooms, etc.), with central heating, electric light, main drainage, etc. Large garden and garage for sale. Sport of all kinds. Premium £2,100.

7 LONDON, N.W. — WELL ESTABLISHED PRACTICE ABOUT £650 p.a. in Residential District. Panel 300. Visits chiefly 5/-, including medicine, others 3/6 to 7/6. Not much midwifery. House, containing 3 bedrooms, etc., to rent. Considerable scope for young energetic man. Premium £900.

8 S. WALES.—IMPORTANT SEAPORT TOWN.—PARTNERSHIP in sound old-established Practice averaging £3,500 p.a. Panel 2,800. Incoming Partner should be a Scotsman aged about 30—35, and preferably Edinburgh or London trained. There is a nice house for sale. To a suitable man a one-half share would be sold at 1¾ years' purchase.

9. S. AFRICA.—RADIOLOGICAL PRACTICE IN A MOST DElightful Town with excellent climate. Cash receipts last year £1,450. Scope.

10. EASTERN COUNTIES. — OLD-ESTABLISHED COUNTRY PRACTICE. Cash receipts about £720 p.a., including appointments over £150 and a panel of about 590. Attractive detached house (6 bedrooms). Price £1,150. Premium for Practice £650.

11. FAMOUS INLAND WATERING PLACE AND HEALTH Resort.—Well-established non-dispensing PRACTICE. Receipts last three years averaged £986 p.a., including a select Panel of 280. Fees 5/- to £1 1s. Particularly attractive house with large garden, for sale. Scope. Premium £750.

12. BIRMINGHAM. — PARTNERSHIP (AFTER PRELIMINARY Assistantship) in Suburban Practice of about £2,500 p.a. Increasing Panel of 2,400. House (5 bedrooms, etc.) with garage accommodation to rent at about £65 p.a. Applicant should have held Hospital Appointments and have experience in General Practice. Two-fifths share would be sold at first to suitable man at 2 years' purchase.

13. LONDON, E.—OLD-ESTABLISHED CASH AND PANEL PRACTICE of about £1,200 p.a. in residential part of populous district. Good appointments and panel 950. Small house (3 bedrooms, etc.) in pleasant road to rent on lease. Scope for increase. Premium 2 years' purchase.

14. SUFFOLK AND NORFOLK BORDERS.—SMALL PRACTICE IN Market Town. Earnings 1932, £285, including panel of 80. Nice house (6 bedrooms), garage, and good-sized garden. Price of freehold £850. Excellent schools. Plenty of sport. Cottage Hospital. Premium £450.

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15. LONDON, E.—CASH AND PANEL PRACTICE OF OVER £600 p.a. in populous district. Panel 590. Small house to rent on lease. Premium £800.

16. S. WALES.—PARTNERSHIP (AFTER PRELIMINARY ASSISTantship) in well established Practice of nearly £5,000 p.a. in important Industrial Town. Good appointments and panel of nearly 3,000. After Preliminary Assistantship a one third share would be sold at first to a suitable man who should have held Hospital Appointment and have some knowledge of Midwifery and Anaesthetics.

17 WEST OF ENGLAND.—PARTNERSHIP IN OLD-ESTABLISHED PRACTICE over £2,200 p.a. in County Town. Panel about 1,000. Premium one-half share 2 years' purchase. Good prospects for well qualified physician (preferably M.R.C.P.), who would have opportunity of getting on Staff of Hospital in near future.

18 LONDON, N.—PRACTICE CARRIED ON BY MEDICAL WOMAN in populous area. Cash receipts average £480 p.a., including panel 527. Visits 2/6 to 3/6. Small house (6 rooms) to rent at £50 p.a. on lease. Practice capable of increase. Premium 1½ years' purchase.

19 LONDON, N.—PRACTICE CARRIED ON BY MEDICAL WOMAN in populous district. Cash receipts average £270 p.a., including panel 360. Scope for midwifery. Six roomed house to rent at £70 p.a. on lease. Premium 1½ years' purchase.

20 BORDERS OF SHROPSHIRE AND CHESHIRE.—OLD-ESTABlished PRACTICE averaging £1,055 p.a. in Market Town. Panel 850. Nice detached house (5 bedrooms, attics, etc.) with garage and old world garden, etc., for sale. Educational facilities. Well-equipped Cottage Hospital offering scope for one keen on Surgery. Premium £1,580.

21 PARTNERSHIP (WITH VIEW TO SUCCESSION) in OPHTHALmic Practice, about £1,530, in delightful Southern Seaside Resort. Applicants must have sound practical experience in Ophthalmic work. Premium—half share—1½ years' purchase.

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25 S. OF ENGLAND. — PARTNERSHIP IN OLD ESTABLISHED Practice of nearly £1,950 p.a. in important town within 80 miles of London. No panel. Attractive corner residence (7 bed and dressing rooms), in half-acre of walled-in garden, with garage, etc., for sale. Ample scope for increase. Premium one-half share 2 years' purchase.

26 ESSEX.-OLD ESTABLISHED PRACTICE OF ABOUT £600 P.A. in Suburban District. Panel 500. Well situated detached house (6 bedrooms) standing in own grounds with nice garden, garage, and stabling for sale. Scope for increase. Premium £650.

27 SURREY.—PARTNERSHIP IN SOUND OLD-ESTABLISHED good mixed class Practice about £3,000 p.a. in the Croydon area. Small panel. Very little midwifery. Excellent modern detached house for sale. Scope for increase. Premium one half share 2 years' purchase.

28 LONDON, E.C.—PARTNERSHIP IN OLD-ESTABLISHED PRACtice in the City. Receipts average about £1,650 p.a., including appointments and panel worth over £500 p.a. Premium one-half share £1,000.

29 EAST COAST.—PRACTICE OF ABOUT £800 P.A. IN RESIdential Seaside District 40 miles from London. Small Panel. Detached house (5 bedrooms) for sale. Scope for increase. Premium 1½ years' purchase.

30 SURREY.—PRACTICE OF £1,000 P.A. IN RAPIDLY GROWing Residential District within 15 miles of London. Panel 400. Suitable house, with separate professional accommodation, for sale. Scope for considerable increase. Premium £1,600.

31 LONDON, W.—GOOD MIDDLE-CLASS PRACTICE £400 P.A. in suburb within easy access of the West End. Panel over 100. Attractive double fronted house with nice garden for sale. Scope for increase. Premium 1½ years' purchase.

32 LONDON, N.—PARTNERSHIP IN PRACTICE ABOUT £5,250 p.a. in thickly populated Suburban District. Panel about 800. One fourth or one third share at 2 years' purchase.

33 HOME COUNTIES. — OPHTHALMIC PRACTICE BETWEEN £300 and £400 p.a. in desirable Residential Town, under 15 miles from London. Good detached house (4 bedrooms) with large garden for sale. Good reasons for plenty of scope for increase. Premium £300.

34 LONDON, E.C.—OLD-ESTABLISHED "LOCK-UP" PRACTICE of about £700 p.a. Panel over 500. Living accommodation to rent if desired. Premium £1,000 or near offer.

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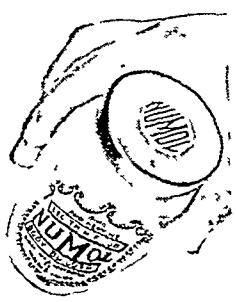
1. PARTNERSHIP.—WEST OF ENGLAND.—FAVOURITE SEASIDE RESORT.—A share, representing £1,026 per annum, is offered in a well-established non-dispensing private and panel Practice, increasing, and having good scope. Average gross cash receipts for past two years £2,746. Panel of 3,100. Visits from 5/-. Many suitable houses available Premium for share two years' purchase.
2. MIDLANDS.—Old-established middle and better-class PRACTICE in clean and attractive Manufacturing City. Cash receipts average over £1,600 p.a., including appointment worth £165 (transferable) and panel of 1,220. Exceptionally good house in own grounds, ample accommodation, for sale. Premium £3,500.
3. MIDDLESEX.—RIVERSIDE SUBURB.—Old-established good mixed-class PRACTICE, averaging for the last three years £1,030, including panel bringing in about £340 and appts. worth nearly £100. Fees from 3/6. Detached house with good garden, and containing 4 reception, 6 bedrooms, etc. Price for leasehold £1,200. Premium £1,750.
4. HOME COUNTIES.—PARTNERSHIP.—A one-third share (with increase up to one-half later) is offered, owing to the retirement of the senior partner, in an old-established good mixed Practice, situated in favourite residential town within easy reach of London. Gross cash receipts average approximately £4,000 p.a. Panel of 3,200. Visits and medicine from 4/-. Suitable house, with garden and garage, can be rented at £70 p.a. Sport of all kinds, and good schools. Ingoing partner must be about 30 years of age, married or engaged, and experienced in major surgery, and pref. hold the F.R.C.S. Premium for share, two years' purchase.
5. KENT.—WITHIN TWENTY-FIVE MILES OF LONDON.—PARTNERSHIP.—A one-third share (with increase to one-half later) is offered in an old-established good mixed-class Practice, with a large percentage of good-class patients, and situated in a very attractive country and market town (pop. over 3,000) amidst beautiful surroundings. The income is steadily increasing, and there is good scope for further development with the aid of a suitable partner, who should be about 30 years of age. Cash receipts last year nearly £2,400. Visits 3/6 to 21/-, medicine extra. Choice of suitable houses ranging from £1,000 upwards. Premium for share £1,600. Sport of all kinds. Good schools.
6. WITHIN FIFTEEN MILES OF LONDON.—PARTNERSHIP.—A share producing about £1,300 p.a. is offered in a very sound old-established Practice, producing for the last 12 months approximately £5,200, and offering excellent scope for increase. Panel of 2,500. Fees from 3/6 to 21/-. Very nice house, with ample accommodation, or smaller one if desired. Ingoing Partner should be experienced, accustomed to better-class work, able to undertake major surgery, and pref. hold a Fellowship. Premium 2 years' purchase.
7. PARTNERSHIP.—LONDON SUBURB.—A one-third share (with increase up to one-half later) is offered in a very old-established good mixed-class Practice, situated in well-populated district, and offering good scope for development. Gross cash receipts average between £4,000 and £4,500 p.a. Guaranteed income of £1,500 for the first year. Panel of 800. Suitable accommodation available. Premium for share £3,250. Ingoing partner must be experienced, and qualified about four years.
8. LONDON, NORTH-WEST. — Well-established good mixed-class PRACTICE, averaging about £800 to £900 a year, including selected Panel of over 400. Fees 2/6 to 10/6. Suitable house available on rental, or can be purchased. Premium £1,250.
9. NORTH OF ENGLAND.—PARTNERSHIP.—A five-twelfths or seven-twelfths share is offered in a well-established sound mixed-class Practice, averaging approximately £2,400 p.a. Panel produces £850 p.a. and P.M.S. £720 p.a. Appointments worth £120 p.a. Succession to the whole Practice can be obtained in about four years, or sooner as agreed. Good house, specialy built, with ample accommodation, for sale. Situated in growing area, and offering excellent scope for further development. Premium for share 2 years' purchase.
10. EASTERN COUNTIES.—Very old-established PRACTICE, unopposed, and situated in pleasant agricultural district, within reach of two good towns. Average gross cash receipts for the last three years £1,849 (last year £2,237). Panel with mileage produces over £900 p.a., and appts. are worth about £130. Fees from 3/6. Comfortable house, with 2 reception 6 bedrooms, etc. Garden. Garage. Price (freehold) £1,500. Premium £3,200.
11. LONDON SUBURB (EAST).—In a clean and well-populated district an old-established PRACTICE worth about £1,200 p.a., including transferable appt. of £150 and panel of 950 is for immediate disposal, owing to ill-health of Vendor. Small house (3 bedrooms, etc.) with fair-sized garden. Rent on lease £78 a year, inclusive of rates and taxes. Premium 2 years' purchase.
12. LONDON, WEST.—PARTNERSHIP.—A half share, producing about £750 p.a. (which will be guaranteed for the first year) is offered in a very old-established better-class non-panel and non-dispensing Practice, having exceptional scope for increase. Fees from 10/6 to 5 guineas. Suitable Flat is available for ingoing Partner who must be experienced in better-class work, and preferably hold the M.R.C.P. Premium for share 2 years' purchase.
13. SOUTH WALES.—Pleasant Coast Town (pop. 40,000).—Old-established PRACTICE, held ten years by present Incumbent, and averaging over £1,000 p.a., including panel of 1,275. Visits 5/- to 10/6. Good house, having charming views of English Channel, and surrounding country. Contains professional rooms, 3 reception, 6 bedrooms, 2 bathrooms. Garden, with tennis court. Garage. Price for leasehold (60 years to run at ground rent of £20 a year) £1,800. Premium 1½ years' purchase.
14. LONDON, S.W.—Well-established PRACTICE, worth about £350 p.a. including panel of 550, and capable of increase. Rent of Flat, consisting of two floors, containing 2 professional rooms, dining room, kitchen, two other rooms and bathroom, £2 2s. a week, inclusive of rates and taxes. Lease 5 years to run, and renewable. Premium £450, or near offer.
15. EASTERN COUNTIES.—ASSISTANTSHIP with view to Partnership (after a preliminary period of six months at a salary of £440 p.a., with free house) is offered in an old-established good mixed-class Practice, situated in pleasant residential and agricultural district within about 15 miles of the coast. Gross cash receipts approximately £3,000. A third share is for disposal at a premium of 2 years' purch.
16. NORTH WALES.—ASSISTANTSHIP with view to Partnership (after a preliminary period of about six months at a salary of £300 p.a., all found) is offered in a better-class non-panel Practice, situated in attractive seaside resort. A one-third or three-sevenths share is for disposal (producing £800 to £900 p.a.) at a premium of 2 years' purch. Ingoing Partner should be English, and pref. London trained.
17. PARTNERSHIP. — WEST OF ENGLAND, SEASIDE RESORT. — A share worth about £600 p.a. (with succession to the whole Practice eventually) is offered in a very old-established mixed-class Practice situated in very attractive small coast town, with beautiful surrounding country. Gross cash receipts approximately £1,200 p.a., including panel worth about £420. Visits 5/- to 30/-. Midwifery from 3 gns. Exceptionally nice house, with 2 reception, 5 bedrooms, etc., and usual offices. Half an acre of garden. Can be rented on lease. Premium 2 years' purchase.
18. OPHTHALMIC PRACTICE.—Within eighty miles of London.—Practice is increasing, and offers good scope for further development. Average gross cash receipts for the past three years £554. Last year over £700. Fees 1 to 2 guineas. Opposition slight. Choice of houses. Premium £700.
19. LONDON, EAST.—Middle and working-class PRACTICE, producing £1,000 p.a., including panel of about 1,100. Suitable small house with sitting room, 2 bedrooms, and attic, waiting room, surgery, and dispensary. Rent £52 p.a.
20. LONDON, SOUTH-EAST.—Old-established better working-class PRACTICE, increasing, and situated in well-populated district. Gross cash receipts for last 12 months £1,263, including panel of 1,370. Suitable house, with 2 reception and 3 bedrooms. Garden. Price for freehold £1,000. Premium £2,500.
21. MANCHESTER.—Old-established middle and working-class PRACTICE, producing for the last twelve months about £650, including panel of 790. Fees from 3/6. Convenient house, with 2 reception, 4 to 5 bedrooms, bathroom, etc. Rent on lease £60. Premium £950, to include furniture.
22. CENTRAL LONDON.—Middle and ... averaging for the last two years about £50 ... panel of 180. Fees 3/6 to 21/-. Profession... ... be rented at £200 p.a. Prem. £225, to include furn., drugs, instruments, etc.
23. SOUTH-EAST LONDON.—Good middle and working-class PRACTICE, producing last twelve months nearly £950. Panel of 986. Suitable house, with 2 reception, 4 to 5 bedrooms, etc. Rent on lease £70 p.a. Prem., to include drugs, etc., and surgery fittings and furn., £1,450.
24. SOUTH-WEST OF ENGLAND.—In a thriving and pleasant seaport town, with beautiful surrounding country, a well-established increasing PRACTICE worth last year over £1,100, including panel producing £286 and appts. £200. Visits 3/6 to 21/-. Midwifery practically refused. Good house in excellent position, with ample accommodation, small garden, and garage. Price, freehold, £2,100 or would be let on lease at £127 p.a. Premium £2,000, or near offer.
25. NORTH WALES.—Old-established middle and working-class PRACTICE, averaging for the last three years over £1,700, including panel of about 1,300. Fees from 2/6. Visits from 3/6, with medicine extra. Suitable house, with good professional accommodation, Electric light. Garage for two cars. Small garden. Rent on lease £100 p.a. Premium £2,100, £1,700 down, balance by instalments. Good sport, etc. A knowledge of Welsh is not necessary.

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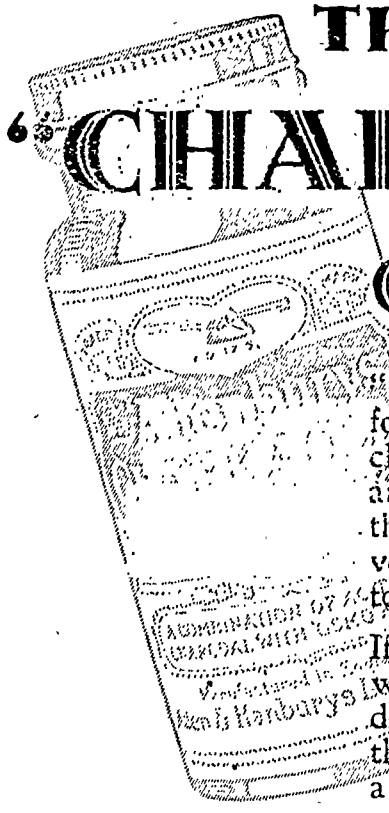
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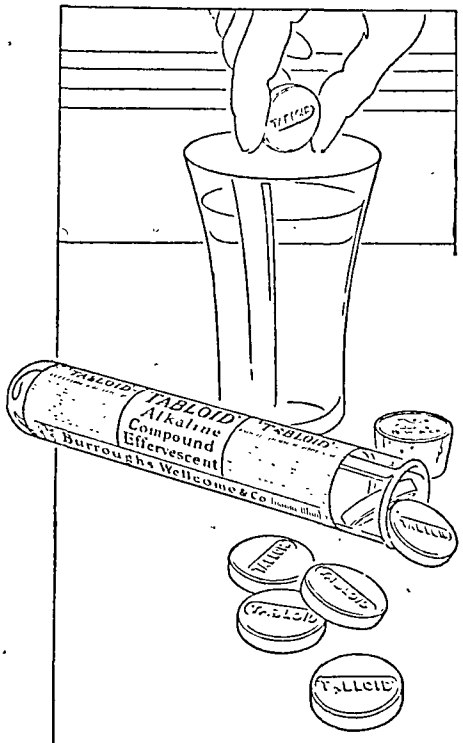
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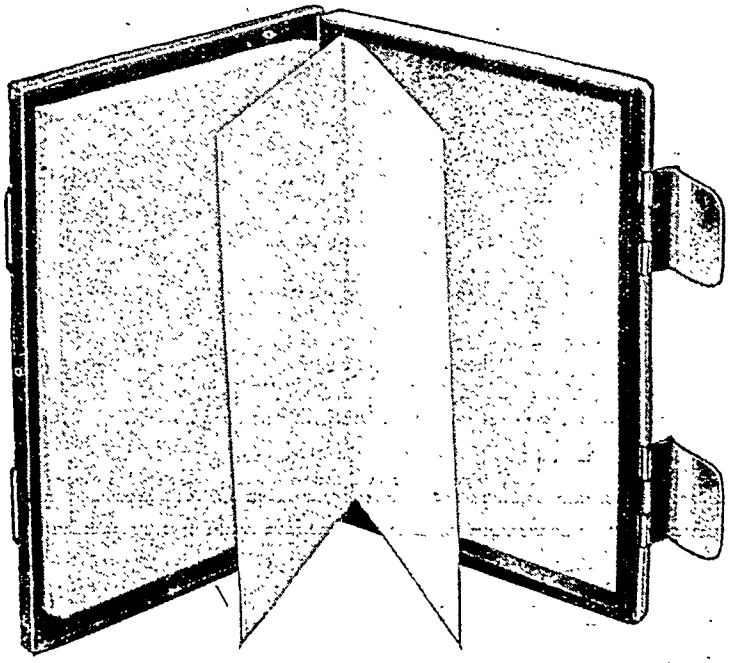
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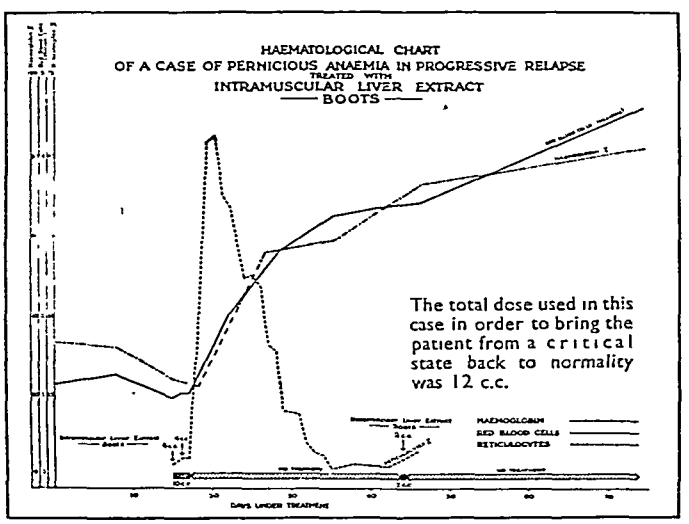
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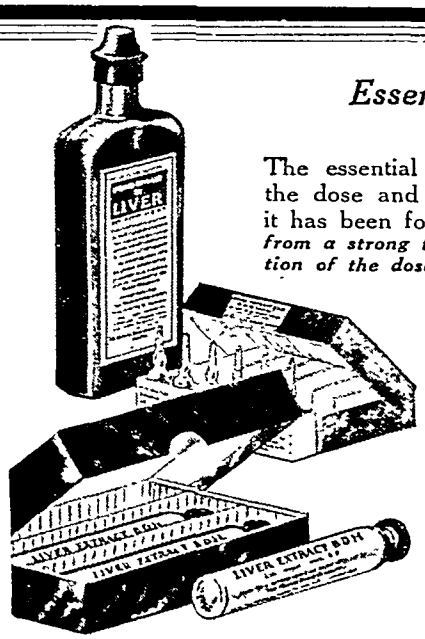
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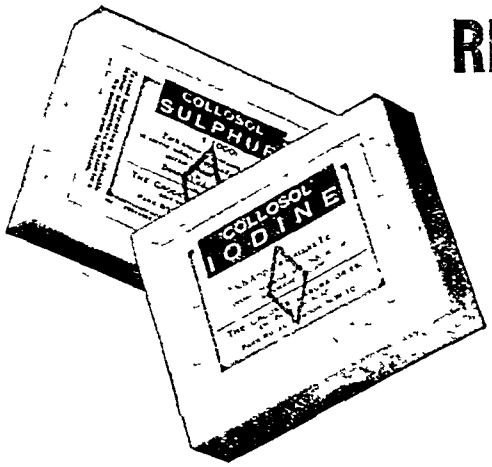
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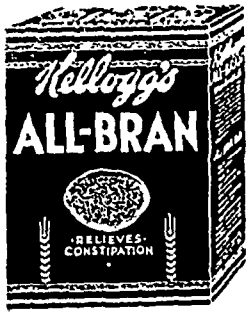
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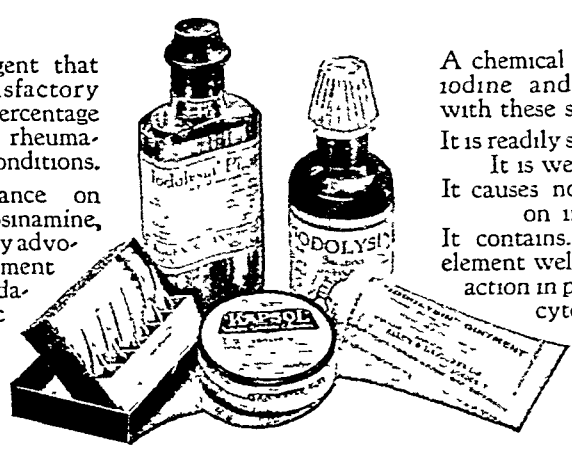
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Observations ON THE TREATMENT OF RODENT ULCERS

BY

N. S. FINZI, M.B., D.M.R.E.

MEDICAL OFFICER TO X-RAY DEPARTMENT, ST. BARTHOLOMEW'S HOSPITAL

"Rodent ulcer" is the term we use for basal-celled epithelioma of the appendages of the skin. It is locally malignant, but never, or practically never, spreads to the lymphatic glands while it still remains a basal-celled epithelioma. In its later stages, however, whether it spreads or not, it tends to become a true squamous epithelioma, and though even then it shows little tendency to spread to the lymphatic glands, it does occasionally do so. Its commonest site is on the face, especially the inner canthus, the nose, or the cheek, but it may occur in any part of the body. Usually a single lesion, it is occasionally multiple. I have one patient who has had six separate primary sites in various parts of the body, one of which became epitheliomatous. She has recently developed four more. She has also had a separate squamous epithelioma of the vulva. All these have been treated successfully with radium. I have also had a case of multiple rodent ulcers which were successfully treated with radium, but the patient developed a carcinoma of the oesophagus, a squamous epithelioma which eventually killed him. The life history of a rodent ulcer varies greatly. It will very often heal temporarily, and sometimes remain healed for years with very little evidence that it has been there, but almost always it will eventually spread. It may advance only slowly for years and then go ahead rapidly. In other cases it may grow fairly rapidly from the start. It may or may not ulcerate; when it does, there is often a tendency for it to heal up at times and break down again.

DIAGNOSIS

The typical appearance is a central smooth area, which may be scar or apparently normal tissue, with a raised, characteristic-looking, thickened edge (the "rolled" edge). The central part, instead of being a scar, is very often an ulcer. Occasionally there is merely a soft raised growth, reddish and semi-translucent, and also quite typical in appearance. Either of these varieties may be completely epithelialized over. In another form, which is particularly apt to occur on the temple, there is a serpiginous ulceration with scarring where it has healed. Generally some portion of this shows the typical rolled edge. In certain situations a growth, almost typically a rodent in appearance, is almost always an epithelioma: these are on the ear, especially on the upper part of the pinna, on the upper edge of the tarsal plate of the lower eyelid, and sometimes on the lower edge of the ala nasi. If sections are taken of these, they show squamous epithelioma; as this is of a type which very rarely spreads to the glands, its treatment is similar to, though more drastic than, that of rodent ulcer. It is occasionally, though rarely, difficult to distinguish a very early rodent from a wart, and this is important because the treatment is not quite the same. Warts, however, are usually multiple and only rarely single. If there is any doubt, the growth should be treated as a rodent.

CHOICE OF METHOD

Surgery.—An early rodent can be excised with the cold knife or with cutting diathermy, and very often the result is quite satisfactory; but the proportion of recurrences is large unless the excision goes very wide of the growth. The resulting scar is, of course, not inconsiderable, and, anyhow, the cosmetic result cannot be compared with that following radium treatment. If a rodent is excised and recurs, its subsequent treatment with radium or x rays is always more difficult and less certain than is the case when it is treated *ab initio*. Even more so is this true if recurrences have been excised one or more times. Treatment of the scar by radium after an excision will usually prevent recurrence, but one loses the advantage of freedom from scarring that one gets from such radium treatment as is described below. The only advantage that can be urged for surgery is that one can have a microscopical examination of the specimen. At the present day this method of treatment has been superseded. In the early stages a biopsy often means excision of the whole growth, and in a typical case there seems no object in excising a portion, especially as radium treatment is made more difficult thereby. When there is doubt a biopsy may sometimes be advisable, especially if epithelioma is suspected. In advanced cases the position is different. Here an extensive and courageous operation with coagulating and cutting diathermy followed by a plastic repair may be successful.

Caustics.—Carbon dioxide snow has been used, and has occasionally cured a case, but on the whole its use is most unsatisfactory. It is a painful method and produces considerable scarring, while the proportion of failures is far too great to make it permissible to use it. Other caustic methods—except diathermy—have even less to commend them. It may be mentioned that a rodent ulcer has occasionally been stirred up by the use of caustics, especially silver nitrate, and has commenced to grow rapidly from that time. Diathermic coagulation has some of the disadvantages of surgery, but it is a quick method, and may be most valuable in really experienced hands.

X rays.—As I gave up the use of these in favour of the γ rays of radium more than twenty years ago, I have no experience of the use of modern methods in ordinary cases. From the results in late cases that have become epitheliomatous I am inclined to think that better results will almost always be secured with radium.

Radium.—The most important thing about the radium treatment of rodent ulcers is *not to use unfiltered or lightly screened radium radiations*. It is true that the majority heal up, and a proportion—perhaps the majority—remain well, but a large number recur, or sometimes even fail to heal. When they recur after such treatment they are not so easy to heal as new cases, and when they recur after several times being healed by such methods they become very refractory to radiations and require very severe methods. I am afraid that those who employ unfiltered radiations do not follow up their cases properly, as I see a number of such patients who, after several recurrences, come for more efficient treatment. Unfortunately some that I see after years of bad treatment have become epitheliomatous and are sometimes incurable. In early rodents one should get some 99 per cent. of successful results by simple methods, and the other 1 per cent. can often be treated by more severe radium irradiation. The minimum filtration should be 0.3 mm. of platinum, and 0.5 mm. is better even for early cases. For advanced cases 1 mm. or even 2 mm. platinum may need to be used.

RADIUM TREATMENT

Early Cases.—In principle, the method I advocate is: (1) To give a mild erythema dose of filtered radium γ rays to the whole of the affected area. (2) To repeat this dose after six weeks if any naked-eye evidence of growth remains. Occasionally a third curative treatment is

necessary. (3) To give two prophylactic doses at intervals of six weeks and fourteen weeks after the *last* curative dose. The reason for this preventive treatment is that with these mild doses the disease is not completely eradicated when all ocular evidence of it has disappeared. If a big enough dose is given to cure the disease with one treatment the reaction is painful, and unnecessary scarring is produced. The justification is that quite a number of recurrences have occurred in patients who refused to have the full treatment, while recurrence in the other cases has been exceedingly rare.

Technique.—(1) It does not matter whether radium or radon is used, and I believe mesothorium would prove equally effective. (2) Either plaques or tubes may be used. I prefer tubes, as I find they can be better adapted to the various cases. Further, when the area is large a number of tubes side by side form a very flexible plaque. (3) For small lesions I use a tube containing 50 mg. of radium, with a filter of 0.5 mm. of platinum. The tube has an active length of 15 mm. and an active diameter of 4 mm.; it is covered with rubber to cut down secondary radiations from the platinum. If the lesion is oval and not more than 6 mm. across or 12 mm. long, as determined by vision or touch, the tube is placed exactly over it. The dose in a patient of 40 to 50 years of age is sixty-five to seventy minutes. The raised lesions are given a longer time than the flat ones. If the lesion is circular and not more than 7 or 8 mm. in diameter the tube is placed for thirty-five to forty minutes in one direction and for a similar time at right angles to this. It will be noticed that the total dose has to be larger than when one direction only is employed. In older patients the dose is slightly increased, and in younger patients diminished, because the tissues become less and less radiosensitive with age. In lesions of greater size, two or more such tubes are used, or one tube is shifted from one situation to another, great care being taken to keep successive areas parallel and not to overlap. Owing to radiation from one tube playing on the area acted on by the other, and so increasing the dose, each treatment has to be shortened somewhat: fifty-eight to sixty minutes suffices when two tubes are used as above. Smaller quantities of radium may be used, and longer times, but the smaller the quantity of radium the larger the total number of milligram-minutes. Cases on the pinna of the ear which are resistant should be treated by interstitial radium (radium needles) straight away. As regards interstitial irradiation in other situations in early cases, my colleague, Dr. Roxburgh, buries filtered radon seeds under the growth, and is getting good initial results by this method. I have used radon seeds or radium needles buried beneath refractory growths with success. They must be buried sufficiently far out, and must be long enough, to act beyond the obvious edge.

Later Cases.—Included in these we get cases which have been treated by radium or x rays inefficiently applied, by surgery, or by caustics; but there are also a number of cases in which the disease has been neglected or disregarded by the patients themselves, and where there is therefore a larger extent of disease. (*a*) *Untreated cases.* To cover the larger area either a battery of radium tubes is used, or one or more tubes are moved from place to place. Plaques may be employed when the surface is flat, but this is rarely necessary. I use on such a case, for instance, eight to thirteen tubes with an active length of 1.5 cm., each containing 5 mg. radium and filtered by 0.5 mm. of platinum. The tubes are placed on strapping touching one another, and one layer of lint is placed between them and the patient's skin. The average dose, using thirteen needles, is two and a half hours. (*b*) *Treated cases.* Here, procedure entirely depends on the nature and severity of the previous treatment. If non-radiation methods have been used, or if radiations have been employed in doses obviously too small, then methods similar to those described above may be used, but only continued if the response to the first dose is good. In cases where much irradiation has been employed, one either uses thicker filtration straight away or treats the case as in (*c*) below. (*c*) *Advanced cases.* In these days we no longer see advanced cases which have not been treated before, but those one saw in the past were very resistant, and drastic measures had to be used from the start. Usually such cases have become transformed into squamous epithelioma. If there are no marked radiation changes, probably the best method of treatment is by radium mass-radiation, using at least 1 gram and a filter of 2 mm. of platinum or its equivalent (for example, 4 mm. of lead). If this is not available, interstitial irradiation by radium needles or radon seeds may be used, but it must be thorough, and the foci must be so arranged that the whole disease receives a full dose. This is no easy matter as a rule, and the situation of the growth may make it impossible. It requires the utmost care, attention, and skill on the part of the surgeon. Slipshod methods are invariably punished by failures. The use of 0.8 mm. to 1 mm. platinum filtration on the needles is an advantage if the milligram-hours are much increased as well. The alternative is an extensive diathermy aiming at a thorough eradication of the disease, whatever the deformity, followed by irradiation of the cavity by radium over a wax plaque, or mass radium radiation if available; it is quite possible that full doses of a combination of radium and high-voltage heavily filtered x rays may be more effective than radium alone. The question of subsequent plastic operations is always a difficult one, but if the operation has been sufficiently thorough they may be done. Another alternative which is sometimes effective is to use a smaller quantity of radium over a wax plaque worn for twelve to fifteen hours a day for three, four, or five weeks until a severe reaction is produced. I have healed cases this way which had been submitted to much unfiltered radiation and had had fungating ulcers for years. The combination of this method with high-voltage heavily filtered x-ray treatment is sometimes effective. In these later stages, although the case is squamous epithelioma, it is only rarely that the glands become affected; so that no routine treatment of these need be carried out when there is no obvious enlargement of the glands. When present, they must be dealt with according to the indications in each individual case.

After-treatment.—Early cases treated with radium, as described above, need no after-treatment except to avoid getting the treated area exposed to sunshine or ultra-violet rays. On no account should ointments or salves be applied, as they intensify the reaction. Infra-red may also be harmful. In the rare event of a hypersensitive patient, a powder of calamine and bismuth carbonate is usually sufficient. If there is blistering a 5 per cent. anesthone (formerly called anaesthesin) ointment should be used. When severe treatment has been used, causing a severe reaction with blistering or an open sore, a dressing of radiostol one part, with three parts of liquid paraffin, promotes early healing. If there is much pain, anesthone ointment may be used.

Late Reactions.—Occasionally, after severe treatment followed by healing, an ulceration may develop years later. It may be very difficult to distinguish from a recurrence. Anesthone ointment usually heals it in a few weeks.

RESULTS

In the early stages the method of radium treatment advised will cure 99 per cent. of cases. Recurrence is very rare except when the patient has refused to have

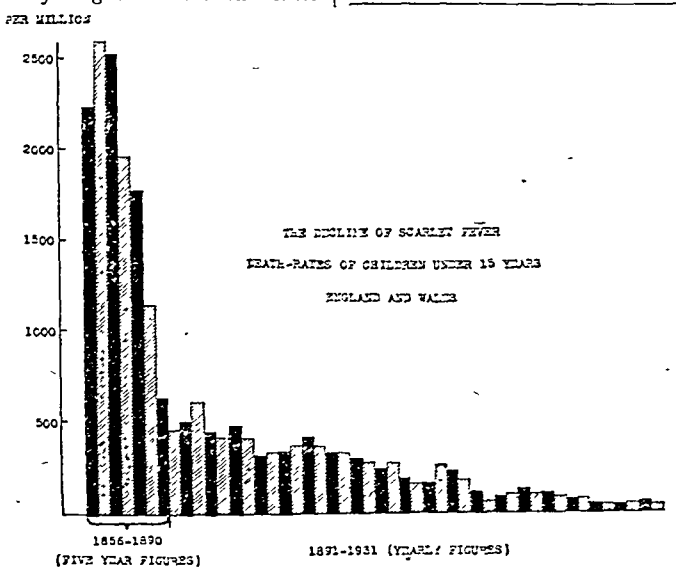
the prophylactic treatment. In later stages there is still a very large proportion of cures in previously untreated cases. It is only when one has to deal with other people's failures that the results are not so good; yet many of these may be healed when treated drastically, and others can be kept in good health for many years. Cosmetically, the results in early cases will astound those who are not accustomed to this method. It is often difficult to discover where the lesion has been unless one knows where to look, and I have had cases where the second prophylactic dose was difficult to apply, owing to the absence of scarring. Careful notes and diagrams must therefore be kept. We obtain ever a larger proportion of early cases as medical practitioners and surgeons get to realize the value of the newer treatment. As the public get to know of it they do not fear to come early, as there is no question of operation. Let us hope that those who use unfiltered radiation will soon discard this in favour of safer methods; our results will then be even better. Anyone whose statistics do not show more than 90 per cent. success in all cases, early and late, and something of the order of 99 per cent. in early cases, would do well to consider carefully what he is doing, and revise his methods.

THE DECLINE IN THE DEATH RATE OF DIPHTHERIA COMPARED WITH THAT OF SCARLET FEVER

BY

L. COBBETT, M.D., F.R.C.S.

For scarlet fever there is no specific treatment; for diphtheria we have had antitoxin since 1894; yet the death rate from the former disease has, as everybody knows, diminished almost to extinction, while that of the latter has undergone only a gradual and moderate decline. For the benefit of those who, like myself, do not readily take in the significance of rows of figures until they have been put into graphic form I append two charts compiled from the numbers given by the Registrar-General of the death rates of children under 15 years of age from these diseases during the last seventy-five years.[1]



The chart for diphtheria certainly would not lead a layman to suspect the marvellous potency of antitoxin. Yet any pathologist who, having carefully estimated the minimal fatal dose of a diphtheria toxin for the guinea-pig, proceeds to measure out enough to kill one hundred thousand of these animals and adds to it a single cubic centimetre of a good antitoxin serum, and then finds that he can inject the mixture into one of these animals without any serious consequence, cannot but be disappointed that its universal clinical use has not been followed by more striking results, and wonder whether it is being employed in the best possible way.

As Ehrlich pointed out years ago the secret of its successful use is early administration. Cohn in 1904 published some figures for 1,000 cases treated in the Moabit Hospital in Berlin, classified according to the day of treatment. Of those treated on the first day only 1.3 per cent. died, while of those treated on the fourth day 24.7 per cent. died. The Metropolitan Asylums Board long ago published a similar analysis of over six thousand children treated at the Brook Hospital. The mortality according to the day of treatment was as follows:

Day when antitoxin was given	1	2	3	4	5+
Number of cases	250	1,513	1,490	1,333	1,705
Mortality	0	4·23	11·25	15·83	18·52

These figures ought not to be forgotten. May I be allowed to give an experience of my own which impressed me greatly at the time?

During the little epidemic in Cambridge in 1900–1 there were many cultures of diphtheria bacilli in the laboratory. The disposal of these caused me some anxiety, because a proportion of our staff were quite young boys. One day, missing one of these youthful attendants, I inquired where he was, and was told he had not turned up, and learnt, on further inquiry, that he had complained of his throat being sore on the previous evening. Armed with a syringe and antitoxin, I went at once to his home and found him in bed, quite ill, and very unwilling to be disturbed in any way or to sit up and be examined. On looking at his pharynx I thought I saw a little patch of commencing membrane, and a swab taken at the time yielded, next day, a culture of diphtheria bacilli. I did not, however, wait for the result, but injected antitoxin immediately.

With the intention of giving a prophylactic injection to his little sister I called again in the afternoon, some six or seven hours after my first visit. I then found my patient, who was so ill in the morning, sitting up, demanding his tea, and banging about with an illustrated newspaper that had been given him to read, but which he had rolled up into a club and with which he was vigorously whacking the bed.

[1] Statistical Review, England and Wales. Tables, Part I, Medical Table 9.

While the outbreak lasted I, acting on behalf of the medical officer of health, visited all the homes where there were children known to have come into contact with notified cases. In this way I saw several incipient cases of diphtheria, and never failed to find that antitoxin cut them short at the start.

Let us look a little closer at the chart of the death rate from diphtheria. There is no decline worth noting in 1894 when Behring's antitoxin was first broadly introduced to the medical world by Roux at Budapest. The reception of antitoxin was very lukewarm in Great Britain, as I showed in an article I contributed to the *Edinburgh Medical Journal* in 1900, though much more striking results had been obtained in Paris and Berlin. From 1894 to 1902 there was no decline in the death rate in England and Wales, but there was then a fall, after which for twenty years the death rate remained about two-thirds of what it had previously been, at first declining slowly until 1910, and then advancing again towards 1920, with a slight rise during the war. In the four years after 1920 it dropped to the lowest point it has ever reached—namely, to 231 per million children under 15 years of age, or 21.5 per cent. of what it was in 1894—after which it has risen a little.

The result of the use of antitoxin during a third of a century or more, though by no means to be despised, cannot, then, be anything but disappointing to those who have realized its amazing efficiency in the laboratory, and raises the question whether still better results might not be obtained if the best possible use were made of it. I cannot help feeling that in many cases it might be given much earlier than it is. The pernicious practice of relying on laboratory diagnosis instead of having the courage of their own opinion, has led practitioners to wait for the result of the examination of a swab, and has prevented the early use of the remedy.

Let the doctor then *never* wait for the swab, but give antitoxin with the least possible delay whenever there is a reasonable suspicion of diphtheria. And when diphtheria is prevalent in his district let him not omit to carry with him a syringe and a bottle of antitoxin, lest he lose the few precious hours during which alone this wonderful remedy is able to save life.

It might perhaps be argued that the success of antitoxin in the treatment of diphtheria has been, to some extent, masked by a transference to that disease of cases that would formerly have been put down to scarlet fever, owing to a change in the criterion of diagnosis.

Now from the time when Bretonneau first distinguished diphtheria from scarlet fever the criterion of diagnosis was the presence or absence of a membrane in the pharynx. But by about the last decade of the nineteenth century the discovery of the diphtheria bacillus, and the increasing degree of certainty with which it might be cultivated from a swab and identified, was gradually leading to the substitution of the presence or absence of the bacillus for the presence or absence of a membrane.

This change undoubtedly led to many cases being diagnosed as diphtheria which would not otherwise have been so classified; but as such cases were non-membranous, they were almost invariably mild ones, and could not have added anything material to the death rate of diphtheria, while they must have greatly tended to reduce the case mortality. For the same reason the transfer of such cases to diphtheria, even if the majority of them would in former years have been classified as scarlet fever, could not have reduced the death rate from that disease. Moreover, the great and dramatic fall in the death rate of scarlet fever had taken place before the new method of diagnosis had come into use.

The fall in the death rate of scarlet fever from one or two thousand per million children under the age of 15 to no more than forty-five in 1931 has not been accompanied by any great change in its prevalence, at least since the beginning of this century, as Miss Hilda M. Woods has recently shown. It is the severity of the disease which has changed.

Diphtheria, on the other hand, has not become milder: an increase in the numbers of cases so diagnosed, owing to the change of method, has no doubt led to a fall in the case mortality of the disease; but the disease, when the old-fashioned signs are well marked, seems to be as deadly as ever, and it is only antitoxin which prevents its mortality being as high as it used to be. A drop in the death rate to an average level of about 25 per cent. of what it was when antitoxin was introduced is something to be thankful for, but still better results seem to be within reach if only the antitoxin could be brought more quickly to the patient.

INTESTINO-VESICAL FISTULA

BY

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(With Special Plate)

The subject of intestino-vesical fistula does not appear to have attracted the attention of surgeons, perhaps because of the rarity of the condition. I have consulted several elderly general practitioners, long-standing in practice and keen observers, and also the honorary physician to a large hospital for incurable diseases, as to the number of cases of this condition that they have come across. None can recall a single case, even as a sequel to carcinoma of the rectum. The information thus gained confirms my conviction of the comparative infrequency of this type of fistula.

The monumental monograph of Harrison Cripps, *The Passage of Air and Faeces from the Urethra*, published as long ago as 1888, is probably still the best work available. This book analyses his collected series of sixty-three cases. He ascribes three causes of the condition: (*a*) trauma, (*b*) cancer, and (*c*) inflammation. He states that the fistulae were much more often due to inflammatory causes than to cancerous growths, and that therefore the prognosis by treatment was good. Two cases of his series were due to trauma, one being a sequel to labour lasting for four days, while in the second case the patient was impaled on a stake, which traversed the bladder and rectum. Cancer only caused the condition in nine instances. Cripps comments on how seldom a case of carcinoma of the rectum terminates in perforation into the bladder. An inflammatory condition was the cause of the perforation in forty-five cases out of sixty-three. His tabulation was:

Abscess	15	
Stricture	8	
Ulcer	4	... 27
Stone		... 2
Exact nature not described		... 16.
		45

Cripps describes the situation of the fistulae in the following table:

Rectum	... 25
Colon	... 15
Small intestine	... 12
Colon and small intestine	... 5
Not stated	... 6
	63

In the colon series the opening in eleven cases was the sigmoid flexure, while in four cases the exact site was not mentioned. In twelve cases the communication was with the small intestine alone, while in five instances both the large and small intestines were involved. Communications with the large are therefore about twice as many as with the small intestine.

I am describing six cases which have occurred in private and infirmary practice. One was due to a tuberculous adhesion between the small intestine and the bladder, one to a perforative colon sacculus, two to a malignant growth of the lower end of the pelvic colon, while a further two were due to a urinary calculus ulcerating into the rectum. In a modified search of the surgical literature I have found a record of odd cases only. My surgical registrar, Mr. J. C. Stanger, has also searched through a further portion of the general records of the Royal Victoria Infirmary, Newcastle, and can find only one case in addition to my own. This investigation took a very considerable time, for it was necessary to peruse carefully, not only all "intestinal" cases, but also the records under the heading of "bladder." This search, although limited, is further evidence that the condition is not a common one. Cripps makes no mention of sacculitis as a cause of the fistulae. I suggest that most of the twenty-seven of his cases under the heading of abscess, stricture, and ulcer were probably a sequel to an inflamed colon saccule. He suggests that "probably the majority of them resulted from inflammation set up by accidental perforation of the bowel by fragments of bone or other foreign bodies." I am in agreement with his comment that it is a rare event for a carcinoma of the rectum to ulcerate into the bladder, causing a fistula.

CASE RECORDS

CASE 1.—TUBERCULOUS SMALL INTESTINE

A young adult female, who had tuberculous enteritis, developed urgent vesical symptoms, which included the passage of air and intestinal contents with her urine. At operation I excised an adherent loop of tuberculous small intestine, and a fistulous communication on the bladder fundus was closed in layers, thus providing a cure. This was a pre-war case, and the record has been lost. I have been unable to trace the case to ascertain the after-history.

CASE 2.—SACCULITIS OF COLON

G. T., aged 56, a moulder, was admitted on January 18th, 1931, under my care, to the Royal Victoria Infirmary, Newcastle, on account of passing "wind in the water." Eight months previously the patient went to his doctor complaining of "backache and swelling of the bowels." He had had no abdominal pain, but was very constipated, and had had to take purgatives regularly; the motions had been normal. One month later he began to have urinary symptoms—a scalding pain on micturition, with frequency every two hours at night. The urinary stream was good. The urine later became chocolate-brown in colour and thick, and had an offensive odour. He was treated for cystitis, and one month later—that is, six months before admission—he began to pass wind with his water, and the urine was brown and frothy. He passed a little bright red blood in the urine on one occasion shortly before admission. He had lost flesh. The family history was unimportant.

Examination.—He was asked to micturate, and it was observed that the flow contained brown faecal material and air with the urine. The abdomen disclosed no abnormality—that is, there was no tender area, no muscle guarding, and no abnormal mass to be palpated. Nothing abnormal could be detected on a rectal examination. A barium enema was attempted, but as it was returned immediately the examination was negative. A cystogram (using 12½ per cent. sodium iodide) was employed, but no abnormality was detected. A diagnosis of colo-vesical fistula from sacculitis was made.

Operation, January 28th, 1931, confirmed the diagnosis. A mid-line suprapubic incision was made. There was a hard nodular mass 1½ in. in length in the middle of the pelvic colon, which was adherent to the bladder on the left side. There was no glandular involvement; the liver and the rest of the abdomen were normal. The adherent colon was separated and resected, an end-to-end anastomosis being performed by direct suture. No further sacculi were seen. The area of the bladder denuded of peritoneum was invaginated by interrupted sutures of catgut. No definite fistula of the bladder was detected. A drain was inserted to the bottom of the pelvis. An india-rubber catheter was used per urethram for ten days, and then removed. On examination of the removed specimen the condition was found to be due to sacculitis. This was also producing stenosis of the bowel.

Progress.—He made an uneventful recovery. On examination on October 6th, 1932, his wound was completely healed. He had gained 1½ st. in weight. He looked the picture of good health, and expressed himself as feeling very well. His urine was clear and free from albumin, while microscopically no pus cells could be found in a high-power field. His bowels were functioning normally. A barium enema disclosed a normal colon, there being no sign of any stenosis, nor were any further sacculi detected. When seen on May 5th, 1933, he was in perfect health; he had gained 2 st. in weight and his urine was normal, chemically and microscopically.

Morbid Anatomy.—The specimen removed at operation (see Special Plate, Fig. 1) shows a portion of the colon laid open longitudinally. The middle part of the specimen shows very marked thickening of its wall, especially of the subperitoneal coat. The mucous membrane appears to be normal, except that it is thrown into numerous transverse folds, caused, no doubt, by the longitudinal contraction of the other layers of the bowel wall. There are one or two shallow pouches in the mucous membrane above and below the contracted area. There are two well-marked diverticula in the wall of the contracted portion of bowel, surrounded by a process of inflammatory fibrosis. A glass rod is shown passing from the lumen of the bowel into another well-marked diverticulum (seen on the peritoneal aspect of the specimen). This was the site of a fistulous communication with the urinary bladder.

CASE 3.—URINARY CALCULUS

On October 25th, 1920, I removed, in a private hospital, the prostate gland of Mr. T. E. T., aged 70, because of retention of urine. The excised gland consisted of enlarged lateral and middle lobes. Each was adenomatous, and scattered throughout were a large number of small prostatic calculi. Almost certainly some of these calculi were "spilt" during the prostatectomy, which was not an easy proceeding owing to considerable fixity. Unfortunately he had a markedly sacculated bladder, and doubtless some of the prostatic calculi gained access to some sacculi. His suprapubic sinus took a considerable time to heal, but it eventually did so. Two years later he had symptoms of a calculus in the prostatic pouch, and this was removed by the operation of suprapubic lithotomy. The wound soon healed up. At the end of a further two years his symptoms of difficulty with micturition returned. He became uraemic. All urine was voided via the anus, none coming per urethram. He died shortly afterwards, on February 7th, 1928, over seven years after the prostatectomy. Without a doubt a calculus (?with a "spilt" prostatic calculus as a nucleus) had ulcerated through into the rectum, providing a natural cure for his retention of urine.

CASE 4.—URINARY CALCULUS

In the early part of 1927 I saw in consultation James H., aged 76. For many years previously he had had symptoms of an enlarged prostate, but he was now suffering from retention of urine with overflow. He was enormously fat, and looked very ill. His bladder was distended to the level of the umbilicus, while a rectal examination indicated an adenomatous prostate gland. Owing to the distended bladder the size of the gland could not be gauged. I advised him to have his bladder drained, but he refused, and left hospital for home. Shortly afterwards the local practitioner was called in to see him, as the patient was said to be suffering from "severe diarrhoea." Examination showed that the hypogastric tumour had vanished, and he was intermittently voiding collections of urine from his bowel. No urine came per urethram. A calculus was never recognized in his motions.

but it is most probable that Nature had provided a cure for a vesical stone, which had ulcerated through the bladder base into the rectum. He lived for some weeks following the onset of the "diarrhoea," and died on May 22nd, 1927.

CASE 5.—CARCINOMA OF PELVIC COLON

On November 17th, 1920, Mr. A. T., aged 53, a commercial traveller, came to consult me on the recommendation of his doctor. For five years he had had symptoms of severe cystitis, and recently a bacteriologist had reported that he had found "tubercle bacilli" in the urine. Seven weeks prior to my seeing him the patient had noticed brown flakes in the urine, which had a marked faecal odour. Nothing abnormal could be found on an abdominal examination—that is, there was no area of tenderness, no muscular rigidity, and no abnormal mass to be felt. There was no enlargement of the liver. Nothing abnormal was found on a rectal examination. Cystoscopy disclosed a chronic oedematous ulcer on the bladder fundus, which suggested to me a fistulous communication with the bowel. A good deal of faecal matter was washed out of the bladder during the cystoscopy. In view of the bacteriological report a diagnosis of tuberculous fistula between the intestine and bladder was made, and operation was recommended as the only prospect of giving relief.

Operation, November 27th, 1920.—The abdomen was opened through a median suprapubic incision. A large mass was found in the lower part of the pelvic colon, lying almost transversely across the pelvis, and firmly adherent to the posterior aspect of the fundus of the bladder. On separating the adhesions a fistula was demonstrated between the colon and the bladder. A portion of the colon containing the mass and the fistula was resected, and an end-to-end anastomosis performed by direct suture. A piece of omentum was brought through the gap in the mesentery, and sutured partially around the line of the anastomosis to support it. The fistulous opening in the bladder was closed by infolding separately the muscular and peritoneal coats, using interrupted catgut sutures. A drain was employed, the wound was "bipped," and closed in layers above the site of exit of the drainage tube. There was no other abnormality noted—that is, there were no enlarged abdominal glands, and the liver was normal. An indwelling catheter was tied in per urethram, and left in for ten days. After the operation there was a considerable oozing of blood from the depths of the wound, but one injection of normal horse serum was effective. The patient made a good recovery.

Morbid Anatomy.—The specimen removed at operation (see Special Plate, Fig. 2) consists of a portion of colon divided longitudinally. There is a large ulcerated area, with an irregular base and thickened everted edges, occupying the middle part of the bowel. The lumen of the bowel is almost completely blocked at the upper end of this ulcerated area. The muscle layer of the bowel wall has disappeared opposite the central part of the ulcer, being replaced by new growth. Around this portion of the bowel there is a considerable increase of the subperitoneal fat. A pin demonstrates the site of the fistulous communication with the urinary bladder. Professor Stuart MacDonald, on December 3rd, 1920, reported: "This is a typical columnar-cell cancer."

After-history.—The patient is now alive and well, over twelve years after the operation. Ever since the operation he has continued to carry on his full work as a commercial traveller. I am informed that he is in perfect health, and that he has no abnormal symptoms. His bowels are regular, there is no abnormality with micturition, and his urine is quite clear. The case is of considerable interest bacteriologically, for there can be little doubt that the patient did *not* have urinary tuberculosis, nor had he ever had it. It demonstrates well the fallacy of relying upon the microscopical diagnosis of urinary tuberculosis. Had a guinea-pig inoculation test been done the error of the microscopical diagnosis would have been established.

CASE 6.—CARCINOMA OF RECTUM

In August, 1921, Mr. J. C., aged 65, came to consult me, complaining of passing blood and slime in his motions. On a rectal examination a malignant ulcer was found on the anterior wall of the rectum in the region of the bladder base. It proved impossible to ascertain definitely whether the growth was fixed or not. In November, 1921, Professor Rutherford Morison opened his abdomen, and found a fixed inoperable growth of the upper part of the rectum. The abdomen was closed, nothing being done. The course of the malignant disease progressed slowly, and the patient was comparatively comfortable until October, 1922, when he suddenly began to pass flatus and faeces per urethram. His plight became a terrible one, for when every few minutes he tried to micturate, columns of soft faecal matter were voided per urethram. A colostomy was done, which gave some degree of relief, but death did not take place until three months later.

SUMMARY

Intestino-vesical fistula is uncommon.

A chronic inflammatory source is probably the commonest cause.

Cases due to colon sacculitis and colon cancer—both successfully operated upon—are described in detail.

Rectal cancer rarely ulcerates into the bladder; one such case is referred to.

In two cases a vesical calculus probably ulcerated through into the rectum.

In the remaining case a tuberculous loop of small intestine was the cause.

X-RAY TREATMENT OF MALIGNANT DISEASE OF THE LUNG

BY

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(With Special Plate)

Within recent years pulmonary tumours have received considerable attention, owing mainly to the increase in their occurrence. There now exists a profuse literature on the subject, but one preponderatingly concerned with diagnosis. On the treatment of the condition very little has been written.

In order to assess the value of a particular form of treatment in a relatively rare condition two methods are open. These may be called the statistical and the personal. In the statistical method an analysis of cases is made from the records of patients, many, if not most, of whom were never seen in their lifetime by the compilers. The one advantage of this method is that only in this way can the results in a large number of cases be seen at a glance, since it falls to the lot of a very few observers to see in their own practice a sufficient number of cases from which to make reliable statistical deductions. This method has, on the other hand, several serious limitations. First, however accurately the records may have been kept, the compilers must lose much from having had no personal contact with the patients themselves. In particular the compilers tend to concentrate upon a comparison of the survival period in the treated and untreated cases. They lose sight of the effect of the treatment upon the patients during their survival, an aspect of the problem which, from a humanitarian point of view, is just as important as the possible prolongation of life. Secondly, if, as usually happens, the compilers are unfamiliar with the technique of the treatment, they are not in a position to assess the relative value of different modifications of technique or to distinguish between adequate and inadequate treatment. Thirdly, there is in this method nothing to prevent the same cases from being analysed over and over again by different compilers. This is an inevitable result of what may be called third-party investigation. It is quite clear that no advance can be made by the repeated publication of the same cases.

EXPERIENCE OF OTHER WORKERS

On the subject of *x*-ray therapy in intrathoracic tumours there have recently appeared two papers of this kind which well illustrate the points I have made above. The first of these is by Chandler and Potter,[1] who have collected 120 cases from the records of St. Bartholomew's, Charing Cross, and other London hospitals, and from their own private patients. Of these, fifty-nine had received *x*-ray treatment, while sixty-one were untreated. The writers find the average duration of life to be six months for the untreated and eleven months for the treated. They then go on to say that these figures are probably fallacious, since among the untreated there were several rapid cases, and among the treated several of a chronic type. In thus explaining away the marked difference between the treated and the untreated they seem to me not only to be reluctant to give due credit to the treatment, but also to fail to acknowledge the true significance of their statistics. Let us suppose, for the sake of argument, that the cases numbered sixty treated and sixty untreated. If thirty of those untreated had an average survival of eight and a half months (the mean between six and eleven), the remaining thirty would need to have an average survival of only three and a half months in order to lower the survival of the whole to six months. Similarly, if, of the sixty treated cases, thirty had an average survival of eight and a half months, the remaining thirty (the chronic type) would need to have an average survival of thirteen and a half months in order to raise the survival of the sixty treated to eleven months. It is, however, unimaginable that the proportion of acute cases among the untreated and of chronic cases among the treated could have been as high as one-half. It was almost certainly much smaller. Let us suppose that forty-five in the one class were strictly comparable with forty-five in the other, leaving fifteen to pull down the average survival in the untreated, and fifteen to pull it up in the treated. Simple calculation shows that these fifteen of the treated would require to have an average survival of eighteen months, while the fifteen of the untreated would require to have an average survival of *minus six weeks*. Such is the logical outcome of the contention advanced by Chandler and Potter. The other paper, which is written on the same lines, is by Maxwell and Nicholson.[2] A similarly adverse view of the effect of *x*-ray therapy is reached, despite the fact that out of one hundred "selected" cases the average duration of life was fourteen months in the treated and 10.9 months in the untreated. "Our results," they write, "are not encouraging." In four, life may have been prolonged; in three there was rapid dissemination. To my mind the results arrived at by Maxwell and Nicholson must be largely discounted, partly because some of the cases were evidently identical with those of Chandler and Potter, and partly because some of the cases occurred as long ago as 1912, when *x*-ray therapy was in its infancy. Maxwell and Nicholson further state that "*x*-ray treatment may also be of use in differentiating certain kinds of growth. Failure to react to heavy doses of *x* rays by shrinking in size is strong evidence that the growth is a carcinoma." The cases which I shall describe completely refute this statement.

The adverse views quoted above are not shared by those who have confined their observations to their own cases. Herzberg[3] states that *x*-ray therapy causes a temporary diminution in the size of the tumour and its metastases, and affords relief to the stenosis and dyspnoea. Paterson,[4] analysing nineteen cases, asserts that the treatment results in marked immediate palliation, easing of pain and of coughing, slower accumulation of fluid, and general clinical improvement. Although the average survival is practically the same in the treated and untreated (about three and a half months), in the former death occurs more rapidly. He concludes that the relief of pain and the more merciful type of death justifies the treatment, even if life is not prolonged. Davidson[5] has no doubt that *x*-ray therapy "does possess a very definite value in treatment, although it must be made perfectly clear that the benefit is only temporary and that *x* rays must be classed among palliative remedies." He quotes the case of a boy in whom "the relief of dyspnoea, which was extremely distressing both to the patient and to outsiders, was little short of dramatic." The tumour diminished in size, but the boy subsequently developed a very grave anaemia, which seems to have been the immediate cause of death, as the urgent pressure symptoms did not recur. Holfelder,[6] writing of bronchial carcinoma, states that while the marked tendency to form metastatic deposits hinders complete cure, intensive *x*-radiation at least improves the condition temporarily, the results being visible radiologically as a diminution in the size of the tumour and the expansion of collapsed parts of the lung. It is the only method by which the severe pain and coughing can be relieved and life prolonged. The longest survival in his experience is three years.

TECHNIQUE

The following nine cases have come under my care in the last five years. For Cases 1 to 6 the plant used was a double coil, giving a potential of 180 kV, filter, 0·5 mm. Cu + 1 mm. Al, focus skin distance, 23 cm., applicator circular—diameter, 8 cm. Cases 7 to 9 were treated with a condenser plant giving a constant potential of 200 kV, filter 1 mm. Cu + 1 mm. Al, focus skin distance, 30 cm.; applicator rectangular—8 × 10 cm. These conditions gave at 10 cm. depth of water about 30 per cent. of the skin dose. Treatment was given weekly or bi-weekly, one, two or sometimes three fields at each sitting, the dose to each field being 75–80 per cent. of the erythema dose. The fields were selected according to the position and extent of the tumour as revealed by *x*-ray examination, and were varied so as to produce so far as possible an even irradiation over the whole of the skin field. Such intensive treatment produced, in due course, a deep and fairly uniform bronzing of the skin. The amount of irradiation was in fact only limited by the tolerance of the skin, for since these are not cases which can be cured the danger of late after-effects to the skin does not arise. With the exception of the ninth, whose condition was already very advanced, none of my patients have suffered any ill effects from treatment. I am convinced that cases such as these cannot be treated on a preconceived idea of a "carcinoma dose." Irradiation must be carried out up to saturation point. Every month, or in some cases twice a month, films were taken under standard conditions and the tumour measured.

CASE 1

May 3rd, 1932.—J. G., aged 16, gipsy fair boy, caught cold, had an irritating cough, but continued to work.

May 23rd.—Dyspnoea. Could not sleep. Had to sit up in bed with his head thrown back.

May 26th.—Had to struggle to get his breath. Admitted to Addenbrooke's Hospital under Dr. Gaskell. There was a well-marked swelling of the upper part of the right chest, most prominent just lateral to the manubrium. Not tender. Trachea displaced to the left. *X*-ray examination showed a large shadow of uniform density with a rounded lower border occupying almost the whole of the right lung field. *X*-ray treatment was given immediately on admission. The next day the patient was very dyspnoeic. Had a restless night. Continuous oxygen given by catheter. *X*-ray treatment as above. The day after there was copious secretion from mouth. Restless at night. On May 29th there was surprising improvement of dyspnoea. Looked much better. Very much better the following day. Treatment continued approximately every third day until June 28th.

July 2nd.—Discharged, perfectly fit. Continued treatment as an out-patient until July 27th. Remained in excellent health. *X*-ray examination showed some diminution in size

of tumour. The boy disappeared, together with the gipsy band to which he belonged. Since then nothing has been heard of him.

This case illustrates the dramatic effect of treatment upon a large tumour, which had reduced the patient to the point of death.

CASE 2

February 23rd, 1928.—R. M., postman, aged 23, was admitted under Dr. Haynes. Had been in low health for three months. Cough for two weeks. On the previous day had had a pain in the left side followed by spitting of blood. Coughed blood again three days later.

March 22nd.—*X*-ray examination showed a carcinoma of left lung, with some collapse of upper lobe. Tuberculosis right apex.

March 26th and 27th.—*X*-ray treatment was given. He was discharged from hospital on April 2nd in good health.

April 6th and 12th.—*X*-ray treatment continued. *X*-ray examination showed considerable recession of the tumour and re-expansion of the lung. The patient then went away for three months' holiday, which he thoroughly enjoyed.

July 7th.—*X*-ray examination indicated a slight recurrence. General health good. *X*-ray treatment. At this stage the patient was persuaded by a friend that he had been wrongly diagnosed and should seek another opinion outside Cambridge, with the result that his trouble was declared to be tuberculosis. This was partly correct, in that he undoubtedly had some small foci at the right apex. He was sent away for open-air treatment.

November 24th.—Readmitted to Addenbrooke's Hospital. *X*-ray examination demonstrated a dense shadow occupying the whole of the left lung field. The patient died on December 9th, twelve months after onset of symptoms.

Necropsy

Post-mortem examination by Dr. Gaskell revealed a dense white growth extending outwards in all directions from the main left bronchus, reaching the bifurcation of the trachea and spreading into the uppermost part of the right bronchus. Left bronchus very constricted but not occluded. Practically the whole of the left upper lobe and also the upper part of the left lower lobe were involved. Microscopical examination of tumour: a small round-celled variety of primary carcinoma. There was extensive tuberculosis, both old and recent, at the right apex.

This, then, was a case of carcinoma in which *x*-ray treatment, although administered only for a short period, produced striking recession of the growth and complete restoration to health for several months. It may reasonably be presumed that the patient would have lived longer had he not fallen a victim to faulty diagnosis.

CASE 3

May 21st, 1930.—R. T., a publican, aged 55. *X*-ray examination showed a carcinoma of right upper lobe.

June 9th.—Admitted under Dr. Gaskell with a history of a lump in right side of neck, and progressive weakness for two months. Lost 1½ stone. No dyspnoea, cough, or palpitation. On examination dilated vessels were seen over chest, and a hard craggy mass on right side of neck. Laryngoscopic examination (Mr. Walford) revealed a right abductor paralysis.

June 13th.—*X*-ray treatment begun. He was discharged eleven days later, continuing treatment as an out-patient.

August 7th.—Mass in neck no longer palpable. Feels better. Appetite good. No pain.

September 23rd.—Readmitted on account of increased weakness. *X*-ray examination showed slight increase in size of tumour. Treatment continued. A fortnight later the tumour was smaller, and a month later he weighed 11 st. 7 lb. Discharged. Treatment continued.

November 2nd.—Tumour only very slightly larger than on first admission.

November 11th.—Increased opacity of right upper lobe. He weighs 12 st. 5 lb. Has coughed blood.

December 4th.—Feels very much better. Good appetite. Very little cough.

February 14th, 1931.—Readmitted, having developed a severe headache.

March 23rd.—Great enlargement of mediastinal shadow.

April 11th.—Condition fair to moderate until the last two to three days, when he had an attack of intense cyanosis and dyspnoea, and died.

Necropsy

Post-mortem examination by Dr. Whittle showed a large tumour surrounding root of right main bronchus. Upper and middle lobes infiltrated and riddled with small nodules of growth. Right pleura contains a large amount of blood-stained fluid. In the left lung there were three secondary nodules under the pleura. The pericardium was completely adherent. The liver was very extensively studded with umbilicated secondary growths. The right suprarenal consists of a mass of secondary growths completely replacing gland. Dura mater: a large spherical tumour, two inches in diameter, projecting into left occipital lobe. Microscopical examination: carcinoma.

This was a patient with carcinoma, surviving twelve months after the first symptoms and ten months after the initiation of *x*-ray treatment, which caused complete disappearance of the glands in the neck, and also effectively checked the primary growth for a period of five and a half months. He remained free from pain and comparatively free from discomfort until two months before his death, when the secondary in the brain began to cause symptoms.

CASE 4

February 2nd, 1931.—H. S., a caretaker, aged 45, was admitted under Dr. Haynes with a ten weeks' history of cough, shortness of breath, and loss of weight. Had coughed a streak of blood on two occasions. Hard masses on right side of neck.

February 4th.—*X*-ray examination showed an advanced tumour of right lung with partial collapse. Right diaphragm almost immobile. The following day *x*-ray treatment was begun. Condition steadily improved, and glands in neck diminished and eventually disappeared. He was discharged after seventeen days to continue treatment as an out-patient.

March 10th.—Readmitted on account of fainting attack. *X*-ray examination a fortnight later showed great dilatation of the pericardium and a left pleural effusion. Tumour greatly diminished, and right lung only slightly collapsed. Treatment continued.

June 16th.—Tumour considerably diminished and lung re-expanded. Pericardial enlargement subsided, but left pleural effusion slightly increased. Sixteen days later: "Feeling fine" except for slight "wheeziness."

August 10th.—Readmitted owing to increasing dyspnoea. No glands palpable in neck. Three days later he had a sudden attack of dyspnoea and died. Survival after first symptoms, nine months; after initiation of *x*-ray treatment, six and a half months.

Necropsy

Post-mortem examination by Dr. Whittle revealed a mass of growth in the anterior mediastinum, invading the sternum and extending into the posterior mediastinum and involving the roots of the lungs—the right more than the left—and the pericardium. Left lung collapsed. Right pleural cavity completely obliterated by adhesions, and base of right lung firmly adherent to diaphragm and liver. Growth in chest, which is firm and white, extends upwards about one inch above the clavicles. Left bronchus invaded and partly obliterated. Nodules of growth in both peripheral pleurae, but bulk of lung substance not involved. Left suprarenal contains two secondaries, one large enough to involve most of cortex. Microscopical examination: typical oat-shaped cell tumour with much fibrosis.

In this case irradiation caused complete disappearance of the secondary glands in the neck, recession of the primary tumour for a long period, and expansion of the collapsed lung. The effect upon the patient was remarkable. Except for the short period when the pericardium was affected he suffered very little discomfort, and remained buoyant and optimistic until shortly before death.

CASE 5

March 28th, 1931.—E. S., a laboratory assistant, aged 52, was examined by Dr. Haynes. He gave a short history

of swelling of the left side of the neck with pain and shortness of breath. There was a big rocky mass on the left side of the neck. *X*-ray examination revealed a large tumour of the left lung, and displacement of the trachea to the right.

April 10th.—Tumour increased in size and left upper lobe collapsed (see Special Plate). *X*-ray treatment was begun on April 13th and continued for two months. His general health improved markedly and the mass in the neck completely disappeared.

June 3rd.—A very striking diminution in the size of the tumour; expansion of the left upper lobe (see Special Plate). He died about three weeks later. No post-mortem. Survival from onset of symptoms, three months.

This was a rapidly growing tumour. The suppression of the cervical mass not only gave considerable relief but had a special psychological value in this case since the patient had an extensive knowledge of pathology. More important, however, is the fact that the patient was able to follow his occupation, travelling to and fro by motor cycle until within two weeks of death.

CASE 6

September 9th, 1930.—T. H., a carman, aged 56, was admitted under Dr. Haynes. Two months' history of cough, getting steadily worse. Occasional traces of blood in sputum. Five weeks previously had a fit—shouting and unconscious—followed by severe pain beneath right nipple, shortness of breath, and palpitation. Lost 1 st. in weight. On examination he was found to have signs of consolidation of the right upper lobe. *X*-ray examination showed a large tumour of the right lung and collapse of the upper lobe.

October 7th.—Discharged from hospital. *X*-ray treatment given weekly in the out-patient department for a month. The patient then developed a right-sided hemiplegia and signs of secondary growth in the left buttock, and it was considered inadvisable to move him from his home. He survived, however, until the end of March, 1931—that is, eight months after the onset of symptoms.

Owing to the early appearance of blood-borne metastases affecting the brain and left leg, only a limited amount of irradiation could be given. It is therefore impossible to assess the effect of treatment, but the fact that the patient, with so large a tumour, survived five and a half months after irradiation is not without significance.

CASE 7

December 5th, 1932.—A. L., a tobacconist, aged 52, complained of having had a husky voice for the last six months. Was getting easily tired, short of breath, but was still at work. Mr. Walford found complete paralysis of the left recurrent laryngeal. *X*-ray examination showed a dense shadow to the left of the aorta, the extent of which was masked by collapse of the left upper lobe. Trachea deflected to left. Left diaphragm immobile. Injection of lipiodol by Mr. Walford, the patient lying on his left side, revealed dilatation of the left main bronchus and obstruction of its upper branch.

January 30th, 1933.—*X*-ray treatment begun. He improved steadily. Was less easily tired and less short of breath. Condition of larynx unchanged. Two months later, "feeling well."

April 10th.—Slight extension of tumour. Six days later he developed pneumonia while at home and died in two days. Survival from onset of symptoms, ten months.

Apart from a short stay in hospital for investigation the patient was not laid up until two days before death. He was comparatively free from discomfort throughout his illness.

CASE 8

January 18th, 1933.—H. T., a carter, aged 57, was seen by Dr. Cole. Complained of pain in the left side of the chest for two weeks, and hoarseness for three weeks. Enlarged glands in left supraclavicular triangle and left axilla. Left vocal cord paralysed. *X*-ray examination revealed a tumour of left lung and collapse of upper lobe.

February 23rd.—*X*-ray treatment begun. Steadily improved in health; felt stronger and was able to garden.

March 13th.—Tumour greatly diminished. Left upper lobe re-expanded. Cervical glands considerably diminished. (Still under treatment.)

CASE 9

April 1st, 1933.—G. D., a roadman, aged 46, was admitted under Dr. Whittle. Influenza eight weeks before, followed by shortness of breath and weakness; two weeks' swelling of neck, three weeks' hoarseness. Hard glands in right side of neck and right axilla. Purulent expectoration, pyrexia. *X*-ray examination showed a dense shadow occupying the lower and inner part of the right lung field.

April 12th.—*X*-ray treatment begun. The patient made no response, and tolerated treatment very badly. He was very ill, developed oedema of the right arm, and signs of compression of the right cervical sympathetic. He died about five weeks later, after suffering prolonged agony.

Necropsy

Post-mortem examination by Dr. Gaskell revealed a soft growth of the trachea just above the bronchi. Right bronchus was heavily involved, left bronchus free. Right lung was heavily impregnated with a white, caseous-looking growth which extended throughout its substance along the paths of the bronchi. It was much shrunken, and a section showed a septic bronchopneumonia with greenish muco-pus. Right pleura contained a large quantity of blood-stained fluid. Left lung was completely free from growth. Secondary glands filled anterior mediastinum and extended up into right side of neck. Heart muscle was flabby and soft, and studded with some secondary deposit from the growth in the lung. Liver was greatly enlarged, and studded throughout with whitish secondary deposits. Secondary deposits also in abdominal glands.

Microscopical Report.—Primary carcinoma of lung, oat-cell type, characteristically spreading along the bronchi and undergoing extensive necrosis with very great distortion and alteration of individual cells.

The advanced state of dissemination, particularly in the liver, and the septic condition of the lung, adequately explained the failure to respond to treatment. The disease must have been widely disseminated before treatment was begun.

DISCUSSION

Case 9 is clearly in a class apart from the others, and to all intents may be considered as untreated. The slow decline of this patient in great pain may be taken as the typical end of such cases. In the others irradiation produced certain very definite effects. The enlargement of the cervical glands disappeared permanently. This alone was no mean gain, since the patients naturally believed that the cervical swelling was the cause of their trouble, and rejoiced at its disappearance. In five of the cases the primary tumour underwent striking recession, and the collapsed part of the lung re-expanded. In two cases irradiation, though it did not diminish the tumour, at least appeared to have inhibited its growth for a time. The survival periods in those that have died were twelve, twelve, eight and a half, three, eight, and ten months from the onset of symptoms, giving an average of nine months, or ten months if we exclude the one rapid case. The average survival after the initiation of treatment was six months. That life was prolonged cannot be proved, but it may reasonably be inferred from the improvement in the physical condition. The mere prolongation of life, however, is a small point. What matters is the condition of the patient during survival. If irradiation only prolonged the agony for a few months its application would not be justified. But the effect in all the cases which have been fully treated has been quite otherwise. The symptoms directly due to the primary tumour and its cervical extension have in a great measure disappeared, and the patients have been restored to a high degree of health and comfort which has lasted until shortly before death. The end has usually been due to embolic dissemination, to which this type of tumour is, from its position, peculiarly liable, and which irradiation has at present no power to prevent.

CONCLUSIONS

In malignant disease of the lung, *x*-ray treatment, if carried out intensively, causes temporary recession of the primary tumour, re-expansion of collapsed lung, and disappearance of enlarged cervical glands. Whether it prolongs life or not, it certainly provides a survival period of a comparatively high degree of comfort and happiness, the inevitable end being rapid instead of a prolonged agony.

[Space does not permit reproduction of radiograms of the other cases referred to in this article.]

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FRACTURES OF BOTH BONES OF THE LEG

BY

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(With Special Plate)

On account of increasing numbers of road and industrial accidents it has become more necessary than ever, both to the individual and to the community, that fractures should receive immediate and correct treatment ; this applies, in particular, to fractures of the lower extremity, because of the important part the limb plays in weight-bearing and locomotion.

I think it will be agreed, at the outset, that the aim of treatment should be the restoration of complete function to the injured limb. One school of thought, however, lays down the axiom that a complete restoration of function is not possible without an anatomical reposition of the injured bone or bones, and urges that this should be obtained irrespective of how drastic the necessary procedure may be. I have doubted the truth of this view for some time, mainly on the grounds that anatomical reduction is of little value without union, and that union is progressively prejudiced as the method of reduction involves more interference. The Liverpool school has always taught that the essential factors in treatment are a restoration of normal alignment to the long axes of the bone fragments, as correct function depends on this, and of full length of the limb. End-to-end apposition, while an admirable ideal in itself, is of secondary consideration compared with alignment, if restoration of function is uppermost in the surgeon's mind ; in many cases it ensues automatically upon reduction, particularly if the case is dealt with early, but those methods designed exclusively to produce it often inflict further, and in my opinion unnecessary, trauma on the limb.

It was with the object of proving my contentions on this subject that forty-eight cases of fracture of both bones of the leg have been collected and reviewed. Only those dealt with personally from start to finish have been chosen, and the aim of treatment has been as outlined above.

ROUTINE METHOD OF REDUCTION

While the reduction of each fracture must be considered as a separate problem, the broad principles can be laid down in a fairly standardized form. I do not presume to make any claim for originality, and there must be many variations quite as good as the method to be described.

(*a*) *Simple Fractures.*—*X* rays in two planes should be carefully studied, and a plan of reduction worked out beforehand. The patient is then anaesthetized and placed on a table, with his knees flexed over the end and legs hanging down. The surgeon sits on a low stool, on a level with the patient's foot, and, gripping the malleoli firmly with both hands, first of all applies steady and increasing traction to the leg. This is continued until the length of the injured limb coincides with that of the normal limb, on measurement from the adductor tubercle to the internal malleolus. Shortening, in the early stages, is due to muscle spasm, and this is entirely abolished by anaesthesia and traction, so that there is no fear of shortening recurring when traction is relinquished. This leaves the surgeon's hands free for the next step, which consists in manipulating the fragments according to the plan previously worked out. The patient's forefoot is then placed on the surgeon's knee, keeping the ankle at right angles, and a plaster is applied, over wool, as far as the knee. When this has set, the limb is slowly extended at the knee, and the plaster continued to the groin. Muscle spasm gradually merges into actual shortening, which is more difficult to overcome. Herein lies a strong indication for the early reduction of these fractures.

(*b*) *Compound Fractures.*—Anti-tetanic and anti-gas-gangrene serums should be administered as routine in road accidents. After a complete toilet of the limb has been carried out, preferably in the operating theatre, the wound is carefully excised under full aseptic precautions. If the case is seen within twelve hours of the accident primary suture is often successful. Later than this the wound is left as a crater, after excision, and covered with sterile vaseline gauze over which plaster can be applied. Reduction is then carried out on the lines already described. By splitting the plaster longitudinally while damp provision is made for the easy inspection of the wound, should this become necessary. Additional *x* rays are taken to check the reduction. Further manipulation is undertaken if the long axes of the fragments are not parallel, but if this condition is fulfilled strenuous efforts to obtain complete apposition are unnecessary and harmful. Sufficient apposition is usually obtained, and I have the impression, although without sufficient data to prove it at present, that fractures with some degree of lateral displacement unite more quickly and firmly than those in which there is an anatomical reduction of the parts. A more closely fitting plaster, over stockinette, is applied at approximately the end of the first ten days. The limb shrinks, and, unless the replastering is carefully carried out at this time, *x* rays show that the fragments may drop out of line. At the end of about three weeks the majority of patients walk comfortably in this plaster if a pad of rubber is incorporated in the heel. In the case of oblique fractures ambulatory treatment is not started until the end of about six weeks. At some time after eight weeks I have found it safe to apply a short plaster, from the knee, and active exercises for this joint are instituted, but this must be decided upon *x*-ray evidence of union as seen in the series of films taken at fortnightly intervals. As will be noticed from my results a majority of my cases have shown firm union at the end of three months. When this has been obtained the plaster is discarded, and active exercises are continued until the muscles of the limb have regained their normal size and tone ; at the same time, the patient is re-educated with regard to walking. Allowing for the two or three weeks "convalescent treatment," which is usually obtained nowadays, I think that most men should be ready for their normal work six months after the accident.

OTHER METHODS

To turn now to a consideration of other methods which have been advocated for reduction of these fractures

Open Reduction —In some cases it may be found that satisfactory reduction is impossible by closed methods, owing to the complete separation of a large fragment, or the entanglement of the bone ends in other structures of the limb, or a coincident nerve or vascular lesion which may demand immediate exploration , but such cases are of infrequent occurrence

When open reduction is performed, whatever method of bone fixation is employed—plating, pegging, or wiring—a relatively large segment of the shaft must be exposed, and the stripping up of periosteum and soft tissues damages the blood supply to the bone and thus delays union The *x* rays of Case 1 (Fig 3 on plate) are an excellent illustration of this

I believe that deliberate open reduction of these fractures should be reserved for those very rare cases in which good weight bearing line cannot be obtained by manipulation It is not worth while to run the risk of delaying union unless there is definite evidence to show that the functional result of manipulative reduction is likely to be poor , and I would suggest that lack of apposition should not be included in this evidence

Reduction by Skeletal Traction —So much has been written on his subject in recent years that it is difficult to sort out and appraise the advantages which are claimed for the method by those who practise it They seem to be as follows

1 That traction is rendered easier

2 That anatomical restoration of the parts can be assured

3 That when reduction has been obtained, if plaster fixation is being employed, this can be carried out without assistance, and there is no chance of losing the position obtained

To deal with these seriatim

1 Traction is rendered so easy that an enormous amount of damage can be done to soft parts in a short space of time Manual traction is likely to be just sufficient for reduction and no more

2 As already stated, I consider this to be of secondary consideration to alignment, and I have advanced my reasons for saying so The craving for anatomical reduction seems to me to be founded upon an undue consideration of *x*-ray results, without any observations on function being made Anatomical reduction is easily nullified by lack of union or a stiff joint above or below the site of fracture

3 In these fractures all shortening, apart from actual loss of bone, is due to muscle spasm, and when this has been abolished by anaesthesia and carefully applied traction no recurrence of the deformity is possible The argument upon which this "advantage" is based is physiologically unsound

There are certain disadvantages of the method which are set out below It would seem that they are effective whether the skeletal traction is continued for the whole period of fixation or whether it is applied just until the fixative agent is in position, but more so in the former instance The stiff knee, following skeletal traction from the condyles of the femur, has been noted repeatedly The stiff ankle, following skeletal traction from the os calcis, has also to be accounted for

1 Sepsis —This can only be eliminated by using an aseptic technique as rigid as that which is employed when exposing a bone—which is only possible in an operating theatre—and it is clearly wrong to say that the procedure is safe in any surroundings Whatever precautions are taken it cannot be denied that a wire or a pin, which has passed through the skin, is inserted into cancellous bone, and it is noteworthy that the usual procedure, when exposing a bone, is to discard the skin knife before entering the deeper tissues Infection of the os calcis is not a matter to be risked lightly

2 Pressure sores —If plaster is applied with the limb under traction an elastic recoil will take effect immediately the traction is released The malleoli and dorsum of the foot must be pressure points It is well known that if a window is cut out of plaster over a pressure area the circumscribed skin bulges through and necrosis still occurs around the edges

3 Stiff ankle —When skeletal traction from the os calcis is used, all the force applied to the tibia and fibula must pass through the lateral ligaments and capsule of the ankle and subastragaloid joints What amounts to a "strained ankle" is inflicted on a limb which has already suffered the trauma of a fracture

RESULTS

In reviewing the present cases the standard of a good functional result was defined thus firm union full length to clinical measurement, no pain on walking and a full range of active movement at the knee and ankle Cases in which any one of these criteria was not satisfied were classified as fair results only The patients ages varied from 2 to 60 years A detailed analysis of the cases is presented in tabular form, but from the point of view of functional results they can be classified thus good functional results, thirty five , fair functional results, seven (two of these had flexion only to the right angle at the knee as the sole remaining disability another had half an inch of shortening due to actual loss of bone and another is the case shown in Fig 1) , patients not yet out of three-month period, six

		No. of Cases
Type of fracture	Simple	35
	Compound	15
With no disturbance of line etc		32
With angulation or displacement only		15
With angulation displacement and shortening		23*
Union In three months		25
In four months		9
In six months or over		8
Not yet out of three-month period		6

* Full length was obtained in 15 (75 per cent) Shortening of 1 4 in or over remained in 5 (25 per cent) Of the latter five cases one had actual loss of 1/2 in bone substance and another was the case which the *x* rays are shown in Fig 1 The other three had shortening up to 1 4 in Two of fulfilled the other criteria

† Four of these were compound

X rays of three cases before and after reduction will be found on the Special Plate A brief note on each one is given below

Case 1 —G Q , aged 60 years The worst radiological result of the whole series This patient was classed as a fair functional result because he had half an inch of shortening It is extremely interesting to note that he united in three months, the same time as that taken by the best radiological result (see Case 2), and that he went back to work as a train driver in seven months He had a severe head injury at the time of the accident and it was impossible to do more than immobilize his leg in correct alignment

Case 2 —N C aged 17 years The best radiological result Anatomical reduction by manual traction and plaster Union occurred in three months

Case 3 —T O , aged 17 years This fracture was first of all reduced in the manner described and the result is shown The patient was then placed under the care of another surgeon He returned to me four months later with the fracture still ununited From his own description it seemed that he had had further manipulation by skeletal traction and finally an open reduction The subsequent *x* rays shows the position and the fact that union was only just commencing at five months

CONCLUSIONS

1. That consistently good results can be obtained from fractures of both bones of the leg by ordinary methods of manipulation and plaster application.

2. That it is not a sound argument to contend that anatomical reduction is the best means of assuring a good result. Alignment, not apposition, is the factor which counts most in producing good function. The damage produced in obtaining anatomical reduction should always be taken into account.

3. That skeletal traction is unnecessary for the reduction of fractures of both bones of the leg. It is harmful, in that it adds further insult to an already traumatized limb.

TREATMENT OF CYSTIC HYGROMA OF THE NECK BY SODIUM MORRHUATE

BY

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(With Special Plate)

Cystic hygroma is a condition which occurs not infrequently in Singapore. It is usually present at birth or occurs sufficiently soon after birth to indicate that the condition is probably a developmental error. So far no specific cause has been found for the condition, which is a lymphangiectasis. Sometimes the tumour increases in size with alarming rapidity. It has been suggested that the condition might be due to a blockage of the lymphatics of filarial origin, transmitted through the mother's blood, but I have never found any evidence which could substantiate this suggestion in the slightest.

In the earlier stages the tumour is represented by a small semi-solid nodule, which consists of a mass of irregularly arranged tortuous lymphatic vessels. Obstruction occurs in some of the vessels, possibly on account of their tortuosity, the vessels rapidly dilate, and the mass becomes definitely cystic.

In the present case the child, 1 month old, of healthy Chinese Hokien parents, was referred to me by Professor English on March 3rd, 1933. The baby was born on January 29th without instrumental intervention. At birth there was a swelling on the left side of the neck, just below the auricle, and occupying the mandibulomastoid and submandibular interval. The tumour was about the size of a small orange, and from the time of birth until it was referred to me the swelling had increased to nearly twice its size.

On examination the tumour was definitely cystic, and below the body of the mandible were three nodular hard masses, each about the size of a marble and apparently associated with the larger cystic swelling. The whole mass was movable and the skin was not attached. The infant was kept under observation for three days, and the swelling was visibly increasing day by day. Fig. 1 (on Plate) is a photograph of the child, taken on March 6th, which shows the size of the swelling and the upward and outward displacement of the auricle.

Owing to the age of the patient and the nature of the tumour the treatment of these cases is somewhat difficult. The growth is liable to periodic inflammatory attacks which may result in fibrosis and a cure. If the condition is stationary it is better left alone as spontaneous cure may occur; hence the condition is rarely seen in adolescence. If, however, the swelling is progressing rapidly, as in the present case, some form of treatment is required. The mortality from open operation is very high, as the child is restless and it is difficult to keep the operation area free from infection. The growth is never circumscribed, and one cannot avoid cutting through dilated vessels. This leads to oozing from the wound, offering an excellent medium for the growth of organisms and a ready ingress to the deep tissues of the neck. It is also difficult to avoid the facial nerve in open operation. Electrolysis has been tried with success, but according to Rowlands and Turner injections such as iodine have been unsuccessful.

It occurred to me that one of the more modern sclerosing fluids might be effective. I chose sodium morrhuate as being least destructive to the subcutaneous tissues in the event of leakage. I argued that if this solution could destroy the endothelium of the walls of the veins it ought to have a similar effect on the lining of the lymphatics, and I hoped that some of it might be absorbed into the communicating tortuous vessels and perform a similar function on them, thereby producing a cure.

On March 6th the swelling was aspirated and four and a half ounces of brownish fluid withdrawn; 2 c.cm. of 5 per cent. sodium morrhuate solution were injected into the cyst. The next day it was seen that the cyst was filling again, and the swelling had increased to more than half the size it was before aspiration. On the following day there was no further increase, and on the third day following injection of the sclerosing fluid the swelling was definitely smaller. The aspirated fluid was examined and gave the following analysis:

1. Methaemoglobin +.

2. Cells: (*a*) no endothelial cells; (*b*) lymphocytes, small 96 per cent., large 3 per cent., polymorphs 1 per cent.; (*c*) erythrocytes ++.

3. Albumin +++. Massive coagulation on heating. The proportion of erythrocytes to leucocytes was 100 to 15.

By March 12th the swelling was considerably reduced, and on the following day the cyst was again aspirated. Two ounces of fluid of similar appearance but somewhat thicker in consistence were withdrawn and 5 c.cm. of 5 per cent. sodium morrhuate solution injected. Next day the swelling had increased slightly, apparently due, as on the first occasion, to the irritation of the sclerosing medium. Thereafter the growth gradually subsided. On March 21st the skin round the site of injection, for an area of about one and a half inches in diameter, became red and inflamed. For a day or two this area of skin became thinner and more attenuated, and I feared it might burst and infection occur. The skin was treated periodically with methylated spirit and talcum powder, and it slowly recovered its vitality. By the end of the month the tumour had disappeared, including the nodules in the submandibular region, and only a small area of inflamed skin remained. Fig. 2 is a photograph of the child taken on April 19th. It will be seen that the neck appears quite normal, except for the small area of inflamed skin, which is gradually clearing up.

Throughout the entire treatment the child showed no systemic inflammatory reaction, and its health was in no way affected. The pulse and temperature remained normal, except for a couple of days, when it developed an enteritis, with green diarrhoea, which was quite unconnected with the injection treatment. In my opinion sodium morrhuate offers an easy and safe method of treating cystic hygroma, although several cases would have to be treated before a definite conclusion could be formed.

Memoranda
MEDICAL, SURGICAL, OBSTETRICAL

A CASE OF EPHELIS AB IGNE
(With Special Plate)

The following case is of interest for two reasons: (1) the unusual distribution of the eruption, and (2) the marked pigmentation.

The patient, a feeble-minded girl, aged 18 years, has for the last five years suffered from chronic pigmentation of her legs and thighs (see Fig on Special Plate). The eruption is of a chocolate colour, consisting of a macular mottling covering the anterior, internal, and external surfaces of both legs, including the left knee, and extending to the top of the inner aspect of both thighs There is also a slight macular mottling of both hands and wrists Her mother has been in a mental hospital for the last five years, and her father has been recently admitted to the same institution School records show that whilst at school the patient was physically delicate and mentally retarded. At 8 years of age she had a severe attack of chorea, which was followed by paresis of the right side of her face She has always been very self-willed, and her parents appeared to have exercised little or no control over her actions. Contrary to the wishes of her father, she has for the last five years persistently sat on a low stool with her skirts drawn up toasting her legs in front of the fire. On admission to hospital she was found to be anaemic, of rather sallow complexion, with light brown hair and grey eyes. There was no general bronzing of the skin. She had slight paralysis of the right side of her face, causing her to speak with difficulty She was slow in all her actions, and slow to comprehend or respond to any question. Her pulse at the wrist was very feeble and easily compressible; the blood pressure was 100 mm. Hg. She felt cold to the touch, even on hot days. The temperature was 96.4° There was no cyanosis of the extremities. The urine was free from sugar or albumin. She was incontinent of both faeces and urine at night. On first examination her asthenic condition, hypothermia, and low blood pressure were suggestive of Addison's disease, but the absence of any exaggeration of natural pigmentation, or of pigmentation of the mouth, or of gastric symptoms coupled with the marked improvement in her general condition after a week's treatment and discipline in hospital, led to the conclusion that the deep pigmentation was not due to suprarenal inadequacy, but was the direct result of constant exposure to heat rays from the fire.

COMMENT

Everyone is familiar with the hazel-coloured, retiform eruption on the shins of stokers, cooks, and others who constantly expose their legs to the fire, but in the above case not only is the eruption much more extensive, but the pigmentation is darker and especially on the inner aspect of the thighs assumes a particularly striking net-like pattern.

Erythema followed by pigmentation results from undue exposure of the skin to all forms of radiant energy, the type of pigmentation being largely determined by the penetrating power of the rays. It is now well established that the ultra-violet rays are mainly absorbed by the horny layer of the epidermis. The visible rays are to a large extent diffusely reflected at the surface of the skin, but some of the red-yellow rays, together with the dark heat rays, penetrate the skin, are absorbed in the blood and deeper tissues, and excite vaso-dilatation and sweating. Thus the penetrating power begins at the ultra-violet end of the spectrum, where the penetrating power is very small, and rises to a maximum at the infra-red. Finsen's classical experiment of exposing his arm for one hour to the arc light, with various protective screens, proved that the actinic rays excite an erythema, followed by pigmentation, which protects the blood from excessive action of light. In this case, as in ordinary sunburn, there is a general but superficial pigmentation of the part exposed, and the site of the pigment is the rete mucosum. Most red-haired people, and others with a delicate skin, fail to pigment in the ordinary way, the pigment gathering together in small spots or freckles. On the other hand, the heat rays penetrate more deeply, and if there is constant exposure, lead to a chronic dilatation of the vessels in the true skin. In this case I suggest that the pigment is in the pigment "carrier cells" grouped round the vessels, and it is these cells, coupled with the dilated vessels, which give rise to the characteristic net-like appearance. Since a thin layer of melanin protects the moist hand from burning with a sun-glass, it is probable that the pigmentation round the vessels affords some protection from the harmful effects of the heat rays In this respect it is unlike the pigmentation produced by the more penetrating x rays, and γ rays of radium, which does not afford any protection to their lethal action, and consequently allows severe exposure to these rays to result in telangiectasis and necrosis.

I conclude that in the above case the pattern formed by the pigment and its chronicity are mainly determined by the histological site of the pigment.

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HERPES ZOSTER BRACHIALIS WITH CONCURRENT VARICELLIFORM ERUPTION
(With Special Plate)

A relation between herpes zoster and varicella was first suggested by J. von Bokay of Budapest in 1892, and again in 1910 (*Arch. f. Med.*, 1892, i, 159, and *XVI Internat. Cong. de Méd.*, 1910, x, 480), and has since been mentioned by others, while some observers think that herpes zoster is simply an atypical manifestation of chicken-pox virus As the subject has recently come up again in the medical journals I think it worth recording a case which I saw recently at the request of Dr. R. Ballard of Market Harborough, Leicestershire. The patient, a very healthy man, aged 74 years, who had no previous history of, or contact with, varicella or herpes zoster, although at the time there was a small epidemic of chicken-pox in his town, developed a typical zosteriform rash on his right arm and axillary region. This followed prodromal neuralgic pain over this area of four days' duration A day later he came out with a discrete centripetal vesicular rash on his trunk, both arms, face, neck, and a few vesicles as low as the left knee, which were varicelliform in type

The herpes zoster brachialis affected mainly the areas of skin supplied from the posterior root ganglia of the seventh and eighth cervical and second dorsal segments (Head's areas).

I might add that there was no history of ingestion of arsenic or any drugs, etc., that might cause a rash, also that it is very rare to observe chicken-pox in a man 74 years old.

Alterthum found twenty-three cases of associated varicella and herpes zoster (*Monats. f. Kinderhl.*, 1928, xl, 330). Apparently recovery from varicella does not confer immunity to herpes zoster, or vice versa

Two photographs of the case are reproduced on the plate. Owing to not being able to get panchromatic plates at the time, these were taken on ordinary plates, otherwise the rashes would show up even better

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INFLAMED MECKEL'S DIVERTICULUM WITH PERFORATED ULCER OF ILEUM

Besides the question of diagnosis, two interesting points arise in connexion with this case: (1) Was the perforation "peptic"? (2) Was the diverticulitis secondary to the ulcer, or vice versa?

Leslie B., aged 19, had a sudden attack of pain in the lower half of the abdomen in the early morning of February 7th, 1933. He vomited once. When I saw him at 10 a.m. he looked ill; the temperature was 100.4° F., the pulse 75. There was acute tenderness and muscular rigidity in the right iliac region. There was no history of any previous illness. The patient was sent to hospital with a provisional diagnosis of appendicitis, and was operated upon the same day. The resident surgical officer, Mr. I. R. Duthie, kindly sent me the following report: "It was thought, on physical examination, that this boy was suffering from acute pelvic appendicitis. On exploring his abdomen, however, the appendix was found in a retrocaecal position, high up in the hypochondrium, with its tip adherent to the liver. The caecum was of the infantile type, and had not descended. Further exploration revealed a large collection of sero-purulent fluid in the pelvis, and an inflamed, partly gangrenous Meckel's diverticulum. This latter was completely surrounded by coils of small bowel, with their mesenteric attachments. There was a small perforation of the ileum on its anti-mesenteric border, about one inch from the base of the diverticulum. The perforation looked like the common acute perforation of a gastric or duodenal ulcer, showing marked fibrous induration, and suggesting that the ulcer was an old one. There were no tuberculous mesenteric glands. The diverticulum was removed and the ulcer invaginated. The latter, however, led to excessive diminution of the lumen of the small gut, so a lateral anastomosis was done, short-circuiting the affected coil of bowel." The patient was discharged from hospital on February 24th, and has made an excellent recovery.

Stockport. F. M. FELLOWS, M.B., F.R.C.S.Ed.

SEQUEL TO A SUN BATH

The following case may prove of interest in pointing to the value of temperance in a fashionable habit, which, when properly used, cannot fail to be of benefit to all—namely, sun bathing.

On Whit Monday I was called in to see a man aged 21—a very fine specimen of humanity. He had spent all Whit Sunday on the Welsh coast, alternately bathing and sun bathing. No bathing costume had been used. He had a dark skin, and was normally a good pigmenter, but his employment had been indoors, and previous to Whitsuntide pressure of work had prevented him from getting the benefit of any sunshine there was. The day—locally, at any rate—must have been hot, as I have since ascertained that the temperature in the direct rays of the sun was over 105° F., but olive oil had been used freely both before and after the sunbath.

When I first saw him on the Monday he had two huge blisters, one on his back, extending from the angles of his scapula down to his buttocks, and the other in the front of his chest from the level of his nipples to a point midway between the umbilicus and the symphysis pubis. The rest of the skin of the body was acutely erythematous, with tiny blisters here and there. The area of skin actually blistered must have approximated to one-third of the total skin surface. His general condition was good, the temperature being only 98.8 and pulse 82. On the following day he was much worse, developing a swinging temperature, and becoming incoherent and restless. On the sixth day of the illness he had a profuse haematemesis, and was obviously septicaemic. On the tenth day he developed an abscess in his right buttock, the pus from which yielded a culture of mixed staphylococci. After this his condition slowly but surely improved, and the local lesions showed some sign of healing, though even after the lapse of a month there was much to be desired in this respect. The treatment adopted locally was the tannic acid spray, and the general treatment that for a case of septicaemia.

Two points of interest in the case appear to me to be: (*a*) The absence of any signs or symptoms of the classical picture of "sunstroke." (*b*) The presence of haematemesis, such as is sometimes seen in the case of an extensive burn or scald, due no doubt to the absorption of the toxic products of extensive tissue destruction.

With regard to the prophylaxis of such a condition, the education of the public in the matter of gradually increasing exposures is of paramount importance.

The application of olive oil proves in many cases a broken reed. It tends to delay the erythema, and to render any resultant desquamation less conspicuous, but in the actual prevention of burns involving the true skin it is of little use.

If there exist in this generation of hurry people who really *must* "tan" in one day, the application of a mahogany-tinted lanoline, together with the administration of two grains of quinine bihydrochloride thrice daily for two or three days, will endow them with a skin which may be used—or, indeed, abused—with a care-free impunity.

Shrewsbury. D. A. URQUHART, M.B., Ch.B.

Reports of Societies

ALCOHOLISM IN MEDIAEVAL ENGLAND

At a meeting of the Society for the Study of Inebriety on July 11th Dr. J. D. ROLLESTON stated that the chief sources of information concerning the prevalence of alcoholism in the Middle Ages were lay writers—especially poets—historians, and ecclesiastics; whereas little was to be gleaned from contemporary medical writers. In the Middle Ages distilled liquors were unknown as a convivial beverage and alcoholism was due mainly to indulgence in ale and to a less extent in wine. Inebriety was widely spread in all classes of society, but predominated among the clergy (in spite of the protests of leading ecclesiastics such as Anselm, Bede, Boniface, and Wyclif) and university students. The mediaeval publican had a remarkably bad reputation for fraud and dishonesty, while the tavern was usually regarded as a place of ill repute. Dr. Rolleston remarked that, though poetry was often associated in the popular mind with praise of strong drink, the three great English poets of the Middle Ages—Chaucer, Langland, and Gower—were keenly alive to the evils connected therewith, as was illustrated by several passages in their works. The speaker said that alcoholism during the Middle Ages in England, as elsewhere, resembled the alcoholism of classical antiquity, which he had discussed in a previous paper (*British Medical Journal*, 1926, ii, 702), in the following respects. In the first place the chief information on the subject was derived not from medical but from lay writers. Secondly, in both periods distilled liquors were unknown. Thirdly, the absence of syphilis in both ages was another important resemblance in view of the fact that alcohol is such a frequent incentive to exposure to infection and is apt to aggravate the disease when once it is acquired. On the other hand, alcoholism in the Middle Ages differed from that in ancient Greece and Rome in two respects. In the first place it was more widely spread through all classes of society, though it was most conspicuous among the clergy and students. In the second place legislation dealing with drunkenness or control of the liquor trade was unknown in the ancient world, whereas in the Middle Ages taxation of alcoholic drink, reduction in the number of hours of sale, and diminution in the number of taverns were introduced.

Reviews

STUDIES IN MENTAL DEFICIENCY

Professor R. J. A. BERRY has added another to the many services he has rendered to the understanding of mental deficiency by collecting a number of "monographs on mental deficiency and other problems of the human brain and mind" and publishing them under the general title of *Mental Deficiency: Stoke Park Studies*.[1] The book is sent out as "No. I, The Burden Memorial Volume," and is dedicated to the memory of the late Rev. H. N. Burden, whose munificence and practical devotion to the cause of understanding and caring for mentally defective persons is abundantly worthy of such commemoration. His portrait forms an appropriate frontispiece, and a brief biographical note is appended. The implication is that this volume is intended to be followed by others of a similar character, and it may be said at once that such sequels will be looked forward to with much interest.

The scientific and clinical studies bound up in the present volume are seventeen in number. Of these, seven are by Professor Berry himself, four by Professor Berry in collaboration with one or other of his colleagues, four by other members of the medical staff at Stoke Park—Drs. R. G. Gordon, R. M. Bates, and R. M. Norman—to which are added an article by Dr. McCoull on miners' nystagmus, and notes on the case of Charles William Ross, the Kenya murderer, by Dr. H. L. Gordon. The book is illustrated by a large number of graphs and photographs, and it has a good bibliography and index. The reader must recognize and accept that the social and humanitarian approach to feeble-mindedness is not represented in this volume; but each of these studies is, in its degree, a real contribution to the general subject. Some of them are in every respect new, and the others are revised and rearranged versions of articles which have in one form or another been published before. The revision has enhanced their present-day value, and each contains a significant investigation, exposition, or comment on matters of great clinical, pathological, or biological importance. In their present collective form it is probably true that they may be considered as the co-operative work of the whole of the staff of the Stoke Park Colony, guided by their Director of Medical Services. As such, they provide an excellent example of what team-work, suitably directed, may accomplish.

The impression left by a perusal of the whole volume is that we are advancing definitely and by clear steps towards a truer and more practically useful understanding of the nature of mental deficiency, towards the earlier and more certain detection of high-grade mental deficiency and potential social deficiency, towards a more detailed and correct appreciation of the relation of mental disease and defect to brain structure, and towards a more intelligent investigation of the relation of neurological abnormalities to mental impotence or failure. Professor Berry, as editor, very wisely makes no attempt to summarize any general conclusions. Each monograph has its own weight and emphasizes its own points. For those whose main interest, however, is in indications for actual social guidance, two almost incidental remarks may be noted. One is on the subject of sterilization, which otherwise is not dealt with in the volume at all:

> "Advocates of sterilization may possibly realize from these facts, always provided extended and independent research multiplies them, that it is the non-certified parents, rather than their segregated and defective offspring, whose sexual instincts require some form of public control."

Another is with regard to the relation of mental instability to defect of intelligence. In many cases

> "it is important to recognize that it is the instability that is inherent and not the educational backwardness with which it is so often associated. . . . Social capacities are in the main dependent on the ability to control impulsive action. . . . The ability to adjust one's self successfully to new situations is very largely dependent on the capacities of foresight, prudence, and the ability to profit by experience. It is as a test for these characteristics, or their lack, that the Porteus maze tests have proved their utility as a complement to the Binet tests."

The importance of much of this book will, of course, be recognized by the specialist and the expert psychologist, but it should prove of at least equal value to the general practitioner and the trained social worker, who have now become cognizant of the great place which its problems occupy in their fields of practice, but who have not always been accurately instructed or wisely guided in these matters. In the presence of a considerable amount of knowledge, and of a great deal of which we are still ignorant, it is much more imperative to apply what we know than to indulge in schemes for speculative action based upon suppositions with regard to what is as yet unknown.

[1] *Mental Deficiency: Stoke Park Studies.* First series. Edited by R. J. A. Berry, M.D., F.R.C.S., F.R.S.E. London: Macmillan and Co., Ltd. 1933. (Pp. xix + 249; 89 figures. 10s. 6d. net.)

PRACTICAL SURGERY

The second volume of *A Short Practice of Surgery*,[2] by HAMILTON BAILEY and R. J. MCNEILL LOVE, completes this general surgical textbook. As in the first volume, all conditions are described clinically, with adequate summaries of anatomical and pathological detail, and a considerable amount of space is devoted to operative procedures. Half of this volume is occupied by affections of the abdomen, a hundred pages to the head, spine, and nervous system, and the remaining hundred to the thorax, tumours, the skin, specific infectious diseases, and infections of the hand. The excellence of the illustrations, both photographs and coloured and line drawings, is notable, and, as the authors remark, they permit of economy in the text, as they certainly lighten the reading.

The book is one for the house-surgeon and others who are learning surgical craft, and is of special practical use in the way in which alternative methods of treatment in the more difficult problems are contrasted and selected. It is not usual to speak of the positive radiological finding in gastric ulcer as a "filling defect" (p. 544). Under the heading of acholuric jaundice the characteristic urinary findings are not mentioned. In describing the clinical features of acute cholecystitis it is stated without any qualification that there is no jaundice. This statement is probably too absolute, though it may be almost true. There is no mention of suppurative pancreatitis with abscess, which is a definite type of the disease. Among many evidences of the inclusion of modern work we note that duodenal diverticula may be the source of an acute focal infection simulating infection of the gall-bladder or appendix. In the final chapter, on hand infections, a description of web infection and its differentiation from tendon sheath infection is of sufficient importance to merit inclusion.

It has already been mentioned that operative treatment is adequately described, but treatment in general, including after-treatment, is a feature of the book. The authors have condensed their presentation of surgical practice with commendable skill. The book is clearly based upon a wide personal experience and upon acquaintance with the experience of progressive surgery elsewhere; it is sound in matter and readable and attractive in form, and popularity may be confidently prophesied for it. An index to both volumes is appended.

[2] *A Short Practice of Surgery.* Vol. II. By Hamilton Bailey, F.R.C.S., and R. J. McNeill Love, F.R.C.S. London: H. K. Lewis and Co., Ltd. 1932. (Pp. viii + 475; 349 figures. 20s. net.)

EXPLORATION OF THE UPPER DIGESTIVE TRACT

Dr. DIMITRESCO-POPOVICI's book on methods of investigating the functions of the stomach and duodenum[3] is one which could have been written only by someone with strong French leanings. The French tradition in medicine has always been to approach matters from the clinical side; and since Claude Bernard's time physiology, perhaps more than any other branch of the medical sciences, has derived profit from being pursued by a worker who has had a sound clinical education. In the present volume the author has applied this principle to the subject of gastric physiology. Combining clinical work on digestive diseases with research on the physiology of digestion, in Bucarest and Paris, he has produced a book which brings up to date the essential facts of our knowledge of the upper digestive tract. Since the first part of the duodenum presents essentially the same problems as those occurring in the stomach, he discusses in detail the anatomy and histology of these organs, passing then to their functions—secretory, motor, absorptive, and excretory. Two-thirds of the book is thus occupied before the author turns to the means of investigating these functions. The chemical methods are given in some detail for examination of stomach contents obtained after excitation of secretion by test meals, or parenteral injection of histamine or acetylcholine. Gastroscopy is described, but the conclusion is reached that it cannot and ought not to be expected to displace other methods. Direct observation may disclose an unsuspected peptic ulcer, but a proportion of ulcers demonstrated by other means cannot be brought into view. Probably its greatest advantage is in following the healing of an ulcer—showing the persistence of a lesion or the state of the healed cicatrix. Gastrophotography also is discussed; it has elucidated many of the pathological problems of gastritis, but cannot replace radiography and chemical tests. Gastric radiography has reached a degree of precision which makes an examination of the stomach and duodenum incomplete without it, while examination of the gastric chemistry is invaluable as a guide to treatment and for the differentiation of ulcer and neoplasm. Having said so much, the author refers the reader to other books on radiology—which is dismissed in a bare two pages! In discussing lactic acid in the gastric contents he says merely that it is often associated with diminished secretion and the achylia of gastric neoplasm. The book is thus disappointing. It cannot appeal much to English readers. Its method of approach to the subject is alien—the general is stated, the particular eludes us. We have been brought up on Beaumont, with his individual and detailed experiments and inductive methods, and on Pavlov, with his scientific and clearly devised researches.

CARE OF MOTHER AND CHILD

In *Lectures on Midwifery and Infant Care*[4] Dr. T. F. CORKILL has provided a manual on the management of pregnancy and labour which follows closely the syllabus laid down by the Nurses and Midwives Registration Board of New Zealand; in a foreword Mr. M. H. Watt, Director-General of Health and Chairman of the Board, recommends it as a standard textbook for all training schools, which is a high tribute to its value. The volume is based on lectures to midwives, post-graduate nurses, and students at the Alexandra Hospital, Wellington, and is written in the form of classified notes, numbered wherever possible, and set out under clear headings. For those who learn easily from this type of summary the book should be invaluable, while others, who find their memory more effectively stimulated by a consecutive narrative, will think this a helpful volume when they come to revise their knowledge. To teachers of midwifery it offers a series of outlines from which more discursive lectures can be filled in.

The scope of the volume is indicated by its title. Dr. Corkill has discussed in detail the management of a normal case with the aseptic technique in labour and the puerperium which has been standardized throughout the New Zealand hospitals; he states, in his preface, that the adoption of this standard is producing practical results, in that puerperal sepsis (excluding abortion sepsis) is no longer the chief cause of maternal mortality in New Zealand. This finding suggests that we might do well to follow the lead of the Dominion in this country.

The clear printing and intelligent arrangement of the text deserve a special word of praise. Dr. Corkill has been at pains to preserve essentials and to prune away unnecessary verbosity; he has perhaps given a fuller account of the subject than the midwife will need in practice, but has been careful to delimit her responsibilities.

HEALTH FOR ALL

Popular medical journalism has, we are informed, come to stay. Already it shows signs of monopolizing the bookshelves of England's homes and the conversation of its railway carriages. The Press lords say the public wants it; Press lords are always right, and the public always gets what it wants.

In *Healthy Living*[5] Dr. T. F. Fox has scored a journalistic success in an extremely difficult branch of public instruction—namely, the provision, through the medium of the newspaper (in this case the *News Chronicle*), of a series of "health hints." The matutinal ebullitions of "Family Doctor," "Welfare Worker," "Old-fashioned Nurse," and sometimes of "Medical Correspondent," have often caused sensitive readers to recoil in horror from their particular daily paper. Not only does Dr. Fox fail to produce such a reaction; he even makes us feel that popuar medical journalism is a Good Thing, and that there ought to be more of it. He brings touches of humour and originality to a subject which, in English newspapers at any rate, has been worn very bare. He maintains throughout a clear and simple style and a standard of advice which is both sound and readable. There is no "sob-brother" treatment of the family at the seaside—overeating itself, getting bather's cramp, subungual sand, and heatstroke, and being stung by jellyfish. There is no sentimental rubbish about child welfare—about "rompers," "baby's diet," and "burgeoning womanhood." Nor, we are glad to note, are catarrhal diseases described as "passing like a wave through offices and homes." Dr. Fox knows how to write, and what to write about.

The book covers the usual range of subjects—colds, corns, halitosis, diet, varicose veins, fainting, fits, insomnia, caries, sea-sickness, chilblains, convalescence, hiccups, and sprained ankle, etc. There are excellent warnings under the headings of "Appendicitis" and "Tuberculosis," and of the more thoughtful essays those on "The uses of pain," "Drugs and medicine" and "The virtues of milk" are to be recommended. "Drink more water," another hardy annual, is also well done. If any criticism can be levelled against this book it must be in respect of the arrangement of the subject-matter—

[3] *Les Fonctions Gastro-Duodénales.* Par J. Dumitresco-Popovici. Moyens d'Exploration. Préface du Prfesseur Raymond Paris: Masson et Cie. 1932. (Pp. 250; 28 fr.)

[4] *Lectures on Midwifery and Infant Care.* By T. F. Corkill, M.C., M.D., M.R.C.P. Auckland, New Zealand: Coulls Somerville Wilkie Ltd. 1932. (Pp. 417. 12s. 6d. net.)

[5] *Healthy Living, or Good Advice for Your Friends.* By T. F. Fox, M.A., B.Chir., M.R.C.S. With a foreword by Lord Dawson of Penn. London: Martin Hopkinson, Ltd. 1933. (Pp. 125. 1s. 6d. net.)

admittedly a small point The seeker after knowledge is led abruptly from exercise to Xmas feeding, from fasting to headache, from grit in the eye to bank holidays, from asthma to road accidents, and from blood pressure to heresies about hair Perhaps this might have been avoided

Notes on Books

Dr C PRICE JONES originally published his well known *Blood Pictures An Introduction to Clinical Haematology*[6] in 1917, a second edition appeared in 1920, and now, with this long experience, he has brought this handbook up to date The general arrangement remains the same, but newly described forms of disease, such as microcytic anaemia and agranulo leucocytosis, have been introduced The chapter on the measurement of the size of the red blood cells is now illustrated by the curves, with which the author's name is rightly associated, in health, in pernicious anaemia and in microcytic anaemia The coloured plates are admirable, and contain representations of all the normal and abnormal cells met with in the blood stream

The psychology of the offender is being intensively investigated these days, and useful data are being accumulated by many institutions and persons An inevitable drawback to this accumulation of attention is that the subject is apt to become dehumanized The offender is only too easily regarded as a 'case' or as an illustration of psychopathic tendencies, and too little as a living person Doctors and laymen who are really interested in this most heartrending of all problems will be refreshed by a little book called *Psychology in Court* The author prefers simply to call himself "A Doctor," and 'A Solicitor" has written a foreword Some of our readers may penetrate the author's disguise and recognize the vivid style of an old friend, an energetic and warm hearted observer of men As he points out, the county courts and police courts supply ample material for study Workmen's compensation a formidable subject even to those with a special interest in it, is alive with problems He covers a wide field of reflection, and his observations on nystagmus and mental deficiency, medical expert witnesses, and the mental injury which can be done by wrong handling in court all point to the same conclusion, that what is chiefly needed is more understanding of the point of view of the litigant in the county court and of the defendant in the police court The average person who comes before the magistrates is poor, not only in pocket but in nearly everything else, and, being poor, he is weak and defenceless, he does not known how to present his case, and quite often it is never presented Undoubtedly the psychologist is needed at petty sessions just as he is in most other walks of life His work has been done with great devotion and considerable success by probation officers, court missionaries, and voluntary helpers, chiefly with a religious motive These workers should now be supported by others with scientific training

A number of the *Researches*[8] published from the wards and laboratories of the London Hospital during 1932 have been reprinted in a bound volume The selecting and reissue of these has been, as in previous years, undertaken by the Publications Committee of that institution, rendering it possible for an estimate to be made of the way in which the progress of scientific knowledge is being furthered there The articles relate mainly to pathological and physiological topics, but there are several which deal practically with problems of diagnosis and treatment

Fuso spirochaetal Disease,[9] which forms the subject of a monograph by Dr D T SMITH of Duke University, U S A, is not a conception which is current in this country To be sure, the constant presence of spirochaetes and fusiform bacilli in the ulcerative type of angina associated with the name of Vincent is well recognized, and possibly the presence of these organisms in foul smelling empyemata and lung abscesses has been observed from time to time, but it is doubtful whether any serious aetiological importance is attributed to them The author's opinion would seem to be that the mouth spirochaetes, together with fusiform bacilli, cocci, and vibrios —all buccal inhabitants—are responsible for a long list of pathological states Vincent's angina pyorrhoea gingivitis, various broncho pulmonary conditions noma appendicitis, tropical ulcer and hospital gangrene to cite some of them He admits that other factors, such as dietetic deficiencies more particularly a deficiency of vitamin C are necessary to set in train these disease states Dr Smith's thesis rests mainly on the presence of the four types of bacteria in these various conditions and the success which sometimes attends the administration of organic arsenicals the attempts to reproduce experimentally these different clinical pictures which the author mentions are not very convincing

The second volume of *The Nature of Disease Journal*[10] by Mr J E R MCDONAGH has now been published (the first volume appeared in June, 1932) The present number deals with arterial degeneration, shock, and infections from within

The *Collected Papers*[11] emanating from the Middlesex Hospital Medical School in 1931 2 have been issued in a special folder They are classified under the headings of clinical (nine articles), radiological (four articles), and physiology and biochemistry (fifteen articles) Reference to them is thus facilitated These papers were previously published in a variety of medical periodicals and are here brought together in a convenient form under the auspices of the Cancer and General Research Committee of that institution

Preparations and Appliances

MILK FOR ALLERGIC CHILDREN

Allergilac (Cow and Gate Ltd Guildford) is a powder preparation of cow's milk devised for use by allergic infants who have become sensitized to the proteins of cow's milk The lactalbumin of milk is the commonest cause of symptoms, and in addition allergic children often have a pronounced deficiency in their power to secrete acid and hence cannot digest cow's milk which has a high buffer value Allergilac is prepared by first heating the milk which coagulates much of the lactalbumin and denatures the casein In addition sufficient lactic acid is added to bring the *p*H to 6 0 The preparation was originally made for the Great Ormond Street Children's Hospital and it represents an interesting advance in the difficult problem of feeding allergic infants

LIQUID EXTRACT OF HOG STOMACH

Hogastrin (Messrs Giles Schacht and Co Clifton Bristol) is a concentrated extract of hog's stomach in liquid form The extract is prepared from the maws of freshly killed hogs and the makers claim that this use of fresh material results in an extract of unusual activity The extract has been tested clinically with favourable results in cases of pernicious anaemia The difficulties associated with liver feeding in this disease are well known and have led to an increasing popularity of the alternative method of treatment by administration of dried stomach or of stomach extracts This extract has the advantages that it is highly active and quite palatable The price is 20s for a bottle of 16 fluid ounces and a daily dose of 2 fluid drachms is equivalent to an ounce of fresh stomach The cost of treatment is therefore quite reasonable.

[6] *Blood Pictures An Introduction to Clinical Haematology* By Cecil Price Jones M B Third edition Bristol John Wright and Sons, Ltd 1933 (Pp 72, 5 coloured plates, 7 figures 6s 6d net)

[7] *Psychology in Court* By A Doctor London Williams and Norgate Ltd 1933 (Pp 131 5s net)

[8] *Researches Published from the Wards and Laboratories of the London Hospital during 1932* London H K Lewis and Co, Ltd

[9] *Oral Spirochaetes and Related Organisms in Fuso-spirochaetal Disease* By D T Smith M B M D London Bailliere Tindall and Cox (Pp xii + 243 83 figures 7s 6d)

[10] London William Heinemann (Medical Books) Ltd 1933 (7s 6d net postage 6d extra)

[11] The Middlesex Hospital Medical School *Collected Papers*, 1931–2

BEIT MEMORIAL TRUST FOR MEDICAL RESEARCH

A meeting of the Trustees of the Beit Memorial Fellowships for Medical Research was held on July 11th for the election of Fellows and other business. The annual report for 1932–3, which was adopted by the Trustees, states that Fellowships during the year were held by twenty-five workers, this number including one special Fellowship of £1,000 in tropical medicine. The sudden death of Dr. N. U. Meldrum at the age of 25 cut short a career of much promise in biochemical research, and his loss is deeply regretted by all who knew his powers and his great eagerness for work. Among the distinctions gained last year by past Beit Fellows the Trustees record the election of Dr. A. S. Parkes to the Fellowship of the Royal Society, he being the fifth who has now received that honour. Professor D. T. Harris has been appointed to the chair of physiology at the London Hospital, and Professor I. de Burgh Daly to the chair of physiology in Edinburgh University. Dr. G. F. Marrian was awarded the W. J. Mickle Fellowship of the University of London for 1932, in sequence to another Beit Fellow, Dr. P. Eggleton, in 1931.

POLICY OF THE TRUSTEES

The deed creating the Beit Memorial Trust in 1909 gave the Trustees power after the expiration of twenty years to alter in some respects the regulations for award of Fellowships, and they have now resolved to exercise that power in one important direction.

The opportunities for medical research have altered greatly since the Trust was established. In 1909 there were in England only a few studentships, such as that of the Grocers' Company, which would enable a man who had no independent means to turn aside for some years from routine duties and attempt research in medicine or its allied sciences. The single gift of Sir Otto Beit, with its annual income of £11,000, straightway added thirty junior fellowships to the number. This benefaction a few years after Lord Iveagh's gift of £250,000 for the building and endowment of the Lister Institute marked the beginning of the great stream that now gives such enrichment of the opportunities for scientific medicine in England. Government help soon followed on an even greater scale, providing through the Medical Research Committee in 1914 and through the clinical units created by the Board of Education in 1919 an annual revenue now approaching £180,000 a year, of which a not inconsiderable part is used for maintaining junior men in research. It is therefore less difficult than it used to be for a young man of true ability to find an entrance to such work. But results of lasting value are rarely won in the apprentice years of investigation. The long devotion of a lifetime is often needed, and that cannot be expected unless to the ablest of the juniors a path is opened to senior posts where research may still be the chief pursuit. It is in this direction that the Beit Trustees believe they may now properly consider some change of policy in the administration of their trust.

The principle originally adopted was to choose men whose early performance in an academic career gave promise of powers for research. No attempt was ever made to influence Fellows to form a team for concentration on any given problem of research. Indeed, it is plain that any such attempt would have little momentum now in comparison with the sustained support and large financial aid that the Medical Research Council can give to such enterprises. The Trustees have sought no more than to ensure that these Junior Fellows should be well trained and that their ambition should be centred on the advance of medicine by research. The average achievement has been high, and many of the past Fellows, men and women, are now found to be strengthening laboratories at home or abroad in physiology, pathology, biochemistry, or zoology. Out of the total of 102 men who have completed the tenure of a Fellowship since the first election in 1910, twenty-two have received full professorships in various universities.

A PROFESSORIAL FELLOWSHIP

The men who worked in the subjects ancillary to medicine have easily found places in which they could continue for life a career of research combined with teaching. Pathology and physiology have their endowed posts. But it has been difficult for a man to remain in clinical research after the relatively short tenure of a Beit Fellowship. There was scant hope in this direction of any reasonably paid appointment in maturer life, and sooner or later he would have to pass either into the general diagnostic work of consulting practice or to a laboratory life remote from immediate contact with patients. Yet experience has shown unmistakably that medicine may look for practical advances at least as soon from those engaged in clinical research as from the pure laboratory worker. It is no disadvantage that the research worker should bear responsibility for the treatment of the sick ; their needs will concentrate his thoughts upon urgent problems of disease. Only it is essential that his mind should focus all his energies upon the chosen problem, and that it should be spared the dissipation of effort in the countless directions of clinical experience which on the other hand form the best training for the good diagnostician. Medicine has thus gained greatly from the sustained researches of Sir Thomas Lewis on disorders of the heart and of Professor E. Mellanby on rickets. Both these men were elected together as Junior Beit Fellows in the very first election of 1910. But the opportunities to continue to full fruition the work they had chosen came later through the policy deliberately adopted by the Medical Research Council that all possible assistance should be given to some senior men for the prosecution of research bearing directly on clinical problems. The Council has maintained one full-time senior post for such clinical research since 1916, providing a position equivalent to that of a university professor with assistants and laboratory facilities but also with direct control of a number of hospital beds where studies could be made of some chosen form of disease. This was the position which gave Sir Thomas Lewis his needed opportunity. Last year the Rockefeller Foundation gave permanent endowment of the post at University College Hospital and so enabled the Council to create a second post elsewhere. The Beit Trustees have now resolved to add a third by creating a Professorial Fellowship which may be held at some medical centre in Great Britain where adequate facilities for work can be provided. This Professorial Fellowship will be of tenure similar to that of a university chair, and the salary will absorb those of four or even five Junior Fellowships. It will not be required that the holder of the post shall have previously been elected to an ordinary Beit Fellowship. The present announcement of policy will not be followed immediately by an appointment to the post.

ELECTION OF NEW FELLOWS

The following elections to Fellowships were made by the Trustees:

Senior Fellowship (value £700 per annum).—Cuthbert Leslie Cope, D.M., M.R.C.P. To continue his work on the excretion of non-threshold substances and of sugars in nephritis. Place of research: Medical Unit, St. Thomas's Hospital.

Fourth Year Fellowships (value £500 per annum).—John McMichael, M.B., M.R.C.P. To continue his researches on enlargement of the spleen in human disease and its relationship to diseases of the liver. (Medical Unit, University College Hospital, London.) John Norman Myers, M.D., Ph.D. To continue his work on biochemical changes in hearts of guinea-pigs poisoned by diphtheria toxin and also on the production of active immunity through the slow absorption of all emulsions of bacterial toxins. (Pharmacological Laboratory, University of Cambridge.) Charles Amos Ashford, M.A., Ph.D. To continue his studies of the utilization of carbohydrate by brain tissue. (Dunn Institute of Biochemistry, University of Cambridge.) Frederick Horace Smirk, M.D., M.R.C.P. To continue his studies on water diuresis and the formation of oedema fluid, and to develop

his urinary test for early renal damage in man (Medical Unit University College Hospital)

Junior Fellowships (value £400 per annum).—Arthur Sproul McFarlane M.B., M.A. Biochemist to the Glasgow Royal Cancer Hospital. Proposed research: Physico-chemical nature of protein solutions and of suspensions of bacteria by measurement of the light-scattering capacity and of the sedimentation velocity in the field of the ultracentrifuge (Institute for Physical Chemistry, The University, Upsala, Sweden.) Eric Stephen Horning, D.Sc., B.A. Cytologist to Cancer Research Committee, University of Sydney, N.S.W. Proposed research: To investigate by micro-incineration the relative distribution of the inorganic radicles of normal and tumour cells that have been exposed to various types of radiation. (Laboratory of the Imperial Cancer Research Fund, London.) William John Dann, B.Sc., Ph.D. Grocers' Research Scholar. Proposed research: The transmission of food vitamins by milk and the placenta, and the possible function of ascorbic acid (vitamin C) in oxidation mechanisms of the cell. (Nutritional Laboratory, University of Cambridge.) Brian Gilmore Maegraith, M.B., B.Sc. Proposed research: Methods of diagnosis and treatment of cerebro-spinal meningitis. (Dunn School of Pathology, University of Oxford.) Philip Jocelyn George Mann, B.Sc. Proposed research: Functions of peroxidase as being chiefly an anabolic enzyme, and the action of vitamin B as a possible co-enzyme of the lactic dehydrogenase system. (Dunn Institute of Biochemistry, University of Cambridge.) Maurice Stacey, B.Sc., Ph.D. Demonstrator in Chemistry, University of Birmingham, 1929–32. Proposed research: Investigation of carbohydrates yielded in the growth of moulds and of bacteria. (Department of Biochemistry, London School of Hygiene and Tropical Medicine.) Arthur Henry Hughes, B.A. Research Student, Department of Colloid Science, Cambridge. Proposed research: Reactions in surface films of molecules of biological importance, dealing in particular with haemoglobin and the enzymes responsible for snake-venom haemolysis. (Department of Colloid Science, University of Cambridge.) Alison Sarah Dale, B.A. George Henry Lewis student. Proposed research: Processes underlying the staircase phenomenon in amphibian and mammalian hearts. (Pharmacological Laboratory, University of Edinburgh.)

All correspondence of Fellows and candidates should be addressed to Professor T. R. Elliott, M.D., F.R.S., honorary secretary, Beit Memorial Fellowships, University College Hospital Medical School, University Street, W.C.1.

OXYGEN ON THE EVEREST FLIGHT

BY

L. V. S. BLACKER

CHIEF OBSERVER

It was quite clear that no flight over the mountains could possibly be carried out unless the pilot and the observer were provided with a supply of oxygen which was both adequate and reliable. It was further quite certain that no human lungs could stand the strain of going without the assistance of oxygen, and, moreover, that if the oxygen were suddenly to fail for any reason at any height over 25,000 ft. a disaster of the first magnitude would almost certainly ensue, because the pilot would lose consciousness and the aeroplane go out of control. Should such a failure take place during an ordinary high flight or, for instance, on an attempt on the height record carried out over low-lying country, there would be a very good chance that the pilot could tear off his mask and regain consciousness after the machine had, by itself, dived or spun down to lower levels. Over high mountains the machine would hit the cliffs or the crags and destroy itself long before the pilot could possibly regain consciousness and control. Even should he escape this disaster, a shortage of oxygen brings the insidious dangers consequent on dulling of perception and judgement, and loss of muscular strength, in themselves dangers not to be ignored.

Fortunately, one of the first of the facilities which had been so generously placed by the Air Ministry at the disposal of the expedition included access to the experience and resources of the Royal Aircraft Establishment. The advice of the scientists was definite and unswerving. Oxygen should be inhaled, from the ground level up, in a tiny but progressively increasing trickle until a maximum flow was reached at 35,000 ft. It is obvious that, at heights of about 30,000 ft., however much oxygen may be given (at any rate, applied through a mask in the ordinary way) this cannot be inspired at a pressure greater than the atmospheric pressure, which is, at that height, roughly only a fifth of the normal. Hence, even a full ration of oxygen will, above 30,000 ft. leave the aviator slightly breathless, especially if he has any work to do—a breathlessness which becomes somewhat pronounced when the 35,000 or the 40,000 foot mark is passed.

The personnel of the Houston flight were tested in the great steel chamber of the Royal Aircraft Establishment. Thanks to the comparative youth combined with the virtuous pasts of those who were to be pilots and observers, all passed through this test with credit and satisfied the scientific examiners in such recondite matters as pulse beats and blood pressure.

PREPARATIONS FOR THE FLIGHT

To hark back to the preparations of early 1932, there at once loomed the question of the steel cylinders in which the gas was to be carried. Few, if any, flights previously made had necessitated keeping the aviators through as long a period as two hours as this did, at something like 32,000 ft. Hence a large amount of oxygen was necessary, especially as the rate called for at the top end of the climb was just over ten litres per man per minute. The weight of the cylinders to carry all this gas was an important factor in the loading of the aeroplane, and a factor which affected its ceiling very definitely. Fortunately, it was just about at this stage that Messrs. Vickers-Armstrong had succeeded in putting into production cylinders of a new type made of an alloy steel known as vibrac, and without these the flight would have been almost impracticable. The old type of cylinder, made of carbon steel, weighed twice as much as the vibrac cylinder, and was moreover, considerably less safe to handle, especially under conditions of exposure to very strong sunlight. Not only is the vibrac cylinder half the weight of the carbon steel equivalent but it possesses the additional advantage of not being liable to burst dangerously. For various reasons it was not possible to employ either oxygen generators, liquid oxygen or intramuscular injections of the gas.

Then came the question as to what quantity of gas should be carried, and here again the valuable experience and advice of the Royal Aircraft Establishment came to our aid. Should the machine fly comparatively low, and I then ascend at the last possible moment to the great height required to surmount Everest the amount of oxygen called for would be comparatively small. Other factors, however, were in the way of this course being adopted. If we were to fly as low as possible we would save on the oxygen and its weight and be able to carry more films for survey work; if on the other hand we flew high we should save on the photographic gear but consume much more oxygen and to boot take a slightly greater risk of oxygen failure. Both these variables had to be worked in to the performance of the engine and its supercharger, of which the rated altitude was 13,000 ft., that is to say it is at this altitude that this particular variety of Pegasus engine with its 7½ inch supercharger, does its best work in terms of fuel consumption, speed, and climb which are in turn dependent on propeller thrust. It will be seen that a great deal of calculation and the drawing of many graphs was necessary before a compromise could be arrived at which gave us the greatest efficiency. There was even a political factor in the question which was the necessity for crossing the frontier of Nepal at such a height that the uninstructed inhabitants of the outlying primitive districts, who had never seen an aeroplane before and probably not even ever heard of one, would not be unduly perturbed.

Finally, we found that we could carry four cylinders in each aeroplane, each of 750 litres capacity, which made a total of 3,000 in all, that is, 1,500 litres per person. The fourth cylinder was, it was decided, to be

simply a reserve for emergency only, not to be touched except in the case of any failure of the normal supply from the other cylinders; and to make this safeguard a reality all the piping and instruments of the oxygen were duplicated.

THE APPARATUS IN DETAIL

The oxygen cylinders, then, are carried in racks in the fuselages of the machine, and the gas is led through valves and high-pressure copper piping to a special oxygen instrument board in the pilot's and observer's cockpits respectively. First, it passes through a gauge which indicates the pressure in atmospheres in the cylinder—the initial pressure is 120 atmospheres, and the cylinders will be virtually empty when the pressure drops below thirty. From the pressure gauge the gas passes to the regulating valve—this incorporates also a safety-valve—of which the function is to reduce the pressure from 120 atmospheres (namely, 1,800 lb. per square inch) to that at which the aviator wishes to breathe it (namely, from about 20 to 60 lb. in the mask). The next stage takes it through the electrical heater, and thence to the flowmeter, the dial of which is graduated in tens of thousands of feet of altitude. The wider the handle of the regulating valve is turned the more gas passes through the flowmeter, and the greater is the height registered by its needle. The electric heater is a fitting of vital importance, and guards against the freezing in the tiny orifice of the regulating valve of any trace of moisture in the gas. Such a mishap would cause loss of consciousness in thirty-five seconds. In manufacture, however, the gas is dried until its water content comes down to the amazingly infinitesimal figure of 2.5 volumes of water vapour per million of oxygen. The aviator, therefore, needs only to adjust the regulating valve until the reading of the flowmeter corresponds to the reading of the altimeter of the aeroplane. To be more precise, he anticipates the reading of the altimeter and gives himself sufficient oxygen for 5,000 ft. as soon as he leaves the ground, increases this to the 10,000 ft. rate when he reaches 5,000, to the 15,000 when he reaches 10,000, and so on.

From the flowmeter the gas is ready to breathe, and passes to a bayonet joint mounted on the instrument board. The object of the bayonet joint is to enable the aviator to detach himself quickly from the aeroplane should he be under the painful necessity of executing a parachute jump. Into this is plugged a detachable T-socket, which can be easily pushed in or pulled out by the pilot or observer, as the case may be, being secured only by a quarter turn. To this is connected a flexible tubing, which carries the gas to the mask. Several sorts of tubing were tried, and eventually we used flexible metallic tubing. This answered excellently, except that on one occasion one of the observers broke his pipe by treading on it—a test it was scarcely designed to withstand.

The mask itself constituted one of the greater afflictions which had to be borne by the inhabitants of the high-flying aeroplane. Many were the adjustments of the straps and the refixing of them which bound the mask to the unfortunate aviator's helmet. The final solution of the problem called for a quadruplex arrangement of metallic springs covered with leather, sewn on to the back of the man's helmet immediately over the crown of his head. A fibre mask of the standard pattern was distinctly uncomfortable, and projected very far to the front, so that it caught up in everything, more especially in the cameras which the observer had to handle. In fact, it made it almost impossible for him to look through the ordinary viewfinder. An india-rubber experimental pattern produced by Messrs. Siebe Gorman themselves presented many advantages, however, and was tried with success in some of the later high flights. The mask fits over the lower part of the face, covers both nose, mouth, and chin, and is not, however, expected to be completely gastight. It possesses, in fact, a couple of air-holes, because the individual does not breathe pure oxygen on his way up to 30,000 ft., but oxygen mixed with a decreasing quantity of air, drawn by suction from the atmosphere, which comes in through these holes. It is these holes, also, which let out the expired gases. The whole arrangement is a trifle unscientific, because some of the oxygen is blown out and wasted in the act of breathing; and, moreover, we found it necessary to plug these holes with hastily extemporized corks when the 30,000 foot mark was passed, in order to ensure that the observer should get his fair ration of oxygen undiluted by what in those levels passes for an atmosphere.

In the front end of each mask is mounted the microphone of the intercommunication set, by which the observer and pilot can speak to each other. The presence of this was a troublesome necessity, because it lengthened the already excessive projection of the mask to the front. Yet again, the switch of the microphone had to be in such a position that it was apt to knock against the camera and so switch itself on, to the intense indignation of the pilot, whose ears were immediately filled with buzzings and cracklings.

FUTURE POSSIBILITIES

Thanks to the skill and experience, both of the experts of the Royal Aircraft Establishment and of Messrs. Siebe Gorman, the whole arrangement worked satisfactorily, and indeed very efficiently, but there is little doubt that oxygen gear will have to be redesigned before high altitude flights of long duration, involving real mental and physical work on the part of the personnel, can come to be regarded as an everyday proposition. For as an everyday proposition such flights will certainly come to pass. One foresees air survey carried out at great heights of 30,000 ft. and over, with 36 square miles mapped, or possibly much more, by each exposure of the camera. This calls for an everyday routine use of oxygen. Then again, long-distance air liners will, before many years have passed, fly in the fringes of the stratosphere at 30,000 and even 35,000 ft., in fact as high as the walls of the arteries of their passengers can comfortably stand. Everything points towards this; the aeroplane itself, whether with fixed wings or of the autogyro type, is a far better machine at a greater height, and flies more easily through the air, with less "drag" or parasitic resistance. The splendid engines of to-day can be supercharged to such a degree that there will be little loss of power in the rarefied air six miles up. One factor is yet lacking—the variable-pitch propeller. When this comes we shall find that aeroplanes, having landing speeds of very moderate order, will be able to fly not slower but faster as they get up to the great heights, so that machines which can take off at forty or fifty will be able to fly at 300 or 400 miles an hour in the long-distance inter-Continental air lines of a very few years to come.

It is quite easy to see how this power given to the captain of choosing his own height level will enable him, more often than not, to find a favourable wind, where the low-flying pilot of to-day is frequently delayed and held up. Before that can come to pass, however, designers must turn their attention to hermetically sealed passenger cabins, provided with carefully thought-out supplies of oxygen, with chemical means of absorbing the exhalations from the lungs, and even with means of maintaining a slight positive pressure inside these closed cabins. The possibilities of the future are of a nature which astonish one at one's own moderation in sketching them out.

The annual report of the Victoria Hospital for Children, Tite Street, Chelsea, records an increase in 1932 in the average number of beds occupied—namely, 102.2, as compared with 96.95 in 1931, and a reduction in the average total weekly cost per patient of 6s. 8d. Two new special departments have come into being—namely, an ear, nose, and throat department, and one for orthopaedics. The number of patients benefiting by the private wards has increased each year. In spite of special efforts to economize in all directions, there was an adverse balance on the year of just over £400, part of which was in respect of the Victoria Convalescent Home at Broadstairs.

British Medical Journal

SATURDAY, JULY 22nd, 1933

HAEMOLYTIC ANAEMIA IN EARLY LIFE

Professor Leonard Parsons and his co-workers at the Children's Hospital, Birmingham, are publishing a series of papers in the *Archives of Disease in Childhood*,[1] entitled "Studies in the Anaemias of Infancy and Early Childhood"; and in the current issue, for June, they reach the subject of haemolytic anaemia in early life. In dealing with this difficult and rather confused group of anaemias they rightly pay considerable attention to questions of nomenclature and classification. They are dissatisfied with the use of the word "haemolytic" as a group name in anaemia, on the ground that it lays too much stress on the process of destruction of the red cells in the circulating blood (haemolysis) to the apparent neglect of the harm that may be accruing to the haemopoietic centres. Adopting Boycott's term "erythron," which has proved so useful in connoting the tissue made up of the circulating red cells and the cells in the marrow and elsewhere from which they arise, it is suggested that the term "erythronoclastic" might well be substituted for "haemolytic." In their classification the authors divide the erythronoclastic anaemias of early life into two main groups: those occurring in the neo-natal period (*the first four weeks of life*), and those developing in later infancy and childhood. In the first group they describe, in the early part of the neo-natal period, anaemia of this type associated with hydrops foetalis, with icterus, or unaccompanied by either of these conditions. Of these the form with icterus gravis, sometimes familial, is the commonest, and has been most studied. Later in the neo-natal period a similar anaemia may also occur without oedema or icterus, and certain of such cases may develop a clinical picture resembling that of the anaemia of von Jaksch.

The erythronoclastic anaemias of later infancy and childhood are described as falling into four groups: acute (Lederer type); subacute; subchronic (von Jaksch syndrome); and acholuric jaundice. In any of these, but most of all in the more severe acute cases, there may be indications that the morbid process affecting the erythron is also acting on the thrombocyte or myeloid leucocyte systems. Out of much that is of value in the careful clinical and pathological studies of these disorders which are presented by the authors, perhaps most interest will be attached to their series of nine examples of the most acute variety, and to their views on the so-called von Jaksch's anaemia. In 1925 M. Lederer described "a form of acute haemolytic anaemia probably of infectious origin," and in 1930 he published further examples, bringing his total number of cases up to six, of which half had occurred in children aged 3 years or less. In 1931 Professor Parsons described independently four cases which Lederer recognized as of the same type as his own, and the present study of the condition is based on the experience of nine examples. The disease develops with dramatic suddenness, itself suggestive, in the absence of obvious bleeding, of acute haemolysis; and the extreme pallor of the child is found to be due to a severe anaemia of the hyperchromic type, with evidence as a rule of much damage to the marrow. So severe is the haemolysis that jaundice and even haemoglobinuria may be present. From their experience at Birmingham the authors lay great stress on the value of blood transfusions in tiding the child over the critical onset, and insist that they should be given early, and repeated if necessary. Out of their nine cases eight recovered, sometimes rapidly, but in other instances through a period of nutritional anaemia requiring iron therapy for complete restoration to health. As regards the causation of this form of anaemia the authors declare themselves baffled: it could well be explained on Lederer's hypothesis of an infectious process, but they have found no constant evidence to support this view.

Among the blood diseases of early life there is perhaps none more mysterious than von Jaksch's anaemia. Obscure in its causation and confused in its definition, the one thing certain about it is that it has become progressively rarer in this country during the last twenty years, although, characteristically enough, the cause of its diminished frequency is an added mystery. It is doubtless true that all authorities do not agree in what they describe as von Jaksch's anaemia, and it is reasonably clear that what now goes by his name in this country is not exactly the condition described by von Jaksch in 1889. For these reasons it is probable that many will agree with Professor Parsons's suggestions that the term "von Jaksch's anaemia" would be better dropped, though it may be hard to foretell which will die out first—the disease or its title. In this state of affairs it is hardly to be supposed that an aetiological hypothesis can be evolved at present which will be generally accepted: but in the work under review the authors, accepting J. H. Thursfield's description of the disease as their standard, put forward the view that this type of anaemia should be included in the erythronoclastic group, the process being of long duration, but ultimately ceasing. For the evidence on which this view is based the reader must be referred to the original communication.

[1] *Archives of Disease in Childhood*. Issued by the British Medical Association. Yearly subscription (six numbers), 25s.; single number, 4s. 6d.

TWENTY-ONE YEARS OF NATIONAL HEALTH INSURANCE

The luncheon which was arranged for July 17th in celebration of the twenty-first anniversary of the coming into force of the first National Health Insurance Act, and of which a full report appears in our *Supplement* this week at p. 43, was a distinct success. The Minister of Health, Sir Hilton Young, was in the chair, and there was as complete an attendance as was possible of those who were associated with the inception and the earliest stages of the National Health Insurance system: indeed, the presence of some of those seated at the "top table" must have been a reminder to many of facts and incidents which they had almost completely forgotten. It was a pleasure, for instance, to notice how appreciative the audience was of a reference to the services of Mr. W. J. Braithwaite—services much less often called to mind than they should be. We need hardly say that the most outstanding of the missing figures—the late Mr. Masterman and, above all, the late Sir Robert Morant—were in the memory of all. Mr. Stanley Duff made some careful remarks in proposing the health of the chairman, but the speeches were properly restricted to that of Sir Hilton Young in proposing "National Health Insurance" and that of Mr. Lloyd George in reply. Neither could have been bettered.

Mr. Lloyd George has lost none of his charm as an orator, and his speech was indeed delightful, both in matter and in manner. He was fully entitled to his pleasant hits at old colleagues and his cheerful triumphs over old opponents. No one could fail to see in him the intrepid pioneer of a great idea who had by his zeal and persistence brought it into practical effect—albeit with a few major mistakes and many minor imperfections—to the lasting relief and benefit of millions of citizens. "No scheme," as he said, "was ever more needed or ever less wanted" at the time of its enactment. This is true with regard to the medical profession as well as to the general public. And if it is certain, as Mr. Lloyd George was justified in claiming on Monday, that the medical profession would not now wish or consent to go back to the old "club days," this is in large part due to the efforts of the profession itself whose help in moulding the National Health Insurance scheme into an acceptable form has now at long last been handsomely acknowledged by its author.

Among the most interesting and significant features of this commemoration are the notices and comments which have appeared in the public press, both before and afterwards. Some of them have been quite unexpected, almost astonishing. Those by the medical correspondent of the *Times* are particularly welcome. A re-reading of old articles and reports of speeches reveals, as well as some really statesmanlike utterances, an immense bitterness and verbal extravagance which, happily, as Mr. Lloyd George said, evaporate from a healthy mind. In contrast, to-day, whatever imperfections are noted, it is recognized and proclaimed that the scheme is, in general, working well; is evoking more and more co-operation rather than the old mutual antagonism among the groups concerned with its success; and is achieving at least some of the chief ends which it set out to attain. Yet complacency is the last thing that is needed. The limitations of the National Health Insurance scheme are notorious; its machinery is still vastly complex; its objects as a public health service on the one hand and a scheme for the economic relief of the necessitous on the other are not harmoniously blended; it has features which are at least conducive to large financial waste, and others which are still not free from the danger of untoward psychological effects, both on the profession and on the insured population. Though at a twenty-first birthday party it is proper that emphasis should be laid on all the good that has been done and on the attainment of a healthy manhood, the years to come may be made even more fruitful by a careful consideration of such major questions as those which have been recently asked by Sir Henry Brackenbury (see *Supplement*, July 15th, p. 25) as well as by a removal of those minor grievances and discontents to which the attention of the Ministry of Health has still to be called from time to time by the Insurance Acts Committee and others.

CONSULTANTS AND THE L.C.C.

The attention of consultants and specialists in London is drawn to the correspondence, published in this week's *Supplement*, which has passed between the Council of the British Medical Association and the Central Public Health Committee of the London County Council between April 13th and July 7th. Those who are unfamiliar with the controversy between the L.C.C. and the consultants are referred to earlier issues of the *British Medical Journal*. Briefly, it was felt that the way in which the L.C.C. set about reorganizing the consultant and specialist services of the Council's hospitals without seeking the co-operation of that section of the medical profession it intended to employ was not such as would be in the best interests of the service. Objections were also raised to certain of the actual terms and conditions of service. As an *impasse* had been reached in the negotiations between the L.C.C. and the consultants (through the medium of the Metropolitan Counties Branch of the B.M.A.), it was decided in April that four members of the Council of the B.M.A. should represent the consultants in further conference and communication with the L.C.C. The result can be seen in the published correspondence. The Council's representatives have failed to advance matters as far as had been wished. The final letter from the L.C.C., dated July 7th, is a statement that the L.C.C. does not intend to afford that frank and free discussion which the consultants and the Council of the B.M.A. consider to be necessary before any final decision is reached on the constitution of an important branch of medical service in London. In this the L.C.C. has ignored both the wishes and the example of the Ministry of Health. Further, it is interesting to observe that in the letter from the L.C.C. dated June 23rd a great deal of attention is given to Section 13 of the Act, and that appreciative reference is made to the London Voluntary

Hospitals Committee. So far as we know the Central Public Health Committee has made no attempt to consult this committee on the matters in question, in spite of the public statement made by the chairman and secretary that the London Voluntary Hospitals Committee was willing to act as mediator. There seems no advantage in the "wide interpretation . . . placed on the Section by the Council" if no attempt is made to apply it; but the implied obligation is noted. At this juncture we think that it is well for the consultants of London to take stock of their position as a section of the medical profession which has been reluctant to organize itself so that it may have a medium for the expression of collective opinion on matters which affect them collectively, and a machinery for taking action in accordance with their wishes. In the present controversy some consultants have criticized the B.M.A. for some of its actions in the earlier stages. Such criticism is of course always possible and sometimes helpful, but it comes more legitimately from those who had previously taken their full share of responsibility. The consultants of London ought to exercise a powerful influence through the Metropolitan Counties Branch of the B.M.A.; and if at the onset of the dispute they had been more fully organized and represented, they could have gained far more ground than they have done. Nevertheless, without any wish to score debating points, something has been secured, and the L.C.C. has taken the advice of senior members of the profession in the selection of candidates for part-time posts at the L.C.C. hospitals. The consultants of London may have been led to realize that such disputes as the present are apt to involve very wide issues and that they should have some method of achieving early and co-ordinated action. If the consultants at any time express a wish that the Council of the B.M.A. should take further action in such matters on their behalf the Council will certainly be willing to accede to their request.

WELFARE OF THE BLIND

The report, for 1931–2,[1] of the Advisory Committee on the Welfare of the Blind to the Minister of Health might well be taken as an example of the danger of uncorrected figures. It would be easy to cite some of the figures in this report so as to give an impression that blindness was increasing in this country with great rapidity. In 1919 the blind register totalled 25,940—a ratio of one blind person to every 1,451 of the general population. In 1932 the register totalled 62,079 and the ratio was 1 to 640. Such figures as these, especially when we remember the advances in the care of sight and the prevention of disease, are startling, and the report explains the apparent contradiction. The increase in the blind population has been mainly in the number of blind persons over 50 years of age. The increase in the group accounts for 98 per cent. of the whole. The age group up to 21 shows a considerable decrease, the figure for the one year showed a lessening of 440. These figures confirm the view that the measures taken by public health and school medical authorities for the prevention of infantile blindness and for the preservation of the sight of school children are having increasing effect in restricting the number of blind persons who become blind in early life. The increase in the total roll of the blind probably does not indicate an actual increase, but a greater disclosure of existing blindness previously unknown. There are now substantial benefits available for the blind and every inducement for these to register and so take advantage of them. These advantages can be shown in the extent of the expenditure on the blind by national and local funds. The blind pension for those over 50 years is provided by the Exchequer. In 1921 there were 7,826 pensioners, in 1932 there were 21,057, at a cost of £525,000. At the present time no less than 87 per cent. of those in the pension age group take advantage of the provision. The local authorities spent in 1930–1 no less than £778,339, nearly double the sum of the previous year. But this increase is largely one of book-keeping, owing to the altered arrangements for the transfer of contributions from the Exchequer. The facts set out above point to the great importance of the proper certification of blindness. In 1930 the Minister circularized local authorities on the desirability of making arrangements for securing that before a person's name is added to the register he is examined by a medical practitioner with special experience in ophthalmology, and by him certified to be blind within the meaning of the Blind Persons Act. Many local authorities have already taken the necessary steps to secure such proper certification. Certain inquiries have been set on foot. Despite the decline in the number of blind under the age of 5 years, it is thought that further details of the causes of the blindness in this group might lead to suitable preventive measures to obtain a further reduction of blindness in infants. Hereditary blindness is also being inquired into, so that there may be some better basis on which to advise blind persons who are uncertain whether they may safely marry and have children. Further, it is thought that some special institutional provision should be made for two classes of blind persons: those blind and mentally defective over the age of 16 years; and those who, besides being blind, are deaf. Of the latter there are no fewer than 2,803, of whom 688 are so deaf as to need a deaf-and-dumb interpreter. In both these classes maintenance and oversight is beyond the capacity of the ordinary family, and they are not readily received in voluntary institutions.

[1] Tenth Annual Report of the Advisory Committee on the Welfare of the Blind, 1931–2. London: H.M. Stationery Office. 1933. (6d. net.)

PREVENTION OF TUBERCULOSIS

In the annual report for 1932 of the council of the National Association for the Prevention of Tuberculosis attention is called to the publication of the conclusions reached as a result of the Tyneside inquiry, a summary of which was published in the *British Medical Journal* of June 10th (p. 1018). Poverty was indicated as a cause of tuberculosis, which in many cases seemed to be paramount, but under-nutrition due to an inadequate and improperly balanced diet was also concerned as a secondary factor. The hope is expressed that intensive investigations of a similar kind may be initiated in other parts of the country, with special reference to the detection of the varying local circumstances which may be concerned in the incidence of tuberculosis. A new edition has been prepared of the *Handbook on Tuberculosis Schemes*: this gives in convenient form a survey of the official machinery in this country for combating

tuberculosis. Propaganda work has suffered in the last few years owing to the demand for economy, but the council stresses in its report the smallness of the actual cost in money of an intensive series of educational meetings, as conducted by the National Association, and the great degree of public interest which can thus be aroused. By the expenditure of a few pounds, chiefly in advertising, an adequate popular course of instruction can be conducted. Education of this kind is also being promoted by means of the facilities presented by such groups and societies as teachers' training colleges, Toc H branches, Red Cross and St. John detachments, and women's institutes. It is announced that the sales and distribution of leaflets and pamphlets have much increased during the year under review, and new editions are being issued from time to time. Care committees for patients are increasing in number, and many are definitely affiliated to the National Association, gaining thus certain definite advantages. Two charts in the 1932 report show the death rate from tuberculosis in quinquennial periods for England and Wales from 1861 to 1931, and for Scotland from 1871 to 1931. Four other charts indicate the comparative death rates from tuberculosis in administrative areas throughout Great Britain for 1931. The sanatorium colony at Burrow Hill has continued to combine successfully the treatment and technical education of youths in the age period 14 to 19. Although temperamental or educational handicaps as well as physical incapacity prevent about two in three from completing the full course of training, the after-results in those who are able to continue to the end remain surprisingly good, settled employment having been found for two-thirds of them, in spite of the depressed state of the labour market.

ENTERIC IN SOUTH AFRICA

That typhoid fever is still an ever-present danger to the community in South Africa is evident from the fact that the Northern Transvaal Branch of the Medical Association of South Africa thought it desirable to hold a symposium at Pretoria in March last in order to discuss the various aspects of the disease. The symposium is reported in the *South African Medical Journal* of May 13th, and from it we learn that, while typhoid presents on the whole the same natural history in South Africa as in Europe, the medical officer of health in South Africa is confronted with three formidable obstacles in his campaign against the disease, two of which, at any rate, are not encountered by his professional brother in England. These are: the absence of any system of local government in most rural districts; the frequency of typhoid and of carriers among the natives, who are difficult to control from the preventive point of view; and the plague of flies. In most of the country districts there is a complete absence of any sanitation worthy of the name: this defect can be remedied only by the education of the governing classes in matters of public health. The natives and the flies present special problems. Dr. Laing lays much stress on the importance of the carrier in keeping up endemic typhoid. While this is true, it may be pointed out that in the United Kingdom the reduction of typhoid began before the carrier or even the *Bacillus typhosus* was recognized, and that it was due to the improvements in sanitation carried out by the Local Government Board. The provision of pure water supplies and the effective treatment of sewage will go a long way towards the abolition of typhoid, in spite of the existence of carriers. Apparently a large number of natives are connected with the dairy trade, but we learn from Dr. Cluver that the illnesses of the native milkman "are not generally a matter of much concern to his European employer." If this is true of employers in general then they deserve all they get in the way of typhoid and other infections. The preventive measures advocated by Dr. Cluver are admirable, but apparently he has difficulty in convincing the public of their necessity. The contribution which most arrests attention is that by Dr. Pijper on the bacteriology of the enteric fevers. He has come to the conclusion, after many years' experience, that the Widal test is inefficient. He has found it to be positive in only 40 per cent. of cases in which the typhoid bacillus was demonstrated in the patient's blood. He has therefore replaced it by the complement-fixation test, which he has observed to be positive in at least 90 per cent. of cases as early as the fifth day. Dr. Pijper makes out a good case for his opinions, which are based not only on his experience, but also upon arguments derived from the behaviour of the H and O forms of the *Bacillus typhosus* and their antibodies. He states that his views are gaining ground, but he does not appear to have converted British bacteriologists; time alone can show whether he is right. Dr. Pijper makes two statements with which we cannot agree. The paratyphoid fevers are, he tells us, absent from Pretoria —to the credit of the health authorities—because "paratyphoid requires much more unhygienic conditions than typhoid does." Again, he states that the prognosis of paratyphoid is "substantially the same" as that of typhoid. Neither of these statements is in accordance with experience with paratyphoid elsewhere. The treatment of typhoid recommended is much the same as has been adopted in England for many years past. We miss, however, any reference to the treatment by baths. As hardly an allusion is made to antityphoid immunization we take it that it has not been attempted to any extent in Pretoria.

CATARRH OF THE SMALL INTESTINE

Relatively little attention has been paid to the clinical picture, described by Porges in 1928, of catarrh of the small intestine without simultaneous catarrh of the large bowel. The cardinal symptoms were an increase in faecal soaps after a test meal, this being unaccompanied by disturbances of secretion of pancreatic juice and bile; hypermotility of the small intestine (demonstrable by the passage of contrast meals along the gut, using x rays); complaint of discomfort after food, feelings of heat and perspiration, vertigo, and sometimes fainting attacks. In some cases there were colicky pains, localized to the left of the umbilicus, and pain on superficial pressure in the same region; and occasionally diarrhoea was noted. Secondary symptoms were: eczema, pruritus, and urticaria; while the author has on some occasions also observed hypochromic anaemia and Hunter's glossitis. Constipation is frequent.

R. J. WILLAN: INTESTINO-VESICAL FISTULA



FIG. 1.—Case 2. Resected colon showing thickened area in wall with two well-marked diverticula surrounded by inflammatory fibrosis. The arrow indicates site of diverticulum leading to fistula.

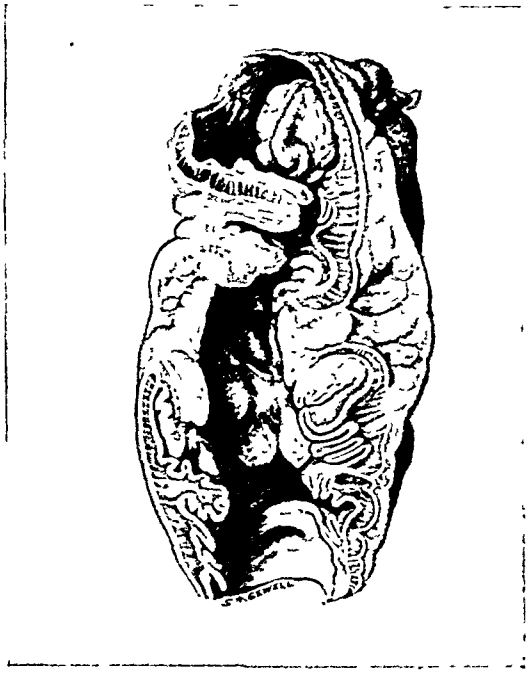


FIG. 2.—Case 5. Colon divided longitudinally. Large ulcerated area of growth is seen almost blocking the lumen. A pin shows the site of the fistula.

F. ROBERTS: X-RAY TREATMENT OF MALIGNANT DISEASE OF THE LUNG



FIG. 1.—Case 5, E. S. April 10th, 1931. Tumour of left lung. Collapse of left upper lobe.



FIG. 2.—Case 5. June 3rd, 1931. Tumour greatly diminished. Left upper lobe re-expanded.

E. N. WARDLE: FRACTURES OF BOTH BONES OF THE LEG



FIG. 1.—Case 1. A.-P. view showing alignment in plaster immediately after accident.

FIG. 2.—Case 1. Lateral view in plaster immediately after accident.



FIG. 3.—Case 1. A.-P. and lateral views three months after accident, showing bony union in correct alignment but without any apposition.



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FIG. 5. Case 2. A.-P. and lateral views showing result of reduction by manual traction and plaster.

E. N. WARDLE: FRACTURES OF BOTH BONES OF THE LEG



FIG. 6.—Case 3. A.-P. and lateral views before reduction.



FIG. 7.—Case 3. A.-P. and lateral views after reduction by manual traction and plaster.

ALLAN WARNER: EPHELIS AB IGNE



FIG. 8.—Case 3. A.-P. view. Five months after accident. Note alignment is worse than before; union only just commencing.

FIG. 9.—Case 3. Lateral view.



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...inburgh), is appointed
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...fter, F.R.C.S., F.R.S., who retires
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GORDON HARROWER: TREATMENT OF CYSTIC HYGROMA OF NECK BY SODIUM MORRHUATE



FIG. 1.—Cystic hygroma of neck in an infant one month old.

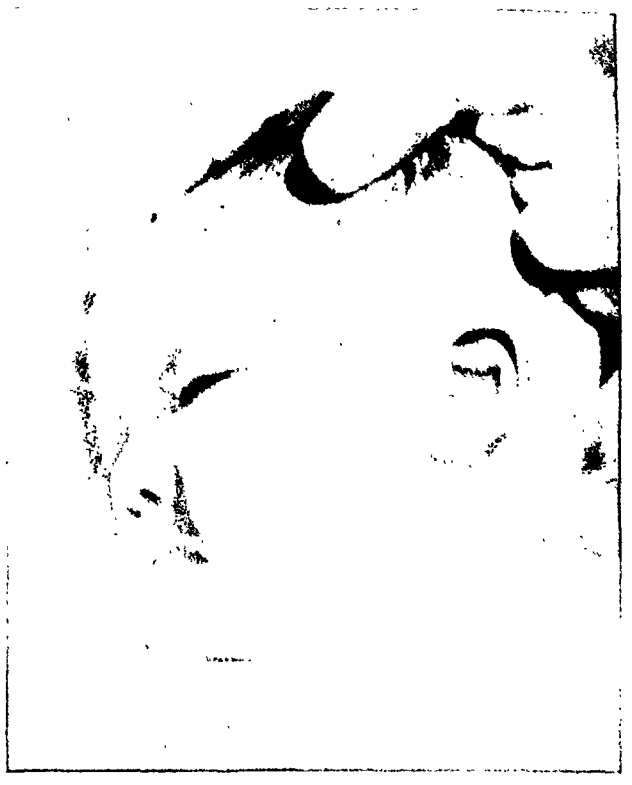


FIG. 2.—Cystic hygroma of neck after treatment by sodium morrhuate injection.

F. A. E. SILCOCK: HERPES ZOSTER BRACHIALIS WITH CONCURRENT VARICELLIFORM ERUPTION

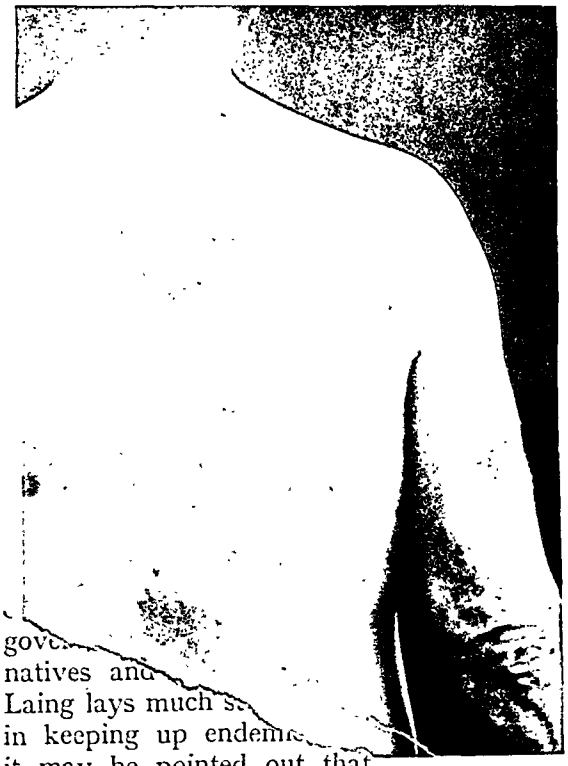




FIG. 2.—Front view.

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Further observations on this condition are described by Porges in a recent article[1] which demonstrate that, in order to show the increased motility of the small intestine, it is necessary to give a full meal shortly after the barium meal. Normal subjects, after such treatment, show no evidence of barium in the large intestine two hours later, but in this condition barium is easily demonstrable in the colon afterwards. Attention is drawn to the frequent association of catarrh of the small intestine with cholelithiasis or choleangiopathy, the establishment of the latter being considered by the author to result from the passage of organisms through the damaged mucous membrane, their carriage by the portal blood to the liver and bile and hence infection of the bile passages, decomposition of the bile, and stone formation. The occurrence of apparent radiation of the hyperalgesia of choleangiopathy to the left is considered as due not only to possible involvement of the pancreas but also to catarrh of the small intestine. Porges presents evidence from observed cases to show that in cases of hypochromic anaemia of doubtful origin search should be made for signs of intestinal catarrh. Increased quantities of soaps and fatty acids in the stools is thought to be due to the more rapid passage of the intestinal contents: the soaps act as irritants to the large bowel, and diarrhoea follows. Differential diagnosis must, however, be made from the diarrhoea resulting from fermentation or putrefaction products. Treatment consists of diets poor in cellulose and astringents; in severe cases meat must be considerably restricted or even dispensed with. If, in spite of this, diarrhoea still continues, fats must be eliminated from the diet; in such cases the restriction of cellulose foods may no longer be necessary. Calcium carbonate is sometimes useful, but cases occur in which neither this substance nor a cellulose-free diet, nor a combination of the two, is effective. Here, the addition of rye bread and potatoes to the diet leads to the formation of lower fatty acids, soluble calcium salts, and subsequently the production of insoluble calcium soaps.

[1] *Klin. Woch.*, 1933, June 17th, p. 938.

Mr. STEPHEN MORREY

Our readers will be interested to learn that on July 12th Mr. Stephen Morrey of the Editorial Department was presented by his colleagues on the printing and clerical staff of the British Medical Association with a suitably inscribed gold half-hunter watch, upon the occasion of his retirement after fifty-one years in the service of the Association. This is the longest period of service of any member of the staff of the Association—a fact noted by the Council at its meeting in April, when it placed on record its appreciation of Mr. Morrey's work. Mr. Morrey has had the unique experience of having served under three Editors of the *British Medical Journal*—namely, Mr. Ernest Hart, Sir Dawson Williams, and Dr. N. G. Horner—and will be well remembered by many of the now senior members of the profession. He entered the office in February, 1882, and became personal assistant and secretary to the Editor in April, 1892. Under Mr. Ernest Hart he acted as clerk to the old Parliamentary Bills Committee, the forerunner of the Medico-Political Committees of the Association. Unanimous tribute was paid by his fellow workers to his unfailing courtesy and willingness to help them, out of the wealth of his experience, with information as to the work and activities of the *Journal* and the Association. In taking leave of Mr. Morrey at the end of this month we offer him sincere gratitude for all his loyal help in difficult times and our best wishes for the leisure he has so richly earned.

PHARMACY AND POISONS ACT

The Pharmacy and Poisons Act, 1933, received the Royal Assent on June 28th. Section 16 of the Act provides for the setting up of an advisory committee which is to be called the Poisons Board and which is to be constituted in accordance with the provisions of the Second Schedule; and by Section 17 the Secretary of State for Home Affairs is required, as soon as may be after the passing of the Act, to cause the Poisons Board to prepare and submit to him for his approval a list of the substances which are to be treated as poisons for the purposes of the Act. It is contemplated that Sections 16 and 17 of the Act will be brought into operation by Order in Council by October 1st next. The British Medical Association's representative upon the Poisons Board will be appointed by the Council at its meeting in Dublin on July 26th.

SCHOLARSHIPS FOR SONS OF MEDICAL MEN

We are pleased to make it known that by the generosity of Sir Milsom Rees two scholarships will in future be awarded annually to the sons of medical men. Each scholarship will be of the annual value of £100, to be deducted from the fees, and the scholars will be educated at Port Regis Preparatory School, Broadstairs. At the moment the school contains 50 boys, but further accommodation has now been built, so that there will be ample room for this addition. Boys at entry must be between 8 and 9 years of age, and they may hold the scholarship for some five years. They will be selected at an interview from those boys who have done best in some simple examination conducted in or near their own homes. The first examination will be held in March, 1934, and the scholars will join the school at the commencement of the following summer term. Full particulars may be obtained on application to the headmaster.

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement* and *Epitome* have been printed; they will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who wishes to have one or all of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Financial Secretary and Business Manager, B.M.A. House, Tavistock Square, W.C.1. Those wishing to receive the indexes regularly should intimate this.

By an Order of the Committee of the Privy Council, made after consultation with the Medical Research Council and with the President of the Royal Society, Professor D. P. D. Wilkie, F.R.C.S. (professor of surgery in the University of Edinburgh), is appointed a member of the Medical Research Council in succession to Mr. Wilfred Trotter, F.R.C.S., F.R.S., who retires in rotation on September 30th, after four years' service.

THE BUCKSTON BROWNE SURGICAL RESEARCH FARM

OPENING BY SIR HOLBURT WARING

The Buckston Browne Surgical Research Farm at Downe, Farnborough, Kent, was opened by Sir Holburt Waring, President of the Royal College of Surgeons of England, on July 12th. Among others attending were Lord Moynihan, Lord Lamington, Sir John Bland-Sutton, Sir James Berry, Sir Charles Ballance, Sir George Makins, Sir Charles Sherrington, Sir Cuthbert Wallace, Professor Beattie, Professor Kennaway, Professor Grey Turner, Mr. Rock Carling, Mr. W. McAdam Eccles, Mr. Sampson Handley, Mr. Warren Low, Mr. R. P. Rowlands, Mr. W. G. Spencer, Mr. E. W. Hey Groves, Dr. Sidney Phillips, and Mr. A. E. Webb-Johnson.

PRESIDENT'S ADDRESS

In performing the opening ceremony Sir HOLBURT WARING recounted the generous action of Sir Buckston Browne in providing for the Royal College of Surgeons, at a total cost of £100,000, a surgical research farm, including a residential hostel, available for surgical and biological workers. He reminded the gathering that in 1799 the museum of the Royal College was started by the Government provision for the purchase of John Hunter's anatomical, surgical, and biological specimens, a large number of which had been obtained by Hunter as the results of his experiments at his research farm at Earl's Court. When this nucleus of the museum was taken over by the College it seemed to him that the moral responsibility of providing facilities for the advancement of surgery by research was taken over also, although for many years the examination of students and the building and equipment of the museum had absorbed most of the energy of the Council. It was hoped in this new environment to solve by experimental methods many of the fundamental problems which beset surgery to-day. He proceeded to outline some of the most pressing surgical and biological investigations which would be carried on at the farm. Recent statistics on the mortality of acute intestinal obstruction showed that about 40 per cent. of patients died. On the other hand, it was asserted that the technique of abdominal operations in competent hands had become so perfect that the death rate from surgical intervention was almost negligible. It did not seem fair to blame the death rate on to the practitioner who sent the patients to hospital too late. Why did these patients die? Surely experimental work ought to be able to answer the question. Again, ulcers of the stomach and duodenum were becoming more common. The cause of these ulcers was not as yet satisfactorily explained, nor was it known why only some of them perforated. Much had been heard of "shock" since the war, and it was thought that physiologists had provided the key to its cause and treatment, but modern experimental work had undermined the explanations which were given; hence the problems must again be tackled. Finally, the last strongholds of the body to submit to successful surgical intervention—namely, the cranial and thoracic cavities, with their contents—would provide numerous problems for the immediate future. Apart from these investigations, the institution would provide facilities for students who were undertaking investigations of a purely scientific nature. The investigation of growth phenomena, normal and abnormal, the interrelationship of certain endocrine glands, and some aspects of neurology were among the problems which were already in train and would be dealt with in the laboratories. The resources of the Research Farm were intended to be used by the young surgeons of London and of the provinces, also by biological students who were investigating problems connected with surgery or any of its allied sciences. Two research students, whose emoluments were provided by the Leverhulme Trustees, had recently been appointed by the College, and a research student whose honorarium was provided by the College itself had been reappointed, and these students would work at Downe and in the laboratories in Lincoln's Inn Fields. It was in the close association of the surgeon with the biologist that the great advances of surgery in the future might be expected.

"I have now great pleasure in declaring the Buckston Browne Surgical Research Farm open, in dedicating it to the ideals of John Hunter—we cannot offer a more worthy tribute to his memory—and in wishing the workers who make use of its facilities every success in the elucidation of the surgical and biological problems they undertake to investigate."

THE FARM, ITS ASSOCIATIONS AND WORK

Sir BUCKSTON BROWNE reminded the gathering of the remarkable spot on which they were assembled. Close by was the house in which Darwin lived for forty years, where he wrote the *Origin of Species* and contributed greatly to the emancipation of the human mind. Now the place would speak also of the ideals of John Hunter, one of the great emancipators of the human body. John Hunter was a remarkable man, compact of curiosity, wanting to get to the bottom of everything with which he came into contact. Among his pupils was Edward Jenner. The world quickly forgot its benefactors and their benefactions, and very few realized how enormously Jenner had placed the world in his debt. The speaker added one word with regard to those who opposed all experimentation upon animals. This work of research was intended for the alleviation of animal pain as well as of human pain. What was done for man found a further service in the veterinary colleges and hospitals. It was the hope of the Royal College of Surgeons that every day at the Surgical Research Farm some new step might be taken towards the elucidation of the problems of surgery and biology. "*Nulla dies sine linea.*"

Sir ARTHUR KEITH, in some further remarks, threw a little more light upon the genesis of the Research Farm. About twenty-five years ago, when he was appointed conservator of the College museum, his colleague, Mr. Burne, told him that the colour had gone from John Hunter's specimens, where the growths had been stained with madder, and they had lost their value. Mr. Burne and he lamented then that they had not a place at Earl's Court, as John Hunter had, where the experiments could be repeated and new specimens produced. As a matter of fact, Mr. Burne filled the gap then, because he appealed to a cousin of his who was farming in Norfolk, and the experiments were repeated there. Many instances similar to that one occurred to show the need for a place where experiments could be made, but the College was under the impression at that time that it could wait for Nature to produce the experiments and leave men like himself to interpret them as best they might. At the time of which he was speaking the College did not look upon itself as a body whose duty it was to advance surgery by all possible means. But about 1926 Lord Moynihan became president, and he set aside all opposition, and made a way for research in the College. Very soon it became apparent that the College laboratories, even the new ones, were absolutely inadequate, and it was then that the idea arose of a place in the country. Sir Buckston Browne, hearing of the need, thereupon came forward with the most generous benefaction that had been made to medicine in his time. Sir Buckston Browne had also purchased the neighbouring Down House, the home of Charles Darwin, endowed it, and handed it over to the British Association as a gift to the nation. As to the work which was to be done on the Surgical Research Farm, it was prospectively taking many forms, and, thanks to the President of the College, some of it has already started. He hoped the day would never come when the place would be cut off from the College in Lincoln's Inn Fields, because it was conceived as an appendage or accessory to it, and never as an independent body. Lord Moynihan and others present would remember that as young ambitious men their best moments were those they spent with other men, discussing each other's problems and exciting each other's interest. It was this which led the College to conceive not only laboratories but something in the nature of a club attached to them, and the idea of the Research Farm included not only

a surgical laboratory but a place where men who wanted to advance surgery might meet in social circumstances.

After the speeches, which had taken place in the common room of the hostel, those present inspected the residential accommodation in the same building, the laboratories and accessory rooms which are a separate structure, and the thirteen acres of grounds. Opportunity was also taken to visit Down House.

By invitation of Sir Buckston Browne and of the British Association the Harveian Society held its summer meeting on July 15th at Down House. Sir Buckston Browne received members and guests in the drawing-room, where, he said, Charles Darwin used to recline on a couch while Mrs. Darwin played the piano to him. He did not intend to give a formal address on Darwin, but hoped that the visitors would see for themselves the various items of interest in the house where Darwin lived for forty years. During tea Lieut.-Colonel Gowlland, president of the Harveian Society, presented on its behalf to Sir Buckston Browne an oak garden-seat. After tea Sir Arthur Keith showed some of the guests round the laboratories of the Research Farm, while Sir Buckston showed the others the residential hostel. In spite of the truculent behaviour of the weather everyone thoroughly enjoyed the visit.

BRITISH POST-GRADUATE MEDICAL SCHOOL

FOUNDATION STONE LAID BY CHANCELLOR OF EXCHEQUER

The foundation stone of the British Post-Graduate Medical School, adjacent to the London County Council hospital in Ducane Road, Hammersmith, was laid on July 17th by Mr. Neville Chamberlain, Chancellor of the Exchequer. His brother, Sir Austen Chamberlain, presided over the ceremony, and with him were the Earl of Athlone, Chancellor of the University of London, Mr. E. M. Dence, chairman of the London County Council, and the following members of the governing body:

Sir Robert Bolam, Lord Dawson of Penn, P.R.C.P., Lieut.-Colonel H. R. Dutton, Mr. H. L. Eason, Dr. T. Watts Eden, Professor G. E. Gask, Mr. F. C. Goodenough, Dr. Florence Barrie Lambert (chairman of the Central Public Health Committee), Dr. Louisa Martindale, Sir Frederick Menzies, Lord Moynihan, Sir George Newman, Mr. L. Silkin, Dr. A. T. Stanton, and Dr. Cecil B. Wall.

Among the general company were Lord Riddell, Sir Holburt Waring, P.R.C.S., Sir Henry Brackenbury, Sir John Broadbent, Sir William Willcox, and Mr. Warren Low. The now lengthy history of this project is told in detail in the Chancellor's speech. The proposed building will occupy three floors. On the ground floor there will be the dean's office, a clinical theatre, a chemistry laboratory, a post-mortem room, and a histological laboratory; on the first floor a lecture theatre, several laboratories, and museum and library; and on the second floor provision for bacteriology, microscopy, and medium preparation, and a large animal section.

Sir AUSTEN CHAMBERLAIN, in inviting the Chancellor of the Exchequer to lay the foundation stone, said that the work which was to be advanced one stage further that day might be described in a French phrase as "a work of long breath." It was twelve years since the then Minister of Health appointed a committee, over which the Earl of Athlone presided, to advise upon the steps necessary to secure proper provision for post-graduate medical education in London. Many minds had co-operated in the development of the plans which Lord Athlone's committee first placed before the authorities. That committee pointed to the necessity in the University of London of a great post-graduate school of preventive medicine. That school, the London School of Hygiene and Tropical Medicine, was already in existence in Bloomsbury. But the committee also indicated as an equal necessity a school of post-graduate medical teaching, study, and research. A great clinical school, however, was of no use without a great hospital attached to it. After many years of study and the examination of many alternative proposals, it was at last decided, thanks to the hearty co-operation of the London County Council, that the new school should be attached to their hospital in Hammersmith, which already possessed 400 beds, and would no doubt in due course be further expanded, and, moreover, which stood on a site affording sufficient space for the erection of the laboratories and other appurtenances of the school. "What we hope to accomplish by this school," Sir Austen continued, "I will leave to others to tell. I will only say that it is one more step forward in the gradual raising of the University of London to the position which the University of the capital city ought to occupy. In endeavouring to realize that aim we count confidently on the hearty co-operation of the medical profession in all its branches, on the assistance and guidance of the University itself, and on the support of H.M. Government, represented here to-day by the Chancellor of the Exchequer and the Minister of Health." He concluded with an expression of regret that Lord Chelmsford, the first chairman of the Board of Management, to whose tact and patience in overcoming initial difficulties so much was due, had not lived to see that occasion.

The EARL OF ATHLONE added a few words. He said that when he was appointed chairman of the Post-Graduate Medical Committee of 1921 he was told by his friends that it would be a waste of time, and that the recommendations of the committee would share the fate of those of most departmental committees, and find a home of rest in the nearest pigeon-hole. It came, therefore, as a great surprise to him when he heard from Sir George Newman, in 1923 or 1924, that one of the recommendations—namely, the creation of the London School of Hygiene and Tropical Medicine—was to be realized. A splendid building now existed in Bloomsbury in which this portion of the programme was carried out. To have secured the interest of such a busy man as the Chancellor of the Exchequer was of good augury for the future. A school of this kind could not be built or exist entirely without Treasury grants, and it was important that this great scheme should not be allowed to suffer in any way through lack of funds. As Chancellor of the University of London he could vouch for the happiness of the relations existing between the London County Council and the University, and he was convinced that, with the continued co-operation and generosity of that great body, they would one day see the fulfilment of their dreams.

Mr. E. M. DENCE said that the London County Council fully realized the national and imperial value of a post-graduate medical school, and had gladly agreed to co-operate with the Minister of Health for this purpose. Unfortunately, almost from the very outset, both the Government authorities and the Council were faced with serious financial difficulty resulting from the economic crisis, and on two separate occasions it became necessary to postpone for the time approval of a definite scheme for the provision of the post-graduate school. He thought it said much for the tenacity of purpose of all those interested in the development of the scheme that, undismayed by a succession of crises, they ultimately overcame all difficulties, and at last were able to submit modified plans which of purpose were designed to meet the new financial conditions, and thus bring their labours to a successful issue. All through those most difficult times they were extremely fortunate in having the sympathetic and invaluable support of the Chancellor of the Exchequer. He reminded the gathering that the London County Council had the largest medical staff of any public body—a staff, whole-time and part-time, numbering 630—and that it was the authority responsible for the supervision of the health of London. In those respects it was intimately concerned in an adequate supply of well-qualified medical practitioners, and therefore its interest in all schemes for the efficiency both of undergraduate and post-

graduate medical education needed no argument. In conclusion, he said that it was the general opinion among his colleagues on the Council that the location of this post-graduate medical school in London was of great importance, not only to the public health of the metropolis, but also in attracting post-graduate medical students from all over the world.

THE CHANCELLOR'S ADDRESS

Mr. NEVILLE CHAMBERLAIN, before laying the stone, said that to many of those who were witnessing that ceremony the spectacle must seem almost too good to be true. The project of a post-graduate school had long formed part of the dreams of those concerned in public health, and its final crystallization into a practical working scheme had only resulted from a long and persistent effort on the part of many willing helpers. They had suffered many checks, disappointments, and delays. They had seen their child repeatedly the victim of that shocking incident—a change of Government. They had watched over it while it suffered from that dangerous and highly infectious complaint known as an economy campaign. But they had brought it safely through all its infantile troubles, and he thought that only a profound conviction of the importance of this venture could have brought so many men of different occupations and schools of thought together to work out, in the face of many difficulties, and over so long a period, a practicable scheme.

Like most good things, the school had been the product of a long process of evolution. In the early 'nineties Sir Jonathan Hutchinson started afternoon demonstrations and lectures at his clinical museum, and arrangements were made for instruction in various specialties. Out of that was formed the Medical Graduates' College; but although the organization was very valuable, it had one extremely serious defect, it had no hospital connected with it, and so the students lacked the very thing which was perhaps the greatest need of the general practitioner seeking post-graduate instruction—that is, daily attendance in the in-patient and out-patient departments of a hospital.

The next stage was the foundation, in 1918, of the Fellowship of Medicine and the Post-Graduate Association, with which the name of Sir William Osler would always be associated. The function of the Fellowship of Medicine was to co-ordinate and stimulate the existing facilities for post-graduate instruction. It endeavoured to persuade the existing London medical schools to give further post-graduate instruction without interfering with the needs of the undergraduates, and it encouraged the hospitals generally to establish or extend post-graduate teaching. Thanks to that organization, which was still in existence and doing most valuable work, a great number of medical practitioners on demobilization after the war were able to obtain a refresher course before they restarted their private practice.

This brought him to the origin of the present movement in 1921, when Dr. Addison set up a committee which, having taken the name of its chairman, was now famous as the Athlone Committee. That committee showed great statesmanship and imagination. It dealt with the subject under two heads: preventive medicine and clinical medicine. It came to the conclusion that though there were considerable facilities in both directions in London, these were far too much diffused, and lacked that concentration whereby alone the best use could be made of them. The committee therefore made the two recommendations which formed part of the one great plan, the one the establishment of a school for the teaching of preventive medicine, and the other the scheme for a post-graduate medical school, associated with some large and well-equipped hospital. The first part of the scheme, as already stated, had come into being in the shape of the London School of Hygiene and Tropical Medicine. The other part had to wait for more propitious times. His own entrance upon the scene took place in 1925, when, building on the basis of the Athlone Committee, he established a very strong committee over which he himself presided to try and work out a practical scheme. The committee included the Presidents of the Royal Colleges and representatives of the great teaching and other hospitals in London, of the British Medical Association, and of the Fellowship of Medicine. The committee illustrated the fact that among doctors, as indeed in the world of conferences, while there might be perfect unanimity as to the object to be achieved, this was often combined with very considerable differences as to the means of achievement. In the case of the doctors, however, an agreement on all points was eventually reached, but it was a protracted process and took more than a few months. First of all the possibility was examined of building a new hospital and school, fashioned according to their desires, free from all the hampering traditions which must necessarily attach to any hospital with a long history behind it. That idea had to be given up because it was realized that although it might be possible once again by the munificence of some private or public body to find the capital sum required, the annual cost of maintenance of such a hospital might well amount to £75,000, and this put the practicability of that scheme out of court. The conversion of one of the teaching hospitals in London was then considered, but after the most exhaustive examination it was found that none of them was prepared to sacrifice the teaching of undergraduates in order to take up the teaching of post-graduates, and the committee agreed that it was impossible to combine in one institution those two very different things.

It took two years to complete the examination of the various alternatives open, and it was not until 1927 that the committee began to enter into formal negotiations with the West London Hospital. That hospital presented great advantages, because there was already connected with it the West London Post-Graduate College. After very protracted negotiations, however, it became apparent that even there were very formidable difficulties still to be overcome, and in particular the site of the hospital was extremely restricted, and hardly offered sufficient possibilities of expansion to meet what the committee had in mind. Nevertheless, until 1929 that scheme seemed to hold the field. Then the situation was entirely changed by the passing of the Local Government Act, which handed over to the jurisdiction of the London County Council nearly thirty hospitals, containing some 1,700 beds. That obviously introduced a new factor of which account had to be taken.

Not long after that Act there took place a change of Government, and he confessed that he himself left office with some anxiety as to the fate of the scheme. Fortunately, however, the scheme was not the subject of party controversy, and his successor, Mr. Arthur Greenwood, took up the scheme where he had left it, and the committee under his chairmanship entered into negotiations with the London County Council, which before long resulted in certain recommendations to the new Government. It was recommended that the school should be established in association with the Hammersmith Hospital, which already possessed the 400 beds considered necessary for the initiation of the scheme, and which was on a suitable site, and in other respects was extremely favourable for their plans. In April, 1930, the Labour Government announced that it had accepted the plans of the committee, that a maximum of £250,000 would be found by the Government for the building and equipment, and that the Government would further provide, through the University of London, a maintenance grant for the carrying on of the school when it was established. The recommendations included plans for residential accommodation, partly in the hospital and partly elsewhere, and the rest of the story was soon told.

An Organization Committee was formed to consider plans for the construction of the school, a Royal Charter was granted, and at a later stage "London House," a hostel for students from the Dominions, was established to offer the accommodation desired by the committee. One more crisis still remained to be surmounted, for in 1931 the financial affairs of the nation were in such a condition that the then Chancellor of the Exchequer had to make drastic plans for cutting down expenditure in

every direction When the first National Government was formed he (Mr Chamberlain) became again Minister of Health He recognized at that time that it could not be expected that the promise of £250,000 could mature, but he told the Chancellor of the Exchequer—Mr Snowden, as he then was—that if he would give him £100,000 he would withdraw all claim to the balance for the present Mr Snowden, with a promptitude as gratifying as it was unexpected, at once acceded to his request, and when the proposition for still further economies took place in the second National Government the speaker was himself Chancellor of the Exchequer

The long cherished project was at last beginning to take material shape The buildings would comprise lecture theatres, laboratories, and the necessary offices for the dean and professors Extensions and improvements to the hospital were to be undertaken by the London County Council at a cost of £100,000, and would include two new blocks for casualties, receiving, and out-patient departments, a new ward, three new operating theatres, a central department for the sterilization of dressings, and new x ray, light, and massage departments He understood that the equipment of the x ray department in particular was going to be a feature of special importance and interest

'Here in London" the Chancellor continued "will stand these two great schools, the London School of Hygiene and Tropical Medicine and the British Post Graduate Medical School, which are going to make London the centre of the most progressive medical teaching in the world As a former Minister of Health I look upon this school as part of a great national institution fraught with the utmost importance to the health of our people This very day there is being celebrated the twenty first anniversary of the national health insurance scheme—a scheme which has long since established its value, and has come to be regarded as one of the great pillars of our national health system Yet the value of that scheme must always be limited by the skill of the general practitioners who work it Too often especially in the remoter districts, many of them since they walked the hospitals have grown a little rusty It is not their fault, busy as they are with their daily routine, with a vast number of patients to look after, that they have neither time nor opportunity to seek out chances of making themselves acquainted with that march of knowledge which never ceases in the great centres of medical thought and practice But a new day will dawn for them when this school comes into being The doors of knowledge are going to be thrown wide and a time will surely come when no general practitioner man or woman, will allow many years to pass without refreshing and rejuvenating their minds by attendance at this school here in London

"There is another aspect of these buildings which must be of special interest to any Minister of Health I realized when I was handing over the Poor Law hospitals to the local authorities that I was inaugurating changes which might have far reaching and unforeseen effects in the future In particular this change involved a new departure in the relations between local authorities and the medical profession, and it was important in the public interest that those relations should be smooth and harmonious I never thought at that time of what might take place here to day, but now I reflect that in this new scheme of ours in which the Government the University, the London County Council, and the medical profession are all partners we are going to have an association between the greatest of our local authorities and an organization which is of the very first importance to the whole medical profession from one end to the other

'I have just one other thing to say, lest we take too exclusively a national view of this great institution Nothing made a deeper impression on my mind when I was studying this scheme at the Ministry of Health, nothing encouraged me more earnestly to pursue it, than the representations that were made to me by visitors from overseas, from the Dominions, even from America, and from every part of the world as to the need for an institution in London which would give them the opportunity for post graduate instruction Over and over again they deplored to me the hard necessity which forced them to go to the Continent, to listen to lectures in a language which they understood only imperfectly and to get instruction which they would at rather have secured in London itself It was to London they looked for the latest and best in medical theory and practice and it was to London rather than any other place in the world they desired to come for enlightenment They begged me to use every effort and influence I could command in order to set up in London the accommodation for instruction when they felt they required, and which as they said would be for the benefit not only of this country but for the Empire and for the whole of mankind

'It is with infinite satisfaction that I can say this afternoon that those representations have been heard and that the implied reproach is being removed from our midst I would say to this company here many of whom have made so large a contribution to this happy result that some of us may not live to see the full development of our ideas but we may well be proud of having played a part in begetting this great project for which assuredly future generations of men and women will have cause to bless the authors' (Loud applause)

The Bishop of Kensington offered prayers after which Mr Chamberlain, with the assistance of the architect (Mr Topham Forrest) laid the stone The Minister of Health (Sir E Hilton Young) thanked Mr Chamberlain, and assured all those who had the welfare of the institution at heart of the profound and unfailing sympathy and interest of the Department over which he presided

CARDIFF TUBERCULOSIS CONFERENCE

The nineteenth annual conference of the National Association for the Prevention of Tuberculosis met at Cardiff on July 13th to 15th, under the presidency of Sir ROBERT PHILIP, chairman of the council This meeting having been organized through the Welsh National Memorial Association for Tuberculosis, the occasion was taken to review its history and work, and to visit its institutions

Lord DAVIES OF LLANDINAM, Professor LYLE CUMMINS and Dr POWELL, in their opening addresses, sketched in outline the activities of the Welsh Association, which differs materially in organization from the English counterpart Geographical rather than county administrative areas form the basis of the scheme, and the whole of Wales is covered in a network of dispensaries and hospitals, with a staff of fifty-two tuberculosis physicians Students for a diploma in tuberculous disease in the University of Wales are appointed as part time assistants, and give practical aid in carrying on the work

The primary topic for discussion was the part played in the production of tuberculosis by (1) infection, (2) environmental conditions, and these were discussed in an interesting and varied manner during the two days of the proceedings

Sir ROBERT PHILIP gave a brilliant summary of the problem It was necessary, he said, to exclude so far as possible all likely sources of infection The family doctor's primary function in tuberculosis was to discover when infection had taken place Realizing that tuberculous infection was almost universally distributed, the country had developed a national tuberculosis scheme which must work unceasingly to prevent infection and control environment

ENVIRONMENTAL FACTORS

Dr RALPH PICKEN (medical officer of health, Cardiff) spoke of poverty, which reduced human resistance, as more important than housing, which acted mainly by affecting the opportunities for environment In Cardiff there were very favourable hygienic conditions and practically no slum areas, yet the mortality from tuberculosis was high Probably rural immigration and lateness and rapidity of the city's growth accounted for this A further warning against the indiscriminate housing of families living in poverty was given by Dr M GONGLE (medical officer of health, Stockton on Tees) who had found that increased rents of new houses diminished expenditure on food The theme of overcrowding and poverty was further developed by Dr BRADBURY, whose

report on tuberculosis and Tyneside has been discussed in these columns. The special susceptibility of the Welsh to tuberculosis was examined by Dr. H. D. CHALKE (Lancashire County Council) and Mr. J. E. TOMLEY (Montgomeryshire Insurance Committee). In certain areas on the western seaboard the disease shows a high death rate, probably due to poor dietary, damp housing, and with stone-working as a contributory cause. Dr. T. W. WADE (medical officer, Welsh Board of Health) contrasted the mortality from tuberculosis in coal-mining areas, which is low, with that among stone-workers, which is high.

Dr. NOEL BARDSWELL (London County Council) described the value of the controlled environmental conditions found at Papworth and Preston Hall tuberculosis settlements. In the former village 80 per cent. of the children gave a positive Moro test, yet none had shown evidence of the disease. In Preston Hall conditions were the same. These villages were a practical demonstration of the value of environment, and yet of themselves they could accommodate only a small portion of the vast number of cases of tuberculosis. They demonstrated all that supervision and satisfactory care work could accomplish. Speaking of the lives of young women between 16 and 25, Dr. Bardswell thought that long hours and late hours of work were the biggest fault in environment.

Dr. R. J. PETERS (Glasgow), on the subject of housing, said that both the incidence and the fatality of tuberculosis were much heavier in small houses. The specific influence of overcrowding is much less evident than expected, and improved housing was not the only factor. Practical application of the newer studies in epidemiology was still necessary, especially in view of the so-called sporadic cases.

BOVINE INFECTION

The question of bovine infection was extensively considered by Dr. W. G. SAVAGE (county medical officer, Somerset), who remarked that the disease was commoner in older cows. Aphysiological conditions, faulty feeding, poor environment, and sources of infection in cowsheds were the principal causes. The agricultural interests would have to either improve these conditions or consent to pasteurization. A comparison of dosage between the alimentary canal and tonsils was made. Dr. W. T. MUNRO (Glenlomond Sanatorium) discussed the significance of various factors which lowered resistance. He believed that the increased mortality in the young adult was not related to age, but resulted from environmental factors. Dr. NATHAN RAW (London) raised the possibility of the mutation of the tubercle bacillus from the bovine to the human type after long residence in the human body. He advocated pasteurization. Dr. W. T. TYTLER (Cardiff) gave particulars of bovine infection in Wales, which in 500 cultures examined was only 1.7 per cent. Two-thirds of the specimens he examined were taken from general surgical lesions, in which the amount of bovine infection may be expected to be high.

Dr. MIDGLEY TURNER (Sheffield) regarded anatomical conditions as the explanation of the comparative immunity of childhood from serious tuberculosis. The lymphatic system of defence is then at its zenith, and metastasis in the parenchyma of the lung is rather difficult. At puberty, when the lymphatic system is less retentive, the susceptibility of the lung tissue becomes marked. The importance of childhood infection was also stressed by Dr. MELVILLE DUNLOP (Edinburgh).

Dr. L. S. T. BURRELL (London) discussed the two theories regarding the onset of adult pulmonary disease. Some claimed that cases of old infection were reactivated by depressed environmental conditions. A considerable number were due to reinfection. Exposure to mass infection was always dangerous at any age. The difference between the adult and infantile types of tuberculosis were largely a matter of the rapidity of spread. In civilized communities children were very resistant to clinical tuberculosis.

Pathological demonstrations were given in the Cardiff School of Medicine by Professor Lyle Cummins and Dr. Tytler. Parties of the delegates visited various of the Welsh institutions for tuberculosis.

England and Wales

Red Cross and St. John

The thirteenth report of the Joint Council of the Order of St. John of Jerusalem and the British Red Cross Society covers the twelve months ending December 31st, 1932, and includes an account of the work of the various departments. The number of cases helped by the Auxiliary Hospitals for Officers Department was 261, of which seventy-five were new cases; the disability concerned was tuberculosis, and 18,321 officer patients have now been assisted since the beginning of the war. Although a decrease has occurred in the number of new cases, there has recently been a steady increase in the number of applications from former patients, averaging at least thirty each quarter. It is pointed out in the report that these patients are in advanced stages of the disease owing to long-continued ill-health, to the failure to obtain or retain employment, and in many cases to insufficient nourishment. No new patients were sent abroad for treatment, and only a very few of the old ones. The second number of the *Hospitals Year Book* was published in June. It has now been decided to publish the statistical portion annually, and the whole book in alternate years only. The Comforts, Ward Industries, and Stores Committee made 283 grants in response to applications from thirty-five Ministry of Pensions hospitals and other institutions. Training in various handicrafts was promoted, grants for ward industries being allocated to ten hospitals, five Ministry of Pensions institutions, and five other similar institutions. More than 9,700 ex-service pensioner patients in hospitals were provided with motor drives, or conveyed to entertainments, by the Drives and Entertainments Fund, which is incorporated in the Comforts Committee. Conferences of London and county representatives were held in April and June to review all aspects of emergency work. Since the inception of this work twelve years ago £1,129,000 has been applied in various forms of constructive help on behalf of the disabled ex-service community. During the same period £133,455 has been voluntarily refunded by men and widows thus assisted—a sum which has extended the duration of the fund by more than two years on the present basis of expenditure. The number of applications increased in 1932 to 21,900, of which 13,250 cases were assisted at a total cost of over £54,500. Help was obtained for a considerable portion of the remainder from other charitable sources. The number of home ambulance stations in the country, including affiliated cars, is 317. During the year under review the ambulances carried 117,153 patients. The task of organizing and carrying first-aid to the injured on the roads is also undertaken by the two organizations jointly.

Royal Masonic Hospital opened by the King

The new Freemasons' Hospital at Ravenscourt Park, Hammersmith (described in our issue of May 13th, p. 840), was opened by the King on July 12th, when His Majesty acceded to the request of the Duke of Connaught, as president of the hospital and the head of English Freemasons, that the institution should in future be known as the Royal Masonic Hospital. The King and Queen were received by the Duke of Connaught, Lord Wakefield, chairman of the hospital board, and Lord Marshall, honorary treasurer. In an address on behalf of the United Grand Lodge of England and of the many thousands of subscribers, the Duke of Connaught said that of the tenets of the Order none stood out more clearly than the duty of relieving distress and suffering. No pains had been spared to make the hospital complete in every particular.

It took the place of a smaller building in Fulham Road, which had been found to be inadequate to the calls on its services, and it was designed more fully to meet the needs of brethren of moderate means. The King, in reply, made a filial reference to the warm support which his father, who for many years presided over the Order, had always given to measures directed to the relief of suffering and distress, especially his work in connexion with King Edward's Hospital Fund, in which, the King said, he also took great interest. The new building, so admirably situated and planned to give patients the benefit of sunshine and fresh air, was a worthy realization of their hopes, and could not fail to bring comfort and help to Freemasons and their families. After the King had opened the door of the main building prayers were offered by the Bishop of Guildford, and the Archbishop of Canterbury gave the patriarchal blessing. Several presentations were then made, and the King and Queen visited the various parts of the building, paying particular attention to the operating theatres, with their modern equipment, the children's wards, with their cheerful decoration, and the kitchens on the top floor, with their provisions for special dietaries. The hospital has cost £335,000 to build and equip, and it contains from 180 to 200 beds in small wards of not more than four beds each. In situation and design it is altogether one of the most pleasing of modern hospitals.

Health in the Factory

A small party of visitors interested in health and welfare services in industry were received at Bournville last week by Messrs. Cadbury Brothers. So much is known of the healthy natural surroundings of the Bournville works that it is not necessary to describe them. The delightfully open country in which the estate is situated has not been heedlessly spoiled by having a busy industrial concern set in its midst. Everything possible seems to have been done so to arrange the immediate surroundings of the great factory as to relieve the strain on the workers of rapid manipulation of machinery and the necessary monotony of much of the work. There are about 8,000 workers at Bournville, one-half being girls and women. Apart from the general provisions for recreation and refreshment, there exists a very complete organization for the medical and dental care of the workers. Dr. Williamson is at the head of the medical department, and attached to the surgery is a staff of three nurses, one or more of whom are qualified masseuses. A fully equipped surgery, with waiting rooms and dispensary, is open during working hours of the factory, there is an up-to-date installation for electrical treatment and massage, and a works ambulance division attends to slight cuts and bruises. All mishaps, however trifling, have to be reported immediately, serious cases being sent to the surgery. The relations of the medical department with the worker begin with his or her first appearance at the lodge gate as an applicant for employment. When a boy or girl applicant is under-developed the doctor may suggest reapplication after a stated period, and make recommendations as to diet and treatment in the interval. If he recommends employment his certificate is qualified with suggestions as to the kind of work which would be suitable, and he may indicate special measures to be taken, such as a course in the remedial gymnasium, with periodical re-examination. Physical exercises form part of the four-year curriculum of the firm's day continuation school through which all junior employees pass. The firm maintains a convalescent home for girls at Bromyard and one for men at Harlech; these homes are used not only for recovery from illness, but also to give a change of air and rest to those threatened with breakdown. The following striking vital statistics for the Bournville estate, being the average for the seven years ending 1931, were furnished to the visitors:

	Death rate per 1,000	Infant mortality per 1,000 live births
Bournville	6.5	56
Birmingham	11.6	72
England and Wales ...	12.1	69

Another large and busy branch of the health service is the dental department, with a staff of three qualified dental surgeons. All "compulsory" treatment is free, and any employee may consult the dentists during the day. This is but the barest outline of the scope of the health and welfare services. A complete account of the auxiliary activities, such as the short break in the morning's work for refreshment, the musical and other diversions in the dinner hour, and the scrupulously careful provision of midday meals, would suggest that little if anything has been omitted which could possibly have been introduced within the necessary limits of factory life. Messrs. Cadbury years ago, in adopting shorter hours of labour, recognized the fact of the physical limit of the worker and his or her need of adequate leisure for recreation and self-development, and the firm's experience has shown that output has been increased by successive reductions in working hours. The grounds, up to within a few yards of the necessarily plain buildings of a vast industrial enterprise, are made beautiful with greenery and flowers, smooth lawns, and a recreation ground surrounded by trees, with pleasant balconies where those workers who prefer it may take their meals in the open air.

India

Wadia Maternity Hospital

An indication of the improvement in the maternity treatment of women in India is afforded by the report for 1932 of the board of management of the Nowrosjee Wadia Maternity Hospital in Parel, Bombay. This magnificent institution, which claims to be the largest maternity hospital in India, was opened in 1926 by Sir Leslie Wilson, the then Governor of Bombay. The total number of admissions during 1932 was 5,790, and of confinements 4,231. These figures show only a slight decline on those for the previous year, which is remarkable when it is remembered that rioting in Bombay seriously interfered with normal conditions for a period of about three months, causing necessarily a sharp fall in the number of patients dealt with. This was nearly compensated by increases in the other months of the year. There were sixty-seven maternal deaths, fifty-eight of these patients having been admitted as emergency cases. Seventeen of these are classified as due to anaemia—a complicating condition in India to which previous attention has been drawn in these columns, and ten deaths were due to pneumonia. There is a steady and gratifying extension of the ante-natal work of the hospital, another indication of the way in which the difficult local conditions failed to depress the popularity deservedly won in previous years. Post-graduate instruction is now available. Special interest attaches to the education of medical students. In the year under review forty-three final-year students from the Seth Gordhandas Sunderdas Medical College conducted 867 cases of labour, and fifty-seven final-year students from the Grant Medical College conducted 491 cases. In addition to this 108 cases were in the charge of eighteen students from the Hyderabad Medical School. It will be recalled that in 1922 Sir Norman Walker visited India

to inquire whether the facilities for the practical study of midwifery were such as to warrant the General Medical Council in guaranteeing that the course of study and the examination were sufficient to ensure its efficient practice. During his subsequent visit, five years later, at the public dinner given him by the medical practitioners of Bombay, Sir Norman testified to the great advance that had been made in the interim, and stated that there was not a medical school in the world which would not envy the Wadia Maternity Hospital. In close co-operation with the donor, Sir Ness Wadia, who is chairman of the board of management, the honorary principal medical officer, Dr. M. V. Mehta, has designed and equipped, and now conducts, an institution which is well in the first rank, both as regards its contribution to maternity welfare in India and its services to medical education. The opportunities for study of this particular branch of medicine have now been enormously enlarged, and an incentive has been given to similar progress elsewhere in India. The Wadia Hospital is managed by a mixed board of governors, but it is entirely staffed by Indian medical practitioners.

Haffkine Institute, Bombay

The Haffkine Institute was the centre for the manufacture of plague vaccine for the whole of India last year, and functioned as the bacteriological laboratory for the Bombay Presidency. It acted, moreover, as the centre for manufacture of antirabic vaccine for the Presidency and adjoining areas, and as the treatment centre for the city of Bombay. Research work on plague and other subjects was continued as in former years, largely with the assistance of the Indian Research Fund Association. The number of cases of dog-bite receiving prophylactic treatment continues to increase year by year. The introduction of the use of the Paris strain of fixed virus and graded courses of treatment according to the assessment of risk proved most satisfactory. One case of paralysis occurred, but ended in complete recovery. The demands for the supply of anti-plague vaccine continues, and an increased immunizing potency has been obtained by improved methods of preparation. Purer strains of *B. pestis* have been secured, and the value of a copper sulphate medium for this organism has been demonstrated. A systematic investigation of the immunity of rats to plague in areas in which the disease has appeared in epidemic and epizoötic form is in progress. The properties of scorpion venom have been carefully studied. The toxicity of the venom of various species was determined in relation to body weight, and the conclusion was reached that a scorpion sting could in no case be fatal to a human being. Various traditional Indian plant remedies were tested and found to be valueless.

Kashmir Hospital

In his annual report on the Kashmir Medical Mission of the Church Missionary Society, Dr. E. F. Neve calls attention to the importance of the work in the surrounding country for which the central hospital is responsible. It has to send out relief expeditions to sick persons in distant parts of the valley, or even to remote districts on the further sides of lofty passes. The Government dispensaries are wisely placed in villages, but can, nevertheless, only deal with a small proportion of those in need of help. The arrival of a relief expedition in a remote village is followed by a rush to it of crowds of men, women, and children. About one in every four has some eye disease, mainly ophthalmia, inturned eyelashes, or granular lids. Skin diseases are common: nearly one in every ten patients has eczema or scabies. Parasitic diseases, especially those caused by worms, are also found in about 10 per cent. of the cases. One-fifth are suffering from serious digestive troubles due to lack of variety in food and a great excess of starch. Rheumatism is common, and tuberculosis is now beginning to appear in the village population. There was an unusually large number of in-patients in the Kashmir Hospital during the summer months of 1932, and the total attendances of out-patients (including those seen in the district) rose by nearly 6,000 to over 50,000. The increase in the in-patient figures was mainly brought about by surgical cases, and 4,327 major and minor operations were performed. On the medical side there were a large number of cases of generalized oedema, often with ascites, and occurring in patients of all ages. Some of these are due to hepatic cirrhosis, cardiac failure, or nephritis, but others seem to have no lesion of the liver, heart, or kidney, and the suggestion is proffered that some deficiency disease, such as beri-beri, may be concerned. So far osteomalacia is the only one of these diseases which has been studied in any detail in Kashmir. Indigenous malaria is still absent from the valley; all the cases treated were brought in from the outside. Small-pox was epidemic during the last months of 1932, and a large number of vaccinations were performed. The Kashmiris are aware of the preventive value of vaccination, and realize that even though a certain number of vaccinated persons caught the disease their attacks were milder than in the unvaccinated.

Scotland

Edinburgh Dental School

At the annual summer meeting and prize-giving of the Edinburgh Dental Hospital and School, on July 10th, the dean, Dr. William Guy, whose retirement was announced, was presented, on behalf of the students, with a silver rose bowl. In making the presentation, Mr. L. B. Corner said that Dr. Guy had moulded the careers of many hundreds of men, and the careers of thousands more would be built upon the foundations he had laid. The city of Edinburgh had benefited by his endeavours, for he had made dental anaesthesia safe and readily accessible, and under him the reputation of the Edinburgh Dental Hospital and School had become not merely national but international. Dr. Guy, in reply, said that this was the thirty-fourth occasion on which he had presided at the annual prize-giving. Some persons might judge of the value and prosperity of the school by the palatial buildings and extravagant equipment it possessed, but he considered that, although these things were desirable, the value of the school depended upon the students who belonged to it. The school's greatest assets were its tone and the prestige which, in consequence of that tone, the school enjoyed. These, he believed, were two precious assets which were possessed in the very highest degree by the Edinburgh Dental Hospital and School. He made up his mind when he first became dean that his primary consideration should be the welfare and advancement of the students, and he believed that in these matters there had been steady progress. He would bequeath to his successor a body of students whose behaviour was more than satisfactory, and who were a credit to the school to which they belonged. Mr. J. M. Graham, who presented the prizes, said that he had always been impressed by the great amount of work a medical student did, but he thought that dental students had to work even harder. He urged them, after they went into practice, to keep up to date and to keep in touch with the literature of their own subject.

Care of the Deaf

At the fifth annual meeting of the Scottish Association for the Deaf, Dr James Kerr, in presenting the annual report, made a plea that provision, somewhat similar to that now existing for the blind, should be made for deaf people As there was no registration of deaf people, Dr Kerr said, the number of such persons in Scotland could not be accurately stated Inquiries made by the association, however, had established that there were 800 deaf children receiving special education, and there were probably 1,200 deaf children who needed education In the whole of Scotland there were probably about 5,000 deaf-mutes and 20,000 people who suffered from some degree of deafness Many of them could not again obtain work if they lost their employment, and it would be meeting a great need if the Blind Persons Act of 1920 could be followed by a Deaf Persons Act

CORRESPONDENCE

Medical Benevolence

SIR,—The Annual Meeting of the British Medical Association would seem to be an appropriate moment for the honorary officials of the Royal Medical Benevolent Fund to bring its claims to the attention of the profession The report of the Fund for the year ending December 31st, 1932, has recently been published, and its contents are worthy of perusal by every one of the 5,000 direct subscribers , as to the other 47,000 medical practitioners who do not subscribe, we feel sure that if they read it they would at once become subscribers , then our dream of a subscription income of £25,000 per annum instead of £12,451 might become true

We have reason to know that many medical men are somewhat confused about the medical charities—perhaps a word here may be allowed to make it clear what we do The Royal Medical Benevolent Fund exists for the purpose of giving " pecuniary assistance to distressed members of the medical profession, their wives, widows, and children " This is done in the form of annual maintenance grants, and in single grants to assist over temporary difficulties , a limited number of annuities are also provided for those who are aged or disabled Such assistance is given alike to applicants who may have been either subscribers or non subscribers.

May we here point out that all the sums given in annuities are provided by the invested funds, whereas the grants, for which a fresh application has to be made each year, are provided by the subscription income Our ordinary standard grant is up to £26 per annum for dependants of doctors, but in some few instances we have exceeded that We feel sure that all will agree that a paltry 10s per week for a widow or daughter is not very much for our grantees, though we can assure you, Sir, that it is a perfect Godsend to some of them, so dire is their poverty , that is why we want a subscription list giving us £25,000 per annum. We can then raise our standard grant to something more than £26

Our organization works in co operation with the Medical Charities Committee, Sir Charles Hastings Fund, and Epsom College, and there is complete interchange of information about applicants Whether a subscriber sends his subscription direct to us or allocates it to us via the British Medical Association is not of much moment, but we hope to enlist the personal interest of all subscribers in the work of the Fund We have not attempted to describe the class of cases that come before us asking for help, as you are kind enough to publish from time to time notes of cases which have been dealt with by our Case Committee.

Augmenting the work of the Fund mention must be made of the Ladies' Guild, which is an auxiliary of the Fund, dealing mainly with personal service, providing clothing, assisting in education of children, and giving help in sundry other ways to beneficiaries It obtains its own funds by subscriptions, collections, and entertainments which are organized on its behalf from time to time, and gathered in last year £4,000 for these purposes

We need only say, in general that the need for this medical charity is great, that it is never-ending To prove this, up to the end of June we have given in grants in the first six months of this year 1933, £1,023 more than in the corresponding period of 1932 and against that we have received £614 less in subscriptions than last year This is a matter which most of us hold is a prime duty of the profession as a whole to deal with Thus we venture once again to commend it to all the members of the Association, and to all the non members whether in this country or abroad —We are, etc ,

THOMAS BARLOW,
President
LEWIS G GLOVER,
Honorary Treasurer
R M HANDFIELD JONES,
Honorary Secretary

Royal Medical Benevolent Fund,
11, Chandos Street, W 1,
July 22nd

Paying Patients in Voluntary Hospitals

SIR,—In your issue for July 8th you allowed me to draw attention to the position developing throughout the country in regard to schemes adopted by voluntary hospitals by means of which they have entered into the business to provide a paying patient department In that communication I referred to certain proposals of the Pay Beds Committee of King Edward's Hospital Fund, and for brevity's sake did not quote the conclusions relevant to that part of the subject in detail, but gave what I hoped was a fair summary I gave the same summaries in a communication you published on September 15th, 1928, and no one challenged their correctness However, in your issue for July 15th, 1933, the honorary secretaries of that Fund quote in detail certain of the conclusions of the Pay Beds Committee, placing them in juxtaposition to my summaries Unfortunately, in replying to the summary marked (*a*), they quote certain conclusions which are not those which are relevant Summary (*a*) is as follows

> Accommodation provided in voluntary hospitals should be placed at the disposal of those of " moderate means " on the same terms and conditions as apply to the " sick poor " no payment for medical treatment being allowed

The relevant conclusions are:

> (iii) That the provision of special accommodation on a limited scale for patients of small means at rates which involve a charge on the general fund can legitimately be regarded as coming within the present extended function of the voluntary hospital system provided that it is looked upon as a secondary part of that function and that the treatment of ordinary patients is maintained as the primary part
>
> (iv) That no patient in a pay bed should pay any fee to a physician or surgeon whether a member of the medical staff or not, for treatment received in the hospital unless the charges which that individual patient pays to the hospital cover the whole cost to the hospital of his current maintenance and of any specific services he receives from the hospital

With regard to the summaries marked (*b*) and (*c*) the honorary secretaries by quotations would seem to support these But, Sir, the question is not whether certain summaries made are strictly accurate or not, although

in this instance they appear to be. The real question is whether voluntary hospitals following the present lines of their development of private patient departments are to be allowed unquestioned to secure for themselves and their restricted visiting medical staffs medical practice which up to recently has been considered to be open to the whole medical profession; thus encouraging the present craze for consultation and specialism at a hospital on every conceivable occasion and for every conceivable physical and mental illness. If this policy is developed for the benefit of the whole population, except for the few whose happy financial circumstances still place them apart from the rest of the community, then we shall find here in England what has been brought about in the United States of America—that the family doctor will become so scarce that eventually subsidies will have to be offered to secure a sufficient number.

Of necessity the general medical practitioner should be provided with opportunities for practice in the private patient department, wherein he should be able to co-operate with any specialist whom the patient and he care to call in. If this is not rendered possible then "the ranks of the younger consultants will be steadily thinned," as you state, and the public generally will lose the advantage of that efficient domiciliary medical service which is still at its disposal if it desires to retain it.—I am, etc.,

Hove, July 15th. E. ROWLAND FOTHERGILL.

Penetration of Infra-red Rays

SIR,—It is many years ago since I demonstrated to the Physiological Society that the red rays penetrate well through the cheek of a white man, less well through that of a Japanese, and not at all through that of a Negro. A glow lamp held in the mouth, a mirror, and a dark room suffice to show this. Sonne in 1921 showed, by inserting thermo-electric needles under the skin, that the red and short infra-red rays penetrate, while the long infra-red rays do not penetrate and heat the surface, whence the heat is conducted inwards. Argyle Campbell and I confirmed this observation in 1923. In the *Proceedings of the Physiological Society*, May 14th, 1932, I published a curve which shows the penetration of infra-red rays through the horny layer of the skin; just as the red rays behave so do the short infra-red rays pass through this layer to the extent of about 70 per cent. It is then to be expected that some trace of them should pass through the wrist, as found by Dr. Heald's observer.—I am, etc.,

London, S.W., July 11th. LEONARD HILL.

Persistent Occipito-Posterior Cases

SIR,—Dr. C. L. Somerville's criticism (May 13th, p. 846) of my paper in the *Journal* of February 25th (p. 311) has reached me, and I would like to say a few words in defence of my position.

I agree with him that the drawing given is somewhat misleading, and his own figure (No. 2) more accurately shows what actually takes place. With the head on the perineum it is obvious that the hand and forearm cannot be introduced into the vagina without pushing the head upward. In occipito-posterior positions the head seldom reaches the pelvic floor, but remains at or above the inter-spinous line. In that case, I maintain that the hand can be carried upward far enough to reach the shoulders and turn them forward. In justification of my method I would like to say that I used it many years before the advent of the Kielland forceps. I have taught it to my students, and both they and many of my fellow practitioners will bear witness that they have used it also and with entire success. And here one might add that nothing succeeds like success. The objection that putting the hand into the uterus may lead to infection is quite to the point. However, since the rubber glove came into use that danger has markedly lessened. I can truthfully state that never in my experience has infection followed. (Here I touch wood.) Has not Dr. Somerville introduced his hand into the uterus in doing an internal version or when removing an adherent placenta, and did anything untoward happen?

There is no doubt that the Kielland forceps can be used to correct an occipito-posterior position, and I have often pointed out that fact to my students. But not many physicians here possess these forceps, for, owing to their somewhat freakish construction, they have not found much favour. For the general practitioner I think they are far inferior to the Jellett or Milne Murray type of axis-traction forceps. Having used this manual method for many years with uniformly good results, I can see no reason for adopting a different method, especially one which has always been looked upon with disfavour—that is, forceps rotation. With due respect I present these views and will leave to the profession in general to decide on their merits.—I am, etc.,

Winnipeg, June 24th. O. BJORNSON, M.D.

Use of Quinine in Normal Labour

SIR,—May I point out that the use of quinine in normal labour, as employed in the case reported by Mr. G. C. Dorling of Tientsin in the *Journal* of July 8th (p. 79), is not the method described by Dr. Mitchell of Bath (in the *Journal* of January 25th, 1930), and by myself (in the *Journal* of January 28th, 1928). Mr. Dorling used it to induce labour in an over-time pregnancy, with small pelvic measurements. Our method is a very mild "quininization" by giving not more than 5 grains a day in divided doses, commencing several weeks before the calculated date of parturition. The objects aimed at and, we claim from clinical experience, achieved are: (1) labour shorter and easier; (2) improved uterine tone (with *no* complications of irregular contraction); (3) definite diminution in susceptibility to infection; and (4) improvement of general health and more satisfactory puerperium. In view of the confusion which has obviously arisen some other descriptive term for this method is imperative. It is now seen that the above heading is an incorrect description. I would suggest: "Ante-natal use of quinine as a puerperal prophylactic."

British and American pharmacologists differ notably in their findings on the fundamental point of the action of quinine: "Does it lower temperature in virtue of a diminution of oxygen consumption by the tissues?" Further, in antimalarial practice its use is not, as might be supposed in this country, stabilized. New synthetic drugs, for which high claims as to their superiority over quinine have been and are being made, have been introduced recently. This indicates the truth of the foregoing statement. It is claimed by Dr. Mitchell and myself that its action over an extended period in small doses (5 grains maximum, as against 30 to 40 grains a day) not only differs widely, but that its superiority is clinically quite unmistakable. Hence, on my own account I feel I must disclaim responsibility for advocating its use in large doses and suddenly, and endeavour to dispel the evident confusion between two distinct methods. I hope to deal more fully with the subject at an early date. Meantime the original articles should be consulted.—I am, etc.,

London, W.6, July 12th. W. M. HEWETSON.

Avertin: Disclaimer

SIR,—With reference to the accounts in the Press of the inquest on the woman who died at Guy's Hospital after enucleation of tonsils, I wish to say most clearly that the statement that I introduced avertin into this country is incorrect The report on the use of this drug for anaesthesia was published by Dr Joseph Blomfield and myself on behalf of the Anaesthetics Committee of the Medical Research Council, and contained the conclusions of other investigators besides ourselves

Further, I must correct the impression that I administered the anaesthetic In fact, I was not even aware that an operation was to be or had been performed on this patient —I am, etc ,

London, W 1, July 15th FRANCIS E SHIPWAY

Allergic Diseases in General Practice

SIR —Dr G W Bray, in the *Journal* of July 8th (p 43), states that the use of non specific agents is "a shot in the dark," and that an extract of feathers, hair, and dust is more likely to meet with success Among the non specific agents "Witte's No 30 peptone is probably the best' Now, I have seen Dr Bray s practice at Guy s Hospital, and every case was injected with equal parts of Witte's No 30 peptone and extract of hairs, feathers, etc , and yet he says he uses the inhalant mixture solely I have used the solution he employs, kindly given me by himself, and I am convinced that the peptone has more to do with the good results in the cases than the solution of inhalants —I am, etc ,

London, W 1, July 10th A G ALLD

SIR,—There are so many dogmatic statements in Dr Bray s address that older members of the profession may be pardoned for hesitating to accept them all as 'the whole truth" In particular, it would be interesting to know what practical experience Dr Bray has had of the use of tuberculin in the not uncommon group of cases of asthma in which tuberculo protein is almost certainly the "causative allergen" I imagine that many physicians of sound judgement and long experience would disagree that tuberculin in these cases is a 'waste of time and money"

The problem of the association of nasal abnormalities and asthma is apparently solved at last by Dr Bray He says, "It is pitiful to hear of the number of useless operations that many asthmatics have had on their noses" It is also pitiful to find in how many instances the nasal condition has not been dealt with, while the patients have spent, in vain, large sums on various methods of desensitization

What reply have the nasal surgeons to make to Dr Bray's theory that "the nasal abnormalities are commonly the result of allergic reactions and rarely the primary cause?—I am, etc ,

Oxford July 10th WILLIAM STOBIE

Monilia Infection of Respiratory Tract

SIR —I noted with pleasure, in your issue of June 24th (p 1130), Dr David Haler's belief "that most people who have had occasion to handle large numbers of sputa will agree as to the high incidence of monilia therein' It is a matter for regret that very many medical men do not realize this The remark "that such monilia might gain access to bronchi in cases of subnormal health of the mucosa seems beyond question" should be encouraging to those who are interested in monilinsis of the lungs Lieut Colonel P J Marett s note in the *Journal* of May 27th has less bearing on the pathogenicity of monilia than several of his previous articles on this subject. The recognition of its pathogenicity in diseases of the skin has rescued many a case from the easy nomenclature of eczema or dermatitis or onychia, and given a diagnosis of monilia infection

When one considers the virulent and intractable condition that such infection of a mucous membrane may cause, it seems difficult to imagine the persistent presence of monilia in the lung without a chronic inflammatory lesion being developed, either as a primary infection or following on established disease—for example, in symbiosis with tubercle A 'chest clinic" for out patients was founded in Jersey over two years ago consequent upon Lieut Colonel Marett's work Among the observations made there the following particularly interest me It was noted that in chronic disease of the lungs such as tubercle, where monilia is also present the patient is markedly benefited by treatment of the monilinsis, potassium iodide and the vaccine being given and that in cases of bronchitis or bronchiectasis in which monilia is the predominating infection and tubercle is absent a characteristic pink or blood stained sputum is frequently found—the radiologist finds a picture which he recognizes as "typical" of monilia infection and the above mentioned treatment will result in a surprisingly rapid abatement of symptoms —I am, etc ,

Jersey July 1st W STEWART, Major R A M C (ret)

Arthritis and Allied Conditions

SIR,—The very gloomy prognosis given by the Arthritis Committee in cases of chronic arthritis of uncertain origin has emboldened me to place on record some vague observations which I made during a stay of about eight years in Malaya.

Malaya is a country of small area almost entirely surrounded by sea and situated just north of the equator The climate is peculiar there are no seasons It is always rather hot and damp The rainfall I believe, is about 120 inches, fairly evenly distributed through the year The tropical showers are extremely severe, however a great volume of water may fall in a few minutes , so this great rainfall does not necessitate dull rainy days These are exceptional These climatic conditions appear to exercise a decidedly deterrent influence upon certain streptococci Rheumatic and scarlet fevers are practically unknown I never saw a case of either Puerperal pyrexia is very common, but the acute fulminating type, usually associated with streptococcal infection, is unknown or very rare Tonsillitis, quinsy, erysipelas, and chronic articular disease are all rare , but lumbago, stiff neck, and all forms of fibrositis are not uncommon Valvular disease of the heart is much less prevalent there than here

I have only been able to trace two subjects of chronic articular rheumatism who spent any length of time in Malaya Both were elderly ladies, and in neither case did the length of stay amount to one year In both cases articular rheumatism had been a severe handicap for a considerable time before going to Malaya during their residence there they experienced very marked relief, and this relief has been maintained for over five years since their return to this country While admitting that these observations are of little or no value, it is hoped that they may induce others, with experience longer than mine to publish their views In the meantime I suggest that a stay of several months in a climate similar to that of Malaya may have a very definite ameliorative effect in cases of chronic arthritis of unknown or streptococcal origin, and that this effect may be of a lasting nature

The fact that varicose veins are (I believe I am correct) practically unknown among the natives of Malaya leads me to suspect that varix is a by product of chronic streptococcal infection —I am, etc ,

London, W 9 July 4th JAMES GOSSIP

"Nerve Energy"

SIR,—It appears to me, from Professor Fraser-Harris's letter in your issue of June 10th, that he is not sufficiently appreciative of the point that Professor Howell's conception of nerve energy is derived from the muscle-nerve preparation. The nerve cell that he visualizes is one which remains quiescent until excited to activity by an external agent—the stimulus—and until that stimulus arrives it does nothing. Moreover, after each excitation it reverts to quiescence. The possessor of such nerve cells could have within him no urge to do anything; he would require the equivalent of kicking and cuffing to induce him to do anything at all, and then relapse to the inert state again after the kicking and cuffing were done.

On the other hand, nerve cells which are ever in rhythmical activity provide immediately obvious sources of internal urges to do things, with the degree of urge depending on the degree of their activity. The possessor of abundant nerve energy is the one with nerve cells that "beat" vigorously, like those of the respiratory centre in hyperpnoea; the possessor of little nerve energy has nerve cells that beat feebly. Probably in due course we shall find the ductless glands which provide nerve energy through their capacity to augment our nerve cell activities.

This conception of spontaneously active central neurones has not so far been reached by the majority of physiologists, because they have always gone to the excised muscle-nerve preparation for their fundamental ideas. They have consequently presumed that our cerebral nerve cells and central neurones generally are inert and inactive until excited to activity by a stimulus, just as are excised muscle and nerve. This presumption, treated as a fact, is further responsible for the theory that a special structure—the synapse—is responsible for the differences of behaviour found in reflex areas and excised nerve respectively. If, however, this presumption be got rid of, the facts actually demonstrate the existence of a rhythmical structure in reflex areas. The same facts indicate that cerebral nerve cells must also possess an intrinsic and spontaneous rhythmical activity. Such cells are obviously sources of nerve energy.—I am, etc.,

W. BURRIDGE,
Professor of Physiology,
Lucknow University.

King George's Medical College,
Lucknow, July 3rd.

I.M.S. Pensions

SIR,—I regret that, owing to the available space in the correspondence columns of the *Journal* being limited, my remarks are in the form of notes. I.M.S. officers are recruited by the Secretary of State for India, on behalf of the Crown, on the terms stated in the "Memorandum regarding Appointment to and Conditions of Service in His Majesty's Indian Medical Service." This memorandum does not show that pensions are a charge on Indian revenues and are not guaranteed by the British Government, but, on the contrary, conveys the impression that the British Government as the employer is liable for the payment of pensions. The officers after entering the service learn that, though their pay, pensions, etc., are a charge on Indian revenues, the regulations connected with them are framed, amended, or cancelled by the Secretary of State for India in Council, and not by the Government of India. This distinctly proves that the British Government, as employer, is the guarantor of the pay, pensions, etc., of the officers. Under the present system of Government, if the Indian Government failed to meet the financial liabilities of India the British Government would have to find the money, and if she could not get it in India she would have to pay from the British exchequer. In spite of this Sir Samuel Hoare in the House of Commons on March 7th, 1932, stated:

"The pensions of officers of the Indian Service are not guaranteed by the British Government; they are a charge on Indian revenues, and the responsibility for ensuring that the necessary funds are forthcoming rests with the Secretary of State for India."

This statement is confusing, if not contradictory. The responsibility of the Secretary of State for India, as he is the representative of the British Government for Indian affairs, must finally rest with the British Government, and this responsibility amounts to these pensions being guaranteed by the British Government, irrespective of the source of the funds to meet them. The Secretary of State for India should have quoted the authority for his "no guarantee" dictum, especially as he, in several later statements, has admitted that these officers are employees of the Crown. In Common Law the employer is liable for the pay of his employees. Pension is deferred pay. The Secretary of State for India has also stated:

"It is inconceivable to the present Government that in dealing with any scheme of constitutional change in India, Parliament could fail to provide such safeguards as may be necessary to ensure the due payment of pensions to officers who have served the country."

In the Indian White Paper there are safeguards for the rights of the officers of the Indian Civil and Police Services, which like the other safeguards (which may include some for those of the I.M.S.) on paper are decidedly excellent, but no machinery has been provided for enforcing them. Hence where are the safeguards for the unsuccessful action or the inaction of the British Government in the event of the new Indian Government repudiating the financial liabilities of India, including pensions? Consequently to protect our pensions immediate action must be taken from several directions. I recommend that the suggestions in the letters which were published in the *Journal* of April 2nd and 9th, 1932, and June 17th and 24th, 1933, should be carried out, and also that the officers of the Service living in or near London should meet and arrange for evidence to be given before the Select Joint Committee on Indian Constitutional Reform, as has been done on behalf of several of the Indian Services. Delay will be dangerous for us.—I am, etc.,

C. C. MURISON,
Colonel I.M.S. (ret.).

Knocke-Zoute, Belgium,
July 15th.

Ultra-violet Rays in Diseases of the Mouth

SIR,—In Dr. A. Eidinow's interesting article on the above subject in the *Journal* of July 15th (p. 94) there is one statement which requires correction. The author states that "the mucous membrane of the buccal and pharyngeal cavities is three to four times as sensitive to ultra-violet rays as the normal white skin." Actually the mucous membrane of the buccal and pharyngeal cavities is considerably less sensitive than the skin, and I have found that it requires a 50 to 100 per cent. longer exposure to the ultra-violet rays to produce on mucous membrane a reaction comparable to that obtained on the skin.—I am, etc.,

W. KERR RUSSELL.

London, W.1, July 14th.

The "Medical Directory"

SIR,—To maintain the accuracy of our annual volume we rely upon the return of our schedule, which has been posted to each member of the medical profession. Should the schedule have been lost or mislaid, we will gladly forward a duplicate upon request. The full names of the doctor should be sent for identification.—We are, etc.,

J. AND A. CHURCHILL,
Publishers of the *Medical Directory*.

40, Gloucester Place, Portman Square, W.1, July 17th.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on July 15th the following medical degrees were conferred:

M. CH.—A. E. Porritt.

B.M.—R. Thomas, C. Wilson, J. E. Morley, H. J. Barrie, E. Rowler, T. T. Hardy, C. C. Cobb, P. E. F. Routley, H. R. Bathurst Norman, J. E. Lewis, G. E. M. Benson.

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—*Part II*: S. S. Alam, F. C. Golding, C. A. Grant, Elizabeth M. Haworth, R. M. Patterson, M. Singh, Elizabeth M. F. Taylor, A. R. Thomas.

UNIVERSITY OF LONDON

At a meeting of the Court on July 12th the chairman (Lord Macmillan) presiding, a resolution was passed conveying cordial thanks to the Rockefeller Foundation for a further generous donation to University College, which has benefited in the past from munificent benefactions from the same source. The Foundation, learning of the difficulties of accommodation experienced by Professor A. V. Hill, Foulerton Professor in Physiology, and his research students, have made a grant of £4,000 for the reconstruction and equipment of additional laboratories of the Department of Physiology at the College, to accommodate expansion of Professor Hill's work in biophysics.

The following candidates have been approved in the examination indicated:

ACADEMIC DIPLOMA IN PSYCHOLOGY.—H. A. Fountain, Gertrude V. Gaetjens, Enid Hurst, Sophia Lauterbach, A. F. Mohun, Phyllis D. Short, Eva Sogno, Edith B. Warr.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The following candidates have been approved in the examinations indicated:

ACADEMIC DIPLOMA IN BACTERIOLOGY.—J. C. Cruickshank, Averil W. Greener, E. H. Hopkins, T. McClurkin, G. Panja, A. E. Platt, Helen M. Russell.

DIPLOMA IN PUBLIC HEALTH.—R. J. I. Bell, W. L. Blakemore, H. G. H. Butcher, C. E. Caudwell, R. C. Cohen, J. G. Currid, P. G. Currid, Hilda M. Davis, A. N. de Quadros, J. D. Dimock, J. C. StG. Earl, C. L. S. Ferdinands, N. M. Goodman, J. M. Henderson, R. S. Johnston, J. Kemp, Laura H. Macfarlane, N. M. Mian, Niaz-ud-Din, B. C. Nicholson, B. O'Brien (awarded mark of *distinction*), T. B. Pahlajani, G. H. G. Southwell-Sander, J. M. Talati, A. J. Teal, Kathleen C. Vost, G. A. Wilson.

UNIVERSITY COLLEGE

The following awards have been made in the Faculty of Medical Sciences:

Entrance Scholarship, B. Brownscombe; *Entrance Exhibitions*, G. B. Jones, J. I. P. James; *Bucknill Scholarship*, D. F. Eastcott; *Bayliss-Starling Memorial Scholarship (Physiology)*, L. Young, B.Sc.; *Cluff Memorial Prize, (Anatomy, Physiology, Pharmacology and Chemistry)*, K. D. Fraser; *Ferriere Scholarship* (tenable at University College Hospital Medical School), D. V. Davies; *Sharpey Scholarship (Physiology)*, E. G. Murphy, B.Sc.; *Anatomy* (Senior Class—Gold Medal), K. D. Fraser; *Physiology* (Senior Course—Gold Medal), J. S. Horn.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examination indicated:

M.B., CH.B.—*‡‖J. D. Hay, †‡Freda B. Bannister, †‖G. Cornah, †‖S. Henderson, †§C. H. Stewart-Hess. *Part B* (1924 Regulations): D. W. Bailey, R. T. Bowes, Clara Burgess, J. M. Edwards, J. G. Hailwood, W. S. Heath, Nancy A. Holt, D. J. Hoskinson, R. A. Hughes, W. R. Hunter, H. B. N. Jennings, W. N. M. Mason, E. T. Owen, S. Papperovitch, F. Pygott, R. G. Reid, Enid Richards, Estelle E. Roskin, T. Seager, G. M. Sleggs, C. W. Warner, C. R. Wright.

* With First Class Honours. † With Second Class Honours.
‡ Distinction in Medicine. ‖ Distinction in Surgery.
§ Distinction in Obstetrics and Gynaecology.

UNIVERSITY OF DURHAM

FACULTY OF MEDICINE

At the convocation held on June 27th the following degrees and diplomas were conferred:

M.D.—I. Bainbridge, L. Barber, B. N. Bhandari, E. C. Brewis, J. L. Burn, S. Curry, W. L. Fulthorpe, J. Giles, J. A. Lennox, D. C. Livingston, J. Maddison, A. J. Moskow, T. W. Stallybrass, S. C. Stonier.

M.S.—G. Y. Feggetter.

M.B., B.S.—W. G. H. Allen, R. A. Blaiklock, A. G. Brewerbank, A. T. Burn, T. M. Clayton, J. S. Coad, T. Cocks, S. Y. Feggetter, G. A. Flann, A. N. Graham, H. C. Lawson, R. P. Leake, H. P. McNamara, T. F. Main, S. Mark, May F. St. J. C. Millar, Laura M. Redhead, E. Scott, G. A. Sharpe, T. E. M. Wardill.

B.Hy., D.P.H.—Muriel Brighton, J. L. Burn, R. H. Clayton, W. L. M. Gabriel, G. Millar, J. B. Tilley.

UNIVERSITY OF MANCHESTER

Mr. Frank Clare Wilkinson, M.D., B.D.S.Liverp., D.D.Sc. Melb., at present professor of dental science in the University of Melbourne, has accepted an invitation to the chair of dental surgery and the directorship of the Dental Hospital of the University of Manchester.

UNIVERSITY OF DUBLIN

TRINITY COLLEGE

The following degrees were conferred on July 5th:

M.D.—S. A. Clark, N. M'I. Falkiner, Hope Trant, Marie A. Hadden (*in absentia*).

M.CH.—P. A. Hall.

M.B., B.CH., B.A.O.—D. M. Ahern, H. S. Barber, W. T. Bermingham, Emily M. Booth, Marjorie R. E. Boyd, H. D. Clarke, H. R. Davies, W. P. Griffin, M. J. Horgan, Eileen M. Kennedy, J. K. Lavery, D. M. Mitchell, H. S. Perrot, J. S. M. Pringle, M. J. Roberts, E. C. Rowlette, J. S. Ruddell, C. W. N. Smiley, Ethel S. Wilson, Una M. Irvine (*in absentia*).

QUEEN'S UNIVERSITY OF BELFAST

The following degrees were conferred on July 3rd:

M.D.—J. Boyd, J. H. Gillespie, T. B. H. Haslett, C. W. Kidd, I. H. McCaw, F. E. B. Manning, A. R. Martin, Dorothy Sinton, R. W. M. Strain, R. J. W. Withers.

M.B., B.S., B.A.O.—D. H. Anderson, J. R. Armstrong, J. K. *Armstrong, W. G. A. Bingham, J. C. Bowe, T. Boyd, Mary C.* Chambers, Mary J. Darby, S. D. Donnan, W. Dornan, S. L. W. Erskine, R. Glenn, J. H. Green, T. R. Haire, W. Hanna, J. D. Hardy, E. Henderson, B. R. Henry, R. W. Hewitt, Winifred M. Jackson, A. Johnson, H. C. A. Johnston, J. H. Kyle, S. W. Liggett, G. P. MacCarthy, J. K. McCollum, C. A. McComiskey, R. F. McKeown, E. W. McMechan, A. McQuiston, F. V. Maclaine, W. M. Martin, W. A. H. Mitchell, Gertrude E. Moffett, L. C. Montgomery, J. C. Nicholson, J. M. O'Kane, J. W. Orr, A. S. Patterson, D. C. Parter, Anne C. Robertson, S. A. Vincent, D. W. Wallace, C. G. Warnock.

D.P.H.—H. C. Armstrong, E. Davison, J. G. Devlin, Laura Levy, Amelie Loewenthal, R. A. N. McMath, H. J. McShane, J. T. Murphy.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A quarterly meeting of the Council of the Royal College of Surgeons was held on July 13th.

Sir Holburt Waring was re-elected President, and Mr. G. E. Gask and Mr. Wilfred Trotter were elected Vice-Presidents.

Sir Arthur Keith has retired from the post of Conservator of the Museum, and Mr. R. H. Burne, the Physiological Curator, who has been Acting Conservator for the past nine months, will retire when a new Conservator comes into office.

The following were reappointed to their respective posts for the ensuing Collegiate year: Miss M. L. Tildesley (Curator of the Department of Human Osteology), Sir Frank Colyer (Honorary Curator of the Odontological Collection), Mr. C. J. S. Thompson (Honorary Curator of the Historical Collection), Mr. J. H. Thompson (Bernhard Baron Scholar), and Mr. Laurence O'Shaughnessy (*College Research Scholar*).

Professor Edward L. Keyes, Professor of Urology, Cornell University, New York, and Professor P. Nové-Josserand, Professor of Orthopaedics and Paediatrics in the University of Lyons, were elected Honorary Fellows of the College.

The Hallet Prize for Anatomy and Physiology was awarded to David Slome, of Capetown University, who also holds one of the Leverhulme Research Scholarships.

The following lecturers were appointed for the ensuing year:

Hunterian Professors.—Mr. W. E. Le Gros Clark, two lectures on the Evolutionary Origin of the Primates; Mr. C. P. G. Wakeley, one lecture on the Surgery of the Pineal Gland; Mr. L. R. Broster, one lecture on the Surgery of the Adrenal; Mr. H. C. Edwards, one lecture on Diverticula of the Duodenum and Ileum, and one lecture on Diverticula of the Colon and Vermiform Appendix; Mr. R. A. Brews, one lecture on a clinical research on the Radium Treatment of Carcinoma of the Cervix Uteri; Mr. Arnold Sorsby, one lecture on Retinal Abiotrophy; Mr. K. H. Watkins, one lecture on the Bladder Function in Low Spinal Injury; Mr. E. G. Muir, one lecture on Carcinoma of the Prostate; Mr. A. A. Davis, one lecture on the Presacral Nerve: its Anatomy, Physiology, Pathology, and Surgery; Mr. J. M. Yoffey, one lecture on the Study of Lymphoid Tissue.

Arris and Gale Lectures.—Sir T. P. Dunhill, one lecture on Diaphragmatic Hernia; Mr. C. B. Henry, one lecture on Aberrant Third Molars and their Menace; Mr. Denis J. Browne, one lecture on Talipes Equino-Varus.

Erasmus Wilson Lecturers.—Mr. R. Davies-Colley, three demonstrations on Pathology; Mr. C. E. Shattock, three demonstrations on Pathology.

Arnott Demonstrator.—Mr. C. P. G. Wakeley, six demonstrations on the contents of the Museum.

It was reported that the Special Trustees of the late James Maxwell Grant Prophit had awarded a Studentship for Cancer Research to Professor Edward Mellanby on the recommendation of this College.

Diplomas were granted jointly with the Royal College of Physicians as follows:

DIPLOMA IN PUBLIC HEALTH.—A. L. Banks, Kathleen F. Butterfield, Evelyn M. Davies, F. M. Day, T. Evans, Beryl M. Furlong, J. A. Galletly, Sybil D. Goodwill, D. R. C. Grey, G. E. Harries, Phyllis N. Hooper, C. K. Lakshmanan, J. G. S. McQueen, P. Morton, J. M. Vine.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—C. E. Bevan, B. B. Bose, Rachel P. Carr, D. N. Chakravarti, A. B. Cook, M. Ellis, J. H. S. Gear, J. A. S. Goonawardena, W. H. Greany, C. E. Gunatilleke, D. J. T. Leneagé, V. S. Majmudar, H. S. Patel, J. H. Stickler.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—H. McI. Birch, C. R. Birnie, Doris E. Bunbury, G. H. Davy, M. M. Deane, H. R. Ferguson, R. C. Forrester, R. S. Kennedy, Annie M. McGrath, F. J. Napier, J. N. Warren, J. F. Wilde.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.—Barbara M. L. Abercromby, D. W. Ashcroft, W. H. Bradbeer, K. K. Ghosh, R. W. Higgins, V. R. Kamath, H. D. B. Kelly, F. J. G. Lishman, A. F. Mohamed, D. G. Perrett, A. Rashid.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.—G. J. Ahern, K. L. B. D. Bhiwapurhar, Alison M. Collie, J. A. Corkey, H. de Villiers, R. J. L. Fraser, M. W. Joseph, Pah-Chien Kwan, D. C. Macdiarmid, F. Messiha, J. C. Neely, P. A. V. Pillai, C. Shaw, S. Smyth.

DIPLOMA IN MEDICAL RADIOLOGY.—C. D. Costello, R. I. Roberts, H. E. P. Yorks.

LONDON HOSPITAL MEDICAL COLLEGE

The "Price" University Scholarship in Anatomy and Physiology, value £100, open to students of the Universities of Oxford and Cambridge, has been awarded to J. W. Landells of St. John's College, Cambridge.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At the monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on July 3rd, the following were admitted Honorary Fellows of the Faculty: James Kerr Love, M.D., LL.D., Professor G. Elliot Smith, M.D., F.R.C.P., F.R.S., Sir Malcolm Watson, M.D., LL.D.

At the same meeting the following were admitted Fellows of Faculty: A. A. Charteris, V. Iswariah.

The Services

Major-General C. A. Sprawson, C.I.E., Indian Medical Service, has been appointed honorary physician to the King, vice Colonel W. H. Leonard (retired).

The King has appointed Major H. C. Sinderson, O.B.E., R.A.M.C. (Militia), to be a member of the Royal Victorian Order (Fourth Class), on the occasion of the visit to London of the King of Iraq.

DEATHS IN THE SERVICES

Lieut.-Colonel Edwin Harold Brown, Bengal Medical Service (ret.), died at Reigate on June 19th, aged 71. He was born at Bombay on July 21st, 1861, and was educated at Bombay University, and at University and King's Colleges, London. After obtaining the L.M.S. at Bombay, he came home, and took the L.R.C.S.Ed. and L.R.C.P. Lond. in 1884. Subsequently he took several other degrees and diplomas: the M.D.Brux., with honours, in 1894; the M.R.C.P.Lond. in 1902; and in 1903 the M.D.Durh., the F.R.C.S.Ed., and the D.P.H. of the London Colleges. Entering the I.M.S. as surgeon on September 30th, 1886, he became lieutenant-colonel after twenty years' service, and retired on November 10th, 1909. He served on the North-West Frontier of India in the Tirah campaign of 1897-8, receiving the frontier medal with two clasps. Most of his service was spent in civil employ in Bengal, where he was civil surgeon of Puri, of Darbhanga, and of the Twenty-four Parganas. After his retirement he practised in Calcutta for some years. He was three times summoned to attend the Maharajah of Nepal. On the last occasion, in 1929, he found that the Maharajah had died before his arrival, and by the special request of the Maharajah's sons he remained at the capital until the end of the period of mourning, when they were able to see him. He took a keen interest in the question of snake poisons, and for some time he acted as secretary of the Calcutta Zoo. He was thrice married, and leaves a widow and son.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The Rent and Mortgage Interest Restrictions (Amendment) Act and the Essex County Council Act have received the Royal Assent. The House of Commons this week considered the India Office Vote, the Road and Rail Traffic Bill, and minor measures.

The recess is expected to begin on July 28th.

Mr. Ramsay MacDonald announced to the House of Commons on July 17th a Government decision to guarantee for a term of years a preference upon motor spirit produced from British coal, shale, or peat.

In the House of Commons on July 17th the Essex County Council Bill was read the third time.

In the House of Lords on July 17th, the Slaughter of Animals Bill passed through committee.

The Work of the Indian Medical Service

Sir S. HOARE, in presenting the Estimates for the India Office, on July 17th, said that an almost incredible amount of suffering and inefficiency in many Eastern countries was due to the low standard of living. Any efforts, therefore, that were successful in raising the standard of health redounded not only to the credit of the men who made those efforts, but in a special manner to the future prosperity of the country in which those efforts were made. In India they had a very fine record in the field of health administration. He was not sure if members always realized the debt of gratitude which, for many years past, not only India but the whole world, had owed to the pioneer work of the Indian Medical Service. Many of the most notable achievements in the field of surgery and medicine had been due to the experiments and the experience of officers in the Indian Medical Service. During the last twelve months, in spite of many exceptional difficulties—for instance, the difficulty of finding the funds necessary for medical research and medical administration—the record had been on the whole very satisfactory. A great Institute of Preventive Medicine had been opened in Calcutta. Its foundation was due, in the first instance, to the beneficence of Mr. Rockefeller, and its maintenance came within the responsibility of the Government of India. Certain experiments had recently been made in India with a view, first, to controlling the spread of malaria, and, secondly, to preventing the relapses of the patient after he had begun to recover. The scourge of malaria was so great in India that probably in any given year there might be as many as 10,000,000 people being treated for that disease. It was probably within the mark to say that between 1,000,000 and 2,000,000 people died from malaria in India every year. He was glad to be able to tell the committee that a new drug had been discovered called atebrin, and, as far as his advisers could judge, it looked as though it would be most effective in preventing a relapse, which had always been the danger of malaria epidemics. He gave those two instances to the committee—he could give many others—to show how active were the efforts of the Indian Medical Service in the field of health, and how, year after year, they were meeting with the success they deserved. They could not control the weather, but they could to a great extent control its effects. It was within the memory of everyone that India was periodically subjected to terrible famine, due to drought, which swept away millions of its population. He was glad that as a result of the work that had been carried out in the field of irrigation that chapter was for ever ended. They could not control droughts, but they could ensure by a system of irrigation that the canals should still be filled with water, even in the dry seasons, and work was being continued on various irrigation projects.

The DUCHESS OF ATHOLL said that Sir S. Hoare had praised the health administration of India, but had said very little about the hospitals. She had had brought to her notice lately, by a senior officer of the health service in one of the Provinces who had recently retired, the fact that an increasing number of hospitals had passed under the control of local authorities, with a very grave loss of efficiency. They would

all agree with the praise which the Secretary of State had given to the Indian Medical Service but the right honourable gentleman had not reminded the committee how largely the Indian Medical Service was being replaced by the provincial medical service or the British medical officer in the Indian Medical Service by the Indian It had lately been said to her by more than one person who had lived long in India that the rank and file were very reluctant to go to a hospital of which the presiding officer was not a European While many Indians made admirable medical officers on the technical side, they tended to be below the British standard in the administration and control of a staff

Mr BUTLER replying to the discussion, said that there had lately been a definite improvement in the recruitment of Government medical officers so far as numbers were concerned and on the whole the quality of the candidates had also improved The number of European candidates had increased from thirteen in 1931 to twenty three in 1932 and during the first six months of the present year twenty seven had been appointed There was every possibility of a larger recruitment this year than during any year since the war

The House agreed to the Estimates after debate and a division

The Health of the School Child

Mr RAMSBOTHAM presented the Estimates for the Board of Education in England and Wales to the House of Commons in committee on July 12th He recalled the forecast by the Government actuary that a fall of something like 350 000 in the number of school children could be anticipated by 1936, and that by 1948 the decrease would be 1 000 000 The Board did not know how the fall would be distributed in the various areas, which made it necessary to have a careful survey and to draw the attention of local authorities to the point The closing of redundant schools was a field of economy The Estimates showed a somewhat increased item for special medical services and the Board was prepared to approve any urgently needed extensions when the medical arrangements were obviously incomplete The money allotted in the Estimates for the provision of meals was the same as last year That was because, after most careful examination, the Board did not find evidence of increasing malnutrition If the local authorities had good grounds for extending arrangements for the provision of meals they would find the Board sympathetic He characterized as quite inadequate the statement made in the House last February by Mr Lansbury that medical officers of health reported steady deterioration in school children Sir George Newman, the Board's Chief Medical Officer, reported last autumn that there was as yet no evidence of a lowering of health or of impaired physique That report was borne out by the reports of school medical officers which the Board was receiving The report of the School Medical Officer for London just published was that only one more in 1 000 children was found to have subnormal nutrition compared with 1931 The report pointed out that this fractional increase was due to the effects of a widespread epidemic of measles which lowered the vitality of the younger children The year 1932 showed a substantially better position as regards malnutrition than 1925 The London report was that children over 7 were found to be in better condition in 1932 than in 1931 Out of 180 000 children examined only twenty nine were found to be very ill nourished Malnutrition in many cases was due to organic defects and not necessarily to inability to obtain food Many other areas had suffered more distress than London but for 1932 as compared with 1931 some showed increases in health of school children and some decreases and on balance there was practically no change Decreases were shown in Glamorganshire, Monmouthshire Cardiff and Newport Throughout the country altogether cases of malnutrition had fallen from 11 2 per 1,000 in 1931 to 10 7 in 1932 It appeared on the whole that the tide had turned

Mr MORGAN JONES regretted that Mr Ramsbotham had not referred to nursery schools where children's bodies might be cared for at an earlier stage than was now possible Children at an early stage of formal school life were often found by the medical service to be in a condition which if attended to medically, would have avoided subsequent expenditure of public money. He hoped that the [illegible] nursery school movement was only, for a short time He was surprised at Mr Ramsbotham's remarks on malnutrition but did not throw any doubt on the certificates received by the Board from medical officers It was essential that constant watchfulness should be maintained on the nutritional conditions in South Wales Mr. COVE said schools dangerous to the health of the children still existed in the hundred He read reports on a dilapidated and leaking school and on another where the temperature of the rooms was seldom above 50 degrees on winter days He asked the Board to speed up the removal of these schools In estimating malnutrition among school children he asked Mr Ramsbotham not to rely solely on the reports of local medical officers He should tell his central officers to examine the children In the Welsh villages the marks of continued underfeeding could be seen in the children's shoddy boots poor clothes and pale faces Sir WILLIAM JENKINS said the time was opportune for raising the school age to 15 The Minister should read the report on this subject from the Kent Education Committee prepared by Dr Salter Davies

Replying to the debate Mr RAMSBOTHAM said it was impossible for the Board of Education to investigate malnutrition in each area and for its own officers to make reports He would look into the cases of dilapidated or insanitary schools *mentioned by Mr Cove if particulars were given him* The power of the State to deal with such schools if they were non provided schools was strictly limited

A motion to reduce the Estimates was defeated by 151 to 32

Emergency Treatment in Road Accidents

The Select Committee of the House of Lords on the Road Traffic (Emergency Treatment) Bill heard evidence on July 13th The Bill seeks to secure remuneration to registered medical practitioners and hospitals for emergency treatment to persons injured through the use of motor vehicles on roads Lord IVEAGH the chairman said that what the committee had in mind was a payment of 12s 6d to the doctor who first arrived on the scene plus 6d a mile from whence he came and a flat rate of 10s 6d to hospitals if an injured man went there first It was pointed out in evidence that the motoring community already contributed about £39 millions a year in taxation and that it ought not to be beyond the capacity of a Chancellor of the Exchequer to meet out of that sum the claims of the doctors which were estimated to amount to about £70 000 Dr R FORBES Deputy Medical Secretary of the British Medical Association agreed that 12s 6d would be a suitable flat rate fee for doctors who rendered emergency treatment He intimated that the British Medical Association would be willing to co operate in any scheme which the committee might formulate to that end Sir STENSON COOKE said the Automobile Association sympathized with any reasonable step to secure that doctors were adequately paid for emergency treatment of injured persons and would support an equitable measure to avoid hardship to hospitals but the Bill would place on the motorist the responsibility for paying fees irrespective of the question of negligence which was unfair The payment of medical and other expenses should rest with the negligent party Persons other than motorists who caused accidents would be relieved of their rightful responsibility by the Bill Hospitals ought to meet the expenses they incurred in dealing with road accidents out of the ordinary contributions to which motorists paid their share

Air Ambulance in the Highlands and Islands —On July 11th Mr SKELTON replying to Mr Kirkwood said that the extent to which aeroplanes could be used for the conveyance of medical and surgical cases in the Highlands and Islands area was limited in the first place by the fact that suitable landing places were not available in many of the islands Except in fine weather the maintenance of an aeroplane or seaplane service might not be practicable Any arrangements that might be made with a company or organization for the maintenance of an air ambulance service would require to include the reservation of a number of aeroplanes for use on requisition but the uncertainty whether those aeroplanes could be used on any given occasion would make

the payment of a subsidy for their maintenance a doubtful use of public money. The policy of the Department of Health in the administration of the Highlands and Islands (Medical Service) Fund had been to encourage the development of a local hospital service with skilled surgeons. If, however, pending the development of such a local service in any district it were found that the practical difficulties in the way of maintaining an air ambulance service could be overcome, the Secretary of State for Scotland would be glad to co-operate with any organization which would undertake the local arrangements for the transport of urgent cases by aeroplane or seaplane to the nearest available hospital.

High Temperature in Deep Mining Operations.—On July 11th Mr. E. BROWN told Mr. Tinker that no representations had been made to him with regard to the high temperature prevailing in some coal mines, or that the fact that men working in those mines suffered in health in consequence of the heat and were unable to work full time. The problem of reducing the high wet-bulb temperatures which existed in some of the deeper mine workings was constantly being dealt with by the managers and the inspectors. He was advised that while work under such conditions was fatiguing, it was not usually a cause of ill-health. The deep mining of coal in this country must necessarily extend in years to come, and for this reason the development of ameliorative measures was being continuously studied, both in its medical and practical aspects, by the Hot and Deep Mines Committee, which co-operated with the Safety In Mines Research Board.

Classification of Patients in Mental Institutions.—On July 11th Mr. TURTON asked the Minister of Health how many cases had been brought to his notice in the last twelve months of voluntary patients being lodged in the same ward or room as certified patients in mental institutions, hospitals, nursing homes, or places approved by the Board of Control under Section 1 of the Mental Treatment Act, 1930. Mr. SHAKESPEARE replied that one case had been brought to the notice of the Minister in which this matter was the subject of complaint. The case was investigated, and it did not appear that there was any substantial ground for complaint. The classification of mental patients had to be based mainly on their condition and symptoms, and it was not necessarily desirable to provide separate accommodation for voluntary patients, even if it were possible to do so. The Minister was advised that the present arrangements were generally as satisfactory as was practicable, and the number of voluntary patients was steadily increasing. He did not think it would be advisable to circularize local authorities and other persons in charge of institutions on the matter.

Foot-and-Mouth Disease: Efficacy of Present Measures.—On July 11th Dr. ELLIOT presented an estimate for the salaries and expenses of the Ministry of Agriculture and Fisheries. He said that in 1932 the outbreaks of foot-and-mouth disease in France were 9,449, in Germany 18,869, in the Netherlands 10,865, and in England 25. These results were not secured without the co-operation of the whole community, both agricultural and non-agricultural. On the night of January 4th–5th, when, from some unknown source, foot-and-mouth disease reached the railway loading banks at Reading, so efficient was the ordinary routine disinfection of those loading banks that no single case occurred after that night. Although the disease was reported from many parts of the country, the veterinary service was so efficient that the whole outbreak was cleaned up in eighty days at the cost of only £32,000 in compensation for slaughter.

State Grant for Royal Veterinary College.—In replying to the debate on the Ministry of Agriculture Vote, on July 11th, Dr. ELLIOT said that the Royal Veterinary College had now raised the £100,000 required to earn the promised State grant. He could not yet give an indication whether a Government contribution to match would be forthcoming.

Local Government Officers' Superannuation.—When the Local Government and Other Officers Superannuation (Temporary Provisions) Bill came before the House of Commons on report Sir HENRY JACKSON moved an amendment to provide that the question whether a reduction in remuneration could be disregarded should in all cases be decided by the Minister. The Bill provides for decision by the Minister or by arbitration. Mr. SHAKESPEARE argued that the clause should be left as it stood, and Sir Henry Jackson withdrew his amendment. On the motion for the third reading Mr. GREENWOOD asked whether the Government would undertake to insert a date a little later than April 1st for the end of the period during which acceptance in good faith of a "cut" should not impair pension rights. Mr. Shakespeare said he thought it reasonable that if the period were extended to July 1st, the point would be covered. The Government might insert that in the House of Lords. Sir Henry Jackson thanked Mr. Shakespeare, and the Bill was read a third time.

Mortality in England and Wales.—In reply to Mr. Rhys Davies on July 13th, Sir HILTON YOUNG stated that the general and infant mortality rates for England and Wales for the past five years were:

Year	General Death Rate per 1,000 estimated population	Infantile Mortality Rate (deaths under 1 year of age per 1,000 live births)
1928	11.7	65
1929	13.4	74
1930	11.4	60
1931	12.3	66
1932	12.0	65

Hunger-strike Prisoners in the Andamans.—On July 17th Mr. D. GRENFELL asked the Secretary of State for India if the Government of India had received any reports from Colonel Barker, Inspector-General of Prisons, Punjab, as a result of his mission to the Andamans to inquire into the medical arrangements there for prisoners on hunger strike. Sir S. HOARE replied that this officer was sent, not to make a formal inquiry and present a report, but to consult with and advise the local authorities. He had not yet received any detailed information regarding his visit.

Medical Advice by Radiotelegram.—Colonel SANDEMAN ALLEN asked the Postmaster-General, on July 17th, if he would arrange that British vessels should be able to ask for medical advice through coast wireless stations free of all wireless charges, in conformity with Sweden and other nations. Sir K. WOOD replied that the practice varied in different countries. Some, like Sweden, made no charge for transmitting radiotelegrams asking for medical advice; in others, including France, Germany, and Great Britain, such messages were charged for. Under Section 34 of the Merchant Shipping Act, 1906, the owner of a British ship was liable for the expense of providing medical advice for sick or injured members of the crew; and he did not think there was any justification for transferring the cost of messages asking for such advice from the shipowner to public funds.

Cost of Mental Hospitals.—Replying to Mr. C. Edwards on July 13th Sir HILTON YOUNG said that the net expenditure of local authorities in England and Wales on the lunacy service, falling on public funds, in 1930–31 was £7,138,403. The cost of the lunacy service, in common with that of other services, was defrayed partly out of rates and partly out of the Exchequer grants under the Local Government Act, 1929, but as these grants could not be allocated to particular services the amount falling on rates for the lunacy service could not be stated. The total cost of the Board of Control for the year ended March 31st, 1932, was £139,533. The total cost of maintenance of the patients in public mental hospitals in England and Wales for the year ended March 31st, 1932, was £6,921,692, including £3,103,820 in respect of salaries and wages of staff. Sir Hilton Young also told Mr. C. Edwards on July 13th that the Board of Control's estimate of £500 as the capital cost of providing a bed in a mental hospital was made in 1931, and he was advised that the comparable figure to-day would be about £440. In 1932 the Board of Control approved plans for the provision of 979 beds, and during the first six months of the present year plans for 999 beds; they had under consideration plans for approximately another 3,000 beds. These schemes were, however, with very few exceptions, for additions or alterations to existing mental hospitals, and the cost would not approach the sum of £500 per bed.

Notes in Brief

Persons in receipt of poor relief in England and Wales (excluding rate-aided patients in mental hospitals, persons in receipt of domiciliary medical relief only, and casuals) on Saturday, June 24th, 1933, numbered 1,272,058.

The first meeting of the Committee on Scottish Health Services has been convened for July 28th.

Obituary

SIR JAMES CRAIG, M.D., F.R.C.P.I.

Physician, Sir Patrick Dun's Hospital, Dublin; King's Professor of Physic, Trinity College

Sir James Craig, whose death took place at his residence in Merrion Square, Dublin, on July 12th, was a physician very well known throughout Ireland. Born at Castlecatt, Bushmills, County Antrim, in October, 1861, he had reached his seventy-second year. After schooldays at the Academical Institution, Coleraine, he entered as a medical student at Trinity College, Dublin, and obtained the B.A. and M.B., B.Ch. degrees of the University of Dublin in 1885. He proceeded M.D. in 1891, and was elected a Fellow of the Royal College of Physicians of Ireland in the same year. For many years King's Professor of the Practice of Medicine in the School of Physic of Trinity College, Dublin, he was also physician to Sir Patrick Dun's Hospital, physician in ordinary to the Lord Lieutenant of Ireland, consultant physician to Steevens' Hospital and to the Crooksling Tuberculosis Sanatorium, etc. Other offices Sir James filled were those of member of the Council of the University of Dublin and examiner in medicine at Trinity College, and extern examiner in medicine at Queen's University, Belfast; and from 1897 to 1910 he acted as Registrar of the Royal College of Physicians of Ireland, of which he became vice-president and censor, and president in 1919. He received the honour of knighthood in 1921.



SIR JAMES CRAIG

From 1904 to 1910 he was general secretary and editor of the Royal Academy of Medicine in Ireland, and was elected president in 1924. An active supporter of the British Medical Association in Ireland, he was president of the Leinster Branch, and for many years previously had acted as its honorary secretary; he was also a member of the Irish Committee until his death. At the Annual Meeting of the Association in Birmingham in 1911 he was vice-president of the Section of Neurology and Psychological Medicine, having held the same office in the Section of Medicine in 1908. When the Irish Free State was established in 1922 Sir James Craig was elected one of the three representatives of the University of Dublin in the Dail Eireann, where he sponsored the Irish Hospitals Sweepstakes legislation, and it is generally acknowledged that to him more than to any other person the Irish hospitals owe their assured financial position, structural modifications and expansions, and their fuller scientific equipment. He took a keen interest in all public health matters in the Dail.

In former years he contributed a number of papers on clinical subjects to the *British Medical Journal*, the *Dublin Journal of Medical Science*, and the *Transactions* of the Royal Academy of Medicine in Ireland. At the forthcoming Annual Meeting of the British Medical Association in Dublin this month he was to have held office as vice-president of the Section of Medicine.

Sir James Craig married in 1906 Kathleen, daughter of Thomas Millar, and she, with a family of three sons and a daughter, survives him. Two of his sons are in the medical profession: Dr. W. J. Craig is house-surgeon at Sir Patrick Dun's Hospital, and Dr. J. W. Craig is practising at Hereford.

[The photograph reproduced is by Lafayette Ltd.]

JOHN HILL ABRAM, M.D., F.R.C.P.

Late Professor of Medicine and Therapeutics, University of Liverpool, and President of the Royal Infirmary

We record with regret the death, on July 13th, of Professor J. Hill Abram, the well-known Liverpool physician, after an illness of three weeks.

Born at Waterloo seventy years ago, John Hill Abram had spent nearly the whole of his life in or near Liverpool. From Liverpool Institute he entered the old Royal Infirmary School of Medicine in 1882, winning several prizes, including the Derby exhibition in clinical medicine and surgery in 1887. He also studied for a year at University College, London. In 1887 he obtained the diplomas M.R.C.S. and L.R.C.P., and in the next year graduated M.B. Lond., with first-class honours in medicine. In 1889 he proceeded M.D. Membership of the Royal College of Physicians followed in 1891, and he was elected to the Fellowship in 1906. His teaching work at University College, Liverpool, began in 1890, when he was appointed assistant lecturer and demonstrator in pathology. While holding this post he was also assistant physician at Stanley Hospital from 1893 to 1896. At the Royal Infirmary he served first as house-physician and then as medical tutor. In 1902 he was elected honorary physician, and retained the appointment for over twenty years, becoming consultant physician in 1924. There followed in 1931 the conferment upon him of the well-deserved honour of president of the Infirmary. The outstanding event of his year of office was the opening of the new nurses' home.

In addition to his teaching and hospital appointments Professor Hill Abram practised in Rodney Street for about forty years, retiring in 1931. His outstanding clinical and teaching abilities were quickly recognized, heightened as they were by a keen sense of humour, a facility of exposition, and a kindliness of nature which won for him a very large number of personal friends. In the University he was professor of therapeutics and medicine for a combined period of eighteen years, having succeeded the late Professor T. R. Glynn in the latter chair. Since 1924 he had been Emeritus Professor. On his retirement from the

chair of medicine he was presented by the students with a water-colour painting, together with a formidable birch rod, which was described as "the insignia of the Order of the Birch, presented for conspicuous merit in the application of the art over an extensive period." He was the joint author of a handbook of pathological anatomy, and had published various clinical papers. During the war he acted as consulting physician to the military hospitals established in the School of Tropical Medicine and the Wallasey Town Hall; and to the Mersey Defences Acute Diseases Hospital, Blundellsands. He was also in joint charge of the naval and military beds in the Royal Infirmary. He was chief medical officer of the Royal Insurance Company and of the Pioneer Life Assurance Company.

With his wide sympathies and interests he found time to take an active part in various societies and public undertakings. He was president of the Liverpool Medical Institution in 1922–3, and of the Association of Physicians of Great Britain in 1928. He had also been president of the medical students' debating society, and of the University of Liverpool Old Students' Association. For a very considerable time he served on the Council of the Royal College of Physicians, and represented the Council for many years on the Court of Liverpool University. Keenly interested in literature and art, he rendered valuable services as a co-opted member of the Libraries, Museums, and Arts Committee of the Birkenhead Corporation. He had been president of the Liverpool Athenaeum in 1915, and at the time of his death was president of the Liverpool University Club. His membership of the British Medical Association continued throughout his professional life. He was vice-president of the Section of Pharmacology and Therapeutics when the Association met in Liverpool in 1912, and vice-president of the Section of Medicine at the Annual Meeting in Edinburgh in 1927. Golf was his favourite recreation, and he was often to be seen on the links of the Royal Liverpool Club at Hoylake, near which he lived in his latter years. He retained his youthful appearance and outlook to the end, and never lost his alertness and vigour. One of his maxims was: "Never ride if it is possible to walk."

A memorial service was held in Liverpool Cathedral on July 15th. A long line of students who have passed through Liverpool University and the Royal Infirmary will treasure throughout their lives a grateful and affectionate memory of a great teacher and a warm-hearted friend. Professor Hill Abram was a bachelor, and lived with his only sister, who survives him.

A. C. FOWLER, *D.S.C.*, M.D.,
Aberdeen

ALEXANDER COUTTS FOWLER, M.D., D.M.R.E., of Aberdeen, died in an Edinburgh nursing home on July 6th, after an operation, at the early age of 38. A native of Aberdeen, Dr. Fowler was educated at Peterhead Academy and Aberdeen and Cambridge Universities. His university career was interrupted when he volunteered for active service in 1915. He served with great distinction as a surgeon probationer in the Royal Navy on the "Q" ships, and for his work in that capacity he was awarded the D.S.C. On being discharged in 1918 he resumed his university studies and graduated M.B., Ch.B.Aberd. in 1919 and M.D. in 1923. Subsequently he was resident medical officer in the Royal Hospital for Sick Children at Aberdeen and later was in general practice for a short time in Eynsham, near Oxford. Afterwards Dr. Fowler was resident medical officer at Tor-na-Dee Sanatorium. He was specially interested in *x*-ray work. On leaving Tor-na-Dee he obtained in 1924 the diploma of medical radiology and electricity of Cambridge University. He thereupon returned to Aberdeen and commenced practice as a radiologist. He was appointed honorary assistant radiologist to the Royal Hospital for Sick Children, radiological assistant in the Anatomy Department of the University, and radiologist at the Kepplestone and Armstrong nursing homes. Dr. Fowler was unmarried.

Dr. A. GREIG ANDERSON writes:

By the tragic death of Dr. A. C. Fowler at the early age of 38 the medical profession of Aberdeen has sustained an irreparable loss. His skill as a radiographer was widely known and appreciated, for he brought to his subject that wide knowledge of medicine and surgery which made his opinion of such value to his colleagues, an opinion based not merely on his radiological findings but on a full consideration of the history and all the facts of the case. To his work he devoted himself unsparingly in spite of the increasing difficulties caused by his illness. As an undergraduate he volunteered for service as a surgeon probationer and served under Admiral Gordon Campbell, V.C. Among the numerous wreaths which testified to the love and esteem in which he was held, one bore the legend "*To a gallant shipmate*," and surely in that was summed up his life. To his friends he was known as a man of great personal courage with a gentleness and humility of character which are too rare. To personal gain or praise he was indifferent, and of his numerous acts of charity and kindliness quietly performed few were ever known. His death has caused profound sorrow among his intimate friends, for whom he had as deep an affection as they had for him.

THE LATE MR. HAMILTON RUSSELL

Professor WILLIAM WRIGHT writes:

The tributes already paid to the memory of Hamilton Russell cannot, I imagine, have failed to show how rare a spirit has passed from our midst. I recall a remark made to me when in Sydney—"If ever" so it ran, "I wanted the head of a Saint for a stained-glass window I should at once think of Hamilton Russell." The impression he produced upon me during the few days I knew him in Melbourne was that of a man living somewhat apart, but exerting in no little measure, simply by his mere presence, an indefinable influence on all who came in contact with him—such an influence as that which finds, perhaps, its most perfect expression in Browning's *How it Strikes a Contemporary*.

Dr. GEORGE R. LIVINGSTON of Dumfries, who died lately in his sixty-third year, was one of the leading medical practitioners in the burgh, and a magistrate. He was a native of Edinburgh, the son of the late George Kinloch Livingston, and was educated at the Edinburgh Academy and at the University of Edinburgh, graduating M.B., C.M. in 1895, and M.D. in 1904. He took the diploma of F.R.C.S.Ed. in 1916 and that of L.M. at the Rotunda Hospital, Dublin, in 1899. After holding various hospital appointments in Edinburgh, Dr. Livingston went to Dumfries in 1899, and soon established a reputation as a successful surgeon. He served for some years as assistant surgeon to the Dumfries and Galloway Royal Infirmary, and later became senior surgeon. He was also consulting surgeon to the Castle Douglas Cottage Hospital. Dr. Livingston took great interest in the work of the British Medical Association, and served as Representative of his Division in the Representative Body in 1906 and 1909, and was a member of the Central Council of the Association in 1910–12. He was chairman of the Dumfries and Galloway Division in 1927–28, and vice-president of the Section of Naval and Military Services when the Association held its annual meeting in Aberdeen in 1914. During the war he rendered varied and distinguished service in several places, including two years' service on hospital ships, when he was

surgeon specialist H M H S *Herefordshire* Subsequently he became surgeon specialist to the 21st General Hospital at Alexandria, and while there was promoted to be officer in charge of the surgical division, which position he held until demobilization in 1919, he held the commission of Lieutenant Colonel R A M C On his return to Dumfries he took an active part in local affairs, and sat as a member of the town council for three years

The following well-known foreign medical men have recently died Dr PAUL HARI, professor of physiology and pathological chemistry at Budapest, aged 64, Dr VIKTOR KOLLERT of Vienna, author of works on the treatment of nephritis and coma, aged 46, Professor VIKTOR HACKER, formerly head of the municipal hospital at Graz, aged 81, Professor HERMANN THOMSON, for many years director of the Women's Clinic at Odessa, aged 71, Dr MINA MINOVICI, professor of forensic medicine at Bucarest, aged 75, Dr ANNIBAL THEODHARY, professor of clinical therapeutics at Bucarest, Dr JOHN CHALMERS DA COSTA, Samuel D Gross Professor of Surgery at Philadelphia, and author of a *Manual of Modern Surgery*, aged 70, Dr CLARENCE ERFORD COON, professor of orthopaedic surgery at Syracuse, New York, aged 65, and Dr WILLIAM OPHULS of San Francisco, dean and professor of pathology, Stanford University School of Medicine, aged 61.

Medical News

At the International Congress on Goitre, to be held in Bern from August 10th to 12th, the following subjects will be discussed hyperthyroidism, introduced by Drs De Jongh (Holland), Holst (Norway), Plummer (United States), Eppinger (Germany), and Peycelon (France), the aetiology of goitre, introduced by Dr Pighini (Italy) and Sir Robert McCarrison (British India), malignant disease by Sir Thomas Dunhill (England) and Dr De Quervain (Switzerland) Further information can be obtained from Professor Pighini, Istituto di San Lazzaro, San Maurizio, Emilia, Italy

A tour embracing health resorts and centres of medical interest will begin at Vienna on August 30th, and extend through Austria, Italy, and France The cost is 300 schillings Among the places to be visited are Venice, Florence, Rome, San Remo, Mentone (including an excursion to the establishment of Professor Voronoff), Nice, Cannes, and Milan Further information may be obtained from Dr Friedrich Barach, Biberstrasse 11, Vienna I.

Messrs H K Lewis and Co, Ltd, announce for immediate publication *Recent Progress in Medicine and Surgery, 1919–1933*, by various contributors edited by Sir John Collie, with a foreword by Lord Horder

The issue of *Le Scalpel* for July 8th contains the proceedings of the recent *Journees medicales de Bruxelles*, at which the inaugural address was delivered by Professor Charles Sarolea of Edinburgh, on the doctor and medicine in European literature

Dr J L W Kitching, on his retirement from active practice, was presented on July 4th, at the Parish Room, Cobham, Surrey, with an address, signed by hundreds of patients and friends, expressive of their great appreciation of him as a medical man, and deep regret at their loss The address, with an album containing the names of the subscribers, was accompanied by a cheque for £584 Dr Kitching served on the staff of the Cobham and District Cottage Hospital from its foundation, and was consulting surgeon to the Schiff Home of Recovery

Sir Hilton Young, the Minister of Health, has appointed Dame Janet M Campbell, D B E, M D, M S, and Miss F Barrie Lambert, C B E, M B, B S, D P H, to be additional members of the Departmental Committee which he set up at the beginning of July to consider and report on the questions of the capital cost of construction and the annual cost of maintenance of various classes of public buildings provided by local authorities (See *British Medical Journal*, July 15th, p 123)

A feature of the annual St Dunstan's Regatta held last week at Putney was a race between a four of Old Blues and a crew of St Dunstan's war blinded men The Old Blues Four, which had been got together by Dr Malcolm Donaldson, F R C S, who was in the Cambridge boat in 1906, consisted of himself, Sir Harold Gillies, F R C S (Cambridge, 1904), Dr J S Burn (Cambridge, 1907), and Dr E N Showell-Rogers (Cambridge), and the cox was Dr R Knox, who was in the Oxford boat as recently as 1925 Last year in the Regatta Captain Ian Fraser, Chairman of St Dunstan's, got up a similar four of members of Parliament which he himself stroked

The German Physiological Congress which was to have been held this year at Innsbruck has been indefinitely postponed The following German congresses will be held in September Society for Thalassotherapy at Norderney in the first week of September, twenty second congress of the Society for Forensic and Social Medicine at Munich, September 4th to 7th, Society for Study of Heredity at Gottingen, September 6th to 9th, Society of History of Medicine at Erfurt, September 9th and 10th, Orthopaedic Society at Leipzig, September 11th to 13th Society for Microbiology at Munich, September 21st to 23rd

Dr Roch, professor of clinical medicine at Geneva, and Dr Haskovec, professor of clinical neurology at Prague, have been elected foreign corresponding members of the Academie de Medecine, and Dr E Kohn Abrest of Paris has been nominated foreign corresponding member of the Royal Academy of Medicine of Belgium

An international post graduate course will be held in Vienna from September 25th to October 7th, the subject being the more important discoveries in connexion with therapeutics, including such procedures as collapse therapy and the first setting of fractures For further details application should be made to the Dean of the Faculty of Medicine at the University, Ring des 12 November, Vienna I

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B M A House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated Correspondents who wish notice to be taken of their communications should authenticate them with their names not necessarily for publication

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The address of the Irish Office of the British Medical Association is 18, Kildare Street Dublin (telegrams *Bacillus Dublin* telephone 62330 Dublin) and of the Scottish Office 7 Drumsheugh Gardens Edinburgh (telegrams *Associate Edinburgh* telephone 24361 Edinburgh)

QUERIES AND ANSWERS

Climate and Rheumatism

"J F M" would be glad to know of a suitable area in the North Riding of Yorkshire for a sufferer from chronic rheumatism

*** We are advised by a well known authority on climatology that the North Riding of Yorkshire cannot be recommended for sufferers from chronic rheumatism but comparatively favourable locations might be found on the west side on dry soil with southerly aspect and good shelter from the north and east.

Income Tax

Expenses—Board and Lodging of Assistant, and Garage, etc.

"R. W." employs an assistant who "lives in"—can he charge the value of the board and lodging as an expense, and, if so, would £2 2s. per week be reasonable? Also, can he charge for the use of garage and consulting room in addition to the one-third of the cost of "repairs, renewals, heating, and lighting" of his house, which he owns, and which is assessed at £85?

*** The cost of the assistant's board and lodging, including an appropriate share of the general household expenses, can be charged; obviously much depends on the circumstances of each case, but £2 2s. per week seems reasonable. As regards the use of the garage, consulting room, etc., the usual practice is to agree on some fraction of the general expenses to cover that factor. We suggest that "R. W." might reasonably claim one-half instead of one-third of the general expenses on that basis, but the force of any such claim is weakened by the fact that one element of the total general costs is reflected in the other claim of £2 2s. per week for the assistant.

Engagement of Assistant: Expenses

"P. Q. and R" employed an assistant for six months. A service agreement was drawn up on the usual lines, and £3 was paid in legal charges for its preparation. The inspector of taxes has declined to allow the £3 as a professional expense.

*** In our view the refusal is unjustified. Such expenses are a common incident of even short-term engagements of employees, and, so far as our experience goes, are allowed. We cannot conceive that such a view would or could be applied to large industrial undertakings, where such expenses are frequently incurred, and there seems to be no ground for a different attitude where the nature of the business or practice makes them comparatively uncommon.

LETTERS, NOTES, ETC.

"Boy's Head Trapped"

Wing-Commander H. M. STANLEY TURNER, R.A.F. (ret.), writes from Abingdon: I enclose a newspaper cutting, reporting that an 18 months old child was "wedged" in the ornamental ironwork of Tower Bridge, a "clover-leaf" aperture. This sort of thing must have happened quite a number of times. I myself can remember three cases on Westminster Bridge, where there are similar apertures. To quote from the cutting of the Tower Bridge incident, "As it was found impossible to free the boy without cutting away the ironwork, hacksaws were obtained and part of the ornamentation, about three inches thick, was sawn away." I was walking over Westminster Bridge many years ago when I was a student, and saw a crowd on the Charing Cross side of the bridge. The same sort of accident had occurred. The police had smeared the boy's head with soft soap, and were vainly trying to get it out. It was quite easy to see what had happened. The boy had flexed his head, put it through the clover-leaf opening, and then extended it to look at the "penny steamers." I went to a rather hot and bothered policeman and offered to extract the boy, but was told that my help was not required, as they were filing the opening to make it bigger! So I passed on. Nearly two hours later, when I was returning, the crowd was still there and a man was working vigorously with a file. The boy was exhausted and whimpering feebly, and no wonder. I again spoke to the policeman, rather sarcastically; and thoroughly "fed-up" with the job, he said: "If you think you know so much about it, have a go yourself." I got through the crowd, pushed the boy's shoulders close up to the ironwork, flexed his head, and with a slight rotation extracted him with the greatest ease. As Lord Trenchard is doing so much to improve the education of the police, it might be useful if constables in the vicinity of the Tower and Westminster Bridges were given some elementary instruction in the mechanics of the after-coming head!

Occupation of Newly Built Houses

Dr. W. H. ANDERSON (Hindhead) writes: Many people nowadays enter on the occupation of newly built houses immediately on completion. Builders—and even architects, apparently—encourage this procedure, on the ground that modern methods of construction and the use of quick-drying materials render it quite safe. In view of the great attention now focused on what might well be termed the national scourge of rheumatism, the influence of "damp" as an important aetiological factor should surely receive every attention. The matter seems specially important in view of the great house-building campaign now being launched. It would be both interesting and helpful to have the opinion and experience of the profession on the subject. Hitherto I have been in the habit of advising patients to allow a sufficient period to elapse, depending, as to length, on the season of the year, before entering into occupation. I may have been unduly cautious.

Cosmetics

Dr. JOHN VEITCH (Cowdenbeath) writes: I fully agree with Dr. Alice Carleton about the use of cosmetics. "Those women on the whole who use 'good' cosmetics have much better-looking skins than those who do not." There is many a doctor who has to acknowledge that his patients will carry out a "beauty treatment" themselves with good effects when his own prescriptions turned out in the usual fashion have been tried for a day or so and produce little or no effect. In the treatment of allergic conditions in general practice more notice should be taken of the point mentioned in Dr. G. W. Bray's article—that of the use of cosmetics containing orris root. Nearly all cheap cosmetics contain orris root, and a great number of cases of allergy have their periodicity fixed by dances and the like functions attended by young folks. I may state that I have had quite a large number of such cases, and in one case in particular which defied almost every line of investigation the patient herself changed to the "Arden" preparations (which are orris-root free) with most gratifying results. Since that change she has had no recurrence of symptoms.

Anni Mirabiles

Dr. N. BEATTIE (Ilford) writes: A patient of mine thought that he would write down a résumé of his medical history to "save my time" and "make himself clear." This was the result.

My various complaints I have had during my life and the number of years I have suffered from them:

	Years
Irritation across my shoulders coming and disappearing at various periods—supposed to be shingles—I still have it	80
Very bad throats (sore) up to the age of 40—seldom after	40
Bilious attacks, very severe, up to the age of 50, seldom after	50
Constipation	75
Rheumatism of the muscles	65
Rheumatism and eczema, 3 attacks in	60
Strangulated hernia. Still about the same, no pain	55
Bladder or prostate gland, cystitis or kidney, worse in the last 6 or 7 years	50
Dropsy attacks, 3 times—15, 20, and 2 years back	22
Colic—3 times at various periods	2
Mumps. Once only. Right side of neck. May, 1930. Not quite gone yet	2
Bronchitis and chill of the stomach—not often of late, and not for 3 years certainly	20
Last attack of eczema or nephritis 3 months back and now nearly gone, in	60
Tender and cold feet and much run down and cold part of body, about	5
Acid stomach and much bile about	20
About a dozen bad accidents, falls, and knocked downs	40
Many falls when a playboy at school.	
A weak stomach for about	6

Otherwise he is quite well and enjoying life!

By Air to Dublin

In last week's *Supplement* (p. 30) brief particulars were given of aeroplane and flying-boat services between England and Dublin for next week's Annual Meeting of the British Medical Association. Further information may be had from the West End office of Sir Henry Lunn Ltd., 2, Albany Courtyard, Piccadilly, London, W.1. Their Dublin agents, who can make any arrangements required from that end, are Hewett's Agency, D'Olier Street, Dublin.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 40, 41, 42, 43, 46, and 47 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 44 and 45.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 43.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

61 Haemorrhages in Diphtheria

P. v. KISS (*Arch. f. Kinderheilk.*, February 21st, 1933, p. 193) states that from 1920 to 1931 eighty-six (5.9 per cent.) of the 1,680 cases of diphtheria admitted to the Budapest University children's hospitals showed haemorrhages in some form. He found that the prognosis of epistaxis in purely nasal diphtheria was absolutely favourable, the only death occurring among seventy-one cases being due not to diphtheria but to intercurrent bronchopneumonia. When diphtheria was confined to the tonsils or conjunctiva the prognosis of epistaxis was not very unfavourable, the mortality being 11.1 per cent. On the other hand, the prognosis of epistaxis in combined faucial and nasal diphtheria was unfavourable, the mortality here being 44.5 per cent. Lastly, the prognosis was absolutely bad when the haemorrhage in faucial diphtheria was not confined to a single system, or when it appeared in the course of diphtheria which had multiple localizations. General toxaemia is, he adds, doubtless responsible to a great extent for deaths in such cases, but in some instances cardiac disturbance can be shown to be the cause. The author finds that, in addition to large doses of antitoxin and local treatment of the haemorrhage, non-specific cardiac treatment controlled by daily electrocardiographic examination is required.

62 True and False Angina Pectoris

L. HESS (*Wien. klin. Woch.*, March 17th, 1933, p. 339) draws attention to the difficulties frequently met with in the differential diagnosis of true and false angina pectoris —that is, organic angina associated with changes in the cardiovascular system and the non-organic symptomatic angina. Whilst during short attacks of true angina objective investigation of the heart and vessels (except by electrographic methods) may be quite negative, definite signs may appear in longer-lasting and repeated attacks —for example, acceleration and irregularity of the pulse, rise in blood pressure followed later by a fall in blood pressure, fever, pericardial rubs, general loss of strength, signs of pulmonary stasis, or even oedema of the lungs. The marked rise in blood pressure followed by a rapid fall in blood pressure (the latter is of serious prognosis) is characteristic of true angina, whilst cases of angina of neurotic origin are accompanied by at most transient and mild rises in blood pressure. In spite of the characteristic localization and irradiation of the pain in true angina, certain features may occur which may lead to a suspicion of neurotic angina—for example, the pain may be elicited by special forms of activity whilst more severe forms may be carried out without evoking any symptoms. Neurotic attacks are, however, characterized by ever-varying accompaniments such as crying, sobbing, eructations, tendency to micturition and defaecation, etc. Hyperalgesia in the cardiac region is almost always symptomatic of non-organic angina. In cases where movement or activity precipitates an attack, a true angina usually ceases when the action ceases, but in neurotic cases complaint of pain continues long after the exciting cause has disappeared. More difficulty, however, is experienced in differentiating organic and non-organic anginal attacks which appear during sleep, for here the subjective symptoms may be very similar. Further, this "angine de décubitus" may simulate a tabetic crisis, the pain of gall-stones or of a renal calculus, or that of endocarditic infarct, etc. Further, the attack may, in true angina, be entirely unassociated with pain, in place of which there may be merely a feeling of illness, pallor, and weakness, or instead of these there may be pulmonary oedema without expectoration, leading frequently to sudden death. No satisfactory theory of the cause of angina pectoris coming on during sleep has been put forward. A striking feature of true angina is the rapid re-establishment of well-being after an attack, the patient tending frequently to treat his condition lightly. Neurotic angina, on the other hand, may be followed by days of lassitude. The attitude adopted by the patient during an attack is to some extent characteristic.

63 Mixed Infection in Scarlet Fever

H. SSAWRIMOWITSCH and W. D. ZINSERLING (*Jahrb. f Kinderheilk.*, March, 1933, p. 319) record their observations on cases of scarlet fever which came to necropsy between the years 1926 and 1929 inclusive. Of these thirty-two (9.2 per cent.) had bronchitis, 213 (61.3 per cent.) pneumonia, twenty-four (6.9 per cent.) pulmonary abscesses without bronchitis and pneumonia, and seventy-nine (22.6 per cent.) no pulmonary lesions. Bacteriological examination of the pneumonia showed a predominance of pneumococci, while in the cases of bronchopneumonia haemolytic streptococci and influenza bacilli predominated. The writers maintain that mixed infection with influenza bacilli or pneumococci plays a considerable part in scarlet fever owing to the development of pneumonia in such cases. The age of the children is important, as young children are especially liable to this complication.

64 Thyroid Rheumatism

R. FLEURY (*Thèse de Paris*, 1933, No. 67), who records thirteen illustrative cases in women aged from 28 to 56, comes to the conclusion that too great importance has hitherto been attributed to rheumatism due to thyroid insufficiency, as he has found that rheumatism is extremely rare in cases of well-marked thyroid incompetence. In most cases the diagnosis of rheumatism due to thyroid insufficiency has been based on the therapeutic success of thyroid extract, which appears to act only by increasing the basal metabolism. On the other hand, hyperthyroid rheumatism is extremely frequent, its characteristics being as follows: (1) arthralgic or arthritic forms of which the acute attacks coincide with attacks of hyperthyroidism, (2) frequent increase of basal metabolism without any febrile reaction, and (3) successful effect of iodine treatment, which causes a simultaneous disappearance of the signs of hyperthyroidism and the rheumatic symptoms.

Surgery

65 Haemorrhage from Gastro-jejunal Ulcer

CH. CLAVEL (*Rev. de Chir.*, March, 1933, p. 207) gives details of twelve cases of haemorrhage from gastro-jejunal ulcers, which he considers to be worth reporting on account of the rarity of the condition. Of the eleven cases in which the diagnosis was confirmed by operation, one was a superficial ulcer, seven chronic and penetrating into the mesocolon, and in three instances the type of ulcer was not given. The danger of haemorrhage in these cases depends on the number and size of the vessels in the neighbourhood of the gastro-enterostomy. In four cases there was ulceration of a large artery such as the gastro-epiploic or the middle colic. In the cases reported there were five of intestinal haemorrhage, six of haematemesis, and two with melaena. In most instances the haemorrhage recurs in spite of medical treatment, and surgical intervention may disclose the ulceration of a large vessel. Haemorrhage in these cases must be regarded as a complication and not as a symptom. When a haemorrhage occurs following an old gastro-enterostomy the diagnosis may be uncertain between a gastro-jejunal

ulcer and a recurrence of the original ulcer. Treatment in either case must be surgical, but when the haemorrhage is slight it is sometimes advisable to defer operation until the patient is in better condition. Out of eleven cases, four were operated on between the haemorrhages and made good recoveries. Operation was undertaken in the remaining seven cases during the haemorrhage, and of these three patients recovered and four died. The author states that the type of operation must depend on the condition found, the first object being to ascertain the site of the haemorrhage. For this the opening of the stomach near the gastro-enterostomy stoma gives the best approach. There are then various procedures such as the direct ligature of the artery, excision of the ulcer, or resection of the anastomosis; and in the cases where these operations were carried out the patients recovered. On the other hand, there were six cases of complicated resection of the stomach, the small intestine, and sometimes of the colon, and in these there were four deaths. In cases where the condition of the patient and the complexity of the lesions render a long operation inadvisable, Clavel finds a jejunostomy the operation of choice.

66 Abscess of Abdominal Wall in Intestinal Cancer

Carcinoma of the large intestine may become infected and necrotic, causing secondary abscess, which occasionally perforates the abdominal wall. Less frequently the occurrence of abscess of the abdominal wall is the earliest symptom of intestinal cancer. A. LERCH (*Zentralbl. f. Chir.*, March 18th, 1933, p. 616) quotes several recorded cases. One writer states that abscess results more frequently from rapid proliferation than from small stenotic cancers. Lerch has had recently three cases of carcinoma of the large bowel in which abscess of the abdominal wall was the first symptom. All the patients were women, their ages ranging from 48 to 76 years. They complained of anorexia and emaciation before infiltration of the abdominal wall occurred, but no definite abdominal symptoms were present, although there was occult blood in the faeces in each case. As illustrating the difficulty of diagnosis on account of paucity of symptoms, the first patient (aged 66) had had a desmoid tumour removed one month prior to admission. No signs of cancer were found. When admitted she was moribund. There was an abscess with numerous fistulae in the operation scar in the right iliac fossa, and *B. coli* were present in the pus. The second patient (aged 76) had epigastric abscess. The pus obtained on incision contained pneumococci, staphylococci, *Diplococcus catarrhalis*, and *B. coli*. Temporary improvement followed operation; only a small fistula remained, and this did not communicate with the bowel. Suddenly adenocarcinomatous masses appeared in the fistula, and the patient died four months after admission. In the third case the patient had an abscess in the left iliac fossa. Skiagrams showed a tumour at the junction of the colon and sigmoid. Sudden terminal obstruction occurred due to scybalous masses. This case illustrates the difficulty of differential diagnosis from diverticulitis, perisigmoiditis, and various intestinal ulcers.

67 Extirpation of the Inguinal Lymph Glands

E. DOMANIG (*Zentralbl. f. Chir.*, March 25th, 1933, p. 686) describes a method which affords easy access to all the inguinal glands (including Rosenmüller's gland in the femoral canal) without the danger of sloughing of flaps, which occasionally follows employment of the T incision. The first incision in this operation is made parallel to Poupart's ligament, from the anterior inferior iliac spine to the pubic spine. From this point the incision is continued downwards vertically to the level of the apex of Scarpa's triangle. A trapezoidal flap of skin and subcutaneous fat is now reflected until the lower border extends horizontally across the thigh at the apex of Scarpa's triangle, while the outer border extends vertically downwards from the inferior iliac spine. The superficial group of glands, lying on either side of the internal saphenous vein, is then removed. If necessary, the vein is divided between double ligatures. The fascia lata is now incised, and a flap of the same size as the superficial flap is reflected, exposing the deep group of glands in Scarpa's triangle. These are removed with the surrounding fat. When necessary the iliac glands can be removed also, through the femoral canal, after retracting or (temporarily) dividing Poupart's ligament. The flap of fascia is then excised and the femoral canal narrowed by suturing Poupart's ligament to the pectineus muscle. The flap of skin and subcutaneous fat is replaced and secured by sutures. Domanig has employed this method in three cases. One year after operation the first patient remains healthy and free from recurrence. The second patient had a melanoma (malignant), and the third a squamous-celled epithelioma of the leg with carcinomatous glands. None of the patients exhibited any subsequent sign of lymphatic obstruction.

Therapeutics

68 X-Ray Treatment of Diphtheria Carriers

U. KRÄTSCHELL (*Arch. f. Kinderheilk.*, March 21st, 1933, p. 42) states that seventy-one children at the Berlin-Lichtenberg Children's Hospital who were diphtheria carriers had their noses and throats treated by from one to three applications of *x* rays. The treatment was regarded as successful when three negative cultures of the nose and throat were obtained from four to five days after the application of *x* rays. The treatment was successful in thirty-eight cases and unsuccessful in thirty-three. Some of the former, however, might have become negative without treatment. The results, therefore, were not encouraging, and the relatively costly method of *x*-ray treatment appeared to be no better than attempts at disinfection by chemical agents.

69 Datura Stramonium in Parkinsonism

B. I. GLOWINSKI (*Thèse de Paris*, 1933, No. 52, records seven personal cases of Parkinsonism in patients aged from 20 to 74 in which considerable benefit had been derived from subcutaneous injections of datura stramonium. Five of the cases were certainly post-encephalitic, one probably so, and one senile. The improvement was shown by diminution of rigidity, pain, muscular hypertonus, affection of speech, salivation, sweating, and, in a less marked degree, tremor. It is stated that the injections should not be continued for more than twenty days, as a rule, owing to their giving rise to such symptoms as somnolence and disturbance of accommodation. The dose should range from 1 to 2 cg. a day according to the susceptibility of the patient and the effect produced.

70 Furunculosis and Sugar in the Skin

E. URBACH (*Med. Klinik*, March 10th, 1933, p. 359) describes important results obtained in the treatment of intractable cases of furunculosis. Although these cases showed normal blood sugar curves after a test dose of 100 grams of glucose and never gave evidence of glycosuria or ketonuria, the analysis of the carbohydrate content of the skin gave values definitely higher than normal. In previous work the author has shown that the average carbohydrate content in the skin is 47 mg. per 100 grams, the highest normal value being about 56 mg. In one of the cases quoted the skin sugar content was 72 mg. per 100 grams. On the basis of the general criteria of diabetes there were no indications for insulin treatment, but on keeping the patients on a salt-free, carbohydrate-free diet and so considerable a dose of insulin as 10 units three times a day, there was a rapid improvement, and in eight days a disappearance of the furuncles without any local treatment at all. At the same time the skin sugar diminished to almost normal values. On putting the patients back on a carbohydrate-containing diet and discontinuing the insulin, there was a reappearance of the boils in about three days. The author considers that the high skin sugar, the high tolerance to insulin on a sugar-free diet, and the clinically excellent effects on the

furunculosis all point to a close connexion between this condition and diabetes. He concludes also that in all cases of boils, urticaria, eczema, and pruritus the possibility of a diabetic aetiology must be considered. When, however, the usual tests for diabetes are negative, a trial treatment with insulin and a carbohydrate-free diet should be instituted.

Disease in Childhood

71 Primary Purpura in Childhood

M. WITKIN (*South African Med. Journ.*, January 14th, 1933, p. 3) finds that primary purpura is an uncommon disorder of childhood, both sexes being equally affected. The aetiological factor is still unknown. A blood count and Wassermann test should precede all other investigations. Primary purpuras are divided into two groups: (1) thrombopenic, where the blood-platelet count is low, and (2) non-thrombopenic, with a normal platelet count. In purpura haemorrhagica the skin lesions are associated with bleeding from one or more mucous surfaces. The haemorrhage is easily caused, and persists, but its severity varies. Exacerbations and remissions are a common feature over a period of several weeks. Prolongation of the bleeding time and delay in clot retraction are points in diagnosis. Purpura fulminans is a rapidly fatal condition, characterized by extensive ecchymosis of the extremities. Three varieties of the non-thrombopenic type of purpura are discussed. In purpura simplex there are usually few clinical signs apart from the petechiae. The disease is trivial, but lasts a few weeks. In Henoch's purpura there is haemorrhage into the walls of the bowel, producing severe abdominal pain, and often accompanied by vomiting, prostration, constipation, and haemorrhage. Remissions and exacerbations occur, and there may be a complicating haemorrhagic nephritis. Purpura rheumatica is associated with joint pains; there is not infrequently a sore throat, with pyrexia which may reach 103°. The urine may be scanty and albumin be present. The treatment of primary purpuras is mainly symptomatic. Adrenaline is the most valuable drug, given by the mouth or, preferably, as subcutaneous injections of 5 to 10 minims three or four times a day. Splenectomy is advocated in the chronic recurrent types. Ligature of the splenic artery is the operation of choice in the severe acute forms.

72 Gonococcal Proctitis complicating Vulvo-vaginitis

A. C. RUYS and P. A. JENS (*Nederl. Tijdschr. v. Geneesk.*, February 25th, 1933, p. 894) state that gonococcal vulvovaginitis in children is usually accompanied by gonococcal proctitis, which as a general rule does not cause any symptoms. This complication is very refractory to treatment and often persists after the genital affection has been cured, thus rendering reinfection possible. Gonococci can easily be demonstrated in the mucus obtained from the rectum. The condition can only be regarded as cured when cultures are negative. In sixty-two examinations of the rectal mucus in children with gonococcal vulvo-vaginitis positive results were obtained in forty-seven.

73 The Periodic Group of Disorders in Childhood

W. G. WYLLIE and B. SCHLESINGER (*Brit. Journ. Child. Dis.*, January-March, 1933, p. 1), whose paper is based on the study of eighty cases, include bilious attacks, cyclical vomiting, ketogenic or acetonaemic vomiting, recurrent pyrexial attacks, and migraine in a periodic group of children's disorders which they regard collectively as of common origin. The periodic attack is manifested clinically by a syndrome composed of vomiting, abdominal pain, headache, and fever. In some cases there are vertigo, raised blood pressure, lapses of consciousness, and convulsions. In a large number of cases there is a history of a similar complaint in the childhood of one or other parent, or the latter may suffer from biliousness or migraine in adult life. The influence of heredity is more often found on the maternal side. Asthma occurs in a considerable percentage, so that the question of an allergic factor in the make-up of children suffering from the periodic group of disorders has been raised. From a study of the effects of a ketogenic diet and the results of liver function tests in normal children and subjects of the periodic syndrome, the writers conclude that the primary factor underlying the occurrence of the periodic syndrome is of nervous origin.

74 Typhoid Perforation in Children

C. LEMMET (*Thèse de Paris*, 1933, No. 86) records eight cases of intestinal perforation in the course of typhoid fever in children aged from 5 to 13 years, of whom six were boys and two were girls. Operation was performed in each case, and five of the boys and both girls recovered. Lemmet's conclusions were as follows: (1) intestinal perforation in typhoid fever is rarer in the child—in whom the disease usually runs a milder course—than in the adult; (2) as soon as the diagnosis is established immediate operation is a matter of extreme urgency, and (3) the prognosis of perforative peritonitis is better in the child than in the adult. The sudden onset and obvious nature of the symptoms facilitate early diagnosis and operation, which are essential for success.

Obstetrics and Gynaecology

75 Dextrose and Alcohol in Puerperal Pyaemia

B. ZONDEK and K. GRUNSFELD (*Zentralbl. f. Gynäk.*, March 25th, 1933, p. 674) give details of twenty cases of severe puerperal pyaemia in which two rigors had occurred after the uterus had been emptied (a rigor following immediately was not counted), and which were complicated by severe anaemia, arthritis, pyarthrosis, jaundice, pleurisy, pulmonary infarction, or pulmonary abscess. The low mortality for such cases of 25 per cent. was obtained, and was attributed to treatment by a combination of intravenous infusions of dextrose (as done by Kirstein) with intravenous administration of alcohol. The daily intravenous dose was 2,400 c.cm. of water with 120 grams of sugar and 48 c.cm. of alcohol (828 Calories). Alcohol was first injected on the second day, and then in increasing doses: not more than 100 c.cm. of the mixture was injected in one hour. When this treatment is unsuccessful a ligature of the vena cava and/or ovarian and iliac veins is recommended: this was followed by recovery in one case of the series; but the authors recommend that it should not be undertaken without a careful general clinical survey, or before four or five rigors have followed the institution of this intravenous therapy. In later stages of treatment the writers advise, for severe anaemia, stimulant *x*-radiation of the long bones.

76 Clinical Evaluation of Pregnancy Tests

M. WITTIG (*Med. Welt*, March 18th, 1933, p. 274) records a study of the relative values of various tests of pregnancy which have been put forward at various times. The reactions studied were the phloridzin test, the ninhydrin tests, the Abderhalden, and finally the Aschheim-Zondek test. Having regard to the fact that the last-named reaction is not one easily carried out by the general practitioner, it was felt that a demonstration of reliability of the other and more readily applicable tests would be of value. It was found, however, that these alternative reactions gave so high a percentage of false positives that there can be no question of using them as a routine. In the case of the Aschheim-Zondek reaction there were no false positives and 100 per cent. correct diagnoses. The more recent technique for this test consists in collecting the early morning urine and extracting it with pure ether; three volumes of ether are used for one volume of urine. The ether layer is

separated off and the ether evaporated in the usual fashion. The residue is taken up in 0.9 per cent. glucose solution and used in this form for injection of the mice. This technique has almost entirely eliminated the mortality which used to occur in the mice when the unextracted urine was used. The test is also carried out with virgin rabbits of about 1,500 grams weight. The author concludes that the Aschheim-Zondek reaction is the only completely reliable one in diagnosing pregnancy.

77 Another Test for Pregnancy

G. L. KELLY (*Journ. Amer. Med. Assoc.*, April 1st, 1933, p. 1010) describes a modification of the Aschheim-Zondek test for pregnancy which he regards as an improvement on other procedures. He has found that intraperitoneal injections of from 5 to 15 c.cm. of urine from pregnant women will cause premature establishment of the vaginal orifice in the albino rat within seventy-two to eighty-four hours, a manifestation which is absent if pregnancy has not occurred. In the immature rat the site of this orifice is represented by a slightly crescentic white cicatrix just behind the clitoris. For the test, two rats weighing from 30 to 40 grams should be employed. The urine injected should be taken from the specimen first passed in the morning. Two intraperitoneal injections should be made, one in the morning and the other in the afternoon of the same day. A positive reaction is indicated by the vaginal orifices becoming patent in both rats within a lapse of ninety-six hours. As a rule the orifice is clearly patent within seventy-two and eighty-four hours. Kelly found that the older and larger the rat the shorter was the time required for the opening of the vagina. If the injections are made as indicated, the result of the test is apparent between the morning and the afternoon of the third day following. This is longer than the time required for the Friedman test (about forty-eight hours), but shorter than that occupied by the Aschheim-Zondek test (four or five days). If one rat responds positively and there is doubt about the other the test should be repeated. In Kelly's experience there has been no case of a positive reaction occurring in the absence of pregnancy. He remarks that it seems extraordinary that a rat weighing only 25 grams can accommodate an intraperitoneal injection of 5 c.cm. without harm, but it has proved in practice to be so. In some cases the vagina may be open, although the orifice is obscured ; it is then easily brought into view by holding the animal by the neck and shoulder region and pulling strongly on the base of the tail without compressing the abdomen. The author summarizes the advantages of this procedure as: the ease of making the peritoneal injection, the convenient size of the animals used, the economy in breeding or purchasing test animals, and the facility of completing the test without killing or operating on the animals. The rats should always be examined carefully before injection to ensure that the vaginas are of the immature closed type.

Pathology

78 A Blood Culture Method for B. tuberculosis

E. LOEWENSTEIN (*Ann. de l'Inst. Pasteur*, February, 1933, p. 161) describes his technique for isolating tubercle bacilli from the blood ; this has frequently been referred to in recent literature. In preparing the culture media the following ingredients are used: twenty eggs cleaned by immersion for thirty minutes in a 5 per cent. tepid, soapy, aqueous solution of sodium carbonate ; a solution containing 3 grams asparagin, 1 gram each of potassium sulphate, sodium citrate, and pure magnesium sulphate crystals, 60 c.cm. pure glycerin, 1,000 c.cm. distilled water—this solution is sterilized in steam for two hours ; potato starch ; a 2 per cent. aqueous solution of Congo red sterilized in the autoclave for fifteen minutes ; a 2 per cent. aqueous solution of malachite green sterilized for two hours in steam. To 600 c.cm. of the asparagin solution 10 c.cm. of a 50 per cent. solution of potato starch and 60 c.cm. of tomato juice are added ; this is cooked for two hours in a water bath. After cooling to 50° C. the whole of sixteen eggs and the yolks of four are added. This mixture is vigorously shaken ; 20 c.cm. of the Congo red solution are added (there is no word as to the addition of the malachite green), and, after further agitation, is filtered through four layers of gauze. It is then poured into sterile tubes and coagulated in steam at 75° to 80° C. The tubes, stoppered with cellulose, are placed in an oven and next day again heated for two hours at 75° to 80° C. This media should be prepared less than two weeks before use and kept in the dark. Special precautions are necessary in taking and preparing the blood sample. The blood is received into a tube containing a 10 per cent. sodium citrate solution so that it falls directly into the solution. After complete admixture by shaking, the plasma is pipetted off. The remainder, after centrifuging, is washed twice with distilled water, being centrifuged after each washing. The resulting sediment should be free from haemoglobin and of a grey colour ; if many blood clots are noted the specimen should be discarded. This sediment should be treated for three minutes with a 15 per cent. aqueous solution of sulphuric acid, washed with distilled water, centrifuged for fifteen minutes, and is then ready for planting. It is evenly spread (with a pipette, not a loop) over the media in three or four tubes, which are hermetically sealed with sealing-wax. The tubes are kept in an inclined position, protected from light, at room temperature for a day, and may then be kept upright at a temperature of 38° C. Growth should appear in three to four weeks. The balance of the sediment is utilized for direct smears. By this method the bacilli may be cultivated from all known forms of tuberculosis—pulmonary, osseous, cutaneous, ocular, or urogenital. The bacillaemia occurring in these conditions is briefly discussed.

79 Transplacental Infection in Tuberculosis

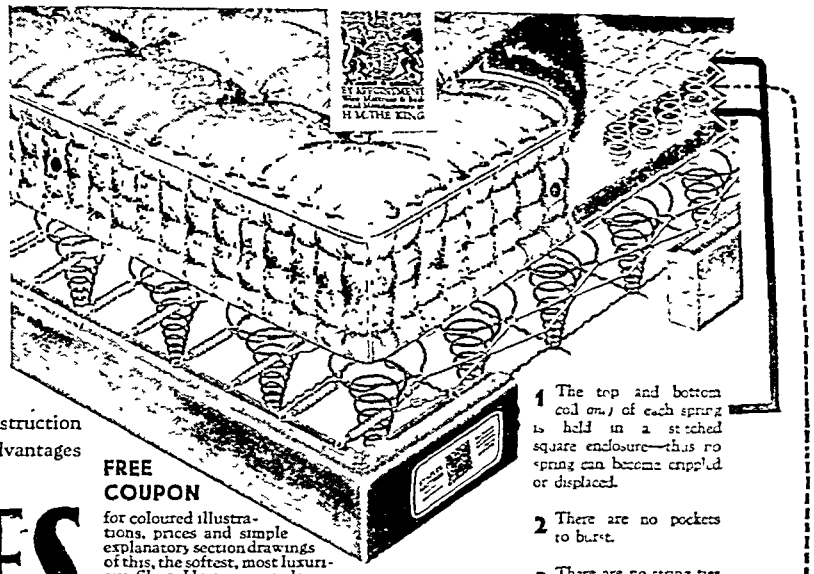
A. COUVELAIRE, A. CALMETTE, J. VALTIS, M. LACOMME, and VAN DEINSE (*Bull. de l'Acad. de Méd.*, March 21st, 1933, p. 400) present a bacteriological study of the blood of infants newly born of tuberculous mothers, and, except in one case, removed from the mother at birth. The blood was in each case withdrawn from the anterior fontanelle, and was inoculated into guinea-pigs or cultured on Löwenstein's medium. The first group of two infants showed obvious signs of tuberculosis, which proved fatal. Positive results were obtained with blood withdrawn during life and injected into guinea-pigs. The second group of eight cases showed no signs of tuberculosis when their blood was withdrawn for investigation. Cultures were made on Löwenstein's medium, and in three cases colonies of acid-fast bacilli were grown. Inoculation into guinea-pigs was, however, negative.

80 Pathogenicity of Vincent's Organisms

H. H. LICHTENBERG, M. WERNER, and E. V. LUECK (*Journ. Amer. Med. Assoc.*, March 11th, 1933, p. 707) made the following experimental and clinical study of the pathogenicity of the fusiform bacillus and spirillum of Plaut-Vincent. (1) Attempts to produce lesions similar to those attributed to the action of these organisms by injecting pure cultures of fusiform bacilli into traumatized tissue in guinea-pigs were unsuccessful. (2) The organisms were constantly found in smears of the membranes that formed over traumatic ulcers produced in the mouth of guinea-pigs. (3) Neither the injection nor local application of sulpharsphenamine hindered the appearance of the organisms in the buccal lesions of guinea-pigs nor hastened their healing. (4) The fuso-spirochaetal organisms were found in 45.8 per cent. of tonsils removed from 108 children and in 91 per cent. of the membranes that formed over the tonsillar beds after tonsillectomy in these children. (5) Sixteen consecutive cases of severe ulcerative stomatitis in children all healed in four to seven days without treatment. The writers conclude that the pathogenicity of Vincent's organism is doubtful.

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Vide B.M.J. 13/5/33, pp. 823-4.

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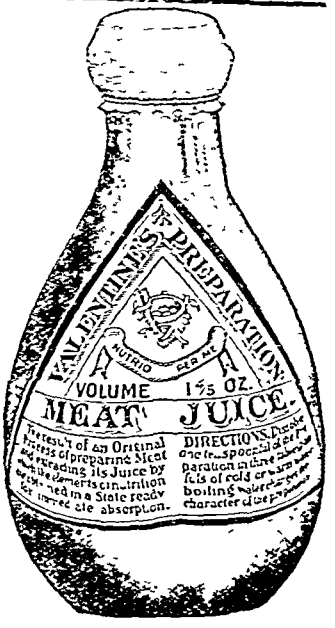
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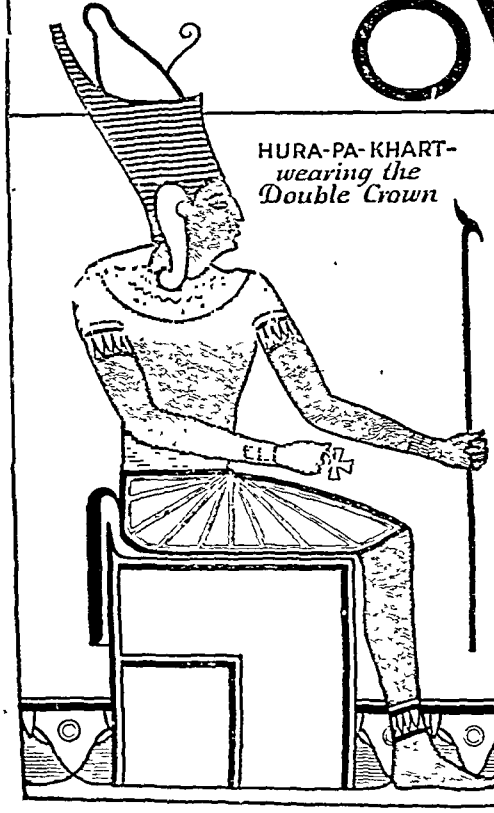
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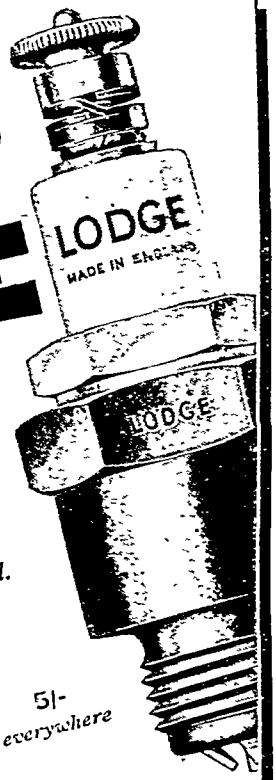
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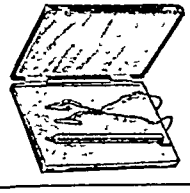
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This REGISTERED HOSPITAL, with a SEASIDE BRANCH at Colwyn Bay, N. Wales, is for the treatment and care of those of the Upper and Middle Classes suffering from MENTAL and NERVOUS DISEASES.

The Hospital is governed by a COMMITTEE, appointed by the TRUSTEES of the Manchester Royal Infirmary.

In addition to the Main Building there are separate villas. Extensive grounds. Hard and grass tennis courts, cricket and croquet grounds, and a court for badminton. There are also wireless installations. Golf may be had within easy distance. Occupational Therapy.

VOLUNTARY, TEMPORARY, AND CERTIFIED PATIENTS received.

The Hospital is nine miles from Manchester, 50 minutes by rail from Liverpool, and 3½ hours from London.

For terms and further particulars apply to the Medical Superintendent, J. A. C. ROY, M.B., who may be seen in Manchester by APPOINTMENT.

Telephone: GATLEY 2231 (5 lines).

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." Telephone: Rodney 4741-4742.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Certified voluntary and temporary patients are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis Courts. Entertainments, dances, and indoor amusements held throughout the year. Terms from £3 3s. per week.

Illustrated prospectus and further particulars can be obtained from the **Medical Superintendent.**

THE OLD MANOR SALISBURY

A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds. Detached Villas. Chapel. Garden and dairy produce from own farm. Terms very moderate.

CONVALESCENT HOME at BOURNEMOUTH.

Detached Villas standing in 12 acres of ornamental grounds, with tennis courts, etc., which Voluntary, Temporary or Certified Patients may visit, by arrangement, for long or short periods.

Illustrated Brochure on application to the Medical Superintendent, The Old Manor, Salisbury. Telephone 51.

CAMBERWELL HOUSE, 33, Peckham Road, London, S.E.5.

Telegrams: "PSYCHOLIA, LONDON." FOR THE TREATMENT OF MENTAL DISORDERS. *Telephone*: RODNEY 4731—4732.

Also completely detached Villas for mild cases, with private suites if desired. Voluntary Patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Putting Greens, Bowls, Croquet, Squash Rackets, and all indoor amusements, including Wireless and other Concerts. Occupational Therapy, Callisthenics, and Dancing Classes, X-ray and Actino-therapy, Prolonged Immersion Baths, Operating Theatre, Pathological Laboratory, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician: Dr. HUBERT JAMES NORMAN, assisted by three Medical Officers, also resident and visiting Consultants.

An illustrated Prospectus, giving fees which are strictly moderate, may be obtained upon application to the Secretary.

The Convalescent Branch is HOVE VILLA, BRIGHTON, and is 200 feet above sea-level.

The MUNDESLEY SANATORIUM

The newly opened central building makes the Mundesley Sanatorium the best equipped building in England for the cure of Tuberculosis. All the bedrooms have hot and cold running water, electric light, and wireless head phones. The new public rooms are spacious and comfortable.

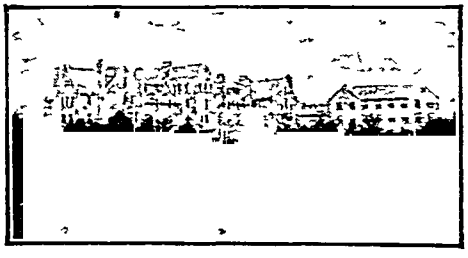
President Physicians
S. VERE PEARSON, M.D. (Cantab.) M.R.C.P. (Lond.).
ANDREW MORLAND, M.D. (Lond.) M.R.C.P.
E. C. WYNNE-EDWARDS, M.B. (Cantab.)

For all information apply
THE SANATORIUM, MUNDESLEY, NORFOLK
(Telephone: Mundesley 94.)

The buildings face S.S.W. and are sheltered from the sea by a pine-clad ridge. The sunshine record and dry air complete a perfect site. The medical equipment is of the latest kind, and there is a day and night nursing staff.

TERMS FROM 7½ GUINEAS WEEKLY.

TOR-NA-DEE SANATORIUM
MURTLE DEESIDE ABERDEENSHIRE



Medical Director: David Lawson, M.D., F.R.S.E.

FULLY EQUIPPED WITH EVERY MODERN APPLIANCE FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS AND ALLIED DISEASES.

Physician Superintendent: J. M. JOHNSTON, M.B., D.P.H., etc.

Full particulars and Prospectus on application to the Secretary.

Inclusive Terms: SEVEN GUINEAS A WEEK

THE COTSWOLD SANATORIUM

First opened in 1893 and rebuilt in 1925. On the Cotswold Hills, seven miles from Cheltenham, for the treatment of Pulmonary and all other forms of Tuberculosis. Aspect S.S.W., sheltered from North and East, elevation 800 feet. Pure bracing air. Special Treatment by artificial Pneumothorax (X-ray controlled). Tuberculins and Ultra-violet Rays is available, when necessary, without extra charge. X-ray plant. Electric light. Radiators, hot and cold basins, and Wireless in all rooms.

Full day and night Nursing Staff.

Medical Superintendent: GEOFFREY A. HOFFMAN, B.A., M.B., T.C. Dub. *Assistant Physician*: MARGARET A. HARRISON, M.B., B.S. Lond. *Consulting Laryngologist*: SIDNEY BERNSTEIN, M.R.C.S. Eng., L.R.C.P. Lond. (Attends Regularly.)

Apply: The Secretary, The Cotswold Sanatorium, Cranham, Gloucester. *Telephone*: 41 WITCOMBE. *Telegrams*: HOFFMAN, BIRDLIP.

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FOR THE TREATMENT OF TUBERCULOSIS, was opened in January, 1899, by ROWLAND THURNAM, M.D.

All modern forms of treatment are available. There are X-ray and ultra-violet ray installations. Full day and night nursing staff. The Sanatorium stands in gardens and private grounds of 60 acres, at an altitude of 862 feet above sea level, surrounded by woods and moorland. All rooms are heated by hot water pipes and electrically lighted.

Fees 4, 5, and 6 guineas per week.

CYRIL FRANCIS ASHBY, M.R.C.S., L.R.C.P., Certificate of Sanatorium Stephani, Switzerland, *President Medical Supt.*

For full particulars apply to *The Secretary*, Nordrach-upon-Mendip, Blagdon, Bristol. *Telegrams*: Nordrach, Blagdon. *Telephone*: Blagdon 23.

LINFORD SANATORIUM,
RINGWOOD, NEW FOREST, HANTS.

Established 1898 for the treatment of Tuberculosis. Radiators and Electric Light throughout. Hot and cold water and shower bath in nearly all rooms. Powerful X-ray Plant. Ultra-violet Rays. Full Nursing Staff. All forms of treatment available. Farm of 120 acres, including 40 acres of wood. Herd of Tuberculin-tested Guernsey cows kept. Resident Physicians—ARTHUR DE W. SNOWDEN, M.D., B.Ch. (Cantab.), A. G. E. WILCOCK, M.R.C.S., L.R.C.P. COLIN CASSIDI, M.B., B.Ch. (Cantab.).

HOSPITAL FOR CONSUMPTION
AND DISEASES OF THE CHEST, BROMPTON, and FRIMLEY SANATORIUM.

PAYING PATIENTS RECEIVED.

BOTH MEDICAL and SURGICAL CASES.

4 to 8 guineas per week at the Hospital. 3 to 4 guineas per week at the Sanatorium.

APPLY TO THE SECRETARY:—BROMPTON HOSPITAL, S.W.3.

GRAMPIAN SANATORIUM,
KINGUSSIE, INVERNESS-SHIRE

Specially built for the Open-air Treatment of Tuberculosis and opened in 1901. Bracing mountain air. Elevation 860 ft. above sea-level. Sheltered situation in pine wood. Graduated walks. Electric light throughout. Full hot and cold baths. Central heating. Fully equipped X-ray Plant. Inoculation Treatment available. Terms for patient—24 hours. Trained Nurses. Terms £4 7s. 6d. to £6 6s. per week. No extras. Med. Sup.—FELIX SAVY, M.D.

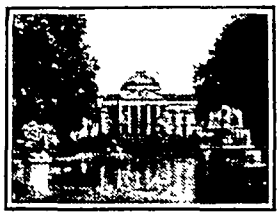
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For the Treatment of

GOUT,
RHEUMATISM, ARTHRITIS, FIBROSITIS, NEURITIS,
ARTERIO-SCLEROSIS and HYPERPIESIS,
DISEASES OF THE
LIVER and GALL BLADDER, GASTRIC CATARRH and COLITIS,
SKIN DISEASES, ANAEMIA, and Convalescence from Acute Illness.

Members of the Medical Profession are asked to write for particulars of Complimentary Facilities to F. J. C. BROOME, General Manager, 3, The Royal Baths, Harrogate.



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The curative Spa in the Taunus and on the Rhine.

Summer pleasures in Wiesbaden do not cost much. Best curative results with Rheumatism, Sciatica, Gout, etc. Inclusive terms greatly reduced. Full Board from RM. 4

Golf, Tennis, and other sport. Beautiful beach bathing on the Rhine.
Artistic presentations by the "Kurverwaltung" and State Theatres.

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BRIDGE OF ALLAN SPA

MINERAL WATERS with high Calcium, Iodine and Bromine Content. Indicated in Rheumatism, Gastric Complaints, Asthma, Bronchitis, Debility, etc. Hydrotherapy, Electrotherapy, Massage, Inhalation, Intestinal Lavage.

Full particulars from Spa Director.
Covered communication with Allan Water & Spa Hotel.

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SMEDLEY'S

Great Britain's Greatest Hydro

Unrivalled suites of Baths for Ladies and Gentlemen, including Turkish and Russian Baths, Aix and Vichy Douches, Massage and Plombières Treatment, and Electric Installation for Baths and other Medical Purposes, Dowsing Radiant Heat, D'Arsonval High Frequency, Diathermy, Nauheim Baths, Soapless Foam Baths, etc. "Certified" Milk from our farm of 300 acres. Large Winter Garden. Special provision for Invalids. Night Attendance. Rooms well ventilated and all bedrooms warmed in Winter. A large Staff (upwards of 60) of trained Male and Female Nurses, Masseurs, and Attendants.

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Telegrams: Smedleys, Matlock.

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Built 1929-30.

THE ONLY SANATORIUM IN SWITZERLAND UNDER BRITISH OWNERSHIP AND CONTROL, AND WITH A DAY AND NIGHT STAFF OF BRITISH TRAINED NURSING SISTERS.

REDUCED TERMS.——QUOTED IN STERLING.

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Attendance at school is a necessary part of the satisfactory treatment of Epilepsy in Children.

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meets all the requirements of children of middle-class parentage. Extensions made necessary by the success of the school have created several vacancies.

Only bright and intelligent boys and girls are eligible for admission.

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gives comfort, service, and cuisine equal to larger hotels at less cost. Bedrooms with hot and cold water and telephones. Centrally situated, close to Harley Street and Nursing Homes.

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THE INSTITUTE OF MEDICAL PSYCHOLOGY
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A YEAR'S COURSE IN
PSYCHOTHERAPEUTIC THEORY AND METHOD
begins on October 2nd, 1933.

The number to be admitted is limited and applications must be received by September 18th.

For full information apply to the HON. LECTURE SECRETARY at the Institute.

LONDON HOSPITAL MEDICAL COLLEGE & DENTAL SCHOOL.

THE WINTER SESSION will Open on Monday, October 2nd.

The Hospital is the largest in England. There are 843 beds in constant use. Last year: number of in-patients, 14,634; out patients, 101,242; attendances, 501,408; dental patients, 6,113; major operations, 7,708.

The MEDICAL COLLEGE and DENTAL SCHOOL are essentially modern, with large laboratories equipped with the latest and the most approved appliances. The STAFF is so large as to permit of individual attention being paid to all students.

MEDICAL UNIT.—A Clinical Unit in Medicine, under the charge of a whole-time Director, provides for the more elaborate methods of diagnosis and treatment, and takes a leading part in the initiation and co-ordination of medical research.

RESEARCH FUNDS of approximately £113,000 give unrivalled facilities for Medical Research.

SCHOLARSHIPS and PRIZES to the value of £1,040 are awarded annually, including four Open Entrance Scholarships to the value of £350 and an Entrance Scholarship open to students of the Universities of Oxford and Cambridge of the value of £100.

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SPECIAL COURSES are held for all the University Examinations, for the Primary and Final Fellowship Examination of the Royal College of Surgeons, and for the Membership Examination of the Royal College of Physicians.

HOSPITAL PRACTICE.—Exceptional opportunities are offered to qualified Practitioners wishing to attend the General Practice or the Practice of a Special Department of the Hospital.

A Club's Union, an *Athletic Ground* of over 13 acres, and a *Students' Hostel* promote the recreation, health, and comfort of the Students.

For Prospectus and Particulars apply to the Dean (Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S.), who will be pleased to make arrangements for anyone wishing to see the Medical College and Dental School.

MILE END, E.1.

FELLOWSHIP OF MEDICINE, 1, WIMPOLE ST., LONDON, W.1. Telephone: Langham 4266

should be consulted regarding all Post-Graduate Instruction. ANNUAL MEMBERSHIP SUBSCRIPTION of £1 1s. 0d. permits Members to attend the SPECIAL COURSES arranged periodically in all subjects (including Courses for M.R.C.P. and F.R.C.S. (Final) examinations). A ROTA OF TEACHERS giving personal tuition is always available for Members.

The "POST-GRADUATE MEDICAL JOURNAL" (published monthly) giving full details, in addition to matter of Clinical and Practical interest, is included in the Membership subscription.

The next series of Special Courses will begin early in September.

Post-Graduate Teaching, West London Hospital.

Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave," and for those wishing to take a course under the "Grant-aided Scheme for Post-Graduate Study by Insurance Practitioners."—Anaesthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

Prospectus from the DEAN, West London Hospital, Hammersmith, W.6.

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All Universities.

Skilled coaching, guidance, and advice, by specialist tutors.

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Write for free booklet "How to Write a Thesis for the M.D. degree."

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Courses by skilled tutors for each branch of the M.D. London.

Oral, clinical, and practical work arranged.

Special courses, postal, oral, and clinical, for all higher medical examinations, M.R.C.P. London, Edinburgh, F.R.F.P.S. Glasgow. Many successes.

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MIDDLESEX HOSPITAL MEDICAL SCHOOL

LONDON, W.1.
(UNIVERSITY OF LONDON.)

PRIMARY F.R.C.S. EXAMINATION.

The next Course will begin on September 4th, under the direction of:—
Professor T. YEATES.
Professor SAMSON WRIGHT.
Professor E. C. DODDS.
Dr. J. H. WOODGER.

FEE.—20 guineas.

Applications for admission should be made to the School Secretary, Middlesex Hospital, London, W.1.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE

(UNIVERSITY OF LIVERPOOL.)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 2nd, 1933, and January 3rd, 1934, and for the Diploma in Tropical Hygiene on January 11th and April 26th, 1934. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars, apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

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TUTORS FOR ALL EXAMS.

Messrs. J. & J. PATON having an up-to-date Knowledge of the BEST SCHOOLS and TUTORS in this Country and on the Continent, will be pleased to AID PARENTS in their choice by sending (free of charge) prospectuses and TRUSTWORTHY INFORMATION and ADVICE.

The age of the pupil, district preferred, and rough idea of fees should be given

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SKILLED COACHING, GUIDANCE, and ADVICE from Special Tutors, in conformity with the Regulations of the various Universities.

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STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1882. Cases, non-resident, treated at 39, Earl's Court Square, S.W.5, and in residence, in the Summer holidays, at Miss BEHNKE'S house on the Chilterns.

"Pre-eminent success in the education and treatment of stammering and other speech defects."—"Times"
"Thoroughly physiological principles."—"Lancet."
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STAMMERING, CLEFT PALATE SPEECH, LISPING, 3/9 of Miss BEHNKE, 39, Earl's Court Sq., S.W.5.

MASTERY OF MIDWIFERY.

Examinations for the Diploma of the Mastery of Midwifery of the Society of Apothecaries of London will be held beginning Monday, November 20th, 1933, and Monday, May 21st, 1934.

For regulations, apply to the Registrar of the Society, Water Lane, E.C.4.

Preliminary Examinations.

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

F.R.C.S.(Edin.).

PREP. COURSE with daily Lecture-Demonstrations of Museum Specimens of Surg., Path., for next Exam., will commence shortly. POSTAL TUITION at any time.—Further particulars, H. C. ORRIN, F.R.C.S., Surgeons' Hall, Edinburgh.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL

MARYLEBONE ROAD, N.W.1

Medical Students and Qualified Practitioners admitted to the Practice of this Hospital. Unusual opportunities are afforded of seeing Obstetrical Complications and Operative Midwifery (about one half of the total admission being primiparous cases). Over 2,700 patients are admitted to the Wards annually, and in the Ante-natal Department there are over 20,000 attendances per annum.

Certificates awarded as required by the various Examining Bodies.

For rules, fees etc., apply, H. B. STOKES, Secretary-Superintendent.

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SOME SUCCESSES:

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	Final	155
M.R.C.P.(Lond.),	1919-32	215
D.P.H.	(*Various*) 1906-32 (Completed Exam.)	316
F.R.C.S.(Edin.),	1918-32	53
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M.D.	Various. By Thesis.	Numerous successes.

Preparation for the above; also for Medical Preliminary, and all examinations leading up to M.R.C.S., L.R.C.P., or M.B. of various Universities; also for M.R.C.P.(Edin.), D.P.M., D.O.M.S., D.T.M. & H., D.L.O., D.G.O., D.M.R.E., M.M.S.A., L.M.S.S.A., etc. *Many successes.*

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M.R.C.P., M.D., Primary and Final F.R.C.S., F.R.C.S.(Edin.); also Final M.B., B.S., and M.R.C.S., L.R.C.P. Museum and Microscope Work. Also Private Tuition.

MEDICAL PROSPECTUS (48pp.)

CONTENTS:—The method and the cost of enter- *Particulars of all Courses, and Oral* Higher Medical the Higher Sur- ...ons for the Special Diploma Examinations. Refresher Courses. Openings for Women. Hints for writing theses.

Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, Mr. E. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6313.)

THE CANCER HOSPITAL (FREE),

Fulham Road, London, S.W.3.

UNIVERSITY OF LONDON
DIPLOMA IN MEDICAL RADIOLOGY.

A course of study in Physics and Radiology qualifying for the Diploma in Medical Radiology of the University of London will begin on October 10th, 1933, at the Cancer Hospital (Free), Fulham Road, S.W.3.

Full particulars can be obtained on application at the above address to *Professor J. M.* WOODBURN MORISON, or from the undersigned.

CLEMENT COBBOLD, *Secretary.*

UNIVERSITY OF LEEDS.

DEPARTMENT OF PHYSIOLOGY.

The Council will shortly proceed to the appointment of a LECTURER IN PHYSIOLOGY. Salary £500. Duties to commence, if possible, on October 1st. Particulars may be obtained *from the Registrar, The University*, Leeds, by whom applications will be received up to August 5th.

LONDON HOSPITAL MEDICAL COLLEGE.

F.R.C.S.

A COURSE OF INSTRUCTION for the Final Fellowship Examination will begin on Monday, September 4th.

Fees: (exclusive of Operative Surgery) 25 guineas. Operative Surgery 10 guineas.

A separate entry can be made for all Classes other than those of a strictly Clinical character.

Further particulars may be obtained from Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., Dean, London Hospital Medical College, Mile End, E.1.

LONDON HOSPITAL MEDICAL COLLEGE.

Primary Fellowship Examination.

A COURSE OF INSTRUCTION for the above Examination will begin on Monday, Sept. 4th.

The Fee for the Course is 15 guineas.

Further particulars may be obtained from Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., Dean, Mile End, E.1.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

ELECTION OF TWO EXAMINERS IN DENTAL SURGERY.

Notice is hereby given that the Council on August 3rd next will proceed to the election of two Members of the Board of Examiners in Dental Surgery, the retiring Examiners being eligible for re-election. Persons duly registered under the Dentists Acts, 1878-1923, desirous of being elected, should make application, in writing, to the Secretary not later than the 29th instant.

S. FORREST COWELL,
July 22nd, 1933. Secretary.

ROYAL COLLEGE of PHYSICIANS of EDINBURGH
ROYAL COLLEGE of SURGEONS of EDINBURGH
ROYAL FACULTY of PHYSICIANS and SURGEONS of GLASGOW.

COPIES OF REGULATIONS for the TRIPLE QUALIFICATION (L.R.C.P.E., L.R.C.S.E., and L.R.F.P. & S.G.), and the DIPLOMA IN PUBLIC HEALTH, containing Dates of Professional Examinations for the year 1933-34, Curriculum, etc., may be had on application to the REGISTRAR, 49, George Square, Edinburgh, or to the REGISTRAR, 242, St. Vincent St., Glasgow.

PRISON MEDICAL SERVICE.

Applications are invited for the post of MALE MEDICAL OFFICER, Class II, in the above Service. Commencing salary £505 7s. per annum, proceeding by annual increments to £726, with unfurnished house or an allowance in lieu. These posts are pensionable, and there are prospects of promotion to higher rank. Applicants are informed that the conditions of service are liable to review.

Candidates must be fully qualified and registered. Preference will be given to those who have held house appointments, have had experience in lunacy and psychological methods, and are under the age of 30. Forms of application can be obtained from the Secretary, *Staff Branch*, Prison Commission, Home Office, London, S.W.1.

ECCLES AND PATRICROFT HOSPITAL, MANCHESTER.

TWO HOUSE SURGEONS required. Good general Surgical work. Commencing salary £175 per annum, plus board, etc. Appointment for six or twelve months. Apply, with copies of testimonials, to the Secretary.

UNIVERSITY OF BIRMINGHAM.

FACULTY OF MEDICINE.

(Associated with the General, Queen's and Special Hospitals for Clinical Teaching.)

The next Session opens on October 2nd, 1933.

The University grants degrees in Medicine, Surgery, and Public Health, and a Diploma in Public Health; also Degrees and a Diploma in Dental Surgery.

The Courses of instruction are also adapted to meet the requirements of other Universities and Licensing Bodies.

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A large number of Resident Hospital appointments in Birmingham and District are open to qualified students of the School.

SCHOLARSHIPS, EXHIBITIONS, AND PRIZES.

Entrance and other Scholarships and Exhibitions and various Prizes and Medals are awarded annually in the Faculty of Medicine, full details of which are in the Faculty syllabus.

SCHOOL OF DENTISTRY.

(University of Birmingham and Birmingham Dental Hospital.)

The School of Dentistry, in conjunction with the General and Queen's Hospitals, affords a complete curriculum for the Dental Diplomas and Dental Degrees of the University and all other Licensing Bodies. A Dental Scholarship of the value of £46 17s. 6d., tenable for one year, is offered annually.

PRE-REGISTRATION MEDICAL AND DENTAL EXAMINATIONS.

The necessary courses of Instruction in *Chemistry* and *Physics* and in *Biology* may be attended in the University.

For syllabus and further information apply to STANLEY BARNES, M.D., D.Sc., F.R.C.P., Dean.

UNIVERSITY OF LONDON,
UNIVERSITY COLLEGE.

FACULTY OF MEDICAL SCIENCES.

SPECIAL COURSE FOR THE PRIMARY FELLOWSHIP EXAMINATION OF THE ROYAL COLLEGE OF SURGEONS.

Special SHORT COURSES in ANATOMY and PHYSIOLOGY will begin on Wednesday, August 30th, 1933, in preparation for the December Examination.

ANATOMY: J. KIRK, M.B., Ch.B., F.R.C.S.E.
PHYSIOLOGY: H. BARCROFT, M.A., M.R.C.S., L.R.C.P.

The Course in Anatomy (including Embryology) is made up of lectures and demonstrations. Students are *permitted to use* the Dissecting Room and Museum of Anatomy at other times. The course in Physiology, Bio-Chemistry, and Histology consists of lectures and demonstrations, together with revision of practical work in those branches of the subject which are of particular importance in Medical Practice.

Full particulars may be obtained on application to—

University College, London. (Gower Street, W.C.1.) C. O. G. DOUIE, Secretary.

THE ESSEX COUNTY COUNCIL.

A . . . . FOR THE OF THE COUNTY.

The Essex County Council are prepared to receive applications from Barristers, Solicitors, and legally qualified Medical Practitioners of not less than five years' standing in their respective professions, for the office of Coroner for the above District. The salary is £1,000 per annum (out of which the Coroner will have to pay travelling, office, postage, stationery, and all other personal expenses), but will be subject to a temporary economy abatement according to the scale approved by the County Council. Payments to Witnesses and other persons will be reimbursed quarterly by the County Council in accordance with County Scales. The person appointed will be required to devote the whole of his time to the duties of the office, and not to engage in private practice or in any other occupation for profit, and also to reside within the district or not more than two miles beyond the boundary thereof. Forms of application, with particulars of the population of and the parishes comprised within the district, may be obtained from the undersigned, to whom applications must be sent not later than Saturday, August 5th. Canvassing is prohibited.

Dated this 14th day of July, 1933.

JOHN H. GOOLD,
Clerk of the County Council.
Shire Hall, Chelmsford.

SUDAN MEDICAL SERVICE.

A MEDICAL OFFICER is required for the Sudan Medical Service to proceed to the Sudan in April, 1934. The selected candidate will be required to take the Course at the London School of Tropical Medicine from October 2nd, 1933 to April 1934. Fees and a subsistence allowance provided by the Sudan Government.

Candidates must be British born, single, under 30 years of age, and have held a resident appointment in a large general Hospital.

Pay in the Sudan commences at £E.720 a year, subject to an abatement of 7½ per cent, rising to £E.1,200 after thirteen years' service. On confirmation of his appointment, the selected candidate will be eligible for pensionableservice.

Applications (in writing only), with copies of recent testimonials, should be made to Dr. HODSON, 69, Harley St., W.1.

BARRY URBAN DISTRICT COUNCIL.

SURGICAL HOSPITAL.

HOUSE SURGEON (Male)

Applications are invited for the above appointment

Candidates must be duly qualified and registered. Salary £200 per annum, with board, and lodging

Preference will be given to a candidate with previous experience, especially in the administration of Anaesthetics.

The successful candidate must devote the whole of his time to the duties of his office, and to assist the Medical Staff, and act under the supervision of the Medical Superintendent, who is also Medical Officer of Health and School Medical Officer.

The appointment will be for a period of six months, to be renewed, if thought fit, for another period of six months, but not for any subsequent period.

The successful candidate will be required to commence duties on August 24th.

Applications, stating age, qualifications, positions held, with copies of three recent testimonials, to be sent to Dr. P. W. KENT, Medical Superintendent, Public Health Office, Barry, by first post on July 25th

(Signed) T. D HOWELLS, Clerk.

July 10th, 1933.

LONDON COUNTY COUNCIL.

TEMPORARY RESIDENT ASSISTANT MEDICAL OFFICERS required at undermentioned Hospitals until December 31st, 1933, in first instance.

Must be registered Medical Practitioners of at least one year's standing, and have held a resident appointment in a General or Maternity Hospital for at least six months. Salary £250 a year, with board, lodging, and washing. Duties include administration of anaesthesia in maternity cases. Remuneration and conditions subject to review

1. LAMBETH HOSPITAL, Brook Street, Kennington, S.E 11.—No accommodation for a married man or for a woman.

2 ST. ANDREW'S HOSPITAL, Devon's Road, Bow, E 3.—(Woman only).

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 3a), County Hall, Westminster Bridge, S.E.1, returnable by July 28th. Canvassing disqualifies. Inquiries should be addressed to respective Medical Superintendents

CITY OF SALFORD.

HOPE HOSPITAL. (1,000 Beds)

ASSISTANT RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Assistant Resident Medical Officer (male) at Hope Hospital, Pendleton. The appointment will be for six months. Salary £200 per annum, plus board, residence, and laundry. Further information regarding the Hospital may be obtained from the Medical Superintendent. Form of application may be obtained from the Medical Officer of Health, 145, Regent Road, Salford, to whom it should be returned by July 29th.

H. H TOMSON, Town Clerk.

COUNTY MENTAL HOSPITAL, WINWICK, WARRINGTON.

ASSISTANT MEDICAL OFFICER (male, single) required. Commencing salary £500 per annum, rising by annual increments of £25 to £600 per annum. A charge of £150 per annum will be made for board, furnished apartments, and washing. £50 per annum will be paid to holder of the D.P.M.

Candidates must be registered under the Medical Act.

The appointment is subject to the provisions of the Asylums Officers Superannuation Act, 1909.

Applications, stating age, together with full particulars, should be received by the Medical Superintendent not later than August 3rd next.

CITY OF PLYMOUTH.

A RESIDENT WOMAN MEDICAL OFFICER.

Applications are invited from duly qualified and registered female Medical Practitioners for the post of Resident Woman Medical Officer at the CITY HOSPITAL, PLYMOUTH—a General Hospital of 540 beds.

The person appointed will work under the control of the Medical Superintendent. Candidates should have had previous experience as House Surgeons or House Physicians.

The appointment will be for twelve months, at a salary of £350 per annum (subject to a temporary reduction of 7½ per cent), and quarters, food, etc., will be provided. Any other fees received must be refunded to the Corporation. The appointment will be terminable by three months' notice on either side. Any further particulars may be obtained from Mr. G. E LARKS, the Medical Superintendent.

Forms of application will not be provided, but candidates should state their age, their previous experience, and present appointment. Canvassing will disqualify.

Applications, endorsed "Resident Medical Officer," together with copies of three recent testimonials, must be received by the undersigned on or before August 3rd

Town Hall, T. PEIRSON, M.D,
Stonehouse, Plymouth. Medical Officer
July 17th, 1933. of Health.

COUNTY BOROUGH OF BRIGHTON.

PUBLIC ASSISTANCE COMMITTEE.

The Public Assistance Committee require the services of a MEDICAL OFFICER for the No. 3 Medical Relief District.

Candidates must be duly qualified Medical Practitioners and reside within or near the area of the district.

Salary £275 per annum.

Forms of application, together with a list of duties, may be obtained from the Public Assistance Officer, Public Assistance Offices, Prince's Street, Brighton, which forms, duly filled up and accompanied by copies of testimonials and a description of Diplomas, Certificates of Degrees, Licences, and other instruments held by the candidate, must be returned to the Public Assistance Officer not later than Monday, July 31st, by 12 o'clock noon.

Canvassing the Committee, either personally or by letter, will be considered a disqualification for the appointment.

(N.B.—The salary is subject for the time being to a temporary deduction of £8 15s. per annum)

JAS. H ROTHWELL,
Town Clerk and Clerk to the Public
Assistance Committee.
Public Assistance Offices,
Prince's Street, Brighton. July, 1933.

NEWCASTLE-UPON-TYNE EDUCATION COMMITTEE.

APPOINTMENT OF ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited for an appointment as full-time Assistant School Medical Officer (man or woman). Salary £500 per annum, rising by £25 per annum to a maximum of £700 per annum in accordance with the National scale. The salary is subject to a temporary deduction which is applicable generally to, and voluntarily offered by, officers employed under the Newcastle-upon-Tyne City Council.

Applicants should have had at least three years' experience in the practice of their profession subsequent to obtaining their qualifications.

Form of application and particulars of the appointment may be obtained by sending a stamped addressed foolscap envelope to the Director of Education, Education Office, Northumberland Road, Newcastle upon-Tyne, 2. Applications will be received up to and including July 29th.

BOROUGH OF DUKINFIELD.

TEMPORARY PART-TIME APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

Applications are invited for the Temporary appointment of Medical Officer of Health for the Borough of Dukinfield.

The officer appointed will be required also to carry out the duties of School Medical Officer.

The salary paid will be at the rate of £400 per annum.

The appointment will be a temporary one until March 31st, 1934, or until terminated by one month's notice in writing by either side, whichever is the earlier.

Canvassing will be a disqualification.

Further particulars and forms of application may be obtained from the undersigned, to whom forms of application must be returned so as to be received not later than July 28th.

Town Hall, ERNEST BARLOW.
Dukinfield. Town Clerk.
July 12th, 1933.

COUNTY BOROUGH OF SUNDERLAND EDUCATION COMMITTEE.

ASSISTANT SCHOOL MEDICAL OFFICER.

Applications from qualified Medical Practitioners are invited for the post of Assistant School Medical Officer (man), at a salary at the rate of £500 per annum, advancing by annual increments of £25 to a maximum of £700.

Applicants must have had three years' experience of the practice of medicine since obtaining their medical qualification.

Preference will be given to applicants who:

(1) Have had definite experience of treatment by means of X-rays and Ultra violet Rays
(2) Have had some definite experience of School Medical work
(3) Have enjoyed special opportunities for the study of diseases of children.

The candidate appointed will be required to devote the whole of his time to the duties of the office.

The appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and the selected candidate will be required to pass a medical examination

Forms of application may be obtained from the undersigned, to whom they should be returned not later than Wednesday, August 9th Canvassing will be a disqualification

Education Offices, HERBERT REED.
15, John St., Chief Education Officer
Sunderland. July, 1933

CITY OF SALFORD.

INFECTIOUS DISEASES HOSPITAL.

Applications are invited for the post of JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER (male) Salary £200 per annum, plus board, residence, and laundry The appointment will be for one year. Form of application may be obtained from the Medical Officer of Health, 145, Regent Road, Salford, 5, Lancs, to whom it must be returned, endorsed "Junior Assistant Resident Medical Officer," not later than August 5th

H. H. TOMSON, Town Clerk

ROYAL DEVON AND EXETER HOSPITAL EXETER (225 Beds)

HOUSE SURGEON (Male)

Applications are invited for the post of House Surgeon at this Hospital, vacant on August 7th. The appointment is for six month but candidates are eligible for re-election

Salary at the rate of £150 per annum, with board, apartments, and washing.

Applications, giving particulars as to age and qualifications, together with copies of three recent testimonials, should be sent to the undersigned as soon as possible.

By Order of the Committee,
S S. COLE, Secretary & Manager.

GENERAL INFIRMARY, SALISBURY. (Voluntary General Hospital—170 Beds.)

ONE HOUSE PHYSICIAN and ONE HOUSE SURGEON (male) required to commence duty July 31st and September 8th, respectively.

The appointments are for six months, with the right of applying for re-appointment at the end of that period for a further period of six months.

Candidates must be unmarried, fully qualified, and registered. Salary £150 per annum, with board, etc.

Applications, with copies of testimonials, to be forwarded to the House Governor and Secretary, from whom a copy of the Rules may be obtained.

THE JESSOP HOSPITAL FOR WOMEN, SHEFFIELD

The Board of Management invite applications for the post of HOUSE SURGEON (male) for a period of six months, commencing Sept 1st

Salary £100 per annum, together with board, residence, and laundry

Applications, stating age, together with copies of testimonials, should be addressed to the undersigned not later than Wednesday, August 2nd

DAVID OSWALD, Secretary

ABERDEEN ROYAL MENTAL HOSPITAL

The office of JUNIOR ASSISTANT PHYSICIAN in the Aberdeen Royal Mental Hospital is vacant, and applications for it are invited. Preference will be given to those who have had general hospital experience.

Salary will commence at £300 per annum, with board, rooms, and laundry. Applications, stating ages and full particulars of experience, with copies of testimonials, should be sent to the Physician Superintendent.

BRISTOL ROYAL INFIRMARY.

Applications are invited for the following medical appointments for the six months, commencing September 1st.

THREE HOUSE PHYSICIANS;
FOUR HOUSE SURGEONS;
ONE HOUSE SURGEON to the Ear, Nose, and Throat Department;
ONE HOUSE SURGEON to the Gynaecological and Skin Department;
ONE OBSTETRIC HOUSE SURGEON;
ONE CASUALTY HOUSE SURGEON;
ONE HOUSE SURGEON to the Ophthalmic Department and to the Junior Assistant Surgeon.

Salaries at the rate of £80 per annum, with board, apartments, and laundry, except in the case of the Casualty House Surgeon, when the salary will be at the rate of £100 per annum, with board, apartments, and laundry.

Candidates, who must be duly qualified, to send in their applications, stating age, together with copies of not more than three testimonials, to the undersigned on or before August 4th.

The elected candidates must become members of the Medical Defence Union before taking up their appointment.

ELLIS C. SMITH, F.C.I.S.,
Secretary & House Governor.

ROYAL INFIRMARY, BLACKBURN.
(240 Beds—Five Residents.)

RESIDENT HOUSE PHYSICIAN (male) required at a salary of £175 per annum, with board, residence, laundry, etc. In addition to Medical Wards to be attached to Eye, Ear, Nose, and Throat Department. To commence duties August 1st.

FOURTH HOUSE SURGEON (male) to act also as Casualty Officer required at a salary of £150 per annum, with board, residence, laundry, etc. To commence duties as soon as possible.

Applications, with copies of testimonials, stating age, nationality, experience, etc., to be sent at once to the undersigned.

Royal Infirmary, NATHAN A. SMITH,
Blackburn. General Supt. & Sec.

This Institution is recognised for the Surgical Practice required for the F.R.C.S. Final examination.

ROYAL VICTORIA INFIRMARY, NEWCASTLE-UPON-TYNE. (725 Beds.)

Applications are invited for the post of REGISTRAR to the [illegible]RT-MENT (open appointment must be registered in Medicine or Surgery).

The appointment will be for one year and may be further renewed, but in no case will extend beyond three years. Commencing August 8th, 1933.

The rate of remuneration is £100 per annum.

Regulations governing the appointment must be obtained from the undersigned, and applications, with copies of not more than three recent testimonials, should be sent on or before Saturday, July 29th.

S. DUNSTAN,
July 14th, 1933. House Gov. & Sec.

KENT COUNTY OPHTHALMIC AND AURAL HOSPITAL, MAIDSTONE. (110 Beds.)

Applications are invited for the post of OPHTHALMIC HOUSE SURGEON, which is now vacant. Candidates must be duly qualified registered Medical Practitioners, single, and of British birth and nationality, and should have had experience of Ophthalmology. The Hospital is recognised by the Examining Board for the D.O.M.S. The appointment will be for six months, but may be renewed for a second six months. Salary at the rate of £200 per annum, with board, residence, and laundry.

Applications, stating age, together with copies of not more than three testimonials, should be sent to the undersigned without delay.

JOHN W. STRICKLAND, Secretary.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS, Victoria Park, E.2.
(Bus, Tram, and Rail, Cambridge Heath, L. & N.E. Railway.)

A vacancy for a HOUSE PHYSICIAN (male) will occur on September 1st. Six months' appointment. Salary at the rate of £100 per annum. Board, residence, and laundry provided.

Applications, with copies of three testimonials, should be sent to the undersigned on or before Friday, August 18th.

GEORGE WATTS, Secretary.

CAMERON HOSPITAL, WEST HARTLEPOOL.

Applications are invited for the post of HOUSE SURGEON (male or female), to commence duty August 1st. Salary at the rate of £150 per annum, with board, residence, etc. Six months appointment. Applications, with copies of testimonials, to be sent as soon as possible to the Secretary.

ROYAL SALOP INFIRMARY, SHREWSBURY.
(150 Beds.)

APPOINTMENT OF RESIDENT HOUSE PHYSICIAN.

Applications are invited from fully qualified men for the appointment of Resident House Physician, vacant July 15th. Salary £160 per annum, with board, residence, etc. The appointment is for six months in the first instance, subject to re-appointment for a further period of six months. Resident Staff comprises Resident Surgical Officer, House Physician and Casualty Officer and Resident Anaesthetist. The Resident House Physician is Resident Officer to the Medical Wards of the Hospital under the direction of three Honorary Physicians, and is also Resident Officer to the Maternity Department for difficult cases under the direction of the Honorary Obstetrician.

Applications, stating age, qualifications, experience, nationality, and accompanied by copies of three recent testimonials, to be sent to the undersigned forthwith.

Board Room. J. W. NOBLE,
June 13th, 1933. Secretary-Supt.

THE ROYAL EARLSWOOD INSTITUTION, REDHILL, SURREY.
(Under Mental Deficiency Acts, 1913-27.)

JUNIOR ASSISTANT MEDICAL OFFICER required.

Applicants must be registered practitioners, males (British birth), unmarried, and willing to assist in the games and amusements.

The appointment is temporary for six months from September 1st. Inclusive salary at the rate of £250 per annum, with board, residence, and washing. Good facilities for post-graduate studies, classes, and examinations.

Applications, stating age, religion, and qualifications, with copies of three testimonials of recent date, and two references, to be sent to the Medical Superintendent at the Institution by July 31st. The envelope to be endorsed "Assistant Medical Officer."

H. STEPHENS,
July 5th, 1933. Secretary.

THE ROYAL HOSPITAL, WOLVERHAMPTON.
(Incorporated under Charter.)

HOUSE SURGEON required.

The Hospital contains 300 beds, includes the usual special departments, and is recognised by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice.

Candidates must be registered under the Medical Acts and unmarried.

The appointment is for six months. Salary at the rate of £100 per annum, board, furnished rooms, and laundry provided.

Applications, with copies of testimonials, to be forwarded to the undersigned.

Wolverhampton. W. H. HARPER,
July 17th, 1933. House Governor.

THE GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.
(216 Beds.)

HOUSE SURGEON (male), fully qualified. Salary £150 per annum, with board, residence, and laundry.

The appointment is for six months, which may be extended for a similar period by re-election from time to time.

Applications, stating age, qualifications, and nationality, with copies of not less than three recent testimonials, should be sent to the undersigned not later than July 26th.

The elected candidate will be required to enter upon his duties immediately.

F. J. SYMONS,
July 13th, 1933. Secretary.

THE ROYAL LIVERPOOL CHILDREN'S HOSPITAL, Myrtle Street, LIVERPOOL.

The Committee invite applications from Graduates, with previous hospital experience, for the appointment of RESIDENT CASUALTY OFFICER (male). The appointment will be for a period of one year from October 1st. The holder of the post will be eligible for re-election. Salary at the rate of £250 per annum. Further particulars may be obtained from the Secretary, Royal Liverpool Children's Hospital, Myrtle St., Liverpool, to whom applications should be sent, with copies of recent testimonials, on or before Friday, July 28th.

THE ROYAL INFIRMARY, SUNDERLAND.
(290 Beds.)

ONE HOUSE SURGEON and ONE HOUSE PHYSICIAN (Male) required on August 1st. Salaries £140 per annum, with board, residence, and laundry. Applications, stating age, qualifications, and accompanied by copies of testimonials, to be sent to the undersigned immediately.

J. A. BEARDSALL,
House Governor & Secretary.

BIRMINGHAM AND MIDLAND EYE HOSPITAL,
Church Street, BIRMINGHAM.

The Committee of Management are about to appoint an ASSISTANT SURGEON to this Hospital, and now invite applications for the post.

Election will be for three years as from October 1st, but the applicant appointed will be eligible for re-election.

Candidates must hold the following qualifications: F.R.C[illegible]dinburgh, or Membership [illegible]f Physicians, London, or [illegible] of a British University, [illegible]ophthalmology.

Applications, together with testimonials, certificate of registration and of age, should be addressed to the General Superintendent on or before Monday, September 4th next.

A copy of the rules and regulations will be forwarded on application to the undersigned.

J. W. PEARCE,
July 8th, 1933. Gen. Supt. & Secretary.

ALEXANDRA HOSPITAL FOR CHILDREN WITH HIP DISEASE, SWANLEY, KENT.
(In connection with St. Bartholomew's Hospital.)

Applications are invited for the post of RESIDENT ASSISTANT MEDICAL OFFICER. Candidates must be unmarried, fully qualified, and have held a resident surgical appointment. The successful candidate will be required to take up duty on October 1st. The appointment is for six months, with eligibility for re-election. Salary to commence at £200 a year, with board and lodging.

Applications, stating age and qualifications, with copies of two testimonials, should be sent, not later than September 11th, to the undersigned, at the London Offices, 107, Southampton Row, W.C.1, from whom particulars of the duties and conditions of the appointment may be obtained.

STANLEY SMITH, Secretary.

WEST RIDING [illegible]. L, STORTHES [illegible]
near [illegible].

Applications are invited for the position of ASSISTANT MEDICAL OFFICER, male, single, fully qualified and registered. Salary £350 per annum, rising by annual increments of £25 to £450, less temporary economy cut, with board, apartments, laundry, and attendance, valued for superannuation purposes at £120 per annum. An additional £50 per annum is paid to candidates holding a D.P.M. qualification. The appointment is subject to the provisions of the Asylums Officers Superannuation Act. Applications with copies of three recent testimonials, to be sent to the Medical Supt.

WESTERN OPHTHALMIC HOSPITAL, Marylebone Road, N.W.1.

The Committee have now been able to arrange for the JUNIOR HOUSE SURGEON to be RESIDENT and have charge of a certain number of beds, and applications are invited for the post.

The salary is at the rate of £100 per annum, and the appointment is for six months.

Some previous ophthalmic experience is required. The selected candidate will be required to take up duty at an early date.

Applications, accompanied by copies of not less than three testimonials, should be sent in at once, and not later than July 29th.

H. W. BURLEIGH, Hon. Secretary.

HEREFORDSHIRE GENERAL HOSPITAL.
(140 Beds.)

Applications are invited for the post of HOUSE SURGEON AND CASUALTY OFFICER (male).

Salary at the rate of £100 per annum, with board, residence, and laundry.

The appointment will be for a period of six months. The successful candidate will, subject to satisfactory service, be eligible to succeed to the Resident Surgical Officers post, with a salary at the rate of £150 per annum.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should reach the undersigned on or before August 5th.

T. W. UPTON, Secretary.

STROUD GENERAL HOSPITAL, STROUD, GLOS. (52 Beds.)

HOUSE SURGEON, British, required September 1st. Candidates must be fully qualified and duly registered. Appointment for six months, subject to renewal at discretion of Committee. Salary £150 per annum, with board, residence, and laundry. Applications, giving particulars of age, experience, etc., together with copies of not more than three testimonials of recent date, to be sent to the undersigned from whom further particulars may be obtained.

C. FORD SPENCER, Secretary.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands.

Town or District.	Town or District.	Town or District.
HOSPITAL	**CONTRACT PRACTICE** *(contd.)*	**PUBLIC HEALTH**
NORTH LONSDALE HOSPITAL, BARROW-IN-FURNESS. *(Visiting and Resident Appointments.)*	LOWESTOFT MEDICAL INSTITUTE. *(Medical Officer.)*	CITY OF YORK. *(Assistant Medical Officer of Health—Woman.)*
CONTRACT PRACTICE	MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	COUNTY BOROUGH OF SOUTH SHIELDS. HARTON INSTITUTION AND CLEADON COTTAGE HOMES. *(Medical Officer.)*
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	HERTFORDSHIRE COUNTY COUNCIL. WARE SANATORIUM. *(Assistant Medical Officer.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	
LLWYNPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	FULHAM BOROUGH COUNCIL. Maternity and Child Welfare Department. *(Assistant Medical Officer—Woman.)*

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. J. G. HUNTER (Medical Secretary, New South Wales Branch), 135, Macquarie St., Sydney, N.S.W.	**QUEENSLAND.** *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	**WELLINGTON, NEW ZEALAND.** *(Contract Practice Appointments.)*	Dr. G. F. V ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 155, Wellington, New Zealand.
VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. J. P. MAJOR (Hon. Sec., Victorian Branch, British Medical Association, Medical Society Hall, East Melbourne, Victoria.	*(Toowoomba Associated Friendly Societies, Medical Institute, Toowoomba.)*		**WESTERN AUSTRALIA.** *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.

July 19th, 1933. By Order of the Council. G. C. ANDERSON, Medical Secretary.

WOOLWICH AND DISTRICT WAR MEMORIAL HOSPITAL, Shooters Hill, London, S.E.18. (GENERAL HOSPITAL—112 Beds.)

RESIDENT MEDICAL OFFICER.

The Board of Management invites applications from suitably qualified male candidates, with special knowledge of surgery, for the post of RESIDENT MEDICAL OFFICER, at a salary of £175 per annum, with board, residence, and laundry. The appointment will be for one year from approximately August 1st, with renewal for one year, at a salary of £200 per annum, if approved by the Board of Management.

Applications (accompanied by not less than three recent testimonials, stating age, qualifications, experience, and nationality, should be addressed to the undersigned on or before Monday, July 24th. Candidates selected for interview will be required to meet the Appointments Committee at the Hospital at approximately 4.45 p.m., on Friday, July 28th.

R. S. G. HUTCHINGS, Secretary.

GENERAL HOSPITAL, NOTTINGHAM. (386 Beds.)

A HOUSE SURGEON is required at the above Institution. The appointment is for six months with salary at the rate of £150 a year, with board, residence, and laundry. Candidates, who must have had previous Hospital experience, are desired to send applications and full particulars as to age, qualifications, and experience, together with copies of testimonials, to the undersigned, not later than Saturday, August 5th. Duties to commence on or about Friday, August 25th.

PETER M. MacCOLL, House Governor and Secretary.

LIVERPOOL OPEN-AIR HOSPITAL FOR CHILDREN.

THE MARGARET BEAVAN HOSPITAL, LEASOWE, MORETON, WIRRAL. (260 Beds—Surgical Tuberculosis and Orthopaedics.)

Vacant on October 1st, the post of JUNIOR RESIDENT MEDICAL OFFICER.

Salary £200 per annum, with board, residence, and laundry.

Applications to be sent not later than September 1st, to the Senior Medical Officer.

HERTFORD COUNTY HOSPITAL.

Applications are invited for the post of HOUSE PHYSICIAN (male). Salary £150 per annum, with board, residence, and laundry. Duties to include Casualty, Obstetrics, and some surgical work. The appointment to be for six months in the first instance, commencing as soon as possible.

Applications, together with copies of three recent testimonials, should be sent to the undersigned.

PERCY G. BROOKS, Secretary.

HORTON GENERAL HOSPITAL, BANBURY, OXON.

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male or female), now vacant. The appointment is for six months. Salary at the rate of £150 per annum, with suite of rooms, board, and laundry.

Applications, with references, to—

RICHARD H. PRESCOTT, Secretary & House Governor.

NORFOLK MENTAL HOSPITAL, THORPE, NORWICH.

ASSISTANT MEDICAL OFFICER.

The Visiting Committee invite applications from duly registered Medical Practitioners for the appointment of Assistant Medical Officer. Salary £400 per annum, rising by annual increments of £25 to £500 per annum, together with unfurnished house, fuel, light, laundry, vegetables, and the privilege of purchasing from stores at contract prices, valued at £100 per annum. In the event of the selected candidate holding the Diploma of Psychological Medicine an extra £50 per annum will be paid. The appointment will be subject to the conditions of the Asylums Officers Superannuation Act, 1909.

Applications, with copies of three recent testimonials, to be forwarded to the Medical Superintendent, Norfolk Mental Hospital, Thorpe, Norwich, not later than July 29th.

GRAVESEND AND NORTH KENT HOSPITAL. (114 Beds.)

TWO HOUSE SURGEONS

The Committee of Management invite applications from fully qualified men for the above posts.

Salary at the rate of £125 per annum plus board, lodging, washing, and certain fees as perquisites.

The successful candidates will be required to commence duties on April 1st.

Applications, with one copy of three recent testimonials, to be sent to the undersigned immediately.

C. E. CHAPMAN, Secretary.

(Appointments continued on p. 46.)

UNOPPOSED COUNTRY PRACTICE IN MID-Wales; Union appointment and Vaccination. Small panel. Midwifery refused, can be greatly extended by suitable man. Established 70 years. Suitable house, nine acres of exceptional pasture land. Particulars on application. Price, including freehold property, £1,250; a mortg. can be arranged. No agents. —No. 5213, B.M.A. House, Tavistock Sq., W.C.1.

WEST OF ENGLAND.—OLD-ESTABLISHED PRACTICE and HOUSE. Small town. Beautiful country. Easy reach of sea and cathedral city. Practice average last 3 years £426. Panel of 588 brings £329. Appointments £167 or more. House (good size), garden, 2 garages. Good boys' school; also one for children near. Trout fishing, golf, etc. Vendor retiring. 1½ years' purchase. — Address, No. 5567, B.M.A. House, Tavistock Square, W.C.1.

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ADVERTISER WISHES SHARE SMALL HOUSE or FLAT; engaged London during day; free evenings and week-ends. Could provide some furniture and would help in Practice if req. Pref. country nr. London, but not essen. —No. 5530, B.M.A. House, Tavistock Sq., W.C.1.

A VERY ATTRACTIVE NEW HOUSE, SUITable in every way for a Medical Practice, is FOR SALE, with possession. It occupies a corner site on a main road in a rapidly growing residential district, within nine miles of Town. Large lounge, hall, two reception, and four bedrooms, garage, garden.—Address, No. 5522, B.M.A. House, Tavistock Square, W.C.1.

CONSULTING ROOMS TO LET. — HARLEY Street and Mayfair districts. Particulars sent on application. Those having consulting rooms to let should send particulars to ELGOOD & Co., 10, Henrietta Street, Cavendish Square, W.1. Langham 2601.

GOLDERS GREEN.—A BOLD CORNER RESIdence, very suitable for a Medical or Dental Practitioner. Detached, 5 bed and dressing rooms, bathroom, 3 excellent reception rooms, and good domestic offices. Detached garage. Freehold, £2,500, with possession early September. Would be let if preferred.—LESLIE RAYMOND, F.S.I., F.A.I., Facing Tube station, Golders Green, N.W.11. 'Phone: Speedwell 1601.

HARLEY STREET, ADJOINING. — TO LET, part-time CONSULTING ROOM in one of the finest professional houses. Newly decorated consulting and waiting rooms, with every convenience. Rent £40 p.a. Also full-time Consulting Room at very low rent.—Address, No. 5007, B.M.A. House, Tavistock Square, W.C.1.

HARLEY ST. (ADJOINING). — BACHELOR APARTMENT, comfortably furnished—sitting room, with closed-up bed, large private bath-dressing room, 2½ gns., inclusive of service. Breakfast optional. Also single bedroom 30s. —No 101, B.M.A. House, Tavistock Sq., W.C.1.

HOUSE FOR SALE, 39, POOLE ROAD, BOURNEMOUTH.—Three reception and ten bedrooms, good offices, central heating, good garden, and good position. Particulars.—"C.," 6, Denewood Road, Bournemouth.

LONDON SUBURB. — OLD-ESTABLISHED HOME, well furnished, registered for 19 chronic patients. Owners (retiring) DESIRE TO SELL as a going concern. Splendid position. Price, including furniture, £2,000; rent £160. —Address, No. 5523, B.M.A. House, Tavistock Square, W.C.1.

NORTHERN HEIGHTS. — TO BE LET.—A spacious RESIDENCE, suitable for Nursing Home, 400 ft. above sea-level, quiet road, beautiful views, 2 minutes' from 'bus and trams. Eight bedrooms, 2 bathrooms, 3 reception rooms, etc., e.l. Garage. Fine old garden. £300 p.a. Freehold might be bought.-PRICKETT & ELLIS, 4, High Street, Highgate, N.6.

TO LET.—DETACHED MODERN HOUSE, UNfurnished. Excellent position for professional man. Four bed., lounge 22 ft. by 16 ft., panelled dining room, bathroom, nice garden, garage. Every convenience.—"B. D. H.," 35, Edgwarebury Lane, Edgware.

WESTON-SUPER-MARE. — EXCELLENT prominent HOUSE for sale, modern. Admirable order. Fine position. Special circumstances make it suitable for Doctor. Early possession. Mortgage at 5 per cent. arranged. —MARWOOD CROSS, Estate Agents, Weston-super-Mare.

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APPOINTMENTS.—Contd.

ROYAL VICTORIA AND WEST HANTS HOSPITAL, BOURNEMOUTH.

HOUSE SURGEONS AND CASUALTY OFFICER (male, British nationality) required to commence end of July. Salary £120 per annum and additional fees with board, lodging, and washing. The appointment is tenable for six months, and candidates must be registered according to the provisions of the Medical Act. Applications, stating place of birth and age, with copies of three recent testimonials, to be sent immediately to the undersigned. Women and married men are ineligible.

GORDON M. SAUL,
July 10th, 1933. Secretary.

ROYAL VICTORIA AND WEST HANTS HOSPITAL, BOURNEMOUTH.

RESIDENT MEDICAL OFFICER (male, British nationality) required to commence duty at once. Hospital—170 beds and private wards. Salary, commencing £300 per annum, with board, lodging, and washing. The appointment is tenable for 12 months and candidates must be registered according to the provisions of the Medical Act. Applications, stating place of birth and age, with copies of three testimonials, to be sent immediately to the undersigned. Women and married men are ineligible.

GORDON M. SAUL,
July 17th, 1933. Secretary.

ROYAL EAST SUSSEX HOSPITAL, HASTINGS.

Applications are invited for the posts of SENIOR HOUSE SURGEON (vacant August 25th), and of JUNIOR HOUSE SURGEON (vacant September 14th). The appointments are for a period of six months.

Salary at the rate of £200 per annum for the Senior post and £150 per annum for the Junior post, with board and residence.

Candidates must be duly registered Medical Practitioners. Applications, with copies of recent testimonials, to be addressed to the Secretary.

WILFRID G. KEMSLEY, Secretary.

LIVERPOOL HAHNEMANN HOSPITAL, Hope Street, LIVERPOOL.

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male or female) to the above Hospital, which falls vacant on September 1st.

Duties include assisting at operations, general, gynaecological, ophthalmic, and aural; also occasional anaesthetics.

Appointment is for six months, renewable. Salary at the rate of £125 per annum.

Apply, stating age, sex, nationality, qualifications, and experience, and enclosing copies of testimonials, to the Registrar, before Aug. 1st.

THE ST. HELENS HOSPITAL.

Applications are invited for the position of JUNIOR HOUSE SURGEON (male) to this Hospital at a salary of £150 per annum, plus board, residence, and laundry.

Applications, accompanied by three recent testimonials, to be sent to the Secretary, St. Helens Hospital, Lancs, not later than July 25th.

The successful candidate will be required to commence his duties on August 1st.

DARLINGTON MEMORIAL HOSPITAL. (200 Beds.)

Wanted, JUNIOR HOUSE SURGEON, fully qualified, British, male. Salary £150 per annum, with board, residence, and laundry. Special Departments.

Applications, stating age and full particulars of qualifications, together with copies of two recent testimonials, to be addressed to the undersigned.

ARTHUR RIDDELL, Secretary.

BUTE HOSPITAL, LUTON.

HOUSE SURGEON (male) wanted to commence duty on September 1st. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, nationality, and experience, together with copies of not more than three recent testimonials, should be sent to the Secretary of the Medical Advisory Committee at the Hospital.

THE JESSOP HOSPITAL FOR WOMEN, SHEFFIELD.

The Board of Management invite applications for the post of ANAESTHETIST. One session of about four hours weekly. Honorarium of £50 per annum. Applications, with testimonials, stating experience, to the undersigned immediately.

DAVID OSWALD, Secretary.

THE STOCKPORT INFIRMARY.

HOUSE PHYSICIAN (male) required. Salary £150 per annum, with board, residence, and laundry. Applications, with copies of three recent testimonials, stating age, University or Medical School, and experience (if any), to be delivered to the undersigned at once.

The duties to commence on August 1st.

H. G. PRICE, Secretary-Supt.

ST. JOHN'S HOSPITAL, LEWISHAM, S.E.13.

Applications are invited for the three Resident posts of HOUSE PHYSICIAN, HOUSE SURGEON, and CASUALTY OFFICER (male). Remuneration £100 p.a. Applications, with copies of testimonials, should reach the undersigned as soon as possible.

J. C. GILBERT,
Secretary-Superintendent.

ROYAL SURREY COUNTY HOSPITAL, GUILDFORD. (182 Beds.)

Applications are invited for the post of VISITING ANAESTHETIST at this Hospital. Honorarium £150 per annum. Applications, in own handwriting, with copies of three testimonials, to be sent to the Secretary-Supt., not later than August 5th, from whom all particulars regarding duties can be obtained.

SCUNTHORPE & DISTRICT WAR MEMORIAL HOSPITAL. (86 Beds.)

Applications are invited for the post of HOUSE PHYSICIAN (male). Salary £175 per annum, rising to £200 at the conclusion of six months' approved service, with board, residence, and laundry.

Applications, stating age, nationality, experience, and qualifications, giving earliest time for commencing duties, if appointed, and enclosing copies of recent testimonials, to be forwarded to the undersigned not later than the first post on Monday, July 31st.

ARTHUR E. MAW, Secretary.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.1.

Applications are invited for the post of HOUSE SURGEON (male) for six months from August 12th (first two months in Casualty and Out-patient Department). Salary at the rate of £120 per annum, with board and residence.

Applications, stating age, experience, and qualifications, accompanied by copies of four testimonials, to be sent to the undersigned as soon as possible, from whom rules and other particulars can be obtained.

By Order of the Committee of Management,
W. H. SIDNELL,
July 4th, 1933. Secretary-Supt.

BRADFORD CITY SANATORIUM, GRASSINGTON, YORKSHIRE.

HOUSE PHYSICIAN required immediately, male preferred. Salary £175 per annum, plus board, lodging, and laundry.

Applications, giving age and qualifications, with copies of three recent testimonials, to be sent at once to the Town Clerk, Town Hall, Bradford.

Town Hall, Bradford. N. L. FLEMING, Town Clerk.
July 11th, 1933.

BRADFORD ROYAL INFIRMARY.

TWO HOUSE SURGEONS (male) wanted September 1st (six months' appointment). Candidates must be single and legally qualified.

Salary £135 per annum, with board, residence, and washing. There are 215 beds and six resident officers.

Applications, stating age, qualifications, and previous experience (if any), with copies of recent testimonials, to be received by the undersigned not later than July 25th.

J. J. BARRON,
July 8th, 1933. Secretary-Supt.

THE ROYAL BUCKINGHAMSHIRE HOSPITAL, AYLESBURY.

Applications are invited for the post of RESIDENT MEDICAL OFFICER (Male) for six months. To commence duty August 1st. Salary £200 per annum, with board, residence, and laundry. Candidates must be fully qualified and registered.

Applications, stating age, qualifications, and experience, with copies of not more than three testimonials, should be sent to the undersigned at once.

M. W. BROWN, Secretary.

ROYAL INFIRMARY, WIGAN. (180 Beds.)

HOUSE SURGEON (male) required immediately for a period of six months. Salary £150 per annum, with board, apartments, and washing. Staff consists of R.S.O. and three House Surgeons. Applications, stating age and qualifications, with copies of three recent testimonials, should be addressed to the undersigned as soon as possible.

A. STANLEY BRUNT,
June 27th, 1933. Gen. Supt. & Secretary.

GREAT YARMOUTH GENERAL HOSPITAL. (72 Beds.)

Applications are invited for the post of HOUSE SURGEON (one of two appointments). Applicants must be male and unmarried. Salary at the rate of £140 per annum, with board, residence, and laundry.

Applications, stating age and qualifications, together with copies of three recent testimonials, to be forwarded to the undersigned.

FRANK JENNINGS, Secretary.

HOUNSLOW HOSPITAL, STAINES ROAD, HOUNSLOW, MIDDLESEX. (70 Beds.)

Wanted, MALE HOUSE SURGEON, British nationality. Appointment at £150 p.a., with board, residence, etc., for six months.

Applications, stating qualifications, age, and experience, and enclosing copies of three recent testimonials, should be sent forthwith (marked "House Surgeon" top left hand corner) to W. T. Ross, Secretary, Hounslow Hospital.

LIVERPOOL HEART HOSPITAL.

ASSISTANT PHYSICIAN.

Applications are invited for the position of Assistant Physician to the above Hospital. The Hospital is run as one unit and is particularly well equipped for Research. The Assistant Physician will be eligible for a part-time Research Fellowship of £200 per annum, tenable for five years. Outside candidates will receive the same consideration as local men. Applications to be sent to the Secretary, Miss LEWIS, 14, Cook Street, Liverpool.

YORK COUNTY HOSPITAL. (200 Beds.)

The post of HOUSE SURGEON in the Eye, Ear, Nose, and Throat Department will become vacant on September 1st. Salary £150 per annum, with board, residence, and laundry.

The duties include a share of the General Casualty work of the Hospital.

Applications, stating age and previous experience, together with copies of not more than three recent testimonials, to be sent to the undersigned not later than 9 a.m. on Monday, July 31st.

H. E. RYAN, Gen. Supt.

ANCOATS HOSPITAL, MANCHESTER.

HOUSE PHYSICIAN.

House Physician required for a period of six months to commence duty immediately. Salary £100 per annum, with board, residence, laundry, etc.

Applications, stating age, qualifications, and experience, to be forwarded to the undersigned, together with copies of three recent testimonials, immediately.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

ANCOATS HOSPITAL, MANCHESTER.

HOUSE SURGEON (General) required to commence duty on September 1st. Appointment for six months. Salary at the rate of £100 per annum, with board, apartments, etc.

Applications, stating age, qualifications, previous experience, if any, together with copies of three recent testimonials, to be forwarded to the undersigned on or before August 3rd.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

SOUTHAMPTON CHILDREN'S HOSPITAL AND DISPENSARY FOR WOMEN. (45 Beds.)

The Board of Management invite applications for the post of RESIDENT MEDICAL OFFICER (lady). Six months' appointment, vacant August 21st. Salary at the rate of £150 per annum, with board, residence, and laundry. Applications, stating age, and accompanied by copies of testimonials, to be sent to the undersigned not later than July 29th.

ELLA K. MATTHEWS, Secretary.

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LONDON, E. — £1,300—£1,400 P.A., INcreasing. Panel of 1,000. Very little midwifery. Scope to increase. Fees 2/- to 3/6. Premises comprise wait., cons., and sitting rooms, 3 beds., bath, etc., gas and elec., £1 per week. Lease could be arranged. Premium £2,000.—No. 9177.

BERKS. — OLD-ESTABLISHED. — COUNTRY PRACTICE, about £700 p.a. has been £1,100. Panel about 500. Visiting fees 2/6 to 7/6. Very little midwifery. Splendid house, specially built for Vendor, with two acres of grounds, 2 reception rooms, 6 bedrooms, surgery, and waiting rooms, etc. Consider £4,000 offer for practice and house freehold.—No. 9173.

SOUTH WALES. — NEARLY £300 P.A., IN agricultural and residential district. Opposition not strong. Fees 5/- to 10/-. Two or 3 connnements at 3 to 10 gns. Good house, 3 recep., 5 bed., good garden, with fruit trees, etc., on lease. Premium £280, to include drugs. Would sell house and practice for £1,700.—No. 9162.

KENT.—ABOUT 30 MILES FROM TOWN.—Residential country. Half share of £2,300 after preliminary Assistancy. Good fees. Not much midwifery. New house, specially built, to rent or buy. Further share later. Partner to be Lond. or Camb. Graduate, aet. 30 to 35. —No. 9175.

EASTERN COUNTY, IN VERY PLEASANT locality, about £300 p.a. Panel 180 and small club. Fees 5/6 to 21/-. House in open situation, with 2 recep., 3 bed., attic, etc. Surgery, garage, and nice garden. Rent £60 on lease. Suit semi-retired man, with private means.—No. 9172.

LONDON, N.W. — VERY FINE OUTLYING district. About £1,000 p.a. No panel taken, but ample scope. Some dispensing. Expenses low. Corner house in excellent position on main road, 4 bedrooms, etc. Long leasehold for sale at £2,220. Vendor giving up general practice. Premium for goodwill 1½ years' purchase.—No. 9170.

MANCHESTER. — UPPER WORKING AND middle-class PRACTICE. Nearly £1,000 p.a., plus Poor Law appt. £100. Panel of 463, increasing. Opposition weak. Visits mostly 5/-. Some 3/6 and 7/6. Surg. 3/6 to 5/-. Premium £1,750 to include book debts (£400 —£500), drugs, furniture, and fittings worth £150. Well-built corner house, 5 bed., surgery, etc., to rent.—No. 9163.

LONDON, W.C. — CENTRALLY SITUATED. £600 p.a., increasing. Estab. only 2½ years. Vendor accepting appt. abroad. Panel 180. Visits 5/-. Cons. 2/6 up. Children 2/6. House on lease at £160, part sublet at £1 per week. Premium only £500.—No. 9161.

RESIDENTIAL SEASIDE RESORT.—WITHIN easy reach of London. £700—£800 p.a., suffered through Vendor's ill-health. Ample scope. New estate building. Small panel. No dispensing. Midy. not sought. Attractive freehold house, built by Vendor, 5 bed., etc., garden, and garage.—No. 9158.

MANCHESTER. — ABOUT £650 P.A., INcreasing, old-established PRACTICE. Panel 790. Opposition less than usual. Visiting fees 4/6 and 5/-. Lowest surgery fee 2/6. House off main road, 4/5 beds., 2 recep., and sep. surgery. Rent £60 on lease.—No. 9144.

MANCHESTER.—£1,300 P.A. PANEL 1,776 Well-estab. working and middle-class Practice. Very few midwifery, at 2 and 3 gns. Visits 3/6 to 5/-. Premium 1½ years' purch. Double-fronted main road house, with 6 bed., etc., for sale at £1,150, good mortg.—No. 9143

LONDON, N.W. — SUBURB. — RECEIPTS average last three years £540. Panel 150. Visits 5/- up. Surg. 3/6 to 5/-. Mids. 8 to 10 p.a., fees 3 to 6 gns. Premium £900 or offer. Good house, with garden. Five bed., 2 recep., sep. surg., and garage. Price £1,600, of which £1,000 could remain on mortgage. —No. 9142.

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REQUIRED BY M.S., F.R.C.S.ED., AGED 47, PRACTICE or PARTNERSHIP, with panel, within easy reach of London. Income about £800—£1,200. Nice house (not large) and garden essential.—No. 1581.

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BIRMINGHAM.—Old-established middle-class G.P. with excellent scope for increase. Receipts £500 p.a. Panel 75, increasing. Excellent good-class house to be rented at £75 p.a. Suitable for lady or gentleman. Premium £350, or near offer, to include drugs and certain furniture.

HANTS.—PARTNERSHIP in good-class non-panel G.P. Receipts £1,950 p.a. Considerable scope for increase. House for sale at valuation. Premium for half-share, 2 years' purchase.

LONDON, W.C.—Better middle-class G.P., with scope. Choice of accommodation on rental. Receipts approx. £600. Panel 180 (increasing). Fees 3/6 up. Premium £600, or near offer, to include all furniture, drugs, fittings, and fixtures.

LONDON, W.—Mixed residential working-class PRACTICE. Corner house to rent; part sub-let; net rental £37 p.a. Receipts approx. £300. Panel 215. Fees 2/6 up. No night work. Premium for Practice and lease £500 or near offer.

MIDLANDS.—Old-established middle and working-class country town PRACTICE. Suitable freehold house for sale. Receipts average £1,800. Panel approx. 1,650. Fees 2/6 up. Premium 1½ years' purchase.

MANCHESTER.—Well-established upper, middle, and working-class G.P. in residential district. Well-built corner house to be rented on lease at £60 p.a. Receipts nearly £1,000. Panel 463 (increasing). Fees 3/6 up. One appointment. Premium £1,750, to include all outstanding accounts, fixtures, and fittings.

LONDON, E.—Suburban middle-class G.P. Medium-sized house to rent on lease at the low rental of £30 p.a. Fees 2/- up. Average receipts £450 p.a. Panel 300. Excellent scope for young man. Premium for Practice and Lease £1,000.

MANCHESTER.—Old-established industrial PRACTICE. Medium-sized corner house to be rented on lease. Receipts approx. £660, increasing. Panel nearly 800. Fees 2/6 up. Premium £950 or near offer (to include furniture).

LONDON, W.—Middle-class G.P. situate in the heart of West End. Three first-floor rooms to be rented on lease. May be used as Lock-up if desired. Receipts average £460 p.a. (cash). Panel 184. Two appointments. Scope for Surgery. Premium £250, to include furniture, drugs, instruments, etc.

DURHAM.—Middle-class and industrial PRACTICE. Average receipts £550 p.a. Panel 380. Medium-sized house to rent on lease at £52 p.a. Branch Surgery. Fees 2/6 up. Premium £450.

LONDON, E.—Old-established mixed G.P. in thickly populated locality. Receipts over £900. Panel nearly 1,000. Fees 2/- up. Three appointments. Within easy access of City and West End. Suitable house to rent at £100 p.a. Good scope. Prem. £1,800 or near offer.

CUMBERLAND.—PARTNERSHIP (after short Preliminary Assistantship) in very old-established industrial Club and Panel G.P. Good house available to rent (garden, garage). Receipts average £5,263 p.a. Panel 2,488. Fees 3/6 up. Two appointments. Premium for one-fourth share 1½ years' purchase, with option of increase within 6/12 months.

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MANCHESTER. — MIDDLE-CLASS PRACTICE in residential suburb. Average cash receipts £780. Panel 700. District developing. Scope for increase. Good house, 2 reception, 5 bedrooms, garage, and garden. Premium—Practice and house—£2,000.—No. 483.

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EAST YORKS — Country Town, near Coast.—Unopposed mixed PRACTICE. Cash receipts last year £960. Panel 630 Excellent detached house, 3 reception, 4 bedrooms; garage and large garden. Premium 1½ years' purchase.—No. 346.

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NORTH-WEST COAST.—Large residential and seaside town.—Old-established PRACTICE. Cash receipts about £1,200 p.a. Panel 1,500. Excellent detached corner house (freehold). 3 professional rooms, 5 bedrooms, and 2 reception rooms, garage, and good garden for sale. Premium—Practice—1½ years' purchase.—No. 417.

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3 N. DEVON.—WELL-ESTABLISHED PRACTICE AVERAGING £860 p.a. in small town. Panel 600. Choice of houses to rent. Good schools and all kinds of sport. Premium 1½ years' purchase.

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10 S. COAST.—RESIDENTIAL TOWN AND WATERING PLACE. —PARTNERSHIP in well-established Practice of about £1,500 p.a. Panel 1,500. No midwifery. Good house to purchase, or it might be let on lease. A one-half or three-fifths share would be sold at two years' purchase.

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12 LONDON, N.W. — WELL-ESTABLISHED PRACTICE ABOUT £650 p.a. in Residential District. Panel 300. Visits chiefly 5/-, including medicine, others 3/6 to 7/6. Not much midwifery. House, containing 3 bedrooms, etc., to rent. Considerable scope for young energetic man. Premium £900.

13 S. WALES.—IMPORTANT SEAPORT TOWN.—PARTNERSHIP in sound old-established Practice averaging £3,500 p.a. Panel 2,800. Incoming Partner should be a Scotsman aged about 30—35, and preferably Edinburgh or London trained. There is a nice house for sale. To a suitable man a one-half share would be sold at 1½ years' purchase.

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20 S WALES.—PARTNERSHIP (AFTER PRELIMINARY ASSISTantship) in well established Practice of nearly £5 000 p.a. in important Industrial Town Good appointments and panel of nearly 3 000 After Preliminary Assistantship a one third share would be sold at first to a suitable man who should have held Hospital Appointment and have some knowledge of Midwifery and Anaesthetics

21 WEST OF ENGLAND.—PARTNERSHIP IN OLD ESTABLISHED PRACTICE over £2 200 p.a. in County Town Panel about 1 000 Premium one half share 2 years purchase. Good prospects for well-qualified physician (preferably M.R.C.P.) who would have opportunity of getting on Staff of Hospital in near future

22 LONDON, N.—PRACTICE CARRIED ON BY MEDICAL WOMAN in populous area Cash receipts average £480 p.a., including panel 527 Visits 2/6 to 3/6 Small house (6 rooms) to rent at £50 p.a. on lease Practice capable of increase. Premium 1½ years purchase

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32 LONDON E.C.—PARTNERSHIP IN OLD ESTABLISHED PRACtice in the City Receipts average about £1 650 p.a. in addition appointments and panel worth over £500 p.a. Premium one half share £1 000

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35 LONDON W.—GOOD MIDDLE CLASS PRACTICE £400 P.A. in suburb within easy access of the West End Panel over 100 Attractive double fronted house with nice garden for sale. Scope for increase Premium 1½ years purchase

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39 N OF ENGLAND — OPHTHALMIC PRACTICE OF OVER £1 600 p.a. in an important town Excellent scope for one keen on clinical and operative Ophthalmology Large house in first class condition for sale Purchaser should be well qualified Premium £2 500

40 S AFRICA. — PRACTICE OF ABOUT £2 000 P.A. IN A famous town Pleasantly situated detached bungalow (5 bedrooms) garage, and small garden for sale. Good hospital (with private wards) Premium £1 100

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3. MIDDLESEX.—RIVERSIDE SUBURB.—Old-established good mixed-class PRACTICE, averaging for the last three years £1,030, including panel bringing in about £340 and appts. worth nearly £100. Fees from 3/6. Detached house with good garden, and containing 4 reception, 6 bedrooms, etc. Price for leasehold £1,200. Premium £1,900.
4. HOME COUNTIES.—PARTNERSHIP.—A one-third share (with increase up to one-half later) is offered, owing to the retirement of the senior partner, in an old-established good mixed Practice, situated in favourite residential town within easy reach of London. Gross cash receipts average approximately £4,000 p.a. Panel of 3,200. Visits and medicine from 4/-. Suitable house, with garden and garage, can be rented at £70 p.a. Sport of all kinds, and good schools. Ingoing partner must be about 30 years of age, married or engaged, and experienced in major surgery, and pref. hold the F.R.C.S. Premium for share, two years' purchase.
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7. PARTNERSHIP.—LONDON SUBURB.—A one-third share (with increase up to one-half later) is offered in a very old-established good mixed-class Practice, situated in well-populated district, and offering good scope for development. Gross cash receipts average between £4,000 and £4,500 p.a. Guaranteed income of £1,500 for the first year. Panel of 800. Suitable accommodation available. Premium for share £3,250. Ingoing partner must be experienced, and qualified about four years.
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10. EASTERN COUNTIES.—Very old-established PRACTICE, unopposed, and situated in pleasant agricultural district, within reach of two good towns. Average gross cash receipts for the last three years £1,849 (last year £2,237). Panel with mileage produces over £900 p.a., and appts are worth about £130. Fees from 3/6. Comfortable house, with 2 reception 6 bedrooms, etc. Garden. Garage. Price (freehold) £1,500. Premium £3,200.
11. LONDON SUBURB (EAST).—In a clean and well-populated district an old-established PRACTICE worth about £1,200 p.a., including transferable appt. of £150 and panel of 950 is for immediate disposal, owing to ill-health of Vendor. Small house (3 bedrooms, etc.) with fair-sized garden. Rent on lease £78 a year, inclusive of rates and taxes. Premium £2,200.
12. LONDON, WEST.—PARTNERSHIP.—A half share, producing about £750 p.a. (which will be guaranteed for the first year) is offered in a very old-established better-class non-panel and non-dispensing Practice, having exceptional scope for increase. Fees from 10/6 to 5 guineas. Suitable Flat is available for ingoing Partner who must be experienced in better-class work, and preferably hold the M.R.C.P. Premium for share 2 years' purchase.
13. SOUTH WALES.—Pleasant Coast Town (pop. 40,000).—Old-established PRACTICE, held ten years by present Incumbent, and averaging over £1,000 p.a., including panel of 1,275. Visits 5/- to 10/6. Good house, having charming views of English Channel, and surrounding country. Contains professional rooms, 3 reception, 6 bedrooms, 2 bathrooms. Garden, with tennis court. Garage. Price for leasehold (60 years to run at ground rent of £20 a year) £1,800. Premium 1½ years' purchase.
14. EASTERN COUNTIES.—ASSISTANTSHIP with view to Partnership (after a preliminary period of six months at a salary of £440 p.a., with free house) is offered in an old-established good mixed-class Practice, situated in pleasant residential and agricultural district within about 15 miles of the coast. Gross cash receipts approximately £3,000. A third share is for disposal at a premium of 2 years' purch.
15. NORTH WALES.—ASSISTANTSHIP with view to Partnership (after a preliminary period of about six months at a salary of £300 p.a., all found) is offered in a better-class non-panel Practice, situated in attractive seaside resort. A one-third or three-sevenths share is for disposal (producing £800 to £900 p.a.) at a premium of 2 years' purch. Ingoing Partner should be English, and pref. London trained.
16. PARTNERSHIP. — WEST OF ENGLAND, SEASIDE RESORT. — A share worth about £600 p.a. (with succession to the whole Practice eventually) is offered in a very old-established mixed-class Practice situated in very attractive small coast town, with beautiful surrounding country. Gross cash receipts approximately £1,200 p.a., including panel worth about £420. Visits 5/- to 30/-. Midwifery from 3 gns. Exceptionally nice house, with 2 reception, 5 bedrooms, etc., and usual offices. Half an acre of garden. Can be rented on lease. Premium 2 years' purchase.
17. OPHTHALMIC PRACTICE.—Within eighty miles of London.—Practice is increasing, and offers good scope for further development. Average gross cash receipts for the past three years £554. Last year over £700. Fees 1 to 2 guineas. Opposition slight. Choice of houses. Premium £700.
18. LONDON, EAST.—Middle and working-class PRACTICE, producing £1,000 p.a., and this year at the rate of £1,400, including panel of about 1,100. Suitable small house, with sitting room, 2 bedrooms, and attic, waiting room, surgery, and dispensary. Rent £52 p.a.
19. LONDON, SOUTH-EAST.—Old-established better working-class PRACTICE, increasing, and situated in well-populated district. Gross cash receipts for last 12 months £1,263, including panel of 1,370. Suitable house, with 2 reception and 3 bedrooms. Garden. Price for freehold £1,000. Premium £2,500.
20. MANCHESTER.—Old-established middle and working-class PRACTICE, producing for the last twelve months about £650, including panel of 790. Fees from 3/6. Convenient house, with 2 reception, 4 to 5 bedrooms, bathroom, etc. Rent on lease £60. Premium £950, to include furniture.
21. CENTRAL LONDON.—Middle and better-class PRACTICE, averaging for the last two years about £500 p.a., including small panel of 180. Fees 3/6 to 21/-. Professional accommodation can be rented at £200 p.a. Prem. £225, to include furn., drugs, instruments, etc.
22. SOUTH-EAST LONDON.—Good middle and working-class PRACTICE, producing last twelve months nearly £950. Panel of 986. Suitable house, with 2 reception, 4 to 5 bedrooms, etc. Rent on lease £70 p.a. Prem., to include drugs, etc., and surgery fittings and furn., £1,450.
23. SOUTH-WEST OF ENGLAND.—In a thriving and pleasant seaport town, with beautiful surrounding country, a well-established increasing PRACTICE worth last year over £1,100, including panel producing £286 and appts. £200. Visits 3/6 to 21/-. Midwifery practically refused. Good house in excellent position, with ample accommodation, small garden, and garage. Price, freehold, £2,100 or would be let on lease at £127 p.a. Premium £2,000, or near offer.

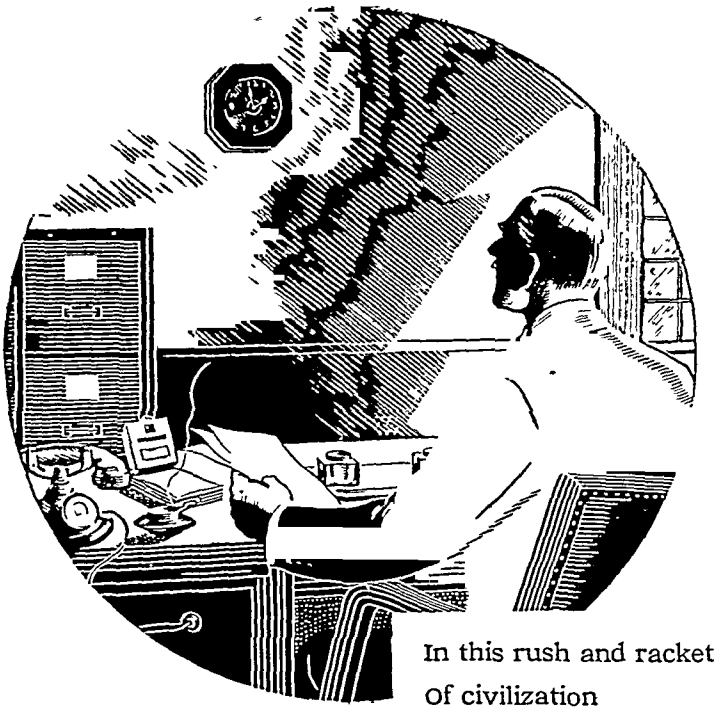
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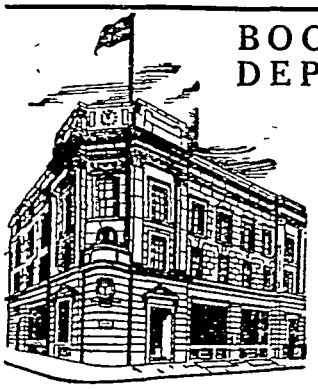
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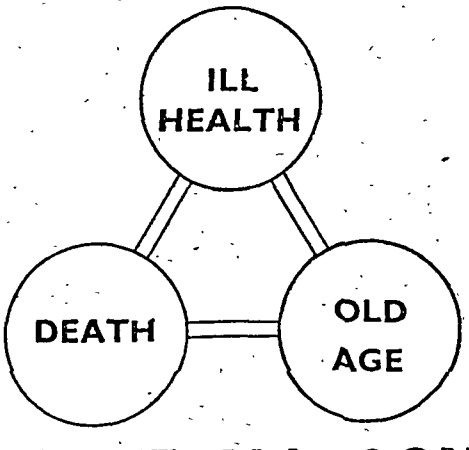


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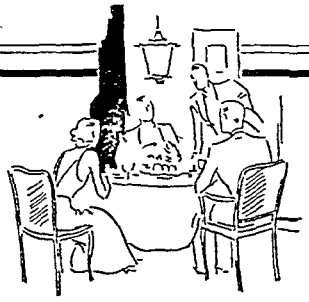
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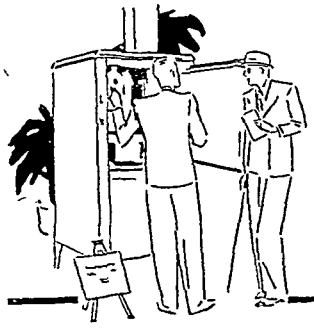
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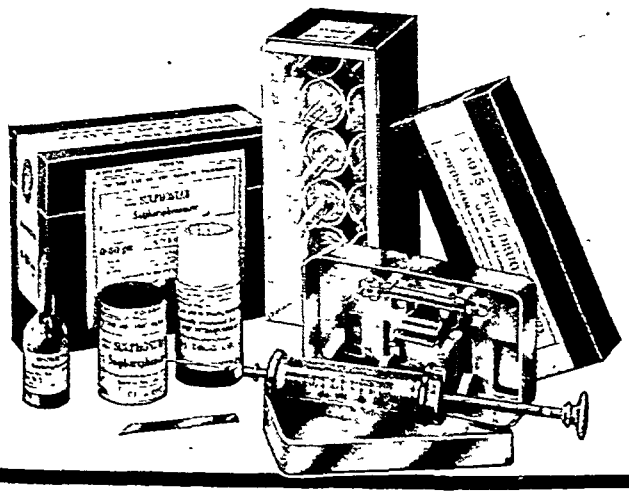
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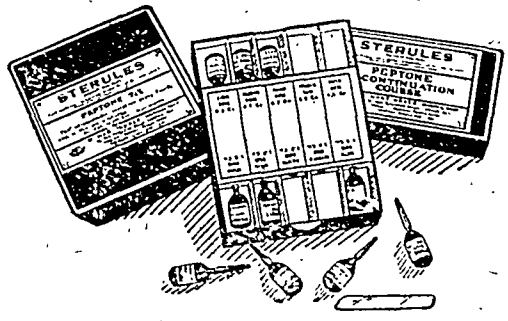
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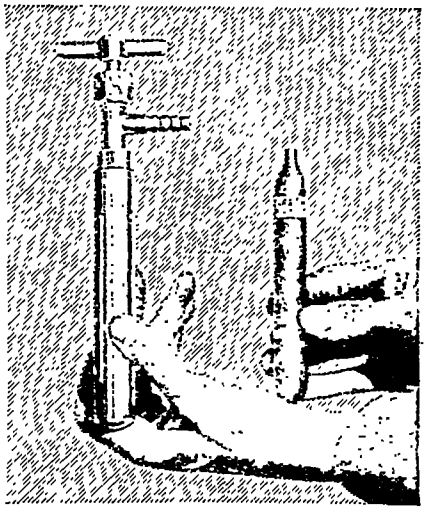
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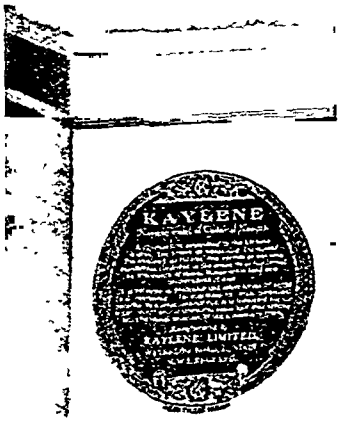
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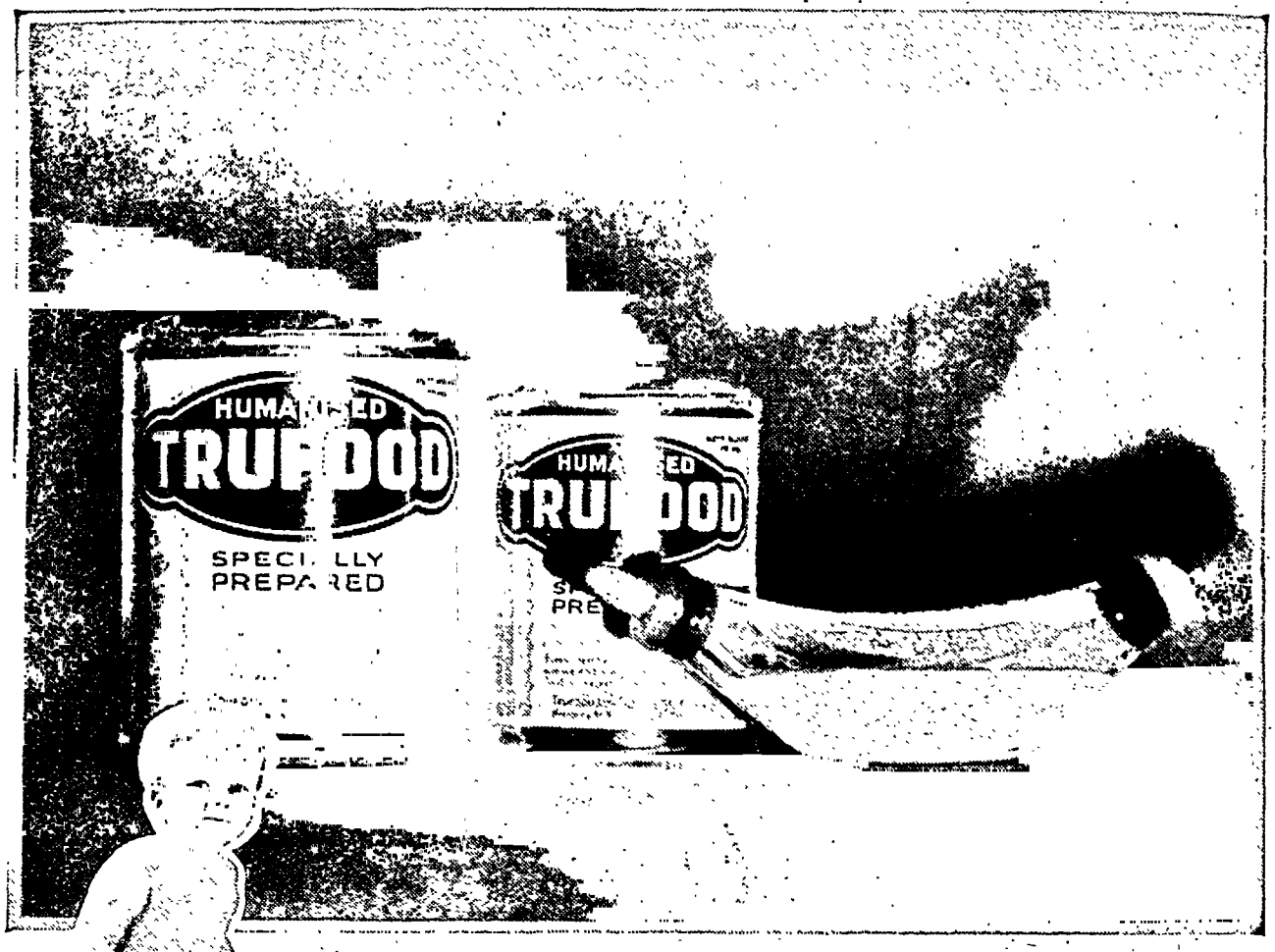
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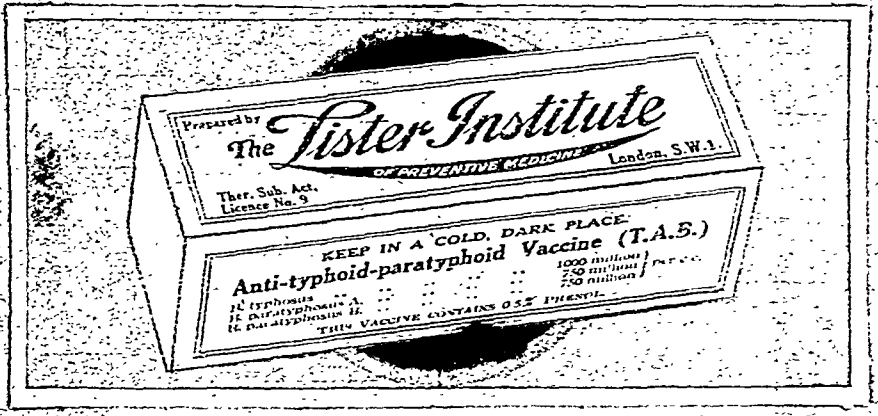
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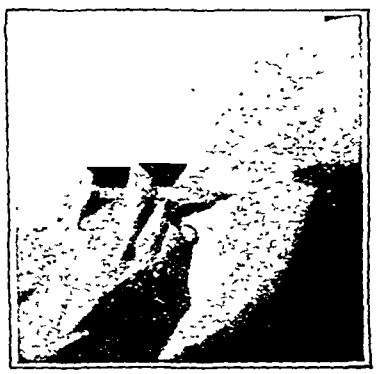
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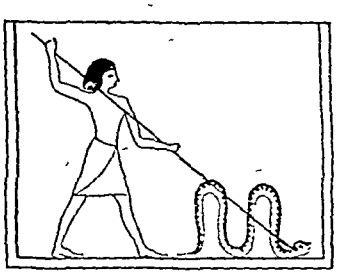
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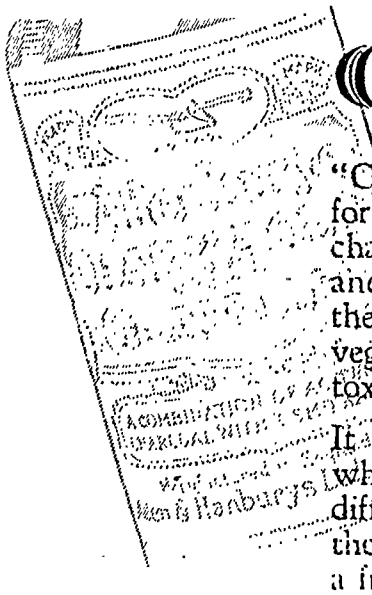
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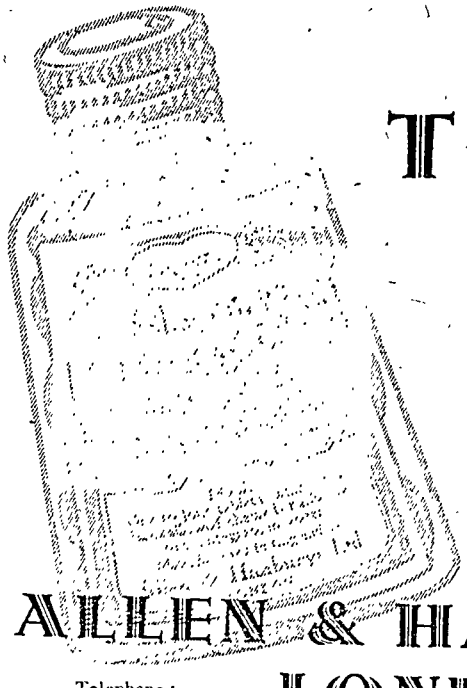


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British Medical Association

ONE HUNDRED AND FIRST ANNUAL MEETING, DUBLIN, 1933

President's Address

ON

THE WORK OF THE ASSOCIATION IN IRELAND

BY

T. GILLMAN MOORHEAD, M.D., P.R.C.P.I., M.R.I.A.
REGIUS PROFESSOR OF PHYSIC, TRINITY COLLEGE, DUBLIN

The history and influence of the British Medical Association in Ireland may be regarded as having commenced with the holding of the Annual Meeting in Dublin in 1867. Long before that date the need for organization of the profession in Ireland had been felt, and as early as 1839 the Irish Medical Association had been formed. In 1867 that association was strong and active, but as soon as our own Association had become national in its outlook the advantages offered to its members became apparent in every part of Ireland, and especially to the leaders of the profession. It is not my purpose to survey the history of the Association in Ireland in detail, but rather to point out the main directions in which its work has had an effect on the conditions of life of the medical profession and on the provision of health services for the community at large. Incidentally, the influence which Ireland has exerted on the policy and structure of the Association will become apparent.

THE FIRST MEETING IN IRELAND AND THE ESTABLISHMENT OF SCIENTIFIC SECTIONS

As early as 1858, when there was only one member of the Association resident in Ireland, an invitation to hold a meeting in this country was proffered. At that time the profession in England had just emerged from the struggle which had led to the passing through Parliament of the Medical Registration Bill. In that struggle there had been antagonism between the Irish and the English colleges, and so it was felt that the time was not opportune for a meeting outside Great Britain, more especially as it was anticipated that friction would be experienced in establishing a uniform standard of medical education throughout the different parts of the then United Kingdom. In 1867, however, the Dublin invitation was accepted with alacrity, and in August of that year some 400 members assembled within the halls of Dublin University. The Association then numbered about 3,000 members. The President was the great William Stokes, and many other distinguished men of science attended. The great importance of this meeting was emphasized in an article which appeared in the *Journal* twenty years subsequently. The Editor says:

"The brilliant eloquence of Simpson and Smith; the weighty wisdom of Stokes, the gentle persuasiveness of Acland, the large statesmanship of Rumsey, the high-minded counsels of Stewart, gave to the proceedings of the Association a weight and force which have never been surpassed. But from that date and from that year the Association entered upon that new career of vigorous prosperity in which it has never faltered, and which has brought it to its present stage of phenomenal success. For the first time great development was given to its scientific aspects. It multiplied its sections, it created new opportunities of scientific activity, and it invited to its aid the youngest and most earnest workers in all the departments of medical science. That impulse was never lost."

This is high but justifiable praise. The meeting was undoubtedly an important one, in the first place because it was the symbol of a union of hearts between members of the medical profession in Great Britain and Ireland, a union which, in spite of political changes and developments, has never since been broken and remains steadfast to-day. But it was important in many other ways. It may be stated definitely that this was the first meeting at which the scientific business occupied a foremost place. At former meetings there were scientific discussions, but the main work at those meetings was of a medico-political nature. Now for the first time the scientific business was divided into sections, four in number—medicine, surgery, physiology, and obstetrics. Since then increasing specialization has added more and more sections, and the end is not yet. Some may feel that the segregation of specialists in isolated groups is a mistake, but few will doubt that it is by specialization that advances in real knowledge are for the most part attained. The Association made a forward step when it recognized this fact in 1867.

ITS STIMULUS TO PUBLIC HEALTH SERVICES

Further, the meeting gave an enormous stimulus to public health services, services which, indeed, at that time were almost non-existent. Stokes, in his eloquent inaugural address, prophesied an immediate development of State medicine, a development which is still proceeding, but which years ago, largely as a result of this meeting, attained a magnitude far greater than was ever dreamt of by Stokes. Rumsey also, a Cheltenham doctor, already well known for his advocacy of preventive medicine, made a special plea for the establishment of sanitary medical officers and for the appointment of medical men to carry out many other public duties, such as are now accepted among the commonplace and routine services established in every civilized community.

This meeting, in fact, may be regarded as having initiated the great change which has taken place since that date in the functions of the doctor. In 1867 the thoughts of the doctor were not, as Bacon puts it, "raised above common cures," but from henceforward they were to be turned to the subject of prolonging and renewing the life of man. The general practitioner, "the salt of the earth," as Barrie called him, is still the backbone of the profession. He is the true and valued friend of many a household. He is the standard by which the entire profession is measured, for to the vast majority of the public he represents all that is connoted by the name doctor. But in 1867 he was isolated, and his duties

consisted solely in ministering to the relief of individual patients. Since then a revolution has taken place. No longer is he isolated, but, as a member of a great co-operative system, he performs a new and more effective function. The public hardly realizes how great has been the change, and the extent to which the doctor now enters into the general life of the community. There has developed a vast and complex service devoted to curative and preventive medicine, and to the preservation of the health of the community at large. In that service the general practitioner has many duties and many responsibilities undreamt of sixty years ago. A gratifying result of this system and of the way in which the general practitioner performs his duties is an all-round improvement in health, an increase in the expectation of life, and a greater enjoyment of life. For all this, as already stated, the Dublin meeting of 1867 may, to a large extent, be thanked, for it focused the attention of the profession and of the public upon urgent and vital needs. An early and almost immediate result was the establishment in the year 1870 of the diploma of State medicine in Dublin University. This was the first diploma of its kind in the British Commonwealth. As one looks to the future, one foresees a still greater extension of public medicine, and I for one look forward to a time when the simple laws of health will be more widely taught among, and known by, even the poorest inhabitants of our country, and when the State will compel everyone to obey those health laws.

ITS ATTITUDE TOWARDS MEDICAL EDUCATION

In addition to his advocacy of State medicine, Stokes in his address pleaded strongly for the scientific investigation of the action of drugs and other therapeutic measures, for apparently quackery was as rampant then as it is to-day. His plea is as necessary now as it was nearly seventy years ago. He insisted that if quackery in the profession was to be avoided it was essential that every one entering the profession should receive a wide, liberal education. One is happy to think that such an education is now our common property, yet I venture to assert that a greater grounding in inductive logic and in the laws of evidence would not be amiss. But the elimination of quackery ultimately depends on the education of the public. A country is said to get the Government that it deserves. On the whole, this country seems to me to get better medical services than it deserves, but it would get better still if it knew how to appreciate those services at their true value, and if it were better trained in distinguishing the false from the true. I would like to teach elementary logic in the higher classes of every school in the country, and in the same classes to give short courses in elementary physiology and in hygiene. Such a training might help to remove the credulity which still believes in magic, and which enables the charlatan to flourish.

Discussions also took place on medical education, Sir Dominic Corrigan devoting a lengthy paper to this subject, while Professor R. W. Smith, who delivered the address on surgery, also made many suggestions in the same connexion. It may be of interest to this meeting to know that while preparing this paper I had an opportunity of talking to three men who were present at the 1867 meeting, all later Presidents of the Royal College of Physicians of Ireland—the late Dr. Walter Smith, the late Sir Hawtrey Benson, and Sir John W. Moore. Sir Hawtrey Benson informed me that he well remembered Professor Smith's address and the profound impression which it created. To-day medical education is still under discussion. Finality has not been reached, and never will be reached. Our science and our art are progressive, and therefore it is essential that our educational curriculum should be varied from time to time in accordance with advancing knowledge. Some subjects which have lost their importance must be jettisoned, and others must be added. We will, however, never go wrong in our educational methods if we remember that our primary duty is to turn out well-trained medical practitioners who will be capable of advising the public wisely on all matters pertaining to health. The late Sir Andrew Clark once said:

> "As regards the question of medical education it seems to me to be in a gravely unsatisfactory condition, and to require the immediate and earnest attention of the profession. Jostled on the one side by quackery and on the other by science, it is failing in its true work of training students to be sound practitioners of the art of medicine. Medicine is an art, and its end is practice, and the worth or worthlessness of any system of education must be tried by the degree in which it helps or hinders this end."

This is almost as true to-day as when it was first stated.

A fundamental idea in our methods should be, in the words of Locke, "to give the student a relish for knowledge and a scientific outlook." Medicine should be taught as a whole. There has been too great a tendency of late to teach subjects in watertight compartments. My own view is that the General Medical Council is a sinner in this respect. It is not now possible to digress into a disquisition on the medical curriculum, but it will be agreed that a thorough knowledge of the early scientific subjects forms the basis of success as a medical practitioner. Realizing, however, that the mental capacity of the average human being is limited, I agree with those who urge that, as far as possible, these subjects should be taught from a vocational standpoint, and with a view to illustrating broad scientific principles. An accomplished teacher will know what to eliminate, and, while showing the direct bearing of his subject on the ultimate life-work of the student, should be able at the same time to indicate the paths of research and of inquiry which lie open to those who are eager and to those who are capable of delving deeper into the subject. As regards clinical medicine, I somewhat deplore the recommendations of the General Medical Council that special courses of instruction should be given on so many specialties. At any rate, these special courses should have their corrective in the out-patient department, where patients not already labelled will be seen by the student, and where the habits of rapid diagnosis and of decision, in short of resource, may be acquired. In the out-patient department the student will see patients in exactly the same way as he will see them after qualification, whereas the systematic study of, for example, tuberculosis or venereal disease in hospitals entirely devoted to the treatment of such cases presents the patient from quite a different angle. Specialized courses are all-important as a means of post-graduate instruction when a student has already acquired a general grasp of the principles of his profession. I have never wavered from my view that all that we can do in the course of the medical curriculum is to instil a broad knowledge of principles. If we succeed in doing that, a student placed on his own responsibility is capable of continuing his education and of acquiring all the details which he requires with extraordinary rapidity. If he does not acquire the principles, he will never throughout his life attain to a position higher than that of a qualified quack, at the mercy of every wind that blows, and the servant of the vendors of those many proprietary preparations whose alluring advertisements assault our breakfast table. As I read through the reports of that first Dublin meeting I realize how fully those who were then gathered together had grasped the true meaning of education, and how great an impetus they gave to the realization of their wishes.

ORATORY AT THE SECOND MEETING

Twelve years later, in 1879, the medical men of Cork, emboldened by the success of their Dublin brethren, took their courage in their hands and invited the Association to hold its meeting in that city. The members of the Association, which in 1867 only numbered 3,000, now totalled 7,810, and it was generally agreed that the rapid progress in the twelve years was due to the stimulus given by Dublin. Prior to 1867 the average number of new members per year had been thirty to forty. Since that meeting it had been from 400 to 500 and in 1879 it reached 600. About 600 members attended this meeting. At that time one third of the profession in Ireland were members of the Association, the first Irish Branch of which had been started by Dr. MacNaughton Jones in Cork in 1874. Later, in 1877, a Branch was formed in Dublin through the energy of Dr. Duffey, and soon afterwards Branches were formed in Belfast and Galway.

I have been fortunate enough to obtain the written reminiscences of Professor Yelverton Pearson, who was present at the Cork meeting, and who took a share in the work of the Physiological Section. The president was Dr. Denis O'Connor, then nearly 80 years of age, professor of medicine in Queen's College, Cork, and for many years senior physician to the local hospital. Dr. O'Connor was a man of outstanding integrity, universally popular and of high professional ability. He was a strong advocate of temperance, and devoted much of his opening address to the cause of temperance reform. The experiment of dividing the scientific business into sections which had been inaugurated at the Dublin meeting had proved a success, and now received further extension. There were in all six sections and two subsections. At each of these the president felt it incumbent upon him to deliver a lengthy address, a habit which led some years later to the editorial comment that 'the scientific business of the Association threatened to be encumbered by orations which generally are erudite, sometimes interesting, and seldom directly useful.' The Editor, however, did not have it altogether his own way in Cork, for I find that Dr. Martin of Portlaw moved a resolution to the effect "that the power of the Editor has increased, was increasing, and should be restrained." As one glances over the programme one is struck by the large number of papers on unassociated subjects. It was just about this time that the Association adopted the policy of having set subjects for discussion, and the experience of this meeting seems to have shown the advisability of this departure. Some of the speakers indeed seem to have been lengthy, and this again resulted in the editorial demand for a time limit both for papers and for subsequent speakers. I do not find that Cork men were to blame for most of their papers were commendably short.

The most outstanding communication of the entire meeting was that delivered by William S. Savory, F.R.S., on *The Prevention of Blood Poisoning in the Practice of Surgery*. The struggle for antiseptic surgery was then engaging all minds. Savory contended that Listerism was unnecessary and that as good results could be obtained in surgery by the methods in vogue in pre-Listerian days. This paper was undoubtedly reactionary, but it does not seem to have caused any serious setback to the advancing of modern surgery. Read carefully, indeed, it reveals the germs of an aseptic system, for the author says that Listerism may be of use in ill-ventilated and dirty hospitals, but that it would be better to clean the hospitals than to invoke Listerism to combat such conditions.

The festivities were apparently prodigious. At the dinner there were eleven toasts exclusive of the toast of "The King," and twenty-eight speeches. We are not told at what hour the dinner terminated, but work was carried on with zest the following day.

PHARMACOLOGY AND THERAPEUTICS AT THE THIRD MEETING

Only five years were to elapse before the next Irish meeting, which was held in 1884 in Belfast, the capital of the province of Ulster, a city then of 210,000 inhabitants. Eight years previously the North of Ireland Branch of the Association had been formed with its headquarters in that city. The Association now numbered nearly 11,000 members, its increase during the previous year having been 1,040 and it was possessed of revenue of about £20,000 a year. This meeting was notable as being the first at which a Book of the Town was prepared and given to every member attending. The late Professor James Lindsey kindly gave me his personal reminiscences. The Queen's College placed its buildings at the disposal of the Association. The president was Dr. James Cuming, professor of medicine in Queen's College and physician to the Royal Hospital, Belfast. He was at that time about fifty years of age, and was one of the best loved and most erudite physicians of his day. In addition to possessing an extensive knowledge of his profession Dr. Cuming was a student of the classics and of modern European literature. In his scholarly and thoughtful address, entitled "The Control of Pathological Research by Clinical Observation," he urged the importance of co-operation between clinician and pathologist—a plea which has been repeated year after year since that date. His address foreshadowed much that is to be found in the writings, thirty years afterwards, of Sir James Mackenzie. Like Mackenzie, he recognized the value of the observation of patients over long periods of time.

An outstanding feature of the meeting, and one which attracted much attention, was the inauguration of a special Section of Pharmacology and Therapeutics. The establishment of this section was due to the insistence of Dr. (afterwards Sir) William Whitla of Belfast. Prior to this meeting pharmacology had been grouped with physiology and anatomy. The new section was presided over by Dr. T. J. Maclagan, famous for his work in connexion with the use of salicylates in acute rheumatism. The section was an active one. It proposed reform of the *British Pharmacopoeia*, and discussed, among other subjects, the newly introduced antipyretics, while at one of the meetings many members were, for the first time made aware of the future promise of pharmacology by the exhibition of the action of various drugs on the freshly excised frog's heart. Pharmacology was then in its infancy, in fact practically non-existent as a science. No papers require special notice, but as one reads them through one realizes how the profession of that day was attempting the solution of problems many of which still confront us. Others have long since been solved, such as the unity of tuberculosis, a conception which at that time was being appreciated dimly by a few. This was the time of the great opening up of the bacteriological sciences, and the medical and lay mind was only awakening to the fact that many diseases were due to germs.

SOCIAL CONDITIONS IN DUBLIN IN 1887

In 1887 the fourth Irish meeting was held in Dublin just twenty years after the first. More than twenty years were to elapse before the fifth, and a further period of twenty-four years before this, the sixth, meeting. As before, the venue was Trinity College but the annual dinner and some of the other functions were held in the comparatively new Royal University—a university which has since disappeared. The president was Dr. John Banks, regius professor of physic and famous as the subject of a *Punch* cartoon. This meeting was a great success both from a scientific and from a social point of view but it does not appear to have been marked by any outstanding change in the policy of the Association nor did it have

any remarkable effect so far as the future was concerned. One notable change indeed was made in holding the scientific meetings of the Sections in the morning. Prior to this date the scientific business had been conducted in the afternoon hours. The change was a welcome one, and resulted in greater interest being taken in the scientific proceedings, and in more time being left for excursions and social entertainments.

The addresses at the various sections require little notice. W. T. Gairdner of Glasgow, in an exhaustive review, attempted to prove that medicine had advanced in the preceding hundred years, a task which admitted of considerable difficulty, but one which I venture to think might be faced with equanimity to-day. In the Therapeutics Section W. Whitla of Belfast, who, as already stated, had been responsible for the formation of the section, suggested the establishment of a Therapeutical Committee, a suggestion which was adopted. The most remarkable address was that delivered by the Rev. Samuel Haughton, M.D., S.F.T.C.D., on "Reflections on Death Rate, with Special Reference to Dublin and its Suburbs." He appealed eloquently that the Dublin slums should be wiped out, and stated that the high death rate of Dublin was largely due to the bad housing conditions. Much was done from 1887 onwards, but it was only two years ago, in 1931, that the slum problem was tackled on comprehensive lines. In that year the Civics Institute of Ireland brought the subject prominently before the public; much interest was aroused, and a scheme was propounded. To-day the slums are vanishing, and new and more healthy dwellings are being provided for our workers. But if the problem is not to recur it will be essential that the workers should be taught how to live in their new dwellings. The provision of good houses is not enough. People must be taught how to live in those houses; indeed, if necessary, coercion in relation to cleanliness of habit must be applied. In teaching the laws of health the medical profession can do much, both directly and indirectly. Many idle men and women could be taught to become social workers and to devote some of their superabundant leisure to regular work in the poorer quarters of our cities. Sympathetic workers of this sort would do much to establish mutual understanding among all the members of the community, and to improve generally the standard of life and the economic utilization of commodities. Dr. Haughton also advised the construction of a main drainage scheme for Dublin, and drew a vivid picture of the then unsanitary state of outlying suburbs. His words bore fruit. Dublin now possesses a main drainage scheme of which any city may be proud; our city and our suburbs can claim to be as sanitary as any in the world. Our death rate since 1887 has fallen from 33.2 per 1,000 to 15.0 per 1,000 in 1930.

CRITICISM OF THE MEDICAL CURRICULUM IN 1909

The fifth meeting was held in 1909 in Belfast. In the twenty-five years which had intervened since the previous meeting in the Northern Capital both the city and the Association had progressed enormously. Belfast now boasted over 400,000 inhabitants, while the Association had over 20,000 members and an income of nearly £50,000 a year. The meeting was a big one, just under 1,500 names being registered before the end of the second day, and, as before, most of the business was conducted in the Queen's College buildings. But the Queen's College had within the last year attained to the status of an independent university, and through the presidential address of Sir William Whitla there breathed a spirit of confident optimism concerning the tasks which the new university must face. Whitla criticized the existing medical curriculum, and urged most strongly that more time should be given to the clinical studies. He stated that the new university intended to teach the preliminary sciences strictly in relation to practical medicine. The present pre-registration examination, whatever we may think of it, is foreshadowed in his remarks, for he asks that all students entering a medical school should be compelled at their matriculation to pass an examination in elementary chemistry and physics.

Of the other events of the meeting little need be said, for although pre-war, it is still too recent and too fresh in the minds of many of us to require comment. It was graced by the presence of the Lord Lieutenant of the day, Lord Aberdeen, and by Lady Aberdeen, who was then pressing forward vigorously her antituberculosis campaign throughout the country. As a tribute to her work in connexion with public health, Lady Aberdeen was elected an honorary member of the Association. She was the first lady on whom this distinction was conferred.

THE POOR LAW MEDICAL SERVICE IN IRELAND

In the period of forty-two years covered by these five meetings the science and art of medicine passed from mediaevalism into modernism. The British Medical Association played no unworthy part in this evolution, and Ireland can claim that largely as a result of those meetings it has been enabled to influence the policy and structure of this Association, and to contribute in no small measure to medical progress.

But the activities of the Association so far as Ireland is concerned were not confined to the holding of Annual Meetings. One of the most important chapters of its work is that which deals with its campaign in relation to the Poor Law medical service and workhouse system. In order that the present position of the public medical services may be understood, and in order that the campaign may be seen in its true perspective, it is necessary briefly to refer to the establishment of medical relief agencies in Ireland. Prior to the year 1765 practically no provision existed in rural Ireland for the medical relief of the sick poor. In that year the Irish Parliament passed an Act which granted permission to the grand juries in each county to establish a county infirmary, and under this Act within the next fifty years infirmaries and fever hospitals were established in almost every county. These were an undoubted boon, and many of them are in existence to-day; but they left the main problem of medical attendance on the poor quite untouched, and as time went on it became apparent that further provision must be made for the aged and decrepit, and for the destitute sick. In 1838 the Poor Law Act was passed. This was modelled on the English Act of 1834, by which the system of workhouse relief was established. Under this Act nearly 160 workhouses were built, to each of which was attached an infirmary and a small fever hospital. Into the workhouses the poor and decrepit were admitted in large numbers, in spite of the unpopularity of the institutions, but the Act made no provision for attendance on the sick poor in their own homes, or for the treatment of minor ailments.

Experience soon showed that the workhouses were thoroughly unsatisfactory. Young and old, unemployed and unemployable, blind, and lunatics, were often herded together with the most demoralizing results. Public opinion was slowly aroused, and in pursuance of its policy of endeavouring to promote the physical welfare and health of the nation, the British Medical Association decided, in 1895, to appoint a special commissioner to inquire into the system; Miss C. J. Wood, formerly lady superintendent of the Hospital for Sick Children, Great Ormond Street, was sent over, and after visiting several of the institutions made a detailed report. The medical officers attached to these institutions had no special grievance as far as salary or terms of appointment were

concerned, but the institutions themselves left much to be desired. They were almost without exception prison-like structures, gaunt outside and dreary within, ill furnished, and badly equipped as regards both comfort and even sanitation. At the time of Miss Wood's report the supply of trained nurses was totally inadequate—most of the nursing being done by the inmates themselves—and no provision whatever existed for night attendance.

In spite of unpopularity, however, the workhouse system continued to exist until the troubled times which preceded the signing of the Treaty of 1921. At the time when the Treaty was signed about 130 of these structures existed in the Saorstat, although many of them were no longer in use. Some of them had been burned, others had been occupied by troops. From the first, the provisional Local Government Board of Dail Eireann was determined on their complete abolition and on the wiping away of the system for which they stood. There is little doubt that Miss Wood's report was largely responsible for bringing home to thinking people in Ireland in the year 1895 the evils of the unions, and that the action of the British Medical Association in sending her over was a factor in their final abolition. It will be pointed out later that the place of these unions has now been taken by a well-organized system of county homes and county hospitals, and by a system of outdoor relief.

THE ASSOCIATION'S CAMPAIGN ON BEHALF OF DISPENSARY MEDICAL OFFICERS

The third great landmark in the provision of medical relief is the Medical Charities Act of 1851, under which the dispensary Poor Law system was established. By this Act the country was divided up into areas, 810 in number, each with a dispensary doctor. To these doctors was assigned the duty of the medical care of the poor in their area. Those who were seriously ill were to be visited in their own homes, and those less seriously ill were to be treated at out-patient clinics or dispensaries. The dispensary doctor was also to act as public vaccinator, registrar for his district, and sanitary officer. It has been aptly said that the English Poor Law medical service supplied the wants of the paupers, while in Ireland the same service supplied the wants of the poor. From the inauguration of this service the dispensary officers as a class have given ungrudgingly of their best, so that from the point of view of those served it may be stated that no better medical service exists in the entire world. Rumsey, speaking at the Dublin meeting in 1867, bore testimony to this when he said:

> "And thus it is that from the Stygian realms of destitution and disease uprises the corrective agency empowered to vindicate the primal laws of public order and public health. In no country does this elevation of object appear to be so easy of execution and so promising of success as in Ireland, the dispensary system of which is probably the best in Europe."

It was, however, far different with the medical officers concerned. The service had not been in existence long before it was realized that dispensary officers suffered under many grievances. It is unnecessary now to refer to these in detail, but it may be stated briefly that the salaries offered were entirely inadequate, the average being about £100 a year. The work required was far in excess of the powers of a single individual. The distances to be covered in those pre-motor days proved most exhausting. No arrangement existed for promotion; there were no pension rights, and no provision for an annual holiday. As early as the year 1882 some of these grievances had been recognized, and as a result Mr. Herbert Gladstone introduced a Bill into the House of Commons dealing with superannuation. The Bill was based on the report of a select committee of the House, and had the assent of the Local Government Board, but it failed to become law.

In 1891 attention was again called to these grievances, and it was at this date that the British Medical Association came into the field. From that time onwards the Association has never ceased to exert its efforts on behalf of the Poor Law medical doctors in Ireland. In this campaign the Association co-operated with the Irish Medical Association, an association which was founded in the year 1839 and incorporated in 1882, and which deserves a large share of the credit for what has been accomplished. In July, 1891, a letter appeared in the *Journal* from a dispensary medical officer. This was followed by other letters, and at once the subject began to attract general attention. As a result, in October, 1891, Mr. Ernest Hart, at that time Editor of the *Journal*, brought before the Parliamentary Bills Committee a memorandum which he had prepared in conjunction with Dr. (afterwards Sir William) Thomson of the Richmond Hospital. Subsequently a questionary was issued to every Poor Law medical officer in Ireland. Dr. Thomson analysed the replies, and published the results of his analysis, and also suggestions for the remedying of grievances, in the *Journal*. Later a conference was held in Dublin, at which Mr. Hart attended, and also Sir W. Stokes, at that time chairman of the Dublin Branch. Not long afterwards deputations were arranged to the Chief Secretary, Mr. Jackson, and later to his successor, Mr. John Morley. Unsympathetic replies were received, but, nothing daunted, the British Medical Association and other bodies concerned continued to press forward their schemes for reform. Gradually their efforts produced an effect on the officials of the Local Government Board. In 1898 a new Act was passed, which transferred the right of election from the local guardians of each dispensary district to the district councils. As far as this change was concerned the medical officers gained little, if anything, but the new Local Government Board soon issued an instruction to the district councils providing that every medical officer of a dispensary district should be allowed an annual vacation not exceeding four weeks, and requiring the guardians to pay reasonable remuneration to the substitute.

This was the first real success which the movement had gained, but much remained to be done. The *Journal* continued to lend its columns and its assistance to the dispensary medical officers, and in 1903 it determined to make a further effort on a big scale. In that year Surgeon General Evatt, well known for his efforts on behalf of the Army Medical Services, retired from active work, and at the request of the British Medical Association he visited Ireland with the object of examining into, and reporting on, the conditions of the Poor Law medical service. In the autumn of that year he issued an elaborate report, in which he reviewed the working of the Poor Law system as a whole. He endorsed the numerous complaints that had been made, and urged the medical officers to take bolder steps to remedy their grievances. This report produced a profound impression, and greatly strengthened the hands of those who were trying to influence the officials of the Local Government Board. A campaign of boycott was now inaugurated, under which certain dispensary districts when they fell vacant were left without a doctor—other than a locumtenent—owing to the pressure brought by the British Medical Association and the Irish Medical Association upon all of their members to refuse to apply for appointments which did not come up to a certain salary. A further step was the appointment in 1905 of an Irish Committee of the British Medical Association, one of whose special functions henceforward was to inquire into and, as far as possible, deal with complaints made by dispensary doctors. This was followed in 1914

by the establishment of an Irish office with a full-time secretary. This office has been invaluable in looking after the interests of Poor Law medical officers, and indeed all medical interests in the country. Through its efforts, and aided by the recommendations of a Viceregal Commission held in 1906, grievances have been removed one by one.

By the action of the Local Government Board the scales of salaries have been gradually raised, and a system of promotion on a moderate scale has been introduced. It was not, however, until the year 1919 that the principle of compulsory superannuation and of pensioning was made law (Local Government (Ireland) Act, 1919). Finally, by the Local Authorities (Officers and Employees) Act of 1926 a change of great importance in the method of election of dispensary doctors was brought about. Under this Act the appointment of dispensary medical officers was taken out of the hands of the county authorities and put in the hands of special commissioners. The qualifications of a candidate are now carefully considered by experts, and there is no doubt that under this scheme favouritism and jobbery have been done away with, and that, at any rate until quite recently, the dispensary medical officers have been appointed on an equitable basis. As already stated, there has never been any doubt as to the value of the system to those served. As far as the medical men are concerned I can best summarize the advance that has been made by quoting from an article which appeared in the *Supplement* to the *Medical Press and Circular* in August, 1931:

"Dispensary doctors of the present day hardly realize what a reform has taken place in regard to their conditions of employment during the present century. It is only a few years since salaries were stationary, and retiring allowances were a matter of grace. These days are gone, and a young man now entering the public medical service in the Irish Free State can look forward to a life of useful and not uninteresting work, and not unfair remuneration. The younger men hardly recognize what a debt they owe to their immediate predecessors, working through the medium of the medical associations."

THE NATIONAL HEALTH INSURANCE ACT

In connexion with the National Insurance Act Irish doctors were active from the very moment that the text of the Bill was issued. Almost immediately the Irish Committee of the British Medical Association took into consideration the proposals with regard to the application of the scheme to Ireland. The Irish Medical Association at the same time showed much energy, and was mainly responsible for the summoning of a mass meeting which was held in the Antient Concert Room, Dublin, on June 30th, 1911. At this meeting it was decided:

"That the Committee of Council of the Irish Medical Association and the Irish Committee of the British Medical Association be appointed an Executive Committee to look after the interests of the medical profession in Ireland in connexion with the National Insurance Bill."

From an early date it became apparent that the interests of the Irish profession and those of the English profession were widely dissimilar, inasmuch as the Irish Parliamentary party recommended that Ireland should be excluded from medical benefit. This recommendation was adopted. Up to the present Saorstat Eireann has not included medical benefits, and only in 1931 were these benefits extended to Northern Ireland. In spite of this exclusion, the profession in Ireland stood shoulder to shoulder with the profession in England in the fight of the latter for fair conditions. At the very first meeting in Dublin it was decided to circularize Irish medical men urging them not to undertake medical duties in connexion with the Act in England until the British Medical Association was satisfied with the terms offered. Many Irish doctors also contributed at this time to the guarantee fund which was raised for the purpose of indemnifying those who might suffer pecuniary loss in their determination not to work the Bill. The victory which the Association won in England is now a matter of history. In Ireland the main struggle was to secure sufficient remuneration for sickness certification. This struggle lasted for some years, and was finally settled by the good offices of Dr. Addison, Dr. Macdonald, Chairman of the Council, and Dr. Cox, Secretary of the British Medical Association, who arranged an interview between Mr. Roberts, M.P., and representatives of the Irish medical profession in 1915. It was then agreed that the annual sum of £90,000 should be paid for certification in Ireland, and that the right of certification under the Act should be granted to all medical men in the country with an arranged capitation payment. After that date for many years certification was carried on under conditions satisfactory to all concerned.

OTHER ACTIVITIES OF THE ASSOCIATION IN IRELAND

The other activities of the Association in Ireland are too numerous to be referred to in detail; indeed, only a few of them can even be mentioned. But it may be stated that there has been hardly a single matter affecting the interests and welfare of the profession, and scarcely a matter of importance in connexion with public health, that has not received from time to time the most careful consideration from the Irish Branches and Divisions. Since the appointment of the Irish Committee in 1905 the work of the Association has been systematized, while the establishment of an Irish office, with a full-time secretary, has added enormously to the influence which the Association has been able to wield.

As early as 1888 the Association showed its interest in medical teaching by advising the appointment of professors of pathology in all the Irish medical schools. Ten years later it showed a similar interest in bacteriology, and pressed for the establishment of a central bacteriological institute. In 1890 it joined with the Irish Medical Schools' and Graduates' Association in an emphatic protest against the exclusion of the holders of Irish degrees and diplomas from hospital appointments in England.

In the campaign on behalf of the personnel of the Army Medical Services the Irish members took a leading part, and there is little doubt that the influence they were able to bring to bear on newly qualified Irish doctors in restraining them from entering the Services until satisfactory conditions were conceded did much to bring about the necessary reforms. During the war an Irish Emergency Committee was organized, the main purpose of which was to obtain medical recruits for the Army, a work in which it proved most successful. From time to time representations were made to suitable quarters on such matters as the medical inspection of school children, the registration of midwives, the payment of fees to medical witnesses, the establishment of grades of salaries for prison doctors, the medical inspection of dairies, and many others. Lastly, as will be pointed out immediately, the Irish Medical Committee in 1919 made representations regarding the establishment of a Ministry of Health for Ireland. These representations were the first step towards that great development of the public health services which was initiated after the signing of the Treaty of 1921.

But this catalogue grows wearisome, and takes no cognizance of those intangible benefits which flow from that mutual good will and friendliness which professional co-operation induces. I have failed in my task if my hearers do not realize that the contributions of each country to the other in their combined work for the conquest of disease have been spiritual as well as material. The medical profession of the entire world is marching

forward, inspired with a love of service and aiming at such perfection of our science and of our art as will in the end wipe away all sickness In that onward march the professions of these two islands, mutually aiding one another, have taken a foremost and sometimes a leading place

THE IRISH MEDICAL ASSOCIATION AND AFFILIATION

In most of its activities the British Medical Association has worked in conjunction with the Irish Medical Association In June of this year the Irish Medical Association numbered just under 400 and the members of the British Medical Association resident in Ireland were nearly 11,000 Again and again it has been felt that in a small country like Ireland a single representative association would have greater weight in promoting the interests of the profession than two associations, which, though friendly to one another, are to some extent competitive, and at any rate overlap in their activities Various attempts at amalgamation have been made The last of these was in 1919, when an influential committee was appointed to explore the question After some months this committee reported in favour of amalgamation, and in favour of the formation of a single association affiliated to the British Medical Association The amalgamation was, however, intended to apply to the whole of Ireland, but before the scheme could be discussed in detail political partition in Ireland had been brought about As a result the matter was allowed to drop but it appears to me that the time is now ripe for a reopening of the question

From a scientific point of view the interests of doctors are probably identical everywhere, but conditions of service vary in accordance with the custom of the people and in accordance with legislative enactments Since the passage of the Insurance Act the conditions of practice in England and in Ireland have been dissimilar Of necessity much of the work of the Association deals with insurance problems which in no way interest or affect the Irish doctor In consequence, many of the Irish profession are slow to join an Association whose work from their point of view is so largely devoted to matters with which they have no concern An affiliation on broad lines would, I feel certain, prove of benefit to the Association as a whole, and to the Irish profession I feel that such an Association would be widely supported, and would be genuinely representative. It may be added that the establishment in 1926 of a separate *Medical Register* for the Irish Free State has to some extent already organized our entire medical profession

PUBLIC HEALTH SERVICES IN THE IRISH FREE STATE

I will conclude this paper by a short reference to the recent development of public health services in the Saorstat, a development which had its beginning in representations made to the Government by the Irish Medical Committee Since 1887, the date of the last Dublin meeting, our public health administration has, as in other European countries, developed into a regular network of associated and well-co ordinated medical services The main advance as far as Ireland is concerned has been in the last ten years Dr Stephenson, late Chief Medical Adviser, Department of Local Government and Public Health, Dublin, in a recent pamphlet, says "Public health reform has advanced rapidly in the Free State, perhaps more so than in any other country, yet the health schemes are laid on solid foundations, capable of expansion on definite and systematic lines" For this advance the forward looking men in the Department of Local Government and Public Health are mainly responsible, but the primary stimulus is due to our Irish secretary In 1919 Dr Hennessy read an important paper before the Section of State Medicine of the Royal Academy of Medicine in Ireland This paper was entitled Ireland and a Ministry of Health, and foreshadowed a comprehensive scheme of public health services with central control

At that date public health services occupied much attention following the establishment of a Ministry of Health in Great Britain, and in consequence the Chief Secretary was readily induced to receive a deputation of medical men, who urged the necessity of establishing a Ministry of Health suitably adapted to Irish needs The Government, however could not at that time be induced to establish such a Ministry As an alternative it set up a Public Health Council This council issued an important report in 1920, in which it recommended

(*a*) The co ordination as far as possible of the general central control of all the services relating to or affecting public health and the establishment of a Ministry of Health

(*b*) The reorganization of local health administration with a view to placing it as far as possible on a county basis

(*c*) Reform of the Poor Law medical services

This report appeared at a time when Ireland was in the throes of a political struggle, and when medical and other public services were greatly disorganized In consequence no governmental action followed its issue and before long the Council ceased to function, and was finally dissolved by the Local Government Act of 1925

Nevertheless, this report formed the basis for the future development of the Irish Services After the Treaty was signed, and the period of civil strife which followed, the Executive Council of Saorstat Eireann adopted many of its recommendations By Acts passed in 1924 and 1925 all the medical services were concentrated in one department of the Local Government Board with the result that enormous simplification and co ordination of public health work has been brought about As already stated the workhouse system was swept away in the early revolutionary years In its place there has now been established in each county in Ireland a well equipped county hospital with a full time medical officer and suitable assistants, and one or more county homes The homes house those aged and infirm who, without friends or relatives to support them, require the succour of the State In each county hospital the main surgical work of the county is carried out When these hospitals were first established it was feared that the city hospitals would lose many country cases and that their teaching capacity would in consequence be impaired Time has shown however, that this fear was groundless The county hospitals indeed deal with the great bulk of what I may call routine surgical work, but there is still an abundant flow of difficult cases from all parts of the country to the teaching institutions

In each country a full time medical officer of health has been appointed, who is responsible for all matters of public health in his county To him the dispensary medical officers report regarding the health of their district Specialist services have not been neglected Ophthalmic surgeons visit the main towns according to a definite plan School inspection work and schemes for child welfare have also been developed, while in each county schemes for the treatment of venereal disease and for tuberculosis, with domiciliary visitation have been adopted

It is unnecessary to go into further details but it is clear that, as far as Ireland is concerned a great step forward has been taken in the last ten years in connexion with public health Only a person resident in the country can realize how great the advance has been and how great an improvement the new order is compared with the old The Department of Local Government and Public Health, in pursuing its policy, has always received

that education of the public must precede reform, and so thorough have been its methods of instruction that practically every forward step has been made with the concurrence and good will of the county councils, who are responsible, and of the people generally.

Ireland has still far to go, but it is advancing resolutely. Before long it will be in the very forefront of civilized races so far as the care of its people is concerned. In its future struggle this meeting of the British Medical Association will prove a stimulus and an aid. It comes at the beginning of an epoch in our development. Perfection is not attainable, for as the goal is approached new problems ever arise ; but Ireland is travelling hopefully, and to do that is better than to arrive. Its desire is not merely for the physical needs of its people, but for their spiritual development.

> " I looked: aside the dust cloud rolled,
> The Warrior seemed the Builder too,
> Upspringing from the ruined Old,
> I saw the New! "

THE FAMILY PHYSICIAN'S ROLE IN THE PREVENTION OF MENTAL DISORDER AND DEFECT*

BY

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The shock incidental to a mental attack in a member of a family is indeed a big one, and especially so if it happens to be the first of its kind that has occurred. As a result the physician has to deal with a difficult situation in the family, apart from the anxiety and worry associated with the treatment and care of the patient suffering from the psychosis. I should like here to record my admiration for the skill and tact with which the family physician, who in many cases has little experience of mental disorder, will almost invariably meet the situation; with credit to his profession and with benefit to his patient.

For the partial or complete prevention of any disorder it is not essential that the exact cause of such disorder should be definitely known ; which is fortunate in this case, insomuch as little could be accomplished towards the object in view. In searching, however, through the causes, either principal or contributory, usually considered to be the precursors of mental disease, one cannot help being struck by the frequency with which certain factors predominate, factors which should often be preventable, and it is in this direction that I hope the discussion may be of benefit to all of us.

NEUROPATHIC INHERITANCE

One first has to consider the neuropathic inheritance—a feature that can be ascertained in about 75 per cent. of one's cases. This fact has a very evil effect, because there would appear to be a fixed idea among the public that anything of a hereditary nature is almost always incurable. I would suggest, however, that too much fear has been felt with regard to the neuropathic inheritance, and that it should be regarded in much the same light as that inheritance which was so long considered to be the cause of tuberculosis, a disease which in many respects resembles mental trouble and one with which it is often associated. But although the neuropathic inheritance may not now hold its one-time importance, yet it cannot be ignored. Its frequent presence demands attention and investigation if progress towards the prevention of mental disorder is to take place.

The late Sir Frederick Mott gave much attention and thought to this subject, and has recorded his opinion on many occasions. The amount and the nature of the work he accomplished must command one's admiration. In short, he endeavoured to prove that a mental illness in a parent was liable to be followed by a more serious mental illness in the next generation, and that it would be apt to occur at an earlier age. In other words, a periodic psychosis is liable to be followed in the succeeding generation by dementia praecox, and by mental defect in the next one. He noticed a tendency for insanity not to proceed beyond three generations, as there was either a regression to the normal type or else the stock died out, and that the latter frequently occurred by the malady manifesting itself as imbecility or adolescent insanity. He considered this to be one of Nature's methods for ending or mending a degenerate stock.

These conclusions have been criticized by Paterson, who has gone over some 4,000 cases. He finds that the existence of the law of anticipation in mental diseases is not proven, and that Mott's results were obtained by the manner in which the material was collected. There was always the difficulty when working under Mott's hypothesis of explaining those cases of dementia praecox which have occurred without a neuropathic inheritance. Mott himself considered them to be examples of a " throwback " in heredity ; but this never appeared to be wholly satisfying, and, further, the frequency with which these examples occur helps to negative the supposition.

SIGNIFICANCE OF A SUBTHYROIDAL STATE

Some years ago I suggested that the nature of the psychopathic inheritance might mainly be one of a deficiency in the thyroidal secretion, and that this deficiency might also be concerned in the cause of certain other diseases which appear to have a hereditary tendency, including tuberculosis and malignant disease. I have come to regard the presence of either of these diseases in a family history as being of at least equal significance as a mental illness. There would seem to be some grounds for believing that the initial trouble in each of them is a subthyroidal state, and that a second and exciting cause determines which disease is to develop. Granted that this were true, there would be at once explained the 25 per cent. of cases in which, no matter how one searches throughout the family history, it is not possible to get a definite example of mental illness. It would also account for the not infrequent development of an example of dementia praecox in a family in which no previous mental attacks have been experienced, on other grounds than that of a " throwback." The presence of a low thyroidal secretion, with all its ill effects upon the rest of the endocrine system, would in the course of a couple of generations be just the type of condition necessary for the production of a disease characterized by a marked tendency to an early degeneration of the cortical cells. Myxoedema, of course, is known to be capable of transmission in a hereditary manner, especially through the maternal side of the family.

There can be no question about the exceeding frequency with which subthyroidal symptoms are met with in a mental hospital. The number of these symptoms is large, and they are widely known, so I do not propose to dwell upon them here. One has, however, to mention with gratitude the name of McCarrison, whose work upon the thyroid gland is of an inspiring nature.

It is a matter for regret that the valuable eyebrow sign first described by Hertoghe is no longer available in many of the younger women of to-day, owing to the development of the habit of eyebrow-plucking and its replacement by a thin black line. I have sometimes thought that the idea of this must have originated in the brain of some keen beauty expert, who did not fail to

* Read in opening a discussion in the Section of Neurology and Psychological Medicine at the Annual Meeting of the British Medical Association, Dublin, 1933.

recognize the tendency for the irregular and early disappearance of the hair in this region—a somewhat difficult feature for his art to overcome—and so he called up the aid of Dame Fashion to decree its complete removal.

Kojima has recorded his findings after the examination of the thyroid gland in 100 patients who died in Claybury Mental Hospital. His observations demonstrated a very marked variation in the weights of the thyroid gland, which could not really be accounted for except on the idea that it was in some way related to insanity. Sir E. Sharpey-Schafer has stated that the principal autacoid of the thyroid is the most powerful excitant of metabolic processes known. I regard thyroid extract as being the most potent preparation with which a physician can treat a case of mental disorder, and I believe that in many cases, especially in those showing subthyroidal symptoms, the administration of it in suitable dosage over prolonged periods will prevent an attack of psychosis. For this reason I believe that every symptom of subthyroidism should be regarded with concern as to the mental future of the patient.

Norman Phillips gives the records of 291 patients examined by Brissard at the Bel-Air Asylum, Geneva; 106 were found to be goitrous, representing 36 per cent. of both sexes. This compared with a rate of 5 per cent. in other statistics in the same canton. Further, he noted that in seventy-one of these 106 cases dementia praecox was the entity present, and that eighteen were congenitally weak-minded. Out of a total number of 149 cases of dementia praecox, seventy-one were goitrous, amounting to 49 per cent., and out of a total number of thirty-seven cases of congenital idiocy eighteen, representing 48 per cent., were goitrous. Phillips also records his own investigations, and has noted the frequency with which goitre is associated with psychosis. In a mental hospital receiving no cases of idiocy one patient in every eight had some thyroid enlargement.

I think, at any rate, that we have enough evidence to justify the belief that the thyroid gland plays a very large part in the production of mental disease and defect, and therefore that every sign of a deficiency in its secretion should be treated early and with persistence. Further, patients suffering from goitre, even though of the simple variety, must be regarded with suspicion concerning their future mental history, and every effort should be made to cure them of this condition, which cannot be anything but a dangerous one. In the case of marriage and subsequent issue, this issue will be particularly liable to mental illness. I have noted for many years the frequency with which patients suffering from mental trouble can be found to have mothers or maternal aunts who suffer from goitre. Indeed, the visits of relatives have often suggested to me, by their subthyroidal appearance, the advisability of placing the patient on thyroid treatment, when often the patient did not present any obvious subthyroidal symptom.

Chronic Sepsis as a Factor in Mental Illness

It would not be reasonable to expect that every case of mental illness treated by thyroid should respond in a beneficial manner, for the causation of this illness is seldom a single one. Many other factors, both psychogenic and physiogenic, must be considered. In connexion with the latter, the part played by chronic sepsis has for the past few years been a matter of much discussion and dissension. All the organs and tissues of the body have at one time or other been investigated, with many positive results.

Recently, however, the question of sinusitis as a cause of mental disorder has been examined with great thoroughness at the Birmingham mental hospitals under the direction of Graves. He has published the results of 1,000 cases that have been examined by the Watson-Williams technique of sinus puncture and wash-out, with the result that 818 were found to show evidence of nasal sinus infection. Of these 818 cases 304 had sphenoidal infection, 424 had ethmoidal sinus infection, and 631 antral infection. The treatment of these by sinus wash-out and drainage was followed by a marked improvement in many cases that had been considered hopeless.

The type of infection most likely to produce mental symptoms is of a chronic form, and is termed "latent" because of the few indications of its existence. Watson-Williams states that transillumination is most unreliable for its diagnosis, and that the only certain criterion of sinus infection consists in introducing a cannula into each sinus and extracting therefrom a sample of its contents for bacteriological examination. This procedure is obviously outside the scope of the family physician or alienist, but from the evidence brought forward it would appear to be advisable for such an examination to be made in many cases. Although I have no experience of sinusitis as being a cause of mental illness, yet I believe that chronic sepsis is very commonly associated with it, and indeed for a long time I have regarded it as one of its causes. One sees many brilliant results follow the removal of septic infections of a chronic nature, and sometimes the surprising point about them is the small amount of infection that would appear to be present.

It is no uncommon experience in a mental hospital for an apparently hopeless dement to get at least a temporary return of the intellectual faculties following the development of an acute inflammatory condition, and this would appear to be specially liable to happen when such inflammation proceeds to the formation of an abscess. It is of further help towards the recovery of reason if the abscess should not be evacuated at once—a point that makes one think that the production of a high standard of immunity is necessary before improvement of the mental symptoms can take place. This feature would seem to provide evidence of the presence of another and more chronic septic infection in the system, which the high degree of immunity is able to overcome, at any rate for a time. I have known, however, such an occurrence to bring about the complete and lasting recovery of a few patients.

Chronic sepsis in any portion of the body, and especially that located in the sinuses of the nasal passages, would appear to be so common in mental illness as almost to make it more than suspicious that it may be an essential factor for the production of disease. As Pickworth states:

> "The prevailing tendency to ascribe all mental disorder to hereditary transmission must be challenged with new facts. Congenital mental deficiency is attributed in some cases to birth injuries or infectious diseases such as syphilis in the mother; similarly the part played by naso-oral sepsis in the mother deserves study and recognition. It has long been a contention that much of the ignorance and stupidity of the populace is due to unhygienic surroundings and disease in the parents; such tables as are already available show that the figures for hereditary mental disorder can be paralleled by figures for nasopharyngeal sepsis heredity."

Thus there are two important factors which would appear to me to be most liable, in combination, to produce a mental illness. First, a deficiency in the nature of a subthyroidal condition of the system; and secondly, the presence of a focus of septic infection essentially of a chronic nature. These conditions would seem to be preventable, at any rate to a considerable extent, but it is to the family physician we must look with hope for their amelioration or complete removal.

Critical Age Periods

In the presence of conditions such as these it is not surprising that many other factors, in themselves perhaps not seemingly potent, and which people more fortunately

situated are able to withstand, have a contributory and possibly even an exciting influence in the causation of mental illness. First, there are the critical age periods—namely, adolescence, the climacteric, and senescence. Robertson, in his Maudsley Lecture, gave most valuable data concerning the age-period liability to mental illness, and, contrary to the opinion usually held, he has shown that the liability to a psychosis increases with age. In his words:

"The tendency to develop insanity first shows itself between 15 and 19, but it becomes much more pronounced between 20 and 24. This is followed by a steady rise year after year till the age of 50 is reached. There is then a short period of decline, after which an extremely rapid rise occurs in old age."

To my mind the fact seems somewhat significant that mental illness should be of such rarity in those under 15 years of age, for would it not point to an absence of any marked inherent defect in the nervous tissue of the child? The intrusion of the internal secretion from the sexual glands and its disturbing effect upon the other internal secretions have been held responsible by many for the onset of mental illness in the adolescent. Regressive changes in the same glands have also been widely accepted as the cause.

Again, the changes in the social status at this age-period, the necessity for adjusting himself to the ordinary difficulties of life, without the same amount of protection hitherto given to him by the parent, the sex problems, and the ordinary sex attractions incidental to youth—all these must have some bearing.

There would appear, however, to be little attention paid to the influence of the very difficult period of school life. The advance of education and the necessity for receiving and retaining in one's memory a large amount of facts and figures which may (or may not) be useful in a later period imposes one of the most difficult strains to be experienced in life. When it is remembered that at adolescence the brain is immature, and that, although mental illness may have been absent up to the school age, yet it is likely that minor physical disturbances have been present for many years, and perhaps even since birth, it will not seem a matter for surprise that psychoses occur frequently at this period.

I would suggest that there is a danger in what one might term "the excessive education of the unfit," and I would include within it backward children and those who show any marked evidence of a nervous condition associated with a predisposition to mental illness, even though some of them may be of the brilliant type. They should hasten slowly during this period, and so remove any strain upon the intellect. How often does not one see a hitherto brilliant mind become less than mediocre, and make its possessor incapable of self-support! I have often thought that if such young people had been removed early from school, and put to work upon the land, many of them might have become useful citizens of the State.

With regard to the later critical periods of the climacteric and senescence, I would lay stress upon the importance of the recognition and early treatment of nervous symptoms, especially want of sleep associated with prolonged worry. Insomnia at times is most difficult to treat, but if not allowed to develop to a marked extent it will, as a rule, respond to mild sedatives in the early stages. The longer one leaves the condition untreated the more difficult it will become.

OTHER CONTRIBUTORY FACTORS

There are so many causes of worry and strain that it would seem impossible for the family physician to protect his patients from their evil effect. There is, however, one particular strain against which he can safeguard them, and one that is no uncommon exciting cause of mental illness. I refer to the nursing of the seriously ill person by a devoted relative, and especially if the illness should be a mental one. Here you have the predisposition to the illness, the undue anxiety concerning the patient, the want of sleep, and irregular meals which are often an accompaniment to the long hours of watchful nursing, all of which conditions, when taken together, will be very liable to precipitate an attack of psychosis.

We cannot do away with the influence of senescence. Robertson, however, has stated that much can be done "by careful living during the middle period of life," which he regarded as the best insurance against senile insanity. Senility is the greatest insanity-producing period of life, so that any measures that may tend to lessen liability to mental illness at this period are worthy of particular attention. In this and other critical periods I would emphasize the importance of rest, and preach the gospel of fatness, which, in the earlier periods of life at any rate, is nearly always accompanied by mental fitness.

Alcoholism and syphilis are, of course, well-known exciting causes of mental trouble. According to statistics the former would appear to be a diminishing factor, and one may hope that with the advance of modern anti-syphilitic treatment the influence of syphilis in mental disease production will disappear.

I have known excessive smoking to be the only apparent exciting cause in several cases, and, indeed, I regard it as being a fairly common contributory cause of mental illness. Its effects are not so obvious as those of alcohol, for alcohol, if taken in sufficient quantities, will soon terminate the desire for its consumption by means of the production of an acute psychosis; but in the case of excessive smoking the effects are insidious, with the production of gastric disturbances, loss of appetite, and a generally lowered physical condition, which make a mental attack likely to occur with little other provocation. One contemplates with some alarm the future of a generation, yet unborn, the mothers of which are harassed with a desire for slimness and excessive smoking.

The evil effects of gastric disturbances and constipation are well known, even to the public. They are such frequent phenomena in mental disease, especially in melancholia, as almost to be considered part and parcel of it. I have known some patients make a complete recovery within a few days following the administration of an enema.

Sometimes, when getting the previous history of a patient suffering from a psychosis, there is a reference to a "chill" or febrile attack perhaps a month before the onset. This has occurred so frequently that as a rule I now search for it. The attack is generally regarded as having been an influenzal one, and most likely it was so, but the point about nearly all these attacks is that they are of an ambulatory type: little or no treatment is taken for them, as a doctor's help is rarely sought for. In spite of the slight symptoms, however, they may be of the most serious importance, as representing the onset of an attack of encephalitis lethargica, or act as the precursor to a psychosis some months later.

Robertson has given some statistics with regard to marriage and its potential effects on the incidence of mental disease. Nothing but good can be said of marriage, for in the married this incidence is low, but slightly higher among women, as a result of the risk of child-bearing. The loss of a husband or wife increases to a marked extent the liability, and, indeed, up to 55 years of age the prevalence of it is almost double that among married men and women. In the case of single men and women between 35 and 55 years of age it is nearly three times as high as in the married. Robertson, however, points out that a process of selection has been at work among the married, who may be regarded as a picked lot. Both husband and wife have at least selected one another from

all the others, and, on the whole, for good reasons. The average health of the single is probably lower than that of the married, and may in itself be the reason for remaining single. The expectation of life for a married man 25 years of age is nearly five years more than for a bachelor of the same age.

It may sometimes happen that the family physician is consulted with respect to the marriage of a patient who has had a psychosis. As a general rule it should be regarded as a most unwise adventure, for a psychosis may be of the periodic variety, known as the manic-depressive psychosis, in which attacks will occur throughout life with complete remissions between. It is these very remissions which make marriage a great peril in the neuropathic. An isolated attack may occur, especially after a great shock, and will not repeat itself even after many years. In a person who has had such an attack and is in obviously good physical health, with no definite stigmata of degeneration, such as cranial anomalies, deformities of the pinna and palate, and marked hyperextensibility of the ligaments, it would seem unnecessarily hard to refuse sanction.

Trauma would appear to be an almost negligible cause of mental disease, so rare is its occurrence. It is more likely to be followed by a neurosis, and even in this respect its liability is grossly exaggerated by the public. The experiences of the war proved the extraordinary resistance of the brain to external injury; and, indeed, the highly skilled art of the brain surgeon, for which art I have the greatest respect and admiration, has proved it again and again. He has shaved off portions of the cortex, incised the substance of the brain, probed it, extracted neoplasms from it, and even blown air into it. Notwithstanding all these things, he has the satisfaction of seeing his patient recover from the anaesthetic with a sane mind. It is only when the cortex is affected widely, usually in some insidious manner by a toxin, that we get symptoms of mental disease.

This short paper cannot hope to cover all the ground in the causation of mental trouble. The psychogenic causes have been omitted purposely, for, as a rule, they are not within the province of the family physician. I have tried to bring before you certain physical disabilities which are at least very common accompaniments of mental disorder, and which I believe to be of the greatest importance in its production.

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VIRUSES AND SKIN DISEASES*

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The investigation of virus diseases is beset with peculiar difficulties. Viruses are either ultra-microscopic or if anything particulate is seen its nature is disputed. With one possible exception no virus can be grown apart from living cells, and therefore the cultural and biochemical methods of bacteriology are unavailable for the study of viruses. This essential association with living cells makes difficult the conclusive proof of life in these minute or unorganized agents, and a further difficulty is that in many cases a suitable experimental animal is not available either. It is not surprising, therefore, that the earliest direct evidence of the existence of viruses came from pathological studies of plants and animals, although Pasteur had suggested that agents of this type might be the aetiological factor in certain diseases, as hydrophobia. Iwanowsky (1891), working on the mosaic disease of tobacco plants, was the first to demonstrate the infectivity of a bacteria-free filtrate of an extract of diseased leaves, and Loeffler and Frosch (1898) obtained corresponding results in the case of foot-and-mouth disease, even though their filtrate was culturally sterile and contained no visible micro-organisms. Evidence has accumulated to the effect that more than a hundred diseases of animals and plants are now attributable to disease-producing agents, which have the following peculiarities.

PECULIARITIES OF VIRUSES

1. They are either ultra-microscopic or may be recognized as minute particles up to 0.25 μ in diameter. The smallest discrete particles are called elementary bodies, but larger forms possibly occur. In the case of psittacosis virus, at any rate, Bedson and Bland (1932) have demonstrated a cycle of development in which the particles vary greatly in size so that forms larger than some bacteria occur and masses of aggregated particles or of undivided virus produce plasmodial forms.

2. Dependent upon the minuteness of the particles is the property of filterability as compared with the bacteria. Obviously the larger forms of viruses would not be filterable; on the other hand, some of the leptospira are

3. A peculiar histological feature is commonly associated with virus infections. This is the presence in the lesion of curious intracellular bodies—the so-called "inclusion bodies"—which occur either in the cytoplasm or in the nucleus

4. The inability to grow in cultures in the absence of living tissue cells.

Some of these points are worthy of discussion. In the first place, it is still a matter of dispute as to whether the minute particles described are actually the virus or whether they are non-specific granular-cell products on which the virus, something unorganized, is adsorbed. Recent experimental work has strongly supported the identity of these minute bodies with the virus. Woodruff and Goodpasture (1929, 1930) demonstrated the infectivity of isolated and washed Bollinger bodies—the inclusions of fowl-pox—which consist of collections of elementary bodies; and Ledingham (1931) showed that these elementary bodies, and those of vaccinia too, could be flocculated in the presence of specific antiserum. Bedson (1932) has found that it is possible, by means of high-speed centrifugation, to concentrate and wash the elementary bodies of psittacosis, controlling the operation by direct observation, and then demonstrating their infectivity, specific agglutination, and ability to fix complement specifically. This is very strong evidence that the minute bodies are the virus. One can only escape this conclusion by assuming that the virus is adsorbed on tissue particles, but against this must be placed the observation of Bedson that the particles *do not react* specifically with an appropriate anti-tissue serum. Further, these experiments strongly support the conception that viruses are living organisms, and it is not proposed to discuss the more elaborate thesis of Sanfelice (1914) that a virus is a non-living poison produced by living cells which is capable of attacking new cells. Suffice it to say that viruses exhibit the essential characteristics of living organisms—for example, multiplication, adaptability, preservation of identity, antigenic properties, and sensitivity to antiseptics.

* Read in opening a discussion in the Section of Dermatology at the Annual Meeting of the British Medical Association, Dublin, 1933.

Filterability was originally the essential criterion of a virus, and as this implies a simple grading according to the size of the particles there is at first sight much to commend it. Inconsistent results were, however, not infrequent, and whereas some visible organisms were found to be filter-passers, smaller virus particles were sometimes retained in the filter, presumably by adsorption. In spite of complicating factors there remains no better approach to the investigation of a suspected virus disease than by the historical route of filtration. If a culturally sterile bacteria-free filtrate of an extract from a suspected lesion can reproduce a similar lesion in a susceptible host then the inference of a virus infection is a very strong one.

INCLUSION BODIES

Much attention has been paid to the inclusion bodies which characterize many virus lesions. These bodies consist of intracellular masses of hyaline or granular material—usually acidophilic, but in some cases basophilic. Three theories are put forward to explain their nature:

1. That inclusion bodies represent a stage in the life cycle of viruses analogous to certain protozoa (Calkins, 1904). The work of Bedson and Bland (1932) gives some support to this view.

2. That the minute bodies are the virus and that the larger inclusions are cellular products (Paschen, 1908).

3. That they represent colonies of virus (minute bodies) which, as a result of the cellular reaction excited by their presence, become enveloped in some plastic material produced by the cell (von Prowazek, Lipschütz, da Rocha-Lima).

Goodpasture (1929) discusses this problem in detail with special reference to the group of animal poxes (variola, vaccinia, sheep-pox, fowl-pox, and molluscum contagiosum). He concludes that the infective agent is a minute rounded, uniform micro-organism, presumably capable of invading cells and growing in them, and that the inclusion bodies consist of masses of these small bodies suspended in a hyaline matrix which is either the product of the cell or of the virus itself. Ludford (1924–5) draws attention to a point which it is well to bear in mind when endeavouring to interpret virus lesions in epithelium. The epidermis is largely avascular, and consequently its cells are unable readily to get rid of waste products. Added to this, these cells are undergoing keratinization, with consequent nuclear and cytoplasmic degeneration. These factors result in epidermal cells containing a host of granules of different kinds, which may readily mislead the unwary in search of virus bodies. The greatest caution must be exercised in the interpretation of the histological picture presented by such lesions.

Typical cytoplasmic inclusions occur in the animal poxes and in ectromelia, a contagious disease of mice. The intracellular virus masses occurring in psittacosis, though not presenting the characteristic picture of the typical inclusion, are probably of the same nature. Nuclear inclusions occur in herpes, zoster, varicella, and other virus diseases; variola gives rise to inclusions in both cytoplasm and nucleus. Little more need be said about the inability to cultivate viruses apart from living tissues. The fact has been established for many typical viruses, and the organism of bovine pleuro-pneumonia is the only unequivocal exception. This organism is readily filterable and has the minuteness of typical viruses, yet it may be cultured on horse serum without difficulty. It may be added that the failure to grow viruses on ordinary media is the greatest possible handicap to their study.

RESPONSES OF CELLS TO VIRUS INVASION

It will be inferred from these observations that a virus is essentially a parasite of a cell rather than of an individual, and it is of interest to note the various and peculiar responses of cells to the invasion. Once the minute virus particle has penetrated the cell it may multiply in the cytoplasm or nucleus, or in both. Goodpasture (1929) has summarized the cellular changes which different viruses give rise to, and he points out the wide range of responses between the rapid necrosis of ectodermal cells in an herpetic infection of the rabbit's cornea and the slow and prolonged proliferation of epidermal cells induced by the virus of the common wart. Cells may be stimulated to a slightly increased rate of proliferation by one virus whilst another may provoke violent reproductive activity. In other cases the metabolism of cells may be altered and the stages of degeneration marked by changes in the nucleus. Again, another virus may alter specifically the morphology of cells, affecting their size and shape, and that these changes are due to the presence of the virus in the cell and not to secondary inflammatory effects has been shown by a number of workers. For example, in molluscum contagiosum the lesion in the epidermis may attain maturity without a reaction in the corium (Goodpasture).

As a rule, each virus has a predilection for one type of cell, and this has led to the use of the term "tropism" in relation to virus infections. Thus zoster may be said to be neurotropic whilst varicella and molluscum are epidermotropic.

Since the effects of a virus infection upon a cell may be seen as a degeneration or as a hypertrophy so two types of skin lesion may result:

1. *Toxic.*—The lesion may be an erythematous macule which becomes purpuric as in typhus, or urticarial as in measles, or papular and vesicular as in varicella and herpes. The vesicle may dry up or proceed to pustulation, and end in crusts or scales.

2. *Hypertrophic.*—Here the proliferation of cells produces a papule, nodule, or tumour, as in the case of warts and molluscum contagiosum.

FOUR DERMATOLOGICAL LESIONS

At present there are only four strictly dermatological conditions which are definitely established as virus diseases (herpes, zoster, molluscum contagiosum, and warts), and their well-known clinical features will be ignored, attention being directed to those facts and observations which justify their inclusion in this paper.

Herpes.—Experiments have demonstrated beyond doubt that bacteriologically sterile vesicle fluid after filtration is infective, producing characteristic lesions clinically and histologically in susceptible animals, and the condition can be passed in series. In the Freedom Laboratory of the London Hospital we have a strain of herpes which has survived more than a hundred passages in the guinea-pig. The virus is evidently ubiquitous, and human carriers are numerous. Direct evidence of this has been obtained by Levaditi, Harvier, and Nicolau (1922) and by Busacca (1924, 1925), who demonstrated the presence of the virus in saliva and in the conjunctival sac. Indirect confirmation of the carrier rate has been obtained by the discovery of herpetic antibodies in human serums. Using the technique described by Bedson and Bland (1929) I have shown (1932) that the complement-fixation reaction is a reliable test for the presence of herpetic antibodies in serums, thirty positive reactions being obtained in a group of thirty-two individuals having a definite history of herpetic infection, whilst entirely negative results were obtained in a group of sixteen individuals with no history of herpes. Out of fifty-two unselected cases 45 per cent. gave a positive fixation with herpes, and, as it is unlikely that a transient and trivial lesion of this type would account for the persistence of herpes antibody in the blood, a simple explanation is that the positive cases are carriers of the virus. Possibly a more sensitive test for the presence of virus antibody in serum is to mix the serum with a living virus suspension and after an interval to titrate

the virulence of the mixture in an animal. If specific neutralizing bodies are present in the serum the infective titre of the virus will be appreciably diminished or lost. Neutralization tests, as they are called, have been employed with herpes virus and normal serums, and the results reported are given below:

		Percentage giving Neutralization
Zinsser and Tang	Normal adults, 17	53
ditto	,, children, 25	45
Andrewes and Carmichael ...	,, adults, 28	75

These figures suggest that 50 to 75 per cent. of normal individuals are carriers of herpes virus. Immunity against herpes is doubtful in man, but usually marked in other animals. The pathological picture is typical of a virus infection, and it resembles that of the vesicular lesions of varicella and zoster. Minute acidophil intranuclear bodies occur in epithelial cells, and they have also been noted in the cells of the cornea, central nervous system, liver, testicle, and ovary. Apparently these small bodies increase in size and coalesce, and finally occupy the greater part of the nucleus, forming the so-called inclusion body. Some of the affected cells become swollen and show a reticular degeneration, whilst others, possibly irritated by the virus, are transformed by a process of amitotic nuclear division into large multinuclear cells. The affected epidermis and the adjacent inflamed dermis become infiltrated with leucocytes, and a serous exudation dissociates cells and collects beneath the stratum corneum, forming the vesicle.

Zoster.—Owing to the lack of a susceptible animal, transmission experiments with zoster have been confined to human subjects, but adequate proof has been obtained that a bacteria-free culturally sterile vesicle fluid can produce typical histological lesions in a high percentage of healthy children, and incidentally a few of the positive "takes" developed clinical varicella. The disease is infectious, for numerous cases have been reported of zoster contacts developing chicken-pox, and much evidence has now accumulated to the effect that the two diseases are caused by the same virus.

A brief summary of the supporting evidence now follows:

1. Kundratitz (1925), Seigl (1927), and Bruusgaard (1932) produced clinical and histological chicken-pox by the inoculation of zoster vesicle fluid into young children. Several healthy contacts of these cases developed clinical chicken-pox after the usual incubation period. Further, children who had had chicken-pox were insusceptible to the inoculation of zoster vesicle fluid, and those who had recovered from the experimental zoster infection were found to be immune to inoculation with chicken-pox vesicle fluid.

2. Using the crusts of zoster and chicken-pox as antigens Netter and Urbain (1931) have investigated the serums of convalescents from these diseases for specific antibodies by the complement-fixation reaction, and their findings suggest that all cases of zoster (idiopathic and symptomatic) and varicella are due to the same virus.

With different antigens (vesicle fluids) and with a different technique I have confirmed the work of Netter and Urbain (Brain, 1933) but of course these serological tests do not furnish direct evidence, although they suggest the close relationship and possible identity of the viruses of zoster and varicella.

It has been suggested that the mechanism of infection from a case of zoster is that the virus reaches the mucous membrane of the upper respiratory tract of the contact, and from there it more readily invades the blood stream than the central nervous system, thus producing chicken-pox rather than zoster. Probably a number of individuals carry the virus dormant in the central nervous system, where it is activated by nerve injury and, reaching the skin via the affected nerves, produces an eruption in the area supplied by them. The histological changes in the skin are exactly similar to those seen and previously described as occurring in herpes. Acidophil inclusion bodies, "Zoster korperchen," are present in the nuclei of the cells of the vesicle epithelium, and also in connective tissue cells and capillary endothelial cells of the dermis (Lipschütz). The characteristic lesions in the central nervous system have been recognized since the brilliant description of them by Head and Campbell of the London Hospital in 1900. The immunity against zoster is usually solid and lasting.

Molluscum Contagiosum.—The infectious nature of this disease was first demonstrated by Paterson (1841), and this has been amply confirmed. Juliusberg (1905) showed that the infective agent could pass through a Chamberland filter, and the experimental incubation period was fifty days. Filterability with other types of filter was later reported. The disease is pathogenic only in the case of man, infection probably occurring at baths and in schools, and possibly through the agency of parasites. The incubation period varies from five weeks to six months. Growth is very slow, four to six months being the usual time for a lesion to attain 1 mm. in diameter. The lesions are probably disseminated by auto-inoculation. Nothing has been reported of its immunological reactions, but by means of the complement-fixation reaction and using suspensions of elementary bodies prepared from curetted mollusca I have demonstrated the presence of antibodies in the serum of a patient with multiple lesions. The agglutination reaction was negative. The experiments await publication. Peculiar histological features were noted by Henderson (1841) and Paterson (1841), who were the first to describe certain large oval hyaline bodies which were seen in the superficial layers of the epithelial nodules. These molluscum bodies were thought to be protozoal in nature. In the development of a molluscum the first cellular changes are seen in the deepest cells of the stratum mucosum. In the cytoplasm of these cells numerous small vacuoles appear with minute peripheral granules (about 0.25 μ), and it would appear that these granules are the elementary virus bodies (Lipschütz), for they become numerous and fill the vacuole, and ultimately fuse to form an oval hyaline body which fills the cell and displaces the nucleus. Smears from these hyaline bodies show that they consist of aggregations of minute bodies, and Goodpasture (1927) considers that these elementary bodies are morphologically consistent with a living filter-passing micro-organism developing about and within cytoplasmic vacuoles which may be regarded as the cellular response to the invader. The affected cells and their nuclei become enlarged, and degenerative changes finally destroy their identity, leaving collections of molluscum bodies alone; but before this happens a cellular proliferation occurs producing blunt, lobulated downgrowths of the epidermis, which elongates and compresses the papillae so that eventually the latter are represented as thin, fibrous septa between the lobules. In the fully developed lesion a cavity appears near the surface at the centre of the nodule, and gradually extends downwards into each of the lobules; this cavity contains the hyalinized "molluscum bodies." The lesion is surrounded by a layer of fibrous tissue, and inflammatory changes are slight or absent.

Warts.—It is believed that the common wart, with its plane, digitate, and filiform variations, the plantar wart, the senile or seborrhoeic wart, and the moist or fig wart are all manifestations of a virus infection. Variot (1893) reported the first successful inoculation of a wart from a child to an adult, and the infectivity of warts has been established by similar experiments. Cuiffo (1907) showed

that the infective agent could be filtered, and his work was confirmed by others, the usual incubation period being one to eight months, probably depending upon the susceptibility of the individual. Filtrates from condylomata acuminata were also found to be infective. Immunity to the virus has been demonstrated, and its spontaneous development probably accounts for the sudden disappearance of lesions. Acidophilic bodies in the cytoplasm and basophilic ones in the nucleus of affected cells have been described as inclusion bodies. Histologically there is evidence of active proliferation of cells in the Malpighian layer, resulting in the formation of a surface projection and in elongation and widening of the interpapillary processes, with thickening of the stratum corneum. The amount of cellular infiltration and inflammatory reaction varies widely, and is most marked in the case of moist warts. It is probable that the clinical varieties enumerated depend upon the following variable factors:

1. The reproductive activity of the germinal layer.
2. The degree of acanthosis.
3. The degree of corneous hypertrophy.
4. External influences such as pressure, humidity, and friction.

CONCLUSION

I am aware that there are many omissions in this brief paper, and I have not mentioned the effects of physical and chemical agents upon viruses, nor have I discussed general problems of immunity. With regard to the latter it is perhaps worthy of remark that there is no real difference between viruses and bacteria. In other words, the immunity which follows recovery from virus infections is just as variable between diseases as that following bacterial infections.

To conclude, I would like to associate myself with Goodpasture when he deplores the abuse of the group of virus diseases as a repository for all sorts of nondescript and ill-defined conditions of unknown aetiology and indefinite pathology. There are a number of common dermatological conditions the origins of which are completely obscure, and naturally the viruses are suspect. However, since Pasteur's suggestion more than fifty years ago that some diseases might be due to ultra-microscopic organisms, there is no originality of thought in incriminating a virus without supporting evidence.

I am very happy to acknowledge my indebtedness to the London Hospital for the research facilities and the financial assistance its Research Fund Committee has so generously afforded me. I have been working on certain aspects of virus diseases under the direction of Dr. S. P. Bedson in the Freedom Research Laboratory of the London Hospital since November, 1930, and my acquaintance with these problems and my few contributions to the solution of some of them are alike due to much instruction and expert help from Dr. Bedson. I record these facts because they account entirely for my present part in this discussion, and for these reasons I regard the implied distinction as something impersonal.

In composing this paper I have drawn largely from the volume on virus diseases produced by the Medical Research Council and also from the excellent paper by Goodpasture on cellular inclusions and the aetiology of virus diseases. The numerous references given in these two sources are omitted from the list below.

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NASAL GRANULOMATA*

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Tumours mainly composed of granulation tissue may occur in any region of the body. They are not commonly met with in the nasal cavities, but certain varieties, when present, are of great interest to the rhinologist. From the point of view of histology their general structure is always broadly the same, though certain differences in detail may be present, which will depend on the aetiology of the tumours. According to Baum[1] all granulomata present "collections of rapidly growing blood vessels whose walls are formed by a single layer of epithelium supported by a stroma of young connective tissue containing many cells." In addition, however, the growth may present a specific or infective organism, which will definitely decide the nature of the tumour.

For the purpose of this discussion I shall first describe granulomata which show no specific organism to either histological or bacteriological examination. This class, which in structure corresponds most closely to pure granulation tissue, may be divided into two groups—simple and malignant.

SIMPLE GRANULOMA

Tumours of the first, or "simple," group may be met with in any part of the body; when occurring in closed cavities such as the abdomen or thorax they may grow to a huge size and closely resemble malignant growths in their behaviour and appearance. Prima[2] reports five such cases, three in the abdominal cavity, one in the thorax, and one on the back; owing, however, either to their enormous size or to their position complete removal was impossible, and treatment had to be confined to partial excision and packing. Histological examination showed these growths to be what he termed "chronic inflammatory granulomata," and it is of much interest that in each case the growth completely disappeared as a result of the operative intervention. Very extensive simple granulomata are not met with in the nasal cavities, for the reason probably that they produce symptoms which draw attention to their presence at an early date. When occurring they are usually due to trauma or the presence of a foreign body.

In the first instance they are most often post-operative, while in the second any of the more common varieties of foreign body may, as a result of inflammatory changes, become surrounded with granulation tissue to such an extent as to form a true tumour. Pearlman and Pilot[3] report such a case, caused by strands of gauze which had remained in one side of the nose for a period of two years. They point out that granulomata due to foreign bodies often resemble polypoid growths, and have a distinct inclination to myxomatous changes. Giant cells with an enormous number of nuclei are usually found in the neighbourhood of the irritant. The diagnosis and treatment of such growths are not usually difficult.

MALIGNANT GRANULOMA

In the year 1896 McBride[4] published a case of "rapid destruction of the nose and face in a young man of 28." It started as a pustule on the inside of the ala nasi, following a scratch from a finger-nail. The disease manifested itself as a steadily progressive phagedaenic ulceration, which resisted anti-syphilitic treatment and caused the death of the patient some nine months later. Histological

* Read in opening a discussion in the Section of Oto-rhino-laryngology at the Annual Meeting of the British Medical Association, Dublin, 1933.

examinations of removed tissue gave a negative result, and the necropsy threw no light on the subject This is the first reference I can find to any case which will fit in with the two following, fully described by Woods[3] in the year 1921

Woods states that these cases were unique in his experience, and as a suitable name he suggests " malignant granuloma " They both occurred in elderly men, and presented the typical appearance of tertiary syphilis—fetor, which was of a quite peculiar nature, glutinous crusts, perforation of the septum, and a steady, progressive necrosis of the bony framework of the nose and palate In each case the Wassermann reaction was negative, and anti-luetic and local treatment was of no avail Microscopical examination showed granulation tissue to be the dominant feature

In the first case *x* ray treatment was carried out, but without improvement, and this patient died from cachexia four and a half years after the onset of the disease

The second case closely resembled the first, and as anti syphilitic treatment was here also of no benefit, it was decided to try the effect of radium emanation This was introduced through a perforation in the palate , four tubes of 12 millicuries activity, in steel needles wrapped in tea lead, were used, and as a result great improvement took place at the end of two weeks A second dose of 20 millicuries was then given, and this was followed by rapid healing A small recurrence on the inner wall of the left nose was similarly treated, and the patient left hospital apparently cured StClair Thomson[5] states that he has observed two similar cases, one male and one female.

These cases, then, represent a type of granuloma which, though simple in that no organisms or histological abnormalities were found, were nevertheless definitely malignant in their course Woods sums up the cases as follows " Until we understand what is meant by a cell taking on malignant action we cannot doubt that what happens to one kind of cell may happen to another, and if we can have a malignant epithelioma why not malignant granuloma?

I do not find any further reference to this class of tumour until 1925, when McArthur of Melbourne published an almost similar case Here again tertiary syphilis, despite a negative Wassermann, would not be denied as a diagnosis, and once again the disease refused to be affected by the most energetic anti syphilitic treatment McArthur, who grasped the similarity of his case to those reported by Woods, employed radium (in what form he does not state) as a therapeutic measure ; as there was, however, no apparent effect, three full doses of *x* ray therapy were given Improvement followed, the necrotic areas came away, healing took place, and there was no return of the disease one year later Here again no organism could be isolated ; granulation tissue formed the principal mass of the growth, and the author considered the case to be one of malignant granuloma

I find no further reference to this variety until the year 1929, when Kraur[8] published notes of three cases which, in my opinion, might be included in this group His communication was a provisional account of the results of morphological examination of a peculiar and hitherto undescribed lesion of the nose, mouth, and pharynx Details of three cases are given, all of which occurred in men They differed somewhat from the cases reported by Sir Robert Woods, by starting in the soft tissues—two in the anterior nares and one in the soft palate

In each case the disease showed the same tendency to spread, but without definite tumour formation Eventually the nasal cavities, alveoli, and palate were infiltrated, and from the description given these cases appear to have resembled very closely malignant granulomata As a result of histological examination the author believed that, certainly in two of his cases, he was dealing with an independent specific process of a chronic inflammatory nature but of unknown aetiology In the third case he considered that he may have been dealing with a granuloma with sarcomatous changes Because of the destructive effect in parts of the described granulomata, attributable to the presence of gangrene, he suggests that the clinical picture might be described as " granuloma gangrenescens " The particular treatment adopted is not described, but one patient died from secondary haemorrhage five and a half months after the onset of the disease, the other two from cachexia

The last and most recent case I have found in the literature is reported by Dr Geo B Wood[9] He terms it " a case of mutilating granuloma of the nose and face with fatal ending " The patient was a female aged 32 and the disease began with soreness and swelling of the tip of the nose, accompanied by rather profuse watery discharge On examination the septum was found perforated, and there was extensive crusting and swelling of the floor of the nose The condition suggested tertiary syphilis and, in spite of a negative Wassermann and negative therapeutic results, a provisional diagnosis of a breaking down gumma was made, and active anti syphilitic treatment was given This had no effect and the disease made steady progress, involving the cheeks on both sides, until finally, at the time of her death, practically all the structures between her eyes and lower jaw had become involved She died from cachexia, having lived for about twelve months from the time she first came under observation Very full and careful bacteriological and histological examinations were made by several pathologists, and as a result no more definite name could be given to the growth than that of granuloma of a malignant type There is no mention of either radium or *x* ray therapy having been employed

I have dwelt in some detail with these cases there are very few on record, and it would seem that recognition must be given to a tumour of unknown aetiology, due to no visible organism, made up of granulation tissue, and malignant in its behaviour It would be interesting to know if any similar growths have been described in other regions of the body

CARCINOMA AND SARCOMA

Though, strictly speaking, carcinoma and sarcoma do not belong to the granuloma group, they must always be thought of when the question of diagnosis arises Primary carcinoma is rare, while sarcoma is not so uncommon Carcinoma when present is usually a squamous-celled epithelioma, and may occur at the junction of skin and mucous membrane, but is also met with in any part of the nasal fossae Sarcomata are usually of the round or spindle celled variety , " of eighty tumours of the septum tabulated by Arslan,[10] twenty nine were cases of sarcoma and eleven carcinoma "

GRANULOMA OF SPECIFIC INFLAMMATORY ORIGIN

There still remain for discussion granulomata due to a specific inflammatory condition This group will include (1) Syphilis (2) Tuberculosis (3) Glanders (4) Leprosy (5) Actinomycosis (6) Rhino-scleroma

The syphilitic granuloma or gumma is too well known to require description Suffice it to say that when occurring in the nose, it is most frequently seen on the septum, where it may produce large perforations of either the cartilaginous or bony portions

Nasal tuberculosis is an extremely rare condition and is usually secondary The tuberculous tumour varies from small nodules the size of a pin's head to those as large

as a pea. The histology resembles that of the tuberculous lesions in other situations; only identification of the tubercle bacillus in either the growth or discharge can definitely decide the nature of the disease. In connexion with tuberculomata may be mentioned the allied disease lupus. When primary, the septum is the favoured situation, but the turbinals also are almost invariably attacked as the disease advances. The progress of lupus in the nasal cavities resembles that in other regions, and as a rule the diagnosis is not difficult.

Glanders, leprosy, actinomycosis, and rhinoscleroma are only mentioned to complete the list of possible granulomata. They are to be thought of in the absence of the more common form of tumours. Leprosy and rhinoscleroma are so rare in this country as to be scarcely worth considering, while glanders and actinomycosis can be only definitely established by the finding of their specific organisms.

In this communication I have only touched on most of these diseases. To deal with the nasal granulomata from all points of view would absorb more time than is at my disposal. If, however, I have succeeded in stating a sufficient number of facts to promote a discussion, then my object will have been more than achieved.

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Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

THE ORIGIN OF PULMONARY TUBERCULOSIS: MUTATION OF TUBERCLE BACILLI

It has always been impossible to explain why the overwhelming amount of primary pulmonary tuberculosis should occur in human beings between the ages of 16 and 26. I venture to suggest that living bovine bacilli swallowed by an infant with milk are conveyed to the mesenteric glands, where they lie dormant in a new environment—namely, human tissues—and are conveyed to the lungs before or after mutation into living active human tubercle bacilli. In the *British Medical Journal* of February 27th, 1932, I suggested the possibility of mutation of the tubercle bacillus from the bovine type to human type after a long residence in human tissues, and quoted the case of a farmer who had recovered from tuberculous glands in the neck when 5 years old. Forty years after, he developed pulmonary tuberculosis; the tubercle bacilli found in the lung were human, while those found in the neck glands were presumably bovine. It is extremely difficult to obtain proof of this theory, as the interval between the primary infection and the later one is usually fifteen to twenty years. I have had the good fortune to observe the following case, which I reported to the Royal Society of Medicine fully in February, 1914, and which, by the courtesy of Dr. Dunderdale, I have recently examined in detail. Briefly, the case is as follows:

Twenty years ago a girl developed tuberculous adenitis of both sides of the neck, with tuberculous small joints of hands, and rheumatism. The glands suppurated and were drained, as it was impossible to excise them. At this time there was no evidence of pulmonary disease. She was treated with injections of tuberculin, and made a good recovery. Examinations of the pus and glands and animal inoculations showed definite *bovine* tubercle bacilli. Eighteen years after the glands in the neck had subsided, she developed pulmonary tuberculosis in both lungs. Cultural and animal examinations show the bacilli to be human in type.

This is the first opportunity I have had of producing some scientific proof of my belief that pulmonary tuberculosis may be caused by the ingestion of bovine bacilli in infancy: that these bacilli are conveyed to the lungs, where they lie dormant for many years, and in a new environment undergo mutation into human bacilli and so cause pulmonary tuberculosis. If this is correct, it would account to some extent for the great mass of cases of this type occurring between the ages of 16 and 26.

Sir William Whitla, in his brilliant Cavendish Lecture in 1908, has shown that living tubercle bacilli introduced into the stomach of an animal are to be found in four hours in the lung substance, and that the bacilli can pass rapidly through the intact intestinal mucosa without producing any local lesions. Calmette has shown that if the oesophagus is ligatured carbon particles cannot reach the lung after inhalation. These facts go a long way to prove the theory which I have always held—namely, that pulmonary tuberculosis is not caused by inhalation, but by the ingestion of bacilli, which penetrate the intestine and are conveyed by the thoracic duct to the lung. The importance of this cannot be exaggerated when we come to consider the prophylaxis of pulmonary and other forms of tuberculosis. By a blind adherence to the inhalation theory the part played by the intestine has been minimized, whilst an infected milk supply has been permitted to inflict its ravages on the human race (Whitla). The amount of tuberculosis in dairy cows in this country is alarming, and to-day about 10 per cent. of milk sold to the public contains living tubercle bacilli. If this serious state of things could be remedied by compulsory pasteurization in my opinion the whole of surgical tuberculosis would be eradicated from children, and also a fair proportion of pulmonary tuberculosis.

NATHAN RAW, C.M.G., M.D.,
Lord Chancellor's Visitor; late British Member of the International Committee on Tuberculosis.

London, W.

PLACENTA PRAEVIA WITH TWIN PREGNANCY AND ADHERENT PLACENTA

Placenta praevia with a twin pregnancy must certainly be rare, and as the treatment presents certain points of special interest no further excuse is necessary for placing the following case on record.

A multipara, aged 27, was admitted to the hospital at 12.55 a.m. on May 19th, 1933. She was twenty-eight weeks pregnant, and bleeding from the uterus had commenced about midday on May 18th, twelve hours prior to admission. When I saw her the skin was blanched, lips a pale pink, pulse of moderate volume and rate below 100, and the temperature subnormal. She was still bleeding, and abdominal palpation gave no definite information. On vaginal examination the cervix admitted two fingers, and the internal os appeared to be completely covered by placenta.

A general anaesthetic was given at 1.15 a.m., and I performed bipolar version (after Braxton Hicks's method) and brought down a leg. It was unnecessary to go through the placenta, since at one point it was possible to reach and rupture the membranes without disturbing the placenta overlying the internal os. The procedure took two minutes, and little manipulation was necessary, as a knee was soon palpated with the finger-tips on rupture of the membranes. The patient

was made comfortable and left. At 6.20 a.m. she delivered herself of a living female child (weight 3 lb.). Abdominal palpation, however, showed that a second foetus still remained in the uterus. The cord was carefully ligatured, and vaginal examination revealed a second intact amniotic sac. Bleeding recommenced, and conditions now almost approximated to those existing before the birth of the first foetus. The second sac was at once ruptured, and a foot presented. This was drawn down to the vulva and the labour allowed to proceed. At 7.40 a.m. a second living female child was born (weight 2 lb. 13 oz.). Attempts to express the placenta proved fruitless, and at 8.5 a.m., as a steady trickle of blood from the uterus persisted, I introduced a hand into the uterus and peeled off a strongly adherent placenta from the uterine wall. Intramuscular pituitrin and submammary saline were then administered. No further haemorrhage occurred. The placenta was that of a uniovular twin, with one chorionic bag and two amniotic sacs partially fused along the wall of contact. It had been abnormally adherent over about one-third of its superficial area. The patient passed through an uneventful puerperium, and was discharged in normal health on May 31st. Both infants died within twenty-four hours of birth.

I would draw attention to the following points.

1. Abdominal examination gives little help in the diagnosis of placenta praevia. Often the palpation increases the haemorrhage and serves no other purpose.

2. If, after delivery, a second foetus is found to be present in the uterus immediate vaginal examination should be performed, the second amniotic sac (if intact) should be ruptured, and a leg brought down. If the second foetus presents by the vertex, bipolar version should be performed. An anaesthetic should not be required.

3. An adherent placenta can often be safely removed from the uterus without anaesthetizing the patient. I have performed this operation many times, and have never noted the shock one is taught to expect.

4. Many cases thought to be central placenta praevia can be treated by Braxton Hicks's version without perforating the placenta with the fingers. A few moments' search will nearly always reveal a point where the membranes can be approached and ruptured without tearing through the placenta.

In fifty cases of placenta praevia in the last seven years I have had only one case in which it was necessary to tear through placental substance.

I am indebted to the medical superintendent for permission to publish this case.

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British Medical Association

CLINICAL AND SCIENTIFIC PROCEEDINGS

BORDER COUNTIES BRANCH

Aetiology of Appendicitis

At the annual meeting of the Border Counties Branch, on June 8th, Dr. C. M. Craig delivered his presidential address, taking as his subject the aetiology of appendicitis.

Dr. Craig said that fifteen years of general practice, associated with surgical work at the Westmorland County Hospital, had led him to think that the incidence of appendicitis was much less than might be inferred from experience of hospital practice; that the disease was relatively more common in rural communities; and that there was some connexion between its incidence and tonsillitis. He had therefore examined the records of insured patients for three years, during which time his average panel had been made up of 1,200 urban and 300 rural patients. In this period he had operated for appendicitis on thirteen urban and nine rural patients; the age distribution was similar in both groups, more than half the cases occurring between the ages of 16 and 25. The average incidence of appendicitis as determined by operation, was 5.2 per 1,000. The disease was nearly three times more frequent in the rural than in the town population. With a view to discovering whether there was any clinical significance to be attached to the histological similarity between the appendix and the tonsils and adenoids, a questionary was sent out to 151 patients operated on for appendicitis during the three years asking whether there had been any operations also for infection of the tonsils and adenoids. Replies were received from 128 patients, twenty of these in the affirmative, indicating the astonishing figure of 156 per 1,000 as the incidence of tonsillar infection requiring operation in cases of appendicitis. The proportion of children in the county operated on for tonsillar troubles was found to be 101 per 1,000. An inquiry was also sent to 500 patients, mostly children, operated upon in hospital for tonsillar infection. Replies were received from 428, and no fewer than twenty one of these had had an operation also for appendicitis either before or after the tonsils had been removed. This indicated an incidence of appendicitis among tonsil cases of forty-nine per 1,000—a very large increase over the average of 5.2 per 1,000 of the insured population. There seemed thus to be definite evidence of a very close connexion between appendicitis and tonsillitis. Aschoff had expressed the view that the exciting agents in the former disease were such normal inhabitants of the healthy bowel as streptococci, pneumococci, and *B. coli*. There was a bacterial flora in the appendix with a peculiar distribution, and this, when its virulence was increased for some reason, resulted in invasion consequent on mechanical causes such as kinks in the organ. As regards factors which might raise the virulence of such bacteria, the figures of the Registrar-General in his report on occupational mortality in 1921, and the mortality statistics for 1925, would seem to implicate an excess of food. Farmers, who had a low general mortality figure, had a very high incidence rate of appendicitis and diabetes; their labourers showed a mortality rate lower by half in this respect, the presumption being that they ate less food. The mortality figures for appendicitis remained fairly constant during the war years, although the diabetes figures declined, due apparently to shortage of food. This apparent discrepancy was probably explained by the fact that the reduction only affected diabetes in patients over the age of 45, whereas the great majority of cases of appendicitis occurred in persons under that age. Moreover, many hundred thousands of young men were on active service at a time when they were most liable to appendicitis. Two facts emerged from an investigation of the dietary of the farming community—namely, that a vast quantity of food was habitually consumed, and that an enormous excess of carbohydrate was ingested. In the body the carbohydrate was ultimately resolved into carbonic acid and water, and to maintain a constant hydrogen-ion concentration of the blood a heavy drain must fall on its alkali reserve. Experiments undertaken by Dr. Loveday at the Manchester Royal Infirmary in twenty-five cases of acute appendicitis had revealed a very marked diminution in the alkali reserve of the blood. While admitting that further research was required before the clinical significance of the diminution could be defined, Dr. Craig was disposed to regard it tentatively as significant of the influence of a food factor in the causation of appendicitis. He remarked that the influence of diet on bacterial infection had been repeatedly demonstrated. For example, urologists had maintained that the best way of treating a *B. coli* infection of the kidney was to give a diet containing up to 240 grams of fat, at the same time reducing the carbohydrate intake

to 20 grams a day. The resulting acidosis had a beneficial effect, far surpassing that obtained by synthetic remedies. Dr. Craig cited a case of radium burn ulcer and cystitis which had cleared up dramatically on such dietary treatment. He concluded, therefore, that it was possible to trace the life history of appendicitis on the following lines. It began in early childhood with some metabolic disturbance, which lowered the resistance to infection. As a result, the tonsils and adenoids became infected. The metabolic disturbance might originate from faulty diet or infective agencies, especially nasal catarrh. From the throat the micro-organisms passed to the bowel, eventually infecting the appendix, although a long dormant period might follow before the development of an acute attack. Aschoff had found histological evidence of disease in 33 per cent. of apparently normal appendices. The attack of appendicitis in adults was precipitated by some metabolic disturbance brought about by faulty diet, excess of carbohydrate being the main factor. Reference was made in this connexion to Dr. Paton's article on carbohydrate ingestion in the *Journal* of April 29th, 1933, wherein it was shown that an increased consumption of sugar might be associated with chronic catarrhal and exudative processes. It would appear, therefore, that the incidence of appendicitis would not decrease until the carbohydrate consumption of the community was diminished and a prophylactic was found for the common cold. These considerations might have a further application, dietetic errors leading to a diminished alkali reserve being, for example, a deciding factor in rendering some women prone to puerperal sepsis. Dr. Craig thought that the future progress of medicine might prove to lie in the hands of the biochemist.

Reports of Societies

INTERNATIONAL PAEDIATRIC CONGRESS

The third International Paediatric Congress, held in London on July 20th to 22nd, under the presidency of Dr. G. F. STILL, was attended by nearly 400 delegates from thirty countries. The inaugural ceremony took place in the Great Hall of the British Medical Association House, when T.R.H. the Duke and Duchess of York attended to open the congress and to welcome the members. H.R.H. THE DUKE OF YORK, in expressing his pleasure at greeting so large a gathering, especially in view of the fact that this was the first international meeting in this country of physicians dealing with the diseases of childhood, made a few well-chosen remarks, stressing the importance of paediatrics, particularly on the preventive side. "Speaking as a father," he voiced the gratitude of parents far and wide who would benefit from the deliberations of the congress. The PRESIDENT and Sir THOMAS BARLOW expressed the thanks of the members to the Duke and Duchess for their interest in the congress, and after the departure of the Royal visitors the scientific proceedings began.

ALLERGY

The first main discussion took place on the subject of the nature of allergy and its role in diseases of children. Dr. ARNOLD RICH (Baltimore) spoke from the pathological side, and brought forward the results of experiments which demonstrated that in bacterial allergy the individual tissue cells are hypersensitive to the bacterial antigen, and the allergic reaction is not dependent upon circulating antibody. He stressed that all recent work went to show that allergy is not essential for immunity. Experiments show that immunity can be separated from allergy, and that neither of the two primary characteristics of immunity—the prevention of spread of bacteria and their efficient destruction—is dependent upon allergic inflammation for successful operation. He further pointed out that allergy can be established without immunity, and acting alone it lowers resistance to infection. Professor F. HAMBURGER (Vienna) dealt more with the clinical aspects of allergy, basing his remarks mainly upon the study of problems of tuberculosis by means of the tuberculin reactions. Allergy could be shown to develop prior to the onset of the disease. It was continuous, but subject to the fluctuations caused by other diseases—by light, food, and other so far unknown factors; and such fluctuations might be the cause of exacerbations. In his opinion the tuberculin reaction was of great value in prognosis, and tuberculin should be used to a greater extent for prophylaxis. Dr. PEHU (Lyons), in a paper prepared jointly with Dr. P. WORINGER (Strasbourg), described the clinical aspects of the allergic states of non-bacterial origin, enumerating the various substances capable of sensitizing the human organism under the main headings of inhalation, food, drug, and contact allergens. He proceeded to give a description of the clinical manifestations of the non-bacterial allergic states in the various systems affected, pointing out how the different allergens tended to affect different systems at various periods of life. He thought that there were three possible causes of non-bacterial allergy: sensitization after birth, sensitization *in utero*, and hereditary transmission by the germ cells, the last being of a specific nature or merely the inheritance of a predisposition. Dr. W. R. F. COLLIS (Dublin) advanced the view that the same disease syndrome could be produced by more than one organism provided that the body was in the state of allergy, and he instanced erythema nodosum in this connexion. Dr. H. ERNBERG (Stockholm) also discussed allergy in relation to erythema nodosum. Professor F. GROER (Lwow) stressed the kinetic aspects of allergy, dependent upon two main factors—the susceptibility of the body and the power to react on the part of the body. He explained how these factors could be assessed accurately in the case of a disease such as tuberculosis. Professor G. DE TONI (Bologna), Professor R. DEBRÉ (Paris); and Dr. B. RATNER (New York) also took part in the discussion.

MILK

The discussion on the second day, on the prophylaxis of milk-borne diseases, was opened by Professor A. PETTERSSON (Stockholm), who dealt especially with the problem of tuberculosis. Not only was there the universal danger of bovine tuberculosis, but in the speaker's opinion human tubercle bacilli were frequently introduced into the human body with milk. He also mentioned the risk of infection with the organisms of undulant fever in those districts where infectious abortion occurred, but children under 10 years of age fortunately appeared to be either insusceptible or very slightly susceptible. Professor G. BESSAU (Berlin) spoke of the saprophytic organisms in milk and their significance. The introduction of varieties of the colon bacillus by milk into the alimentary canal in children produced a completely different type of intestinal flora from that in the breast-fed baby, for example, and many of the digestive disturbances in the artificially fed baby could be attributed to the spread of *Bacillus coli* to the upper parts of the alimentary tract. In contrast to the adult, where the presence of the colibacilli in the bowel had no deleterious effects, young babies might develop inflammation of the whole of the intestine, small and large, from this cause. Professor G. B. ALLARIA (Turin) explained that in Italy at present there was a strong movement for the improvement of the dairy industry, and in the meanwhile it was of importance to seek an answer to the question of whether the advantages of giving raw milk as a "live" liquid, and attempting to prevent bacterial contamination, were greater than those obtained by giving a sterile milk at the expense of its vital properties. The speaker thought that the importance of the vital properties had been exaggerated, and that in the present state of the dairy industry in the majority of countries the only course was to purify the milk by some thermic process.

Professor P LEREBOULLET (Paris) brought forward a survey of the possibilities of diminishing the risks from cow's milk by a thoroughly planned hygienic scheme, by legislation, and by municipal and collective measures He summarized the position in certain countries, and, stressing especially the difficulties, concluded strongly in favour of pasteurization of milk under proper control as the ideal measure Failing a proper organization, he thought that the boiling of milk prior to consumption was the only course Dr J M HAMILL (London) gave a short review of the position in this country as regards bovine tuberculous infection in children Since, as he pointed out, even certified and tuberculin tested milk occasionally contained tubercle bacilli, there was no alternative to some treatment of the milk to destroy organisms This, he thought, was to be found in efficiently controlled pasteurization He emphatically condemned the idea that the drinking of infected milk was valuable to produce an immunity The discussion was continued by Professor F FEER (Zurich), Professor S MONRAD (Copenhagen), Professor P ROHMER (Strasbourg), Professor G FRONTALI (Padua), Dr H BOCK (Berlin), Dr W C DAVISON (U S A), Dr H P WRIGHT (Montreal), Dr J DUZAR (Pecs), Professor G MOURIQUAND (Lyons), Professor G NOEGGERATH (Freiburg), Dr W SPOLVERINI (Rome), Professor W I JUNDELL (Stockholm), and Dr G PETRANZI (Hungary)

The afternoon sessions on the first two days and the morning session on the last day were devoted to short communications given in sectional meetings On the social side the delegates were offered an excellent series of gatherings On Thursday, July 20th, the Royal College of Physicians gave a reception, at which the guests were welcomed by Lord and Lady Dawson Later in the evening Dr G F Still held a presidential reception at the Goldsmiths' Hall, where the guests were received by Lord Queenborough Academic robes were worn, and the magnificent possessions of the Goldsmiths Company were exhibited to a large gathering, marked by the wealth of colour of the gowns of the delegates On Friday, July 21st, Lord and Lady Howard de Walden gave an afternoon reception, while in the evening the dinner of the congress was held at the May Fair Hotel At this ceremony, after "The International Congress" and "The Guests" had been proposed by the chairman (Dr G F STILL), the Minister of Health (Sir HILTON YOUNG) replied on behalf of the latter 'The Chairman's Health' was proposed by Sir THOMAS BARLOW The delegates afterwards proceeded to a reception by H M Government at Lancaster House, where Sir Hilton and Lady Young welcomed the visitors

On the afternoon of the last day a clinical demonstration of patients from the London hospitals was held at the Hospital for Sick Children, Great Ormond Street, and after this a reception by Sir Gomer and Lady Berry took place at the Infants Hospital, Vincent Square The next congress will be held in Rome in 1936, under the presidency of Dr. L Spolverini

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The Russian Department in the University of Birmingham has begun to issue information about the research work medical and other, in progress in Slavonic countries The first booklet of the series deals with Czechoslovakia, and comprises notes of investigations in various branches of science in Prague, Bratislava, and Brno Mention is also made of publications that have been issued recently The second booklet relates to Poland, and has been issued with the assistance of the Ilchester Fund for the encouragement of Slavonic studies The Universities covered in this way include those at Warsaw, Cracow Lwow, Poznan, and Wilno Further additions to the series are contemplated, and it is hoped thus to co-ordinate work in some of these subjects with that of investigators in other countries who are not acquainted with the Slavonic languages The information is being collected from the professors and heads of departments in the universities of the five Slavonic countries

Reviews

DISEASES OF THE LUNGS AND TUBERCULOSIS

The fourth volume of the series on medical treatment brought out under the auspices of Professor M Loeper the occupant of the chair of therapeutics in the Medical Faculty of Paris is devoted to the treatment of diseases of the lungs[1] It is divided into two nearly equal parts the first of which, on diseases other than tuberculosis is written entirely by Professor Loeper, who deals with laryngitis cough, expectoration antiseptic methods acute diseases gangrene of the lung, and asthma There is naturally a little overlapping, for in his account of haemoptysis he gives some details of a case of a leaking aneurysm in a vomica in which adrenaline was injected directly into the bleeding area, in this connexion he quotes the recent use of pituitrin by Rist, and immediately adds La methode presente de petits risques Among the various remedies mentioned for asthma attention is drawn to the use of x rays, not only over the lungs, but also over the spleen, the benefit from the latter exposure being ascribed to the liberation from the splenic cells of substances which effect a progressive desensitization Reference is made to the use of a prophylactic vaccine or serum to protect children with measles or whooping cough from pneumococcal or streptococcal bronchopneumonia Tuberculosis of the lungs is considered in twelve articles by thirteen well known contributors, and a highly authoritative and complete account is thus presented Dr L Tanon, professor of hygiene in the Paris Faculty of Medicine, summarizes the principles of personal prophylaxis Under the heading of diet he refers to the evil influence exerted by regular and full doses of thyroid preparations taken for slimming, and recalls from Brillat Savarin's *Physiologie du Gout* the incident of the young woman who became tuberculous after drinking vinegar with this vain object Dr Turpin describes the preventive inoculation by Calmette and Guerin's permanently attenuated bovine bacillus (B C G), Professor Leon Bernard writes on sanocrysin, and Drs Negre and Boquet, after stating that tuberculin treatment has now been almost abandoned, describe that by alcoholic extracts of the tubercle bacillus Professor Emile Sergent discusses the indications for surgical intervention, and Dr E Rist contributes an admirable account of artificial pneumothorax

In his book *Les Reveils de la Tuberculose Pulmonaire chez l'Adulte*[2] Professor EMILE SERGENT reviews the recent developments in the conception of the nature of tuberculosis in a series of papers most of which have been published previously in much the same form The main subject is the relation of the clinical manifestations to the ultravirus and to the mature acid fast bacilli originally described by Koch While fully in accord with Fontes and Calmette in regard to the life cycle and pleomorphic phases of the *Mycobacterium tuberculosis hominis* Sergent joins issue with Calmette on the latter's division of (1) diseases usually acute and due to infection with the ultravirus (pre bacillary granulaemia), and (2) diseases usually chronic and due to the activities of the acid fast bacillus of Koch (bacillosis) Such a sharp distinction he considers, is not compatible with clinical experience the conditions are extremely complicated the life cycle of the micro organism continues in the tuberculous body and the ultravirus and bacillary phases vary in their

[1] *Therapeutique Medicale II Poumons et Tuberculose* Publiee sous la direction du Professeur M Loeper Paris Masson et Cie (Pp 375 illustrated 50 fr)

[2] *Les Reveils de la Tuberculose Pulmonaire chez l'Adulte (Conditions de leur Polymorphisme Evolutif Clinique)* Par Emile Sergent Paris Masson et Cie 1933 (Pp 225 27 figures 34 fr)

activities. In addition to the state of the "seed" that of the "soil" must be taken into account in considering the character of the clinical manifestations. The occurrence of active tuberculosis in adult life is to be regarded in the great majority of cases, except in the virgin soil of races not exposed to infection, as a reactivation and awakening of a focus latent from infection in early life, the so-called "cured" tubercles being in reality virulent and containing the micro-organisms. Another point on which stress is laid is that, although the old dictum "no tuberculosis without bacilli" no longer holds good, there are cases in which acid-fast bacilli are found in the blood, especially by Loewenstein's method, in which this does not signify an active infection, but only that the bacilli are in process of elimination: this may occur in the course of acute non-tuberculous diseases, and the process is, of course, different from a liberation of bacilli into the blood stream causing generalized infection. Much emphasis is laid on the importance of the lymphatic spread of tuberculosis, not only in primary infections, but in the awakening of latent tuberculosis in adult life—for example, the spread of infection from a focus in the mediastinal or cervical glands to the lungs. While a massive infection from without may cause tuberculous activity in an adult previously in an allergic state from infection in early life, Sergent believes that an endogenous reinfection from a latent tuberculous focus is more frequent.

BINOCULAR VISION AND THE TREATMENT OF SQUINT

A very great deal of interest has been taken within recent years in the subject of squint and its treatment by orthoptic exercises, partly owing to renewed research which has been done upon the question and partly because of the ingenuity shown by the makers of instruments which despite their complexity, render training much more easy and scientific than hitherto. The whole subject has been reviewed in *Binocular Vision and the Modern Treatment of Squint*,[1] by Dr. MARGARET DOBSON. The book does not pretend to discuss at length the physiology of binocular vision—it deals essentially with the clinical and practical aspects of the subject. There are, in fact, one or two small slips in such physiology as is discussed, as in the definition of corresponding points, and so on. But of practical information the book contains a very great deal, and much of it, which is presented in a most concise form, is not easy of access elsewhere.

The great importance of early treatment in cases of squint is emphasized, for from the earliest time at which the deformity is noticed something pragmatic can be done. For intensive treatment the most suitable age is from 2 to 6 years: the older the patient, the less likelihood of training being successful. The important point is stressed that, unless diplopia can be demonstrated, orthoptic training will be useless; but in suitable cases training should be carried on step by step through the establishment of simultaneous macular perception, true fusion, and stereoscopic vision. Moreover, the adequate correction of refractive errors is rightly emphasized, especially those of astigmatism, while we are glad to see stress laid upon the correction by vertical relieving prisms of the frequent complication of hyperphoria, which so often stands in the way of a correction of the horizontal deviation.

One cannot but feel, however, on reading the book that the author has to some extent been carried away by the enthusiasm and ingenuity of instrument makers. A vast quantity of apparatus is described, some of it simple and some of it complicated: the synoptoscope, the keratometer, the training stereoscope, the variable prism stereoscope, the phonoscope, the cheiroscope, the binoculoscope, the refracting unit, and so on—practically all of them based on the simple principles enunciated long ago by Javal. It is not to be thought that these instruments are useless, but we cannot think that all this multiplication of mechanical aids is necessary. Let us hope it is merely a phase in the modern development of a method of treatment which itself is essentially simple and can be simply and efficiently carried out.

[1] *Binocular Vision and the Modern Treatment of Squint.* By Margaret Dobson, M.D. London: H. Milford, Oxford University Press. 1933. (Pp. 107; 32 figures. 10s. 6d. net.)

DIPHTHERIA IMMUNIZATION

In *Diphtheria Immunization*[1] Dr. J. GREENWOOD WILSON has collected the literature recommending immunization against diphtheria which was issued to the public of Dewsbury, and the counter-propaganda by the various "anti" writers opposed to immunization in any form. The author, with the powerful support of Dr. Graham Forbes, carried on an able contest in the local press and elsewhere. Those who are familiar with the methods of controversy used by opponents of the kind will commend Dr. Wilson; medical officers of health liable to be attacked in the same manner will find value in a study of the controversy. Dr. Wilson makes the interesting suggestion that immunization should be offered through the agency of the general practitioner. We understand that a modified plan is being considered in certain areas in England: the practitioner would inject the prophylactic and a practitioner with special experience would carry out the final test. The New York campaign enlisted the aid of private practitioners, but apparently the majority of injections were made by the full-time staff. Different countries adopt different methods. Compulsory immunization, we are told, is in operation in at least some parts of the Soviet Republic, and a recent press message foreshadows a similar procedure in Germany. The spectacle of two adjoining States pursuing somewhat dissimilar political ideals but enforcing compulsory immunization gives thought to the philosophically minded.

MEMOIRS OF SIR ROBERT SIBBALD

Mr. FRANCIS PAGET HETT has done good service by issuing Sir Robert Sibbald's autobiography[2] because the edition printed in 1833 has long been difficult to obtain. The original manuscript has disappeared, though it was sold at Sotheby's to Mr. Quaritch as lately as June, 1893. Mr. Hett has therefore been obliged to use a certified copy made for the Advocates' Library in 1805, which is now in the National Library of Scotland. He has prefixed to the Life a refutation of the charge against Sir Robert of forging the *Heads of a Conversation betwixt the Famous Poet Ben Jonson and William Drummond of Hawthornden, January 1619*. This charge, which is of long standing, has reopened a pretty little literary quarrel in which Mr. C. L. Stainer and Mr. Hett are taking a part. For the present Mr. Hett seems to be winning.

Robert Sibbald (1641–1722) was a person to whom Scottish medicine owes much. He was educated at Leyden, and was one of the founders of the Edinburgh

[1] *Diphtheria Immunization.* By J. Greenwood Wilson, M.D., F.R.C.P., D.P.H. Dewsbury: Joseph Ward and Co. 1933. (Pp. 117. 2s. 6d.)

[2] *The Memoirs of Sir Robert Sibbald (1641–1722).* By Francis Paget Hett. Edited with an Introduction and a Refutation of the Charge against Sir Robert Sibbald on Forging Ben Jonson's *Conversations.* London: H. Milford. Oxford University Press. 1933. (Pp. 107; 2 figures. 10s. 6d. net.)

school of medicine, which afterwards attained a world-wide celebrity. He was instrumental in obtaining a Charter for the College of Physicians in 1681, and received the honour of knighthood as a reward. He was President of the College in 1684, and during his presidency the first Edinburgh Pharmacopoeia was compiled, although it was not published until many years later. He was, too, the first Professor of Physic in the University of Edinburgh. For the rest he was well known as an antiquary, as an historian, and as a collector of books and portraits. He held the post of Geographer Royal for Scotland. At a time when religious feeling ran high in Scotland he was suddenly converted to the Church of Rome, and almost as quickly "went no more to the Popish service, but removed to the country and took the sacrament according to the way of the Church of England and kept constantly my parish church." Many years afterwards, when Boswell had bought the memoirs from his uncle, Mrs. Thrale said she thought such details should not be published. Dr. Johnson, urged no doubt by a spirit of contradiction, replied, "Nay, it is an honest picture of human nature." During a visit to London in 1686 Sibbald was admitted a Fellow of the Royal College of Physicians. He gives an interesting account of the ceremony, and says that in the course of it he swore not to procure abortion, not to give poison, and not to speak of poisonous things in promiscuous company.

THEORETICAL BIOLOGY

Modern Theories of Development,[6] by LUDWIG VON BERTALANFFY, translated by J. H. Woodger, is an essay in theoretical biology. The author sees what he describes as a crisis in the science, rich as it is in observational and experimental data he holds it to be poor in general conceptions, and that from this poverty it can only be rescued by theoretical clarification. Woodger, in his well-known work *Biological Principles*, has expressed much the same view, and has shown how wanting in logical sequence are some of the hypothetical views put forward by biologists who have attempted generalization. The basis of von Bertalanffy's view is that life in all its manifestations has the form of a system, an organismal system, of which neither the mechanistic nor the vitalistic theory has been able to give a complete account. This is a view towards the construction of which many have contributed. The task for biology is to give an account of the essential features which belong to organization, and to regard this as a problem for scientific study rather than for metaphysical speculation. Not that the author considers that biology has no need for the use of hypothesis, but for its use as constructed and employed by science, not as constructed and employed by rationalist philosophy.

The data and theories of development are discussed here from the "systemic" point of view, and it is sought to show what this point of view has to offer as a contribution towards the interpretation of this vital activity. In one chapter an interesting attempt is made to reduce certain of the data to strict logistic expression in the manner favoured by Woodger. What advantage would accrue to biology by such a method is a question worth pursuit. The translation presents to the English reader an outline of the German contribution to the attempt, which is engaging the attention of all biological schools, to correlate the science with others and restate its own fundamental problems. Dr. Woodger has adapted as well as translated the book, and has laid all students of biology under obligation by the manner in which he has done his share.

[6] *Modern Theories of Development*. By Ludwig von Bertalanffy. Translated and adapted by J. H. Woodger. London: H. Milford, Oxford University Press. 1933. (Pp. vii + 264. 8s. 6d. net.)

Notes on Books

The seven original articles in the May instalment of the *Annals of Medical History*[7] fall into two groups, those of ancient and those of quite modern times, with an intermediate one on the sweating sickness in the fifteenth and sixteenth centuries by Dr. M. B. Shaw of Baltimore, who identifies it with "morbus cardiacus" described by Celsus, Galen, Oribasius and others, and refers to its name "the posting sickness" in the 1528 epidemic on account of its rapid spread. There are two articles on Arabian medicine: the memoirs of Usāmah, a warrior, poet, and man of letters with a practical interest in medicine, contain, as Drs. D. C. Munro and Haagensen show by numerous extracts, many curious cases, such as the cure of ascites by a would-be suicide who slashed his abdomen with a razor. In his account of Arabian medicine at Salerno and Montpellier Dr. Lufti M. Sa'di of Detroit argues that Constantine the African, also called the "Miracle man from the Orient," was really an Arab. Dr. Kate C. Hurd-Mead continues her introduction to the history of women in medicine in a well-illustrated account of the medical women of Rome and Italy, among whom Cleopatra, Aspasia, and Lais are included. Of the three modern historical articles the first is that on Dr. Willard Parker (1800–84), whose name is familiar in the Willard Parker Hospital for Infectious Diseases in New York; Dr. Ruhrah, who reproduces part of his hero's diary and quotes the following appreciation: "He could not be called a learned man, but he was what some learned men never become—a wise man." Dr. M. B. Wesson's account of G. E. Goodfellow (1855–1910), frontier surgeon and soldier, describes him as a pioneer in plastic surgery, complete prostatectomy (1891), and the open-air treatment of tuberculosis. Dr. W. F. von Oettinger traces the earliest suggestion of the use of cocaine for local anaesthesia to Moréno y Maiz, surgeon-in-chief of the Peruvian Army, who in 1868 published a monograph on the subject. Among the book reviews is one of the *Book of Manchester*, a memento of the British Medical Association's meeting in 1929.

After ten reprints of *Symptom Diagnosis*,[8] by BARTON and YATER, the first edition of which was published in 1927, a second edition has appeared, and the popularity of this book of reference is now obvious. The general arrangement of the volume is unaltered, but various details have been touched up and certain new insertions have been made in order to bring the information up to date. Once the method of using it has been grasped it is easy to turn up the pages which deal with any particular symptom, whether regional or general, and by following the cross-references to gain a survey of the clinical possibilities.

The second series of papers on Infectious Diseases[9] by Professor P. NOBÉCOURT contains twenty lectures reprinted from various journals. Six of these deal with measles, one with whooping-cough, two with pneumococcal infections, two with streptococcal septicaemia, one with erysipelas during the first three months of life, one with infective purpura and agranulocytosis, two with meningococcal meningitis and its treatment, one with *B. influenzae* meningitis in infancy, three with poliomyelitis, and one with quartan malaria following transfusion of blood. The aspects of measles which the author discusses are the statistics and clinical features of the disease during the first year of life, acute pulmonary oedema and capillary bronchitis as complications, the association of measles with tuberculosis, the difficulties of diagnosis between simple and tuberculous broncho-pneumonia, and the association of measles with scarlet

[7] *Annals of Medical History*. Vol. v, No. 3, May, 1933. Edited by Francis R. Packard, M.D. New York: Paul B. Hoeber, Inc.; London: Baillière, Tindall and Cox. (Pp. 205–314; illustrated. Subscription for volume of six numbers, $3 or 12s. 6d.)

[8] *Symptom Diagnosis*. By W. M. Barton, A.M., M.D., F.A.C.P. and W. M. Yater, A.B., M.D., M.S., F.A.C.P. Second edition. New York and London: D. Appleton and Co. 1933. (Pp. xii + 851. 45s. net.)

[9] *Clinique médicale des Infants. Maladies infectieuses*. Deuxième série. Par Professeur P. Nobécourt. Paris: Masson et Cie. 1933. (Pp. xv + 430; 139 figures. 60 fr.)

fever. The lectures on poliomyelitis are devoted to treatment by Pettit's serum, the aetiology, symptomatology, and treatment of the paraplegic form, and the meningeal forms of the disease. An excellent index, unfortunately still an unusual feature in French textbooks, is appended.

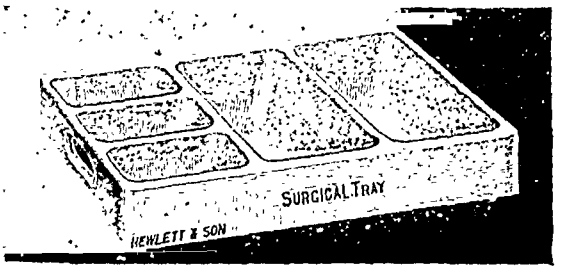
We have received from the International Union for the Scientific Investigation of Population Problems a bibliography of works dealing with differential fertility edited by Mr. ELDON MOORE[10] This purports to cover works in English from 1798 to 1931, those in French from 1838 to 1929, those in German from 1919 to 1930. The work includes more than 1,100 references, and should prove of value to students, although the plan of compilation is open to criticism. Thus, only the first edition of Malthus's famous "Essay" is entered, although the later editions are those of most importance to the statistical worker, while little heed is paid to the controversial writings (such as Sadler's once famous book) of Malthus's epoch. The French bibliography is largely confined to Belgian work. Summaries (in German) are appended to the German titles.

[10] *A Bibliography of Differential Fertility.* Edinburgh: Commission II of the International Union for the Scientific Investigation of Population Problems. 1933. (Pp. 97. 2s. net.)

Preparations and Appliances

A SURGICAL INSTRUMENT TRAY

Messrs. C. J. Hewlett and Son, Ltd. (35-42, Charlotte Street, E.C.2), have put on the market the instrument tray illustrated herewith, which possesses several advantages over the ordinary type. It is made of best white porcelain—size 16 by 12 by 2½ inches—with rounded corners and sloping sides, and is thus easily washed and sterilized. Moulded partitions divide the tray into five compartments, so that instruments may be kept

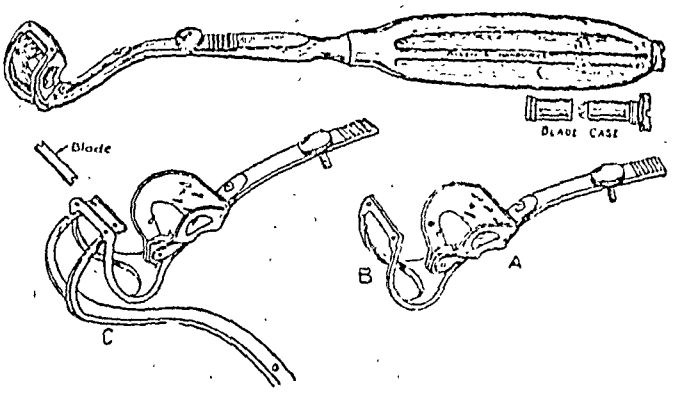


separate, the smaller divisions being particularly useful for surgical needles. In the event of the disinfecting solution being cloudy the instruments required can easily be found, as the sloping sides cause them to roll to the centre of the compartment, thus obviating the need for groping about the dish. Further, the separate compartments enable the tray to be used for both wet and dry dressings. The sunk handles allow of easy and safe carrying. The price of the tray is 21s.

IMPROVED ADENOTOME WITH REMOVABLE BLADES

Mr. O. POPPER, F.R.C.S.Ed. (Johannesburg), writes: Early in 1931 I described a simplified technique for the removal of adenoids (*Journal*, January 17th, 1931, p. 92). A point I stressed as a matter of supreme importance was the sharpness of the blade. It is gratifying to know that this view has been upheld by my colleagues, in that so great a number of them have acquired the adenotome I have designed with removable blades; the latter are made from ordinary commercial razor blades (wafer type), being spring steel of correct temper, and having and retaining a superb cutting edge. The demand for this type of instrument prompted me to redesign it along more robust lines than those of the experimental model published in my paper. This was done very soon after my paper appeared. The new model replaced the older one over two years ago, although it is published now for the first time. In the original model the small blade was secured by three flanges, which, owing to their delicate structure, were liable to damage, and also made the instrument very expensive.

The new method of blade fixation is illustrated. Flanges and all projecting parts are abandoned. It is simpler, and holds the blade with absolute security. The blade is fixed by means of a metal loop A B. To this is attached a specially designed cage (shown open) for the reception of the adenoids when they have been severed; also a screw which is permanently attached, so that it cannot be lost. The blade is placed on its bedplate in the adenotome (diagram C). Two studs hold its recessed ends in position. These studs fit into corresponding holes of the loop A B. The loop A B is now passed over C (as shown in the diagram) and fixed by means of the screw. The cage is then closed. The instrument is now ready for use. The studs will be in their respective holes,



and the blade is firmly pressed against the bedplate by the scissors-like action of A B against C. As the elasticity of A B is utilized to exert pressure it is wise to pull back the cage before removing loop A B when inserting a new blade: the fine workmanship on this portion might otherwise become damaged.

In making these instruments Messrs. Allen and Hanburys have, as usual, carried out a piece of high-class precision workmanship. This does not call for any special comment, except that as I specified stainless steel throughout (which it is difficult to work to limits of error necessary where small parts must fit with exactness) I should like to acknowledge my indebtedness to them; especially to Mr. Baldock and his technical staff. Other leading British instrument makers have followed suit. This instrument is not protected in any way by patents or registration, and certain cheaper models from the Continent have come to my notice. They have faithfully followed the design, but I have no hesitation in recommending the British article on account of the better workmanship, metal—the home model is "stainless"—and robustness.

This device was fitted originally only to the adenotome of my own design (illustrated), for which I have claimed that it simplifies the operation, because the edge of the blade is in line with the axis of the instrument and thus converts the operation from an indirect into a direct cutting manœuvre. No knack is required. In response to request, however, other adenotomes, especially that of Sir StClair Thomson, are available with my removable blade-fitting. With care I find that one blade will do for about twenty cases. It should be carefully dried after each session, and a drop of oil should be run along the edge. New blades are cheap, and obtainable anywhere. Any metal worker will cut down the ordinary blades to the required size.

The cartridge, which contains spare blades, and which fits into the handle, should be removed before the adenotome is sterilized. This will avoid the spare blades becoming rusty.

CRYSTALLINE INSULIN

Insulin is now generally regarded as a definite chemical substance of constant physiological activity. After being obtained in a crystalline form by Abel it was shown by different workers that specimens of crystalline insulin prepared by different methods invariably have the same degree of physiological activity. For some years past Messrs. Burroughs Wellcome and Co. have supplied crystalline insulin to research workers.

CHARKAOLIN

Messrs Allen and Hanburys Ltd. prepare a combination of highly activated vegetable charcoal with "osmo" kaolin under the name "charkaolin" for the treatment of intestinal infections characterized by abnormal fermentation and the formation of toxins. It is prepared in two forms—as granules and as tablets. Both disintegrate rapidly in water and form a fine suspension, which is quite easy to take and is tasteless, though charkaolin in bulk has a slightly sweet flavour.

British Medical Journal

SATURDAY, JULY 29th, 1933

THE PRESIDENT'S ADDRESS

The address given at Dublin by the new President of the British Medical Association happily combines the feelings of the patriotic Irishman, the harvest of experience of a teacher in a great medical school, and a glowing tribute to the work which the Association has done in and for Ireland, with a reminder of certain aspects of the evolution of the Association in which Ireland took a leading part. Ireland is probably less known to many on this side of St. George's Channel than are some of the Continental countries, and it is certain that some of the remarks of the President will come as a surprise even to many of those who think themselves acquainted with the Association's history. Professor Moorhead brings out in a striking manner the success which has always attended the meetings in Ireland. So long ago as 1867, when the membership was only 3,000, no fewer than 400 attended the Dublin meeting under the presidency of the illustrious Stokes; twelve years later at Cork the attendance reached 600; while at Belfast in 1909 it was nearly 1,500. These are remarkable figures which testify to the drawing capacity of Ireland by reason of its age-long reputation for hospitality, and the fame of its medical schools with their succession of outstanding figures in the world of medicine. Much has happened since those early days, but nothing to impair these attractions, which, together with the efforts of an enthusiastic and hard-working executive and the cordial co-operation of the Government and civic authorities, should ensure that this week's proceedings will be worthy of Ireland's past B.M.A. record.

The President's account of Ireland's influence on the development of the Association is admirably relevant and extremely interesting. As he points out, the Association in its earliest years was naturally much occupied by problems of organization and medical politics, but Dublin in 1867 inaugurated a new departure which has left an indelible impression on the work of the Association, for it was then that separate Scientific Sections were established. Dublin this year, with its sixteen Sections, each presided over by an authority in his subject, may well feel proud that it was the pioneer in a development which is now the outstanding feature of our Annual Meetings. There may be something short of unanimity of enthusiasm as to the second great change in medical affairs which began in the same year. The President says that that meeting gave an enormous stimulus to public health services. The doctor, who is essentially and necessarily an individualist, is sometimes inclined to wonder whether all this growth of publicly provided medicine is not weakening the sense of personal responsibility, and whether the "revolution" may not have gone too far. But the triumphs of State medicine are writ large on modern history, and for better or worse the State continues to take an ever-increasing responsibility for the health of the community. The practitioner is no longer isolated. He is a member of a team in which he is performing certainly a "new," though there may be doubts as to whether it is a "more effective," function. Are we to consider Professor Moorhead an optimist or the reverse when he looks forward to the time "when the State will compel everybody to obey" the simple laws of health? But here we touch a tempting field of controversy, by no means wholely medical, and this is not the moment to follow it up.

The President's remarks on the medical curriculum are most timely, coming as they do when the Association has entered on an examination of the whole subject. His approving quotation of Locke's dictum that the teacher's duty is "to give the student a relish for knowledge and a scientific outlook" will seem to many to go to the root of the matter. He acknowledges the difficulties confronting the General Medical Council, and agrees that "to instil a broad knowledge of principle" while endeavouring to satisfy teachers who become more and more specialized is a task which demands not only a full knowledge of the requirements of the student but the exercise of wise statesmanship. And, after all, a great deal depends on the teacher, as the President clearly recognizes in a passage which will strike a responsive chord in the heart of everyone who has experienced the inspiration that springs from the real educator—the man who "knows what to eliminate" and can "indicate the paths of research and of inquiry which lie open to those who are eager." This part of the address deserves the respect and attention due to one who speaks not only with the responsibility of a great office, but with the knowledge born of long experience as a teacher.

The tribute to the Association for its work for the Irish dispensary doctor is generous and, we think, well deserved. There are still, happily, among us many who remember the report of Surgeon General Evatt in 1903, in which he described in scathing language a state of things which seemed almost inconceivable even to those well acquainted with the demoralizing and sordid atmosphere of the worst kind of contract practice on this side of the Channel. When we read the President's testimony to the greatly improved conditions in the dispensary system of the Irish Free State the Association may well share his satisfaction and rejoice that it had so great a part in exposing the evils of the old system and in preparing the way for the new.

Professor Moorhead reminds us that in many respects medical administration in Ireland differs from that of Great Britain, but he sees clearly that there is much ground that we all share in common. He believes in the essential unity of the medical profession in these islands and in its need for one strong organization in whose trials, experience, and benefits we can all share.

His significant references to the Irish Medical Association and its danger of overlapping with the British Medical Association call attention to a problem whose solution is overdue. The situation in the Free State has many points of resemblance to that which existed in South Africa in 1925, and a solution which satisfied both the ardent South African nationalist and the convinced believer in the Imperial idea embodied in the B.M.A. may well prove a precedent for action in Ireland, where the existence of two friendly but nevertheless competing medical bodies has manifest disadvantages both to the profession and to the public.

The address leaves the reader with a feeling of admiration for certain qualities in the President's fellow countrymen, the first of which seems more in character than the second. The audacity of an invitation to hold an Annual Meeting in Ireland when the total Irish membership was *one* was truly admirable! Not less so was the patient endurance of the company which attended the annual dinner at Cork at which there were twelve toasts and twenty-eight speeches—and it must be remembered that the President of that year was nearly 80 years of age, and he, at least, had to sit out the whole proceedings! The Association, as this address shows, has reason to be grateful to Ireland. That feeling would be best expressed and best reciprocated if, as a result of the present meeting and the eloquent address of the President, the B.M.A. should become more and more "a symbol of the union of hearts between members of the medical profession in Great Britain and Ireland, a union which in spite of political changes and developments has never since been broken and remains steadfast to-day."

PHYSIOLOGY OF THE SPLEEN

The function of the spleen is in many respects still a problem, although great advances have been made since the days when this organ was considered as the seat of hypochondria or of hysteria, or when it was removed to improve the stamina of runners. Since its scientific investigation has begun many functions have been attributed to it, among which we may select as outstanding, blood formation, haemolysis, bone marrow influence, influence on the gastro-intestinal tract, and anti-infective action. On the questions of the haemolytic function of the spleen, and its relation to the metabolism of iron and to gastric and pancreatic secretion, opinion is still very divided. In certain conditions—for example, paroxysmal haemoglobinuria and intravascular haemolysis after transfusion—the spleen becomes enlarged, but this is due to its acting as a kind of scavenger for the products of haemolysis, the latter having been brought about elsewhere—for example, in the peripheral tissues. In this sense the spleen may be regarded as a secondary haemolytic organ. The most striking advances in our knowledge have been made by Barcroft and his pupils, who have demonstrated that this organ acts as a reservoir for blood corpuscles, these being liberated into the general circulation as the need for them arises. The sudden release of these stored cells in certain circumstances can produce an acute polycythaemia. The importance of this function seems to vary in different species; in man it appears to be of relatively little importance. E. Lauda,[1] in a review of this matter, considers that other organs may also be concerned with the storage of red cells. Exercise in the case of dogs, cats, rats, horses, etc., leads to an acute polycythaemia, which is accompanied by a demonstrable diminution in splenic volume. This also occurs in acute asphyxia, after haemorrhage, at diminished atmospheric pressures, after the injection of adrenaline, ephedrine, or pituitrin, and during psychical disturbances. This polycythaemia still occurs, but to a very greatly diminished extent, in dogs without spleens, which indicates that other depots must exist. Lauda records that the increase in red blood cells may represent 7 to 40 per cent. of the initial count—a striking effect for an organ of such relatively small dimensions as a dog's spleen. In the horse, increases up to 60 per cent. are on record. Experiments on the contracting exteriorized spleen (Barcroft's technique) have shown that the blood leaving the organ may consist of 90 per cent. cells and only 10 per cent. fluid.

Attention is drawn by Lauda to the fact that in cases of infection there is, in general, a splenomegalic reaction, when the infective agent circulates in the blood, whilst when the infective agent remains localized this reaction does not occur. This supports the view that the spleen exerts a general mechanism of defence for the organism as a whole. As to whether the spleen produces immune bodies no settled opinion has been reached. The fact that dogs without spleens, when injected with anthrax, give a much greater mortality rate than normal dogs was shown strikingly by Burdach. More striking, however, is the fact that rats, carrying the organism *Bartonella muris rati* without any apparent symptoms if the spleen is intact, soon develop a fatal anaemia if the spleen is removed. Whether this phenomenon is due to the development of antibodies or to high splenic phagocytosis is uncertain, but Lauda and his co-workers conclude that it is due rather to some kind of internal secretion and perhaps also organ specific substances, which act as protectors against disease processes. That some peculiar relation exists between the spleen and the bone marrow is shown by the appearance of "Jolly body red cells" after splenectomy. It can be shown in a parabiosis experiment between a normal animal and one that has had its spleen removed that no Jolly bodies appear in the latter's blood, so that a humoral mechanism seems probable. Efforts to show a correlation between the spleen and the endocrine system cannot be said to have been very successful. Recently, results have been obtained by T. Miwa[2] which, it is claimed, demonstrate an antagonism between the "splenic hormone" and that of the parathyroids—that is, that extracts of spleen lower serum calcium and that splenectomy raises it.

[1] Lauda: *Wien. klin. Woch.*, April 21st, 1933.
[2] Keijo: *Journ. of Med.*, September 30th, 1932.

It must be confessed that these results are to be considered with some reserve.

Thus the present position of our knowledge of the physiology of the spleen resolves itself into three well-established departments: (1) storage of red blood corpuscles; (2) destruction of red cells, either directly by haemolysis or by removing cell remains (reticulo-endothelial function); (3) some protective action against certain infections. All other alleged functions must await more rigorous experimental demonstration.

"DUBLIN, 1933"



Irish hospitality has long been a proverb, and in the *Book of Dublin*, produced by the Irish Tourist Association and presented in a charming "B.M.A." cover to every member attending the Annual Meeting, the country is described as "The Ireland of Welcomes." But, even so, the warmth and the volume of the hospitality afforded took most visitors by surprise. Any lingering misgiving that anyone may have felt as to the quality of the reception in wait for the British Medical Association disappeared as an absurdity the moment he set foot on Eden Quay. To make comparisons between Annual Meetings is invidious, because the organizers of each have to wrestle with established circumstances and make the best of them, but it may be said with confidence that never have the innumerable details of organization received more careful attention. The long labours of more than a dozen local committees, and especially of the two honorary general secretaries, Dr. J. P. Shanley and Professor J. W. Bigger, have had their reward in a meeting which it is already safe to say will long be remembered as one of the most successful in the recent history of the Association. To organize a meeting after the Centenary of last year in London—especially a meeting which demanded from the very large proportion of the visitors a sea crossing—needed great care if it was not to be rather an anticlimax; but the 101st Annual Meeting is proving no unworthy successor of the 100th. This result is due very largely to the hosts, first of all the Leinster Branch and the members of the local medical profession, the civic, ecclesiastical, and university authorities, prominent persons in Dublin's social life, commercial firms, clubs and other associations, and the general body of Dublin citizens.

The 1933 Annual Meeting has been particularly fortunate in its locations. The sessions of the Representative Body were held in the splendid premises of the Royal Dublin Society—a society founded two hundred years ago for the promotion of husbandry and the useful arts and sciences. This place of meeting had the disadvantage of being a couple of miles from the centre of the city, but for roominess and comfort the Representative Body has seldom done its business under better conditions. The large hall—really the library of the society, with attractive volumes on its shelves at which few representatives had time even to glance—was also excellent from the point of view of acoustics, and although at the demand of some back-benchers microphone and amplifiers were installed at a late stage of the meeting, very few speakers were badly heard even without this aid. The grounds outside, where the official photograph was taken, are said to be those in which that typical Irish carnival, Donnybrook Fair, used to be held, but they are now famous as the scene of the spectacular Dublin Horse Show, the greatest show of its kind in the world. The reception room is situated at the Mansion House, the official residence of the Lord Mayor, a building of handsome design and the scene of many historic events, including the signing of the truce of 1921 bringing the conflict between the British and Irish forces to an end. Abundant room was provided here for members who wished to rest or write, as well as for the necessary purposes of registration and the securing of tickets. In a large circular hall leading from the reception room the Annual Exhibition of surgical instruments and appliances, drugs, and foods is housed. The exhibition, as could only be expected, is rather smaller than in other years; but some sixty firms have brought together a representative collection of wares. The scientific meetings are divided between Trinity College and University College, places expressive of Dublin's culture, where ample space has been found for sixteen sections.

The representatives stuck closely to business; indeed, at one period of the meeting they were far behind on their schedule, and there was dark talk of evening sittings and the forfeiture of entertainments. But other members as well as all the ladies had the choice of many pleasant occupations in the shape of sight-seeing tours and afternoon parties. Dublin is not a very easy city to find one's way about, but the path of the stranger was made straight by the Automobile Association and the Royal Irish Automobile Club, as well as by the ever-courteous police. But it is a city environed by picturesque suburbs and beautiful resorts, as well as having the lure of historic shrines, and arrangements were made whereby as much as possible should be visited. There were special excursions to beauty spots in the counties of Wicklow and Kildare. The Irish skies, though often grey, were kind, and, on the Sunday, brilliant. On the Saturday afternoon about 600 guests attended a garden party at Runnymede, by the kind invitation of Mr. and Mrs. Henry Meade, and among those present were the Vice-President of the Executive Council and other Ministers, several members of the diplomatic corps in Dublin and consular representatives, the Lord Mayor and Lady Mayoress, and the retiring and in-coming Presidents of the Association, Lord Dawson and Professor Moorhead. A very enjoyable time was spent in the picturesque grounds. On Saturday evening a reception and dance was given by Professor Moorhead and the Local Executive Committee at Lord Iveagh's house, St. Stephen's Green, where the ladies' club is situated—a beautiful building with a succession of lawns in parkland at the rear. The President and Mrs. Moorhead spent an hour and a half in receiving a constant stream of guests, after which a concert was given, followed by dancing. The programme for the remaining days of the meeting bids

fair to tire out the members, but nothing, apparently, exhausts the hospitality of this fascinating city.

The Press has joined in the welcome to the Association, and the Dublin newspapers have given adequate and well-balanced accounts of the proceedings. A special illustrated supplement to the *Irish Times* of July 25th, headed "Health and Hygiene," was circulated in advance to many members of the Representative Body. To this Professor Moorhead contributed an introductory article on progress in medicine and surgery since the Association last met in Dublin in 1887. The *Irish Independent*, after pointing out the high place of the Irish capital in the history of medicine and surgery, remarks that public opinion in Ireland is beginning to be educated in matters of health and hygiene. The public health system, it states, has been almost reorganized of recent years, notably by the appointment of county medical officers of health, the setting up of school medical services, and the advancement of preventive medicine generally. "The conference of the British Medical Association will quicken public interest in these matters."

On the afternoon of Sunday, July 23rd, many leading members of the Association were entertained at a garden party given in their honour by the Minister for Local Government and Health and Mrs. Seán O'Kelly at their home in Anglesea Road, and were introduced to the President of the Executive Council, Mr. de Valera, and members of his Cabinet and their wives. The guests on this agreeable social occasion included also the Papal Nuncio and other diplomatic representatives.

By noon on Wednesday, July 26th, nearly 1,200 members had registered at the Reception Room in Dublin.

HEREDITARY BLINDNESS

The Prevention of Blindness Committee of the Union of Counties Association for the Blind has issued a report on hereditary blindness.[1] It is pointed out that a large number of investigations into hereditary blindness, made over a long period of years, have been published in scientific journals, both in this country and abroad. Some of this data obtained has been investigated and analysed by genetic experts, and reports have been issued by the Galton Eugenics Laboratory. But as the data are being obtained from too selected a field it cannot be estimated with any degree of accuracy to what extent blindness, as a whole, could be prevented by the limitation of parenthood in individual cases. It is known that a man or woman suffering from retinitis pigmentosa may have become the progenitor of some forty cases of blindness in subsequent generations, but it is not known what proportion of sufferers marry with no ill results to their descendants. The committee puts forward a form for use in investigating cases of blindness with a view to obtaining useful pedigrees. There are diseases of the eye which result in defective vision and others which cause blindness. Taking both groups it may be held by the eugenist: (*a*) That any man or woman who has had aniridia, congenital cataract, glioma of the retina, hereditary opacity of the cornea or ectopia lentis, microphthalmos, or retinitis pigmentosa, and of whom either parent has been similarly affected, is likely to transmit the defect and should abstain from parenthood. (*b*) That any normal parents who have more than one child affected with one of the above-mentioned diseases, or with buphthalmos or total colour-blindness should have no more children, and such children as they have should abstain from parenthood—whether they themselves are affected or not. Even if the parenthood of such children does not lead at once to the manifest reproduction of the disease, it inevitably adds to the latent defect in the population, which becomes manifest when two people carrying such latent defect marry and have children. (*c*) That if, in all stocks in which Leber's disease (hereditary optic atrophy) has occurred more than once, the sisters of affected males were to abstain from parenthood, the disease would be almost exterminated, except for sporadic cases of no genetic significance. In general, there is no risk to the descendants of men who are suffering from Leber's disease; the instances in which they transmit the disease are very rare, but should be borne in mind, and if one such case in a family has occurred all other affected members of that stock should be regarded as liable to transmit. The report includes a bibliography.

[1] Prevention of Blindness Committee, 66, Victoria Street, S.W.1.

AN EIGHTEENTH CENTURY OBSTETRICIAN

On July 21st, at Holme Hall, Bakewell, there was exhibited a tablet provided by British obstetricians to commemorate the bicentenary of the birth of Thomas Denman, M.D. This tablet (the suggestion for it came from Dr. Miles Phillips) is to be placed in the parish church. In an address on Denman's life and work Dr. Herbert Spencer said that by his fiftieth year he was the most distinguished and esteemed of British obstetricians, and maintained his pre-eminence till his death at the age of 82. Thomas Denman, son of an apothecary, was born at Bakewell on June 27th, 1733; his son Thomas (afterwards Lord Denman of Dovedale) became Lord Chief Justice of England, and his twin daughters both married distinguished physicians, Sir Richard Croft and Dr. Matthew Baillie. In an autobiographical memoir written in 1779, which appeared posthumously in the seventh edition of his *Introduction to Midwifery* (1832), with some additions by Matthew Baillie, he divided his life into three periods—his home life till the age of 21; his nine years' service as a naval surgeon; and his life as an obstetrician from the age of 30 till his death. His father having died in 1752, Thomas assisted his brother Joseph in the practice of an apothecary to which he had succeeded, and two years later became a student at St. George's Hospital. The money he had brought with him soon ran out, and needing employment for his immediate support, he passed as surgeon's mate to a ship "of sixth rate," and served on ships engaged in the wars with France and Spain, a period full of adventure and not free from danger. During the earlier part of his naval career he was occasionally in financial straits, and even when his share of prize-money put him in funds he was apt to spend it during shore leave. Gradually, however, he learned to be frugal and to steady his naturally impetuous disposition. Returning to Bakewell in 1763,

he determined to apply himself to the study of anatomy and midwifery. After a short unsuccessful attempt to make a practice at Winchester he came to London, obtained the M.D. degree of Aberdeen, and commenced practice, at first in rooms and then in a small house off Haymarket. Thenceforward his practice and position as an obstetrician rapidly increased, and in 1769 he was appointed man-midwife to the Middlesex Hospital, the first British general hospital to have lying-in wards. By giving lectures on midwifery he got upwards of £300 a year, and in 1770 he was earning £650 a year and had removed to a large house in Queen Street, Golden Square. Denman later moved to Old Burlington Street, and finally to Mount Street. He was the first to obtain the diploma of licentiate in midwifery instituted by the Royal College of Physicians in 1783. The death of William Hunter that year raised him at once into the highest practice, and placed him at the head of his branch of the profession. Some of his writings gained wide popularity, and were translated into foreign languages. Besides an admirable historical account of the work of ancient and contemporary writers on obstetrics, he made many original observations, and introduced new methods of treatment which have stood the test of time. His advocacy of patience and gentleness in the management of normal labour was as valuable then as now. Denman's literary reputation rests on his *Aphorisms*, which maintained its popularity for more than fifty years, and on his *Introduction to the Practice of Midwifery*, the quarto edition of which, Dr. Spencer said, is one of the most splendid works on the subject in the English language, whether regarded from the point of view of format, paper, printing, and illustrations, the learning and knowledge it exhibits, or the ordered, lucid, and judicial manner in which that knowledge is presented.

POLIOMYELITIS VIRUS

In an interesting paper in the *Journal of Laboratory and Clinical Medicine* for March Eberson and Mossmann report the results of attempts to cultivate the virus of poliomyelitis *in vitro*. With the use of a culture medium consisting of sheep's brain suspended in a peptone-free veal broth, Berkefeld N filtrates from the nervous tissue of monkeys dead of experimental poliomyelitis were incubated under anaerobic conditions. Media so inoculated developed within a week a turbidity which was found to be due to the presence of a particulate "organism" varying in diameter from 0.05 to 0.2 of a micron, distributed in pairs, small clusters, and in densely packed masses. These bodies, believed to be bacteria, stained best with Wright's stain, and were weakly Gram-positive. Subcultures reproduced the same picture, and up to the present twenty successive subplants have been successfully achieved. Inoculation into monkeys of "organisms" obtained from washed and unwashed cultures caused the animals to develop the symptoms and pathological effects of experimental poliomyelitis. Berkefeld N filtrates from a suspension of the nervous tissue of such animals were capable of reproducing the disease in normal monkeys, and from these was again obtained a virus with identical properties of filterability and pathogenicity, which was again capable of cultivation in the special medium. Successful experiments were carried out with culture of the third to the thirteenth subplants, representing a dilution of the original material cultivated of 2×10^{-7} and 2×10^{-27} respectively. Control experiments with heated cultures gave negative results, as did cultures originally inoculated with herpes and vaccinia virus. Serum from monkeys developing poliomyelitis as a result of inoculation with the cultures was found to possess neutralizing power against active virus suspensions *in vitro*, and monkeys recovering from the culture-induced disease (three in number) were found to be immune to direct inoculation of virus into the brain. Inoculation of rabbits, guinea-pigs, and mice was uniformly unsuccessful. From these interesting and well-controlled experiments the authors draw two distinct conclusions. First, that they have been successful in cultivating the virus of poliomyelitis in twenty serial subplants by the use of their special culture medium, and that these cultures are capable of reproducing the disease clinically, pathologically, and serologically in monkeys under conditions which exclude the effective "carry over" of the original virus. On the evidence presented their claim appears to be well founded, and confirmation of their results will be awaited with general interest, for if it is forthcoming a notable advance in our knowledge of the disease will have been achieved. In the second place the authors contend that the bodies seen in the cultures, which they believe to be bacteria, constitute one phase in the life-cycle of the virus, and that they are derived from, and give rise to, a more minute phase capable of passing the Berkefeld N filter. This claim for a complex life-cycle for the filterable viruses has been made before, but has never yet been substantiated. The bodies described are highly reminiscent of the globoid bodies of Flexner and Lewis, and the possibility of their being produced from the culture medium under the influence of the virus, assuming this to be present, must be disposed of before they can be accepted as the aetiological agent of poliomyelitis.

MEDICAL RESEARCH COUNCIL

The Medical Research Council has appointed Professor Edward Mellanby, M.D., F.R.C.P., F.R.S., to be its Secretary, in succession to the late Sir Walter Morley Fletcher. Professor Mellanby, who has held the chair of pharmacology in the University of Sheffield since 1920, is at present a member of the Council. He will not assume full duty as Secretary until next January. The Secretary of the Medical Research Council is *ex officio* Secretary of the Committee of Privy Council for Medical Research.

IN HONOUR OF DR. STILL

We are pleased to publish this week, at page 210, an influentially signed letter announcing a proposal to recognize the life-work of "a great physician and lover of children," Dr. G. F. Still, who recently presided over the International Paediatric Congress in London and is about to retire from hospital work. Not least among the many who desire to take part in honouring Dr Still will be the Editorial Committee of the *Archives of Disease in Childhood*, who meet at B.M.A. House under his chairmanship.

HEALTH OF LONDON SCHOOL CHILDREN

THE STANDARD MAINTAINED

The report of the School Medical Officer of the London County Council,[1] Sir Frederick Menzies, must necessarily command attention since there is no other statutory authority in the world that can compare with London in the vastness of the work to be done within its gates and the greatness of the opportunity. This year the report has been reduced in size for the sake of economy, but there is no diminution in the interest of the matter contained therein.

NUTRITION

Many important criteria of the health and well-being of London school children display the best figures attained since the inauguration of school medical inspection some twenty-five years ago. For example, the percentages of children with serious dental decay, adenoids and enlarged tonsils, running ears, hardness of hearing, and lack of personal cleanliness are all the lowest ever recorded. Having regard to the difficult economic conditions under which so many families are living, special attention has been paid to problems of nutrition. It is remarkable that the nutrition of the children has been so well maintained, the number recorded as subnormal having increased since 1931 by only 1 per 1,000, and, except for 1930 and 1931, being the smallest yet found. When the 1932 figures for nutrition for all the children subjected to routine inspection at the statutory age groups are analysed, it is found that the nutritional condition of the 8-year-old and 12-year-old children is better than it was in 1931, and the small increase in subnormal nutrition which is shown when the figures are aggregated is due entirely to entrants. This would appear to be associated with the recent epidemic of measles, a disease which notoriously leaves children in a debilitated condition.

Important tests of the value of school medical work are the condition of the leavers and the percentage of defects, found at any age, which are adequately treated. Speaking generally, the figures relating to these matters are quite satisfactory. The leavers are in better health than their predecessors of a few years ago, and of the children in whom defects were discovered at routine inspections 81.6 per cent. were undergoing treatment or were discharged before the end of the year as no longer requiring treatment.

INFECTIOUS DISEASES

There is little of special moment recorded in connexion with the incidence of infectious diseases in schools. Diphtheria has been less prevalent in the last two than in other recent years, but scarlet fever increased from the low level which occurred in 1931. The usual biennial epidemic of measles occurred in the winter of 1931–2, and small-pox is still troublesome, though the tendency is definitely towards decline and the disease is still of a very mild type. One disturbing feature is the continued increase in the number of cases of scabies. No fewer than 1,912 cases were seen by the school doctors in 1932, whereas in 1931 the number was 1,098. This continued increase, which was nearly doubled during the year, has been apparent for some years: it is thought possible that the close examination of skin lesions associated with the prevalence of small-pox has brought these cases to light.

There has been a considerable extension during the year of the scheme for the immunization against diphtheria of the children in the residential schools. The control of infectious diseases in these schools and in children's homes of varying size, each with a susceptible population of all ages from 3 to 16, presents many problems which can only be solved by experience. The public assistance department has co-operated with the education officer's department in obtaining the necessary parental consents, and to facilitate this side of the work a form was drawn up for signature by parents or guardians together with an explanatory leaflet. Altogether there were nearly 5,000 children to be dealt with in this way. For the most part the Schick test toxin and prophylactic used in connexion with the immunization have been supplied from the Council's laboratories at Belmont. During the year the tests for susceptibility to diphtheria have numbered 2,574. Of these, 1,767 proved negative and 807, or 31 per cent., positive; 622 were immunized. In the twelve schools and homes in which active immunization was introduced during the year twenty-five cases of diphtheria occurred. In two the parents refused consent to immunization, in twenty consents had not been obtained, while in two the immunization had not been completed when the children contracted the disease. During the same period twenty-seven children were found to be harbouring germs associated with diphtheria; these were transferred to special hospitals, but they did not develop diphtheria. Active immunization does not, of course, affect the "carrier" condition.

The scheme for the control of rheumatism makes unabated progress. In this section of the work the most important development was the provision of a considerable number of additional beds in consequence of the enlargement of Queen Mary's Hospital for Children at Carshalton.

MYOPIA

An account is given of the special classes for the myopic child, established in connexion with certain of the central schools. The classes are mixed, with a nominal roll of twenty-two each, allowing an average attendance of twenty. The rooms usually are on an upper floor, and are light, airy, and furnished with special appliances for the short-sighted. The children attend the ordinary central school classes, then they return to their own classroom, where they have supervision by a special teacher for periods of rest from close work, and for "home work" under sight-saving conditions. Certain children are allowed by the school oculist to read books with clear print for short and stated periods, and the use of a "Bulletin" typewriter by touch methods. Where the myopia is high and progressive, or where fundus changes are marked, the children are kept strictly to myopic regulations, and are read to by others. In teaching various devices such as French gramophone records are used, and full advantage is taken of the metal and woodwork, laundry, and cookery centres attached to the school. At these centres modification to suit the myopes is made in work such as drawing and measuring, the children's interests are diverted from book work, and much valuable training is given. Four children were successful at the London Chamber of Commerce examination, gaining distinctions. By arrangement with the examining bodies, all public examinations of myopes both at the secondary and the central schools are taken under sight-saving conditions. Three of these particular children have left school, one to be a commercial traveller, another to study pharmacy, and a third to be a buyer with a soft goods firm. Others have engaged in equally suitable work, but one became a clerk, though his work now appears to be changed. Records of fifteen myopes who have been in these classes for two years or more show that the mean average increase of the myopia has been 0.214 dioptre per eye per year. In another group of fifteen over a like period the mean average increase was 0.195 per eye per year.

Investigations into the state of the children's play sand pits in the parks and nursery schools showed that disinfection was desirable. One pound of bleaching powder is added to twenty tons of sand. Once a month the pits are moistened with water and a solution of bleaching powder; they are then well watered and covered for at least three hours. The sand in the infants' sand trays is similarly treated. Much information is given on the various facts of school medical inspection and treatment. There are ninety treatment centres. Eight centres are for the remedial treatment of stammering children, who attend twice a week for fifty minutes' treatment each time.

Reference is made in the report to the medical staff engaged in the school work, and there is an appreciative note of the work of Mr. Macleod Yearsley, who for

[1] *Annual Report of the London County Council*, 1932. Vol. iii (Part II), *Public Health* (Report for the Year 1932 of the School Medical Officer). London: P. S. King and Son, Ltd. (Pp. 73. 1s. 6d.)

twenty-five years was the consulting aural surgeon, and under whose supervision the hard-at-hearing classes, which have proved such a boon, were established.

In conclusion Sir Frederick Menzies writes:

"It is greatly to be desired that it will not be found necessary to curtail in any way essential features of this fundamental work, whose aim is to secure such a foundation of health for the industrial population on leaving school as will stand the nation in good stead in the long struggle ahead in the economic sphere."

Scotland

Edinburgh University Graduation

At the summer graduation of Edinburgh University, held on July 19th, when Principal Sir Thomas Holland presided, the degrees of M.B., Ch.B. were conferred on some 130 graduands, and the M.D. degree upon twenty-one candidates. It was announced that the Cameron Prize in practical therapeutics had been awarded to Professor George F. Dick of the University of Chicago and Gladys Henry Dick, in recognition of their discoveries concerning the aetiology, prophylaxis, and treatment of scarlet fever. After the graduation ceremony the promotor, Professor P. S. Lelean, addressed the graduates upon the importance of physical training. Speaking of the development of athletics at Edinburgh, he said that the University Court first subsidized undergraduate athletics in 1896, when it contributed one-fifth of the £10,000 raised by public subscription to buy the University its first sports ground at Craiglockhart. They looked forward to the day when the various hostels would each have their teams in every branch of sport. Every student might now have an initial medical examination without fee, and, with returning prosperity, they hoped for a contributory insurance scheme which would entitle all undergraduates to any necessary medical and hospital services. Referring to the education of the child, Professor Lelean said that nervous irritability in children was due to overwork at school. He would suggest a six-hour day with no evening work for school children; they should be treated in regard to work in the same way as miners or mature industrialists.

Health of Falkirk

The annual report for 1932 of Dr. J. T. Prangnell, medical officer of health for Falkirk, makes special reference to the effect of unemployment and reduced income upon the health of the citizens. The family income in many cases did not reach 5s. per head per week, which was inadequate to feed, clothe, and house the people. The municipality increased the grants of milk to necessitous mothers and children through the maternity and child welfare clinic, but this could not go far in removing the bad effects of prolonged poverty. The infantile mortality rate rose by over 50 per cent. as compared with 1931. The child welfare centre at Falkirk had become largely a dispensary for milk and malt food, virol, and cod-liver oil emulsion. The report advises more liberal use of milk, fruit, vegetables, oatmeal, cheese, eggs, butter, peas, beans, lentils, and brown bread, with diminution of meat, and issues a warning against the too frequent use of expensive preserved foods, cakes, and pastry.

Glasgow Dental Hospital

At the annual meeting of the Glasgow Dental Hospital Lord Provost A. B. Swan, who presided, emphasized the need of the hospital for £25,000 to complete the payment for the new building. He suggested that some special effort should be made to clear off this amount in one year; he believed that such an effort was possible even in these times of depression. Dr. J. Forbes Webster, dean of the hospital, said that the number of patients was steadily increasing, and also the number of students. There was, however, ample accommodation for more, and it was hoped that with the new hospital and its modern equipment Glasgow would become an important dental centre. The report showed that during the past year 57,492 dental operations had been performed, and that there had been 65,202 attendances by patients.

England and Wales

Middlesex Hospital: Gift for X-Ray Department

Following an inspection of the progress of building operations at the Middlesex Hospital on July 19th, Prince Arthur of Connaught, chairman of the hospital, delivered an address to all workmen employed on the reconstruction scheme. In the course of his remarks, which emphasized the need for further financial support, His Royal Highness announced that Mr. W. H. Collins, chairman of the Cerebos Salt Company, had made the hospital a gift of £25,000 for the opening up of the ground floor of the new east wing and for the establishment and equipment there of a new *x*-ray diagnosis department. The tentative plans, which will await final decision until the new physician-in-charge is appointed to the staff, aim at two "gastro-intestinal rooms," a room for heavy *x*-ray work, another for fracture cases, and others for examination of the chest and nasal accessory sinuses, for urological investigation and operations, and for dental work. Accommodation is also planned for a library, medical officers' room, waiting space, sisters' room, bureau, etc. In view of the growing importance of, and essential difference between, *x*-ray therapy and *x*-ray diagnosis, it is felt that the undertaking which Mr. Collins's gift has made possible will enable the study of diagnosis to develop in future along its own lines, and will place on a new footing of efficiency both the taking of photographs and their interpretation. Prince Arthur of Connaught, in the course of his address, extended hearty thanks to the workmen for all they had done, and warned them that unless in the next few weeks the great efforts which were being made by the friends of the hospital were successful, this might be "good-bye." He hoped that Mr. Collins's gift, which was so timely, would be an inspiration to others to help with the work. Finally, he thanked the men for the care they had taken to carry out the work with as little disturbance and discomfort as possible for patients and medical staff.

Pathological and Cancer Research in Leeds

The annual report of the department of pathology and bacteriology of the University of Leeds has been issued by Professors M. J. Stewart and J. W. McLeod, together with an abstract report on experimental pathology and cancer research by Professor R. D. Passey. The routine work of the department has continued to increase on the whole, although there was a sharp drop in the number of specimens examined in connexion with the Venereal Diseases Regulations. The investigation of industrial pulmonary diseases is being extended, the lungs from some fifty cases having been examined histologically and chemically. There was discovered in each of four haematite miners an extreme degree of pulmonary fibrosis, partly diffuse and in part nodular; this was associated

with the presence of large quantities of haematite dust, and a total silica content in the most grossly diseased parts higher than that found in many cases of ordinary silicosis. Another important fact established was the occurrence in two Yorkshire coal miners and in two other miners from other parts of the country of a diffuse fibrotic lesion of the lungs, in conjunction with a total silica content in the diseased parts of no less than 4.16 of the dry weight. As an adjunct to this work a histological study is being made of apical scarring of the lungs, with a view to determining to what extent obsolescent or healed tuberculous scars may simulate silicotic lesions. A method recently introduced in America by van Slyke and his colleagues for the determination of the "rate of urea clearance" (as a procedure for the clinical estimation of the efficiency of renal function) is being studied, with students as subjects. The results obtained so far have confirmed the original statements, and the original and modified methods are being compared with each other and with the hitherto routine renal efficiency test. As regards experimental liver disease, it has been demonstrated that an accumulation of an excess of iron in the tissues does not lead to haemachromatosis. Work has continued on the relative importance of different cultural types of the diphtheria bacillus, an extensive correlation of information regarding a possible relation between clinical severity and bacteriological type being in progress, thanks to the co-operation of workers in Hull and in Glasgow. Although there appears to be wide variation in the different bacterial types in these three centres, the correlation between the clinical and bacteriological findings is very close in all.

Child Guidance Clinics

A report has been made to the London County Council by its Education Committee on the child guidance clinic at Canonbury Place, together with some estimate of the work done in a similar respect by the Jewish Health Organization (East London Clinic) and by the clinic at the Maudsley Hospital. At Canonbury Place 476 children were accepted during 1932, and of those referred for full service, as distinct from special or for merely diagnostic service, more than half were adjusted, and almost a quarter partly adjusted. The phrase "partly adjusted" means that, though seemingly normal, some latent instability persisted, and might cause recurrence of difficulties at a later date. At the East London Clinic the number of children referred during 1932 was 177, most of them for nervousness, backwardness, misbehaviour at home or at school, enuresis, and faults of temper. Of these, fifty-five were satisfactorily adjusted, and nine partly adjusted. At the Maudsley Hospital Clinic the number of new cases dealt with during 1932 was 382, of which 294 were of children of school age, and in addition 268 cases which had previously attended were seen, making a total of 650 cases treated during the year. Of the 242 cases discharged, 114 were improved, and fifty-six partly adjusted. It is considered by the Education Committee that these clinics are doing useful work, and that they should continue to be recognized as school clinics under the section of the Education Act, 1921, which places the duty upon local authorities of providing medical inspection and treatment for children in elementary schools. The committee has had under consideration the question of similar recognition of child guidance clinics conducted at the West End Hospital for Nervous Diseases and at the Institute of Medical Psychology, and these bodies have been informed that the county council will be willing to consider favourably the question of official recognition at the end of one year if they submit details of the work undertaken and the results obtained.

CORRESPONDENCE

Portrait of Dr. G. F. Still

SIR,—In 1899 Dr. Still was appointed to the honorary staff of King's College Hospital. Up to that time no physician for diseases of children exclusively had ever been appointed at any of the teaching hospitals in London or, indeed, elsewhere. A children's ward had been in existence, but it had been under the care of the gynaecologist or the most junior member of the staff, who was required to hold it until he was promoted to the care of adults.

Although there were children's hospitals in London, including Great Ormond Street, where Dr. Still has been physician, King's College Hospital was the first with a medical school to establish a special department for diseases of children. The example has been followed by many hospitals with medical schools. The recent White House Report on children in hospitals shows the extent to which the importance of the subject is now appreciated in the United States. To those who have not been able to come into contact with the inspiring enthusiasm of Dr. Still's personal devotion to the welfare of children his published works are available.

The impending retirement of Dr. Still from hospital work has seemed to some of his friends to be a suitable opportunity for some recognition of his pioneer work. We believe that there are many who would desire to do honour to him as a great physician and lover of children. We invite subscriptions for a presentation portrait of him. Mr. Gerald Kelly, R.A., has generously consented to give the picture provided that a sum of not less than £500 is subscribed for the endowment, with Dr. Still's approval, of a "Dr. Still" cot at King's College Hospital. Subscriptions may be addressed to the Treasurer of the Dr. Still Portrait Fund, King's College Hospital, S.E.5. A list of donors (but not amounts) will be presented to Dr. Still with the portrait.—We are, etc.,

BEATTY,
Chairman of King's College Hospital.
BLANESBURGH,
Chairman of the Delegacy of King's College.
CHARLTON BRISCOE,
Senior Physician to King's College Hospital.
J. F. CAMERON,
Master of Gonville and Caius College, Cambridge.
J. A. DRAKE,
Dean of the Medical School of King's College Hospital.
CHARLES A. FIFE,
President of the American Paediatric Society.
A. DINGWALL FORDYCE,
President of the British Paediatric Association.
WILLIAM FRY,
Chairman of Dr. Barnardo's Homes.
W. GILLIATT,
Chairman of the Medical Board of King's College Hospital.
W. R. HALLIDAY,
Principal of King's College.
ESTHER HAMBLEDEN.
THOMAS HOLLAND,
Vice-Chancellor and Principal of Edinburgh University.
SPENCER LEESON,
Head Master of Merchant Taylors' School.
V. WARREN LOW,
President of the Royal Society of Medicine.
MACMILLAN,
Chairman of Great Ormond St. Children's Hospital.
FREDERICK F. TISDALL,
President of the Canadian Society for the Study of Diseases of Children.
FRANK WHITBREAD,
Treasurer of Guy's Hospital.

London, July 18th.

Assessment of Nutritional State of Individuals

SIR,—Considerable public anxiety exists as to whether the present economic depression has or has not exerted a deleterious effect upon the nutritional condition of the families of unemployed and low-paid workers. Attention has been particularly directed to the nutritional state of children, as it has (erroneously) been assumed that serious lowering of the standard of living of a family will first show itself in a deterioration of the physical condition of its younger members. Practical experience among families whose purchasing power has been reduced by unemployment shows that the self-sacrificing attitude of the majority of parents is of such a high order that it is they themselves, and in particular the mother, who suffer first from under-nourishment, and it is only when conditions become exceedingly straitened that the foodstuffs of the younger children are curtailed.

The Minister of Health, summarizing reports from school and child welfare medical officers, has been able to state that malnutrition and its ill effects have not manifested themselves throughout the country to the extent that had been feared. Further, the report of the Save the Children Fund, recently published, does not disclose that serious malnutrition is prevalent, though the opinion is expressed that there is reason to fear the approach of serious risk of the ill-effects of malnutrition. A large number of school and child welfare medical officers report no increase of malnutrition among children they have examined. Some of these officers compare favourably the present nutritional condition of children with that of pre-war children. These statements express no opinion as to whether the nutritional state of the pre-war children was satisfactory or otherwise.

It is a pertinent criticism of the lack of interest which has, until recently, characterized our attitude towards nutrition that there exists to-day no generally accepted, standardized, or satisfactory method of assessing the nutritional state of individuals. Numerous formulae, combining in various ways the age, height, and weight of children, have been used for the purpose of determining the nutritional condition; but no single one has been generally accepted as satisfactory, and, further, there exists considerable doubt as to the possibility of assessing with any degree of accuracy the true nutritional condition of any given individual by such means. "Normal" height and "normal" weight can exist contemporaneously with such deficiencies in the nutritional state as, for instance, active rickets. It is open to question whether, in the absence of an accepted standard for the anthropometrical or clinical determination of nutritional states, comparison of the findings of any one observer with those of another is justified.

There exists in a large proportion of children unmistakable clinical evidence of past malnutrition. The presence of dental decay and minor bony rachitic phenomena is direct evidence that at some time the nutrition of the child has been unsatisfactory. Though the prime deficiency in the case of rickets is that of vitamin D, such deficiency, in actual practice, never occurs as an isolated phenomenon. A diet deficient in vitamin D is, in addition, usually deficient in other constituents—proteins, fats, minerals, and other vitamins. The establishment of a standard method of assessing the state of nutrition of children and adults is a matter of urgency. Though the difficulties of laying down a standard are great, an attempt should be made to do so. Without such a standard it is impossible to obtain a true picture of the state of nutrition of the population or of any section of it.—I am, etc.,

G. C. M. M'GONIGLE, M.D.,
D.Hy., B.S., D.P.H.

Stockton-on-Tees, July 21st.

Paying Patients in Voluntary Hospitals

SIR,—Dr. Fothergill's letter in your issue of July 22nd does not justify his summary of the report of the King's Fund Pay Beds Committee. It shows that he had used the words "moderate means," in place of the words "small means" used in the paragraph which he now quotes in his support. He said, and repeats, that the report recommended that "accommodation in voluntary hospitals should be placed at the disposal of those of 'moderate means' on the same conditions as the 'sick poor,' no payment for medical treatment being allowed." The difference is one of substance. For the paragraph which he quotes was the conclusion of an argument that the principle of providing accommodation at a cost to voluntary funds should *not* apply to those of "moderate means" generally, though it could legitimately be applied, on a limited scale, to the marginal section with "small means." The report certainly recommended payment for medical services only if cost of maintenance was paid. But for those of "moderate means" it also recommended that no accommodation at all should be provided at a cost to voluntary funds. And it recommended also that as many as possible should be enabled by insurance to pay both full cost and medical fees.

On the other point of substantial difference, Dr. Fothergill said that the report recommended that hospital committees should lay down "certain rules or limitations" as to the medical practitioners who should be allowed to attend the patients. We showed that the recommendation of the report was that, on this subject, each hospital committee should decide for itself whether or not it should lay down any limitations at all.

Our sole object in writing was, and is, to correct the erroneous impressions thus given of the King's Fund report; and we cannot agree that, when a writer introduces the report in the forefront of his argument, the substantial accuracy or inaccuracy of his summaries and quotations is not part of the real question.—We are, etc.

LUKE,
LEONARD COHEN,
Honorary Secretaries.

King Edward's Hospital Fund,
July 25th.

Prophylaxis of Malaria

SIR,—As Dr. T. C. Lonie, in your issue of July 15th (p. 126), gives his personal experience of prophylactic quinine in Malaya for three years, and urges its trial there, although Dr. Hoops, after many years of service up and down the Peninsula, denies it to be of any value, perhaps it would assist in passing judgement on the practice of omission in Malacca and other parts of the Colony if the result of abstention from quinine were stated.

After a heavy infection of benign tertian fever soon after arriving in Malaya, for which a three months' course only was strictly carried out, no relapse or re-infection occurred during a period of eleven years spent in the country, working daily in malarious areas and on native and European-owned estates, where a spleen rate of the population averaged over 25 per cent. Quinine, taken with the idea of prevention, tended only to obscure the fact of a new infection and the blood-film diagnosis, and therefore to delay the necessary rigid course of 30 grains daily. It should be stressed that after convalescence the treatment should be maintained under all conditions, and, where the occupation is sedentary, exercise should be taken while quinine is in the blood, so that the splenic circulation is brought into action, as pointed out by Dr. A. Neave Kingsbury. Failure in this respect has diminished its curative value.—I am, etc.,

P. WITHERS GREEN.

London, S.W.3, July 18th.

Intestino-vesical Fistula

SIR,—Mr. Willan (*Journal*, July 22nd) draws attention to the rarity of the above condition, and gives details of six most interesting cases.

Reference may perhaps be made to a joint discussion on "Urinary Complications of Diseases of the Large Intestine," held at the Royal Society of Medicine on May 11th, 1932. In an opening paper on "The Urinary Complications of Diverticulitis" it was reported that, during the years 1922 to 1931 inclusive, ten cases of vesico-colic fistula were admitted to the London Hospital; seven were due to diverticulitis and one to carcinoma of the pelvic colon. In the other two cases *x*-ray examination was negative and the cause was not determined, but it seems probable that they also were due to an inflammatory cause. The seven examples of vesico-colic fistula which were proved to be due to diverticulitis of the colon occurred in 172 patients admitted for this condition to the medical and surgical wards of the hospital during the period in question.

These cases confirm the general impression that fistulae between the colon and the bladder are as a rule secondary to diverticulitis, and only very occasionally to extension of carcinoma. The rarity of the condition is illustrated by the fact that during these ten years 96,192 patients were admitted to the surgical wards of the hospital, so that these ten cases of vesico-colic fistula from all causes represent a proportion of roughly 1 in 10,000 surgical cases.—I am, etc.,

London, W.1, July 23rd. HUGH LETT.

Otorrhoea

SIR,—In his interesting article on otorrhoea (*Journal*, July 8th, p. 47) Mr. E. Watson-Williams mentions the treatment of chronic suppurative otitis media by zinc ionization. He states that (1) its success depends on the preliminary cleansing of the meatus—that the passing of the current through the zinc solution has no effect on the result; and (2) the aura of mystery that surrounds all electrical treatment probably accounts for its vogue.

May I say that I entirely disagree with him? In an experience of many hundreds of cases extending over the past fifteen years I have used zinc ionization in the treatment of chronic otorrhoea with most gratifying, often dramatic, results. That the results are not due solely to the toilet of the meatus and middle ear I am convinced. Mr. J. McLaggan disposed of this suggestion long ago. He treated two hundred cases of chronic otorrhoea—one hundred by the preliminary cleaning of the middle ear and filling with zinc solution but without passing the current, the other hundred by a similar toilet plus passing the current. The results were enormously in favour of the electrical method. His results were published in the *Lancet* of May 11th, 1929. Mr. Watson-Williams seems to think the results are obtained by the "suggestion" that electrical methods often carry. This can hardly obtain where a discharging ear is in question. We have an objective criterion of success or failure—the cessation or otherwise of suppuration.

It is a very curious thing that there should be such opposite opinions about the value of ionization. Many of my otological friends, of whose intelligence and skill I have the highest opinion, have told me that they have tried the Institute method and have failed to get good results. The information is (1) that ionization cannot sterilize the middle ear unless the suppurating area is consider favourably at the end of one year if ion through the tympanic membrane undertaken and the resulting hole is of sufficient size to allow of the middle ear to be irrigated through an intratympanic catheter and filled with the zinc solution. (2) Ionization cannot cure cases of attic suppuration with cholesteatoma.[1] A good many cases of chronic otorrhoea are of this type. It is obvious that in these cases it is impossible to get the zinc solution in contact with the whole of the suppurating area. The cases suitable for zinc ionization are therefore limited. Its use in unsuitable cases is simply waste of time, and its use as a routine method of treating all chronic otorrhoea is bound to be disappointing. Its results in suitable cases are excellent, but the diagnosis of suitability must be made by a skilled otologist, and the otologist must not hand over the case to a nurse or electrotherapeutist to carry out the treatment. It requires all the skill of the otologist to wash out a middle ear efficiently. Anyone who will take the trouble, select his cases, and carry out the technique adequately will get good results.

That zinc ions can coagulate albumin and therefore sterilize has been demonstrated *in vitro* in many striking experiments by Mr. Friel. There can be no question of the sterilizing power of zinc ionization. Its application to tympanic sepsis is another matter. The keynote of its success here is "accessibility."—I am, etc.,

Guildford, July 19th. T. B. JOBSON.

SIR,—From the point of view of a fever hospital physician, Mr. E. Watson-Williams's most helpful paper in the *Journal* of July 8th (p. 47) is marred by his gibe at zinc ionization—namely, "this [that is, electric current] may be omitted without influencing the result." If this is so it seems difficult to explain the numerous cases which have ceased to discharge after a single ionization treatment. This claim is made by A. R. Friel for cases of chronic suppuration due to sepsis alone in an accessible position. I can fully endorse it from my own experience in numerous cases arising during the course of specific fevers treated in hospital.

In most fever hospitals it is impossible to have all cases of otorrhoea treated by an otologist. I have found, however, during the last eight or nine years, that excellent results can be obtained by training the nurses in the technique of zinc ionization as described by A. R. Friel. Under these conditions an average of three or four ionization treatments may be necessary, and in some cases, especially in small children after measles, eight or even more treatments may be required before the discharge finally ceases. But the important fact emerged after eight years' experience of this method in two different fever hospitals in the provinces that not a single case of otitis media arising *de novo* in hospital was discharged with chronic otorrhoea. In every case the ear was dry for at least seven days before discharge from hospital. The otologist at the local school clinics in both instances found that cases of otorrhoea from the fever hospital were reduced to vanishing point.—I am, etc.,

H. S. BANKS,
Medical Superintendent.

Park Hospital, Hither Green, July 17th.

Treatment of Rodent Ulcers

SIR,—Dr. N. S. Finzi, in his interesting paper on the treatment of rodent ulcers in the *Journal* of July 22nd (p. 137), was at such pains to criticize the treatment of this condition by unscreened radium that some sort of protest, however mild, seems called for. To say that the most important thing about radium treatment is "*not to use unfiltered . . . radiation*" (the italics are Dr. Finzi's) is to ignore both the long experience of the method in the hands of some workers and the results obtained. Dr. Finzi complains of the unnecessary trouble

[1] *Journ. of Laryngol. and Otol.*, June, 1926.

to which he has been put in treating the failures of unscreened radium, but we venture to suggest that he is not alone in being from time to time confronted with the failures of others.

That gamma radiation is the method of choice in the treatment of all but the superficial types of rodent ulcer will not, we think, be denied by anyone, and the views of one of us (R. W.) in this connexion were expressed three years ago in a paper (*British Medical Journal*, 1930, ii, 511), in which statistics of 1,700 consecutive cases were given. In this group, however, we think that the short unscreened single application has advantages over the four applications of Dr. Finzi's method, and that, at the same time, the results do not fall so far short of those shown by Dr. Finzi, and that this is an important consideration.—We are, etc.,

ROY WARD.
A. J. DURDEN SMITH.

Radium Institute, W.1, July 21st.

SIR,—Dr. Finzi's paper in last week's *Journal*, on the treatment of rodent ulcers, contains much that is excellent, but it scarcely does justice to the method of treatment with unscreened radium plates which is still in routine use in many hospitals, and indeed at the Radium Institute also. At the London Hospital about 100 new cases of rodent ulcer attend the skin department each year, and more than 2,000 of these cases have been treated there by unscreened radium plates since Dr. Sequeira began to use radium in 1902. Observation subsequent to treatment has been the routine, and if remaining cured after two years patients continued to report annually for inspection.

Dr. Sequeira evolved the method of treating rodent ulcers by three two-hourly applications of an unscreened, rubber-protected, full-strength radium plate at intervals of six weeks, and the results of such treatment of early lesions were highly satisfactory. Occasional cases did relapse, but these responded to further treatment on the same lines. Treatment with screened radon seeds was begun in 1929 primarily because there were obvious mechanical difficulties in applying the radium plate to awkward angles of the face, and not because one was dissatisfied with the results of beta-ray therapy with early lesions. However, the results obtained with gamma-ray therapy seemed to be better than those obtained with the unscreened plate, but careful analysis shows this to be more apparent than real.

In a paper with Dr. O'Donovan (awaiting publication), we have compared two groups of cases of previously untreated rodent ulcers treated by the two methods and observed for a minimum period of two years after treatment. Of sixty-six cases treated with unscreened radium plates 82 per cent. were cured by a single course of treatment; eleven out of the twelve relapsing cases responded to further similar treatment, and only one case, involving a canthus, relapsed a second time: the percentage of probable cures is therefore about 98. Fifty cases were treated with screened radon seeds (0.3 mm. platinum), and 90 per cent. were cured by the first treatment. Three of the relapsing five have already responded to further treatment, and it is too early to comment upon the other two; but here the final percentage of probable cures is 96, with previously untreated rodent ulcers. We still regard gamma-ray therapy with radon seeds as having very definite advantages, and probably the resulting scars are less conspicuous, but we have seen many excellent cosmetic results after unscreened plates too. Dr. Finzi points out the importance of adequately screened irradiation when treating later cases, and this is an accepted experience. We have not found that emollient ointments have any appreciable effects upon the skin reaction to irradiation, and ung. ac. bor. is very commonly used.—I am, etc.,

R. T. BRAIN.

London, W.1, July 24th.

Lederer's Anaemia

SIR,—Your leading article (*Journal*, July 22nd, p. 157) on the work of Professor Leonard Parsons and his colleagues on haemolytic anaemia in early life affords me an excuse to comment on their most interesting paper on the acute haemolytic anaemia of Lederer. They refer to an article on the same subject by Dr. R. J. L. O'Donoghue and myself, and reproach us for having deliberately excluded from our consideration cases under the age of 2 years. This was entirely because we felt uncertain of our competence to discuss the anaemias of infancy, of which we have little practical experience, and not because we doubted the occurrence of Lederer's anaemia at this age—which is probably the period of highest incidence. Professor Parsons's paper has shown that we were justified in our expectation that this aspect of the disease would be better discussed by the specialist in the diseases of childhood.

One difference between the symptoms in infancy and in later life is the size of the red cells. We have now had Price-Jones curves on three cases at Guy's Hospital (a description of the last case by Dr. R. V. Paine is shortly to be published in *Guy's Hospital Reports*), and none of them was megalocytic. The megalocytosis which occurs in infantile cases is not an essential feature of the disease, and is perhaps an example of a greater reactivity of the bone marrow in early life. Though infrequent, Lederer's anaemia is not excessively rare in adolescence and adult life, and it should always be considered in the differential diagnosis of cases of pyrexia with acute anaemia. In the absence of a positive blood culture, anaemia of rapid onset is unlikely to be due to septic infection, but I am afraid that patients with Lederer's anaemia sometimes die under the provisional diagnosis of septicaemia or infective endocarditis when they might have been rescued by timely transfusion.—I am, etc.,

L. J. WITTS.

London, W., July 24th.

Persistent Occipito-posterior Cases

SIR,—Dr. Somerville's interesting letter on this subject (*Journal*, May 13th, p. 846) and its treatment opens up the whole question of the mechanics of head presentations.

Three movements of consequence are concerned in expulsion of the head. In order of importance they are—flexion, rotation, and descent. It is a helicoid movement through 45 degrees when the occiput is anterior, and through 135 degrees when it is posterior. When flexion is inadequate the occiput may rotate backwards and take up the "unreduced" position. The screw action cannot now take place, for the head has assumed a stable "dead-point" position. If the disparity between head and pelvis is sufficient and the pains adequate, birth may take place without rotation. This appears to be unusual in civilized women, although in some of the more primitive it does not seem to matter much how the child comes.

When curved forceps are applied in the ordinary way to the head in the occipito-anterior position no principle of expulsion is violated provided traction is axial, for flexion is encouraged, and rotation, such as it is, is not interfered with. But it is utterly different when curved forceps are applied pelvic curve forward to the posterior occiput, for the grip is over the face and frontal bones, tending to extend the head, and rotation is impeded because the curve of the forceps is now moving against that of the canal, traction is not axial, and the blades tend to slip off.

There is nothing more ghastly than to behold an energetic individual with axis-traction forceps endeavouring to extract an occipito-posterior head by a long, strong,

and straight pull. When, however, reversed forceps are applied to the reversed head everything is mechanically correct—the posterior grip of the blades encourages flexion, the forceps rotate *pari passu* with the head into their normal position, and the grip is good and safe.

I have always been under the impression that reversed forceps was the method of choice to the occipito-posterior head. It was recommended by Galabin at least as early as 1900, and I have never seen it fail in twenty-five years' experience. I use Barnes-Simpson forceps, and the pair Peter Horrocks advised me to get in 1903 are the only forceps I have ever possessed. They certainly have not as great a pelvic curve as Dr. Somerville's drawing ascribes to ordinary forceps, but then perhaps they are not ordinary forceps, for when held by an overlapping golf grip with the left forefinger through the loop they seem to be endowed with a sensitiveness and intelligence quite their own. They know they cannot pull very hard, and never forget that they are instruments of flexion and rotation quite as much as of traction.—I am, etc.,

Balfour, Cape Province, June 1st. H. F. BELL WALKER.

Recurrent Volvulus of the Pelvic Colon

SIR,—We welcome Mr. E. G. Slesinger's comments (July 15th, p. 129) on our article in the *Journal* of July 1st (p. 7). We agree that an elongated pelvic colon giving rise to sufficient stasis to cause disability should be resected, apart from any question of volvulus. It was, however, the primary object of our paper to call attention to the fact that recurrent volvulus of the pelvic colon is a commoner cause of obscure symptoms than has been appreciated. We have been led to this belief by the study of the records of the previous case histories of patients who finally died or were operated on for the major crisis of sigmoid volvulus, published by English, American, and Continental surgeons, and by noting the close similarity shown by such histories to those of our own cases. In connexion with this the following quotation may be of interest (Nothnagel, *Diseases of the Intestines and Peritoneum*, English edition, edited by Sir Humphry Rolleston, 1907, p. 600):

"There are a number of cases on record of rotation of the sigmoid flexure in which the final fatal attack was preceded by a number of alarming seizures pointing to an occlusion, but which did not prove fatal: several of these gave a history of attacks of sudden pain, vomiting, constipation, and complete retention of faeces for a time, this occurring several months before the last attack: as a rule the retention of faeces in these first attacks yielded spontaneously or as soon as the patient remained for a time in one position, occasionally after enemata, gastric lavage, etc. In all these cases we are unquestionably justified in assuming that semi-rotation of the bowel occurred several times, corresponding to each attack of pain and retention of faeces, and that in each instance the bowel rotated back into its normal position, so that its lumen became again patent and the passage of the motions was again rendered possible: ultimately, however, the bowel was unable to rotate back into position and the patient succumbed to the attack. It is, of course, impossible to prove that these events actually occurred in all the cases that are recorded, but it is more than probable that in many cases semi-rotation of the bowel can occur in the way suggested: while, therefore, the explanation offered for the occurrence of these peculiar attacks preceding the fatal issue in cases of axial rotation of the bowel is purely hypothetical, the probability of the hypothesis is very strong."

Many writers, including Mr. Slesinger (*Lancet*, August 7th, 1926), consider that the natural reaction of the body to an overloaded pelvic colon is the production of bands on the outer surface of the mesentery to support the loaded portion of the intestine and to take the strain off the sensitive mesentery. We, however, agree with Mr. Garnett Wright (*British Medical Journal*, April 28th, 1928) that these changes in the meso-sigmoid, at any rate in some cases, result from plastic peritonitis set up by repeated attacks of partial strangulation. These attacks, due in our opinion to the minor crises of volvulus, are responsible for the clinical picture of these cases, and we are convinced that a careful study of patients possessing elongated pelvic colons will lead to a considerable number of them being placed in the category of recurrent volvulus.—We are, etc.,

DAVID LIGAT.
St. Leonards-on-Sea, July 17th. T. D. OVEREND.

Ultra-violet Rays in Diseases of the Mouth

SIR,—Dr. Kerr Russell (*Journal*, July 22nd, p. 172) has criticized my observations on the relative sensitivity of the mucous membrane of the buccal and pharyngeal cavities and the normal white skin. The throat lamp I have described is a water-cooled vacuum type of mercury vapour lamp, emitting rays of wave-length from the shorter infra-red to short ultra-violet rays to 2,300 A.U. I have carried out over 600 actual treatments, and I have found that consistently a full erythema reaction of the mucosa is produced after ten to fifteen seconds' irradiation. The normal white skin only shows a faint erythema after sixty seconds' exposure. The buccal mucosa is therefore four times as sensitive as the normal white skin, using the wave-length and intensity of irradiation emitted by this source of light. The apparatus which Dr. Kerr Russell uses must therefore be of entirely different construction from mine.—I am, etc.,

London, W.1, July 22nd. ALBERT EIDINOW.

Use of Quinine in Normal Labour

SIR,—Dr. Dorling, in your issue of July 8th (p. 79), and Dr. Rees (April 1st, p. 587) will probably have been reassured by Dr. Mitchell's statement (July 15th, p. 126) that quinine has not been proved to be a causative factor of retained placenta. Although statistics leave many of us cold, it is possible that they might derive further assurance from the fact that in 103 cases induced by Watson's method—quinine, pituitrin, and castor oil—we found no record of a case of retained placenta (*Brit. Journ. of Obstet. and Gynaecol.*, 1927).

I take this opportunity of expressing the belief that an appreciable number of cases of retained placenta are due to the interference complex, born of that pernicious phrase "grasp and knead the uterus"—a phrase that should be publicly burnt at the stake at a Druidical ceremony held by the patriarchs of the College of Obstetrics and Gynaecology. With the frequent tendency of the female mind to adhere to rule, if the placenta is *not* "out" in twenty minutes it becomes to many C.M.B. nurses (trained at various schools) a case of adherent placenta. Whether it is retained, adherent, rains or pours blood, or not, they "grasp and knead the uterus," if they have not been doing so already.

When are we going to admit that the present ridiculously scanty practical training of medical students and midwives is responsible for some of the persistent high level of maternal mortality and morbidity? One still meets qualified men who are called on to apply forceps for the first time in their career, and one still meets cervices in ribbons, and the other sequels. Amongst one of many such, I shall never forget the doctor who brought into hospital an undelivered normally proportioned primipara, whose cervix was ripped to ribbons (forceps applied

twice by the doctor, twice by his anaesthetist) and who produced a 7 lb. L.O.A. live foetus with the aid of 1/4 grain of morphine twelve hours later. On being tactfully informed of the result, with some less tactful comments on undilated cervices, the doctor, with a ponderous air of wisdom, advised me: "I always make sure of a strong and heavy midwife, to put her arms around me, to help with the pulling."

A detailed account of obstetric disasters by one of the doyen obstetricians would be fruitful reading. I trust Drs. Mackenzie and Simpson (*Journal*, July 15th, p. 125) will not take these remarks amiss.—I am, etc.,

R. OWEN-JONES, M.B., F.R.C.S.Ed.

London, S.W.3, July 17th.

"New Treatments for Old"

SIR,—I am very sorry that my letter of June 24th should have given offence to Dr. Julian or anyone else. As it seems to have been misunderstood may I, now that I am recovering from what has proved a long illness, say quite simply what underlay all its froth and bubble, hyperbole and banter.

First, I tried to show that the simple facts of experience do not support the idea that suggestion is an adequate basis for all therapy. The note of sarcasm was intended to imply that in these days to suggest to any doctor that he has not thought of the possibility of "suggestion" is not merely an unconscious reflection on his *common* sense (which may be justified and anyhow is easily forgiven), but on the capacity of his teachers (on which point students are touchy) and the adequacy of his training. The violent contrast here between forced exaggeration and the scientific atmosphere of the lecture room was deliberately introduced to make sure that my words should not be taken too seriously or too literally. After hinting that many of my patients also believed in the metamorphosis of disease (which, of course, allergy supports within limits), I came to my "burlesque," the point of which was to insist on how easy it is to confound *post hoc* and *propter hoc*. Finally, as after any combat we cease to be opponents and shake hands as friends, I doffed my foolery and assured Dr. Julian that though we might differ on ideas or methods we were absolutely at one in our care for our patients, a bond which binds us to them and also to one another.

Ridicule and laughter do not necessarily mean either disagreement or disrespect. They are, as you rightly point out in your editorial (July 8th, p. 65), a part of "that best of education" and among our "most precious memories." It seems a pity if we cannot sometimes revert to the joyous weapons of our youth without misunderstanding, though in this case I suspect that my one and only dose of hyoscine and morphine received the day before had more to do with my use of them than I could then realize. I recollect that that day the world seemed very rosy, and, in spite of personal discomfort, I felt as light-hearted as I intended my letter to be.

With regard to Dr. Kelvin's remarks (p. 79) I can only say that I think that bronchopneumonia may develop very rapidly. That my little daughter's was well developed was proved by the persistence of the physical signs for several days after the temperature had subsided. This is presumably because drugs like omnadin cannot be expected to hasten the process of repair to the same degree that they often seem to quash the symptoms of serious disease. A similar phenomenon is frequently seen after the crisis of lobar pneumonia, when the physical signs may temporarily persist or even increase.—I am, etc.,

W. N. LEAK.

Wansford, July 15th.

Post-vaccinal Encephalitis

SIR,—The clinical memorandum by Dr. F. A. Roper in your issue of July 15th (p. 103) on encephalitis following vaccination prompts me to add some details and remarks to a memorandum of a similar case published by Dr. J. F. Rey (with whose concurrence this letter is written) in the *Journal* of January 14th (p. 60).

Dr. Rey's case was first transfused with citrated blood from a donor who had not been vaccinated for twenty years, a more recently vaccinated individual not being immediately available and the patient being then completely comatose, with Cheyne-Stokes breathing. To citrate blood is said to destroy or diminish antivirus bodies present, and one had hoped here to give whole blood but the donor was too nervous to be brought into immediate contact with the patient, and the citrated blood appeared to be remarkably efficacious. The amount given was 300 c.cm.—not 50 c.cm., as reported in the memorandum—and the improvement a few hours later was so great (she could then be roused to answer questions and to take liquid nourishment) that one is tempted to believe that a transfusion of 500 c.cm. might have led to complete recovery. The patient had been seen by Dr. H. M. Ayres, medical officer of health, Bognor Regis, who had had previous experience of a number of cases of this disease, and after the transfusion she was visited by Dr. W. V. Shaw of the Ministry of Health. On their advice 30 c.cm. of serum from a donor vaccinated three and a half years before was given intravenously, and recovery was practically uneventful. It was, however, more than eight hours from the time of their decision before such a donor could be found (although an organization for the supply of blood donors exists in the neighbourhood), the serum separated off, and the transfusion performed.

It seems reasonable to hope, then, where the more potent serum of a person vaccinated within recent years cannot immediately be procured, a whole or citrated blood transfusion may act nearly as well, provided that the donor has been vaccinated at some period of his life. To find a recently vaccinated donor in these days may not always be easy, and the business of separating serum from his blood under strictly aseptic conditions requires a laboratory near at hand. An advantage of using serum is that the blood group of the donor is immaterial, but volunteers of blood can usually be found in an emergency, and the preliminary matching and the transfusion are not difficult matters.

Cerebro-spinal fluid was withdrawn on three occasions from Dr. Rey's case, the details of the first of which fluids were given in his article. Since such details are not plentiful in the literature, the findings in all three specimens are reproduced below. In all three specimens

Time	12 hrs. before blood transfusion	At blood transfusion	24 hours later, at serum transfusion
Pressure	—	— slight	— slight
Amount	32 c.cm.	23 c.cm.	22 c.cm.
Appearance	Clear	Opalescent*	Clear
Cells	233 per c.mm.	570 per c.mm.*	112 per c.mm.
Globulin	Increased	Increased	Increased
Protein	45 mg. per 100 c.cm.	50 mg. per 100 c.cm.	40 mg. per 100 c.cm.
Sugar	57 " "	23 " "	55 " "
Culture	Sterile	Sterile	Sterile

* Anti-meningococcal serum had been given

cells were made up almost exactly of one-third small lymphocytes, one-third polymorphonuclear leucocytes, and one-third large mononuclears resembling endothelial cells.—I am, etc.,

C. J. HARWOOD LITTLE,
Pathologist, Royal West Sussex Hospital

Chichester, July 17th

Arthritis and Allied Conditions

SIR,—Some little time ago I saw a somewhat brief correspondence in the *Journal* regarding the incidence of rheumatism and allied diseases in the Tropics. To my mind then the letters pointed to the fact that sunshine and warmth were more or less preventive agents of these diseases, and that therefore we should look in that direction for the cure of those cases of arthritis and kindred affections which are so much before us in the medical press at the moment.

In all the academic articles, annotations, and discussions bearing upon arthritis and its allied conditions in the *British Medical Journal* of June 17th, not one deals with the Tropics as a possible source of cure, so I now venture to say that, in my mind, there are out here in the West Indies great possibilities of alleviation and resolution of the very worst cases of rheumatoid arthritis and fibrositis. Although some of the statisticians at the Eastbourne conference on rheumatic diseases on June 1st ventured to say that cold and damp had nothing to do with the incidence of rheumatism, or even rheumatoid arthritis, I, as a former periodic sufferer while in England from muscular and articular rheumatism would like to state that *damp*-cold was always the exciting cause of the mischief, but never *dry*-cold, unless the muscles or joints came within the orbit of a current of air to make a draught, then the stiffness and pains would follow just like those felt with the damp-cold disabilities.

My experience as a ship surgeon for over five years, on voyages to both the East and West Indies, tells me that rheumatism is hardly ever seen on the homeward journeys of our ships, but we frequently meet rheumatic people seeking the sun on the outward trips, and many a time they have told me how much benefited they were and how nimble they became after the round trip of five weeks, or their stay for a longer period at one of our sunny islands in the West.—I am, etc.,

A. ROSE, M.B., C.M.
Surgeon of the *Camito*.

At Jamaica, July 4th.

Obituary

J. W. SPRINGTHORPE, M.D., M.R.C.P.,

Physician, Alfred Hospital, Melbourne

We regret to announce the death at Melbourne, on April 22nd, of Dr. John William Springthorpe, aged 78. Dr. Springthorpe left his birthplace at Wolverhampton, Staffordshire, with his parents in early childhood to go to Australia. After being educated at Sydney and Wesley College, Melbourne, he entered Melbourne University in 1874, took the Arts and medical courses concurrently, and graduated M.A. in 1878, M.B. a year later, and M.D. in 1884. He had the distinction, after his return to England to do post-graduate work, of being, in 1881, the first Australian to obtain the M.R.C.P. After serving as out-patient physician to the Melbourne Hospital, and pathologist to the Alfred Hospital, he was in 1887 appointed physician to in-patients at the former and lecturer in therapeutics, dietetics, and hygiene at Melbourne University—posts which he held until 1916.

Our correspondent in Melbourne writes:

Dr. Springthorpe took a keen interest in the affairs of his own profession, being secretary to the Sanitary Section of the Inter-Colonial Medical Congress in Melbourne in 1889, and vice-president of a similar congress in Sydney in 1890. He was president of the Victorian Branch of the British Medical Association in 1891. No one in Victoria played a greater part in establishing dentistry on the high professional plane that it now occupies. Up till about forty years ago the qualification for registration as a dentist in Victoria depended largely on ability to extract teeth! About 1890, chiefly due to the efforts of Springthorpe, a movement was commenced which resulted in the foundation of the Australian College of Dentistry in Melbourne, and he was appointed president of the Dental Board, and became dean of the faculty of dentistry at the University, which post he occupied until he enlisted for active service in 1914.

As an officer in the Australian Army Medical Corps Springthorpe began service as senior physician in No. 2 Australian General Hospital in Egypt in 1915, with the rank of lieutenant-colonel. Returning to Australia in 1916, he submitted a report criticizing the medical and Red Cross arrangements in Egypt. He returned later to France and England, and devoted most of his time to the treatment of soldiers suffering from war neurosis. It is recorded of him that in his schoolboy days he was full of a restless energy, was generous, impulsive, fearless, and had a lively sense of fun: he was also a brilliant scholar, with a catholic taste which went far beyond the confines of his own profession. At the University he took exhibitions in most subjects in Arts and medicine. From his early days he was notable for his originality of thought, his keen criticism of all things doubtful, and his steadfast adherence to every cause to which he lent his enthusiasm. With a mental equipment very much above the average and a tenacity of purpose amounting almost to dogged determination he was a formidable opponent in any controversy, and he almost invariably carried his schemes to fulfilment, even in the face of serious opposition. Usually dogmatic, but always sincere, he seldom failed to achieve the results that he aimed at. As a thinker his reputation extended beyond his own city. In his *Outline of Abnormal Psychology* William McDougall refers to Springthorpe as one of the world authorities on this subject, and mentions him among a group of the most eminent British physicians whose writings on psychology are well known. This is no small distinction. In private practice he had always shown a leaning towards the neurological and psychological side of medicine, and he became recognized as an authority in these branches. For many years he was one of the official visitors to the Victorian hospitals for the insane. After the war he devoted much of his time to various movements for the betterment of social conditions, and he was, during his lifetime, president of the Society for the Health of Women and Children—a society which adopted the Plunket system of infant welfare training and infant feeding. Under his auspices this movement flourished, and it established an efficient training school and many infant welfare centres in Victoria. It eventually gave to Victoria a system of infant welfare education probably unique in the world, and led to the notable reduction of infant mortality in recent years. Dr. Springthorpe's personality has contributed to no small extent. The success of this movement is typical of that of many other State activities to which he lent his aid.

The death of Dr. ERNEST DANIEL ROWLAND, I.S.O., has removed a pioneer of modern medicine in British Guiana. Born at Southsea in 1858, Rowland received his medical education in the University of Edinburgh, where he graduated M.B., C.M. in 1881. Two years later he entered the British Guiana Medical Service, and spent thirty years in the two large hospitals in the Colony—six as junior in Georgetown, seventeen as resident surgeon in New Amsterdam, and seven as resident surgeon in Georgetown. He retired from the service in 1913 with a great reputation as a surgeon and a hospital administrator, and was then appointed consulting physician to the Public Hospital, Georgetown. In the following year the King conferred on him the medal of the

Imperial Service Order While a junior officer in Georgetown he first collected and published reports of interesting cases and operations from the records of the local hospital His publication was entitled the *Georgetown Hospital Reports*, the precursor of the *British Guiana Medical Annual*, the twenty fifth issue of which was mentioned in these columns on July 8th (p 61) Rowland founded the *Annual*, and edited the first six issues, papers by him appeared in nearly all the issues from 1887 to 1921 His great services to medical progress in British Guiana were the subject of a tribute in the twenty-fifth issue, dated 1932 He had acted as Surgeon-General in the Colony on two occasions Soon after the constitution in 1883 of the local branch of the British Medical Association he was elected honorary secretary and treasurer, and held office until 1894 He accomplished a great deal of good work for the Association in a quiet and unassuming manner. His only son was killed in the war

Universities and Colleges

UNIVERSITY OF LONDON

A meeting of the Senate was held on July 19th, when the Vice Chancellor, Professor E N G Filon, D Sc, M A, F R S, was in the chair

Dr R A Webb A B Tennessee M D Johns Hopkins, Ph D Camb, University Lecturer in Pathology at Cambridge since 1929 has been appointed to the University Chair of Pathology at London School of Medicine for Women

Mr W E Herbert, M R C S, L R C P, L D S, Director of the Department of Conservative Dental Surgery at Guy's Hospital Medical School since 1931, has been appointed to the University Readership in Conservative Dental Surgery at Guy's Hospital Medical School

The following candidates have been approved at the examination indicated

M S—(*Branch I, Surgery*) J T Fathi (University Medal), B M Fonseka, A G Hirsant, S J Scurloch

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The course of study for the Diploma in Public Health (University of London), which extends over a period of whole time study of nine calendar months, will commence on October 2nd In connexion therewith the Fishmongers' Company Studentship, entitling the holder to free tuition for the whole course, is open for competition amongst European students who possess a medical qualification which is registrable with the General Medical Council The subject of examination (both written and oral) will be hygiene within the scope of the syllabus for the Third Examination for Medical Degrees (or the M B, B S Examination) of the University of London The examination will be held at the School on September 20th and 21st Applications must be received by September 16th and should be addressed to the Secretary, London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W C 1

Corrigendum—In the list, published last week, of the candidates approved at the examination for the Diploma in Public Health, we should have stated that Dr J M Henderson was awarded a mark of distinction

UNIVERSITY OF BIRMINGHAM

Dr H P Gilding has been appointed to the chair of physiology in succession to Professor I de Burgh Daly

UNIVERSITY OF WALES

The following candidates have been approved at the examinations indicated

M D—R Strom Olsen, J M Thomas

M Ch—T G I James.

M B, B Ch—D Evans, J R E James, D J Jones, G P Jones, R G Phillips, G P Roberts, J D Spillane, H A Thomas, A M Williams

UNIVERSITY OF EDINBURGH

A graduation ceremony was held in the M'Ewan Hall on July 19th The following medical degrees and diplomas were conferred

M D—‡J M Anderson, J K F C Burrow, †C A Calder, ‡I A G L Dick, *A R Gilchrist, G Gordon Napier, May Gower, ‡Captain D P Lambert, I M S, Lieutenant D K Ll Lindsay, I M S, ‡J P M Gibbon, ‡Lieutenant R L H Minchin, R A M C, Ruth M Munro, W Mort, R P A Rigg, C K Robertson, R A T Rouse, H Shaffer, Dorothy M Taylor, J S Weerawarna, J Yambandhu

D Ph—A Sidki

M B, B Ch—Mary E Alexander, E S Angalak, J E Arnott, G L Ashford, A H Banks, C C Barclay, P C Barnes, D M F Batty, M S Behardien, A Brown, W L Brown, M A Byer, W Calder, K Cameron, J R Campbell, H L I Carter, D R Cattanach, W G F K Chalmers, B D Chowdhury, N J Cochran, H D Conway, J W Crawford, J H Crosby, P H Dalgleish, G J G Davidson, D N Lobbie, T L Elliott, R A Elliott, G D Falconer, J R Forsyth, J P Gardiner, M M Ghosh, E H Gillespie, J W D Goodall, C L Grant, F S Gregory, H W Hall, C D Hanham, G V Harry, F D Hart, J L Henderson, J R Henderson, W Henderson, F J C Herrald, I H Hewetson, D Hirtleman, H Hogan, D R Huggins, Margaret W Jenkins, D M Keir, A D Latham, Edith Laune, J W Leith, L Levinson, W A Lewis, Joycelyn C Lowe, Freda M L Lucas, G B Ludlam, G R Lunn, R D Lyon, D D Macdonald, B F Macfarlane, A M Gregor, W M M'Intyre, I Mackenzie, N Macmichael, Christina M D M'Taggart, D Malloch, Joyce E Marshall, S H Martin, W R Maxwell, Lilian W May, E W Melvin, Mary F Miller, R G Miller, Evelyn E Mitchell, R Mitchell, Mary Moffett, W A Morton, D L Murray, Honora C Osborn, T S Osterbridge, Marjory M Pearson, R S Peill, J B Perrin, J P Philp, W A Ramsay, J F Rattray, R W Rattray, J D Reid, Isabella M K Robertson, Lucinda R Roden, Lily C Rosman, G A Roulston, C F Roza, J J F Russell, Winifred I Russell, N F Sawers, J Saxton, J G Sclater, G I Scott, D F S Shaw, J A W Shearer, A Shelton-Agar, G G Sherriff, J B Steel, M C Stander, R H Stevenson, G E S Stewart, A D Stoker, A L Stuart, Agnes B Sutherland, Grace Sutor, Hon fan Tai H P Tait, Mary Tan, Kum Swan Tay, A W S Thompson, A Thomson, Emily S O Thomson, S Thomson, D J Waterston, Mary Watson, A A Wells, G D Wight, T I Wilson, R M Young, R Zakariyya, M S Zan, W A Moore (died July 5th, 1933)

DIPLOMA IN PUBLIC HEALTH—R O Cairns, A J Campbell, Lillie S Dickson, H P S Gillette, W A Gomes, A R Graham, Anna M Herdman, Isobel O Kennedy, Captain F M Khan, I M S, Rosa Morrison, Roberta T Rankin, G Singh, Ruby J B Slater Awarded February 1st, 1933 O E R Abhayaratne, Susannah S Murdoch, E J Ratnayake, N Wijeyesekera Awarded May 8th, 1933 J Macqueen

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE—Awarded May 8th 1933 Minnie Gosden, D P Lambert, A R Sikand

DIPLOMA IN PSYCHIATRY—Awarded May 8th, 1933 R G M Jones

DIPLOMA IN RADIOLOGY—E Ll Godfrey, Georgina M H Somerville

* Awarded gold medal for thesis *Highly commended for thesis
‡ Commended for thesis †Passed with honours

The following prizes were presented *Cameron Prize in Practical Therapeutics* Professor G F Dick, M D Sc D University of Chicago and Gladys H Dick M D *Thesis Gold Medallist* A R Gilchrist *Syme Surgical Fellowship* D I C Finlayson *Goodsir Memorial Fellowship* R Walmsley *Freeland Barbour Fellowship* R J Kellar *Ettles' Scholarship and Leslie Gold Medal, Mouat Scholarship in the Practice of Physic, and Murdock Brown Silver Medal in Clinical Medicine* A Brown *Murchison Memorial Scholarship in Clinical Medicine* D M F Batty and A Brown (equal) *Buchanan Scholarship in Midwifery and Gynaecology* B I Macfarlane *James Scott Scholarship in Midwifery and Gynaecology and Beaney Prize in Anatomy and Surgery* D M F Batty *Conan Doyle Prize* Winifred I Russell *Annandale Gold Medal in Clinical Surgery* W A Liston *Royal Victoria Hospital Tuberculosis Trust Gold Medal* D Malloch *Thomson Memorial Medal in Child Life and Health* A B Wallace *Scottish Association for Medical Education of Women Prize* Mary E Alexander *Dorothy Gilfillan Memorial Prize* Agnes B Sutherland *Wightman Prize in Clinical Medicine* R J Henderson *Pattison Prize in Clinical Surgery and Sir Robert Jones Prize in Orthopaedic Surgery* J G Sclater *Wellcome Medals and Prizes in the History of Medicine Gold Medal*, J Cowen *Silver Medal* Esme G L Mark *Cunningham Memorial Medal and Prize in Anatomy and Anderson Henry Prize in Botany* A G R Lowdon *Whiteside Bruce Bursary* Nina A B Verity

LONDON INTERCOLLEGIATE SCHOLARSHIPS BOARD

The following awards of medical entrance scholarships and exhibitions have been made on the results of the Board's examination

UNIVERSITY COLLEGE—*Medical Scholarship* B Brownscombe, *Bicknell Scholarship* D F Eastcott *First Medical Exhibition*, G B Jones *Second Medical Exhibition* J I P James

KING'S COLLEGE—*Warneford Scholarships* G F W Tripp, W M Stephens, A F Russell *Sambrooke Scholarship* F E Stock

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL—*Science Scholarship* G Beven

LONDON SCHOOL OF MEDICINE FOR WOMEN—*St Dunstan's Exhibition* R C Cassell *Mary Bird Scholarship* A E

Burch. *Mrs. George M. Smith Scholarships*, J. R. Simmons, R. Caggan; *Mabel Sharman Crawford Scholarship*, D. K. Paterson.

LONDON HOSPITAL MEDICAL COLLEGE.—*Price Scholarship*, L. Grandstein; *Science Scholarship*, W. H. G. Baker.

COMBINED SCHOLARSHIPS EXAMINATION

As the result of the combined hospitals scholarship examinations (St. Bartholomew's, St. Thomas's, and Guy's), held this month in London, the following scholarships and exhibitions have been awarded:

St. Bartholomew's Hospital Medical College.—University Scholarship, D. B. Fraser (Christ Church, Oxford); Exhibition, J. W. Parks (Trinity College, Cambridge).

St. Thomas's Hospital Medical School.—University Scholarship, G. C. Smith (Christ's College, Cambridge); Exhibition, G. H. Baines (St. John's College, Cambridge).

Guy's Hospital Medical School.— University Scholarship, R. H. S. Thompson (Trinity College, Oxford); Exhibition, W. H. Valentine (St. John's College, Cambridge).

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the College held on July 20th Mr. John Wheeler Dowden, President, was in the chair.

The following twenty-six successful candidates out of seventy-seven entered, having passed the requisite examinations, have been admitted Fellows:

R. D. Aiyer, W. J. Brandon, J. M. Brewster, R. Caldera, W. H. Carlisle, H. Carson, H. T. Cox, A. K. Dev, H. S. Evans, A. H. Harvie, P. C. Hogan, J. S. Jeffrey, R. D. Jones, J. S. Kessell, G. J. Lamprecht, R. G. B. Lusk, R. G. Macbeth, W. S. Mack, J. B. Marinan, A. A. Miller, J. J. O'Donoghue, A. N. Roxburgh, T. G. Scott, S. J. Scurlock, A. D. Smith, N. A. A. van Buuren.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At the quarterly meeting of the Royal College of Physicians of Edinburgh, held on July 18th, with the President, Dr. Robert Thin, in the chair, Drs. D. B. McCrie Lothian (Larbert), A. D. Gorman (Blackburn), and W. R. Russell (Edinburgh) were introduced, and took their seats as Fellows of the College.

Drs. J. F. C. Haslam, *M.C.* (Barbados), E. F. Dott (Edinburgh), W. L. Burgess (Dundee), S. A. Smith (Edinburgh), and R. M. Murray-Lyon (Edinburgh) were elected Fellows.

Medico-Legal

"LEGAL AID SOCIETIES"

With the growth of motor traffic and the consequent increase in road accidents, bodies have sprung up known as "legal aid societies." In some cases this title may actually represent a group of persons, but in others it is simply a cloak for a solicitor or firm of solicitors. The practice is to send a tout or agent to the hospital to visit a patient who has been injured in an accident, to represent to him that he will almost certainly obtain damages if he goes to law, and to offer to conduct his case in return for 10 per cent. of the proceeds. Such an arrangement, if no charitable justification can be shown, is an offence against the law of the kind known as champerty (originally *champs parti*), and speculative litigation of all kinds is rightly considered disreputable by the legal profession. Among its particular evils are the probability of a settlement on quite inadequate terms, and the risk that the patient will lose the action and have to pay costs, which the society will not be likely to refund. The patient, moreover, will not receive the best advice, because solicitors of standing do not undertake this kind of work.

In order to combat the scandal the Law Society in 1931 agreed on a scheme with the Royal Victoria Hospital, Folkestone, the town in which it held its annual provincial meeting that year. The management of the hospital advised its patients to have nothing to do with any person approaching them with gratuitous offers of legal asistance, but to consult one or other of the local solicitors, a list of whom they were prepared to supply on request. The annual report of the Law Society, which was adopted by the general meeting this month, shows that unauthorized agents have been fairly completely excluded from that hospital, and that, although such persons used to have several cases at every session of the County Court before the introduction of the scheme, they have had none since. The giving of solicitors' names to patients does not seem to work in practice at Folkestone; the provision was made simply as an alternative to the touts, and the best thing is that the patient should go to his own solicitors in a normal way.

The Middlesex County Council has also asked the Law Society to help it to prevent touting in the five large hospitals under its control. Here, of course, the problem is slightly different, for the hospitals serve large and populous urban districts and the solicitors are, to a large extent, unknown to either the Law Society or the hospitals. The county solicitor is to write to every solicitor in Middlesex inquiring whether he desires his name to be placed on the rota on condition that he shall charge no fee, or a purely nominal one, for the first interview, and give full information to the client on the amount of costs he receives from the party settling the claim. It will not be possible to exclude the name of any solicitor, but a patient who desires to be helped to select one will naturally turn to the hospital authorities, who will be informed by the County Council of any particular considerations which apply to any solicitor. The list will certainly be a long one and will probably be divided into a number of equal parts, which will be used in rotation, but the patient will always be asked first of all whether he has a solicitor of his own, and if he has he will be given every facility for communicating with him. He is also reminded to communicate with his insurance company, if he has one. It is still possible for legal aid societies to secure instructions through the relatives of patients; but the printed notice which is being issued to all accident patients advises them to repudiate at once any agreement on a commission basis entered into by any relative or friend, and any retainer to a solicitor signed in consequence of such an agreement; also to warn their relatives not to sign any similar agreement, however persistent the demand. The difficulty will probably be overcome by experience.

It will be interesting to see whether the rota of solicitors is used more in Middlesex than in Folkestone. No solicitor whose name appears on it expects to make any considerable profit, because not only will the number of cases be small compared with the number of solicitors, but a large proportion will probably be "poor person cases." The solicitors' profession is rightly anxious to do away with the exploitation of patients in hospital and to secure that injured persons receive their just rights. The Law Society is discussing a similar scheme with the London voluntary hospitals and with the Manchester Corporation. Any hospital which admits the victims of running-down cases is therefore able, if it desires, to protect them with little trouble from the attentions of legal aid societies, and it is to be hoped that schemes like those already in operation will become general.

ALLEGED NEGLIGENCE BY "NATURE-CURER"

WALTON *v.* LIEF AND ANOTHER

In the King's Bench Division on July 14th judgement for the plaintiff with costs was entered by the Lord Chief Justice in the action in which Mrs. Eleanor May Walton claimed damages from Mr. Stanley Lief of Park Lane, and Natural Healing, Ltd., of Wigginton, Herts, for personal injuries alleged to have been caused by the negligence of the defendants, and for breach of warranty to cure her of lupus erythematosus. An account of the hearing of the action and of the verdict appeared in the *Journal* of July 15th (p. 132).

After argument by counsel on the question of costs the Lord Chief Justice said: "I will say no more than this. I think that there should be judgement for Mrs. Walton for £123 16s., and costs. I think that the defendants were very fortunate in that the amount of the damages was no more."

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The Government has proposed that the Parliamentary Recess shall last from July 28th to November 7th The Speaker is empowered to summon the House of Commons earlier if emergency should arise, but such a summons is unlikely

This week the House of Commons discussed the Post Office Vote, the Government's proposed guarantee for the production of motor spirit from British coal, shale, or peat, the World Economic Conference, and Dominion affairs All outstanding Estimates for Government expenditure were carried The Road and Rail Traffic Bill was read a third time

In the House of Lords the Royal Assent has been given to the Cancer Hospital (Free) Act

On July 26th the Lords amendments to the Manchester Royal Infirmary Bill were considered and agreed to The Samaritan Free Hospital for Women Bill was read a third time in the Commons and passed without amendment

The Local Government and other Officers Superannuation (Temporary Provisions) Bill was read a second time in the Lords on July 20th On July 25th the Bill passed through committee, and was read the third time and passed

On July 25th the Road Traffic (Compensation for Accidents) Bill passed through committee

The House of Commons on July 20th agreed, on the motion of Mr Douglas Hacking, for a "Return of licences granted under the Act 39 and 40 Vict, c 77, showing the number of experiments performed under the Act during 1932, and the registered places at which such experiments may be performed (in continuation of Parliamentary Paper No 108 of 1932)"

University Degrees Bill

The second reading of the University Degrees Bill was moved in the House of Lords by Lord JESSEL He remarked that the Bill was in substitution for the Spurious Degrees Bill which was introduced in May, and withdrawn because of its bad drafting At present there was nothing to prevent anyone putting letters after his name, implying that he possessed a university degree It was wrong that corporations should be allowed to sell these degrees, and have a sideline in "millinery," which deceived many people The present Bill said that any corporation which granted unauthorized degrees would be subject to a penalty The penalty was also imposed on any person who used or assumed a degree to which he was not entitled A schedule set out a list of the corporations allowed to give degrees, and a second schedule stated the various degrees Provision could be made in committee for the establishment of new degrees by universities The Bill put no liability on the President of the Board of Education It would be open to anyone to take action to enforce it Lord Jessel cited a pamphlet in which a man described himself as "D C Sc, Physician B" and further described himself as "D S, D O (London) F R S" This pamphlet induced people to buy an article in the belief that it was vouched for by an eminent medical authority Lord Jessel suggested that the committee stage of the Bill might be taken after the Recess as the Vice Chancellors would meet in the middle of September. If they took further objection he would not proceed with it Lord INDLESLEIGH said the Bill would inflict hardship on those with genuine foreign degrees who had to add the university after the letters A man would be entitled to use the letters of a bogus degree obtained abroad provided he put the name of the bogus university after the letters Many of these bogus universities had convincing names Lord IRWIN said that if the House gave the Bill a second reading the Home Secretary and Lord President of the Council would desire to have certain amendments considered in the committee stage.

The Bill was read a second time without a division, and sent to committee of the whole House

Health Insurance and Medical Benefit

Sir E HILTON YOUNG informed Lieut Colonel Sandeman Allen on July 24th that the numbers of persons in the several areas who would cease to be insured under the National Health Insurance Acts at the end of the present year could not be known for some time, but he had no reason to think that the introduction of this factor if it were practicable, would have any material effect on the allocation of the grant Replying to Captain Crookshank, Sir Hilton Young added that there was no truth in the rumour that he intended to alter the system of allocation

On July 24th replying to Mr Thorne Sir HILTON YOUNG said that the number of persons who ceased to be entitled to cash benefits under the national health insurance scheme on December 31st 1932, was approximately 70 000 These persons were still entitled to medical benefit under the Act

Road Traffic (Compensation for Accidents) Bill

The report of the Select Committee of the House of Lords on the Road Traffic (Compensation for Accidents) Bill announced that the committee had heard witnesses representing the Ministry of Transport, the Ministry of Health, the Home Office, the British Hospitals Association, King Edward's Hospital Fund and the British Medical Association, besides representatives of the motoring interests and had received aid from the Government actuary The committee was greatly impressed by the gravity of the problem with which the Bill dealt, and found no likelihood of accidents attributed to mechanically propelled vehicles being substantially decreased in future Insurers' representatives stated that an analysis of 20 222 claims showed that in 4 529 cases no compensation was paid to the person injured The committee had reason to believe that in many cases inadequate compensation was paid The Bill, as referred to the committee, proposed that negligence on the part of the motorist be assumed unless the contrary was proved, the defendant being exonerated only where the accident was wholly due to the fault of the pedestrian Where no negligence was proved on either side the motorist was made liable The Bill departed from a principle of the Common Law, which had been subject to other invasions The committee pointed out that in eleven out of thirteen foreign countries negligence was assumed on the part of the motorist unless the contrary was proved In some of these countries a greater degree of care was imposed by law on pedestrians The committee came to the conclusion that a further departure from the general principles of the law of negligence was justified in respect of motor cars Where a pedestrian without negligence on his part was injured by a motorist whether negligent or not, he should be entitled to recover damages Where there had been contributory negligence the pedestrian should be debarred from recovering full damages but not be deprived altogether of compensation The committee reported that it had made amendments to the Bill It proposed that in the case of all children under 14 involved in motor accidents the parents should have the right to recover medical and funeral expenses bringing the law of England into harmony with that of Scotland.

The report continued

'Clause 3 is a clause which was submitted to the committee for adoption in the course of evidence given by the Right Hon J H Whitley on behalf of King Edward's Hospital Fund Mr Whitley pointed out that Section 36 of the Act of 1930 had worked unfairly in various ways For example, some insurance companies have contended that an *ex gratia* payment to an insured person is not a payment made 'under a policy' within the meaning of the section and, therefore, carries no hospital payment, the limit of the hospital payment to a maximum of £25 has proved much too low, as in a large number of cases that amount is greatly exceeded the claim to payment under the section is forfeited if a hospital has made a charge, however small, and some insurance companies have even contended that payments received by a hospital under a workmen's contributory scheme are equivalent to payments made to meet a 'charge,' and further, the section does not authorize any claim to payment for the treatment of out patients It is understood that as the result of the working of the present law the voluntary hospitals are subjected to an uncovered expenditure of at least £200 000 per year on the treatment of motor accident cases The committee are of the opinion that this condition of affairs ought to be dealt with by legislation and they recommend the clause for adoption by the House

Clauses 4 and 5 attempted to deal with the speculative solicitor and with persons who haunted hospitals and passed

injured pedestrians and others to employ them for the pursuit of their claims on terms of "No cure, no pay."

The committee inserted a provision that the Act should not come into force until six months after it passed.

The House of Lords in committee on July 18th considered the amendments to the Bill. Lord DANESFORT said that as the Bill emerged from the Select Committee Section 36 of the Road Traffic Act, 1930, with respect to payments to hospitals, had been amended. Clause 3 of the Bill now provided that where a payment was made by the authorized user or owner of a vehicle in respect of the death of, or bodily injury to, any person through the use of the vehicle, and the dead or injured person had, to the knowledge of the authorized insurer or owner, received treatment at a hospital, the hospital expenses reasonably incurred in such treatment should be paid by the authorized insurer or owner, after deducting from such expenses any money actually received by the hospital in payment of a specific charge for such treatment. The EARL OF PLYMOUTH said that the Government regarded the report of the Select Committee as a valuable provision towards the solution of the admittedly difficult problem of compensation in the case of motor accidents. The Government had not yet had an opportunity to consider the clauses, but he thought the Select Committee had considerably improved the Bill. There was no hope of any legislation passing this year.

The committee agreed with the amendments of the Select Committee.

Maternal Mortality

Replying, on July 20th, to Mrs. Runge, Sir HILTON YOUNG said that the rate of maternal mortality in 1932, though higher than in 1931, was slightly lower than in the three preceding years. It was not possible to assign specific reasons for these small variations in the yearly rate. Whether increased mortality was due to increased average age at which mothers had children was an aspect of the question constantly under investigation and consideration by statistical analysis of the age distribution of maternal mortality. The allegations that the Government in making "cuts" was making conditions worse for mothers were without foundation. It was the Government's constant policy to press the development of the maternity services. It was not always possible to relate statistics of mortality to any particular area which was not recognized by the Registrar-General as a unit area for the collection of statistics, and deductions based upon mortality in areas which were not sufficiently big to give a true statistical basis were often very misleading. Answering Sir Francis Fremantle on the same day, Sir Hilton Young stated that in England and Wales sixty-one county councils, eighty-three county borough councils, and 289 other borough and district councils provided services under the Maternity and Child Welfare Act, 1918. At the end of 1932 sixteen county councils, forty-three county borough councils, and forty-six other borough and district councils were exercising the power to pay a midwife's fee in cases of necessitous mothers whose confinement took place in their own homes. He did not think a deduction that the majority of local authorities were making inadequate use of these powers would be accurate.

Air Ambulance in Scotland

Mr. SKELTON, on July 25th, told Mr. Kirkwood that the Secretary of State for Scotland had considered the communication sent to him from the Midland and Scottish Air Ferries, Ltd., in regard to the proposal for an air ambulance service between the Western Isles and Glasgow, for the conveyance of urgent cases to the city hospitals. The Department of Health proposed to arrange a meeting with representatives of the Midland and Scottish Air Ferries, Ltd., to discuss the experience which the company had already gained in operating an air ambulance service in the Highlands and Islands. Mr. KIRKWOOD asked if the Secretary for Scotland was not aware that the British Red Cross Society already, in conjunction with the Government, was supplying an aeroplane for the Manchester district, and also was flying from Croydon. He asked why the right hon. gentleman was holding up something similar which was to take place in Scotland. Mr. Skelton said that so far from holding this matter up, they were engaged in inquiring into it. Mr. T. RAMSAY asked that, in matters affecting the maintenance of the surgical services in the Western Islands, due regard should be taken of the medical officers and the boards of management of the various hospitals there, who were acquainted with this problem from a practical standpoint. He asked Mr. Skelton to ascertain the views of various district councils, who knew the geographical and transport problems of the islands. Mr. Skelton said that all the matters concerned would be taken into account.

Increased Death Rate following Rehousing

On July 25th Mr. LOUIS SMITH asked the Minister of Health if his attention had been called to the report of the medical officer of Stockton-on-Tees, that the average death rate of a population transferred from slum areas to new hygienic conditions showed an increase. Mr. SHAKESPEARE replied that the report had been fully considered and the Minister had caused inquiries to be made in other areas. These inquiries tended to show that the conditions reported in Stockton-on-Tees were exceptional. The experience in other towns where inquiries had been made showed that slum clearance and rehousing were normally associated with a substantial improvement in health, particularly in the case of children.

Expenditure of Insurance Committees

Replying on July 24th to Mr. Thorne, Sir HILTON YOUNG said that under Section 2 of the National Health Insurance Act, 1926, a sum not exceeding 13s. per member per annum was payable by approved societies in respect of the provision of medical benefit. Out of this a sum not exceeding 6d. per member per annum was available for the administrative expenses of Insurance Committees. During the last few years the actual amount spent by Insurance Committees on administration had been slightly less than the product of the 6d. available, but in so far as the cost of the service was less than the maximum sum of 13s. per member, any such unexpended amount fell to be taken into account in determining the future charges to be made to approved societies. He had no power to utilize any such balance for the provision of medical benefit for persons who ceased to be insured under the Acts.

The "Noise Nuisance" from the Air.—On July 12th Mr. LOVAT FRASER asked for the appointment of a committee to recommend how the noise of aerial machinery could be made less harassing and injurious. Sir PHILIP SASSOON replied that much had already been done on experimental lines to reduce noise from aircraft. The difficulty was that an effective silencer seriously curtailed performance. He hoped eventually to attain a reduction of noise without a prohibitive sacrifice in other directions. He did not consider the appointment of a new committee would advance matters. A special aircraft noise subcommittee of the Aeronautical Research Committee had been engaged on the problem for some time in collaboration with the National Physical Laboratory. Sir Philip told Mr. Smedley Crooke on July 13th that to insist on an undertaking from all air pilots that they would set a course at least 300 feet high over all houses and that when pupils were under instruction the course should be over open country, would often be impracticable for technical reasons and inadvisable from the point of view of safety in flying.

Food Storage in Enamelled Vessels.—On July 20th, replying to Mr. Joel, Sir HILTON YOUNG said he had not thought it necessary to discourage the use of enamel ware in public institutions. He had issued a general warning that now that the use of antimony in place of tin had become common in the manufacture of enamel glazes, enamelled hollow-ware vessels, obviously intended for other purposes, might be dangerous if used for preparation or storage of food or drink.

Pensionable Services under India's New Constitution.—Sir S. HOARE informed Sir E. Graham-Little that all members of the regular Indian services, both military and civil, whether or not they held H.M. commission, were in the same position as regarded the payment of pensions in respect of their Indian service. The position was that those pensions had been in the past and were now charged to Indian revenues alone; and it was proposed that they should continue to be so charged under the new constitution. He could add nothing in this respect to the statement he made on March 7th, 1932.

Medical News

A meeting and dinner in connexion with the Old Residents' Club, Manchester Royal Infirmary, will be held on October 7th. Members who have not yet received an invitation are asked to communicate with the Secretary, Old Residents' Club, Manchester Royal Infirmary.

A tour of the French Alpine spas will be held from September 5th to 17th, under the direction of Professors M. Villaret, M. Piery, and E. Chabrol. The therapeutic centres to be visited include Vals, Grenoble, Uriage, Aix, and Evian. The inclusive price will be 1,100 francs. The tour will end at Evian, where a congress on renal insufficiency has been arranged for the three following days, September 18th to 20th. Among the topics for discussion are the relation of the composition of the blood plasma to renal oedema, alteration of the blood calcium in renal insufficiency, extrarenal azotaemias, chlorine in nephritis, treatment of anuria of infective and toxic origin, and the action of renal impermeability on the endogenous metabolic processes in nephritic patients. The fee for the congress is 75 francs. Further information may be obtained from the Federation of the Health Resorts of France, Tavistock House (North), Tavistock Square, W.C.1.

The twelfth American Congress for Physical Therapy will be held in Chicago from September 11th to 15th. Further information can be obtained from the Executive Secretary, 30, North Michigan Avenue, Chicago.

The ninth annual congress of the Far Eastern Association of Tropical Medicine, which was to have been held at Nankin, has been postponed.

The twenty-seventh Congress of Polish Surgeons will be held at Posnan from September 12th to 15th, when discussions will take place on hypertrophy of the prostate, introduced by M. B. Szerszinski and M. B. Laskovnicki, and treatment of malignant growths, introduced by Professors A. Jurasz and K. Mayer.

The annual general meeting of the Medical Society of Individual Psychology was held on July 13th, when Dr. J. C. Young was elected chairman, and Professor W. Langdon Brown vice-chairman for the ensuing season, with Dr. F. G. Crookshank as secretary and editor, and Dr. H. C. Squires as treasurer. In his report as secretary Dr. Crookshank said that during the session now drawing to a close the attendance at meetings had steadily increased, the average number of members, associates, and visitors present being 38.2. The list of subscribing members and associates now totalled 114. Dr. Crookshank referred also to the increasing success of the individual psychology pamphlets, which had only been made possible by Mr. Daniel's generosity. The next session will open on October 12th, at 11, Chandos Street; Dr. Adler may visit England before this, and deliver an address towards the end of September. Communications relating to these and other meetings should be made to Dr. Crookshank at 57A, Wimpole Street, W.1.

The next award of the Hunterian Society's gold medal will be made in 1934 for essays received not later than December 31st, 1933. The competition is open to all general practitioners of Great Britain, Ireland, and the Channel Islands. The rules governing the award may be obtained on application to the secretary, Mr. Andrew McAllister, at 79, Wimpole Street, W.1.

Merchandise Marks (Imported Goods) No. 5 Order, 1929, requires that thermometers imported separately or as part of any other article shall bear an indication of origin applied by acid-stamping or etching, sand-blasting, engraving, or burnt-on enamel. A Direction issued by the Board of Trade provides that, in the case of mounted thermometers, the indication of origin may be alternatively stamped, printed, impressed, stencilled, or branded in a contrasting colour on the front of the scale or mount. The Board has now referred to the Standing Committee appointed under the Act the question whether the Order in Council should be amended either in accordance with the terms of the Direction or otherwise in respect of the goods in question. Representatives of any interests substantially affected who desire to make representations to the Committee should communicate with the Secretary, Mr. E. W. Reardon, at the Board of Trade Offices, Great George Street, S.W.1, not later than August 5th.

The considerable contribution made by representatives of veterinary practice to the People's League of Health's recent investigation into the relation of tuberculosis to the milk supply emphasized the close relation existing between the diseases of animals and the public health, and at a recent meeting of the Council of the League it was decided to set up a veterinary council.

According to official statistics the total number of deaths from all causes in Spain during 1932 was 388,895, or 19,716 less than in 1931. The excess of births over deaths was 281,630. The mortality from all causes in Spain during 1932 was 16.44 per 1,000 inhabitants. The infantile mortality was 112 deaths under one year for every 1,000 born alive, as compared with 117 in 1931.

At the meeting of the Central Midwives Board for England and Wales on July 20th approval as lecturer was granted to Dr. Elizabeth Main Moore, St. Giles's Hospital, Camberwell; and Dr. Erichsen Sutton Page, St. Mary Abbots Hospital, Kensington (*pro tem*).

Among the bequests in the will of the late Mr. H. T. Mills, Squire of Langton, Leicestershire, is included the sum of £100,000 to Leicester Royal Infirmary, "to be held as a permanent endowment of the ward about to be erected at the infirmary at my expense."

The King has approved the reappointment of Dr. K. S. Wise as a nominated member of the Legislative Council of Trinidad and Tobago.

The 375th anniversary of the foundation of the University of Jena was celebrated on July 1st and 2nd.

Dr. Rollier of Leysin has been nominated an honorary member of the Medical Society of Copenhagen.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

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MEDICAL SECRETARY, *Mediocra, Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams *Bacillus, Dublin*, telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams *Associate, Edinburgh*, telephone 24361 Edinburgh).

QUERIES AND ANSWERS

Mouth Dryness

Dr. W. JOHNSON SMYTH (Bournemouth) writes in reply to the inquiry published on April 8th (p. 639): Mountain ash berries (rowan berries) are perhaps the best of all sialagogues. They are plentiful this year and ought to be preserved by the usual methods of fruit preserving or hung up to dry so as to be available for the next twelve months. The berries ought to be plucked before they ripen fully, otherwise they become sweet, and are not then so effective.

Income Tax

Depreciation of Car

"J. R. T." bought a 12-h.p. car in 1927 for £408, and sold it in March, 1933, for £41, buying a 10-h.p. car for £171. He has claimed the loss on sale of the old car £408−£41=£367, but the inspector of taxes will allow only £171−£41=£130—that is, the actual out-of-pocket cost of replacement.

*** There are two alternative methods of dealing with such transactions: (*a*) claiming "depreciation" year by year and "obsolescence" when the car is replaced, and (*b*) claiming cost of renewal. "J. R. T." has adopted the second, which is simpler but less satisfactory, because where the price level has fallen the renewal allowance is inadequate to cover the capital loss. If he had claimed depreciation at 20 per cent. on the written-down value from 1928-9 onwards he would have received (£82+£65+£52+£42+£33=) £274 by 1932-3 inclusive, and could then have claimed "obsolescence"—that is (£408−£274−£41=) £93, as an expense of the year ending March, 1933, so that the aggregate allowances would have covered the capital loss. In all the circumstances we advise "J. R. T." to lodge a claim with the inspector of taxes under Section 24 of the *Finance* Act, 1923—which provides for redress where excessive tax has been paid owing to an "error or mistake" in the taxpayer's return—for a revision of the past five years' assessments to give effect to the depreciation and obsolescence allowances which he has omitted to claim.

New Partnership—Cash Basis

"G. O. C." entered into partnership in a practice in 1930, and took it over entirely as from March 31st, 1932. "The assessment for 1933" is being dealt with on the basis that the gross income is the cash receipts for the year to March 31st, 1933, plus all unpaid bookings as at that date. (We assume that the "cash receipts" so taken exclude those relating to bookings for work done prior to March 31st, 1932.) Is this method usual? It has not been previously applied in "G. O. C.'s" case, and causes extra trouble each year.

*** It is clear that tax is payable on trade or professional profits due but unpaid, and the adjustment of the amount of the cash receipts—upwards or downwards—for the increase or decrease in debts due to a practice is undeniably correct. In many cases the amount of the unpaid debts remains fairly steady, and the "cash basis" is accepted by the revenue without adjustment. But where a practice is treated as a new one—or where part of the cash receipts go to a retired partner—the taxpayer's "income" for tax purposes is something more than would be calculated from his cash receipts alone, and "G. O. C." appears to be under the necessity of admitting the adjustment for bookings. He is, however, entitled to deduct from the gross amount of the outstanding bookings any sums which he has reasonable grounds for thinking he will never receive.

LETTERS, NOTES, ETC.

Intussusception in a Family

Mr. J. ARMSTRONG, F.R.C.S.I. (Ballymena), writes: May I add one to the curious surgical records which we see occasionally, and to which Mr. McAdam Eccles made an addition in the *British Medical Journal* of July 15th in his record of the case of repeated nephrolithotomies. There is in our neighbourhood a family in which there are six children, three girls and three boys. Upon each of the three boys I have operated in infancy for intussusception, the last one at the age of 8 months about three months ago. In this last case, five days after the operation, intussusception recurred at a different part of the bowel, and the baby had to be done a second time. All the operations were successful, and the boys are up to the present all healthy children. The cause of the frequency of the intussusception in the family may be pure chance, or it may be congenital neuro-muscular incoordination affecting the males only.

Treatment of Chorea

"G.P." (Surrey) writes: Would it not be wise to try drugs first before proceeding to new and dangerous treatments for chorea? I am acquainted with a bad case that went on for years. The child could never go to school or play with other children, dropped articles, and was always falling down. She was treated by several doctors and sent to a home—all without result. This case was completely cured in a few weeks with large doses of arsenic. The child now is fit for school and can play with her companions. With all these new treatments there is a danger of medicines being forgotten. It is like Charlie Chaplin, who, after working for hours trying to break into a house, found the front door open. Surely the golden rule is, "Try simple measures first."

Herpes and Varicella

Dr. W. L. TEMPLETON (London, N.) writes: It is rather a remarkable coincidence that on the day I read Dr. Silcock's article on "Herpes Zoster Brachialis with Concurrent Varicelliform Eruption" I should see a similar case in a patient of the same age. Miss X, aged 74, developed on July 19th, after three days of neuralgic pain, a typical herpes zoster of the first branch of the right trigeminal nerve; the eruption was profuse on the forehead and the nose, but the cornea did not seem affected. Three days later my attention was drawn to a vesicular eruption on the face, both sides of the neck, chest, and the back as far down as the waist, which on inspection looked like a typical chicken-pox. There was no history of contact with chicken-pox, and the patient remembers from a history of slight scarring on her forehead that she had had a severe attack of chicken-pox in childhood. The order of eruption in both Dr. Silcock's and my own case would lead one to suggest rather that the vesicular rash, whether true varicella or not, is an atypical manifestation of the virus of herpes zoster.

Diagnosis of Scarlet Fever

Dr. F. R. HUMPHREYS (Wokingham) writes: The difficulty attending the arrest of an epidemic of scarlet fever emboldens me to give the following particulars of an epidemic which passed through my hands some years since, and was only arrested after some four months of it. Sixty-nine cases in all were sent to the local isolation hospital out of some three hundred boys. The first two cases were severe and unmistakable. The Dick test was made use of, Dick-positive individuals being subsequently immunized. The latter proved to be carriers during their immune period. Very early the symptoms ceased to be characteristic—some slight increase of pulse rate and possibly some sore throat. The only definite symptom manifested throughout was a slight oedema of the skin, with some doubtful rash in a few cases. The skin felt rough and dry. On picking it up it was thickened, and the normal limit of the epithelium was indefinitely demarcated from the subcutaneous tissue. This skin symptom came to be regarded as pathognomonic among those who had been exposed to infection, and isolation followed. The correctness of the diagnosis was indicated by the fact that, with two exceptions, all subsequently peeled and the epidemic ceased. Examination of throat swabs for haemolytic bacteria proved of the greatest value.

The Bridge of Allan Conference

Sir HENRY S. LUNN, M.D., writes from the Reform Club: I shall be glad if you will allow me to correct a misapprehension which has arisen. On May 20th, 1933, a medical conference was held at Bridge of Allan in which several well-known medical men took part. The conference resulted from an invitation which I issued, the subject of the discussion being "Rational Dietetics." In subsequent publications for which I was responsible the title "Modified Fasting and Dietetics" has been used as having been the subject of discussion at the conference. I regret that this title has been used rather than the title "*Rational* Dietetics," which was originally agreed upon with the chairman before the conference took place, and which latter was, in fact, the subject of discussion at the conference, and appeared on the invitations sent out to the medical members of the conference. I have taken steps to have the correction made on all future publications issued relating to the conference in question.

Caravan and Camp Sites (1933), published by the Automobile Association, is a comprehensive list of over 1,500 sites. All practical points—charges, postal address, accessibility for caravans, access to sea, etc.—have been indicated. The booklet is a companion to *Caravanning and Camping*, and is issued free to members of the A.A.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 31, 32, 33, 36, and 37 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 34 and 35.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 80.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

81 Causes of Death Among Jews

C BOLDUAN and L WEINER (*New England Journ Med* 208 S, 1933, p 407), whose study is based on 14,047 Jewish and 27,186 white non Jewish deaths in New York City in 1931, found, as was to be expected, a marked difference in the frequency of diabetes as a cause of death in the two groups In Jewish females the frequency of diabetes rose rapidly after the age of 40–44, and reached its peak at 60–64, when 120 deaths per 1,000 were noted from this disease The rate for non Jewish females never rose above 65 per 1,000 Among Jewish males it never exceeded 45 per 1,000 deaths from all causes, while among non-Jewish males the rate per 1,000 ranged between 15 and 30 The death rate from tuberculosis was decidedly less among Jews of both sexes than among Gentiles, and the peak was five years later Deaths from pneumonia were also less frequent among Jews, with slight variations throughout all the age periods The study of cancer of the various organs and systems among the two groups gave the following results In Jewish females the frequency of cancer rose sharply to a peak in the period 40–44, when it was 275 per 1,000, while in non Jewish females it reached its peak at the age of 50–54, when it was not quite 200 per 1,000 Similarly, in males the cancer deaths rose more abruptly and higher in Jews than in non-Jews, the peak being much later than among females The prevalence of diseases of the liver as a cause of death was somewhat lower among the Jews than among the non Jews The results regarding syphilitic diseases confirmed those previously made at the New York Department of Health —namely, that syphilitic disease was less common among Jews than among the non Jews Suicides were more frequent among the Jewish deaths, both male and female, than among non-Jews There was no great difference in the relative frequency of cardio arterio renal disease among Jews and non Jews.

82 Hypersensitiveness to Insulin

L M BRYCE (*Med Journ of Australia*, March 25th, 1933, p 371) reports a case showing an extreme degree of hypersensitiveness to insulin It was found that on giving the patient a therapeutic dose of insulin a very severe local and general reaction resulted Accordingly, numerous intradermal tests were made, and it was revealed (1) that the reaction varied directly with the amount of insulin in the injection rather than with the volume of the latter, (2) that similar reactions were given by several brands of insulin, irrespective of their different modes of preparation, (3) that similar reactions were given by insulin from three different species (pig, ox, sheep) prepared by identical methods These findings suggested that for desensitization it was immaterial which brand of insulin was used, and that 1/20,000 unit would be a safe initial dose Desensitization was therefore commenced with this amount of standard "Commonwealth" insulin, freshly and suitably diluted in the usual diluting fluid The dose was increased daily, although it was occasionally necessary to miss a day owing to some local reaction occurring On one occasion only during the process of desensitization was a severe general reaction produced This occurred after 0·6 unit had been given Relief was procured by the intermittent administration of adrenaline (1 mmim every thirty seconds) After this attack an interval of three days was allowed before the treatment was continued, and no further general reaction occurred Ultimately a degree of desensitization was obtained which admitted the administration of insulin in ordinary therapeutic doses The author considers it highly probable that in this case the insulin itself and not some contaminating substance was the active agent in producing the allergic reaction It is pointed out, however, that it is difficult to conceive of sensitiveness to insulin being acquired if the human hormone does not differ in chemical composition from that derived from other species Nevertheless, it remains possible that fresh antigenic properties are conferred upon insulin itself during the course of preparation *in vitro*

83 Influence of Subtotal Thyroidectomy on the Heart

HAROLD H ROSENBLUM and SAMUEL A LEVINE (*Amer Journ Med Sci*, February, 1933, p 219) discuss the results of subtotal thyroidectomy in patients with hyperthyroidism and significant heart disease A follow up study was made of sixty nine thyrocardiacs in whom subtotal thyroidectomy had been performed All had gross evidence of congestive or anginal heart failure before operation There were two post operative fatalities and of the remainder the average length of follow up was four to five years Six patients died since the operation after an average survival of 2·5 years The seven had been restored to normal health or to resumption of moderate activities The authors give details of blood pressure basal metabolic, and other changes which were noted after operation The investigation showed that, following operation, not only was there marked immediate improvement in the various evidences of circulatory embarrassment, such as congestive heart failure, angina pectoris and disturbing irregularities of the heart, but this improvement was extremely well maintained The great rarity of congestive heart failure in young patients with hyperthyroidism, and the almost uniformity of other forms of heart disease (mitral stenosis, hypertension, coronary artery disease, etc) in those with significant cardiac embarrassment, makes it probable that hyperthyroidism is rarely the sole cause of heart failure The occurrence of striking improvement following subtotal thyroidectomy in a patient with advanced congestive heart failure, in whom the thyroid gland was normal, suggests that this operation may be more generally useful in the treatment of various forms of cardiac disease

Surgery

84 Excision of Sympathetic Ganglia

W M CRAIG and J W KERNOHAN (*Surg Gynecol and Obstet* April, 1933, p 767) record a study of 208 cases in which the cervico-thoracic sympathetic ganglia were removed to obtain sympathetic denervation of the upper extremities, and the second, third, and fourth lumbar ganglia were similarly dealt with for denervation of the lower extremities The clinical conditions which required this line of treatment were Raynaud's disease, thromboangiitis obliterans, chronic infectious arthritis, and scleroderma Histological examinations of the glands were made in all cases, but nothing was found to explain the various vascular disturbances All the changes observed fell within limits that could be attributed to advancing age of the patient concerned, and comparison with control normal cases negatived any aetiological conclusions being reached Thus small collections of lymphocyte cells were found in all the ganglia, closely simulating lymphocytes but possibly representing proliferated endocapsular cells replacing degenerated or disintegrated ganglion cells These cells were always in groups, and were not associated with the blood vessels The present authors confirm previous observations to the effect that the number of pigment granules in the ganglion cells increases with advancing years, and that the pigment is of two kinds—namely, a lipochrome which stains with Sudan III and a fat free type which has an affinity for silver and is probably a true melanin pigment They are satisfied that this pigment has no connexion with the disease for which the ganglia were removed They conclude that the toxic agent causing the vascular disease does not act on the sympathetic ganglia Since excision of these structures

leads to improvement of the blood supply to the affected limbs, it would seem that the ganglia act simply as relay stations for impulses from higher centres where the disease in each case originates. The authors summarize the salient clinical manifestations in the four disorders, and record an illustrative clinical example of each. Only those cases in which the results of the operation were good were relied upon for deductions, and the uniform negativeness of the histological findings would seem to indicate definitely that the cause of the various conditions must be sought elsewhere than in the sympathetic ganglia.

85 Post-operative Myxoedema without Tetany

M. DUVOIR, G. KÜSS, J. PÉRISSON, J. BERNARD, and KIEPFER (*Bull. et. Mém. Soc. Méd. des Hôp. de Paris*, April 10th, 1933, p. 457) describe the case of a man, aged 62 years, who had observed for five months a rapidly increasing swelling of the neck. When asphyxia threatened he sought advice. The tumour was as large as a fist, apparently involving both lateral lobes equally. Total extracapsular thyroidectomy was performed on January 30th, 1932. The tumour completely surrounded the trachea. The parathyroids were not removed. Histologically the tumour was a very malignant epithelio-lymphosarcoma. The patient received 1½ grains of thyroid extract daily; no sign of myxoedema nor tetany. Nine days later the temperature rose to 102.5° F., and the sputum was full of pneumococci. Convalescence was delayed by severe anaemia. Thyroid medication was continued for three months. Eleven months after operation the patient was readmitted with all the signs of severe myxoedema, which supervened two months after his first discharge. With daily doses of 4½ grains thyroid extract he improved rapidly, both physically and mentally. It is proposed to implant portions of hypertrophied thyroid from another patient. Several cases of total thyroidectomy have been recorded (chiefly in young patients) in which myxoedema has not supervened. It is probable that in those cases compensatory activity of other endocrine glands occurred. In this case the obvious malignancy of the tumour precluded partial ablation. Had any portion of thyroid tissue been left early recurrence of the neoplasm seemed inevitable. Fourteen months after operation the patient remains quite healthy, except for myxoedema, which is controlled by opotherapy, and may be cured if the proposed operation is successful.

86 Treatment of Keloid

R. PASSOT (*Presse Méd.*, April 5th, 1933, p. 544) describes the treatment necessary for the complete removal of keloid. Recurrence occurs if the smallest portion of keloid is left, and therefore surgical treatment must aim at the excision of the entire keloid mass, including any extension below the skin. Excision must be as complete as if a malignant tumour was being removed. After removal of the keloid tissue the depression left must be filled in by a fat graft. After this there is frequently a tendency to the formation of secondary keloid caused by local irritation. This can be overcome by the immediate application of radium. The dermo-epidermic suture gives good results, but where there is a long incision the double intradermic suture is suitable and is less irritating to a sensitive skin. An anchored dressing should be used. In order to prevent the development of secondary keloid it is necessary that radium should be applied either at the time of operation or, at the latest, the day after, when one application will be sufficient. It has been found that if this is delayed a pre-keloid condition will be present by the sixth day, which will be fully developed a few days later. It is suggested that the period of greatest activity for the growth of keloid is in the first few hours, and for this reason simultaneous excision and irradiation is advisable. The tubes, each containing 10 mg. of radium, should be placed along the scar at a distance of 1 cm. from the skin. If one tube is used it should be left in position for twenty-four hours, but where several are necessary the time should be fifteen to twenty hours. Twenty-two cases have been treated by this method, and there was only one recurrence.

Therapeutics

87 Iodine Injections in Hepatic Cirrhosis

M. CHABÉ (*Gaz. Hebdomad. des Sci. Méd. de Bordeaux*, April 2nd, 1933, p. 215) refers to Carles's communication (1930) on iodo-iodide injections in chronic serous inflammations. Carles stated that cases of alcoholic cirrhosis were the most favourable for this treatment, and that wine-drinkers yielded the best results. Chabé showed his patient, a woman aged 53 years, a heavy wine-drinker, who had extreme ascites with splenic hypertrophy, pollakiuria, arterial hypotension, and dyspnoea. She appeared to have extreme cirrhotic cachexia. He tapped the abdomen, removing about 350 oz. of lemon-yellow fluid. The operation was repeated four times. In three weeks the total amount withdrawn was about seventy pints. The cachexia increased greatly and the patient appeared moribund. After another partial paracentesis (leaving about seven pints of fluid) Chabé injected 34 minims of the following solution—iodine 7½ grains, potassium iodide 15 grains, distilled water 7 oz. Twenty injections were given in four weeks, each dose being increased by 17 minims. The final dose was 85 minims. There was a slight increase of ascitic fluid. Five months later the patient's appetite and sleep had returned and her health had improved; she was able to do a little work. The ascites had increased slightly, but further tapping was unnecessary. The patient was given a strict lacto-vegetarian diet, with small doses of calomel occasionally, and pills containing euonymin, podophyllin, and belladonna extract. Chabé observes that repeated tappings had exhausted the patient, but he believes that the iodine injections stimulated the "lymphoid" tissue and promoted vascularization of adhesions, thus establishing a collateral circulation. It is probable that further paracentesis and another course of iodine injections may become necessary.

88 Treatment of Anaemia

Professor P. MORAWITZ (*Deut. med. Woch.*, April 14th, 1933, p. 560), after brief reference to the state of affairs thirty years ago, reviews recent progress in the treatment of anaemia. He considers that there can be no difference of opinion as to the great importance of liver treatment, though some doubt still exists as to the frequency of the so-called refractory cases, and as to whether the treatment is always successful on repetition in the same case. As a result of a study of 150 cases of pernicious anaemia, he considers that refractory cases must be very rare. He has had no failures provided that other diseases, such as infection or carcinoma, could be excluded. He confesses that it was not always possible to attain normal haemoglobin or total counts, even when the dosage was increased. Failure, however, is often the result of underdosage. The author draws attention to cases which, at the outset of treatment, require much larger doses of liver than is usually recommended. Since commercial preparations of liver are still very variable in activity, he recommends the use of parenteral injections of campolon. A weekly dose of 10 c.cm. of this substance led to excellent results in five cases. Stomach preparations, he finds, should be tried in difficult cases. Cases which had been treated by liver since 1926 are still found to react normally to renewed treatment when for any reason it has been discontinued. Subacute combined degeneration is rarely even improved by treatment with liver, but some slight effect is obtained with campolon. The author gives as indications for the applicability of blood transfusion—post-haemorrhagic anaemias of all kinds; chronic anaemia of the secondary type which responds neither to arsenic nor to iron, pseudo-leukaemia infantum, and aplastic forms. For haemolytic jaundice splenectomy is the only effective treatment. In severe cases of thrombopenia splenectomy leads directly to a cessation of the often severe anaemia; the author cites three almost complete cures out of five cases operated on. Iron therapy is recommended for the microcytic hypochromic forms of anaemia, which are associated with achylia

gastrica. Iron should also be tried in post-haemorrhagic anaemias, especially in the chronic varieties. The secondary anaemias of nephritis, tuberculosis, or sepsis, and the anaemias associated with neoplasms do not react to iron. Attention is drawn to the necessity of large doses of iron, and also to the better absorption of bivalent iron. The position of copper in the treatment of anaemia is still regarded as doubtful.

Dermatology

89 Treatment of Tropical Phagedaenic Ulcer

The chief causative agents of tropical phagedaenic ulcer are the *B. fusiformis* of Le Dantec and Vincent's spirochaetes. The condition is frequently associated with yaws, or the infection may be carried by fleas. The ulcer, which may evolve progressively or remain chronic for some years, has infiltrated borders and is covered with a greenish-grey firmly adherent exudate. J. ZWOLAKOWKI (*Presse Méd.*, March 22nd, 1933, p. 460) shows that the exudate is formed firstly from the lymph, and secondly from the blood and lysed tissues. Hence, compression diminishes it, and as bismuth subnitrate is absorbed locally and this absorption protects against septicaemia, its use is advocated. The author's treatment is as follows. After cleaning the ulcerated area with oxygenated water, the exudate is removed and the bismuth applied to a thickness of 1 to 3 mm. It should be introduced under the surrounding cutaneous edges and pressed down with a spatula. Lassar's paste, or a modification of it, is then applied to a thickness of 1/2 to 1 mm. The area is covered with absorbent cotton and bandaged. Correct bandaging is essential for rapid success; the bandages should be so applied as to retard the lymph flow and compress the bismuth. If the ulcers are associated with yaws, stovarsol or neosalvarsan should be given at the commencement of treatment as a prophylaxis against sequels. The author has successfully employed this method in varicose ulcers and advocates its use in these conditions. Other treatments (physical agents, vaccines, arsenical preparations, etc.) are briefly summarized.

90 Aetiology of Lichen Planus

In a preliminary report F. M. JACOB and T. R. HELMBOLD (*Arch. Derm. and Syph.*, March, 1933, p. 472) describe the isolation from twenty-five out of twenty-eight cases of lichen planus of a Gram-negative anaerobic bacillus, which was not found in normal skin nor in a number of cases of other papular diseases which were used as controls. This organism ranges in length from 2.5 to 3.7 μ, and in thickness from 0.5 to 0.7 μ. It is non-motile and has no capsule. No spores were seen. It is somewhat polymorphic, grows sparsely and only for a short time, and undergoes granular degeneration. Dense clumps of various sizes are observable in rapidly growing cultures, with relatively few individual organisms. There is no chain formation, nor is the clumping of the palisade type found in diphtheroid cultures. The medium which proved most satisfactory was semi-solid dextrose human serum agar, containing small cubes of tissue. Nine healthy subjects were inoculated with cultures of this organism in fresh scratches on the forearm. In three no reaction ensued, but in two others there was an inflammatory papular reaction along the scratches, with several small glistening papules in the neighbourhood. The condition returned to normal within a fortnight. The reactions in the remaining four subjects varied in intensity, but all persisted for some months. A papular inflammatory condition developed in all along the lines of the scratches, with papules near by. In two instances a mild but definite buccal reaction was observed. The most marked result attended the inoculation of one of the authors in whom definite clinical lichen papules developed, as well as the usual inflammatory affection of the scratches. From one of these papules the organism was recovered six weeks later, and again from a scaly plaque after a further six months. The histological structure of a papule thus induced proved to be characteristic of the lichen papule. The cornified layer was rather loose and of moderate thickness throughout. The epidermis was thin in some places, and moderately thickened in others. The stratum granulosum was thickened. The stratum mucosum showed parenchymatous and interstitial oedema. The cells were large, sharply outlined, and frequently vacuolated; they presented prominent spinous processes. The interpapillary processes were flattened. Beneath the slightly elevated area there was marked oedema of the papillary zone, extending into the superficial portion of the subpapillary zone. This area also showed an intense, sharply demarcated, cellular infiltration, composed almost entirely of lymphocytes, but containing an occasional eosinophil. The exudate was sharply confined to the papillary and subpapillary zones, extending deeper in the perivascular spaces. Only partial success attended efforts to demonstrate the specific bacilli in the tissues unless incubated for four or five days. The authors emphasize the necessity of inactivating previously the human serum used for about ten hours at a temperature between 50° and 60° C., special care being taken not to coagulate it. They think that normal serum contains an antibody which inhibits the growth of the organism, and which must therefore be destroyed before successful cultures can be obtained.

Obstetrics and Gynaecology

91 Uterine Myoma and Pregnancy

H. KÜSTNER (*Zentralbl. f. Gynäk.*, April 15th, 1933, p. 851) reports a series of 25,000 labours, in 600 of which a myoma uteri was present. Of the latter, less than 3 per cent. were accompanied by complications, so that it does not seem justifiable, in the majority of cases of pregnancy and myoma, to let the patient regard the coincidence as a cause of apprehension. If, however, numerous intramural myomata are present, or if there is a single tumour of the size of the foetal head, there is grave risk of complications in the third stage of labour or the puerperium—atonic or other bleeding and/or placental adherence, or infection of the tumour. It is therefore advisable to recommend Caesarean section followed by total hysterectomy, or to watch the course of labour in hospital. The expectant course may, however, lead to anxious situations, for extirpation of the uterus for complications, after the third day post partum, is a dangerous operation. The likelihood of a second pregnancy in a myomatous uterus is small, and it is justifiable to advise the myomatous patient to have hysterectomy done after her first labour.

92 Pregnancy following Bilateral Ligature of the Tubes

BRINDEAU and BIDOIRE (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, March, 1933, p. 274) report a case demonstrating occasional fallibility of the usual technique of sterilization. The patient had a double cardiac lesion, together with latent pulmonary tuberculosis which was showing signs of activity. When first seen she was two and a half months pregnant and, as she had already had two healthy children, there was no contraindication to interrupting the pregnancy. A hysterectomy was performed followed by sterilization. The method employed was that of Madlener—that is, crushing and ligaturing the tubes. (A percentage of success in the neighbourhood of 100 was claimed for this method at the Congrès de Gynécologie et d'Obstétrique in 1929. During the following year this woman became pregnant. Since the cardiac lesions were greatly aggravated, a subtotal hysterectomy was performed. The left tube presented two clear interruptions in its continuity. The right tube remained permeable. Although it was quite easy to see where the tube had been crushed, the isolated

tubal fragment had not only conserved its volume and normal calibre, but had become reunited to the internal and external parts of the tube by a tiny canal, the size of a pin, which traversed the crushed part. Injection of the tubes with mercury clearly demonstrated perfect permeability on the right side as far as the uterine cavity. On the left the mercury only passed for one-third of the tube.

93 Puerperal Psychoses

P. SIVADON (*Thèse de Paris*, 1933, No. 103), whose thesis is based on 145 cases, most of which are original, states that puerperal psychoses constitute about 3.5 per cent. of all mental affections. Their aetiology and pathogenesis are obscure, but three principal factors appear to play an important part in their production—namely, predisposition, infection, and auto-intoxication. In cases in which a post-mortem examination has been made evidence of encephalitis has been found, so that in a certain number of cases at least puerperal psychoses are due to a toxic or infective encephalitis. Sivadon classifies his cases in the four following groups: (1) Psychoses of pregnancy, which formed only 5.5 per cent. of the cases. They consist of either a purely mental syndrome, usually of a confusional and depressive form, or in a mental disturbance accompanied by a neurological syndrome (polyneuritis, chorea, and epilepsy). They appear to be due to the auto-intoxication of pregnancy. (2) Post-partum psychoses. These are much the most frequent, forming 80.6 per cent. of the cases, and may assume various degrees of severity or mildness. (3) Psychoses of lactation, forming 6.2 per cent. of the cases. They comprise a syndrome of depression occurring from a fortnight to six months after delivery, and are usually attributed to exhaustion. (4) Psychoses symptomatic of another affection such as dementia praecox or cyclothymia, forming 7.6 per cent. of the cases. Mental sequels occurred in about half Sivadon's cases, and were classified into: (*a*) a paranoid state following the puerperal psychoses without any transition (22 per cent.); (*b*) a mental syndrome resembling dementia praecox, and occurring after a variable interval (7 per cent.); (*c*) mental enfeeblement characterized chiefly by aprosexia (16 per cent.). It is stated that the prognosis as regards the infant is very bad. Death took place in 50 per cent., and 20 per cent. showed developmental anomalies.

Pathology

94 Histology of the Appendix in Measles

W. H. SCHULTZE (*Münch. med. Woch.*, April 14th, 1933, p. 576) describes a case which, having been diagnosed as early appendicitis, and the appendix having been removed, turned out to be not appendicitis but measles. The patient, a girl of 10 years, had often complained of abdominal pain without any cause for it being found. A few days before coming under observation the pain recurred; there was vomiting but no fever. On admission to hospital the patient simply had a coated tongue and an abdomen somewhat sensitive to pressure; temperature was 37.4° C. The appendix was removed, but there was no exudate; there were some old adhesions and some enlargement of the mesenteric glands. Histological examination gave no evidence of an acute appendix; there was some connective-tissue thickening of the serosa. The striking finding was darkly staining giant cells, which were present in great numbers in the mucous membrane between the well-preserved and well-stained cylindrical epithelial glands. The nuclei of these giant cells were as big as those of lymphocytes and numbered ten or more in one cell. The lymphatic tissue of the appendix was richly present. The author emphasizes that such an appearance of giant cells in the appendix had never before been seen, although all appendices removed at his hospital had been carefully examined for many years. Findings similar to these had been described by Finkeldey in the prodromal stage of measles, and careful comparison with this worker's sections showed that Schultze's case was of an identical nature. The child in the present case developed the rash two days after the operation, and measles was fully established one day later. Changes of the above kind have been described in the tonsils during the prodromal stages of measles and may be regarded as characteristic for this disease. Discussing the significance of the giant-cell phenomenon in the pathology of measles, Schultze considers two possibilities: either it is a question of a direct effect of the virus, in which case one has to consider whether the tonsils and appendix may not be the portal of entry, or it may be a sensitization reaction. This can only be decided by a knowledge of the changes which appear in the other lymphatic structures in the body.

95 The Leucocyte Picture in Yellow Fever

S. POSTMUS (*Nederl. Tijdschr. v. Geneesk.*, April 1st, 1933, p. 1391) found that *Macacus rhesus* monkeys which had been infected with lethal doses of yellow fever virus showed the following two distinct leucocyte pictures: (1) In fatal cases the animals showed a well-marked increase in the number of polymorphonuclear leucocytes and an increase in the number of lymphocytes, while the eosinophils disappeared after the fourth day of disease and did not reappear. (2) In cases which recovered the changes were just the reverse—namely, a marked diminution in the number of the polymorphonuclear leucocytes, while the other groups presented less obvious changes in their numbers and the eosinophils did not disappear. It may be presumed that similar changes take place in the human subject infected by the virus of yellow fever.

96 Pathology of Lead Encephalopathy

N. W. WINKELMAN and J. L. ECKEL (*New York State Journ. Med.*, April 1st, 1933, p. 427) record in detail the results of post-mortem examinations in four cases of lead poisoning, with a view to demonstrating the underlying pathology responsible for the cerebral symptoms. While no specific or characteristic arteriosclerotic changes were found in the larger cerebral blood vessels, the cells lining the smaller vessels were noticeably more prominent, swollen, and pyknotic. There was also evidence of lateral budding, resulting in new vessel formation. There was always simple cloudy swelling of the ganglion cells, and frequently ischaemia in patchy areas, with signs of focal anoxaemia. Lipoid accumulation, although present, was not a prominent feature. Foci of degeneration in the cortex had a patchy distribution, with areas of normal ganglion cells throughout. The authors argue that in lead poisoning, as in syphilis, the toxin has a special affinity for the blood vessel lining, giving rise to earlier arteriosclerotic changes than would have been otherwise expected. Therapeutically, therefore, an effort should be made to protect the brain in lead poisoning by altering the chemical composition of the blood so that the lead shall not be able to act on the walls of the cerebral blood vessels. Such vascular deterioration is held to be the underlying cause of lead encephalopathy. The swelling of the vascular lining cells which occurs in plumbism can, it seems, appear suddenly, and disappear quickly under appropriate conditions, such as the supply of oxygen to the affected parts. The authors add that there is also a definite new formation of blood vessels and an increase in the tortuosity of the medium-sized vessels, giving rise to the "gefässpaketten" picture—three or even more lumina of blood vessels—seen in the chronic stages of all infectious and toxic processes. There probably occurs also an accumulation of fluid between the muscle bundles in other parts of the body thus affected, with the consequent coagulation and frequent destruction of the muscle fibres. Such a process in the brain would explain the alterations in the ganglion cells, which are of patchy, not general, distribution. It is concluded that the glial changes are secondary to the vascular disturbance, and consequent on the variable degrees of anoxaemia which result.

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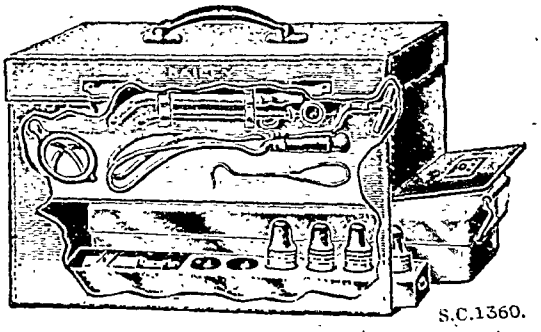
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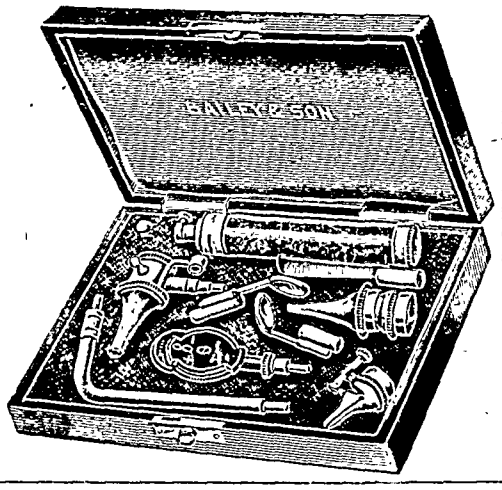
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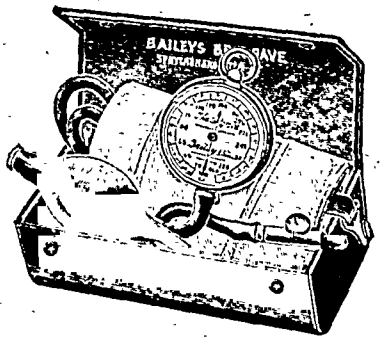


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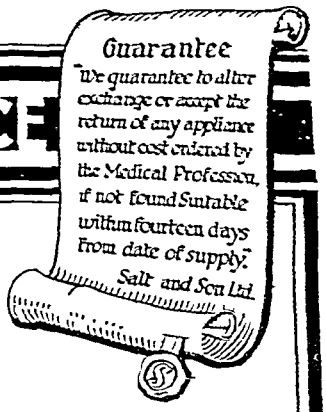
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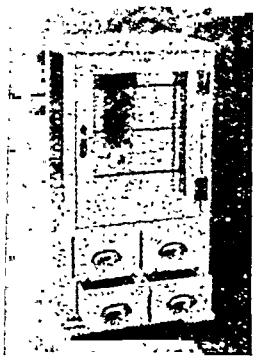
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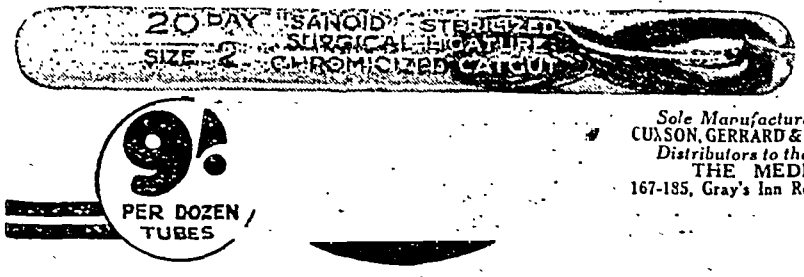
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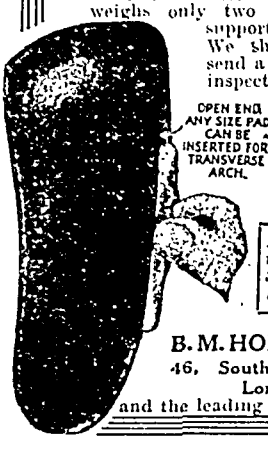
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Telegrams: "Alleviated, London." Telephone: Rodney 4741-4742.

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This REGISTERED HOSPITAL, with a SEASIDE BRANCH at Colwyn Bay, N. Wales, is for the treatment and care of those of the Upper and Middle Classes suffering from MENTAL and NERVOUS DISEASES.
The Hospital is governed by a COMMITTEE, appointed by the TRUSTEES of the Manchester Royal Infirmary.
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Preparation for the above; also for Medical Preliminary, and all examinations leading up to M.R.C.S., L.R.C.P., or M.B. of various Universities; also for M.R.C.P.(Edin.), D.P.M., D.O.M.S., D.T.M. & H., D.L.O., D.G.O., D.M.R.E., M.M.S.A., L.M.S.S.A., etc. Many successes.

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MEDICAL PROSPECTUS (48pp.)

CONTENTS:—The method and the cost of entering the Medical Profession. *Particulars of all Medical Examinations*, Postal Courses, and Oral Classes. Suggestions for the Higher Medical Examinations. Suggestions for the Higher Surgical Examinations. Suggestions for the Special Diploma Examinations. Refresher Courses. Openings for Women. Hints for writing theses.

Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, Mr. E. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6313.)

THE CANCER HOSPITAL (FREE),

Fulham Road, London, S.W.3.

UNIVERSITY OF LONDON
DIPLOMA IN MEDICAL RADIOLOGY.

A course of study in Physics and Radiology qualifying for the Diploma in Medical Radiology of the University of London will begin on October 16th, 1933, at the Cancer Hospital (Free), Fulham Road, S.W.3.

Full particulars can be obtained on application at the above address to Professor J. M. WOODBURN MORISON, or from the undersigned.

CLEMENT COBBOLD, Secretary.

MIDDLESEX HOSPITAL MEDICAL SCHOOL

LONDON, W.1.
(UNIVERSITY OF LONDON.)

PRIMARY F.R.C.S. EXAMINATION.

The next Course will begin on September 4th, under the direction of:—
Professor T. YEATES.
Professor SAMSON WRIGHT.
Professor E. C. DODDS.
Dr. J. H. WOODGER.

FEE.—20 guineas.

Applications for admission should be made to the School Secretary, Middlesex Hospital, London, W.1.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, W.2.

(University of London.)

PRIMARY F.R.C.S. COURSE.

A Course of Instruction for the December Examination will begin on Friday, September 1st, 1933, in the following subjects:
ANATOMY AND EMBRYOLOGY;
PHYSIOLOGY AND HISTOLOGY (with Practical Classes).

The classes are conducted by the Professors and Demonstrators in the respective subjects.

Fee for the Course £16 16s., or £9 9s. for either section separately. This fee includes membership of the Students' Club during the period covered by the Course.

For further particulars apply to the School Secretary.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE

(UNIVERSITY OF LIVERPOOL.)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 2nd, 1933, and January 3rd, 1934, and for the Diploma in Tropical Hygiene on January 11th and April 26th, 1934. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars, apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

BRYN SCHOOL, DOLGELLEY, and PETTON HALL, BURLTON, SALOP,

Offers special care and *tuition* for BACKWARD OR NERVOUS BOYS of any age. Fees moderate.

For further particulars apply The Secretary.

F.R.C.S.(Edin.).

PREP. COURSE with daily Lecture-Demonstrations of Museum Specimens of Surg., Path., for next Exam., will commence shortly. POSTAL TUITION at any time.—Further partics., H. C. ORRIN, F.R.C.S., Surgeons' Hall, Edinburgh.

UNIVERSITY OF BIRMINGHAM.

FACULTY OF MEDICINE.
(Associated with the General, Queen's and Special Hospitals for Clinical Teaching.)

The next Session opens on October 2nd, 1933.

The University grants degrees in Medicine, Surgery, and Public Health, and a Diploma in Public Health; also Degrees and a Diploma in Dental Surgery.

The Courses of instruction are also adapted to meet the requirements of other Universities and Licensing Bodies.

HOSPITAL APPOINTMENTS.

A large number of Resident Hospital appointments in Birmingham and District are open to qualified students of the School.

SCHOLARSHIPS, EXHIBITIONS, AND PRIZES.

Entrance and other Scholarships and Exhibitions and various Prizes and Medals are awarded annually in the Faculty of Medicine, full details of which are in the Faculty syllabus.

SCHOOL OF DENTISTRY.

(University of Birmingham and Birmingham Dental Hospital.)

The School of Dentistry, in conjunction with the General and Queen's Hospitals, affords a complete curriculum for the Dental Diplomas and Dental Degrees of the University and all other Licensing Bodies. A Dental Scholarship of the value of £46 17s. 6d., tenable for one year, is offered annually.

PRE-REGISTRATION MEDICAL AND DENTAL EXAMINATIONS.

The necessary courses of Instruction in Chemistry and Physics and in Biology may be attended in the University.

For syllabus and further information apply to STANLEY BARNES, M.D., D.Sc., F.R.C.P., Dean.

LONDON HOSPITAL MEDICAL COLLEGE.

F.R.C.S.

A COURSE OF INSTRUCTION for the Final Fellowship Examination will begin on Monday, September 4th.

Fees: (exclusive of Operative Surgery) 25 guineas. Operative Surgery 10 guineas.

A separate entry can be made for all Classes other than those of a strictly Clinical character.

Further particulars may be obtained from Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., Dean, London Hospital Medical College, Mile End, E.1.

LONDON HOSPITAL MEDICAL COLLEGE.

Primary Fellowship Examination.

A COURSE OF INSTRUCTION for the above Examination will begin on Monday, Sept. 4th.

The Fee for the Course is 15 guineas.

Further particulars may be obtained from Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., Dean, Mile End, E.1.

NORTH-EAST LONDON POST-GRADUATE COLLEGE.

PRINCE OF WALES'S GENERAL HOSPITAL, N.15.

The Practice of the Hospital is limited to Medical Practitioners. Particulars from J. BROWNING ALEXANDER, M.D., Dean.

MEDICAL CORRESPONDENCE COLLEGE

19, WELBECK ST., LONDON, W.1. Tel. Welbeck 8331

PROVIDES HIGHLY SUCCESSFUL ORAL AND POSTAL COACHING FOR ALL MEDICAL EXAMINATIONS.

Special Preparations for all Surgical Qualifications.

F.R.C.S.ENGLAND. (Primary & Final.) M.C.CANTAB. M.S.LONDON.

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And all other Surgical Degrees and Diplomas.

¶ The remarkable success of Students of the Medical Correspondence College at the higher Surgical Examinations is specially noteworthy.

¶ Both at the Primary and Final F.R.C.S. England the majority of our Students are successful at the first attempt, and Candidates who have failed at these Examinations on several previous occasions get through without difficulty after going through our courses.

¶ The Surgical Tutors of the College all hold either the M.S.Lond or F.R.C.S.England, or both, and are highly experienced teachers.

¶ The Postal Courses are thoroughly clear, concise, and up to date, and the test questions are carefully selected from those set at previous Examinations, so as to embrace all parts of the subject. By working systematically through the Course the Student is brought up to the examination standard in the minimum time, and much unnecessary reading is saved.

VALUABLE BOOK

"How to Pass the F.R.C.S.," free on application to the Secretary.

WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.1.

THE "WANDER" SCHOLARSHIP IN DISEASES OF CHILDREN.

Applications are invited for the office of "WANDER" SCHOLAR, REGISTRAR, and CLINICAL PATHOLOGIST to the Children's Department. Salary £250 per annum. Duties to commence September 1st. Candidates must be registered Medical Practitioners, who have held a resident Hospital post or posts, one of them preferably in diseases of children. The office is a whole time one, and is tenable for one year. Applications (six copies), together with six copies of three recent testimonials, should be submitted to the undersigned (from whom further details regarding the duties of the office can be obtained), not later than Friday, August 11th.

By Order of the House Committee,
CHARLES M. POWER, Secretary.

COUNTY BOROUGH OF SUNDERLAND EDUCATION COMMITTEE.

ASSISTANT SCHOOL MEDICAL OFFICER.

Applications from qualified Medical Practitioners are invited for the post of Assistant School Medical Officer (man), at a salary at the rate of £500 per annum, advancing by annual increments of £25 to a maximum of £700.

Applicants must have had three years' experience of the practice of medicine since obtaining their medical qualification.

Preference will be given to applicants who:
(1) Have had definite experience of treatment by means of X rays and Ultra-violet Rays.
(2) Have had some definite experience of School Medical work.
(3) Have enjoyed special opportunities for the study of diseases of children.

The candidate appointed will be required to devote the whole of his time to the duties of the office.

The appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and the selected candidate will be required to pass a medical examination.

Forms of application may be obtained from the undersigned, to whom they should be returned not later than Wednesday, August 9th. Canvassing will be a disqualification.

Education Office, 15, John St., Sunderland. HERBERT REED, Chief Education Officer. July, 1933.

WEST RIDING OF YORKSHIRE MENTAL HOSPITALS BOARD.

APPOINTMENT OF MEDICAL SUPERINTENDENTS

The West Riding of Yorkshire Mental Hospitals Board invite applications from duly qualified Medical Practitioners for the appointment of Medical Superintendent at the following Mental Hospitals of the Board:

(a) MENSTON, near Leeds (1,800 patients);
(b) WADSLEY, nr. Sheffield (1,980 patients),
(c) WAKEFIELD (2,400 patients).

Candidates must have had previous experience as the Medical Superintendent or Senior Assistant Medical Officer of a Mental Hospital. Preference will be given to candidates who have obtained a Diploma in Psychological Medicine, and have served the office of House Surgeon or House Physician at a General Hospital.

The person appointed will be required to devote his whole time to the duties of the office, and act in conformity with the provisions of the Lunacy Act, the general rules and regulations of the West Riding of Yorkshire Mental Hospitals Board (as approved by the Board of Control), and of the Visiting Committee.

The minimum and maximum salaries fixed for the position are £1,000 and £1,400, the annual increments being £50 (subject as to salary and increments to a temporary economy deduction in accordance with the Board's scale). The salary to be paid will (within those limits) be according to qualifications and experience.

The person appointed will be provided with an unfurnished house, which shall be deemed to be valued, for superannuation purposes, at the sum of £50 per annum. The salary and value of the unfurnished house will be subject to deductions under the Asylums Officers Superannuation Act, 1909.

Applicants must state for which Mental Hospital (or Hospitals) they wish to apply, and applications must be made on a form, which can be obtained, together with further particulars, from the undersigned, to whom the completed forms should be returned not later than September 2nd.

Canvassing in any form will be a disqualification.

(Signed) G. L. BANNER, A.S.A.A.,
Clerk and Treasurer of the Board,
Clerk of the Visiting Committees of the:
Menston Mental Hospital,
Wadsley Mental Hospital,
Wakefield Mental Hospital.

Board Offices, Wakefield. July, 1933.

CITY OF PLYMOUTH.

A RESIDENT WOMAN MEDICAL OFFICER.

Applications are invited from duly qualified and registered female Medical Practitioners for the post of Resident Woman Medical Officer at the CITY HOSPITAL, PLYMOUTH—a General Hospital of 540 beds.

The person appointed will work under the control of the Medical Superintendent. Candidates should have had previous experience as House Surgeons or House Physicians.

The appointment will be for twelve months, at a salary of £350 per annum (subject to a temporary reduction of 7½ per cent.), and quarters, food, etc., will be provided. Any other fees received must be refunded to the Corporation. The appointment will be terminable by one month's notice on either side. Any further particulars may be obtained from Mr. G. E. LARKS, the Medical Superintendent.

Forms of application will not be provided, but candidates should state their age, their previous experience, and present appointment. Canvassing will disqualify.

Applications, endorsed "Resident Medical Officer," together with copies of three recent testimonials, must be received by the undersigned on or before August 3rd.

Town Hall, Stonehouse, Plymouth. T. PEIRSON, M.D., Medical Officer of Health.
July 17th, 1933.

LEEDS EDUCATION COMMITTEE.

APPOINTMENT OF ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited for the appointment of an Assistant School Medical Officer. Scale of salary £500 per annum, rising to a maximum of £700 per annum, subject to the percentage deduction adopted by the City Council. Previous experience in similar work is taken into account in fixing the commencing salary.

The successful candidate will be required to contribute to the Local Government and Other Officers Superannuation Act, 1922.

Letters of application, stating age, qualifications, and particulars of experience, together with copies of three testimonials, should be forwarded to the undersigned not later than August 19th.

Education Offices, Leeds. W. J. BEES, Director of Education.

CITY OF MANCHESTER.

PUBLIC HEALTH DEPARTMENT.

BOOTH HALL HOSPITAL.

APPOINTMENT OF ASSISTANT MEDICAL OFFICERS

The Public Health Committee invites applications from qualified Medical Men and Women for the positions of Assistant Medical Officers at the Booth Hall Hospital for Children (750 beds), Charlestown Road, Blackley, Manchester.

Every applicant must be a registered medical practitioner and unmarried.

Preference will be given to applicants with previous hospital experience and good surgical experience.

The hospital is a recognised training school for nurses, and is equipped with all modern hospital requirements.

Salary for each appointment £250 per annum, subject to a temporary deduction of £5 10s. per annum. The amount payable is therefore, £245 10s., with board, residence, and laundry in addition, subject to the terms and conditions of the Manchester Corporation Grading Scheme. No bonus.

The appointments will be made in the first instance, for a period of six months. The successful candidates, however, will be eligible for reappointment for a further period of six months at the end of that period.

Applications, stating fully the age, training, qualifications, and experience of the candidates, with copies of three recent testimonials, and endorsed on the envelope "Assistant Medical Officer, Booth Hall Hospital," must be addressed to the Medical Officer of Health Civic Buildings, 1, Mount Street, Manchester, 2, and not to members of the committee or council, and must be received by him not later than Saturday, August 5th.

The candidates appointed will be required to commence duty as soon as possible after appointment, to devote the whole of their time to the duties of the position, to pass a medical examination, to contribute to the Corporation Superannuation Fund, and to execute the Deed of Service.

Canvassing in any form, oral or written direct or indirect, is prohibited.

F. E. WARBRECK HOWELL, Town Clerk.
Town Hall, Manchester, 2. July 29th, 1933.

COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE.

MIDDLETON-IN-WHARFEDALE SANATORIUM

The County Council of the West Riding of Yorkshire invite applications for the appointment of JUNIOR RESIDENT MEDICAL OFFICER at the Middleton-in-Wharfedale Sanatorium, near Ilkley (300 beds). The appointment will be for one year. Salary at the rate of £250 per annum, with board, residence, and laundry.

Hospital experience is an advantage.

Applications, together with copies of recent testimonials, should be sent to the County Medical Officer, County Hall, Wakefield, not later than August 14th.

County Hall, Wakefield. J. CHARLES McGRATH, Clerk of the County Council.
July, 1933.

THE QUEEN'S UNIVERSITY OF BELFAST.

JOHN DUNVILLE RESEARCH FELLOWSHIP IN EXPERIMENTAL PATHOLOGY.

Applications are invited on or before September 18th, 1933, for the above post.

Applicants must be of British nationality and hold a registrable medical qualification.

Salary £350—£500 a year according to experience.

Conditions of appointment can be obtained from the Secretary, Queen's University.

DAVID LEWIS NORTHERN HOSPITAL, LIVERPOOL
(University of Liverpool Clinical School)

Applications are invited for the post of SURGICAL TUTOR AND REGISTRAR. The appointment, which is whole time and non-resident, will be for a period of twelve months from October 1st next. The salary attached to the post is £175 per annum.

Applications, together with copies of testimonials, to be forwarded to the undersigned immediately.

THORNBURROW GIBSON, M.A., Secretary Supt.
July 24th, 1933.

BARROW, FURNESS, AND WESTMORLAND SOCIETY FOR THE BLIND

Applications are invited for the post of OPHTHALMIC SURGEON to the above Society at terms to be arranged.

Applicants should have good experience, and preferably hold a Diploma in Ophthalmology.

Applications to be sent to the Secretary, 68, Duke Street, Barrow-in-Furness, not later than August 5th.

THE COLONIAL MEDICAL SERVICE

A limited number of vacancies exist at present for MEDICAL OFFICERS in the WEST AFRICAN MEDICAL STAFF.

QUALIFICATIONS:—Applicants must be British subjects of European parentage. They must be fully qualified and be under 35 years of age. Preference will be given to candidates under 30 years of age who have held hospital or public health appointments or who have special knowledge of anaesthetics, radiology, surgery, medicine, ophthalmology, gynaecology and midwifery, diseases of the ear, nose and throat, venereal diseases, etc.

SALARY:—£660 per annum rising by annual increments of £30 to £720 per annum, then, on confirmation, £720 rising by annual increments of £40 to £960 per annum, together with a seniority allowance (payable only in West Africa) at the rate of £72 per annum. After three years' service on £960, the salary may be raised to the scale of £1,000—£50—£1,150 together with a seniority allowance of £100 per annum. In Nigeria and the Gold Coast a temporary levy on salaries is at present in operation.

QUARTERS:—Free furnished quarters are provided [illegible] or an allowance in lieu.

PASSAGES:—Free first-class passages are provided on first appointment and when proceeding on or returning from leave, annually. Second-class passages [illegible]

COURSE OF STUDY:—Selected candidates before proceeding to West Africa will be required to undergo a course of instruction, leading to the Diploma in Tropical Medicine and Hygiene. The course will commence early in October.

Further particulars and a form of application may be obtained, on application in writing, from the Director of Recruitment (Colonial Service), 2, Richmond Terrace, Whitehall, S.W.1. Completed applications must reach the Director of Recruitment not later than August 23rd.

BRISTOL ROYAL INFIRMARY.

Applications are invited for the following medical appointments for the six months, commencing September 1st.

THREE HOUSE PHYSICIANS;
FOUR HOUSE SURGEONS;
ONE HOUSE SURGEON to the Ear, Nose, and Throat Department;
ONE HOUSE SURGEON to the Gynaecological and Skin Department;
ONE OBSTETRIC HOUSE SURGEON;
ONE CASUALTY HOUSE SURGEON;
ONE HOUSE SURGEON to the Ophthalmic Department and to the Junior Assistant Surgeon.

Salaries at the rate of £80 per annum, with board, apartments, and laundry, except in the case of the Casualty House Surgeon, when the salary will be at the rate of £100 per annum, with board, apartments, and laundry.

Candidates, who must be duly qualified, to send in their applications, stating age, together with copies of not more than three testimonials, to the undersigned on or before August 4th.

The elected candidates must become members of the Medical Defence Union before taking up their appointment.

ELLIS C. SMITH, F.C.I.S.,
Secretary & House Governor.

COUNTY MENTAL HOSPITAL, WINWICK, WARRINGTON.

Applications are invited for the post of ASSISTANT MEDICAL OFFICER. Candidates must be male, single, and under 35 years of age. Commencing salary £500, rising by annual increments of £25 to £600, with further increase on promotion, subject to a deduction of 3 per cent., under the Asylum Officers Superannuation Act, 1909. There are no emoluments. The selected candidate will be required to live in the Hospital, and will be provided with board, lodging, etc., for which a charge of £150 a year is made. A temporary abatement from the gross salary will be made, the amount of the abatement on £500 being £18 15s. The possession of a Diploma in Psychological Medicine will entitle the officer to an additional £50 per annum. Applications, giving full particulars, with testimonials (copies only) should reach the Medical Supt., not later than August 3rd next.

THE ROYAL HOSPITAL, WOLVERHAMPTON.
(Incorporated under Charter.)

HOUSE SURGEON required.

The Hospital contains 300 beds, includes the usual special departments, and is recognised by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice.

Candidates must be registered under the Medical Acts and unmarried.

The appointment is for six months. Salary at the rate of £100 per annum, board, furnished rooms, and laundry provided.

Applications, with copies of testimonials, to be forwarded to the undersigned.

Wolverhampton. W. H. HARPER,
July 17th, 1933. House Governor.

INGHAM INFIRMARY, SOUTH SHIELDS.

Wanted, SENIOR and JUNIOR HOUSE SURGEONS (male). Salaries £200 and £150 per annum respectively, with residence, board, and washing. No out-visiting. Candidates must hold registered qualifications in medicine and surgery. The appointment will be terminable by one month's notice. Applications, stating age and accompanied by copies (which will not be returned) of recent testimonials, to be sent to the undersigned from whom further particulars may be obtained.

JOHN POTTER, Secretary.

WARRINGTON INFIRMARY AND DISPENSARY.

The Board of Management invite applications for the post of JUNIOR RESIDENT (male, unmarried) to act as CASUALTY OFFICER, and have charge of Medical Beds. Applicants, who must be of British nationality, must be qualified medical practitioners.

Salary £150 per annum, with board, apartments, and laundry.

The post is tenable for six months, with probable promotion at the end of that time.

The Hospital has special departments—that is, Orthopaedic, Skin, Aural, Genito-Urinary, Gynaecological, etc.

Applications, stating age and qualifications, with copies of three recent testimonials, should be sent in at once to the undersigned.

By Order,
HENRY L. BOOT,
July 24th, 1933. Supt. & Secretary.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.1.

Applications are invited for the post of HOUSE [illegible] months from August [illegible] in Casualty and Out [illegible] salary at the rate of £120 per annum, with board and residence.

Applications, stating age, experience, and qualifications, accompanied by copies of four testimonials, to be sent to the undersigned at once, from whom rules and other particulars can be obtained.

By Order of the Committee of Management,
W. H. SIDNELL,
July 4th, 1933. Secretary-Supt.

TUNBRIDGE WELLS AND COUNTIES GENERAL HOSPITAL.

Wanted, HOUSE SURGEON (male). Candidates must be unmarried and duly qualified in Medicine and Surgery. May be required to lecture to Nursing Staff. (Two Residents.)

In-patients number over 1,400 yearly. Out-patients 6,000, with 50,000 attendances.

Salary £160 per annum, with board, residence, and laundry, in the Hospital.

This Hospital is approved by the University of London for the purposes of the M.D. and M.S. examinations.

Applications, stating qualifications, with certificate of registration and copies of testimonials, should be sent immediately to the undersigned. Vacancy occurs September 1st.

TOM B. HARRISON, Secretary.

GENERAL HOSPITAL, NOTTINGHAM.
(386 Beds.)

A HOUSE SURGEON is required at the above Institution. The appointment is for six months with salary at the rate of £150 a year, with board, residence, and laundry. Candidates, who must have had previous Hospital experience, are desired to send applications and full particulars as to age, qualifications, and experience, together with copies of testimonials, to the undersigned, not later than Saturday, August 5th. Duties to commence on or about Friday, August 25th.

PETER M. MACCOLL,
House Governor and Secretary.

HOUNSLOW HOSPITAL, STAINES ROAD, HOUNSLOW, MIDDLESEX. (70 Beds.)

Wanted, MALE HOUSE SURGEON, British nationality. Appointment at £150 p.a., with board, residence, etc., for six months.

Applications, stating qualifications, age, and experience, and enclosing copies of three recent testimonials, should be sent forthwith (marked "House Surgeon" top left hand corner) to W. T. ROSS, Secretary, Hounslow Hospital.

KENT COUNTY OPHTHALMIC AND AURAL HOSPITAL, MAIDSTONE. (110 Beds.)

Applications are invited for the post of OPHTHALMIC HOUSE SURGEON (Gentleman or Lady), which is now vacant. Candidates must be duly qualified registered Medical Practitioners, single, and of British birth and nationality, and should have had experience of Ophthalmology. The Hospital is recognised by the Examining Board for the D.O.M.S. The appointment will be for six months, but may be renewed for a second six months. Salary at the rate of £200 per annum, with board, residence, and laundry.

Application [illegible] with copies of not more [illegible] should be sent to the [illegible] ay.

JC... [illegible] Secretary.

ROYAL EAST SUSSEX HOSPITAL, HASTINGS. (Beds 125.)

Applications are invited for the post of HONORARY ASSISTANT SURGEON to the Hospital.

Applicants must be Fellows or Members of the Royal College of Surgeons of England, or a Fellow or a Licentiate of the Royal College of Surgeons of Edinburgh or Ireland, or a Graduate in Surgery of one of the Universities of the United Kingdom or Ireland, and also be duly registered under the Medical Acts.

Applications, with three copies of recent testimonials, should reach the Secretary not later than Saturday, August 19th.

WILFRID G. KEMSLEY, Secretary.

ROYAL EAST SUSSEX HOSPITAL, HASTINGS.

Applications are invited for the posts of SENIOR HOUSE SURGEON (vacant August 25th), and of JUNIOR HOUSE SURGEON (vacant September 14th). The appointments are for a period of six months.

Salary at the rate of £200 per annum for the Senior post and £150 per annum for the Junior post, with board and residence.

Candidates must be duly registered Medical Practitioners. Applications, with copies of recent testimonials, to be addressed to the Secretary.

WILFRID G. KEMSLEY, Secretary.

ANCOATS HOSPITAL, MANCHESTER.

HOUSE SURGEON (General) required to commence duty on September 1st. Appointment for six months. Salary at the rate of £100 per annum, with board, apartments, etc.

Applications, stating age, qualifications, previous experience, if any, together with copies of three recent testimonials, to be forwarded to the undersigned on or before August 3rd.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

HASLEMERE AND DISTRICT HOSPITAL.
(50 Beds.)

RESIDENT MEDICAL OFFICER, male, required October 1st. Salary £150 p.a., with board, residence, and laundry. Appointment for six months, subject to renewal for further six months. Applications, stating age and qualifications, with copies of three recent testimonials, to be sent to the Secretary of the Hospital.

KEPPLESTONE NURSING HOME LIMITED, ABERDEEN.

Wanted, a whole-time RADIOLOGIST to take charge of the X-ray Department in the Home. Particulars fo the appointment can be had from the Secretary, 21, Golden Square, Aberdeen.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands.

Town or District.	Town or District.	Town or District.
HOSPITAL	**CONTRACT PRACTICE** (contd.)	**PUBLIC HEALTH**
NORTH LONSDALE HOSPITAL, BARROW-IN-FURNESS. (*Visiting and Resident Appointments.*)	LOWESTOFT MEDICAL INSTITUTE. (*Medical Officer.*)	FULHAM BOROUGH COUNCIL. Maternity and Child Welfare Department. (*Assistant Medical Officer—Woman.*)
CONTRACT PRACTICE	MARDY, GLAMORGAN. (*Workmen's Medical Scheme.*)	HERTFORDSHIRE COUNTY COUNCIL. WARE SANATORIUM (*Assistant Medical Officer.*)
EBBW VALE, MON. (*Workmen's Medical Society.*)	NEATH AND DISTRICT. (*Medical Aid Association.*)	COUNTY BOROUGH OF NEWPORT PUBLIC ASSISTANCE INSTITUTIONS (*Resident Medical Officers—Male.*)
GILFACH GOCH, GLAMORGAN. (*Workmen's Medical Scheme.*)	OAKDALE, MON. (*Medical Officer for Medical Aid Association.*)	COUNTY BOROUGH OF SOUTH SHIELDS. HARTON INSTITUTION AND CLEADON COTTAGE HOMES. (*Medical Officer.*)
LLWYNPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN. (*Workmen's Medical Scheme.*)	OGMORE VALLEY, GLAMORGAN (*Wyndham Colliery Medical Aid Society.*) (*Workmen's Medical Scheme.*)	CITY OF YORK (*Assistant Medical Officer of Health—Woman.*)

(b) Overseas.

Medical practitioners **are requested** not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch	Town or District.	Hon. Sec. of Division or Branch	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. (*All Friendly Society Appointments.*)	Dr. J. G. HUNTER (Medical Secretary, New South Wales Branch), 135, Macquarie St., Sydney, N.S.W.	**QUEENSLAND.** (*Brisbane Associated Friendly Societies Institute.*) (*Toowoomba Associated Friendly Societies, Medical Institute, Toowoomba.*)	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	**WELLINGTON, NEW ZEALAND.** (*Contract Practice Appointments.*)	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.
VICTORIA. (*All Institute or Medical Dispensaries.*)	Dr. J. P. MAJOR (Hon. Sec., Victorian Branch, British Medical Association, Medical Society Hall, East Melbourne, Victoria.			**WESTERN AUSTRALIA.** (*Contract and Lodge Practices.*)	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.

July 26th, 1933. By Order of the Council. G. C. ANDERSON, Medical Secretary.

THE ROYAL EARLSWOOD INSTITUTION, REDHILL, SURREY.
(Under Mental Deficiency Acts, 1913-27.)

JUNIOR ASSISTANT MEDICAL OFFICER required.

Applicants must be registered practitioners, males (British birth), unmarried, and willing to assist in the games and amusements.

The appointment is temporary for six months from September 1st. Inclusive salary at the rate of £250 per annum, with board, residence, and washing. Good facilities for post-graduate studies, classes, and examinations.

Applications, stating age, religion, and qualifications, with copies of three testimonials of recent date, and two references, to be sent to the Medical Superintendent at the Institution by July 31st. The envelope to be endorsed "Assistant Medical Officer."

H. STEPHENS,
July 5th, 1933 Secretary.

HEREFORDSHIRE GENERAL HOSPITAL.
(140 Beds.)

Applications are invited for the post of HOUSE SURGEON AND CASUALTY OFFICER (male).

Salary at the rate of £100 per annum, with board, residence, and laundry.

The appointment will be for a period of six months. The successful candidate will, subject to satisfactory service, be eligible to succeed to the Resident Surgical Officers post, with a salary at the rate of £150 per annum.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should reach the undersigned on or before August 5th.

T. W. UPTON, Secretary.

ROYAL SALOP INFIRMARY, SHREWSBURY.
(150 Beds.)

APPOINTMENT OF RESIDENT HOUSE PHYSICIAN.

Applications are invited from fully qualified men for the appointment of Resident House Physician, vacant July 15th. Salary £160 per annum, with board, residence, etc. The appointment is for six months in the first instance, subject to re-appointment for a further period of six months. Resident Staff comprises Resident Surgical Officer, House Physician and Casualty Officer and Resident Anaesthetist. The Resident House Physician is Resident Officer to the Medical Wards of the Hospital under the direction of three Honorary Physicians, and is also Resident Officer to the Maternity Department for difficult cases under the direction of the Honorary Obstetrician.

Applications, stating age, qualifications, experience, nationality, and accompanied by copies of three recent testimonials, to be sent to the undersigned forthwith.

Board Room. J. W. NOBLE,
June 13th, 1933. Secretary Supt.

THE JESSOP HOSPITAL FOR WOMEN, SHEFFIELD.

The Board of Management invite applications for the post of HOUSE SURGEON (male) for a period of six months, commencing Sept. 1st. Salary £100 per annum, together with board, residence, and laundry.

Applications, stating age, together with copies of testimonials, should be addressed to the undersigned not later than Wednesday, August 2nd.

DAVID OSWALD, Secretary.

LIVERPOOL OPEN-AIR HOSPITAL FOR CHILDREN.

THE MARGARET BEAVAN HOSPITAL, LEASOWE, MORETON, WIRRAL.
(200 Beds—Surgical Tuberculosis and Orthopaedics.)

Vacant on October 1st, the post of JUNIOR RESIDENT MEDICAL OFFICER.

Salary £200 per annum, with board, residence, and laundry.

Applications to be sent not later than September 1st, to the Senior Medical Officer.

HORTON GENERAL HOSPITAL, BANBURY, OXON.

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male or female), now vacant. The appointment is for six months. Salary at the rate of £150 per annum, with suite of rooms, board, and laundry.

Applications, with references, to—

RICHARD H. PRESCOTT,
Secretary & House Governor.

BUTE HOSPITAL, LUTON.

HOUSE SURGEON (male) wanted to commence duty on September 1st. Salary £150 per annum with board, residence, and laundry.

Applications, stating age, nationality and experience, together with copies of not more than three recent testimonials, should be sent to the Secretary of the Medical Advisory Committee at the Hospital.

(*Appointments continued on p. 36.*)

NOT CLASSIFIED.

WANTED IMMEDIATELY, HOME FOR difficult, headstrong girl of twenty, not psychotic. Essential that she should be made to work, house, garden, or similar occupation. Terms moderate. — Dr. JEAN MCLENNAN, Matlock Terrace, Torquay.

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WANTED AN ASSISTANT WITH A VIEW to establishing a Branch Practice. One-third to one-half share given to suitable man and guaranteed income as salary. North England.—Address, No. 5634, B.M.A. House, Tavistock Square, W.C.1.

WANTED, AUGUST 1st, ASSISTANT FOR panel and general Practice, South Wales, non-colliery practice. £300 indoor to start, and increase at end of six months. Car allowance to motorist. State full particulars.—No. 5520, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — ASSISTANTSHIP OR LOCUM WORK, with or without view, by M.R.C.P. (Edin.), Indian; exper. G.P. and panel; young, energetic, abstainer, drive car. Free now.—Address, No. 5612, B.M.A. House, Tavistock Square, W.C.1.

WANTED, INDOOR MALE ASSISTANT, single, aged about 30, for panel and private Practice in pleasant seaside resort. Salary £500 p.a. — Address, with refs. and photo., No 5606, B.M.A. House, Tavistock Square, W.C.1.

WANTED IN SEPTEMBER, INDOOR ASSISTANT, male (British), for extensive country Practice in Northumberland. Private and panel. Salary £300 per annum. Able to drive car.—Address, No. 5711, B.M.A. House, Tavistock Square, W.C.1.

WANTED, AN ASSISTANT, WITH A VIEW to Partnership, in a Colliery Practice in South Wales.—Address, stating age, references, and experience, No. 5602, B.M.A. House, Tavistock Square, W.C.1.

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WANTED IMMEDIATELY. — INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view. Good salaries. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross St., Manchester, 2.

WANTED. — LADY OUTDOOR ASSISTANT for General Practice, Glasgow. R.C. Salary £5 5s. per week. — Address, No. 5508, B.M.A. House, Tavistock Square, W.C.1.

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APPOINTMENTS.—Contd.

METROPOLITAN BOROUGH OF GREENWICH.

APPOINTMENT OF TUBERCULOSIS OFFICER FOR THE COUNCIL'S DISPENSARY AND ASSISTANT MEDICAL OFFICER OF HEALTH.

The Council of the above Borough will, at its meeting to be held on September 20th, or at an adjournment thereof, proceed to the appointment of a Tuberculosis Officer for the Council's Dispensary and Assistant Medical Officer of Health, and applications are invited for the appointment.

Candidates must be registered Medical Practitioners who, prior to April 1st, 1930, have held the appointment of Tuberculosis Officer or Medical Superintendent with the approval of the Minister of Health, or who, subsequent to qualification, (1) have had at least three years' experience in the practice of his profession; (2) have spent in general clinical work a period of not less than eighteen months, of which not less than six months have been spent in a Hospital as Resident Officer in charge of beds occupied by general, medical, or surgical cases; and (3) have received special training, for a period of not less than six months, in the diagnosis and treatment of Tuberculosis. Candidates must possess a Diploma in Public Health.

The person appointed will have charge of the Tuberculosis Dispensary under the administrative direction and control of the Medical Officer of Health, shall be personally responsible for the diagnosis and treatment of all patients at the dispensary, shall carry out the duties of Tuberculosis Officer, and shall visit for the purpose of keeping observations on his own patients, but not generally for domiciliary treatment. He shall be available for consultation with general practitioners, and shall act as Medical Officer to the Tuberculosis Handicraft Centre and the Tumour Diagnostic Clinic.

He shall perform such duties as may be considered necessary by the Medical Officer of Health.

The inclusive commencing salary will be, at the rate of £750 per annum, rising by biennial increments of £50 to a maximum salary of £1,000 per annum.

The successful candidate will be required to devote the whole of his time to the service of the Council, shall not engage in private practice, and shall reside within the Borough.

The appointment will be terminable by three months' notice in writing on either side, and will be subject to the provisions of the Council's Superannuation Act.

Applications must be made on forms to be obtained from the undersigned, stating age, qualifications, and experience, accompanied by not more than three recent testimonials, must be sealed up and endorsed outside "Medical Officer," and must reach me not later than 10 a.m. on Monday, August 21st.

Canvassing members of the Council, either directly or indirectly, will be a disqualification, but there would be no objection to a candidate, if he so desires, sending copies of his application and testimonials, which may be addressed to the Town Clerk.

Stamped addressed foolscap envelope must accompany application for form.

Town Hall, Greenwich Road, S.E.10. F. J. SIMPSON, Town Clerk.
July 21st, 1933.

THE WILLESDEN GENERAL HOSPITAL, Harlesden Road, N.W.10.

Applications are invited from fully qualified and registered candidates (unmarried) for the appointment of a Resident Officer to hold the appointment of CASUALTY OFFICER for a period of Three Months from October 1st, followed by a Six Months' appointment as HOUSE Physician. (Total Nine Months). Salary at the rate of £100 per annum. Applications to be received by the Secretary not later than first post on Thursday, August 10th.

THE DORKING URBAN, EPSOM URBAN, LEATHERHEAD URBAN, AND DORKING AND HORLEY RURAL, COMBINED DISTRICT.

APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

Applications are invited for the appointment of Medical Officer of Health for the above combined District constituted by the Local Government Act, 1929, Section 58 (County of Surrey) Scheme, 1933, made by the Surrey County Council on January 31st, 1933.

The combined district contains an area of approximately 87,107 acres, and has an estimated population of 92,645.

The salary will be £1,000 per annum, with a travelling allowance in addition of £100 per annum. Office accommodation will be provided in Epsom.

The position will be designated an established post under the Local Government and Other Officers Superannuation Act, 1922, and the salary will be subject to percentage deductions in accordance with the said Act; the selected candidate will be required to pass a medical examination.

Candidates must possess the qualifications prescribed by the Sanitary Officers Order, 1926.

The person appointed will be required to commence duty on October 1st or as soon thereafter as practicable, and to perform the duties imposed by the said Order and such other duties as the Councils of the combined districts collectively and individually may from time to time direct. It will be a term of the appointment that he shall not engage in private practice as a Medical Practitioner.

The appointment will be subject to the approval of the Minister of Health and to the provisions of the said Order.

Applications, stating age (which must not exceed 40), qualifications, present position and duties, particulars of past service and experience, and all other essential information, accompanied by copies of not more than three recent testimonials, must be sent in sealed envelopes endorsed "Medical Officer of Health," so as to reach me not later than August 21st.

Candidates must also send twelve copies of their applications and testimonials for the use of members of the Selection Committee.

Canvassing, either directly or indirectly, will be a disqualification.

Dated July 28th, 1933.

P. E. WHITEOAK-COOPER,
Clerk and Solicitor of the Epsom Urban District Council.
49, Church Street, Epsom.

STROUD GENERAL HOSPITAL, STROUD, GLOS. (52 Beds.)

HOUSE SURGEON, British, required September 1st. Candidates must be fully qualified and duly registered. Appointment for six months, subject to renewal at discretion of Committee. Salary £150 per annum, with board, residence, and laundry. Applications, giving particulars of age, experience, etc., together with copies of not more than three testimonials of recent date, to be sent to the undersigned from whom further particulars may be obtained.

C. FORD SPENCER, Secretary.

WESTMORLAND SANATORIUM, MEATHOP, GRANGE-OVER-SANDS. (150 Beds.)

SENIOR ASSISTANT MEDICAL OFFICER.

Applications are invited for this post at a salary of £350, rising by £25 annual increments to £450 a year, with board, lodging, and laundry.

Applications, stating age, nationality, experience, etc., together with copies of testimonials, to reach the Medical Superintendent not later than Friday morning the August 4th.

BRIDGWATER GENERAL HOSPITAL, Salmon Parade, BRIDGWATER, SOMERSET.

Wanted, HOUSE SURGEON. Salary £130, rising to £150 after six months, with board and residence. Applications, with copies of three testimonials, stating age, qualifications, and nationality, to be sent to the Secretary by August 3rd. Duties to commence not later than August 18th.

CHARTERHOUSE RHEUMATISM CLINIC, Crosby Row, Long Lane, S.E.1.

Applications are invited for TWO HONORARY CLINICAL ASSISTANTS. Appointments will be made for three months. Attendance will be required for one afternoon per week. General Practitioners who desire an insight into the methods in use at the C.R.C., are particularly invited to apply.

Address, in the first place, the Secretary, C.R.C., 94, Hallam Street, W.1.

THE KING EDWARD VII WELSH NATIONAL MEMORIAL ASSOCIATION.

Applications are invited for the posts of half-time ASSISTANT TUBERCULOSIS OFFICERS (three in number) to be attached to the Cardiff, Newport, and Pontypridd areas respectively, and commencing duty on October 1st next. The appointments are limited to one year at a remuneration for the year of £250, subject to an emergency deduction of £6 10s. During their tenure successful candidates will be expected to take during the other half of their time the Course for the Diploma in Tuberculosis Diseases (Wales) at the Tuberculosis Department, Welsh National School of Medicine, and afterwards sit the examination.

Applicants must have held a house appointment in medicine or surgery, for at least six months in a general hospital, and must also have held either a post as resident for a period of 12 months in an institution for the treatment of tuberculosis (medical or surgical) or a period of whole-time work accepted by the Senate as equivalent thereto.

Applications, stating age, qualifications, and previous experience, together with copies of three recent testimonials, to be sent to the undersigned not later than August 31st.

Memorial Offices, Westgate Street, Cardiff. D. A. POWELL, Principal Medical Officer.

BRISTOL GENERAL HOSPITAL.

The Committee invites applications for the appointment of JUNIOR HOUSE PHYSICIAN.

The appointment will be for six months, with salary at the rate of £80 per annum, with board, residence, etc., provided in the Hospital.

Candidates must be registered under the Medical Acts, and produce testimonials of good personal character and ability, and must have recent experience in the administration of anaesthetics.

Forms of application, etc., to be obtained from the Secretary must be returned completed as soon as possible, with copies of testimonials, addressed to the undersigned from whom further particulars may be obtained.

THOMAS W. GREGG, Secretary.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn Road, W.C.1.

ASSISTANTS IN THE OUT-PATIENT DEPT.

There is a vacancy for a THIRD ASSISTANT to attend on Wednesdays at 2 p.m., and for a SECOND ASSISTANT to attend on Saturdays at 2 p.m. The duties are to assist the Surgeons in seeing the patients, and the posts are honorary ones.

Applications may be for periods of three, six, or twelve months, and should be sent to the undersigned immediately.

JOHN H. YOUNG, Secretary-Supt.

COVENTRY & WARWICKSHIRE HOSPITAL.
(307 Beds Main Hospital.)
(40 Beds Alcock Convalescent Hospital.)
(Seven Resident Medical Officers.)

RESIDENT HOUSE SURGEON (Male) wanted. Salary £125 per annum, with board, laundry, and attendance provided. Candidates must be duly qualified and registered.

Applications, stating age and enclosing copies of recent testimonials, should be sent to the undersigned immediately.

(Miss) R. HOOPER,
July 25th, 1933. Secretary.

CITY AND COUNTY OF THE CITY OF CHESTER.

A temporary JUNIOR RESIDENT MEDICAL OFFICER (male) is required for the Chester City (Public Assistance) Hospital at a salary at the rate of £150 per annum, with full residential emoluments. Applications, stating age, qualifications, and previous experience, together with not more than three recent testimonials, and endorsed "Junior R.M.O.," must reach me not later than August 9th. Canvassing, either directly or indirectly, will disqualify.

J. H. DICKSON,
Town Hall, Chester. Town Clerk.

CITY OF SALFORD.

INFECTIOUS DISEASES HOSPITAL.

Applications are invited for the post of JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER (male). Salary £200 per annum, plus board, residence, and laundry. The appointment will be for one year. Form of application may be obtained from the Medical Officer of Health, 143, Regent Road, Salford, 5, Lancs., to whom it must be returned, endorsed "Junior Assistant Resident Medical Officer," not later than August 5th.

H. H. TOMSON, Town Clerk.

ABERDEEN ROYAL MENTAL HOSPITAL

The office of JUNIOR ASSISTANT PHYSICIAN in the Aberdeen Royal Mental Hospital is vacant, and applications for it are invited Preference will be given to those who have had general hospital experience

Salary will commence at £300 per annum with board, rooms and laundry Applications stating age, and full particulars of experience with copies of testimonials should be sent to the Physician Superintendent

CROYDON GENERAL HOSPITAL

Applications are invited from qualified and registered Medical Men for the post of CASUALTY HOUSE SURGEON Salary £125 per annum with board residence and laundry

Applications stating age qualifications accompanied by copies (which will not be returned) of three testimonials to reach the undersigned not later than Tuesday Aug 8th

The successful applicant to commence duties on August 19th

GEORGE H DAMS
July 22nd 1933 House Gov & Sec.

GENERAL INFIRMARY SALISBURY
(Voluntary General Hospital—170 Beds)

ONE HOUSE PHYSICIAN and ONE HOUSE SURGEON (male) required to commence duty July 31st and September 8th respectively

The appointments are for six months with the right of applying for re appointment at the end of that period for a further period of six months

Candidates must be unmarried fully qualified and registered Salary £150 per annum with board etc

Applications with copies of testimonials to be forwarded to the House Governor and Secretary from whom a copy of the Rules may be obtained

LIVERPOOL HAHNEMANN HOSPITAL
Hope Street LIVERPOOL

Applications are invited for the post of PRESIDENT MEDICAL OFFICER (male or female) to the above Hospital which falls vacant on September 1st

Duties include assisting at operations general gynæcological ophthalmic and aural, also occasional anæsthetics

Appointment is for six months renewable Salary at the rate of £125 per annum

Apply stating age sex nationality qualifications and experience and enclosing copies of testimonials to the Registrar before Aug 1st

ROYAL HAMPSHIRE COUNTY HOSPITAL, WINCHESTER (158 Beds)

HOUSE SURGEON

Applications are invited from fully qualified men for the above post to take up duties on September 1st Six months appointment Salary £125 per annum with board residence and laundry

Candidates who must be of British nationality to make application at once to the undersigned enclosing copies of three testimonials

HERBERT MANLEY Secretary

ROYAL INFIRMARY BLACKBURN
(240 Beds—Five Residents)

FOURTH HOUSE SURGEON (male) to act also as Casualty Officer required at a salary of £150 per annum with board residence laundry etc To commence duties as soon as possible

Applications with copies of testimonials stating age, nationality experience etc, to be sent at once to the undersigned

Royal Infirmary, NATHAN V SMITH
Blackburn General Supt & Sec

This Institution is recognised for the Surgical Practice required for the F R C S Final examination

SCUNTHORPE & DISTRICT WAR MEMORIAL HOSPITAL (86 Beds)

Applications are invited for the post of HOUSE PHYSICIAN (male) Salary £175 per annum rising to £200 at the conclusion of six months approved service, with board, resident and laundry

Applications stating age nationality experience and qualifications giving earliest time for commencing duties if appointed and enclosing copies of recent testimonials to be forwarded to the undersigned not later than the first post on Monday July 31st

ARTHUR E MAW Secretary

THE SHEFFIELD ROYAL HOSPITAL
(340 Beds)

Applications are invited for the post of OPHTHALMIC HOUSE SURGEON Salary £120 per annum with board residence and laundry There are eleven resident Medical Officers Applications should be forwarded to—

W H BOOTH
Superintendent & Secretary

THE ROYAL BUCKINGHAMSHIRE HOSPITAL AYLESBURY

Applications are invited for the post of RESIDENT MEDICAL OFFICER (Male) for six months To commence duty August 1st Salary £200 per annum with board residence and laundry Candidates must be fully qualified and registered

Application stating age qualifications and experience with copies of not more than three testimonials should be sent to the undersigned at once

J M W BROWN Secretary

EAST SUFFOLK AND IPSWICH HOSPITAL
(282 Beds—7 Residents)

Wanted September 1st HOUSE SURGEON (British male) Salary at the rate of £120 per annum

Applications stating age qualifications and experience to be sent to the undersigned together with copies of three recent testimonials

The Hospital, ARTHUR GRIFFITHS
Ipswich Secretary

KING GEORGE HOSPITAL, ILFORD

Applications are invited for the appointment of ASSISTANT OPHTHALMIC SURGEON to this Hospital Further particulars may be obtained from the undersigned to whom applications should be sent not later than Aug 10th

G AUSTIN HEPWORTH Secretary

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S W OF ENGLAND—BEAUTIFUL COUNTRY within 6 miles of good class resort Share worth £500 or more with right Fees 25/ to 30/ Not much midwifery Panel and part appt Fine house on main road, 5 bed (intel) and (2) good surgery accom etc on main base Hunting fishing and all sports No 9184

LONDON E — £1,500—£1,900 P A IN creasing Panel of 1,000 Very little midwifery Scope to increase Fees 2/ to 5/ Premises comprise waiting rooms and attic rooms, 3 beds bath etc gas and elec £1 per week Lease could be arranged Premium £2,000—No 9180

BERKS — OLD ESTABLISHED — COUNTRY PRACTICE, about £700 p a has been £1,100 Panel about 500 Visiting fees 2/6 to 7/6 Very little midwifery Splendid House specially built for Vendor with two acres of grounds 2 reception rooms 6 bedrooms surgery, and waiting rooms, etc. Consider £4,000 offer for practice and house freehold—No 9170

EASTERN COUNTY, IN VERY PLEASANT locality, about £300 p a. Panel 160 and small club Fees 5/6 to 21/ House in open situation, with 2 rec-p 3 bed attic, etc Surgery garage and nice garden Rent £60 on lease Suit semi retired man, with private means—No 9172

LONDON, N W — VERY FINE OUTLYING district About £1,000 p a. No panel taken, but ample scope Some dispensing Expenses low Corner house in excellent position on main road 4 bedrooms etc Long lease choice for sale at £2,220 Vendor giving up general practice Premium for good will 1½ years purchase—No 9170

MANCHESTER — UPPER WORKING AND middle class PRACTICE Nearly £1,000 p a plus Poor Law appt £100 Panel of 3,650 increasing Opposition weak Visits mostly 5/ Some 3/6 and 7/6 Surgery to let Premium £1,750 to include book debts (£400—£500) drugs furniture and fittings with £150 Well built corner house 5 bed surgery etc to rent—No 9165

RESIDENTIAL SEASIDE RESORT—WITHIN easy reach of London £700—£800 p a. suffered through Vendor's ill health Ample scope New estate building Small panel No dispensing Midwifery not sought Attractive freehold house built by Vendor 5 bed, etc, garden and garage—No 9158

MANCHESTER — ABOUT £650 P A, IN creasing old established PRACTICE Panel 790 Opposition less than usual Visiting fees 4/6 and 5/ Lowest surgery fee 2/6 House off main road 4/5 beds 2 recep and rep surgery Rent £60 on lease—No 9144

MANCHESTER—£1,300 P A PANEL 1,770 Well established working and middle-class Practice Very few midwifery at 2 and 3 gns Visits 3/6 to 5/ Premium 1½ years purch Double-fronted main road house with 6 bed etc, for sale at £1,150 good mortg—No 9150

LONDON NW — SUBURB — RECEIPTS average last three years £540 Panel 150 Visits 5/ up Surg 3/6 to 5 Mids 8 to 10 p a fees 3 to 5 gns Premium £900 or offer Good house with garden Five bed 2 recep rep surg and garage Price £1,600 of which £1,000 could remain on mortgage—No 9142

WANTED.

WANTED BY CONSCIENTIOUS ENERgetic married man a PRACTICE or PARTNERSHIP in large rising watering place preferably with income of £1,000 a year London or N or N W preferred Modern house Capital £1,500—Details received in confidence PERCIVAL TURNER (Quote No 8959)

WANTED — SURGICAL PRACTICE OR PARTNERSHIP Good class practice in South of England Income £1,200 requires Capital £3,000—Details in confidence to Percival Turner (Quote No 9033)

WANTED BY EXPERIENCED GRADUATE a PRACTICE or PARTNERSHIP with special interest in surgery in north midland or East or in S E England Can invest £2,000 or more — Details in confidence to PERCIVAL TURNER (Quote No 9935)

WANTED BY IRISH GRADUATE A GOOD middle and working class PRACTICE Provincial town or London Income £[illegible] to £[illegible] Can invest £3,000—Details to PERCIVAL TURNER (Quote No 10153)

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KENT.—Country G.P. situated in growing locality. Receipts £630 p.a. Panel 350, plus rural area's grant. House to be rented at £78 p.a. *Premium* £1,200, to include drugs, etc., and certain furniture.

BIRMINGHAM. — Good *middle-class NUCLEUS.* Receipts £500 p.a. Panel 250, increasing. Excellent all round scope. Freehold house, specially built for doctor's use £3,000, to include Practice.

NORTHANTS.—Mixed Country PRACTICE. Receipts (approx.) £1,500 p.a. Panel 950. Appointments. Premium £2,500. For attractive freehold house with large garden and tennis court £2,600.

BIRMINGHAM.—Old-established middle-class G.P. with excellent scope *for increase.* Receipts £500 p.a. Panel 75, *increasing.* Excellent good-class house to be rented at £75 p.a. Suitable for lady or gentleman. Premium £350, or near offer, to include drugs and certain furniture.

SOUTH COAST.—PARTNERSHIP in good-class non-panel G.P. Receipts £1,950 p.a Considerable scope for increase. House for sale at valuation. Premium for half share, 2 years' purchase.

LONDON, W.C.—Better middle-class G.P., with scope. Choice of accommodation on rental. Receipts approx. £600. Panel 180 (increasing). Fees 3/6 up. Premium £600, or near offer, to include all furniture, drugs, fittings, and fixtures.

LONDON, W.—Mixed residential working-class PRACTICE. *Corner house* to rent; part sub-let; net rental £37 p.a. Receipts approx. £300. Panel 215. Fees 2/6 up. No night work. Premium for Practice and lease £500 *or near offer.*

MANCHESTER.—Well-established upper, middle, and working-class G.P. in residential district. Well-built corner house to be rented on lease at £60 p.a. Receipts nearly £1,000. Panel 463 (*increasing*). Fees 3/6 up. One appointment. Premium £1,750, to include all outstanding accounts, fixtures, and fittings.

LONDON, E.—Suburban middle-class G.P. Medium-sized house to rent on lease at the low rental of £30 p.a. Fees 2/- up. Average receipts £450 p.a. Panel 300. Excellent scope for young man. Premium for Practice and Lease £1,000.

MANCHESTER.—Old-established industrial PRACTICE. Medium-sized corner house to be rented on lease. Receipts approx. £660, increasing. Panel nearly 800. Fees 2/6 up. Premium £950 or near offer (to include furniture).

LONDON, W.—Middle-class G.P. situate in the heart of West End. Three first-floor rooms to be rented on lease. May be used as Lock-up if desired. Receipts average £460 p.a. (cash). Panel 184. Two appointments. Scope for Surgery. Premium £250, to include furniture, drugs, instruments, etc.

DURHAM.—Middle-class and industrial PRACTICE. Average receipts £550 p.a. Panel 380. Medium-sized house to rent on lease at £52 p.a. Branch Surgery. Fees 2/6 up. Premium £450.

LONDON, E.—Old-established mixed G.P. in thickly populated locality. Receipts over £900. Panel nearly 1,000. Fees 2/- up. Three appointments. Within easy access of City and West End. Suitable house to rent at £100 p.a. Good scope. Prem. £1,800 or near offer.

CUMBERLAND.—PARTNERSHIP (after short Preliminary Assistantship) in very old-established industrial Club and Panel G.P. Good house available to rent (garden, garage). Receipts average £5,263 p.a. Panel 2,488. Fees 3/6 up. Two appointments. Premium for one-fourth share 1½ years' purchase, with option of increase within 6/12 months.

WANTED.

SOUTH COAST.—Good mixed G.P. with panel. Receipts approximately £2,000. Medium-sized house to rent preferred.

SURGICAL PARTNERSHIP in well-established Home Counties with good social amenities. Share to be not less than £1,200. Panel not objected to. Would purchase house.

CLAPHAM or similar locality. Good middle and working-class PRACTICE. Receipts not less than £1,200 p.a. Fair-sized panel. Medium-sized house with garden to rent.

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2. ESSEX. — Large Town. — Well-established mixed-class PRACTICE. Receipts average £750 p.a., including panel. Premium 1½ years' purchase. Nice house to be sold also.
3. HAMPSTEAD, N.W.—Well-established small PRACTICE, capable of good extension. Receipts about £200 p.a., panel 240. Lock-up surgery. Premium, quick sale £250, drugs and furniture included.
4. LONDON, S.E.—Well-established cash and panel PRACTICE. Receipts (cash) average £15 per week and panel 660. Small corner house and garage, long lease. Premium £1,250. Good scope for increase.
5. NEAR KING'S CROSS, W.C. — Well-established cash PRACTICE. Receipts average about £350 p.a. Surgery rent £1 per week. Excellent scope. Premium £300 or near offer.
6. NEAR CHARING CROSS, W.C.—Well-established mixed-class PRACTICE. Receipts nearly £500 p.a., panel 185, rapidly increasing. Premium £300.
7. LANCS. — Large well-known Town. — Old-established mixed-class PRACTICE. Receipts average £650 p.a., including 800 panel. Nice house, rent £60 p.a. Premium 1½ years' or near.
8. NEAR LONDON BRIDGE, S.E. — Old-established cash and panel PRACTICE. Receipts nearly £1,300 p.a., panel nearly 1,400, increasing. Premium for house and practice moderate.
9. WANTED IN LONDON OR SUBURBS, a well-established PRACTICE. Income £700 to £1,000 a year, house on rental. Purchaser must be suited at once, and has capital up to £3,000 to invest.

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HIS HEALTH
HIS HOME
HIS PRACTICE
AND
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WE CAN ALSO ARRANGE ADDITIONAL CAPITAL FOR THE PURCHASE OF A PRACTICE OR PARTNERSHIP.

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1. BIRMINGHAM (or within 50 miles thereof). —Mixed PRACTICE, with a panel of 1,000 upwards and receipts of £1,500—£3,000. Urgently required. Capital available.
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1. BIRMINGHAM.—(Growing District).—Panel and private PRACTICE. Estab. 2½ years. Receipts last year over £600. Panel over 800 and both increasing. Excellent scope. Nice house, 4 beds., etc.
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3. LANCS.—FASHIONABLE RESIDENTIAL & SEASIDE TOWN. — Good-class, non-dispensing panel and private PRACTICE. Receipts £874. Good house. Garage, etc.
4. NORTH OF ENGLAND.—Colliery, and Club PRACTICE. Receipts about £500 p.a. Panel about 500. Appointments £200. Good house to rent. Considerable scope for energetic man. Low Premium for quick sale.
5. BIRMINGHAM.—Panel and private PRACTICE. Receipts about £500. Panel about 80; & both inc. Gd. scope. Nice hse., 4 beds, etc.
6. SOUTH WALES.—Well-estab. mixed PRACTICE. Receipts about £800 p.a Suit. hse.

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SHEFFIELD. — Sound old-established middle and working-class PRACTICE. Average cash receipts £1,500. Panel 1,750. Scope. Good house, 2 reception, 4 bedrooms, garage, etc. Rent £60 p.a. Premium—best offer (to include book debts, and drugs)—No. 479

LANCS TOWN.—Sound middle and good working-class PRACTICE. Average cash receipts £1,844 p.a. Panel 2,265. Good house, 3 professional rooms, kitchen, scullery, sitting-room, 3 bedrooms, [illegible] for sale or would rent for a time at [illegible] Premium 1½ years' purchase.—No. 476.

LIVERPOOL [illegible] PRACTICE, offering great for increase. Average cash receipts £500 p.a. Panel 495. No midwifery. Good house, 2 reception, 7 bedrooms, and 3 professional rooms; small garden. Rent £63 p.a. Premium 1½ years' purchase. Vendor retiring.—No. 475.

MANCHESTER.—Middle-class PRACTICE in residential suburb. Cash receipts last year £1,300. Panel 625. Nice house, 3 reception, 6 bedrooms, billiard room, large garden and garage. Premium—Practice—1½ years' purchase.—No. 322.

LARGE LANCS TOWN, near Manchester. — Old established mixed PRACTICE. Average cash receipts £1,080 p.a. Panel 1,060. Scope. Good house, 2 reception, 4 bedrooms, garage, and garden, to rent. Premium 1½ years' purchase.—No. 457.

MANCHESTER. — Established panel and private PRACTICE, averaging about £1,300 p.a. Panel 1,800. Good scope. Excellent house in main road, 3/4 bedrooms, reception room, and professional rooms. Price for freehold £1,150. Premium 1½ yrs.' purchase.—No. 451.

NORTH-WEST COAST. — PARTNERSHIP (after six months' Assistantship) in mixed panel and private Practice averaging £5,263 p.a. Panel 2,500 and appointments. Good house, with garden and garage, to rent. Salary £500. Premium—1/4 share—1½ years' purchase. Further share later.—No. 478.

LAKE DISTRICT. — Small Seaside Town. — Beautiful district. — Middle class PRACTICE. Cash receipts over £800 p.a. Panel 250. Excellent freehold house (on sea front), 3 reception, 7 bedrooms, garage, and nice garden. For sale or may be rented on lease. Premium 1½ years' purchase.—No. 388.

LARGE LANCS TOWN. — Old-established PRACTICE averaging £809 p.a. Panel 1,265. Scope. Excellent house, 2 reception, 5 bedrooms. Garage and garden. Premium, best offer.—No. 467.

WARWICKSHIRE.-Country PRACTICE in delightful district. Cash receipts approx. £500 p.a. Panel 479. Scope. Modern house (built for doctor), 3 reception, 5 bedrooms, garage, and large garden, with orchard, for sale. Sport of all kinds. Premium £500. Vendor retiring.—No 480.

NEAR NORTH-WEST COAST.—Country PRACTICE of over £800 p.a. in beautiful district. Panel 529. Scope. Good sport Premium £1,100.—No. 477.

MANCHESTER. — MIDDLE CLASS PRACTICE in residential suburb. Average cash receipts £780. Panel 700. District developing. Scope for increase. Good house, 2 reception, 5 bedrooms, garage, and garden. Premium—Practice and house—£2,000.—No. 483.

LANCS TOWN.—Sound Mixed PRACTICE, suitable for two in Partnership, or Principal and Assistant. Average cash receipts £3,240 p.a. Panel 3,539 Expenses low. Two good houses, with ample accommodation, to rent on lease. Premium 1½ years' purchase.—No. 481.

EAST YORKS. — Country Town, near Coast.—Unopposed mixed PRACTICE Cash receipts last year £960. Panel 630. Excellent detached house, 3 reception, 4 bedrooms, garage and large garden. Premium 1½ years' purchase.—No 346.

NORTH-WEST COAST.—Large residential and seaside town — Old-established PRACTICE. Cash receipts about £1,200 p.a. Panel 1,500. Excellent detached corner house (freehold), 3 professional rooms, 5 bedrooms, and 2 reception rooms, garage, and good garden for sale. Premium—Practice — 1½ years' purchase. — No. 417.

MEDICAL WOMAN'S PRACTICE.—YORKSHIRE CITY. — Cash receipts last year £415. Panel 140 Modern house in growing residential district, 2 reception, 3 bedrooms, garage and garden. Prem. best offer.—No 471.

MEDICAL WOMAN'S PRACTICE.—MANCHESTER. — Cash receipts last year £645 Panel 450. Good scope. Excellent house, 3 recep, 6 beds., garage Rent £80 p.a. on lease. Premium, best offer.—No. 350.

MANCHESTER. — Old-established panel and private PRACTICE. Cash receipts last year £660. Panel 788. Scope. Good corner house, 2 reception, 4 bedrooms; garage. Rent £60 p.a Premium 1½ years' purchase or near offer.—No. 437.

NEAR HULL.—Mixed General PRACTICE, in pleasant district near Housing Estate. Cash receipts last year £953. Appointments £82 p.a Panel over 500. Scope for increase. Vendor retiring. Premium 1½ years' purchase.—No. 463.

LARGE LANCS TOWN.—Very old-established middle class PRACTICE, averaging £3,267 p.a. Panel 500. Appointments £300 p.a. Partnership, with succession in 12/18 months, suggested. Good semi-detached house, 3 reception, 5 bedrooms, garage, and garden. For sale, or would rent on lease. Vendor retiring. Premium 1½ years' purchase.—No. 464.

MANCHESTER.—PRACTICE on large Housing Estate offering great scope. Cash receipts last year £647. Panel 430. Good house, 3 bedrooms, etc. Rent 22/7 per week, clear. Premium, best offer—No. 474.

LARGE LANCS TOWN.—Old-established PRACTICE. Cash receipts last year average £1,100 p.a., excluding appointment £160 p.a. Panel 750. Nice house, 2 reception, 5 bedrooms, garage and garden, to rent. Premium, best offer.—No 472.

WANTED IMMEDIATELY.—INDOOR AND OUTDOOR ASSISTANTS FOR TOWN AND COUNTRY PRACTICES, WITH OR WITHOUT VIEW. Good salaries offered. State full particulars.

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72, High Street, Belfast.
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All communications to be addressed to the Branch Manager, BRITISH MEDICAL BUREAU, 33, CROSS ST., MANCHESTER, 2.

British Medical Bureau

(THE SCHOLASTIC, CLERICAL & MEDICAL ASSOCIATION LTD.)
(FOUNDED 1880.)

12, Stratford Place,
Oxford Street, W.1.

Tele. Address: Triform, Wesdo—London.

Telephone: Mayfair {1782 1783

The Association has long been favourably known to the members of the Medical Profession as a thoroughly trustworthy and successful Agency for the transaction of every description of Medical, Scholastic and Accountancy business, and the BRITISH MEDICAL ASSOCIATION has every confidence in recommending its members to consult Mr. A. V. STOREY, the General Manager, in all transactions requiring the services of a Medical Agent.

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The Manchester Medical Agency, lately under the control and Management of the Manchester Medical Committee, has now been taken over by the British Medical Bureau as their Northern Branch.

Medical Practitioners in the North requiring the services of the Bureau are recommended to consult the Branch Manager, at the Offices, 33, Cross Street, Manchester.

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1 DEATH VACANCY.—EAST DEVON.—COUNTRY PRACTICE worth about £400 to £500 p.a. in beautiful district easy distance of the Coast. Small house (5 bedrooms, bathroom, etc., electric light, and hot water), to rent on lease. Rough hunting and some fishing.

2 SOMERSET COAST.—PARTNERSHIP IN OLD-ESTABLISHED Practice in picturesque Seaside Place in a most beautiful part. Small panel. Visiting fees 5/- to 30/-. Excellent house (6 bed and dressing rooms) with every modern convenience; exceptionally beautiful garden of about a third of an acre, to rent on lease. The district is residential, and has a large number of visitors. Excellent riding, hunting; very good yachting, trout fishing, etc. Premium for a share worth £500 p.a. 1½ years' purchase.

3 LONDON, S.W. — PARTNERSHIP IN WELL-ESTABLISHED Practice in favourite Suburban District. Cash receipts average about £3,300 p.a., including panel about 3,400. Visits 3/6 upwards. Premium for one-third share 2 years' purchase.

4 S.W. OF ENGLAND.—OLD-ESTABLISHED AND STEADILY increasing PRACTICE in first-rate City. Cash receipts last twelve months £1,490, including panel of over 2,000. Visits 5/- to 10/6. Very little night work. Centrally situated house to rent on lease. Scope for further increase. Premium 2 years' purch.

5 FAVOURITE HOME COUNTY. — PARTNERSHIP IN WELL-established Practice in rapidly developing Residential District within easy access of first-rate Health Resort. Panel 900. Visits 3/6 to 10/6. Suitable house obtainable. Incoming Partner should be aged 28– 35, and [illegible] about £600 p.a. would be sold at 2 [illegible] scope as building is going [illegible] years [illegible] rapidly.

6 S.W. OF ENGLAND.—PRACTICE OF ABOUT £1,200 P.A. IN small town amidst charming country. Panel 1,060. Good sport including hunting. Premium 2 years' purch[illegible]

7 YORKSHIRE (W.R.).—PARTNERSHIP IN OLD-ESTABLISHED Practice about £3,700 p.a. in one of the smaller and pleasant Manufacturing Towns within easy reach of a University. Panel 3,366 House (5 bedrooms, etc.), garage, to rent. PEASANT Premium one-third share 2 years' purchase.

8 SURREY.—STEADILY INCREASING PRACTICE IN [illegible]st, 1933, growing district Cash receipts year ended March [illegible]ls. Practice £1,855. Panel 1,300 Small semi-detached house (3 bedrooms) to rent Good social advantages and excellent schools. PRACTICE capable of rapid increase. Premium £3,000.

9 ESSEX.—PARTNERSHIP IN WELL-ESTABLISHED [illegible]s of London. of £3,600 p.a. in an indu-trial area within 15 mile[illegible], bathroom, Good appointments and panel about 3,700. Visits [illegible]/6, few 5/-, medicine included House contains about 4 bedroo[illegible]ase. One-third etc., and can be either purchased or rented on [illegible] shares at first at 2 years' purchase.

10 S. OF ENGLAND.—PARTNERSHIP (WITH SUCCESSION) IN old-established good-class Practice of about £2,500 p.a., in beautifully situated Watering Place. Visits up to £2 2s. No panel or midwifery. Very good society. Sport of all kinds. Share of about £1,000 p.a. at first at 2 years' purchase. Cottage Hospital. Applicant should be graduate of Oxford or Cambridge or London. Short Preliminary Assistantship entertained.

11 YORKSHIRE (W.R.).—PARTNERSHIP (AFTER PRELIMINARY Assistantship) in well-established and increasing Practice of £4,500 p.a. in an important town. Panel 3,200. Incoming Partner should have held Hospital appointment, and have good knowledge of Midwifery and Anaesthetics. One-third share at first to suitable man, who should not be more than 35 years of age Premium 2 years' purchase.

12 EASTERN COUNTIES.—COUNTY TOWN.—VERY OLD-ESTABLISHED middle and upper-class PRACTICE averaging £1,190 p.a. Panel 120. Visiting fees 7/6 to 15/6. Ten-roomed house in good residential part with garage and garden for sale. Scope. Premium £2,600.

13 LONDON, S.W.—WELL-ESTABLISHED EYE, EAR, NOSE, AND Throat Connection in Suburban District. Cash receipts last twelve months £432 (mostly from Eye work), including appointment worth about £120 p.a. Corner detached non-basement house (4 bedrooms) with garages and very nice garden. Price of freehold, £2,300. No premium for Practice.

14 WEST OF ENGLAND.—PARTNERSHIP IN VERY OLD-ESTABLISHED Practice of nearly £1,750 p.a. in small town in beautiful part of the country. Panel over 1,350. Fees average 7/6. Premium one-half share 2 years' purchase.

15 WITHIN 10 MILES (SOUTH) OF LONDON. — PRACTICE about £1,800 p.a. in well-populated suburban area. Panel 1,500. Surgery premises may be purchased or rented. Nice private residence (7 bed and dressing rooms, etc.) at reasonable rent. Premium £3,000.

16 S.E. COAST. — SMALL SELECT RESIDENTIAL SEASIDE Resort.—PARTNERSHIP in well-established and easily worked Practice of £2,234 p.a. Panel about 700. Fees range from 3/6 to £1 1s. (chiefly 5/- to 10/6). Very little midwifery or night work. Handsome well-built detached house standing in its own grounds containing 6/7 bedrooms, etc., and with good garden and garage, etc., for sale. Partner should be aged 35-45 and hold London degree and be interested in games. Premium one-half share £2,250.

17 EAST ANGLIA. — PARTNERSHIP IN OLD-ESTABLISHED Country Practice of £2,750 p.a. in most beautiful part, easy distance of the coast. Panel 1,150. Fees 3/6 to £1 1s., medicine extra. Suitable house available. Small Cottage Hospital. Good scope for increase. Premium one-third share two years' purchase.

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Practices and Partnerships for Disposal (continued).

18 S COAST—*RESIDENTIAL TOWN AND WATERING PLACE*—PARTNERSHIP in well-established Practice of about £1,500 p.a. Panel 1,500 No midwifery Good house to purchase, or it might be let on lease *A one-half or three-fifths share would be sold at* two years' purchase.

19 DEVONSHIRE—WELL-ESTABLISHED COUNTRY PRACTICE in *beautiful* district near the Coast. Cash receipts average £1,376 p.a. Panel over 725 Nice house (7 bed and dressing rooms, etc.), with central heating, electric light, main drainage, etc. *Large garden and garage for sale Sport of all kinds* Premium £2,100

20 LONDON, N.W. — WELL ESTABLISHED PRACTICE ABOUT £650 p.a. *in Residential District. Panel 300 Visits chiefly* 5/-, including medicine, others 3/6 to 7/6 Not much midwifery House, containing 3 bedrooms, etc., to rent. Considerable scope for young energetic man Premium £900

21 S. WALES—IMPORTANT SEAPORT TOWN—PARTNERSHIP in sound old established Practice averaging £3,500 p.a. Panel 2,800 *Incoming Partner should be a Scotsman aged about* 30—35, and preferably Edinburgh or London trained There is a nice house for sale To a suitable man a one-half share would be sold at 1½ years' purchase

22 S. AFRICA—RADIOLOGICAL PRACTICE IN A MOST DELIGHTFUL Town with excellent climate Cash receipts last year £1,450 Scope

23 FAMOUS INLAND WATERING PLACE AND HEALTH Resort—Well established non-dispensing PRACTICE Receipts *last three years averaged £986 p.a., including a select Panel* of 280 fees 5/- to £1 1s Particularly attractive house with large garden, for sale Scope Premium £750

24 BIRMINGHAM. — PARTNERSHIP (AFTER PRELIMINARY Assistantship) in Suburban Practice of about £2,500 p.a. Increasing Panel of 2,400 House (5 bedrooms, etc.) with garage *accommodation to rent at about £65 p.a. Applicant should have* held Hospital Appointments and have experience in General Practice Two-fifths share would be sold at first to suitable man at 2 years' purchase.

25 LONDON, E.—OLD ESTABLISHED CASH AND PANEL PRACTICE of about £1,200 p.a. in residential part of populous district Good appointments and panel 950 *Small house* (5 bedrooms, etc.) in pleasant road to rent on lease Scope for increase Premium £2,200 or near offer

26 SUFFOLK AND NORFOLK BORDERS—SMALL PRACTICE IN Market Town Earnings 1932, £285, including panel of 80 Nice house (6 bedrooms), garage, and good-sized garden Price of *freehold £850 Excellent schools Plenty of sport Cottage Hospital* Premium £450

27 LONDON, E.—CASH AND PANEL PRACTICE OF OVER £600 p.a. in populous district. Panel 590 Small house to rent on lease Premium £800.

28 S. WALES—PARTNERSHIP (AFTER PRELIMINARY ASSISTantship) in well established Practice of nearly £5,000 p.a. in important Industrial Town Good appointments and panel of nearly 3,000 After Preliminary Assistantship a one-third share would be sold at first to a suitable man who should have held Hospital Appointment and have some knowledge of Midwifery and Anæsthetics

29 WEST OF ENGLAND—PARTNERSHIP IN OLD ESTABLISHED PRACTICE over £2,200 p.a. in County Town Panel about 1,000. Premium one-half share 2 years' purchase Good prospects for well-qualified physician (preferably M.R.C.P.), who would have opportunity of getting on Staff of Hospital in near future

30 LONDON, N.—PRACTICE CARRIED ON BY MEDICAL WOMAN in populous area Cash receipts average £480 p.a., including panel 527 Visits 2/6 to 3/6 Small house (6 rooms) to rent at £50 p.a. on lease Practice capable of increase. Premium 1½ years' purchase

31 LONDON, N.—PRACTICE CARRIED ON BY MEDICAL WOMAN in populous district Cash receipts average £270 p.a., including panel 360 Scope for midwifery Six-roomed house to rent at £70 p.a. on lease Premium 1½ years' purchase.

32 *BORDERS OR SHROPSHIRE AND CHESHIRE—OLD ESTAB*lished PRACTICE averaging £1,055 p.a. in Market Town Panel 850 Nice detached house (5 bedrooms, attics, etc.) with garage *and old world garden, etc., for sale Educational facilities Well* equipped Cottage Hospital offering scope for one keen on Surgery. Premium £1,580

33 PARTNERSHIP (*WITH VIEW TO SUCCESSION*) IN OPHTHALmic Practice, about £1,530, in delightful Southern Seaside Resort Applicants must have sound practical experience in Ophthalmic work Premium—half share—1½ years' purchase.

34 PRIVATE MENTAL HOME (FOR LADIES ONLY)—EXCEPtionally nice house and grounds A considerable sum required for the purchase Further particulars on application

35 CO. DURHAM—PRACTICE OF £540 P.A. IN RESIDENTIAL Colliery District near two large Towns Panel 380 Well situated house (7 rooms) with good Surgery and Dispensary, for sale or rent. Scope for substantial increase. Premium only £500

36 S. WALES — PRACTICE BETWEEN £250—£300 P.A. IN beautifully situated village about 4 miles from important town Small panel Nice house (6 bedrooms), electric light, gas, and company's water for sale or rent Premium £280

37 S. OF ENGLAND — PARTNERSHIP IN OLD ESTABLISHED Practice of nearly £1,950 p.a. in important town within 80 miles of London No panel Attractive corner residence (7 bed and dressing rooms), in half acre of walled in garden, with garage etc., for sale Ample scope for increase Premium one-half share 2 years' purchase

38 ESSEX. OLD ESTABLISHED PRACTICE OF ABOUT £600 P.A. *in Suburban District. Panel 500 Well situated detached house* (6 bedrooms) standing in own grounds with nice garden, garage, and stabling for sale Scope for increase Premium £650

39 SURREY.—PARTNERSHIP IN SOUND OLD ESTABLISHED good mixed class Practice about £3,000 p.a. in the Croydon area. Small panel Very little midwifery Excellent modern detached house for sale Scope for increase Premium one-half share 2 years' purchase

40 LONDON, E.C.—PARTNERSHIP IN OLD ESTABLISHED PRACtice in the City Receipts average about £1,600 p.a., including appointments and panel worth over £500 p.a. Premium one-half share £1,000

41 EAST COAST—PRACTICE OF ABOUT £800 P.A. IN RESIdential Seaside District 40 miles from London Small Panel. Detached house (5 bedrooms) for sale Scope for increase Premium 1½ years' purchase

42 SURREY.—*PRACTICE OF £1,000 P.A. IN RAPIDLY GROW*ing Residential District within 15 miles of London Panel 450 Suitable house, with separate professional accommodation, for sale Scope for considerable increase Premium £1,600

43 LONDON, W.—GOOD MIDDLE CLASS PRACTICE £400 P.A. in suburb within easy access of the West End. Panel over 100 Attractive double-fronted house with nice garden for sale. Scope for increase. Premium 1½ years' purchase

44 LONDON, N.—PARTNERSHIP IN PRACTICE ABOUT £5,250 p.a. in thickly populated Suburban District Panel about 800 One-fourth or one-third share at 2 years' purchase

45 HOME COUNTIES — OPHTHALMIC PRACTICE BETWEEN £300 and £400 p.a. in desirable Residential Town under 15 miles from London Good detached house (4 bedrooms) with large garden for sale Good reasons for plenty of scope for increase Premium £300

46 LONDON, E.C.—*OLD ESTABLISHED LOCK UP PRACTICE* of about £700 p.a. Panel over 500 Living accommodation to rent if desired Premium £1,000 or near offer

47 N. OF ENGLAND — *OPHTHALMIC PRACTICE OF OVER* £1,600 p.a. in an important town Excellent scope for one keen on clinical and operative Ophthalmology Large house in first-class condition for sale Purchaser should be well qualified Premium £2,500

48 S. AFRICA. — PRACTICE OF ABOUT £2,000 P.A. IN A famous town Pleasantly situated detached bungalow (5 bedrooms), garage, and small garden for sale. Good hospital (with private wards) Premium £1,100

49 LONDON, WEST END — X-RAY AND ELECTRO-THERAPeutic Practice Receipts 1931 nearly £620 Suitable and convenient flat at moderate rent, on lease. Premium £925

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Accountancy and legal services furnished by the Agency, where desired, at moderate inclusive charges. No charge is made to Principals for the introduction of Locum Tenens or Assistants.

1. PARTNERSHIP.—WEST OF ENGLAND.—A share, representing about £600 to £700 p.a. is offered in an old-established good mixed-class Practice, situated in very favourite coast town, with beautiful surrounding country. Visits from 5/- to 30/-. Very nice house, with good garden, can be rented on lease. Premium for share 1¾ years' purchase. There is good scope for increase, with the aid of a suitable partner, and a preliminary assistantship might be entertained.

2. LONDON, WEST. — Riverside Suburb. — Old-established mixed-class PRACTICE, producing for the last year £950. Panel of 470. Fees from 3/6. Very nice house, with 2 reception, 6 bedrooms, etc. Garden. Garage. Price for freehold £1,800, £1,000 on mortgage. Premium £1,400.

3. WESTERN SUBURB.—Old-established better middle-class non-panel PRACTICE, averaging for the last three years over £2,200. One appt. worth £80 p.a. Visits from 3/6 to 10/6. Not much midwifery. Suitable house, with 3 reception, 6 bedrooms, etc. Price £1,400, part on mortgage. Premium £4,000. Good introduction given.

4. CORNISH RIVIERA.—Old-established PRACTICE, in very favourite resort, having exceptionally mild climate. Receipts for last twelve months £948, including panel of 450, and appts. worth £40 p.a. Fees 3/6 to 21/-. No opposition within 4 miles. Well-situated house, with 2 reception, 6 bedrooms, etc., and professional rooms. Good garden. Rent on lease £52 p.a. Premium £1,650.

5. MIDDLESEX.—RIVERSIDE SUBURB.—Old-established good mixed-class PRACTICE, averaging for the last three years £1,030, including panel bringing in about £340 and appts. worth nearly £100. Fees from 3/6. Detached house with good garden, and containing 4 reception, 6 bedrooms, etc. Price for leasehold £1,200. Premium £1,900.

6. KENT.—WITHIN TWENTY-FIVE MILES OF LONDON.—PARTNERSHIP.—A one-third share (with increase to one-half later) is offered *in an old-established good mixed-class Practice, with a large per*centage of good-class patients, and situated in a very attractive country and market town (pop. over 3,000) amidst beautiful surroundings. The income is steadily increasing, and there is good scope for further development with the aid of a suitable partner, who should be about 30 years of age. Cash receipts last year nearly £2,400. Visits 3/6 to 21/-, medicine extra. Choice of suitable houses ranging from £1,000 upwards. Premium for share £1,600. Sport of all kinds. Good schools.

7. PARTNERSHIP.—LONDON SUBURB.—A one-third share (with increase up to one-half later) is offered in a very old-established good mixed-class Practice, situated in well-populated district, and offering good scope for development. Gross cash receipts average between £4,000 and £4,500 p.a. Guaranteed income of £1,500 for the first year. Panel of 800. Suitable accommodation available. Premium for share £3,250. Ingoing partner must be experienced, and qualified about four years.

8. LONDON, NORTH-WEST. — *Well-established good mixed class* PRACTICE, averaging about £800 to £900 a year, including selected Panel of over 400. Fees 2/6 to 10/6. Suitable house available on rental, or can be purchased. Premium £1,250.

9 NORTH OF ENGLAND.—PARTNERSHIP.—A five-twelfths or seven-twelfths share is offered in a well-established sound mixed-class *Practice*, averaging approximately £2,400 p.a. Panel produces £850 p.a. and P.M.S. £720 p.a. Appointments worth £120 p.a. Succession to the whole Practice can be obtained in about four years, or sooner as agreed. Good house, specialy built, with ample accommodation, for sale. Situated in growing area, and offering excellent scope for further development. Premium for share 2 years' purchase.

10. EASTERN COUNTIES.—Very old-established PRACTICE, unopposed, and situated in pleasant agricultural district, within reach of two good towns. Average gross cash receipts for the last three years £1,849 (last year £2,237). Panel with mileage produces over £900 p.a., and appts. are worth about £130. Fees from 3/6. Comfortable house, with 2 reception 6 bedrooms, etc. Garden. Garage. Price (freehold) £1,500. *Premium £3,200.*

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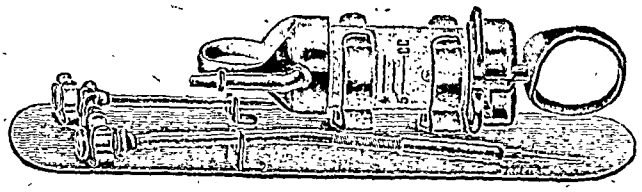
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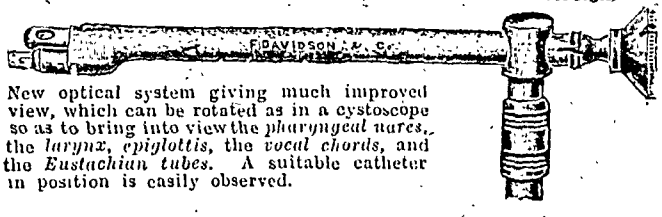
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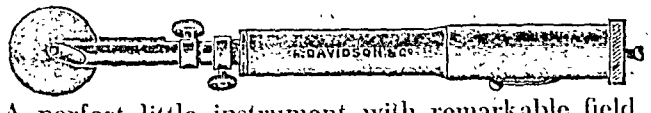


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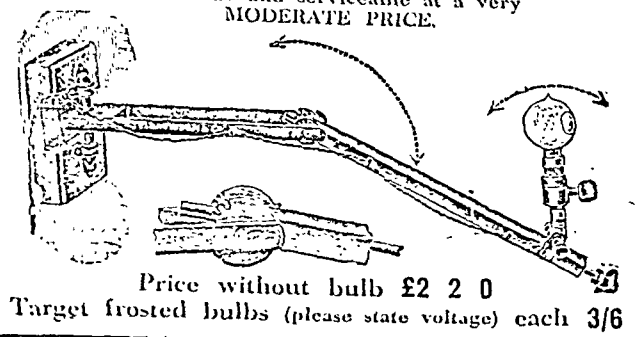


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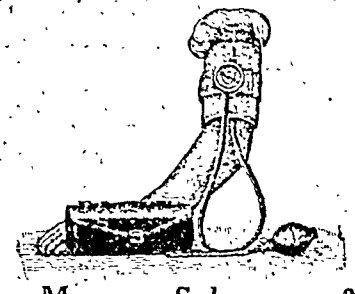
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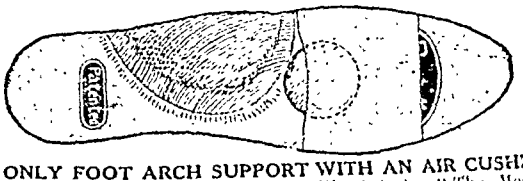


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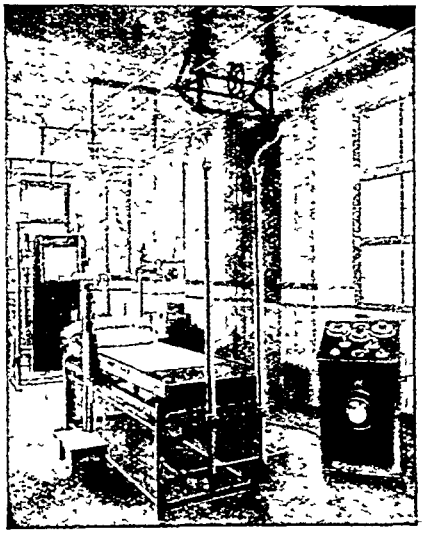
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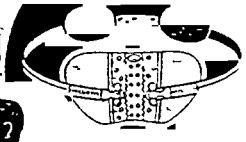
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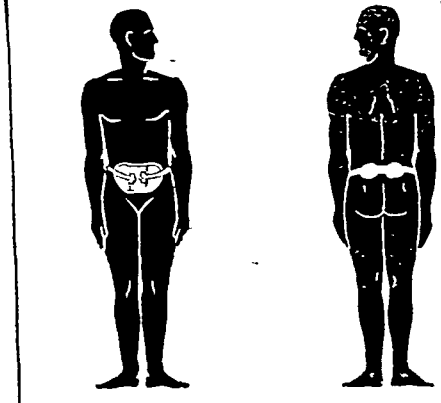
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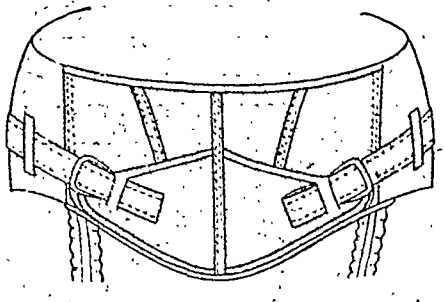
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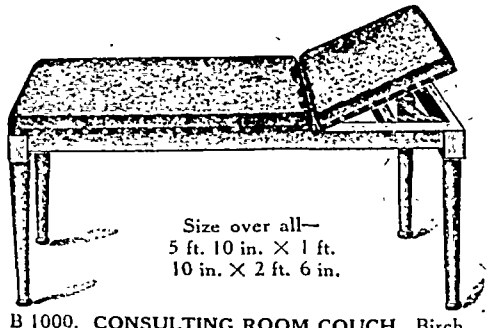
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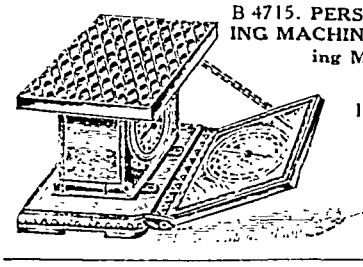
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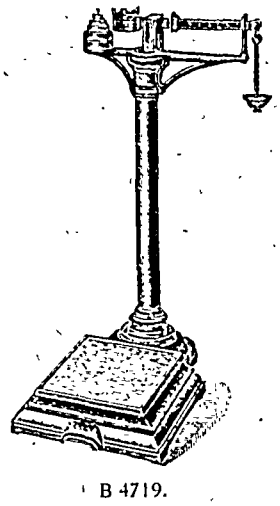


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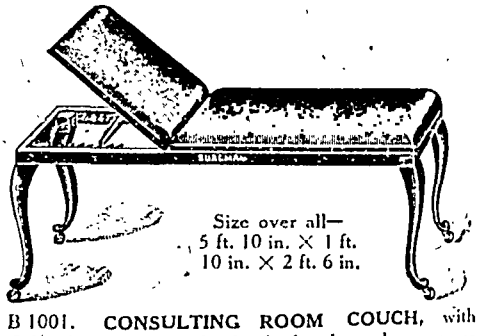
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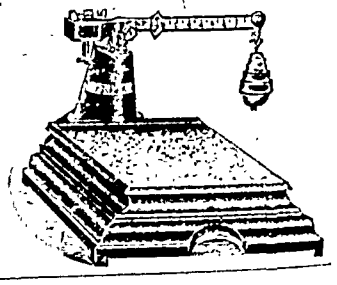
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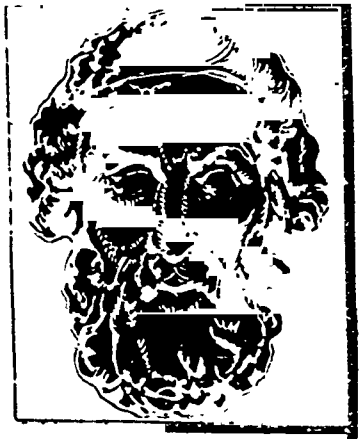
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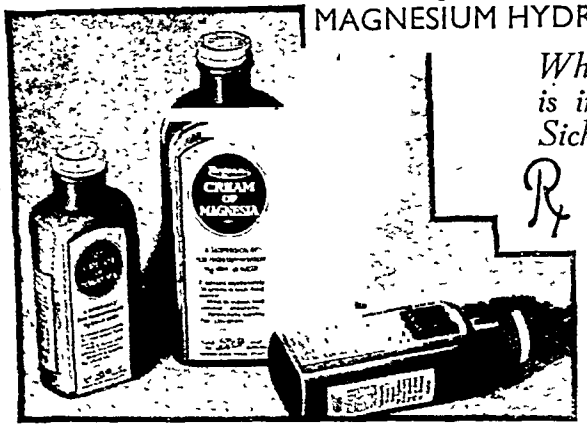
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Remarks

ON

ESSENTIAL VASCULAR HYPERTENSION*

BY

SIR HUMPHRY ROLLESTON, BART.
G C V O, K C B M D

As reference here must be confined to persistent high blood pressure without any obvious cause, especially renal disease, the work of Stephen Hales, carried out about 1708 (published in 1733) and others on the estimation of normal blood pressure would be out of place In China the characters and significance of the pulse were studied in most elaborate detail from the time of Pien Ch'iao 255 B C Li Shi Chen, the famous compiler of the *Pen T'sao Kang Mu* or *Great Herbal* (1590), described one form (Chin) as " tense , hard and full like a cord,' and as indicating ' wind, cold, and pain due to chills " It was also stated that a pulse ' like the snapping of a cord or like the flipping of a finger against a stone " was a sign of kidney disease at a stage when death would follow in four days (Wong) Bright noted the " full and hard " character of the pulse in his account (1836) of the disease which bears his name, and as " the first student of the hypertensive problem (Janeway, 1913), thus established the association of a raised blood pressure with renal disease But the logical basis of chronic interstitial nephritis was expanded in 1868 by George Johnson s account of widespread muscular hypertrophy of the arterioles, which by exerting a " stopcock action," protected the tissues from the access of blood rendered 'toxic by renal disease

In 1872 a further step was taken by Gull and Sutton, in their philosophical conception of arterio capillary fibrosis or a general " hyalin fibroid " thickening of the arterioles and capillaries, the kidneys being secondarily, or not obviously, affected This new horizon was extended by F H H A Mahomed (1849–84) of Guy s Hospital, whose papers between 1874 (" The Aetiology of Bright's Disease and the Pre Albuminuric Stage ") and 1881 (' Chronic Bright's Disease without Albuminuria ") made him " one of the chief pioneers of blood pressure observations in disease " (Ryle) Working with a very primitive instrument as compared with present sphygmomanometers —his modification of E J Marey's *sphygmograph*—he showed that high blood pressure preceded the onset of arterio capillary fibrosis and renal disease, was sometimes present from youth onwards apparently as an antecedent of later Bright's disease, and occurred in lead poisoning and other conditions These conclusions are astonishingly prophetic of modern views

Clifford Allbutt began his advocacy of the recognition of persistent high arterial blood pressure not secondary to chronic kidney disease in an address on February 27th, 1895, to the Hunterian Society of London, on " Senile Plethora, or High Arterial Pressure in Elderly Persons " In this address he suggested as an alternative the word " hyperpiesis," and pointed out that persistent high arterial blood pressure was not confined to the elderly He frequently elaborated this thesis, and eventually restricted the use of the word " hyperpiesis " to the high sphygmomanometric reading and employed the modified title " hyperpiesia " for the clinical condition In 1915 he retrospectively diagnosed as a case of hyperpiesia Richard Cœur de Lion, who when not occupied in fighting was, he feared, ' a glutton and a drunkard, and a bad subject for the septic wound of which he died "

* Opening paper in a discussion in the Section of Medicine at the Annual Meeting of the British Medical Association, Dublin, 1933

NOMENCLATURE

The term " essential hypertension is now widely used to describe persistent high blood pressure not obviously secondary to renal or other disease, the accurate recognition of which has been facilitated and become general as a result of the routine use of the sphygmomanometer and of the elaboration of tests for renal efficiency, which help to eliminate the nephritic cases W H Broadbent in 1890 applied the term " virtual tension ' to the impression conveyed to the finger by arteries worn out and dilated by old standing high blood pressure when the heart is failing Huchard in 1893 wrote on ' hypertension, and introduced the word ' prescleros , Volhard and Fahr in 1914 spoke of " benign hypertension, and in the following year Theodore Janeway preferred the title " primary hypertensive cardiovascular disease ' Clifford Allbutt earnestly deprecated the use of the word tension " as descriptive of the blood pressure

In a critical review of Huchard s *Traite clinique des Maladies du Cœur et des Vaisseaux* (1893) he remarked ' Hypertension and hypotension are too often used by clinical writers but rarely or never by scientific physiologists *In* 1903 he stated that high tension was applicable to a dead tube only, not to a living artery, and in his last publication (1925) that " hypertension (or to speak more grammatically hyper*tonus* or *super*tension) denotes too narrow a meaning ' tension ' can be predicated only of the proximal distended vessels and in them is not the essential factor the essential factor is the rise of blood pressure "

On the other hand, O Hare, in advocating the heading " vascular hypertension, ' points out that it is surely better to use a simple term than one the meaning of which is not at once obvious , and Thomas Lewis in his recent and concise account, adopts the title " essential hypertension " The adjective " essential has been criticized, and though probably better than idiopathic is not so good as " primary ."

NATURE OF ESSENTIAL HYPERTENSION

Essential hypertension may be briefly described as a persistently raised systolic and diastolic blood pressure not due to arterio capillary, renal, cerebral, or other recognizable morbid change It therefore resembles chronic splenic anaemia, in that many cases of undetermined aetiology are grouped under one descriptive term It may, however, cause, and be the antecedent stage of, cardiovascular changes, renal fibrosis and their various results There is good evidence that a raised blood pressure and renal disease can each cause the other, and that, in an early stage, the renal lesion wrought by hypertension is an arteriolar thickening and narrowing in an otherwise normal organ (the arteriolosclerotic kidney, Gray)

It has often been urged that high blood pressure is a compensatory adaptation to maintain an efficient circulation through the kidneys, brain, and myocardium Reid s observations on patients did not support this view as regards renal function Experimentally increase of the intracranial pressure above that in the cerebral arteries produces anaemia of the brain, and thus calls forth through the vasomotor centre, a general rise of the systemic arterial blood pressure (Cushing, 1901 Starling and Anrep) Starling suggested arteriolar proliferation in the vasomotor centre as the cause of hypertension Bordley and Baker found a definite association between hypertension and arteriolosclerosis in the medulla oblongata , out of twenty four cases of *generalized* arteriosclerosis, fourteen with constantly raised blood pressure showed arteriolar changes in the medulla whereas in the remaining ten cases without hypertension the medulla was free from arteriolar sclerosis Neither Cutler nor Tuthill could confirm this correlation According to Evans,

hypertension and the diffuse hyperplastic sclerosis of the arterioles are concomitant effects of the same cause. MacWilliam, after a full physiological discussion, concluded that the hypertensive impulse, however caused, emanates from the controlling vasomotor centre in the medulla. It has been suggested that the condition may depend on hypersensitiveness of the vasomotor centre, but as the result of experiments Kroetz contested this. Vasomotor instability is present in many cases of hypertension, but whether as the primary cause, as a concomitant reaction, or as a result is open to debate. It is conceivable that a metabolic poison selectively constricts the arterioles of the vasomotor centre, and that the resulting ischaemia stimulates pressor impulses.

That the peripheral obstruction responsible for high blood pressure is due to spasm and not to structural narrowing was rendered highly probable more than forty years ago by W. H. Broadbent's observation that vasodilators such as amyl nitrite produce a fall of pressure. Clinical observation proves that arteriosclerosis and high blood pressure, though often associated, occur independently of each other; there is indeed much more evidence that long-continued hypertension is responsible for degenerative arterial changes than that ordinary arteriosclerosis raises the blood pressure. The site of the peripheral obstruction in essential hypertension, whether in the arterioles, as is suggested by their visible constriction in the retina, in the capillaries, or in both, is an open question, and it is quite conceivable that it varies.

The constant normal fluctuations in the capillary bed, however, render it doubtful if the capillary pressure estimated in the skin represents that in the extensive splanchnic and other deep areas of the body. Kylin (1921) stated that the capillary pressure is raised in glomerulo-nephritis, in which there is widespread capillary change, but is normal in essential hypertension; Boas and Mufson, however, found the capillary pressure high in seventeen and normal or low in twenty-eight out of forty-five cases of essential hypertension.

A division has been made into benign and malignant hypertension (Volhard and Fahr; Fahr). But the malignant form is apparently a complication with diffuse change in the arterioles, which in some rare recorded cases has resembled that in periarteritis nodosa (Gray). It mainly occurs in the comparatively young, in the fourth decade, and runs a rapid course with very high blood pressure, acute functional failure of the brain, myocardium, and kidneys (Keith, Wagener, and Kernohan), death being often due to uraemia. Fahr described the renal changes as malignant nephrosclerosis, and Boyd as resembling those in the "flea-bitten" kidney due to the embolic focal glomerulo-nephritis in subacute bacterial endocarditis with necrotic changes due to ischaemia. It is therefore clear that "malignant hypertension" differs from uncomplicated essential hypertension.

Aetiology

If it be accepted that essential hypertension precedes, and may eventually be responsible for, arteriolosclerosis and chronic renal sclerosis and not vice versa, what are its causes? A persistently raised blood pressure is a reaction, and it is no longer necessary, in obedience to the law that there is "but one cause for one effect," to explain all cases of essential hypertension by a single and therefore specific factor such as renal inadequacy, endocrine disorders, mental worry, or errors of metabolism. While it is safest to take an agnostic attitude about the cause, many hypotheses have been put forward.

Heredity.—Heredity has been rightly considered to be a disposing factor. It is shown to be so by family records, from a study of which Weitz concluded that "genuine or vascular" hypertension is a constitutional disease with dominant Mendelian characters. George Draper has tabulated the anthropometric characters of those prone to become the subjects of hypertension, and Major recently illustrated the influence of heredity by the freedom from high blood pressure of the pure-bred Chinese, with their Oriental calm, in the past. In the symposium on *Arteriosclerosis* (1933), edited by Cowdry, both Lange and G. D. Williams throw doubt on the influence of heredity in the majority of cases.

Endocrine Disorders

In addition to the nervous mechanism of the sympathetic and parasympathetic, chemical factors play an important part in the control of the circulation, the two mechanisms being closely related. The chemical messengers or hormones exerting a pressor effect are adrenaline and vasopressin (posterior lobe of the pituitary).

An excessive secretion of adrenaline (hyper-epinephrism) was suggested as a cause of hypertension in 1904 by Vaquez, Josué, and others; but, as evidence of adrenal overactivity, stress was laid on hyperplasia of the cortex, which may well have been a secondary lipoid storage, and as numerous observers failed to find a greater pressor effect from the blood of hypertensive than from the blood of normal subjects, the view failed to carry conviction. It has been revived, however, by Vaquez, with very definite reference to overactivity of the chromaffin system, by Paul, and by Goldzieher who has described hyperplasia of the adrenal medulla. So far, however, the presence of adrenaline in the blood of subjects with essential hypertension has not been established.

Primary adrenal tumours have, in rather exceptional instances, been associated with hypertension, and a brief reference to this subject has some bearing on the hypothesis that hyper-adrenalaemia is responsible for essential hypertension. Of the various forms of primary adrenal tumours some, especially the undifferentiated tumours (neuroblastomas) of the medulla, are not associated with a raised pressure, whereas the subjects of well-differentiated chromaffin tumours may experience paroxysmal crises of high blood pressure, a condition distinct from essential hypertension. Some cortical tumours, contrary to what would logically be anticipated, have been associated with persistently raised blood pressure.

Primary tumours of mature chromaffin cells (phaeochromocytomas when arising from the adrenal medulla, paragangliomas when derived from chromaffin cells elsewhere) are rare; in 1929 Rabin collected thirty cases, in ten of which the blood pressure was raised. In 1922 Marcel Labbé recorded a case with paroxysmal hypertension, and in 1930 collected eight of a similar character. Adrenaline has been found in these tumours (Pincoffs). These crises, between which the blood pressure may be normal, follow slight exertion, or occur without obvious cause; the blood pressure may rise to 300 mm. Hg, and pulmonary oedema may occur. They may perhaps be regarded as the pathological equivalent of the events described in Cannon's "emergency hypothesis" (1911)—namely, discharge into the circulation of adrenaline in excessive amounts in response to emotions such as fear. This form of paroxysmal arterial hypertension varies much in degree and duration, the latter from seconds to days (Castex). The attacks have been regarded as much the same as those of Nothnagel's angina pectoris vasomotoria and those due to intravenous injection of adrenaline. Freedom from further crises has followed removal of the tumour (Pincoffs).

Primary tumours of the cortex have been associated with a continuously raised blood pressure in rather exceptional cases, which have been recorded and collected by Volhard, Langeron, and Loheac. The cortical tumours may be bilateral (Langeron; Schröder). It is not known if these cortical tumours are constantly derived from any one of the usually described three zones of the cortex. Cushing (1932), however, brought forward evidence that some at least of the reported cases of cortico-adrenal hypertension are examples of basophil adenoma of the anterior lobe of the pituitary.

Deficiency of hypotensive bodies in the circulation is, as pointed out by MacWilliam, a possible cause of hypertension. The extracts of many organs and tissues—some, such as histamine, choline, acetylcholine, and adenosine, known, others, from the liver and brain (Major), unidentified—exert a depressor influence on blood pressure. But apart from these reference may be made to the hormone vagotonine, recently isolated from the pancreas by Santenoise; it is separable from insulin, increases the reflex excitability of the vagus and parasympathetic, and exerts a depressor influence different from that of choline, histamine, adenosine, peptone, and from the other hypotensive bodies extracted from the pancreas by Livon, P. Gley and Kisthinios, and Frey and Kraut (" kallikrein "). Whereas the latter extracts produce an immediate fall of blood pressure which may be followed by a rise, the hypotensive effect of intravenous or hypodermic injection of vagotonine is delayed, slowly progressive, prolonged, and never followed by a hypertensive reaction. An intravenous injection of vagotonine before one of adrenaline inhibits the secretion and impairs the activity rather than directly neutralizes the action of adrenaline.

That vagotonine may play a part in controlling the rise of blood pressure and its absence in some cases account for hypertension is perhaps supported by the observation that in uncomplicated hypertension the tonus of the sympathetic nervous system was increased and that of the parasympathetic diminished, as compared with normal subjects (Patek and Weiss); and also by the frequency of a low sugar-tolerance in hypertensive subjects, for Santenoise found that vagotonine has a hypoglycaemic effect less rapid in onset, but more prolonged, than that of insulin. Abrami, Santenoise, and Bernal have treated eighty patients with high blood pressure of various kinds by vagotonine, usually by hypodermic injection: thirty of these were permanently better after a series of injections, the best results being obtained in those with paroxysmal crises of hypertension; a number of patients did not respond to vagotonine. These results, taken in conjunction with the paroxysmal crises of high blood pressure in patients with chromaffin-celled tumours of the adrenals, lend support to the view that essential hypertension is not due to excess of adrenaline in the blood. An unidentified depressor substance present in the urine of normal persons has been found to be absent from the urine of hypertensive patients by Wollheim and Lange.

The hypertension about the time of the menopause, often in fat women and coincident with arthritis, has been ascribed to, as it is contemporaneous with, endocrine changes. The evidence is at the best circumstantial. Ayman and Pratt consider that the hypertension is psychical in origin; this explanation is on the same lines as Kylin's view (1925), that hypertension is a manifestation of a general nervous disorder, especially of the autonomic system. But this only shifts back the question of causation.

Pressor Substances.—Many investigations have been undertaken to isolate pressor substances, other than adrenaline, in the blood, and due to disturbed metabolism or to imperfect excretion, especially of protein derivatives. Persistent, and at the same time cautious, claims have been made since 1924 by Major on behalf of guanidine bases; in approximately 50 per cent. of a large number of hypertensive subjects he has obtained evidence of an increase in the blood of a substance with reactions resembling those of guanidine; this has been confirmed by Pfiffner and Myers. Major has also observed a fall of blood pressure in hypertensive patients when induced diuresis caused an increased output of this substance in the urine. Waldbott's conclusion that some cases of unexplained hypertension may be caused by allergy was tested and contested by Cohen, Fineberg, and Rudolph. " A distinct therapeutic success " in reducing hypertension was reported by Allen and Sherrill by restriction of the sodium chloride intake; but this was contested by Mosenthal and by Berger and Fineberg.

Psychical Influences.—In 1876, at the Sheffield Meeting of the British Medical Association, Clifford Allbutt read a paper on " Mental Anxiety as a Cause of Granular Kidney." As acute emotion causes a temporary rise of blood pressure it has been assumed that long-continued worry, or the strain of strenuous existence, may be responsible for essential hypertension; but it must be remembered that mental strain is often accompanied by circumstances harmful to health, such as overeating and want of fresh air and of exercise. Some doubt has been thrown on this influence of mental strain by Soma Weiss's analysis of 33,000 life assurance applicants with a systolic pressure of 170 and a diastolic of 100 mm. Hg; this showed that the average blood pressure of small farmers was as high as, or slightly higher than, that of lawyers, medical men, teachers, and members of other professions specially exposed to mental strain. Long-continued mental strain and worry are very common, and no doubt many with this history become hypertensive; but many escape, and by no means all hypertensive patients have led a strenuous life. That mental worry may have some influence, especially in those with a hereditary tendency and when combined with other unfavourable circumstances, cannot be denied; but as a single efficient cause its claim must not be rated too high.

CLINICAL SIGNIFICANCE

Lastly, a few words on the clinical significance. Although symptoms may occur in patients with essential hypertension, what evidence is there that they are due solely to the persistently raised blood pressure rather than to its cause or to the effects of its long-continued action on the cardiovascular system or kidneys? It is common knowledge that hypertension may exist in persons who do not complain of any symptoms, at any rate until they learn, perhaps after an examination for life assurance, that their blood pressure is too high. The subjects of uncomplicated hypertension are prone to vasomotor instability, and hence fluctuations in the blood pressure occur more readily than in normal persons. These subjects may be free from symptoms while the raised blood pressure remains fixed at the level best suited to the individual, and so long as secondary changes, such as cardiac and renal failure, are absent. But a sudden considerable rise may precipitate discomfort just as in paroxysmal hypertension. It has been thought that the early symptoms of essential hypertension are due to functional disturbances of the blood supply of the brain, either by spasm or by causing increased intracranial pressure of the cerebro-spinal fluid.

Polycythaemia.—The red count may be increased in hypertension; in some degree it was present in 45 per cent. of Kerppola's cases, and Lenaz found a definite relation between the systolic blood pressure and the red count, systolic pressures of 125, 150, and 170 being associated with 5, 6, and 6.8 million red cells per c.mm. Attempts to explain this occasional association are not very convincing. In polycythaemia rubra or erythraemia the viscosity of the blood is increased (F. P. Weber), and in Gaisböck's group of polycythaemia hypotonica the blood pressure is raised, but these cases are usually complicated by chronic nephritis. Among 189 collected cases of polycythaemia Lucas found records of the blood pressure in sixty-six, and in twenty-one, or one-third, of these the systolic blood pressure was below 140; this suggests that neither polycythaemia nor the constant viscosity of the blood is responsible for the raised blood pressure. It has, however, been argued that polycythaemia is not due to arterial hypertension alone, but to raised pressure in the capillaries, which leads to concentration and a fall in the water content of the

blood (Lomaz). The divergence of opinion, however, about the capillary pressure in hypertension renders further investigation and information necessary before this correlation can be considered. Izquierdo and Cannon's discussion of "emotional" polycythaemia in relation to the sympathetic and the medullo-adrenal action of the spleen, and Lamson's earlier view that excess of adrenaline in the blood may drive the red cells out of the spleen into the circulation, might suggest that those cases of essential hypertension with polycythaemia have an excess of adrenaline in the blood. The simplest explanation of the association of polycythaemia and essential hypertension is the onset of congestive heart failure.

In conclusion, the clinical significance of essential hypertension is obviously that it is the potential antecedent of cardiovascular and renal complications.

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FIELDS OF VISION IN CONNEXION WITH INTRACRANIAL LESIONS *

BY

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It is of scientific interest only to determine the site of a lesion when the latter cannot be treated, but to localize it becomes of urgent practical importance when a chance of radical cure exists. It was not so important to make a diagnosis of appendicitis a hundred years ago as it is to-day. To invite a surgeon to join in introducing this subject is, I think, an indication of the impression that something definite may be done for many intracranial lesions, and that a visual defect must be looked for as carefully as one looks for rigidity and tenderness in the right iliac fossa.

Within recent years much experimental work has been done on the anatomy of the visual paths, and it is not out of place to summarize the results as briefly as possible. Impulses from the left visual field cross to the right halves of the retinae. The fibres from the right sides of both retinae come together at the optic chiasma, and pass in the right optic tract to the external geniculate body. It is accepted that this is the only subcortical centre for vision, and that no visual fibres pass, as formerly described, to the pulvinar of the optic thalamus or the superior quadrigeminal body. From the external geniculate body the secondary neurones of the visual path pass in the optic radiation to the striate area of the occipital lobe. The optic radiation or geniculo-calcarine pathway is identical with the external sagittal stratum of the occipital lobe.

Such is the usual arrangement of the visual pathway, and the general conclusion is that the left side of the field of vision has its centre in the right cerebral hemisphere, just as the left hand has its centre in the right side of the brain, the visual impulses crossing in the air, those from the hand crossing in the spinal cord. Gross lesions of the right visual pathway behind the chiasma will give rise to left homonymous hemianopia; a lesion of the chiasma will give rise to bitemporal hemianopia, but further anatomical details are necessary if we are to distinguish between lesions above and below the chiasma, or to deter-

* Read in opening a discussion in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Dublin, 1933.

mine at which point between chiasma and cortex the long pathway has been interrupted

In general, the fibres from the upper half of the retina lie dorsal from the eye to the cortex, from the lower half ventral, while the macular fibres lie between In the right optic tract the fibres from the upper nasal quadrant of the left retina and from the upper temporal quadrant of the right retina lie together on the inner and upper surface those from the lower quadrants lie on the outer and under surface, while the macular fibres occupy most of the upper outer segment When the fibres reach the external geniculate body they preserve a somewhat similar relation, the superior quadrants of the right halves of the retinae being projected upon the internal segment of that body, the inferior quadrants upon the external segment, while the macular fibres end in the intermediate dorsal segment (Brouwer) [1] This localization suggests that homologous fibres from the retinae have come together in the external geniculate body, and that homologous fibres run together in the visual radiation

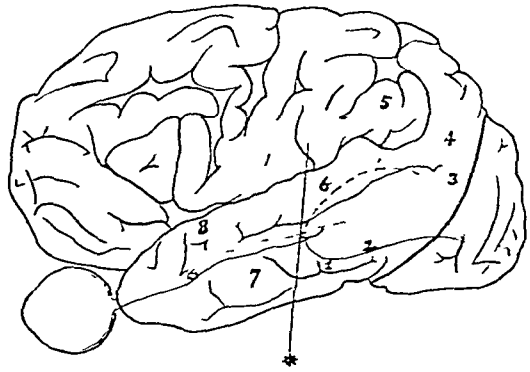
From the external geniculate body the visual radiation spreads, its dorsal fibres curving upwards and backwards from the internal segment, its ventral fibres downwards and backwards from the external segment, and its intermediate fibres more directly backwards Experimental work does not seem to reveal any pronounced 'temporal loop" directed towards the temporal pole In Polak's [2] experiments, however, the ventral branch of the visual radiation was not injured, and its complete course was therefore not marked by degeneration In a coronal section through the right occipital lobe the visual radiation appears like a crescent embracing the lateral aspect of the posterior horn of the lateral ventricle It consists of three parts (1) a dorsal horizontal branch from the internal segment of the external geniculate body—which thus carries impulses from the dorsal segments of the right halves of the retinae—and ending in the upper lip of the calcarine fissure, (2) a vertical branch containing the macular fibres and ending in the most posterior part of the striate cortex, its upper half carries the impulses from the dorsal quadrants of the homonymous hemimaculae, while its lower carries those from the ventral, (3) a ventral horizontal branch from the external segment of the external geniculate body, terminating in the lower lip of the calcarine fissure, and conveying impulses from the ventral segments of the right halves of the retinae

These experimental results, taken in conjunction with the clinical observations of Gordon Holmes [3] and others, indicate that there is a fixed geometric projection of the retinae upon the cortex of the striate area No segment, not even the fovea centralis, has a diffuse or bilateral representation in the cortex

The striate area is that part of the occipital cortex which forms both lips of the calcarine fissure in its whole extent, and extends for a short distance on to the lateral aspect of the occipital lobe On the right side the fibres which come via the visual radiation from the most nasal part of the left retina terminate in the extreme anterior part of the fissure, those which come from the right halves of the retinae terminate more posteriorly, and the most posterior area receives the fibres from both homonymous hemimaculae To state these facts in terms of the visual fields, the peripheral part of the left visual field is projected on the anterior part of the right visual cortex, the central part on the posterior The floor of the fissure represents the horizontal meridian of the retina

We may divide the visual pathway in so far as it is commonly involved by intracranial tumours into five sections (1) the intracranial part of the optic nerves, (2) the optic chiasma, (3) the optic tract, (4) the visual radiation, and (5) the striate area of the occipital lobe

I shall confine my remarks to my personal experiences in perimetry in cases of tumours affecting the optic tract and the optic radiation These sections of the visual pathway lie particularly in relation to the temporal lobe of the brain It would simplify description and give a more accurate basis of comparison between series of cases if we divided the temporal lobe into a pre geniculate and a post-geniculate area by a coronal plane at the anterior portion of the external geniculate body (see Diagram) The

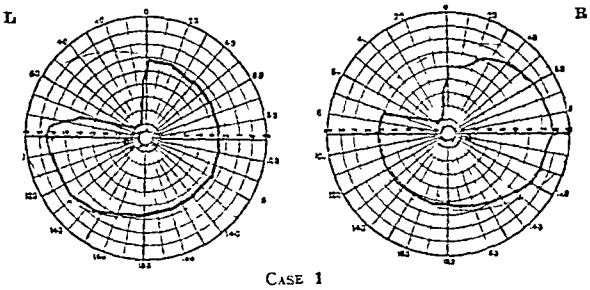


The asterisk indicates plane through anterior end of external geniculate body Broken line marks fibres from upper half of retina and continuous line those from lower half Dots indicate macular fibres numbers refer to sites of tumours in the cases Both right and left sided tumours are represented as left

pre geniculate corresponds almost exactly to the anterior half of the lobe, the post geniculate to the posterior half Then if a definite "tract" defect of the visual fields can be established in contradistinction to a "radiation" defect each part of the temporal lobe has its own burglar alarm, provided that the temporal loop" of the optic radiation described by Meyer does not exist I have selected the cases with partial visual defects, for obviously a complete homonymous hemianopia might be caused by interruption of the visual pathway anywhere from chiasma to cortex

Tumours of, or Involving, the Post geniculate Part of the Temporal Lobe

Case 1—M D aged 13 Admitted May 1931 Petit mal since age of 4 Two major epileptic attacks at 12 Recent development of double papilloedema Left upper quadrantic hemianopia Slight lower facial weakness left side Operation Haemangiomatous cyst size of orange The mural nodule was situated (1 on Diagram) at anterior inferior portion of cyst



CASE 1

Case 2—D O B aged 39 Admitted April 1933 Attacks of unconsciousness for three months Occasional dizziness Gradual deterioration of memory and slips in writing and speech Sensory aphasia No headache no vomiting Left anosmia Bilateral papilloedema Paresis right side of mouth Right upper quadrantic defect Operation Glioblastoma with small cyst immediately below the roof of the descending horn of the left ventricle (2 on Diagram)

Case 3.—E. M., aged 28. Admitted August, 1932. Two months' history of headache and vomiting; fourteen days diplopia. Double papilloedema. Partial right hemianopia. No other localizing symptom. Operation. Angioblastoma left side of tentorium invaginating occipital lobe up to the point marked 3 in Diagram.

Case 4.—A. O., aged 23. Admitted January, 1921. For four years suffered from sudden "lapses" or loss of memory, ushered in by circles of light before the left eye. For six months attacks of "biliousness." Recent onset of double papilloedema. Left homonymous hemianopia. No other localizing sign. Ventriculography showed occlusion of posterior horn of right ventricle. Operation. Astrocytoma size of plum (4, on Diagram) in medial wall of large cyst, which extended downwards and forwards.

Case 5.—M. L., aged 22. Admitted April, 1926. Headache started six months before admission, followed in two months by vomiting in the morning. Sensory aphasia, astereognosis right hand. No motor symptoms. Right homonymous hemianopia congruous incomplete in upper quadrants. Operation. Glioblastoma size of cricket ball in left parietal lobe extending downwards into upper part of left temporal lobe (5, on Diagram).

Case 6.—J. G., aged 16. Admitted July, 1922. Long history of attacks of severe headache and vomiting latterly associated with dimness of vision. Double papilloedema. Right homonymous hemianopia complete in lower quadrant. No other localizing sign. Operation. Large gliomatous cyst in posterior half of left temporal lobe with soft tumour in anterior wall (6, on Diagram).

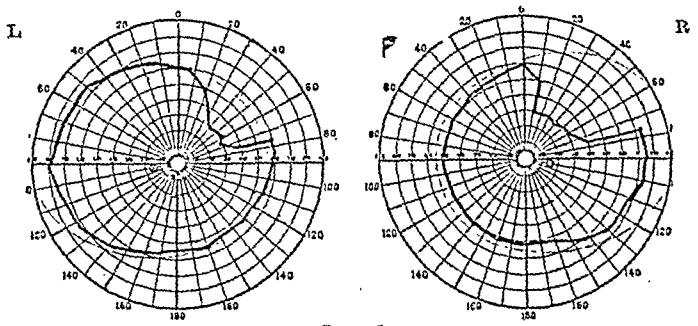
Tumours of the Pre-geniculate Portion of the Temporal Lobe

Case 7.—A. K., aged 23. Admitted October, 1926. Attacks of giddiness for eight years. Double vision three months, then headaches and vomiting in the morning. Occasional tenderness of scalp over left ear. Slight choking both disks. Sector defect right visual field of left eye; on one occasion there was a suggestion of the defect being homonymous. No other localizing symptom. Operation revealed soft meningioma, size of walnut, indenting the middle of the second temporal convolution on the left side (7, on Diagram).

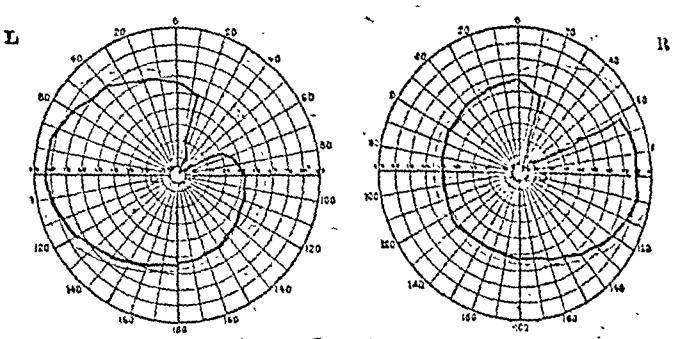
We have had several tumours involving the anterior part of the temporal lobe, but they either had complete homonymous hemianopia, or perimetry was impossible because of lack of co-operation. One of these (8, on Diagram) had full fields as tested by the confrontation method.

Discussion

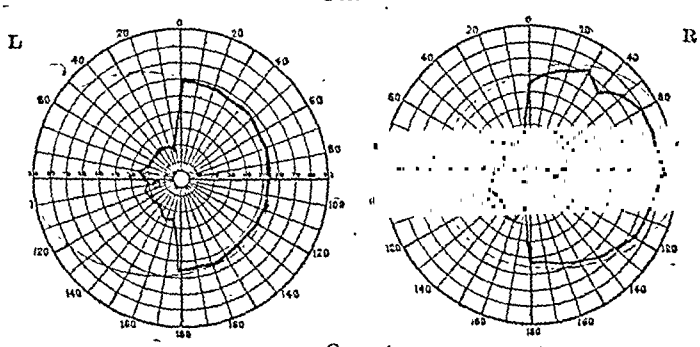
I need not discuss these cases in detail; the charts considered with the sites marked in the diagram speak for themselves. I would draw attention to the presence of upper visual defects in the first three cases. The defects were not always strictly congruous, but congruity depends on the condition of the patient as well as on the skill of the perimetrist. In the six post-geniculate cases a diagnosis was made not of a tumour of the temporal lobe, but of a tumour involving the visual radiation, and operation was planned accordingly. In each case the growth was radically removed. One of the cases of glioblastoma (Case 5) survived two years; the rest are alive to-day—one twelve years, one eleven, one two, one nine months, one three months. Case 7 has been perfectly well since her operation six and a half years ago. In each case perimetry gave essential information, and perimetry is justified of her results.



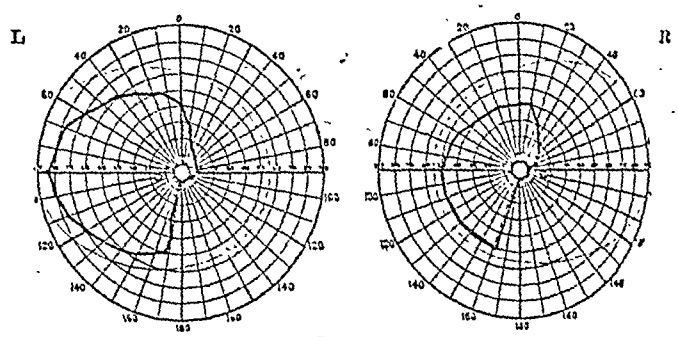
Case 2.



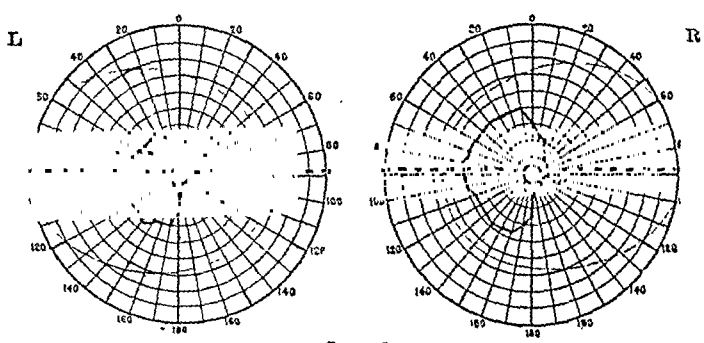
Case 3.



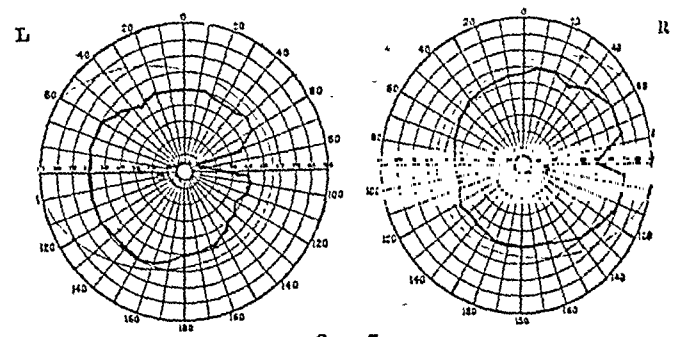
Case 4.



Case 5.



Case 6.



Case 7.

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FIELDS OF VISION IN INTRACRANIAL LESIONS*

BY

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In the first place it is necessary to state clearly what is meant by the expression "fields of vision." Until recently the examination of the field of vision meant simply the demarcation of the extent of the seeing field and the position and shape of blind areas. Modern perimetry includes, in addition to the separation of blind from seeing areas, an estimation of the functional efficiency of the whole field. The normal field is not a field having merely normal extent, but one having, in addition, normal acuteness all over its area. When defects are found the degree of visual impairment must be estimated, and also the functional value of the apparently unaffected parts.

This *quantitative* perimetry is carried out by the use of serial stimuli varying from a test object of only 1 mm. in diameter to a strong electric light, on the same principle as Snellen's test card for central vision. In this way the 'characters" of field defects are elicited. These are (1) position, (2) shape, (3) size, (4) intensity, (5) uniformity, (6) margins, and (7) behaviour or course. Two other features require investigation—namely, the presence of *proportion* or *disproportion* and, in cases of *homonymous hemianopia*, the presence of *congruity* or *incongruity*.

The examination of the field is usually carried out by moving test objects of different sizes along the arc of a perimeter or in front of an extensive black background, the screen or campimeter. Elaborate instruments have been devised, but frequently, and perhaps more especially in cases of intracranial lesion, the simple confrontation test, carried out by the examiner moving his hand or some object in front of the patient's face, provides information of the greatest value. This test is often omitted, not improbably on account of its simplicity.

It will be seen that quantitative perimetry demands much more than the mere demarcation of boundaries between grossly differing parts of the visual field. Only when full data have been ascertained are we in a position to proceed to the interpretation of the field changes and the diagnosis of their cause.

These characters require little explanation. The *intensity* of a defect means the degree of blindness present and the *uniformity*, the relative distribution of the blindness within its area; the *margins*, the nature of the edges, whether abrupt or sloping. The examination of these characters constitutes *analysis* of the defect, and is very important. The blind half field in hemianopia, for example, may be found on analysis to consist of two quadrants of different intensities, or the composite nature of a central scotoma may be revealed. The *behaviour* includes the mode of onset and course.

Under normal conditions the fields for a coloured—for example, a red—object and a white object of the same size preserve a certain relationship in regard to area. When this is present in pathological conditions, as, for example, in concentric contraction of the field, *proportion* is said to be present. In certain abnormal conditions the field for the red object may be unduly small in proportion to the amount of reduction for white. This is a simple example of the presence of *disproportion*.

The nerve fibres from each retina are gathered into the optic nerve, and, as you know, at the chiasma separate into the crossed and uncrossed bundles. In the optic tract the crossed fibres from the one side join with the uncrossed fibres from the other, and before, or by the time that, the external geniculate body is reached, the fibres from corresponding areas of the homonymous halves of the two retinae have come to lie in close juxtaposition. Thus a single lesion in the visual nerve pathway before this juxtaposition has been attained might produce a defect in one field only, or, when both fields are affected, defects which, though symmetrical in position and similar in shape, are more extensive, more intense, or earlier in appearance in one field than in the other. In cases of homonymous hemianopic field change defects of this kind are *incongruous*. *Congruous* homonymous hemianopic defects are simultaneous in appearance, coextensive, and equal in intensity in the two fields. It will be seen that the establishment of congruity or incongruity has a localizing value, since all hemianopias due to suprageniculate lesions must be congruous.

There is, however, an exception to this rule owing to the fact that the temporal and nasal portions of the field are not normally coextensive, the temporal field being the larger by a crescentic area about 30 degrees wide at its widest part. This area corresponds to the nasal periphery of the retina, to the inner side of the visual path and posteriorly to the most anterior part of the occipital cortex, and the nerve fibres concerned have no mates, since there are no corresponding temporal retinal areas. It is possible, therefore, in a suprageniculate hemianopia, for the temporal 30 degrees of the binocular field to be affected alone, or for this part to be spared in an otherwise congruous homonymous hemianopia. Thus this isolation of the temporal crescent, or temporal half moon as it is sometimes called, has a localizing value of its own.

When the field changes have been ascertained the next step is to interpret their meeting and to estimate their significance. Interpretation may be anatomical or pathological. By anatomical interpretation we gain information as to the site of the interference with the visual path, and by pathological interpretation we gain some guidance as to the nature of the lesion. These two forms of interpretation lead us towards the diagnosis, and, together with the behaviour of the field defects, assist us in connexion with prognosis. The same inferences based on the anatomical and pathological interpretation are often helpful in connexion with treatment—for example, in suggesting the best surgical approach to a tumour in the pituitary region. Finally, in patients who present certain symptoms suggestive of neoplasm, together with pronounced changes in the visual fields, an examination of the latter may be of use in determining their purely psychological origin.

We see, then, that perimetry may be of use in indicating the site and the nature of an intracranial lesion—that is to say, the diagnosis—and in helping us in connexion with prognosis and treatment. It is hardly necessary for me to emphasize the point that a diagnosis should never depend on perimetric findings alone but that perimetric findings should be used as part of the clinical picture on which the diagnosis is based. Thus cases in which other symptoms are absent or minimal are those in which perimetric findings, if present are of the greatest value. In other cases, in which the site and nature of the lesion may be evident on other grounds, the perimetric findings are always useful and sometimes valuable.

Turning first of all to the relationship of the field changes to the site of the lesion it will be noted that the long intracranial course of the visual pathway from the optic foramen to the occiput gives ample scope for the action of many forms of interference while in addition, some intracranial conditions not directly affecting the intracranial visual pathway produce effects on the optic nerves.

* Read in opening a discussion in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Dublin 1933.

Fortunately for the clinician the nerve fibre architecture of the visual pathway is so arranged that, on the whole, its elements retain the same relative positions throughout—that is to say, a lesion of one side of the visual pathway at any point, from the optic nerve back to the occipital cortex, will produce a defect on the opposite side of the field.

If we trace the visual pathway backwards from the optic foramen we find that different forms of field defect are produced at different levels, so that it is possible to obtain immediately from the fields a great deal of guidance as to which part of the pathway is involved. For our purposes the pathway may be regarded as consisting of a suprageniculate part, including the cortex and the radiations, and a subgeniculate portion, which is divided into subchiasmal, chiasmal, and suprachiasmal sections. All of these divisions give more or less characteristic field changes which enable the site of the lesion to be established.

We find also that the different parts of the visual path are liable in different degrees to different forms of lesion, so that if the site of the interference is established some guidance is already received as to the probable nature of the lesion. The establishment of the site is based upon the anatomical interpretation of the field defects. The nature of the lesion is based upon pathological interpretation. This form of interpretation depends chiefly upon the behaviour of the field change. Field changes which are rapid in onset, and progress rapidly or variably, correspond to lesions which behave in a similar way. Thus, if anatomical and pathological interpretation are taken together, it is often possible to gain from perimetry very considerable help in diagnosis.

The accompanying table shows in a general way, without going into great detail, the relationship between the different parts of the visual field and the more commonly occurring lesions and the field changes produced.

It is necessary to make special reference to one point in the anatomy of the visual pathway. It has hitherto been believed that the visual fibres on leaving the external geniculate body pass directly backwards in a defined band until they spread out to their distribution in the calcarine area of the occipital cortex, the internal fibres passing to the anterior part of the cortex, the more external fibres to the posterior part. In recent years, however, a different view has been advocated, according to which the fibres of the radiation on leaving the geniculate body divide into two main groups—dorsal and ventral. Only the dorsal fibres pass directly backwards. The ventral bundle is said to pass downwards and forwards into the temporal lobe extending, in a fan-shaped arrangement, as far forwards as the tip of the anterior horn of the lateral ventricle, which it surrounds before turning backwards to the lower part of the visual area of the occipital cortex. This arrangement is known as Meyer's temporal loop. The evidence for this distribution is anatomical, and no clinical proof has yet been produced. If this distribution is correct a lesion of the temporal lobe, either in its upper or lower part if anteriorly situated, or in its lower part if in the posterior portion of the lobe, should produce a superior homonymous quadrantal defect in the fields, and, since the suprageniculate part of the visual path is involved, the defects in the two fields should be congruous.

Surgical removal of the anterior part of the temporal lobe should produce a permanent, congruous, superior, homonymous quadrantal defect on the opposite side. It has been shown, however, by Cushing, that tumours of the temporal lobe produce incongruous homonymous hemianopic field changes which may disappear after operation. We are here faced with two alternatives. Either suprageniculate lesions may produce incongruous field defects, a view which, if proved, would greatly disturb if not totally upset the present basis of the anatomical interpretation of homonymous hemianopia, or we must believe that these temporal lobe lesions affect a part of the visual pathway where interference is already known to produce incongruous field defects. Since the optic tract lies immediately beneath the temporal lobe

The Visual Pathway and Intracranial Lesions

				Field Defect	Usual Lesions
Extracranial			Optic nerve	Enlargement of blind spot. Concentric contraction. Binasal hemianopia.	Papilloedema due to increased intracranial pressure
Intracranial	Subgeniculate	Subchiasmal	Optic nerve	Defects unilateral. Central scotoma. Hemianopic and quadrantic defects.	Tumour or abscess of frontal lobe (Foster Kennedy syndrome). Local tumour. Disseminated sclerosis. Trauma.
		Chiasmal	Anterior angle	Quadrantic temporal scotoma (junction scotoma). Unilateral temporal hemianopia, passing into bitemporal hemianopia, or blindness of one eye with contralateral temporal hemianopia.	Local tumour or aneurysm. Disseminated sclerosis.
			Body	Bitemporal hemianopia.	Local tumour. Disseminated sclerosis. Syphilis.
			Posterior angle	Unilateral hemianopia passing into homonymous hemianopia.	Local tumour.
		Suprachiasmal	Optic tract	Homonymous hemianopia. Sparing of central area uncommon. Quadrant defects common. Defects frequently incongruous.	Local tumour. Temporal lobe tumour or abscess
	Suprageniculate		Optic radiation	[illegible] hemianopia. [illegible] common. [illegible] rare. Peripheral defects due to internal lesions Central defects due to external lesions. Defects may be ill defined with sloping edges. All defects congruous.	Haemorrhage (?) Thrombosis. Tumour or abscess. Injury.
			Occipital cortex	[illegible] sion. [illegible] hemianopic scotomata. Double homonymous hemianopia with retention [illegible] to anterior lesions. [illegible] posterior lesions. [illegible] and well defined. All defects congruous.	Thrombosis. Tumour. Injury.

it seems justifiable to suppose that this is the part of the visual pathway which is affected, as the incongruity of the field defects would, on this assumption, offer no difficulty.

It is further evident that if cases can be found—and with the progress of intracranial surgery undoubtedly they will occur—in which the anterior part of the temporal lobe has been surgically removed, cutting through a large part of the temporal loop, definite and permanent upper quadrantal hemianopic field defects should be produced.

I have been able to obtain notes of two cases of this kind; one I saw in association with Mr. Dott, who will refer to it himself, the other was described by Kravitz. In this case the entire temporal and part of the frontal lobes on the right side were removed. Four months later an incomplete, irregular, incongruous, left homonymous hemianopia was found, which affected the lower as well as the upper left quadrants. Since the dorsal fibres of the radiation do not pass through the temporal lobe in Meyer's loop, the field, after such an operation, should exhibit a fairly clear-cut upper homonymous quadrant defect, and since the fibres were completely cut through the defects should be congruous, whether the fibres from corresponding retinal areas lie side by side at this level or not. No such field defect was present, and Dr. Kravitz, in a private letter, has informed me that he also doubts the existence of Meyer's temporal loop, at any rate as a portion of the visual pathway directly conveying visual impulses from the geniculate body to the occipital visual cortex.

In a recent study of the field changes produced by occipital tumours Horrax and Putnam showed that relatively congruous homonymous hemianopia with sparing of the central area was the characteristic feature. An upper quadrantal homonymous defect was not found in their series of occipital lobe tumours. The field changes in temporal lobe tumours differ greatly from these in the frequency of incongruity and of upper quadrantal defects, and the relative rarity of sparing of the central area.

These findings appear to me to afford considerable support to the view that it is the optic tract and not the optic radiation which is affected in temporal lobe tumours.

Turning now to the pathological interpretation of field defects, we have seen that anatomical interpretation has helped us considerably in this direction. A few examples will suffice. In disseminated sclerosis of the chiasma the predominant central position of the defects, their rapidity of appearance, variability, and spontaneous disappearance, agree with the symptomatology of disseminated sclerosis in general.

The slow, relentless development of hemianopic defects due to tumour pressure, the sudden or rapid appearance with possible spontaneous resolution of similar defects due to haemorrhage and thrombosis, are closely related to the development of the corresponding lesions. The presence of disproportion indicates activity of the lesion and progress either in the direction of increase or of resolution. The nature of the fields may be helpful in determining the best surgical approach, and the effects of surgical or radiological treatment may be gauged by repeated perimetric examinations.

The inconsistent and contradictory findings in hysterical and neurasthenic cases are sufficiently characteristic to indicate the true state of affairs.

The foregoing sketch is intended to illustrate the general principles on which the use of perimetry in connexion with intracranial lesions is based. Time does not permit of discussion in fuller detail.

SUMMARY

In the study of intracranial lesions perimetry is of value:

1. In locating the site of the lesion.
2. In assisting the determination of the nature of the lesion.
3. In affording guidance as to prognosis and treatment.
4. In throwing light upon the anatomy of the visual nerve path.

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A NOTE ON VITAMINS IN PRACTICAL EXPERIENCE

BY

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In my paper to the Section of Diseases of Children at the Dublin Meeting of the British Medical Association,* dealing with the practical significance of vitamins in day-to-day clinical experience, I have confined my attention largely to the anti-rickets vitamin D, which, of course, in this country, is the factor of pre-eminent importance. A list of conclusions is, however, included relating to vitamins A, B, and C and certain other practical issues; and it is the purpose of the present brief notes to summarize the evidence on which these conclusions are based.

VITAMIN A NOT A GENERAL ANTI-INFECTIVE AGENT

Week by week advertisers' announcements are sent to us all by post, or appear in the journals, which rather convey the impression that vitamin A builds up the general resistance to infection and is of value in the treatment of toxaemias and infectious diseases of all kinds. This is claiming far too much. Vitamin A is anti-infective in only a limited way. As I have shown, in collaboration with J. R. M. Innes,[1] the local infections to which vitamin A deficiency gives rise are of a quite special type, being caused by structural breakdown of membranes. There is no change in the general immunity. These scattered, localized infections are restricted in origin to the abnormal membrane, and are set up by chance micro-organisms which would normally prove to be non-pathogenic. There is no reason to suppose that vitamin A could exert any direct bactericidal or similar effect when given in definite cases of infectious diseases and septicaemias caused by the invasion of specific virulent micro-organisms. Dr. Griffith and I showed,[2] for example, that vitamin A had no effect on the spread of experimental tuberculous disease. Again, our colleague Dr. Thomas Moore[3] has found that in human beings dead from the most varied types of infectious diseases there may be abundant reserves of vitamin A in the body, so that little could have been gained by its administration in such cases, and it is obviously no longer possible to

* To be published in a later issue of the *British Medical Journal*.

regard the vitamin as an anti-infective agent indiscriminate in its scope. The original observation which held out the hope of wide positive therapeutic uses for vitamin A was that of Mellanby and Green[4]; it appeared to show that in puerperal septicaemia the mortality was strikingly diminished as a result of vitamin A treatment. Mellanby suggested that many common infective conditions might be due to vitamin A deficiency, including the common cold, acute rheumatism, phthisis, bronchitis, pneumonia, middle-ear disease, ulcerations of mouth and eyes, and inflammations of nasal sinuses. However, later clinical investigations by many workers have shown that vitamin A therapy has failed to have any effect as a prophylactic in respiratory diseases,[5] in the common cold in infants,[6] on the incidence of common infections generally,[7] or in the treatment of pneumonia.[8] As has been agreed by Mellanby, a difficulty in interpreting his original, apparently favourable, results in puerperal septicaemia is the great natural variation in virulence from case to case. Ellison[9] claims to have reduced the mortality rate in measles in young children by treatment with vitamins A and D. In a group of 300 cases so treated there were eleven deaths, and in a similar control group of 300 given no extra vitamins twenty-six deaths. Further statistical evidence will, of course, be needed before the claim can be regarded as definitely established. Ellison points out how there often occurs after severe measles a metaplasia in the respiratory tract resembling that of vitamin A deficiency, and this might be regarded as providing a rationale for the treatment. We may certainly admit that it is in young children—the class studied by Ellison—that any liability to shortage of vitamin A seems most likely to occur (see below).

Vitamin A Requirements

Although we are satisfied that vitamin A is of no value as a general anti-infective agent for indiscriminate use in treating all kinds of infectious diseases it is still important to ensure that enough of the vitamin is given in the diet, as there is full evidence to show that a lack must lead to specific ill effect (including xerophthalmia, or night-blindness, often accompanied by tendency to respiratory infection.[10 11] In many parts of the world avitaminosis A is widespread, while it will come as a surprise to most to hear that in this country it is not quite unknown, no fewer than seventeen cases of xerophthalmia being recorded in one year in a North of England hospital.[12] A recent report from America gives details of thirteen such cases in under-nourished children.[13] As to the more difficult question of partial lack of this vitamin (hypovitaminosis) it is hard to speak with any certainty. The results of Moore[3] for the British Isles and of Wolff[14] for the Netherlands suggest that about 16 per cent. of the population might perhaps be considered to have "subnormal" reserves, but it is difficult to know how to fix the limit for normality. The reserves found vary immensely from one individual to another.

Work by my colleague Dr. W. J. Dann,[15] in particular, has shown that the young of the species receive a surprisingly limited amount of vitamin A *in utero* and in their mother's milk, so that the need for ample provision of this factor *especially at weaning* becomes all the more apparent. Vitamin A is found in most animal fats (except lard) and fish oils; but carotene, which is of equal biological value and is converted to vitamin A by the animal (as shown by Moore at Cambridge), is as readily accessible in green vegetables, carrot, etc. We may sum up the matter of vitamin A dosage by drawing a contrast between it and its fat-soluble companion D. Whereas with vitamin D no common foodstuff contains an abundance, so that supplementary dosing is an absolute essential if the deficiency (rickets) is to be averted, many common articles (any common greenstuffs) contain all that is needed of vitamin A, so that separate dosing cannot be regarded as being so imperative, but merely as an additional safeguard in cases of doubt.

Vitamins B_1 and B_2

Vitamin B_1 deficiency (beri-beri), including the infantile variety, is almost universal in certain parts of the globe, but there is little evidence of any serious lack of this vitamin in this country or in the U.S.A. True, the possibility of some partial want is suggested by experiments recently carried out in America,[16 17 18 19 20] which showed apparently quite conclusively that when sources of extra vitamin B were added to the diet of large groups of infants the growth rate or weight curves, or both, were far ahead of those of the control groups. We must await further tests before dogmatic statements can be justified. Intestinal stasis and lack of alimentary tone is admittedly one effect of vitamin B deficiency, but in my opinion there is no compelling evidence for the widely advocated theory that the prevalence of constipation in this country is due to vitamin B shortage. Pellagra (vitamin B_2 deficiency) has an astonishingly high incidence in the U.S.A. (170,000 cases in 1917; 120,000 cases in 1927: mortality rate about 40 per cent.), but it is not a disease of children, and is therefore outside the scope of our present discussion.

Vitamin C

It is nowadays the recognized orthodox practice to give all bottle-fed infants fruit juice for the purpose of preventing Barlow's disease (infantile scurvy—that is, deficiency of *vitamin C*, recently identified with *hexuronic* or *"ascorbic" acid*). This is an essential procedure, as cow's milk is a rather poor source of vitamin C, and pasteurization may destroy what little there is—this, to a greater or less extent depends on the conditions of the pasteurization, the presence of copper particularly inactivating the vitamin. This question is of much current interest and importance in view of the proposed legalization of compulsory pasteurization—a process which, it may be noted in parenthesis, is of commercial benefit to the dairying interests, since pasteurized milk "keeps" longer and can be sold when staler. We do not know at all accurately to what extent vitamin C underfeeding is current in this country; but the fact that definite outbreaks of scurvy tend to appear (as in Manchester, Glasgow, and Newcastle in 1917) whenever there is a failure in the potato crop suggests that many people must be near the borderline, and that they rely too exclusively on the potato as their sole source of the vitamin. The consumption of other vegetables and salads and fruit should be encouraged: a useful "rule" that has been advocated is to spend as much on fruit and vegetables as you do on meats and fish and, incidentally, the same sum again on *milk*. (Here, of course, we are speaking of children and adults, not young infants.) In Sweden Göthlin[21] believes, from his tests on capillary strength, as measured by the liability to cutaneous haemorrhage under given pressures applied to the skin, that 18 per cent. of a group of country school children were suffering from hypovitaminosis C. E. W. Fish and I[22] find that vitamin C deficiency in experimental animals leads not only to failure in function of odontoblasts (as had been previously observed), but also to faults in enamel formation of the type which precedes dental caries in man. It is quite likely that deficiency of vitamin C—no less than of vitamin D, which has been studied so fully by M. Mellanby—may often be a contributing cause of dental caries.

OTHER NUTRITIONAL FACTORS

I would not wish to close without making at least a cursory allusion to nutritional factors other than vitamins, lest I might seem to convey the impression that vitamins alone mattered. Among the most striking of recent work is that of Mackay,[23 24] who has shown how surprisingly common is iron deficiency in infants, and has published a convincing account of the beneficial effects of its administration in such cases. The observations, too, of Corry Mann[25] on the unique nutritional properties of milk for school children, work which has since been amply confirmed up and down the country, call for special mention.

THEORY AND PRACTICE

In conclusion, we must realize that our problem cannot be divorced from economic realities. Calculation shows that the cheapest diet for bare sustenance costs about 5s. to 7s. a week for an adult, or about 3s. to 4s. for a child.[26 27] This figure assumes a knowledge of how to choose food to the best physiological advantage, and also the opportunity of purchasing it in the cheapest markets. Yet it has been shown that even this minimal sum is beyond the reach of many of the unemployed, whose income falls short of that amount after deducting only for rent, and making no provision whatsoever for such necessities as clothes, heating, etc.[28] The fault here lies not with science, but largely in the mal-organization of society, and sometimes too in a failure to apply or to realize the knowledge which science has already won. In America it has been found worth while to employ whole corps of "nutritionists," whose function is to advise the public authorities as to nutritional conditions and local needs, and to instruct households on the outlay of their budgets.

A summary of these conclusions will be given in the previously mentioned paper.

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A CASE OF UNUSUALLY HIGH EOSINOPHILIA OF OBSCURE ORIGIN

BY

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As the case reported below presents several interesting clinical features and diagnostic difficulties it was thought worthy of being put on record.

CASE HISTORY

A male, aged 39, shopkeeper by occupation, early in May, 1932, noticed himself unusually tired when the day's work was over. Although he worked hard, he had never noticed any ill effects before. As time went on he found himself becoming more and more tired each evening, until early in October he decided to seek medical advice

His father, aged 78, and his mother, aged 71, are in excellent health; five sisters and one brother are alive, and are all in good health; one sister died of meningitis at the age of 21. He has never been ill in his life except for whooping-cough at the age of 7. He has never been out of Ireland, is very abstemious in his habits, and lives an outdoor life.

When I saw him he complained of weakness, a feeling of nausea, and pains in his epigastrium occurring about one hour after food. He looked anaemic and his skin was sallow; he said he had lost weight. On examination I could elicit nothing abnormal in his abdomen. Liver and spleen were not enlarged. Lungs were normal, but his heart was enlarged and a mitral systolic murmur was present. Urine contained no albumin or sugar. There was no blood in the stools. Reflexes were normal. I gave him a bismuth mixture, and asked him to come back in a week's time. Three days later I was called to see him, and found him in bed complaining of exhaustion and pain in the epigastrium. Examination of the abdomen was again negative, and I sent him into hospital for *x*-ray examination. A barium meal revealed no evidence of gastric or duodenal ulcer, but, on screening, his heart was definitely enlarged. A blood count was then done showing an eosinophilia of 55·5 per cent. and a red blood count of 2,960,000 per c.mm. With this high eosinophilia I thought it most likely he had a tapeworm, but the usual treatment with ext. filix mas. yielded no result. After an interval of three days I again gave him one drachm of ext. filix mas., followed one hour later by a similar dose but his stools were negative. He was also given santonin, but there were no roundworms or threadworms. Urine and faeces were examined for ova, with negative results.

The report on a gastric test meal was as follows: "Free hydrochloric acid, 40 per cent., total acidity, 65 per cent., lactic acid test negative, occult blood reaction positive. There is a small amount of mucus containing flakes of blood. This effect could, I consider, be produced by straining, and if there was difficulty in withdrawing the specimen I would not attach importance to the presence of blood."

His general condition was gradually becoming worse, and after about a fortnight's stay, he decided to leave the hospital and returned home. Whilst in hospital his temperature went up once or twice to between 99° and 100°. After a week at home his temperature varied each evening between 101° and 102°. He became increasingly restless and complained very much of insomnia. His anaemia was very pronounced, and I gave him ventriculin by the mouth, alternating this with hepatex intramuscularly. He was now entirely confined to bed and his liver could be distinctly felt almost a hand's breadth below the costal margin. The stomach symptoms which had been so marked a feature in the early stages, had now disappeared but his general condition was very much worse, and he complained of exhaustion

and suffocation. I decided as a last resource to give him 5 grains of quinine sulphate every four hours to steady his temperature, and in the hope that the resulting leucocytosis might be helpful. After continuing this for five days he said he felt better, his temperature became normal, and he felt less exhausted. I then reduced the quinine to 10 grains in twenty-four hours, and he gradually improved, until at the end of three weeks he got up and felt very much better. The quinine was then stopped, and his temperature did not go up again. The liver extracts were continued. He has maintained his progress since, but is still on liver treatment. The following represent the results of the later blood films.

October 20th, 1932.—R.B.C. 2,960,000 per c.mm. W.B.C. normal; differential count: neutrophils 31 per cent., eosinophils 55.5 per cent., lymphocytes 12.5 per cent., monocytes 1 per cent. Haemoglobin 50 per cent. Colour index 0.8. *Remarks:* R.B.C. vary in size, but regular for such low count.

November 14th, 1932.—W.B.C. normal; differential count: neutrophils 33 per cent., eosinophils 55 per cent., lymphocytes 12 per cent.

December 23rd, 1932.—R.B.C. 3,000,000. W.B.C. 12,600; differential count: neutrophils 16 per cent., eosinophils 55 per cent., lymphocytes 27 per cent., monocytes 2 per cent. Haemoglobin 60 per cent. Colour index 1.

February 8th, 1933.—R.B.C. 3,490,000. W.B.C. 17,500; differential count: neutrophils 10 per cent., eosinophils 78 per cent., lymphocytes 11 per cent., basophils 1 per cent. Haemoglobin 80 per cent. Colour index 1.1. *Remarks:* R.B.C. show anisocytosis. Numerous cells 8 to 10 microns. No nucleated R.B.C. No polychromasia. Reticulocytes numerous.

March 1st, 1933.—R.B.C. 3,300,000. W.B.C. 20,000; differential count: neutrophils 12 per cent., eosinophils 76 per cent., lymphocytes 12 per cent. Haemoglobin 65 per cent. Colour index 1. *Remarks:* Reticulocytes numerous. R.B.C. as above.

May 8th, 1933.—R.B.C. 3,390,000. W.B.C. 12,000; differential count: neutrophils 9 per cent., eosinophils 73 per cent., basophils 1 per cent., lymphocytes 13 per cent., monocytes 4 per cent. Haemoglobin 70 per cent. Colour index 1. *Remarks:* The red cells vary in size from 6 to 10 microns. They are regular in shape. No myelocytes found.

Diagnosis

With the definite absence of tapeworm the diagnosis of this case presents a very difficult problem. There is no history of eating raw pork, and there are certainly no signs of trichinosis. Although there was nothing in the history to suggest ankylostomiasis he was given 30 grains of thymol in three successive doses, with negative results. There are no symptoms of filarial infection. There is no localized tumour. No hydatid thrill can be elicited in the liver, and a negative complement-fixation test for echinococcus eliminated the possibility of a hydatid cyst being deeply embedded in the liver substance. Cancer of the liver can be ruled out in view of the patient's improved condition, the absence of jaundice and of any cachectic signs, and the smoothness of the liver surface. Syphilis was thought of, but the Wassermann test was negative. There is no history of gonorrhoea. He never suffered from asthma, any skin disease, or pediculosis.

Recently a few cases of inherited eosinophilia have been reported, but his excellent family history does away with this possibility. Blood cultures were negative. Examination for malarial parasites was negative. The various agglutination reactions for enteric and Brucella groups were negative. The one definite thing about his present condition is his tendency to go down the hill when he is not taking liver in some form. One might therefore reasonably assume that if this were discontinued he would most probably develop pernicious anaemia, considering that even with active liver treatment his red blood count is only about 3,400,000 per c.mm. It is unlikely that the condition is one of the so-called eosinophil-leukaemias, as the total leucocyte count is relatively low. I consider this an unusually interesting case, and am forced to regard it as one of pernicious anaemia with an extraordinarily high eosinophil count.

In conclusion, I wish to thank Dr. W. J. O'Donovan of the pathological department, University College, Cork, for so kindly placing his services at my disposal in gratuitously carrying out many blood examinations and other tests in this case.

ORAL ADMINISTRATION OF NEMBUTAL AS A PRE-ANAESTHETIC MEDICATION

BY

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In embarking upon the pre-anaesthetic administration of nembutal I did so somewhat prejudiced against the drug, as I considered all forms of pre-medication, excluding the use of atropine, to present more difficulties than advantages. It is true that some patients are easily anaesthetized, show no ill effects afterwards, and present no difficulties during anaesthesia when they have previously had a dose of hyoscine or morphine or both. On the other hand, one is often embarrassed by a patient with extremely shallow breathing—even to the point of suspended respiration—when administering ether after hyoscine, and, less frequently, after morphine. The continuous use of CO_2 in such cases may be necessary, but it is none the less undesirable.

There is, of course, no doubt that McGill, who introduced nembutal to this country, gets good results by its intravenous use, but many of us prefer a drug which is not administered in this way, provided that an accurate dosage is possible. In the belief that intravenous medication is only introducing one more danger and complication into the field of anaesthesia, I have set out to explore the uses of the oral administration of nembutal. The results of a 100 consecutive cases are given below, and these include the first few cases, which were deliberately underdosed. There is no harm in giving an underdose of this drug provided that the patient has not been told to expect an amnesia for the time of operation. A small dose calms the patient's fears considerably, and is of definite use.

One of my earliest experiences with nembutal was with a retired Army major, who had been previously primed with regard to the wonders of this drug. At his request I consented to administer it, and he awoke twenty minutes after the operation, spending the remainder of the day ringing his bell for a nurse merely to say, "I'm not asleep, and I ought to be!"

Indications and Technique

In the first place I consider it essential that the anaesthetist should see the patient previously and himself assess the dose. To be shown a sleeping patient to whom nembutal has already been administered and to be asked to anaesthetize him without awakening or examining him is not only embarrassing, but definitely unfair to both anaesthetist and patient, although one would undertake it in the case of a straightforward surgical procedure in a healthy patient who lives at a long distance after a telephone conversation with his physician.

The nembutal should be given by mouth in cachets, with a small drink of water* one hour before operation. At the same time the patient should have a subcutaneous injection of atropine, and, if not to be anaesthetized in bed, be placed on a stretcher or trolley. The dose varies from 3 to 6 grains—occasionally 1½ grains is sufficient to answer a purpose. It is often advisable to allow the patient 1½ grains on the night before operation. If this last course is adopted it must be reckoned with in prescribing the dose for the next morning.

In assessing the dose one must consider: (1) Sex. (2) Age. (3) Body weight. (4) Physical fitness (being wary with toxic patients, particularly if they have septicaemia).

* Even after a patient has had his stomach washed out for a gastrectomy there is no harm in doing this. It is effective, and is a great comfort to him.

(5) Temperament. (6) The particular disease from which the patient is suffering.

Taking these considerations seriatim:

1. The sex seems to matter little in the smaller doses, but in the larger doses makes more difference. The type of man who requires a very large dose will probably need 6 grains, whereas the woman who requires a large dose will do with 4½ grains, particularly if she has had 1½ grains on the previous night.

2. Children hardly come within the scope of this paper, but very large doses are never necessary in the average patient up to the age of 25 years. A possible exception to this statement will be found in Case 86 in the cases reviewed. It is wise to consider reducing an estimated large dose to a normal one if the patient is over the age of 65—for example, Case 7.

3 and 5. The body weight is a factor to be considered as in the administration of all other drugs, but temperament plays such a remarkable part in the patient's reaction to nembutal that the former becomes somewhat insignificant. A fat woman weighing 12 to 14 stone will snore loudly and not awaken after a dose of 3 grains, which is often insufficient for a thin nervous woman of 8 stone.

4. The toxic patient has a reduced power of elimination, and a smaller dose should be given. If it is considered that 3 grains would be just insufficient, it is better to give 1½ grains the night before and 3 grains the morning of operation, than to give a single dose of 4½ grains.

6. The peculiarities of the actual disease must be considered. For example, a patient suffering from Graves's disease requires a greater dosage than even the nervousness would lead one to expect (see Case 31).

The correct dosage depends upon assessing the relative significance of the above factors, taking into account any psychological factor which is known. As an instance of the latter, a patient who has been terrified by a previous anaesthetic, largely comprising asphyxia, must be classed, although apparently placid and normal, with the very nervous. A little regular practice makes this apparently difficult and inaccurate method an easy task; for, after all, is not the experienced physician's dose of any drug more accurate than a rule-of-thumb method which attempts to be general and fool-proof?

To those who wish to use this drug for the first time I would suggest the following procedure. Choose ordinary healthy adult patients for simple surgical procedures—such as cases of interval appendicectomy—and administer 1½ grains of nembutal at night and 3 grains in the morning without telling the patient what to expect. Induction should be done with pure ether, whether they are awake or not. About 30 per cent. of these cases will be underdosed, but no possible harm can be done, and it will very soon be apparent to the anaesthetist which type should be given 4½ grains and which should have the overnight dose in addition. The consideration of the special points mentioned will help in dealing with abnormal cases later.

Case Records and Results in 100 Cases

A few cases of particular interest are described below:

Case 11.—Major; for tonsil dissection. Given 1½ grains at night and 4½ grains one hour before operation. Spoke and resisted induction of anaesthesia. Anaesthetic far from easy and patient awoke within twenty minutes of being put back to bed. This was a definite underdose, and I regard the case as an absolute failure.

Case 86.—Married woman, aged 24. Extremely frightened, about 11 stone in weight. Operation for interval appendicectomy. Dose: 4½ grains one hour before operation. Awakened by nurse after being taken to the anaesthetic room, but was very placid. Spoke to anaesthetist, addressing him by name. Amnesia complete. No nausea. Conscious of surroundings about four hours later.

Case 7.—Man, aged 83. Operation: epithelioma of lip for insertion of radium under local anaesthetic, general condition very poor. Dose: 3 grains forty-five minutes before operation. Slept through the operation.

Case 31.—Girl, aged 21. Very serious Graves's disease. Admitted with pulse rate of about 140. Exophthalmos + +, tremors + + +, von Graefe's sign +. Breathlessness and palpitation always present, and at times distressing. Three weeks in hospital brought the pulse rate down to between 88 and 100, but it rose rapidly again, and at the time of operation was 96 to 128. Basal metabolism figure was plus 60 per cent. The dosage and the results were as follows. Saturday night, 1½ grains. Sunday, 10 a.m., 3 grains. Neck prepared for operation and patient placed on a stretcher. The drug had apparently no effect. The patient was reading a newspaper and spoke normally at noon. Monday, 9 a.m., 6 grains. Patient prepared as before. Did not stir on being touched at 9.45 a.m. Awoke and became restless on removal to theatre. Easy induction with pure ether, and anaesthesia maintained intratracheally on very little ether and no other anaesthetic. Restless on recovery. Morph. sulph. 1/4 grain at 1.45 p.m. and morph. 1/6 grain at 5 p.m. The patient had an amnesia from noon Sunday to noon Tuesday! She went home in a fortnight with a pulse of 70 to 88 and has had no trouble since (seventeen months).

Case 72.—Man, aged 63; suffering from pyloric stenosis due to carcinoma. Admitted to hospital as urgent; was very exhausted, with dry skin; described as "completely dehydrated." He was kept on a continuous intravenous drip saline for two days and then, although still very ill, it was decided that his condition was unlikely to improve further. He was given 3 grains of nembutal by mouth after a stomach wash-out one hour before operation, and this rendered him unconscious and slightly restless. Operation was performed at 2.15 p.m.—easy induction, and anaesthesia and condition little altered after Polya gastrectomy. The patient died at 3 a.m. without regaining consciousness.

The following table gives an idea of the results obtained with various doses as accurately as they can be tabulated, and takes into account all cases, whether purposely underdosed or not, with the exception that ten cases have been omitted because, either by administration of some other drug or by alteration of the procedure described—for example, a change in the time of administration—they cannot be classified under any of the headings used. Unfortunately, I cannot give reliable figures with regard to post-operative restlessness, but roughly speaking my experience of it tallies with McGill's figure of 10 per cent. It tended to occur in women rather than men, and after large doses rather than small—although a large dose suggests a nervous patient, which somewhat discounts this last observation.

Dose	Number unconscious and free from movement or awakening	Apparently awake but amnesia complete	Cases having merely a fatal premonitory feeling that anaesthetic	Nervous patients restless in bed and painful, but asleep and no amnesia	Dose not effective	Total (90)
1½ grains at night, and 3 grains one hour before operation	6	nil	4	2	1	13
1½ grains at night, and 4½ grains one hour before operation	6	3	1	nil	1	11
1½ grains one hour before operation	nil	nil	nil	3	nil	3
3 grains one hour before operation	15	5	3	17	5	45
4½ grains one hour before operation	7	4	5	nil	2	18

The 100 cases include three patients who died at various times after the operation. The only one to which the anaesthesia or nembutal might have in any way contributed is Case 72.

I am obliged to all the surgeons at Northampton for a completely free hand in dealing with these cases. Their comments have been fair and helpful, and I have had every opportunity to see my patients beforehand and to follow them up afterwards.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

ACUTE RETROBULBAR NEURITIS, SECONDARY TO DOUBLE POSTERIOR ETHMOIDITIS

The following case seems sufficiently instructive to merit record.

Nurse R., aged 23, developed what was probably an influenzal rhinitis on January 7th, 1933. There was noticeable post-nasal discharge. She found that her eyes felt heavy and that her vision was beginning to fail on January 8th. On January 11th she was referred to the ophthalmic department of her hospital. Vision was found to be barely 6/60 in each eye. The only abnormality revealed by external examination was the inability of the pupils to remain contracted to the direct stimulus of strong light. The pupils so to speak curtsied when the light was thrown on them, a symptom which is almost pathognomonic of acute retrobulbar neuritis. Ophthalmoscopic examination revealed no abnormality. Examination of the visual fields showed an absolute scotoma involving the fixation and blind spots in each eye—the so-called caeco-central scotoma. Refraction by retinoscopy showed emmetropia. There was no evidence of nasal abnormality by rhinoscopy. The pharynx was normal. Clinical examination showed no other abnormality. The patient had a healthy appearance. Her history was excellent and diplopia had never been complained of. *X*-ray examination of the nasal sinuses was carried out by the Graham Hodgson technique. The report stated that by occipito-frontal radiation there was some cloudiness on the left side. In the occipito-mental position both antra were "positive" but contained no fluid, both the anterior ethmoidal sinuses were "positive," and the frontal sinuses appeared normal. Vertico-mental radiation showed normal sphenoidal sinuses. Oblique radiation of the posterior ethmoidal sinuses showed definite involvement of the sinus on each side.

As energetic diaphoresis combined with local and general treatment failed to improve the visual defect I operated upon the nasal sinuses on January 17th. The antra were opened by the canine fossa route. The lining mucosa of the alveolar sulci was oedematous and showed evidence of subacute inflammation. I then removed the ethmoidal cell system by my transantral line of approach, including, as is my custom, the party wall between the posterior ethmoidal and sphenoidal sinuses. I found a condition of hyperplastic ethmoiditis with polypi. The patient was able to get up within a week. Progressive improvement in vision was noticeable to the patient from January 20th, and when tested on February 2nd she was able to read 6/6 easily with each eye.

Discussion

According to Behr, the optic nerve may be implicated in cases of nasal sinus infection in one of the following ways:

1. Neuritis as part of a generalized orbital complication—(*a*) simple exophthalmos, due to pressure exerted by the orbital walls of a sinus, as a mucocele or pneumatocele; or (*b*) inflammatory exophthalmos due to the spread of sinus inflammation by way of a thrombophlebitis, periostitis, or lymphangitis, and culminating in an orbital cellulitis or abscess formation.
2. Isolated neuritis, with or without orbital symptoms. This variety of optic neuritis occurs when inflammation of one of the posterior nasal sinuses involves the optic canal.

Whilst it was obvious that in the case under review I was dealing with the latter type of neuritis, it was necessary to exclude with reasonable certainty the other potentially causative factors before initiating the surgical treatment actually carried out. Briefly these are:

1. Haemorrhage into the sheath of the optic nerve (traumatic). This was excluded by the history.
2. Prodromal (or early) symptom of disseminated sclerosis. This could not be absolutely excluded, but, in view of the absence of previous diplopia, the history of onset, and the positive *x*-ray findings, it could be very largely discounted.
3. Other local general or specific infections or toxaemias. These were not demonstrable.
4. The familial form of neuritis (Leber's atrophy). This usually starts soon after puberty, almost invariably attacks males, and, whilst both eyes are ultimately attacked, there is a variable interval between the onset in each eye.
5. The so-called idiopathic cases. I have never met such, and I am of opinion that this diagnosis is at best a refuge for ignorance.

The prognosis of the disease in question is good. If the causative factor is promptly removed the vision should be almost, if not quite, restored to normal. It may be argued that the local inflammation might have subsided *sui generis*, and that, on this hypothesis, the resort to a double major operation was precipitate. My answer to this objection is that in these cases irrevocable damage to the vision may rapidly occur. It must further be remarked that the *x*-ray diagnosis suggested rather an acute exacerbation of a chronic ethmoiditis than a primary acute condition. In the presence of ethmoiditis the actual occurrence of an optic neuritis is, in the writer's conviction, dependent not only upon the absence of the dural and arachnoid coverings of the nerve after its passage through the optic foramen, but to some anatomical hazard, the presence of which can be better deducted than proved. The fact that this affection may constitute à prodromal symptom of disseminated sclerosis, the aetiology of which is still obscure, does not, according to Bergmeister, contraindicate drainage of the nasal sinuses in question, because Rethi has demonstrated an improvement in this disease in a number of cases following the operation.

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North Infirmary, Cork.

Reports of Societies

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION

Annual Meeting

The annual summer gathering of the Association took place last month under the presidency of Dr. F. Douglas Turner, medical superintendent of the Royal Eastern Counties Institution for the Mentally Defective, Colchester. Some of the meetings were held at the town Hall, Clacton, some at the Colchester institution, and at the Severalls Mental Hospital. The programme included a most instructive series of demonstrations of the capacity, in useful work and recreation, of the various grades of patients, some of it of a very high order.

The president chose as the subject of his inaugural address "Mental Deficiency." Conceding to France the first efforts, in 1837, to ameliorate the lot of defectives, he sketched the development of the movement in this country, including the founding of the Eastern Counties Institution, which now had an endowment fund of £50,000 and 400 acres of land, none of which had been provided by any local or statutory authority, and a further extension had now been planned for an additional 444 patients. There must always be a certain proportion of mental defectives under care and confined to institutions, but he deprecated the alarmist view which was expressed in some quarters, such as by a pamphlet emanating from a society which set out to improve the race, in which occurred the words, "If all mental defectives could be prevented from having children, the number of defectives in the country would be halved in about three generations," a statement which found no warrant in

present-day knowledge. But there might be some increase in the total number of defectives due to a lowered infant mortality, and also to a greater longevity among defectives. It should be remembered that, far from being a single disease entity, mental deficiency was the sum of a number of conditions owning a variety of causes. He had been greatly struck in his experience by the great effect of environment on the production of certified defectives. The legal definitions of defectives were social, not based upon specific tests nor upon degree of educability; hence a person classed as a defective in a city might pass as normal in a rural community. He considered that the great hope for the future lay in attacking the environment of these patients. More than 10 per cent. of the patients under his care were out on licence. He, however, insisted that all new cases must have the advantage at first of skilled examination, training, and classification. The great aim must be to stabilize the defective and lead him back to the world.

Dr. R. M. STEWART read a paper on "Juvenile Types of General Paralysis." In this condition, he said, mental symptoms were imposed on a mind which, from earliest years, had shown evidences of imperfect development, and often the symptoms differed materially from those seen in adult general paralysis of the insane. Figures as to the incidence of the junior form of the disease were apt to be misleading, as general and neurological hospitals were now accepting more of these cases. It seemed clear that about 1 per cent. of all cases of congenital syphilis developed general paralysis; but the symptoms were usually insidious, and if there were early focal signs the case might seem to be one of disease of the covering and supporting tissues of the brain rather than of the parenchymatous elements. It was not uncommon for the patient to survive ten years or longer, but epileptic convulsions early were an unfavourable sign. These children did not as a rule show the syphilitic facies. Among the most frequent motor signs were pupillary changes, but the Argyll Robertson pupil was less common in the juvenile than in the adult type. An early motor sign was ataxia and a clumsy gait. A profound and progressive dementia removed what little intelligence the patient might have had. In this juvenile type there was noted a smallness of cerebral hemispheres and atrophy of the folia of the cerebellum. But little that was hopeful could be said about the treatment.

Professor LANCELOT HOGBEN read an exhaustive paper on "The Interaction of Heredity and Environment." Speaking as a biologist, not as a medical man, he said that in the world of science it was generally found that virile opinions were those which were fortified with a rather effeminate equipment of evidence, and this was true of the much-discussed subject of mental inheritance. This, from the biological standpoint, was not a problem of genetics alone. It demanded all that the geneticist could contribute to the recognition of how the characteristics of an organism were influenced by those of its ancestors, and it called for all that the nerve physiologist could impart as to how the characteristics of an organism were influenced by the changing pattern of stimuli to which it was subject. It was now possible to define what was meant by differences due to genes and differences due to environment. The effectiveness of selection depended on the kind of transmission involved, and the acquisition of more knowledge of the part played by the uterine environment in determining mental defect could help unravel the way in which gene differences, associated with mental defect, were transmitted.

Dr. A. G. DUNCAN read a paper on "The Relation of Cholesterol to Mental Disorder." He said it was noted that when a dull patient became agitated his serum cholesterol was definitely lowered. In mood psychoses, also, the cholesterol content was high during remissions, and it fell again with the patient's relapse into the manic or the melancholic state. Similar changes were found during chronic alcoholism. His research showed that lecithin and cholesterol were, in some respects, antagonistic to one another; and it seemed that the greater the amount of cholesterol present, especially in proportion to lecithin, the lower was the metabolic activity of the cells. Blood cholesterol was lowered in cases of heightened emotion and in quickened psychomotor activity; it was raised in conditions of apathy and diminished psychomotor activity.

Dr. EDGAR DOLL read a paper on "Community Control of Mental Deficiency in U.S.A." It was estimated, he said, that 1 per cent. of the total population of the States were mentally deficient and at least 2 per cent. of the whole school population. Only 6 per cent., however, were cared for in institutions; the cost of the latter was about £100 per head per annum. Few schools tried to do anything for the really low grade. Many mental defectives were placed out on parole, and this made institutional care possible for a larger number. An important aid was the visiting teacher, especially in rural districts, where the problem of caring for these unfortunate people was a difficult one, largely because of the great distances to be travelled. In the United States sterilization was better received than in England, and selective sterilization was the form favoured.

Dr. EMANUEL MILLER, in a paper on "Emotional Factors in Intellectual Retardation," said that, admitting that both imbeciles and idiots had exhibited disturbances of behaviour and emotional control, one need not deny that such phenomena were secondary to the neural defects, or that they occurred concurrently as indications of general congenital inferiority. Moreover, a class of defectives of high grade could be marked off in whom the psychological shortcomings must also be regarded as secondary. The problem of cause assumed a different complexion when dealing with that considerable group of children who had an intelligence quotient of about 80 per cent. Of those children who could not be dealt with legally, or who passed muster in the school under the name "dullard," little could be said as to number or distribution, as unless intercurrent illness brought them to necropsy nothing could be stated as to cerebral degeneration in them. In the cases on which this paper was based there was no history of any acquired disease of the nervous system nor of congenital syphilis, and the cases of mental retardation studied for this purpose had an intelligence quotient of about 80. It was because of the action of these cases as brakes upon industry, and the way they loomed into juvenile offence before the courts, that he had made them a subject of special study. A main contention of Dr. Miller was that as a result of treatment emotional disturbances were diminished greatly, and with that improvement on the affective side there was improved application to school work and a better score on mental testing. Disturbances proved inhibitory to intellectual output. Mental tests, if treated qualitatively as well as quantitatively, would be of inestimable value, in skilled hands, in deciding in the first instance on the presence or absence of an emotional handicap in the child.

The winners of the Association's prizes for the year were: *The Gaskell Prize*, divided between Desmond Curran and Louis Minski, both of the Maudsley Hospital, London; each received a gold medal and fifteen guineas. *Bronze Medal and Prize*: David Neil Parrtt, Warwick County Mental Hospital, Hatton. *Divisional Prize*: John S. Sharpe, County Mental Hospital, Stafford.

According to the annual report for 1932, of St. John's Hospital for Diseases of the Skin, the extension of the in-patient department rendered it possible to keep the increased complement of forty beds in use during the whole of the year. The cost of the alterations and extension, amounting to £3,077, was met out of general funds without any special appeal for help. It has not yet been possible, however, to proceed with the provision of beds for paying patients. The income from voluntary sources continues to show a downward tendency, but there was a balance of income over expenditure, largely due to payments made by patients. In connexion with the London School of Dermatology the usual course of lectures for post-graduates was held. Mention is made of the great services rendered to the hospital by the late Earl of Chesterfield, who had been its president from 1892 till his death last January.

Reviews

GASTRIC ANACIDITY

We welcome the appearance of a book on *Gastric Anacidity*,[1] by Professor Bloomfield and Dr. Polland. The authors themselves have done much original work on the subject, and in the present book they have combined in an admirable way their own studies with a summary of the development of knowledge of this obscure form of stomach disorder. They have searched out the original papers, and the value of the book is enhanced by the carefully selected bibliography appended to each chapter. Gastric anacidity in clinical practice is said to be present when a yellow colour results from the addition of di-methyl-amino-azobenzene (Töpffer's reagent) to stomach contents, obtained usually by siphonage of a *test meal*, while a *red colour* is said to indicate free acid. Since this reagent changes colour at approximately *p*H 3.0–4.0, a sample which gives a yellow colour may contain a good deal of acid masked by buffers, as can be demonstrated by adding alkali and using another indicator which changes colour about the neutral point (*p*H 7.0), or by direct determination of the *p*H of the specimen. In the ordinary test meals buffering substances are necessarily present, and to avoid these it is suggested that tests should be made with gastric juice withdrawn by a tube after stimulating the stomach secretion by subcutaneous injection of histamine. The authors would then divide the subject into true anacidity—in which, on repeated tests, no free acid is produced even after histamine stimulation and the reaction of the secretions remains neutral—and false, in which no free acid is shown after the conventional test meals, but after sufficient stimulus acid can be secreted. All grades of subacidity up to normal occur, but it is with the condition of true anacidity that the authors deal.

The term "achylia gastrica" is sometimes used as a synonym, but acid and ferment fail hand-in-hand, and in all instances of true anacidity secretion of ferment is reduced to a negligible minimum. The authors hold, therefore, that the term "true anacidity" implies such defection of ferments, and no second designation is necessary to confuse the nomenclature. That such true anacidity may occur in apparently healthy people was first shown conclusively by Bennett and Ryle in 1921: they examined 100 healthy young adults and found anacidity in four. Bloomfield himself, with Keefer, analysed the data from 1,500 consecutive gastric analyses made on patients in the medical wards of a general hospital. Of these, 26 per cent. were instances of anacidity, and after elimination of the patients with known disease of the stomach, such as carcinoma, and pernicious anaemia, the number of "anacidities" among the remainder came to 20 per cent. In a further series of 654 cases classed as normals the percentage of true anacidity—that is, of those showing no secretion of acid after histamine—was 11.9. On the whole it is found that the rate of secretion lessens with advancing years and the frequency of anacidity increases in the higher age periods, suggesting that lack of acid is, as a rule, an involutional phenomenon. There may be in a certain number of people a congenital absence of acid formation, and there is evidence that this may tend to run in certain families; or anacidity may occur in some people from failure to last the course (abiotrophy) or as the result of preceding gastritis. Gastric lesions of the general nature of gastritis have been found at necropsy in most patients with anacidity, but it remains to be proved that such lesions, when slight, are the direct cause of the disturbance of secretion, since changes of similar character may be found in people with normal acidity. Further, people with anacidity have been observed to live in good health for years, despite the secretory disorder. However, the association with pernicious anaemia and cancer of the stomach is so constant that a causal relation may be accepted until disproved. Association with many other disorders has been described, but a statistically valid correlation has, in the authors' view, not been established. In cases of unexplained anacidity no special treatment is required; but if digestive symptoms, especially diarrhoea, are present, administration of diluted hydrochloric acid is often helpful. The book is lucid and honest, and is a thoroughly reliable guide through this rather involved subject.

[1] *Gastric Anacidity*. By A. L. Bloomfield, M.D., and W. Scott Polland, M.D. Its Relations to Disease. London: Macmillan and Co. 1933. (Pp. 188, 21 figures. 12s. 6d. net.)

HEALTH AND THE STATE

In the publisher's note *The Health of England*,[2] by Dr. T. W. Hill, deputy medical officer of health for West Ham, is described as "a book that strips the veil from our social life." The implied assumption is that a veil never performs any useful purpose. It may, on the other hand, at least be contended that nudism often indicates a return to savagery rather than an advance in civilization. Though the appropriateness of the metaphor of unveiling to the author's method may be questioned, it would not be a misuse of language to call his method stark, in several senses of that adjective. There is a foreword by Sir Arbuthnot Lane, and Dr. Hill himself is responsible for a rhetorical "prologue" and "epilogue." What comes in between is of more value than these, but they serve to indicate the angle from which the author's health survey and proposals are presented.

> "The whole structure of society creaks. Must we lie amongst its shattered ruins? . . . I am bitterly opposed to any authority that prolongs poverty and deprives men, women, and children of the happiness which is their natural heritage. I am for the State. I am the enemy of all who would dethrone the State."

From beginning to end we find no suggestion of a thought that individuals have any responsibility for, or can contribute towards, their own health or their own happiness. The general thesis of the book, in fact, is that the whole nation is to be regimented and to be drilled into health. Those who sympathize with this point of view will find the book agreeable and satisfying, for it is singularly comprehensive in its survey of public health matters—administrative, sanitary, clinical, and eugenic. It is interesting and informative in most of its sections; it is broadly correct in its recognition of existing imperfections; and in its suggestions it is absolutely consistent in avoiding what the author describes as the "futility" of any "middle course." But, like almost all pronouncements of an extremist character, it contains some not unimportant errors of fact; it makes in an unqualified form a large number of statements which are highly controversial; it bears evidence of definite ignorance of some sections of the field brought under review; and it disregards facts and considerations which are unfavourable to the point of view which it wishes to encourage. The author, in disparagement of general practice, thinks it worth while to enunciate the truism that "no one, however competent, can be expected to possess a thorough grasp of all branches of medical knowledge." This applies even to medical officers of health, as they will be modest and willing enough to admit.

It is clear that Dr. Hill is largely uninformed about the actualities of national health insurance practice, and that

[2] *The Health of England*. By T. W. Hill, M.D., D.P.H. London: J. Cape, Ltd. 1932. (Pp. 301; 15 figures. 6s. net.)

he has a very imperfect conception of the work of private practitioners in general. He assumes, for example, "the stultifying influence of panel practice," and that "the idea of the family doctor is exploded." He repeats as universally true the inaccurate statement that "the home is not the proper place for a confinement," and that "the average practitioner is often too busy or too tired to deal adequately with maternity cases," as if this did not apply in a similar occasional way to all his work and to that of all other hard-working persons. But, according to Dr. Hill, even in a maternity home or hospital a general practitioner ought never to attend a confinement. Nor ought he ever to have anything to do with children or with motherhood in health or disease.

"I would propose that in the process of reorganization maternity and child welfare officers should be given complete charge over the health of all mothers and children under 5 years of age, that school medical officers be responsible for the health of all school children, and that panel doctors be enrolled as salaried officers of the local authority responsible to the Public Health Committee and having charge of all persons over school age."

Such is the bleak prospect for the doctors. What of the people? "Under the new system it will be the doctor and not the patient who will decide the course of action." Each person would be compelled to have "one complete health examination every year." "One of the functions [*sic*] of the health examination would be to take a specimen of blood from each subject to determine amongst other things the Wassermann reaction." The periodic health examination would enable the doctor to discover "defects perhaps unknown to the patient, and to refer any patients with a weak heredity to a eugenic clinic, where a skilled eugenist would work out the family history for three generations past and report his findings to the authority set up to examine and decide on sterilization." Those liable to sterilization would include consumptives, psychotics, mental defectives, congenital deaf-mutes, epileptics, and victims of certain familial diseases. It is to be feared that the doctor would everywhere be dreaded at least as much as the tax collector, and this by the whole population and not merely by a section of it.

It is a comforting fact that neither the English people nor the medical profession will consent to be organized and ordered in any such fashion. Dr. Hill seems to have little knowledge of, and certainly has no regard for, what the great body of the profession, or even of his own colleagues in the public health service, are thinking. He mentions the British Medical Association only once, and then goes out of his way to give a wrong impression of its proposals. He has no thought of associating the private practitioner with the health services of the country, but looks upon him as working in a rather futile way in an entirely separate field. No progress can be made on these lines.

IMMUNITY REACTIONS

The great volume of literature on immunity appearing in a diversity of journals, ranging from those devoted to pathology to those dealing with physical chemistry, makes it extremely difficult to keep up with the subject, and still more difficult to obtain a consistent picture of the whole. There is therefore a constant need for a book which gives an account of the present knowledge with a uniform outlook throughout. Professor H. SCHMIDT'S book Advances in Serology[3] supplies this requirement. It deals only with *in vitro* reactions, as other aspects of immunity will be treated in a later volume of the same series. The author has succeeded in compressing into a small volume a very complete review of the known facts, with a very thorough account of the literature, including that of England and the United States of America, even up to 1932. He begins with a discussion of the mechanism of the agglutinin reaction. The standpoint adopted is that advocated by Eagle and others, that the antigen is coated with a layer of denatured globulin derived from the antiserum, and that agglutination in salt solutions of appropriate strength is the result of this change. The other immunity reactions, including the Wassermann reaction, are dealt with from the same standpoint. The later pages include chapters on blood groups, including the subgroups, and on the nature of complement, which are clear and thorough. In spite of great compression the text is very lucid and readable The figures and tables, which are taken from original papers, are well adapted to illustrate the text.

Two subjects seem of sufficient theoretical and practical interest to merit fuller treatment. One is the relation of the specificity of antigens to chemical structure as illustrated by the specific polysaccharides and the synthetic antigens studied by Landsteiner and his followers The other is the time aspect of the zone phenomenon which is applied in the Ramon titration and the optimum proportions of Dean and Webb.

[3] *Fortschritte der Serologie. Wissenschaftliche Forschungsberichte Naturwissenschaftliche Reihe.* Band XXX. Von Professor Dr. H. Schmidt. Dresden: T. Steinkopff. 1933. (Pp. 191; Geh. RM.12; Geb. RM.13.20.)

DIET IN DISEASE

Dr. E. FÖLDES, formerly assistant professor of medicine in the University of Budapest, in his book *A New Approach to Dietetic Therapy*,[4] endeavours to show that disturbances of water and mineral metabolism are important pathogenic factors in many diseases The first part is devoted to the general physiology and pathology of water and mineral metabolism. The second part deals with the special pathology of retention and mobilization of water and minerals in a large variety of diseases—epilepsy, eclampsia, bronchial asthma, allergic diseases, gout, hypertension, etc. The third part treats of therapy and "anti-retentional" diets—that is, diets that will promote elimination of water and minerals.

The author does not discuss the genesis of oedema, and only considers certain phases of water and mineral metabolism. The account given of these fundamental problems appears to us inadequate, since the factors regulating water and mineral exchanges in the body have in recent years been the subject of extensive research. The section dealing with therapeutic results is the most extensive, and a full account is given of the successes obtained by the author in dietetic therapy. He records improvement in each of nineteen cases of hypertension so treated, and the charts show remarkably extensive and uniform reductions in systolic blood pressure. The general principles on which the diet is planned are indicated by the following approximate figures. The total calorie value is low (1,600 to 2,100 C a day), with a low carbohydrate content (about 200 grams a day) and a low fat content (about 50 grams a day): the protein allowance is fairly liberal (120 grams a day). The salt intake is not specially reduced, but the total fluid intake is limited to one litre a day. A good vitamin content is ensured by inclusion of milk, fruit juice, and vegetables. This diet differs in certain important respects from the Gerson diet, which also aims at dehydration of the tissues and alteration of the mineral metabolism. The author's views on the scope and importance of his method of treatment are best indicated by the following quotation (p. 234)

"Finally, it has formerly been pointed out that the only reasonable hope for preserving the youthful functions of the

[4] *A New Approach to Dietetic Therapy.* By E Földes, M D Boston: The Gorham Press 1933 (Pp xii + 434, 5 dols net)

organism, and for retarding the process of ageing, seems also to lie in the method consisting of elimination and prevention of retentions, so that the significance of this measure almost assumes Utopian proportions."

GROUNDWORK OF SURGERY

Mr. R. L. Spittel has written a synopsis, entitled *Essentials of Surgery*,[5] which he dedicates to the students of the Ceylon Medical College. It does not include abdominal and pelvic surgery, which are promised in another volume. The book differs from some other synopses in that it is in no sense a "cram-book," but rather an explanatory review stressing the pathological and physiological basis upon which surgical practice is built, and showing how the superstructure has been put together. This, we imagine, has been the service which the author has desired to give to the medical student, and he is definitely successful in his attempt. Not that the book is unpractical: it deals with the details of diagnosis and treatment in a clear and succinct manner, and there are a number of useful and original anatomical and clinical illustrations. Two-thirds of this volume are occupied by general surgery, beginning with the infections. It is not strictly logical to emphasize the reparative character of inflammation, and to speak later of its "treatment," or to suggest that it is the "cause" of tissue destruction (pp. 29 and 51). In the final third consideration is begun of the regional affections, of brain and head, neck, and thorax. The author has shown commendable discrimination in confining his exposition to essentials, and the book appeals to understanding rather than to mere memory—a difficult thing to achieve in such a work. This is a good student manual, and others also will find it readable and informative.

Notes on Books

The aerial transmission of disease, long ago surmised by Varro and strenuously debated in modern times in connexion with small-pox hospitals, has lately found a new channel and acquired a fresh significance. Through the facilities for travel by air the time required for the transport of infection from place to place has been so curtailed that persons incubating diseases contracted even beyond the confines of Europe may be landed from aircraft in this country before recognizable symptoms have developed. Compared with the airways, sea journeys are slow. On the steamer route from India to this country a passenger infected with small-pox before embarking is bound to sicken on the voyage. Thus suitable precautions can be carried out on board, and, with the aid of wireless messages ahead, at the port of destination also. But if the transit is by air, the prospective patient may reach a British airport unsuspicious and unsuspected, develop small-pox a week later, and be notified later still, having in the meantime passed on his disease and possibly started a general outbreak. Dr. Arthur Massey's concise review of the problems arising and of current opinion regarding them[6] is therefore of timely interest. He states the reasons why air-borne yellow fever, despite the episode of the barque *Hecla*, is not a menace to Britain, but refers to the contingent risk of its transference by aircraft from West Africa, where it is endemic, to East Africa, which has hitherto been immune, although a haunt of the peccant mosquito. The dangers from cholera, plague, malaria, and small-pox are likewise considered. As regards typhus and relapsing fever he notes that the duration of the land and sea journey from their endemic centres in Europe is already shorter than their incubation periods, so that air transport, so far as time is concerned, does not materially aggravate the menace from these sources. In any event the persons most prone to be infected with typhus and relapsing fever are not such as usually indulge in air travel under present conditions. Dr. Massey's book comprises an informative section on the sanitary control of aircraft, and concludes with a summary in convenient form of the measures recommended against aerial transmission of the major infections.

The Liver Diet Cookery Book,[7] by Dorothy Sewart, is a small volume of sixty pages, and on the title-page the author describes herself as a sufferer from anaemia. She explains in the preface that when put on a liver diet she found it very trying, and worked out for herself daily menus that would provide a reasonably palatable and varied regimen. In this book she has put her practical experience at the disposal of others. It contains some forty recipes for the preparation of uncooked or partly cooked liver, and also menus for fourteen days. The difficulty of making a liver diet palatable is notorious, and practitioners and patients alike will find this volume a very useful aid.

Dr. A. Hesnard's Treatise of Sexology,[8] which forms the latest volume of the series entitled Bibliothèque Scientifique, is divided into three parts, devoted respectively to the biological, psychological, and pathological aspects of the subject. In the biological part (which is preceded by an interesting historical introduction in which Havelock Ellis, Freud, and Marañon are rightly credited with being the founders of sexology) the author considers the sexual function throughout the animal kingdom, and then deals with the latest discoveries in endocrinology and neurology relating to the sexual appetite and the psycho-physiology of the sexual impulse. The second part contains a study of the psycho-sexual evolution of the individual from birth till old age, the chief characteristics of masculine, feminine, and intersexual behaviour, sexual feelings, such as modesty in savage and civilized races, love and jealousy, and social psychopathology and its theoretical applications to morality and hygiene. The third part consists of an elaborate study of impotence in men and frigidity in women, auto-erotism, and the various forms of sexual perversion, with their physical and psychological treatment. The author is a critical disciple of Freud, whose work he was the first to introduce into France.

[5] *Essentials of Surgery*. By R. L. Spittel, F.R.C.S. London: Butterworth and Co., Ltd. 1932. (Pp. 585 + xi; 107 figures. 13s. 6d. net.)

[6] *Epidemiology in Relation to Air Travel*. By Arthur Massey, M.D., D.P.H. London: H. K. Lewis and Co., Ltd. 1933. (Pp. viii + 60; 60 maps. 7s. 6d. net.)

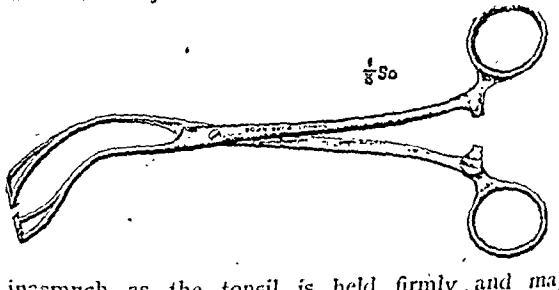
[7] *The Liver Diet Cookery Book*. By Dorothy Sewart. Foreword by Vincent Coates, M.C., M.A., M.D. Bristol: J. Wright and Sons, Ltd. 1933. (Pp. 62. 1s. 6d. net.)

[8] *Traité de Sexologie normale et pathologique*. Par Dr. A. Hesnard. Préface du Dr. Toulouse. Paris: Payot. 1933. (Pp. 718; 72 figures. 75 fr.)

Preparations and Appliances

TONSIL-HOLDING FORCEPS

Dr. T. H. R. McKiernan (*Falmouth*) writes: This forceps illustrated herewith is nothing more than a modification of Duval's peritoneum pattern. The blades are curved to almost a right angle with the handle, so that when the tonsil is grasped there is ample room for the use of scissors or other instruments to carry out the enucleation. It has some advan-



tages inasmuch as the tonsil is held firmly and may be drawn well out of the tonsillar fossa. No damage is inflicted on the tonsil, and the view of the operation field is not restricted. It is extremely light, and in practice it works well. It would be advisable to have a smaller size for use with children. Messrs. Down Bros. have kindly carried out my suggestions in making this instrument.

REPORT ON THE USE OF CHLOROFORM CAPSULES DURING LABOUR

BY

ARTHUR REES, L.R.C.P. AND S.ED., L.R.F.P.S.GLAS., M.M.S.A.LOND.

Within the past few months an investigation as to the value of chloroform capsules during labour has been carried out under my supervision at Queen Mary's Maternity Home, Hampstead. Seven qualified midwives have taken part in this investigation, and although a certain number of cases, especially among the earlier ones, have been carried out under my direct supervision, the vast majority have been under the sole responsibility of the midwife conducting the case. Some of us have had previous experience in the use of these capsules, but this investigation has been approached with an open mind, quite unbiased by any preconceived opinion. The conclusions arrived at are based entirely on this series of cases.

The series comprises one hundred cases. They were not in any way selected cases. Each case as it came to the home was taken, only those which required a general anaesthetic being excluded. The ages of the patients varied from 19 to 41 years, and consisted of thirty-nine parous for the first time and sixty-one whose parity varied from the second to the sixth time. In all cases the presentation was either primarily a vertex or one turned to a vertex during pre-natal care.

That the cases were not selected is evidenced by the fact that the series contains several showing obstetrical abnormalities. Among these was one generally contracted pelvis in which spontaneous delivery was effected. Six showed a moderately raised blood pressure with or without albuminuria. One ante-partum haemorrhage due to marginal placenta praevia is also included, while another is a case of twins.

The average number of capsules used was 3·41, which figure includes those used to facilitate the insertion of superficial sutures. The average interval between each capsule works out at 10·16 minutes.

APPARENT EFFECT OF CAPSULES

Following the questions asked on the form supplied by the National Birthday Trust Fund, the observations on the apparent effect of the capsules may be tabulated as follows:

Apparent effect on uterine contractions	
None	84
Decrease	16
Increase	0
Apparent effect on pain felt	
None	5
Some	75
Great	20
Apparent effect on voluntary effort	
None	60
More forcible	3
Less forcible	37
Patient's opinion	
No use	8
Some use	42
Great use	50

A better estimate of the value of these figures may perhaps be obtained from a less detailed analysis. Thus, in 84 per cent. of cases there was no apparent effect on the uterine contractions, whereas only 16 per cent. showed a decrease. In 95 per cent. of cases there was apparent lessening of pain felt, while 5 per cent. showed no difference. Voluntary effort was apparently unaffected in 60 per cent. and diminished in 37 per cent., while in 3 per cent. of cases there was a definite increase.

The patients themselves expressed opinions in favour of the capsules in 92 per cent. of cases, only 8 per cent. considering them of no use. In connexion with this latter it is interesting to note the various opinions expressed by primiparous patients and multiparous patients. These were as follows:

Primiparae 39 Cases			*Multiparae 61 Cases*		
No use	4 (10·25%)		No use	4 (6·55%)	
Some use	18 (46·15%)	89·7%	Some use	24 (39·34%)	93·4%
Great use	17 (43·58%)		Great use	33 (54·09%)	

It is seen from these tables that those in childbirth for the first time appreciated the use of the capsules to almost the same extent as those who had experienced childbirth on at least one previous occasion—that is, 89·7 per cent., as against 93·4 per cent. I must confess to some surprise at this result, as I should have expected the balance of appreciation to be much more on the side of the multipara, and in fact my own observations led me to think such to be the case.

Coming now to the "ill effects." In no case was there any ill effect to the child. Nine of the mothers are described as being very excited under the influence of chloroform, one being said to have become uncontrollable. In six cases delay was noted in the second stage while there was loss above normal in eight cases during the third stage. It is probable that the use of chloroform contributed to the last two ill effects, though it is difficult to assess to what extent. The haemorrhage in each case responded to uterine stimulants, and could not be classed as serious. In no case did the delay adversely affect the child.

CONCLUSIONS

The results obtained in this investigation, together with personal observation of cases in the series, lead to certain definite conclusions.

In the first place, it would seem to be established that the use of chloroform capsules by midwives in the second stage of labour is both safe and, in the majority of cases, beneficial to the patient—provided, of course, that due care is exercised.

Considering the method of administration several questions arise. One is, When should the first capsule be used? Should it be at the onset of the second stage or some time later? Experience in this series showed that the best results were obtained where the first capsule was given when definite progress in the second stage of labour became evident. Indeed, it would seem unnecessary to start chloroform early if sedatives have been given during the first stage. I would here put forward a very strong plea for the more universal and free use of sedatives during the first stage. Personally, I am convinced that relief of mental anxiety and pain during a stage at which the mother can do nothing useful to help herself is of the utmost importance to success in the later stages.

A further question of vital practical import also arises. Can these capsules be safely used by a midwife conducting a case alone? If not, what assistance is essential? To the first of these questions the answer is, I think, in the negative. The midwife's attention is, and ought to be, concentrated on the proper conduct of the second stage, and cannot, therefore, be divided by any other issue. The answer to the second question is, in my opinion, "Another trained person," and herein lies a practical difficulty in rural districts. Chloroform is certainly a potent drug, and I for one would not consent to allowing any but one trained in its use to administer it, even in the form of capsules such as those used in this investigation. I am convinced that these capsules can be a very real danger to mother and child if improperly used. In institutions such as Queen Mary's Maternity Home and in district work in large towns no great difficulty should arise to prevent their use. But, taking the country as a whole, some organization different from that already in existence seems to me essential if the use of chloroform capsules is to be universally adopted.

I wish to express to the matron and staff of Queen Mary's Maternity Home my sincere thanks for their loyal and whole-hearted co-operation in this investigation without which it could not have been carried through. Also I wish to thank the National Birthday Trust Fund for supplying the capsules.

British Medical Journal

SATURDAY, AUGUST 5th, 1933

THE DUBLIN MEETING

It was, we believe, Mrs. Malaprop who said "No caparisons, miss, if you please," and to compare one Annual Meeting with another is like comparing two sunsets. Each meeting is unique. Each has its own distinctive colour. And although green is the colour traditionally associated with Ireland, we should like to choose that other colour in the Free State flag—orange—as symbolizing the gaiety and the warm glow of hospitality extended to their guests by the new President, Professor T. G. Moorhead, and the members of the Leinster Branch of the British Medical Association. Many present at this year's meeting were paying their first visit to Dublin's fair city, and indeed to Ireland, and on every hand one heard expressions of gratitude at the way, not only the medical profession, but the citizens themselves, from the President of the Executive Council and the Lord Mayor down to the tram-conductors, welcomed their visitors from across the sea.

The registered attendance of 1,269 members exceeded all expectation. As the dramatic critic of one of the Irish newspapers, describing a performance at the Abbey Theatre, put it—with the Irishman's well-known talent for verbal condensation—"the attendance was so numerous that there was standing room only." There was so much to do, so many things to see, such a plethora of garden parties, receptions, and excursions, that a visitor intent upon missing nothing would have had to set out at the dawn of one day and return on the dawn of the following. Among the many who made the machine of organization run so smoothly that one was not aware of its existence we should like to express thanks to the indefatigable lay secretaries of the Reception Rooms Committee and of the Local Entertainments and Excursions Committee—Mr. C. E. Riley and Mr. Denis Barrett—who gave such yeoman service to Professor J. W. Bigger and Dr. J. P. Shanley. Nor must we forget the ladies, who, under the gracious presidency of Mrs. Moorhead, gave themselves up so whole-heartedly to the entertainment and comfort of their guests. Apart from the social functions, the importance of which in promoting friendly relations between the peoples of the two islands cannot be overestimated, there were the sterner activities of the Representative Body and the Scientific Sections. Those who may still be unaware of the range and importance of the B.M.A.'s work in the medico-political and sociological spheres will find a great deal to interest them in the full accounts of the Annual Representative Meeting in the *Supplements* of July 29th and of this week. The widening of the Hospital Policy and its growing acceptance by the profession, and the decision to set up consultant lists for the provinces, deserve special mention. We particularly welcome the interest shown in the interim report of the Committee on Medical Education. It must have given a peculiar satisfaction to the Dublin doctors to find the Scientific Sections, now 66 years old and born in Dublin, flourishing so lustily. It is thought that if a strict census of attendance had been taken it would be found that Dublin had broken the record. The opening papers read before the sixteen Sections maintained the usual high level of previous years, and the discussions that followed were particularly fruitful. Many of the subjects chosen are of great practical importance to the general practitioner, and those who were unable to attend the meetings will have the opportunity of reading, in subsequent issues of the *Journal*, papers—to select a few at random—on puerperal sepsis, the gynaecological aspects of endocrinology, the deficiency anaemias of childhood, vitamins in paediatric practice, the treatment of acute otitis media. A subject which attracted a good deal of attention in the Irish Press was the discussion on the housing question in the Section of Public Health, which was attended by Mr. Seán O'Kelly, Free State Minister for Local Government and Health. No more appropriate place could have been chosen for this discussion, as the slums of Dublin are, as one Dublin doctor said, appalling. We cannot leave the scientific side of the meeting without mention of the Museum, with its skeleton of the acromegalic giant, Cornelius Magrath; of the Historical Exhibition, arranged by Dr. T. P. C. Kirkpatrick; and of the exhibition of hobbies arranged by Dr. S. F. Bourke. As Mr. William Doolin said in his prologue to the catalogue of the last-mentioned exhibition: "The doctor, even as other men, cannot spend all his days in pursuit of Socratic virtue."

Carrying away so many happy memories of the island of saints and scholars, with old friendships consolidated and new ones formed, the visitor to the Dublin meeting must have been struck by the thought that conferences of great professional organizations like the B.M.A. can play a significant part in the solution of ancient animosities and modern disagreements between neighbouring countries. The meeting of Protestant and Catholic and of the heads of opposed political parties under the beneficent and healing roof of medical hospitality offers, we venture to suggest, a prophylactic that might well be applied in "State Medicine." Finally, in the name of the Association we extend a most cordial invitation to our Irish brothers and their wives to come over to Bournemouth next year, so that English doctors may have the privilege of returning their abundant hospitality.

RADIOTHERAPY IN CANCER OF THE CERVIX

By many authorities radiotherapy is now considered as the method of choice for treating carcinoma of the cervix uteri, even when the cases are considered "operable." Before its advent the condition had been treated by what a late eminent surgeon described as "mutilating and but too frequently ineffectual surgical operations." It was then small wonder that patients should delay as long as possible before seeking advice—often, indeed, until the disease had reached inoperable proportions. To some extent this state of mind still prevails, as the type of case admitted to the L.C.C. hospitals bears witness,[1] though there are signs of improvement even here. "At the Marie Curie Hospital (London) the average duration of symptoms, prior to the patients' coming to hospital, was about ten months. Further investigations showed that of these patients about a quarter had been receiving some sort of medical treatment for symptoms for seven months before a proper gynaecological examination was made, while a twelve or eighteen months' interval was recorded in some of the cases. Undoubtedly part of the delay is attributable to absence of pain in the early stages, and to aversion to the necessary examination, while dread of knowing the truth must also play a very large part."[2]

The average operative mortality from Wertheim's operation was given in his own clinic as 13.8 per cent. In the hands of one of our most expert operators the mortality in his early cases was given as 20 per cent. and in 1932 was 9 per cent., the average being 15.3 per cent. The result is obviously a brilliant improvement; but it must be borne in mind that this advance has been the life-work of an exceptionally skilful man. Younger operators commencing the technique can hardly hope to achieve at once the results of long experience and wonderful skill. It must, in addition, be borne in mind that Wertheim's operation involves not only the complete removal of the uterus and adnexa, but also that of the greater part of the vagina. We believe that in some Continental clinics there has been a reversion to a less extensive operative procedure, but the ultimate results are yet to be seen. With properly conducted radium treatment the operative mortality is less than 2 per cent., and the fatal issue is generally the result of extensive preoperative septic infection. The amount of mutilation is reduced to a minimum, and the patient, in the great majority of cases, is soon able to get about, and, when the general health is restored, to carry on her usual occupation. Another feature of radium treatment is the remarkable relief of symptoms: and even patients who are regarded as hopelessly inoperable should have the chance of radiotherapy, as is done in the L.C.C. hospitals. In such cases the relief of the most distressing symptoms often appears little short of miraculous. In early cases the prognosis for cases treated by radiotherapy is good; in advanced cases the prospect of material relief is almost certain.

In the early days of radium therapy for carcinoma of the cervix there were undoubtedly many cases of recto-vaginal or vesico-vaginal fistula as the result of treatment: at the present time, with improved methods of dosage and screenage, these unfortunate sequels may generally be regarded as an avoidable risk. There are many methods by which carcinoma of the cervix is treated by radium, of which the best known are the Paris technique and the Stockholm technique. Though there are important differences in the actual dose of radiation administered and in the spacing of the time over which the treatment is spread, the two methods resemble one another, inasmuch as both are "intracavitary" methods. Radium in specially designed containers is inserted in the cervical canal and uterine cavity, while additional applicators are placed in the vagina in order to deal with possible paths of dissemination of the growth in the pelvis. At first sight the impression is that we are dealing with an essentially simple procedure which demands no special surgical or gynaecological qualifications. In Paris and Stockholm their particular forms of technique have been in use for 20 and 15 years respectively, with the result that the requisite dosage can be prescribed within safe yet adequate limits. At the present time both Paris and Stockholm are using supplementary x rays as a routine procedure: this, in addition to being an extra therapeutic measure, will in some degree compensate for any accidental error in the spacing of the radium containers. The latter is of fundamental importance, since the *effective* range of a radium container is limited, in spite of the highly penetrating power of some of the γ rays emitted; it is indeed a physical problem of no small complexity. It is necessary to realize that the surgery of access is only a means to an end: that end is the efficient distribution of the radiations from the radio-active material in the containers.

In some of the smaller clinics in this country where radium is used there is a tendency for the surgeon or gynaecologist to employ radium without reference to a specialist radium officer whose whole time is devoted to his subject. Co-operation is essential, and it is undoubtedly this co-operation which has been fundamental in securing the remarkable results which have been obtained on the Continent and in some hospitals in our own country. It would indeed be an excellent thing if surgeons proposing to devote their time to radium therapy should qualify by obtaining the diploma in radiology. X-ray therapy is now so intimately associated with radium therapy that it is hardly possible to carry out, on a scientific basis, treatment by radium without a knowledge of the principles involved in x-ray treatment. This undoubtedly involves some study of physics as distinct from mere empirical radium therapy; but in the interests of efficiency it is certainly to be desired that surgeons contemplating radium treatment should at least attain

[1] Radiotherapy in L.C.C. Hospitals, *British Medical Journal*, June 10th, 1933, p. 1019.
[2] Colwell: *Notes on Radium Therapy*. London: Lewis. 1931.

the very moderate standard in that subject which is required in order to obtain a diploma in radiology. The best results here have been obtained at institutions which either have a special physical department, in connexion with their own radiotherapeutic department, or which work in collaboration with institutions where such expert technical advice is obtainable. When we realize the conditions at a great Continental clinic such as Stockholm or Paris, it is obvious that a few weeks' study of the subject, by taking a "course" in radium surgery, is wholly inadequate preparation for what should essentially be a life-work. At one great Continental centre it is admittedly the fact that a change in personnel led to a marked temporary deterioration in the results obtained. Co-ordination, co-operation, and permanency of specialist staff are certainly not least among the essential conditions for success. Radiotherapy without physics is as impossible as surgery without anatomy.

THE NATION'S FOOD SUPPLIES

The Food Investigation Board's report for 1932, issued by the Department of Scientific and Industrial Research,[1] reviews the work carried out with the object of improving quality and preventing wastage in our foodstuffs by better methods of handling and storage. Noteworthy progress has been made in the commercial gas-storage of home-grown apples (that is, by the control of carbon dioxide and oxygen in the atmosphere of the store by regulated ventilation). As regards the prolonged cold storage of home-grown apples, it is shown that a variation in the storage temperature of only 1 to 1½° F. may have a pronounced effect not only on wastage from fungal rotting in the days following removal from the store, but also in losses from internal breakdown. Experiments were made upon the effects of substances given off in minute quantities as vapour during the ripening of fruit. Following an American observation that ripe apples placed among potatoes retarded sprouting, it has been discovered that the growth of young pea seedlings and other seeds is delayed or distorted by exposing them to air which has passed over ripe apples. Evidence points to the active substance being either ethylene or a body of a similar nature. Apples and other fruit, after being gathered, breathe out carbon dioxide, and one secret of a long storage life is to keep their respiratory activity low. In the storage life of all fruit there comes a time when a change takes place; the respiratory activity rises suddenly for a short time, falling again later. Development of the active substance in apple vapour coincides with the climacteric change, and is not present before it has taken place. Apple vapour from fruit which has passed through the respiratory change immediately starts this change in other fruit, such as tomatoes and bananas. Study of the effects of "apple air" on apples and other fruit and the influence of the climacteric changes may lead to a clearer understanding of many of the diseases in fruit which constitute serious practical problems in its storage and handling. Important results are noted in connexion with the storage of chilled beef. In ordinary air chilled beef can be kept in store for about one month, after which it rapidly deteriorates. This period permits of marketing of chilled beef from the Argentine in this country, but is too short for Australian and New Zealand beef. It has been found, however, that comparatively low concentrations of carbon dioxide prevent the growth of the moulds and bacteria commonly found on chilled beef. Attention is now being directed to the means by which these successful laboratory experiments can be applied in practice: in other words, how a given concentration of CO_2 can be economically maintained in a large refrigerated space such as a ship's hold. As the result of other work on the storage of fish and meat, light has been thrown on the relation between temperature and the rate at which tissues deteriorate in the frozen state. Broadly speaking, the rate of deterioration is greatest at $-2°$ to $-3°$ C.; it decreases almost to zero at $-20°$ to $-25°$ C. But the degree of bacterial infection to which meat is subjected during handling is as important as the control of temperature in securing a reasonably long life in store. A bacteriological study of the factors which contribute to the spoilage of meat in small refrigerators has been begun. From this point of view, the problem of the small refrigerator differs from that of the large store, because carcasses are stored uncut in the latter, and, being uncut, are covered by a layer of fat and connective tissue upon which little or no bacterial growth will take place under normal treatment. While carcasses that have been handled carefully can be stored for periods up to eight weeks at 0° C., in small joints the lean is exposed, and the moist surfaces provide excellent soil for the growth of those bacteria which, in time, produce a visible slime and a characteristic odour. Lastly, we may note that an endeavour is being made to determine the extent and the causes of the fluctuations in the vitamin A potency (from 30 up to as much as 7,600 units) of the oil from the halibut's liver. An important by-product of the general investigation of the oils and fats of fish is the discovery in fish's liver of the active principle now much used in the treatment of pernicious anaemia. Means have been devised for preparing a palatable and highly active extract which has yielded such promising results in clinical tests, carried out by Professor Stanley Davidson of Aberdeen, that tentative commercial production has been arranged with a view to extended clinical trial.

[1] Report of the Food Investigation Board for the Year 1932. H.M. Stationery Office. (5s. net)

THE PATHOLOGICAL MUSEUM AT DUBLIN

The Pathological Museum organized in connexion with the Dublin Annual Meeting last week attracted a large number of visitors, all of whom must have found something of special interest, for the museum contained exhibits of pathological conditions in great variety, and also a unique series of dissections and curiosities. It was located in the School of Anatomy, Trinity College, and the committee, of which Professor T. T. O'Farrell was chairman, and Drs. John Lait and W. R. O'Farrell were secretaries, had taken much trouble in making it not only representative of the work of the Sections, but also a storehouse of objects of general interest. On first entering the room the visitor was struck by the

very convenient plan adopted for the display of the pathological specimens, these being arranged on shelves covered with green cloth, at such a height that it was not necessary either to stoop or to stand tiptoe in order to study them. Descriptions of each specimen were pinned up alongside. Pathologists who have had previous experience of arranging and displaying specimens probably took a peep, when no one was looking, to find how it had all been fixed up ; and if so there is no doubt they learnt something useful. It is to be hoped, also, that those engaged in this form of espionage made a note of the way in which the microscopes were arranged together on the central table, and of the general lay-out of the *x*-ray room. Among the exhibits which seemed to receive most attention were the series of slides and illustrations of the human ovum obtained in curettings (aged 15 days), the collection of brain lesions from Richmond Hospital Museum, and the specimens illustrating diseases of the eye. Exhibits of more general interest, which were usually surrounded by a knot of spectators, were the monsters and abnormal skeletons, including the celebrated giant Cornelius Magrath (1736-60), whose great stature was attributed by tradition to the result of experimentation by Bishop Berkeley, who had befriended him when a boy. The committee responsible for the museum, and especially Professor A. F. Dixon and Dr. John Lait, deserve the congratulations of the Association for the very interesting and instructive series of exhibits, and the excellent way in which they were displayed. The preface to the catalogue acknowledges indebtedness, in obtaining material for this all-Ireland museum, to Queen's University, Belfast ; to the Royal College of Surgeons in Ireland ; to the School of Pathology, and the Surgical Museum of Trinity College ; to University College, Dublin, and University College, Cork ; and to the Richmond, Rotunda, and St. Vincent's Hospitals, Dublin.

MEDICAL SERVICES COMMITTEE REPORT

Members of the medical branches of the Defence Services will be interested in the summary (published at p. 269) of the report of the Warren Fisher Committee, which was presented to Parliament on the evening of Tuesday, August 1st. This report has only come to hand at the moment of going to press, and it has not, therefore, been possible to examine all its proposals in detail. It will be noted in our *Supplement* this week (p. 81) that when the report of the Naval and Military Committee of the British Medical Association was under consideration by the Representative Body in Dublin, on Monday, July 24th, the following resolution was passed:

> That it be an instruction to the Council to consider the report of the Warren Fisher Committee, when published, and the action of the Government arising thereout, and that if such action is considered to be unsatisfactory, the Council be given full authority to advise members of the profession seriously to consider the disadvantages to which they are liable if they accept service as officers in the Royal Naval Medical Service, the Royal Army Medical Corps, the Royal Air Force Medical Service, the Royal Naval Volunteer Medical Reserve, the Territorial Army Medical Service, or the Auxiliary Air Force Medical Service.

It will now be necessary for the Naval and Military Committee of the Association to examine, at the earliest possible moment, this report in all its aspects, from the point of view of the serving officer as well as from that of the potential recruit. The Council will, in due course, receive and consider the report of this committee on this subject, and will then, in the light of its mandate from the Representative Body, determine what action is necessary to further the interests of those affected by the proposals contained in the report of the Warren Fisher Committee.

THE ROSS INSTITUTE AND THE LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

A printed memorandum on the proposed amalgamation of the Ross Institute and Hospital for Tropical Diseases with the London School of Hygiene and Tropical Medicine has been issued this week by Sir Charles McLeod, chairman of the Institute. On the death of Sir Ronald Ross he considered it his duty to make a special inquiry into the organization of the Institute, so as to ensure that it would be a worthy memorial to a great man, but before that could be completed there came a proposal for amalgamation with the London School of Hygiene and Tropical Medicine. The question was first raised by the Goldsmiths' Company, which, before giving a grant to the Institute, asked for an assurance from the honorary treasurer, Lord Queenborough, that there was no overlapping of the activities of the School and the Institute. At an informal meeting between Sir Austen Chamberlain, the late Sir Walter Fletcher, members of the Board of Management of the School, and Lord Queenborough and Sir Charles McLeod, representing the Institute, it became clear that overlapping occurred widely in the field from which support for both bodies was obtained, and that possibly there was overlapping in other activities. Since that date there have been a number of discussions. Early in their course a large measure of agreement was found, both on fundamentals and on details, and an assurance given that in the event of amalgamation the School would accord the work of the Institute its fullest support, both for its own sake and as a memorial to Sir Ronald Ross.

> " As a result of these discussions, the Board of Management of the School and the Executive Committee of the Ross Institute have decided on the desirability of the amalgamation ; and I am issuing this memorandum to explain to members of the Institute the reasons which have induced me to come to the conclusion that amalgamation should take place, how it will affect the objects for which the Ross Institute was founded, and something of the School and its associated hospital with which amalgamation is proposed."

Sir Charles McLeod recalls particularly that in the reorganization which led to the creation in London of a great School of Hygiene that would be of value not only to Britain and the British Empire, but to every part of the temperate and tropical zones, the long association of the London School of Tropical Medicine and the Seamen's Hospital Society was preserved by a special agreement, which provided that research and clinical instruction should be carried on in their Hospital for Tropical Diseases in Endsleigh Gardens, a few minutes' walk from the School. Turning to the origin

of the Ross Institute, he describes how, in addition to being a memorial to Sir Ronald Ross, the fundamental idea was again work for the benefit of mankind. Although the histories of the London School of Hygiene and Tropical Medicine and the Ross Institute have been different, and although each has been developed on somewhat different lines, their fundamental objects, he says, have been identical, and their spheres of work are found to be complementary. Sir Charles McLeod then explains how carefully the memory of Ronald Ross is being preserved in the process of amalgamation:

On the front of the School the name of Ronald Ross has been carved among the immortals of hygiene and tropical medicine, as a reminder for all time in the capital of the Empire of the great work which he did for the Empire and for humanity. Secondly, there will be established within the School, as a permanent memorial to Sir Ronald Ross, a department to be known by the name of the "Ross Institute of Tropical Hygiene." Thirdly, on all official correspondence of the London School of Hygiene and Tropical Medicine there will appear the words "Incorporating the Ross Institute." Fourthly, to ensure the continuation of the policy of the Institute, two members of the Institute will be placed on the Court of Governors, and one on the Board of Management of the School. Fifthly, for the administration of the department called the Ross Institute of Tropical Hygiene, a special standing committee will be created, composed of members of the Board of Management, the Dean, and additional members having relevant experience. Sixthly, to signalize the amalgamation, the Board of the Seamen's Hospital Society has decided to call a ward, in its special tropical hospital in Endsleigh Gardens, "The Ross Ward."

For the work of Sir Aldo Castellani the Board of Management of the School will provide laboratory accommodation, and he will take with him his laboratory staff; he will be appointed to the staff of the School with a title of "Director." The appointment of Director of Tropical Hygiene at the School, which has been vacant since the death of Sir Andrew Balfour, will be filled by Sir Malcolm Watson.

We take this opportunity of recording that Sir Austen Chamberlain, chairman of the Court of Governors of the London School of Hygiene and Tropical Medicine, has lately received from Mr. W. J. Courtauld a large sum of money in aid of the tropical side of the work of the School, and that, in recognition of this gift, the senate of the University of London has conferred on Professor R. T. Leiper the title of "William Julien Courtauld Professor of Helminthology."

MINERAL METABOLISM IN INFANTS

Modern knowledge of the metabolism of inorganic matter in infants has been reviewed lately by E. Rominger and H. Meyer.[1] The intensive research on vitamins has tended to obscure the great importance of this branch of paediatrics. During foetal life, and for some time afterwards, there occurs an increase in the mineral content of the body, while the water content diminishes; the increase is distributed differently among the various salts. Immediately after birth the total mineral content of the body falls if the child is breast-fed, but later it increases, usually after a few months. During foetal life the increase is principally in Ca and P, the amount of K remaining unchanged, Na and Cl even diminishing. The fall in total mineral content after birth in the breast-fed child is due to a loss in Ca and P; K increases during this time and Na is unchanged. This difference in behaviour of the various elements is probably related to the different rates of growth of the tissues, though, obviously, the amount of mineral matter fed is also an important factor in the deposition of salts. It has been clearly shown that the mineral content of bottle-fed infants is much greater than that of breast-fed, and also that the initial fall in mineral content after birth does not occur in the former. This applies to each individual constituent as well as to the whole. This excess of minerals (supermineralization) must be stored in a depot, from which mobilization can, in fact, occur if the child is put back on the breast. Supermineralization is a normal occurrence after weaning. The depots for this excess of mineral matter are the bones, the muscles, the skin (Na, Cl) and the liver (Na, Cl, K); Ca and P cannot be stored in the liver. This "storage" occurs without water retention, and so is in a sense "dry storage." Too great a demand on the dry-storage capacity will lead to oedema. Dry retention of salts is less easily manifested in the infant under 3 months than in older children; least of all is it found in premature infants. In addition to the age factor there are constitutional factors which determine what Finkelstein calls *Hydrolabilität*. The well-known sudden and considerable variations in weight of the infant is, it is suggested, causally related to constitutional differences in the power of the liver to store salt and other mineral bodies without simultaneous retention of water. In cases of acute dyspepsia and intestinal toxicosis there may occur considerable loss of minerals by the bowel, but negative balances are not common in the former. Metabolic experiments over long periods showed that the Ca, Na, and K balance is not affected by high fat-feeding. In dystrophies and the more serious atrophies, the presence of diarrhoea is of importance in the matter of mineral balance, but these conditions as such do not appear to influence this balance.

[1] *Münch. med. Woch.*, June 9th, 1933.

COMMITTEE ON FOOD LAW

The Minister of Health and the Secretary of State for Scotland have directed that the work of the committee appointed on May 14th, 1931, under the chairmanship of Sir Frederick J. Willis, to inquire into the working of the law as to the composition and description of articles of food other than milk, which was suspended in September, 1931, shall now be resumed, but that for the terms of reference set out in the minute of appointment of the committee the following terms of reference shall be substituted: "To consider whether it is desirable that the law relating to the composition and description of articles of food should be altered so as to enable definitions or standards to be prescribed, or declarations of composition to be required, for articles of food other than liquid milk; and if so to recommend what alterations of the law are required." The secretary of the committee is Mr. W. J. Peete of the Ministry of Health, to whom all communications on the subject should be addressed.

We regret to learn of the death, in Adelaide, on July 30th, of Sir Joseph Verco, M.D., F.R.C.S., consulting physician to the Adelaide Hospital, and past president of the Royal Society of South Australia.

ONE HUNDRED AND FIRST ANNUAL MEETING

of the

British Medical Association

HELD IN DUBLIN, JULY, 1933

THE SECTIONS

SUMMARY OF PROCEEDINGS

During the next few months there will be published in the BRITISH MEDICAL JOURNAL *the opening papers communicated to the Scientific Sections of the Annual Meeting at Dublin. The reports of discussions in this and successive issues are intended to give members who were not present a general idea of the proceedings.*

SECTION OF MEDICINE

Wednesday, July 26th

ESSENTIAL VASCULAR HYPERTENSION

With the President, Professor HENRY F. MOORE, in the chair, Sir HUMPHRY ROLLESTON opened the discussion on essential vascular hypertension. His paper is printed in this week's *Journal* (p. 223).

Dr. JOHN GRAY (Aberdeen), discussing the subject from the pathological aspect, said that in primary hypertension necropsy almost always showed moderate hypertrophy of the left ventricle and marked hyaline or fatty thickening and narrowing of the arterioles. In spite of this there were a surprising number of healthy glomeruli and tubules. The histological changes in arterioles—other than the renal—were not constant; they were frequent in the spleen, but similar changes occurred in the absence of hypertension. He believed that in certain cases in which there was considerable renal contraction ischaemia from progressive arteriolar changes did itself produce widespread changes, and that primary hypertension frequently ended with renal insufficiency without any toxic nephritis being superadded. Differentiation between the two processes was difficult, but the nephritic kidney showed an atrophy of glomeruli and tubules out of proportion to the vascular changes, whereas the primary hypertensive kidney showed more marked arteriolar changes, which were fully sufficient to explain any associated glomerular and tubular atrophy. Exceptionally, hypertension occurred without renal changes.

Professor W. W. D. THOMSON (Belfast), speaking on the renal aspect, agreed that essential hypertension centred around the cardiovascular system: the renal symptoms were of secondary importance. He maintained that the atrophy of the parenchyma of the kidney was a patchy one, and a sufficient number of sound glomeruli and tubules were left to carry on the renal functions. He stressed the importance of the differential diagnosis from nephritis, as an error in diagnosis would subject a non-nephritic patient to much useless restriction. In essential hypertension the specific gravity of the urine, under suitable conditions, varied from 1002 to 1025; in nephritis it was fixed at a lower level. Unless a case of hyperpiesia with renal failure had been under observation before the onset of renal damage the diagnosis from chronic nephritis might be impossible.

Dr. F. C. PURSER (Dublin), in discussing hypertension from the cerebral aspect, admitted that in this condition symptoms attributable to involvement of the nervous system were very common, but doubted if all of them were due to the hypertension. In cases in which hypertension accompanied a neurosis, as at the climacteric or in anxiety neurosis, hypertension was just one manifestation of the neurosis. Symptoms attributable to the nervous system were: (1) giddiness, (2) headache, (3) insomnia, and (4) pains and paraesthesiae. Focal lesions in the brain seemed to be explicable by local anaemia of the cortex due to angiospasm. Later, when arterial degeneration had supervened, cerebral haemorrhage was a frequent terminal event. Convulsive seizures were fairly common, especially when alcoholism was present. Dementia might supervene, but the patient rarely became the vegetative creature found in dementia due to other causes.

Dr. M. A. CASSIDY considered the cardiovascular aspect and prognosis. An optimistic prognosis could be given: (1) in the absence of a family history pointing to early cardiovascular degeneration; (2) when the personal history was good; and (3) when the physical examination was negative. Enlargement of the left ventricle, thickened arteries, retinal changes, and evidence of impaired renal function were unfavourable. Albuminuria *per se* was not so important as it was considered to be. A night urine of low specific gravity which remained fixed after the patient had drunk a pint of water was more ominous. Finally, the laity and the medical profession should not take essential high blood pressure too seriously, or foster a blood pressure obsession.

Professor T. W. T. DILLON (Dublin) was unable to be present owing to illness, and Dr. E. T. FREEMAN read his paper on renal function tests in the differential diagnosis of essential vascular hypertension. Indirectly, he said, and by means of its action on the blood, the kidney controlled the ionic composition of the interstitial fluids. He described the tests of Addis, van Slyke, and Conway, and summed up by stating that remarkable advances had been made in recent years, and a quantitative test of great precision had been evolved. There was no satisfactory test of salt and water excretion, though recent physiological experiments would appear to have provided the necessary basis.

Professor JOHN HAY (Liverpool), discussing treatment, said that the first thing was to determine whether associated arteriosclerosis was present. The dangers of discovering high blood pressure in a patient were: (1) the vigorous determination of the medical practitioner to reduce it to what he considered normal, and (2) the patient's obsession with his abnormality and its possible consequences. If the symptoms were marked and tests had to be made, it was advisable to put the patient to bed in a sympathetic environment and to give mild sedatives. In favourable cases the symptoms would abate. Sources of infection, though not a cause of hyperpiesia, should be eliminated. Congenial and non-competitive exercise was beneficial. Weight should be reduced if above the average: complicated diets were not necessary. He discussed venesection, diathermy, and spa treatment. He thought that drugs were comparatively unimportant. Dr. W. D. O'DONOGHUE (Dublin) spoke on the main signs of retinal arteriolosclerosis and the relation between disease of the retinal and cerebral arteries. The earliest signs were chiefly in the veins, later changes were in the arteries. Retinal arteriolar thrombosis was of serious prognosis, although the only other general sign might be mild hypertension. Dr. L. ABRAHAMSON (Dublin) said that infection and coronary thrombosis lowered the blood pressure, but a moderately high pressure in such cases might be a considerable lowering of the normal. Dr. H. O. GUNEWARDENE (Ceylon) said that periods of fasting were of particular value, and that where fasting was regular essential hypertension was unknown, though arteriosclerosis might be present.

Professor MOORE summed up, and thanked the speakers for their contributions. He mentioned the value of a salt-free diet in reducing the symptoms, if not the hyperpiesis.

Sir HUMPHRY ROLLESTON, replying, agreed that it was of more importance to concentrate on the prevention of essential hypertension than to reduce the tension after it had occurred.

SECTION OF SURGERY

Wednesday, July 26th

Head Injuries

With the President, Mr. Charles J. MacAuley, in the chair, Mr. Geoffrey Jefferson (Manchester) opened the discussion on head injuries. He said that at present the treatment was mainly non-operative, and that the use of hypertonic salines was popular. Such solutions should not be used indiscriminately. In an analysis of 1,004 cases of head injury he pointed out that, though the mortality during the first twenty-four or forty-eight hours was extremely high and unavoidable, there were a sufficient number of patients, especially young people, who died after the second day to raise the question of why death occurred after such a period of survival. Unsuspected subdural haematomata were certainly a definite cause, but all late deaths were not due to gross compression, but probably to damage from haemorrhage, secondary oedema, and necrosis. The varying behaviour of the patient during recovery was due to variations in the situation of the chief damage. Mr. Jefferson said that the most important problem was the cause, interpretation, and treatment of post-traumatic stupor. Cases of traumatic stupor could be divided into: (*a*) those in which the patients were deeply unconscious and died rapidly (nothing could be done to save them); (*b*) those in which the patient had recovered consciousness when first seen and could be induced to answer questions (in these the surgeon could intervene if necessary); and (*c*) cases in which the patient remained in a state of stupor or semi-stupor for several days (in this group diagnosis and treatment was most difficult). Mr. Jefferson then considered the aetiology of traumatic stupor. Traumatic stupor, he said, was a basic state in head injury, the result of general damage to the brain; it was not due to oedema. The use of hypertonic solutions at this early stage was therefore contraindicated. They should be employed only when there was definite evidence for their administration, such as high cerebro-spinal fluid pressure. Lumbar puncture should not be done in the first twenty-four hours. Dehydration was only of value in secondary oedema, and its use might increase the chances of intracranial bleeding. Alterations in the state of stupor and in the normal recovery from it might be due to local compression by a haematoma. These added happenings Mr. Jefferson described as the epiphenomena. The recognition of compression by an extradural haematoma was briefly considered. Regarding subdural haematomata, he said the diagnosis was still more difficult. A patient with a subdural haemorrhage might not be unconscious, but might become so unless relieved. In head injuries the pulse rate alone was of little value, but was a reliable guide if it fitted in with the rest of the picture. A slow pulse might develop after a few days and remain slow throughout the period of recovery. Bradycardia occurring during the end of the first week, though the patient was conscious, was due to reactionary oedema. Excellent lantern slides were shown illustrating the points raised in the paper.

Mr. Hugh Cairns said that recent ideas about head injury represented a definite advance in the clinical understanding of these cases. The recognition of traumatic stupor as a basic state common to all cases of head injury, and of such occurrences as extradural and subdural haemorrhage, intracranial infections, aeroceles, etc., as epiphenomena, made it easier to decide the place of operative surgery in treatment. Operation would not help people who suffered from traumatic stupor. It should be reserved for compound wounds and certain of the epicerebro-spinal rhinorrhoea, and aerocele. Mr. A. A. McConnell (Dublin) advocated morphine in the management of the excessively restless patient. He mentioned some cases of definite head injury associated with cerebral tumour, and insisted upon the importance of complete neurological examination. Professor H. S. Meade (Dublin) said that the question whether the dura was perforated or not was of great importance, since leakage of cerebro-spinal fluid might prevent compression and possibly save the patient's life. Regarding the pulse rate, he thought that it was the rapidity with which it became slow that was important. It was a danger signal if it occurred rapidly. He was opposed to the indiscriminate employment of hypertonic solutions. He obtained the impression from Mr. Jefferson that exploratory operation should be more frequently carried out for subdural haemorrhage. With this he did not agree. The danger of leaving cases of head injury in charge of a person not specially trained was emphasized, and a plea was made for special centres for the treatment and observation of these cases. He said that when grafts were needed to close tears in the dura the outer layer of the dura could be so utilized. Professor R. E. Kelly (Liverpool) remarked that occasionally operations were done on the wrong side. When a large haemorrhage pushed the brain to one side the brain stem might be so pressed against the tentorium that the patient suffered from a homolateral lesion. Mr. A. J. Walton considered that the amount and site of the pressure within the skull and in the peripheral nervous system was not so important as the rate of onset. Instantaneous rapid lesions he preferred to call "concussion" in its varying degrees. When there was complete loss of function there was nothing to be gained by operative treatment; this should only be carried out when there was evidence of a local lesion. Mr. R. A. Stoney (Dublin) recommended large doses of luminal when the patient was extremely restless. He agreed with Mr. Walton that operation should only be performed in localized lesions. As a general rule, when the pupils were equal and reacted to light he did not operate. Sir Frank Connor (Bombay) said that patients with pre-existing conditions might respond differently to a head injury. He had noticed that an attack of malaria was often precipitated by such injuries, either immediately or later. The President agreed with the previous speakers that careful observation was very necessary to enable the surgeon to operate at the right time, and when necessary. Post-mortem examinations of all cases of head injuries, even when the cause of death was obvious, would do much to increase our knowledge of the subject.

Mr. G. Jefferson, in reply, said he felt that the trend of the discussion made it necessary for him to restate his beliefs. It had not been his intention to advise frequent intervention in these cases. Neither in the past nor at present had he believed that anything approaching to routine operation was a desirable plan. What he had wished to do was to draw attention to the existence of acute subdural bleeding, and to emphasize the uneasiness he felt at the relative frequency of this as a cause of death. His belief that stupor was not due to compression but to the basic state of contusion was not a new view. It was postulated by Th. Kocher many years ago, and von Bergmann was the leader of the dissenters, whose opinion had been incorporated in the textbooks.

Professor R. E. Kelly showed a colour film illustrating the operations of thyroidectomy, cholecystectomy, exploration of the common bile duct, and a plastic operation for ectropion.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Wednesday, July 26th

Puerperal Sepsis

With the President, Dr. Bethel Solomons, in the chair, Dr. Leonard Colebrook opened with a paper on puerperal fever, its aetiology and prevention. He stated that nearly 20 per cent. of all deaths due to childbirth followed normal labour, and that the majority were due to the transfer from an outside source of haemolytic streptococci to the genital tract of the woman in labour. The tentative conclusion was reached that in most cases the source of the infection was in the nose or throat of the attending doctor or nurse, or, more rarely, in the patient's. Dr. Colebrook believed that nasal infections were important, because infected secretions were so easily carried on the fingers of the patient or of the attendant: 5 to 30 per cent. of all persons attending midwifery cases carried the haemolytic streptococcus in the throat or nose. The danger of droplet infection from these carriers was, however, not high, unless the carrier had recently had a tonsillitis, laryngitis, or antral infection. The danger from

contact with infectious nasal secretion was always high. He did not advise the exclusion of every person from midwifery practice who had a few haemolytic streptococci in the throat, but the dangerous carrier must always be watched for. Every patient who developed fever should have a vaginal swab taken, and if haemolytic streptococci were present that patient ought to be isolated from all other lying-in women. He advocated the use of masks, but these had to be used intelligently. Experiments carried out on the sterilization of the skin had shown that a solution of yellow soap was an effective germicide; toilet soap was much less useful. In heavy contaminations washing and bathing with the usual antiseptics could not be relied on. Pure "dettol" or a 2 per cent. watery solution of iodine were the most effective agents for sterilizing the skin, and had the advantage of rendering it bactericidal for several hours. He advocated the use of rubber gloves, which could be repeatedly sterilized when on the hands by soaking in a 2 per cent. solution of iodine, lysol, or dettol, or a 0.2 per cent. solution of biniodide of mercury in spirit.

Mr. L. CARNAC RIVETT read a paper on the diagnosis of puerperal sepsis. The different types of puerperal sepsis should be classified as follows: (*a*) local sepsis in the genital tract; (*b*) septicaemia; (*c*) peritonitis; (*d*) infected thrombosed veins; (*e*) salpingitis and pelvic cellulitis; and (*f*) infection of the urinary tract. In local sepsis the uterus was larger than expected, but was not necessarily tender. An infected perineum showed itself by oedema of the vulva. In septicaemia rigors were not always present. Often the blood culture showed a growth of organisms only when cultivated anaerobically. The anaerobic streptococcus caused a mortality of 20 per cent.; the haemolytic streptococcus a mortality of 80 per cent. In the unlocalized general peritonitis of acute puerperal sepsis the classical symptoms and signs were entirely absent. Pain was rare; rigidity was seldom seen; tenderness was not elicited on pressure, but was sometimes observed on releasing the pressure of the examining hand. Sometimes pain was produced by moving the uterus against the sacral promontory. Diarrhoea and distension of the abdomen were the most important signs of early peritonitis. In such cases he advocated drainage of the pelvis through an abdominal incision 1½ inches long. Infected thrombosed veins were difficult to diagnose. Repeated rigors were common. Urinary infections were very important, and might cause a sudden high temperature often associated with a rigor. Pyelitis of the puerperium rarely gave rise to pain, frequency, or dysuria. Diagnosis depended on the immediate examination of a catheter sample of urine.

Mr. E. FARQUHAR MURRAY (Newcastle-on-Tyne) read a paper on the treatment of puerperal sepsis. He reminded his hearers that parturition took place through a germ-laden area, where tears or lacerations were very frequent. It was only to be expected that sepsis would follow in a proportion of cases, and he thought that too much stress had been laid on droplet infection. He quoted statistics of the Princess Mary Maternity Hospital, Newcastle, to show that the incidence of sepsis had been reduced from 6.7 per cent. to 3.6 per cent. by the strict segregation of clean, suspect, and septic cases. In treatment, fresh air, avoidance of effort, cold sponging in hyperpyrexia, an assimilable diet, and a citrate mixture were all important. Sleep should be procured. Anti-scarlet fever serum in doses of 10 to 15 c.cm., repeated on one or more occasions, appeared to be more beneficial than polyvalent serums. He stressed the importance of treating local sepsis in the vagina and perineum, which was present in 44.4 per cent. of cases. Intrauterine treatment was deprecated. Returning to the question of droplet infection, he stated that no precautions were taken against this at the Princess Mary Hospital. Of the students and nursing staff, 68 per cent. were found to be carriers of the haemolytic streptococcus; yet of 183 clean cases delivered or attended by this team there were only three trifling and transient notifiable pyrexias believed to be due to sepsis.

In the discussion that followed, Dr. GIBBON FITZGIBBON (Dublin) read a short paper dealing critically with the statistics of the infection rate and its relation to organisms present in the vagina before delivery. He upheld the simple antiseptic methods of the Queen's Institute nurses, the East End Maternity Hospital, and the Dublin hospitals. Trauma and ischaemia of the tissues were important factors in the production of sepsis. He proposed that local authorities should encourage practitioners with special obstetric experience, and midwives should be permitted to call in only such practitioners. He suggested that peritonitis was often the result of ill-advised intrauterine douching. Dr. JOAN K. ROSE (Edinburgh) read a paper dealing chiefly with the incidence of genital tract infection and its relation to sepsis. The comparative rarity of severe infection gave individual practitioners a false sense of security. She advocated the use of masks and a strict hospital routine. Professor C. G. LOWRY (Belfast) gave his experience of the treatment of different forms of puerperal sepsis. Elementary rules were often broken: vaginal examinations were sometimes made without first widely separating and cleaning the labia. Bruised and lacerated tissues were allowed to occur which would have been avoided by an episiotomy incision. The third stage was sometimes mismanaged, and an anaemic patient with a flabby uterus was the result. In his own practice he freely used vaginal and intrauterine douches. Haemoglobin estimation was important, and a transfusion should be given when it fell below 50 per cent. Anti-scarlet-fever serum, intrauterine glycerin, and autogenous vaccines were all useful. Professor R. W. JOHNSTONE (Edinburgh) appealed for a united stand for preventive methods. The positive evidence of the danger of droplet infection was convincing, and far outweighed any negative evidence. He strongly advocated the use of efficient masks, and showed a graph which illustrated the incidence of sepsis at Edinburgh Royal Maternity Hospital. There was a striking drop following the introduction of masks. Dr. C. M. CRAIG (Kendal) said that the cause of the lowered resistance to infection which led to puerperal fever was not known; until it was, it was unfair to blame the general practitioner for the occurrence of sepsis. Dr LEONARD PHILLIPS spoke of the experience gained by Queen Charlotte Hospital workers in the treatment of peritonitis. Early diagnosis was essential, and the results of the early operation as performed by Mr. Rivett were excellent. The classical signs and symptoms of peritonitis were entirely absent in these cases. Pyelitis was frequently overlooked. The ketogenic diet was a great advance in treatment. Dr. G. W. THEOBALD refused to accept the conclusions of the bacteriologists until they had carried out much stricter control tests. Masks had already been shown to be useless, but puerperal sepsis had been, and could be, prevented by adopting conservative antiseptic methods. Midwives should not be trained to make vaginal examinations, as they were dangerous and unnecessary.

Dr. BETHEL SOLOMONS described the practice at the Rotunda Hospital; he was satisfied with the results. He did not use masks, and in the past seven years 26,000 cases had been delivered without an outbreak of sepsis. Recently the throat swabs of 100 members of the staff had been examined: no haemolytic streptococci had been found. He agreed that an individual with a throat infection should be excluded from hospital work. The openers replied to the questions raised.

SECTION OF RADIOLOGY

Wednesday, July 26th

THOROTRAST

Under the chairmanship of the President, Dr. G. HARRISON ORTON, papers were read by Dr. W. P. A. MURPHY (Dublin), Dr. J. F. BRAILSFORD (Birmingham), Dr. H. K. GRAHAM HODGSON, and Dr. A. E. BARCLAY (Cambridge).

Dr. W. P. A. MURPHY, in a paper on the uses of thorotrast, described it as a double salt of thorium, which was unstable and easily precipitated by the tissues. It was more dense than sodium iodide or lipiodol, and much more expensive. It had been employed for purposes of cystography, arteriography, and cephalography, but was most helpful in the radiographic diagnosis of conditions of the liver and spleen, and in abdominal tumours after

routine examination by *x* rays had proved negative. Dr. Murphy showed skiagrams demonstrating the use of thorotrast. Referring to its dangers, the speaker said that death had rarely occurred as a result of thorotrast, but that it was reasonable to suppose that even such a feebly radioactive substance as thorium must have some effect, especially when its action was on the liver and spleen. In this connexion it had been demonstrated that the liver and spleen were still easily visible radiographically two and a half years after the administration of thorotrast. It was absorbed mainly by the reticulo-endothelial system, and until our knowledge of its effects was more certain it should only be given in special cases. Dr. J. Duncan White (Edinburgh) referred to a case, described by an American radiologist, in which the spleen, excised post mortem one month after the use of thorotrast, produced definite fogging on a photographic plate after an exposure of twelve hours. This showed that its radioactivity was by no means negligible. He had observed no after-effects in connexion with the cerebral circulation. Dr. Barclay suggested that the normal movements of the liver and spleen could be investigated by this means. Dr. Brailsford said that he had seen radiograms of the aorta and its branches demonstrated by the injection of thorotrast into the aortic arch. Administration of thorotrast was unjustifiable except in cases of malignant disease in which the prognosis was hopeless. Dr. J. V. Sparks said that the liver and spleen could be demonstrated radiographically without the aid of thorotrast, which was therefore unnecessary for this purpose.

Syphilis of Bones

Dr. J. F. Brailsford read a paper on manifestations of syphilis in bones, discussing the changes in infancy, in adolescence, and in adult life. He said that, although the lesions were often symmetrical in infancy, they were usually asymmetrical in adolescence, while, later still, they became few and irregular. In the first two years of life radiography was often the only means of diagnosis, and a negative Wassermann reaction did not exclude syphilis. He described in detail the progressive bone changes, the chief features being the increasing thickness of the diaphyseal extremities of long bones, together with a dentate appearance due to sporadic ossification in granulation tissue. Later there was general osteo-periostitis, with much new bone formation. Syphilitic dactylitis, osteitis of the nasal bones, and Hutchinson's teeth were sometimes observed. In adolescence the changes were the natural result of the progression of the disease from infancy: gumma of the long bones and of the spine and bilateral coxitis might also occur. In the adult the disease might follow congenital syphilis, or might be acquired. In the tertiary stage there were two common forms—gumma, which often resembled sarcoma radiographically and which was commonest in the clavicle, and osteoporosis of the long bones, which might cause spontaneous fracture. Charcot's joints complicated a small proportion of cases of tabes dorsalis. These arthropathies were of two types—atrophic and hypertrophic. They commonly affected the joints of the lower extremities, but sometimes occurred in those of the lumbar spine. Dr. Brailsford illustrated his paper by showing a large number of radiographs.

Radiology of the Colon

Dr. H. K. Graham Hodgson, in a paper on radiology of the colon, said that it was in the early stages of disease that radiology was most helpful, and that, since radiological diagnosis depended on alterations in form and contour, the barium enema was the method of choice. Describing his technique, the speaker stressed the necessity of emptying the colon completely as a preliminary. The ordinary enema was unreliable, and high colonic irrigation was necessary. The patient's position should be altered during the procedure so as to facilitate the flow. Both oblique and postero-anterior views must be taken, this being as important as in the case of bones. If one view only was taken, it was possible for as much as eighteen inches of colon to be obscured by the shadows of other parts of the large bowel. Obstruction to the flow seen on the screen should be investigated by palpation and massage with a low pressure of barium, and manipulation should be continued, if necessary, for half an hour. A more dilute suspension of barium could be used with advantage in cases in which the obstruction was so marked as to involve danger of acute obstruction from inspissation of barium above the stricture. If the barium would not pass the stricture despite these attempts a barium meal should be given. The investigation of appendiceal lesions called for perseverance and care in technique. Either meal or enema could be used, but he preferred the enema, by which means the appendix could be demonstrated in 90 per cent. of cases. The appendix might not fill at once, and it was important to wait as long as forty-eight hours if necessary. Fixation, kinking, stasis, and adhesions could all be demonstrated. In conclusion, the speaker urged caution with regard to negative diagnosis of carcinoma of the colon. He advised radiologists in such cases to qualify the diagnosis and to suggest further examination at a later date. Dr. Barclay emphasized the importance of adequate preparation before radiography, and referred to a case in which a wrong diagnosis had been made as a result of the presence of faeces. Dr. M. F. O'Hea (Dublin) said that he was opposed to massage of what might be a malignant growth, and preferred the use of atropine to relieve spasm. Dr. Brailsford said that preliminary *x*-ray examination might reveal the presence of a foreign body, which would be obscured by the barium enema. To avoid the danger of desiccation of barium above a stricture he always mixed the enema with petrolagar. Dr. Sparks remarked that he preferred to take oblique and lateral views of the sigmoid before the rest of the colon had been filled. Dr. T. G. Hardman (Dublin) thought that the head of the enema should be watched throughout its course. A small growth could often be seen by palpation combined with judicious tilting of the patient. Dr. R. Connell (Carlisle) described a case of appendicular kinking and adhesions, the radiological findings in which had conformed exactly with the findings at operation. He preferred the barium meal because it demonstrated any existing delay in the ileo-caecal region. Dr. R. M. Beath (Belfast) referred to the importance of radiographic examination after final evacuation of the enema, and agreed that the oblique view was essential. He advocated barium meal and enema in combination. Mr. McAdam Eccles said that if the radiologist could tell the surgeon whether there were adhesions present or not it would be invaluable. In cases of carcinoma of the colon diagnosis must be early, and preliminary examination, followed by barium enema and barium meal, was essential. Radiographic diagnosis was all the more important, because even abdominal exploration did not ensure correct diagnosis in all early cases.

Radiology of the Duodenum

Dr. A. E. Barclay, in a paper on radiology of the duodenum, described the anatomy of the duodenum, especially with regard to its muscular coats. He did not think that our knowledge of the mechanics of the duodenum was satisfactory, because normal movements were so rapid as not to be easily visible on the screen. Investigation had therefore been confined to cases in which food passed through the duodenal cap in bulk. Segmentation seemed a more important mechanism than peristalsis, and the cap remained filled, acting as a passive tube through which the food passed. The regulating force was probably inherent in the muscularis mucosae. It was true that persistent deformity of the cap was suggestive of ulcer, but the condition should not be diagnosed unless the crater was demonstrated, and, further, he had found screen examination with palpation most reliable. Ulcers of the pylorus were difficult to diagnose, but radiologically there was often a marked five-hour residue in the stomach, and the pyloric canal was longer than usual. Duodenal irritability was a well-defined condition, and might precede ulcer. The cap was difficult to see, because it did not remain filled long enough. Relaxation of the pylorus was intermittent. The duodenum acted sometimes as an indicator of the state of other parts of the alimentary tract, especially the ileo-caecal region and the gall-bladder. The speaker had never seen a case of malignant disease of the first part of the duodenum. The President said that

he thought many cases of duodenal irritability were due to smoking, and that small ulcers were very often present. Dr. HARDMAN found it difficult, he said, to demonstrate ulcer craters on the screen, and thought importance should be attached to inadequate filling of the bulb. He was not sure whether an ulcer should be diagnosed when the bulb could not be visualized. Dr. O'HEA said he had found that 90 per cent. of men investigated for gastric and duodenal trouble had pain in the mid-line below the xyphisternum, but he was not sure of its significance. Dr. SPARKS drew attention to the fact that a more fluid meal had been used of late years, and suggested that its consequently more rapid progress should be taken into account. Dr. CONNELL said that gastric and duodenal symptoms were common as a result of enterospasm in patients who were living at constant high pressure, and that this cause should be suspected where the history was suggestive and where no radiographic evidence of abnormality was obtained.

SECTION OF ORTHOPAEDICS

Wednesday, July 26th

TREATMENT OF CHRONIC OSTEOMYELITIS

With the President, Sir WILLIAM DE C. WHEELER, in the chair, Dr. WINNETT ORR (Nebraska, U.S.A.) opened a discussion on the treatment of chronic osteomyelitis. He divided this condition into the primary haematogenous infections and those secondary to compound fractures, though it was important to recognize that the treatment of both groups was essentially the same—namely, adequate drainage and thorough immobilization of the affected limb. He reminded his hearers that both Hunter and Lister had pointed out that frequent dressing of a wound after operation disturbed the natural processes of repair; yet in spite of this fundamentally sound teaching the practice for several generations past had been to dress infected bone wounds frequently under the delusion that such wounds must be kept "clean." Some ten years ago Dr. Orr, realizing that the results following this generally accepted treatment left much to be desired, began to treat his cases by adequate drainage of the infected bone followed by complete immobilization in plaster-of-Paris, no attempt being made to dress the wound except at intervals of two, three, or four months. The rapidity of healing following this procedure had encouraged him to deal with all septic bone conditions in the same way. The results were most satisfactory, and surgeons the world over who had given this method a trial were equally satisfied.

Mr. R. F. J. HENRY (Dublin) said that during the last eighteen months he had dealt with all his cases of osteomyelitis by Dr. Orr's method, and was convinced of its excellence. His patients were spared the agony of daily dressings, had little post-operative discomfort, and their wounds healed rapidly. He pointed out, however, that some surgeons believed that Orr's method consisted in nothing more than the covering up of an unpleasant sight with a thick plaster case, and were unaware of the fact that a thorough débridement and saucerization of the whole infected area was an essential preliminary; it was imperative that the operative treatment should be adequate. Mr. Henry was averse to the performance of diaphysectomy as a routine procedure in widespread infection of the shafts of long bones; he reserved it exclusively for the ulna, fibula, and clavicle. Localized infections of the shaft were to be dealt with by removal of sequestra, if present, and bevelling of the edges of the bone cavity. Chronic osteomyelitis confined to the end of a long bone presented a most difficult problem. Adequate saucerization was impossible if the neighbouring joint was to be preserved intact, and the surgeon had to rest satisfied with a less radical operation. Mr. Henry had attempted to deal with these metaphyseal cavities by turning in pedunculated muscle flaps, but had to confess that this method was both difficult and unsatisfactory. Recently he had made no attempt to deal with the cavity after removal of the sequestrum that was usually present, and, to his surprise, he had found that healing occurred rapidly when the limb was rigidly immobilized in plaster and the operation wound spared the irritation of frequent dressings.

Professor D. P. D. WILKIE (Edinburgh) said that not only was Dr. Orr profoundly convinced of the soundness of the treatment of osteomyelitis that he had evolved—or rather revived—but he had achieved, in addition, the great task of converting surgeons to his own point of view in almost every country. Children in particular owed much to the work of two American surgeons—Dr. Davidson of Detroit, who introduced the tannic acid treatment for burns, and Dr. Orr for his work on osteomyelitis. Both men had done incalculable good in lifting a great burden of suffering from the human race. With regard to diaphysectomy, Professor Wilkie was convinced of its value in cases in which massive infection of the shaft of the bone had occurred. Provided that the *x*-ray film showed the presence of an involucrum one-eighth of an inch in thickness, regeneration of the shaft always occurred in a patient under the age of 17. The only objection to Orr's method was the offensive smell that invariably resulted from the confinement of an infected wound in plaster: in his experience opposition from the nursing staff had been a definite obstruction to the general adoption of this otherwise excellent form of treatment. Dr. M. S. HENDERSON (Mayo Clinic) said that he had to some extent overcome the problem of the offensive smell by cutting a window over the wound and changing the outer dressing (but never the pack in the wound) at fairly frequent intervals. Mr. M. G. O'MALLEY (Galway) quoted the results in sixteen cases of osteomyelitis treated by ordinary methods and twenty treated by Orr's method. In the two groups the mortality was four as against one; and, in the second, freedom from fever and pain and rapid healing of the wounds had been most striking. In his experience the best remedy for the offensive odour was free ventilation. Mr. WHITCHURCH HOWELL was an advocate of dressing the post-operative wound with bipp in spirit, and of closure with sutures in chronic cases. In his opinion diaphysectomy at any age was a crime. Mr. A. J. D'AHREN (Waterford), an enthusiastic advocate of Orr's method, had found in a few recent cases that a pack soaked in flavine in spirit, 1 in 1,000, had kept the wounds free from odour. Mr. J. K. MONRO was dissatisfied with Orr's method in cases in which there was much discharge from the wound. This might be the result of excessive skin loss or the presence of an incompletely separated sequestrum which could not be removed. Dr. F. ALBEE (New York) confessed that his conversion to Orr's method had been slow, but was now complete. He suggested that, in view of the fact that a potent staphylococcal bacteriophage had been identified, it would be rational to inject solutions of bacteriophage into osteomyelitis wounds after operation. In his clinic he had recently carried out such treatment by injecting bacteriophage of proved potency through a catheter traversing the plaster into the operation wound.

Sir WILLIAM WHEELER said that Dr. Winnett Orr's condemnation of Thomas's splint as commonly applied in compound fractures of the leg was hardly justifiable, as the method of fixation so strongly advocated by Dr. Orr was equally inefficient in the hands of incompetent people. A plaster might be too tight or too slack, and the chief essential in the fixation of an infected bone was not the method employed, but the skill with which the plaster or splint was applied.

Dr. ORR replied briefly, and concluded by showing a cinema film illustrating the essential points in the method of treatment that he had described.

Professor W. S. HAUGHTON (Dublin) read a paper on the transportation and treatment of spinal fractures. He laid great emphasis on the need for moving such cases in the prone position with pillows under the chest and pelvis. This position tended to hyperextend the spine and to correct the telescoping of the vertebral bodies that was the inevitable result of the ordinary type of

spinal fracture. He described a striking case of crush fracture of the ninth dorsal vertebra with involvement of the spinal cord. With no other anaesthetic than one-third of a grain of morphine, the patient's spine was gradually extended, and when full hyperextension had been attained a plaster shell was applied. *X*-ray films showed that the contour of the spinal column had returned to normal, and that the site of fracture was almost indistinguishable. Recovery from the paralysis was rapid.

SECTION OF PUBLIC HEALTH

Wednesday, July 26th

The Housing Problem

The first day's proceedings were opened by the President of the Section, Dr. M. J. Russell (Dublin), who extended a very cordial welcome to the visiting public health workers. He expressed his thanks for the generous help that had in the past been given by medical officers of health of England and Scotland in public health problems in Ireland. He then introduced Mr. Seán T. O'Kelly, Vice-President of the Free State Executive Council, and Minister of Public Health.

Mr. Seán O'Kelly indicated some of the special difficulties which had been encountered in connexion with housing problems in Ireland, especially during the last quarter of a century. He commended the way in which medical practitioners had supported the efforts made by the Government. He was sure that great advances would be made in the next ten years. Although it had not yet proved possible to appoint medical officers of health for all counties, this was being pressed forward. The results achieved by those already appointed had attracted an increasing amount of sympathy and support from the community generally, especially in the difficult question of supplying proper housing facilities.

Dr. C. Killick Millard (Leicester) said that the housing problem of to-day was essentially the problem of housing the poor, the needs of whom had been inadequately met in the past. He outlined the provisions of the new (1933) Housing Act, which abolished the subsidy for ordinary municipal houses and offered encouragement to the building societies. The Government hoped thus to concentrate municipal efforts on the clearance of slums and to secure the building by private enterprise of working-class houses to let. Opinions differed about the wisdom of withdrawing the subsidy empowered by the 1924 (Wheatley) Act, but this was now an accomplished fact and further argument would be futile. The minimum rent of the proposed new houses would probably be 13s. a week, a charge that would usually be beyond the reach of the poor. Dictionaries concurred in assigning two factors to the making of a slum: the character of the building and that of the occupant. Dr. Millard was convinced that the latter was the more important from the medical point of view. Overcrowding was one of the worst features, and the slum problem could not be solved until this had been dealt with. The serious defect of the Housing Act of 1930 was that, while it provided for the "individual" insanitary house, it made no provision for "individual" instances of overcrowding. Under that Act overcrowding could only be attacked when it occurred in a clearance or improvement area, and many bad cases were to be found outside such areas. In any campaign against the slum problem the claims of the children should come first. It was usually a waste of municipal resources to allow municipal houses to be occupied by persons without children. Large families of dependent children constituted the class with the greatest housing need but with the smallest margin for rent. To enable this class to take proper advantage of municipal houses some system of differential renting was desirable, preferably by means of temporary rent rebates based on an approved scale. To compensate for the loss in rental consequent on these rebates such municipal tenants as no longer needed to be subsidized should be called upon to pay the full economic rent.

Dr. J. A. Harbison (C.M.O., Dublin) said that housing of the poor was an outstanding problem in Ireland, particularly in rural areas. For fifty years special efforts had been made in the various Labourers Acts to enable agricultural labourers to live and bring up families on their wages. The war years had brought a promising work to a standstill, and some time had then elapsed before it could be restarted. Forty-two thousand cottages capable of enlargement, had been built at an annual charge (mainly on the rates) of £150,000, but another 22,000 were needed. A further sum of £12,000 was necessary for cottages no longer fit for habitation. Terms had been made more favourable by recent Government legislation. Rents in Ireland had always been considerably lower than in Great Britain. The letting of these cottages was vested in the local authorities, who did their best to give the most help to the larger families. To assist farmers and others the State housing programme included the provision of loans for reconstruction, usually in the form of re-roofing. The grants in all cases were conditional on there being proper sanitation. The Housing Act of 1931 compelled the medical officer of health to notify the existence of unsatisfactory houses to the local authority, who then had to take action.

Dr. E. H. T. Nash thought that the existing unsatisfactory state of affairs was mainly owing to the fact that in much housing work the medical officer of health was not consulted. Many houses now being built were quite unsuitable for the poorer classes, and accommodation for children was not obtainable. Slums were not created so much by premises as by persons. The slum house was often the index of the mental outlook of the mother therein, and education was therefore essential. Not infrequently new houses fell into a deplorable condition within three months. It was necessary to face the fact that there had to be a charge on the State for housing the poorer class. There had been a serious increase in the mortality in the slum population among young adults, largely due to poor nutrition as a result of poverty. Arrears of rent were more common in decontrolled houses. Dr. Nash cited one instance of a specially constructed housing estate where there was adequate playground accommodation. It appeared that this was having a favourable influence on the health of the adult tenants as well as on the children, and the rooms there were kept in good order. Supervision, however, was necessary in many cases, so that the property should not be damaged by a careless or ignorant tenant. Education again came into prominence in this connexion. So far no architect seemed to have solved the problem of accommodating perambulators and their occupants. Some way of keeping perambulators outside the living rooms should be devised. It was also advisable to schedule clearance areas and to investigate cases of deliberate overcrowding designed to secure the award of council houses. The medical side of housing must be accorded its proper importance, and attention must be directed to housing the old people on almshouse lines. Dr. M. Radford (M.O.H., Shoreditch) referred to a resolution passed by the Shoreditch Borough Council requesting the Ministry of Health to explore the possibility of making arrangements whereby free or assisted transit facilities (between their new homes and their places of employment) should be given to poor persons who removed into outlying districts. He thought that without some such plan housing problems in the densely populated and built-over areas in the middle of London would prove to be almost insuperable. Dr. E. H. Milliken (Glossop) said that further information about differential rents was desirable. In many places there were back-to-back houses or houses with no back doors. Some method was required for dealing with rows of these. Dr. W. Paterson emphasized the need for providing houses for three to five occupants. The accommodation for baths was often inadequate. Old people often preferred quite simple housing, which could be supplied cheaply and satisfactorily. Dr. W. F. R. Collis (Dublin) thought that the housing problem was well on the way to solution, but more special consideration should be given to children.

In putting up large blocks of flats there should be provision for nursery schools, possibly on the roof. This would greatly facilitate training in the elements of simple hygiene before the children reached the age of 7. Mr. H. G. SIMMS (Housing Architect, Dublin Corporation) remarked that the ideal minimum house could not be produced at rents which the poorer members of the population could pay. This involved, in his opinion, reducing the standard of the housing. In Dublin, suburban cottages, containing three rooms and a kitchen, had been built in the last eighteen months at rents of about 7s. 6d. a week. Four-story blocks of flats were going up on previous slum areas at 2s. per habitable room. These rents were admittedly not economic, but Government grants and city rates were making the scheme practicable. Two qualifications for prospective tenants were: an income of not more than £2 a week, and there being not fewer than four members of the family under the age of 21. Dr. W. M. FRAZER (M.O.H., Liverpool) said that the present difficulties arose out of the recent developments of the industrial system, and the consequent increasing urbanization of the population without regard to public health considerations. In some places public health clinics were being established in the basements of large blocks of dwellings. The price of houses, alone among modern commodities, had not fallen. Was the cost of land too high, or building material too expensive, or the incidental expense of erection too great? No slum-clearance scheme could be complete without securing the education of the slum-dweller. Professor C. A. BENTLEY, C.I.E. (Cairo), remarked that the housing problem was purely an economic question. Private enterprise might solve some of the problems if Governments and local authorities co-operated. It was necessary to make it possible for people to buy their own houses. Too much charity led to a sense of irresponsibility and indifference to the value of the property.

The PRESIDENT, in complimenting Dr. Killick Millard on his paper, emphasized that education of the poorer members of the population was undoubtedly urgently needed. The housing problem in Dublin was still very acute. Thousands of large houses were now each tenanted by several families, with four or five persons to each room. The Corporation wished in the next five years to provide a large number of suitable houses, and it was hoped that the ratepayer would be able to tolerate the cost. Accommodation was being allotted on the basis of the size of families, so as to benefit the children. The principle of the economic rent would apparently have to be abandoned. Dr. KILLICK MILLARD, replying, said that model tenement blocks had been regrettably decried in England. At its best this block had many advantages for its tenants, especially in the largest cities. Municipal housing authorities had done great work, but had not been able to achieve much for the very poor. Some reduction in the housing standard might be permissible if it involved no impairment of health. The cost of housing had certainly not come down, but it was difficult to define the reason for this. Children must be brought up in a decent environment, even if this involved an uneconomic rent, for otherwise the present conditions would tend to be perpetuated.

SECTION OF PHARMACOLOGY AND THERAPEUTICS

Wednesday, July 26th

THE USE OF DIURETICS

With the President, Professor ROBERT J. ROWLETTE, in the chair, Dr. MURRAY LYON (Edinburgh) read a paper on diuretics in modern medicine from the point of view of pharmacology and therapeutics. He defined diuresis as an increased flow of urine without regard to the composition of the fluid or its source. There were two types: "exogenous," due to increased intake of water, and "endogenous," due to removal of fluid from tissue. Most reputed diuretics acted readily in health, but few were reliable in disease. Digitalis was first introduced in medicine as a diuretic, although it had no diuretic action except in circulatory failure. The diuretic properties of squill were believed to be similar to those of digitalis. The effects of strophanthus on the heart rate were comparable to those of digitalis, but lasted for a shorter period: diuresis was less. The diuretics of the xanthine series acted by direct stimulation of the renal tissues, but had proved disappointing. Relatively large amounts of urea must be given before much effect could be expected as a diuretic. Many diuretic substances worked by osmotic action in the urine; they prevented reabsorption of fluid by the tubules. Some retention of salt appeared to be one essential factor in all oedemas, and restriction of salt intake was a rational measure for favouring diuresis in oedemas of cardiac and renal origin. Citrates and acetates of potassium and ammonium were of doubtful value in cardiac cases and in acute nephritis, but were beneficial in chronic nephritis. Novasurol and, later, salyrgan were employed in resistant cardiac oedemas, but should be avoided in renal cases. To obtain a good effect the heart should first be digitalized, and a better response was obtained if ammonium chloride was given for about three days before salyrgan. Dr. Lyon, having discussed the diuretic properties of hormones and colloids, went on to say that a low protein diet might lessen the kidneys' work, but it certainly caused a fall in plasma proteins. A low protein diet was useful in acute nephritis, but when renal oedema was chronic and there was no evidence of nitrogen retention a normal or high protein diet would probably be of greater value. Decapsulation had been suggested in chronic parenchymatous nephritis. Copious libations or the administration of saline diuretics might be useful in certain fevers and intoxications, or when it was desired to flush the urinary tract. Acute nephritis was best treated by lessening the work of the kidneys and by favouring the loss of fluid, etc., by other channels. Salt restriction might also be helpful. For the chronic oedemas of renal origin diuretic measures were of doubtful value.

Professor LEONARD ABRAHAMSON (Dublin) said that very little advance had been made in treatment of cardiac dropsy by diuretics until a few years ago. In 1920 novasurol (containing 33.9 per cent. mercury) was discovered by Saxl and Poelchen to have diuretic power when used in treating syphilis, but it was very toxic. In 1924 the less toxic salyrgan (containing 37.6 per cent. of non-ionizable mercury) was discovered. This has been successfully employed in 10 per cent. aqueous solution given intramuscularly or intravenously in cardiac failure without gross oedema but with liver enlargement, in cardio-renal failure, and in recurrent oedema. In renal oedema treatment was more complex. Cases of pure nephrosis responded well to diuretics. Acid-forming salts (ammonium chloride and ammonium nitrate) were mostly employed, but resulted in a tendency to acidosis, and should be used with caution: action might be enhanced by salyrgan. Calcium chloride had been found to be less effective and more likely to produce gastro-intestinal irritation. In acute nephritis one ounce of a 20 per cent. glucose solution intravenously had been given with good results. Recently the English drug neptal had been substituted for salyrgan. Dr. F. H. SMIRK referred to the difference of the diuretic action of urea in health and in nephritis. He gave figures showing that, after the administration of 15 grams of urea in 100 c.cm. of water, the chlorides in the sample (collected for four to five hours) were raised up to 0.8 gram per cent. in normal cases, but never reached this value in nephritic cases, even though the urea output reached 2 grams per cent. In advanced nephritis the osmotic pressure of urine approached that of the plasma, and was little changed after giving urea. Some of these changes might be explained in terms of the hypothesis that damaged renal tubule cells were unable to resist the diffusion of water. Professor R. J. ROWLETTE (Dublin) stressed the importance of clinical contributions and the need for further investigation in the mode of action of the mercurial diuretics. Dr. D. C. HARE referred to the fact that a diminution in the volume of urine occurred in cardiac cases given massive doses of digitalis. This was usually considered to be one of the earliest signs of complete digitalization and to be due to a toxic action on the heart.

Discussion on Anaesthetics

Mr. F. J. Morrin (Dublin) read the opening paper on anaesthetics from the practical and scientific aspects. After reviewing the history of anaesthesia, he said that chloroform had been employed recklessly, until coroners' comments on the number of deaths caused it to be superseded by ether, which, though safe, had an unsatisfactory morbidity rate and psychological effect: other anaesthetics had therefore been introduced to overcome these disadvantages. The recent developments of basal anaesthesia marked a great advance. The preoperative amnesia was of immense psychological benefit to the patient: the amount of inhalation anaesthetic was reduced and there was a prolonged period of post-operative sleep, which minimized pain, etc., and aided healing. The list of basal narcotics increased daily—paraldehyde, avertin, nembutal, sodium amytal, sodium soneryl, and pernocton. Each had its advocates, but assertions as to non-toxicity and safety of these drugs could not yet be made. Many anaesthetists considered prolonged post-operative sleep undesirable, and in minor operations this might be a disadvantage. Sodium evipan eliminated this drawback: the duration of anaesthesia was fifteen to twenty minutes, but it was not suitable when muscular relaxation was required. Nembutal given to healthy subjects was well tolerated, but it was not a drug to be employed when dealing with a bad anaesthetic risk. Preference was given to avertin. Luminal administered preoperatively in large doses (10 to 15 grains) was an extremely convenient, safe, and efficient method. The recent practice of giving basal narcotics with a spinal anaesthetic should be condemned, as both produced a fall in blood pressure, and the depressant effect of a basal narcotic on the respiratory centre was undesirable. A satisfactory spinal anaesthetic was the perfect anaesthetic for the surgeon. Novocain was most reliable for producing anaesthesia below the umbilicus; for high abdominal anaesthesia there was occasionally marked fall in blood pressure, nausea, vomiting, and collapse. Percaine (1 in 1,500) appeared to have advantages over novocain for high abdominal anaesthesia. It was extremely toxic if absorbed into the circulation, and there might be individual idiosyncrasy to the drug. A disadvantage of spinal anaesthesia was the inability to localize consistently the level of anaesthesia and the frequency of post-operative headache. Dr. R. W. Shaw (Dublin) said that the use of chloroform and ether, by either open or closed methods, constituted until quite recently the sole resources of the anaesthetist. Modern gas-oxygen technique was an ideal anaesthetic, but did not give the upper abdominal relaxation required for efficient surgery: it might be considered useless unless combined with a basal narcotic. A report on sodium evipan had been issued by the Medical Research Council. It was of great value in short operations, and only one death in 25,000 cases had been reported from Germany. Nembutal was extensively employed orally, and was safe when given this way. It was often combined with spinal anaesthesia. Percaine was the spinal anaesthetic mostly used. It must be admitted that ether preceded by nitrous oxide was still to be considered the anaesthetic most applicable to the majority of cases. Dr. A. R. Parsons (Dublin) said that every anaesthetist should know the simple method for rendering ether pure of all toxic substances. Ill people never feared anaesthetics; it was the healthy to whom pre-anaesthetic sedatives had brought relief. Nembutal by mouth was unquestionably safe, and safe intravenously in experienced hands, but the liver should be functioning well. Chloroform was very dangerous for adults, but safe for children and parturient women. Ether was the least dangerous anaesthetic, but produced pneumonia and abscess of lung. Anaesthetists were not sufficiently careful about sterilization of apparatus, and this might be the cause of many cases of pneumonia. Dr. F. H. Smirk, in a paper on the effect of anaesthetics on fluid absorption from the gut and on the rate of diuresis, showed that ether and chloroform had an inhibitory action on diuresis in five different laboratory animals. It was not improbable, therefore, that a similar action occurred in man. Operations on kidney subjects should therefore be performed under gas and oxygen; in this way the retardation of urine flow might be minimized. Dr. George H. Morrison emphasized Dr. Morrin's statement that evipan sodium was not a basal anaesthetic, but was intended, when administered intravenously, for short full anaesthesia. Although chemically a barbiturate, it behaved differently from those in present use, its chief characteristics being extremely rapid detoxication (in the liver) and a wide therapeutic margin. Only 2.3 to 2.8 per cent. of evipan given was excreted unchanged in the urine. Its dosage was calculated simply on the patient's reaction: it gave short full anaesthesia with pronounced amnesia, and was suitable for minor surgery. The two main problems of the pharmacology of hypnotics were to determine (1) the area of the central nervous system which was affected by a drug, and (2) the intermediate stages of the splitting up of that drug. Dr. H. Quinlan (Dublin) remarked that ether was most extensively employed, and methods should be aimed at to make it still more safe. Intubation aided aspiration of foreign substances below the larynx, especially as practised after the cough reflex had been abolished. The use of nembutal and barbituric derivatives again favoured complications from aspiration. When these complications occurred early localization and diagnosis, by x rays if necessary, was important.

SECTION OF DERMATOLOGY

Wednesday, July 26th

Occupational Dermatitis

With the President, Dr. W. J. O'Donovan, in the chair, Dr. W. G. Harvey (Dublin) opened the discussion on occupational dermatitis. He first drew attention to the great increase in the incidence of occupational dermatoses in comparatively recent times. The reasons for this increase were to be found both in the steady increase in the number and variety of industrial processes, and in the provisions of the Workmen's Compensation Act, which had focused the attention of employer and workman on the subject. Factors predisposing to dermatitis were to be found in seborrhoea and hyperidrosis on the one hand, and excessively dry skin or xerodermia on the other. He thought it unfortunate that the precise meaning of the terms "dermatitis" and "eczema" had not been settled. Personally he followed the teaching of Wallace Beatty, that if an eruption possessed the clinical and histological characters of eczema it was eczema. According to this concept eczema and dermatitis should be regarded as synonymous terms. From the specific varieties of occupational dermatoses Dr. Harvey selected for discussion bakers' dermatitis, dermatitis due to dyes, and cancerous conditions. The precise cause of the first-named had never been satisfactorily settled; he regarded it as a disease in which a series of injuries could act like eczematous irritation and have a cumulative effect. Dye dermatitis had been shown to be due to the unoxidized dye itself, and not to any intermediary substance produced in the course of oxidation; complete oxidation rendered the dye absolutely harmless.

Dr. J. C. Bridge dealt with the industrial side of the problem. His observations were illustrated by statistical charts showing the relative incidence of dermatitis in a large number of industries and the established causative agents in these industries. He also discussed prophylactic measures employed in industry. Special attention was drawn to the rather unfamiliar condition of perforation of the cartilaginous portion of the nasal septum in chromium platers.

Dr. M. Drummond (Dublin) discussed the preventive and medico-legal aspects. He recommended protection with rubber gloves or suitable emollients, and a liberal display of warning notices in factories. As regards fitness for work, he thought that a healthy and experienced adult worker, when cured, should be allowed to return, but in young workers with a suggestion of constitutional disease or a previous history of skin disease return to the same work was contraindicated. Medico-legally the two most important points were the establishment of the cause beyond doubt, and the decision as to whether an indi-

vidual who had been the victim of exogenous dermatitis would be liable to develop an idiosyncratic sensitivity to any other external agent.

Dr. W. N. GOLDSMITH said that eczema was a clinical and histological conception, and was a variety of dermatitis. All injuries to the epidermis were followed by dermal vascular reactions, and probably most cases of exogenous dermatitis were originally due to epidermal injury. The actual characteristics of eczema were, therefore, largely due to the intensity and rapidity of the inflammatory process. Dermatitis could be produced by real irritants in all persons. Other substances required the development of sensitization. Subsequent generalization to non-exposed parts might depend on sensitization to a secondary antigen formed from the skin in the primary focus. Cases due to a specific noxa generally cleared up quickly when it was removed. Others which seemed to be due to long exposure to mild common irritants recovered very slowly. Maceration by water or sweat was a common predisposing cause. Reactivity to chemicals was increased by an acidifying diet and decreased by an alkalinizing one. Non-specific desensitization could sometimes be achieved by autohaemotherapy, etc., and *x* rays locally. Dr. H. C. COX gave the analytical results of the examination of 200 furs alleged to have caused fur dermatitis. About half of these contained free para-phenylene-diamine in amount from 0.15 per cent. downwards, but in thirty-five cases the furs were quite undyed. These furs could not have caused dermatitis. He regarded para-phenylene-diamine as a definitely toxic substance, but the product of complete oxidation was harmless. Dr. G. B. DOWLING, dealing with the question of terminology, said that the choice of the term "eczema" or "dermatitis" would always be a matter of personal taste, but as long as we knew what we meant it did not appear to matter very much which term was employed. He could not, however, agree with Dr. Goldsmith that the eczematous reaction could be produced on a normal subject by an agent such as sunlight, and he denied that the oedema, vesiculation, etc., which any normal subject would experience if irradiated strongly enough could be called eczema. He emphasized the overwhelming importance of dermatitis—especially of dermatitis occurring as the result of long exposure to mild common irritants, as opposed to idiosyncratic irritants—compared with other dermatoses, and the importance of hyperidrosis as a predisposing cause. He also drew attention to the value of the prophylactic measures described by Dr. Bridge. A fourth point, about which little had been said, was the mental attitude of the patient who had been labelled as dermatitis and who was receiving compensation. Dr. D. MCKAIL (Glasgow) said that, in his experience as a certifying factory surgeon, probably not 1 per cent. became certified and so known. The increase in the number of cases notified, of which Dr. Bridge had spoken, was due to two causes: (1) the better instruction of medical students, and (2) the action of approved societies under the National Health Insurance Act. These societies refused nowadays to honour certificates to insured persons marked "eczema," and insisted on reference to the certifying factory surgeon. He thought that from the medico-legal aspect it was necessary to have each case investigated in detail, and that if no other cause was discoverable the material used by the workman ought to be labelled as such and a certificate to that effect issued. Dr. R. T. BRAIN referred to the radon treatment of tar warts, outlining briefly the principles of treatment.

Dr. W. J. O'DONOVAN, the President, summed up the discussion. He noted how widely the subject had expanded since he first read a paper on it at the Annual Meeting in Glasgow in July, 1922. This subject, that was formerly monopolized by clinical dermatologists, now needed the help of medical factory inspectors, expert chemists, lawyers, and engineers for its full elucidation. He stressed the common feeling among workpeople that in submitting to medical examination and re-examination before compensation they were being frustrated of their natural rights. They had forgotten that the great difficulty in obtaining any compensation under Lord Campbell's Act had been replaced by very great facilities under the Workmen's Compensation Acts. Under a sense of frustration irritation became more intense and more persistent, and, whilst litigation loomed, no ointment would heal. He stressed the formation of a central pool of funds, so that workmen seeking sick pay or compensation might be paid at once, and so that there should be no delay until an expensive decision had been reached as to which society or insurance company should be responsible for the payments. The practising dermatologists saw so much injustice through certificates of dermatitis that such certificates were now granted very sparingly indeed. The statutory period of a week, after which time it became impossible to appeal against a certifying factory surgeon's certificate, was unduly brief. The life-history of many cases of dermatitis was prolonged for months after the patient had been removed from any contact with a dangerous occupation, and only the development of the disease enabled one to assert, at times, with confidence that the original diagnosis of occupational dermatitis needed revision.

Dr. R. T. BRAIN opened the discussion on virus disease in man, and showed a number of lantern slides of elementary bodies and the development cycle of psittacosis virus. His paper was printed in last week's *Journal* (p. 191). He was followed by Mr. J. H. NORRIS (Dublin), who read a paper on the veterinary aspect of virus diseases. The speaker referred chiefly to foot-and-mouth disease, and dealt with the clinical, economic, and preventive aspects of this condition: he drew special attention to the disease in man. Many of the cases reported in medical literature were doubtful—or at least not proven—but there were a few authentic cases in which the presence of the virus had been demonstrated.

SECTION OF OTO-RHINO-LARYNGOLOGY

Thursday, July 27th

ACUTE OTITIS MEDIA

With the President, Sir ROBERT WOODS (Dublin) in the chair, the discussion on the treatment of acute otitis media in acute febrile conditions was opened by Dr. T. O. GRAHAM (Dublin). He first discussed the causation of otitis media, and stressed the different types of infection associated with the various specific fevers, etc. Treatment might be divided into general and local, and the latter into abortive, conservative, and operative. If the drum was not bulging he employed drops of glycerin of carbolic, hot fomentations, and aspirin; early and free paracentesis was essential. The indications for myringotomy were a bulging membrane or persistence of pain and temperature. Subsequent treatment might be "wet" or "dry"; personally he preferred irrigation with boric acid or bicarbonate solution, followed by boric acid and spirit drops. The indications for the mastoid operation might not be simple, but it was safer to operate if there was any doubt in the surgeon's mind.

Sir ROBERT WOODS questioned Mr. Graham's statement that a myringotomy incision healed much better than a spontaneous rupture, what happened depended on the amount of tension on the drum. Peroxide drops were, in his opinion, dangerous, and increased the percentage of mastoid infections. The pain of dressings after a mastoid operation could be completely abolished by using a finger-stall and gauze plug. Dr. J. B. HORGAN (Cork) stressed the value of preventive treatment, and advocated the use in all cases of anti-scarlatinal serum, the avoidance of acidosis, and the employment of heat and hygroscopic drops. Magnesium sulphate crystals were the best for a discharging ear, while the early use of an autogenous vaccine might prevent the onset of polysepsis. The use of hydrogen peroxide should be abandoned in all cases. Mr. A. D. SHARP (Leeds) advocated preventive treatment in the shape of nasopharyngeal disinfection with gargles and sprays. After myringotomy he preferred a wick of gauze and bipp covered by hot fomentations. Mr. H. BARWELL believed that frequent hot syringing was a valuable abortive measure; he also was opposed to the use of hydrogen peroxide. Mr. E. A. MATISON (Adelaide)

discussed the question of inflation and politzerization in otitis. Dr. Dan McKenzie said that judging by the speeches the results were the same but the treatments different; it was an unfortunate thing that medicine could not be practised by statistics.

Nasal Granu[illegible]

Mr. P. J. Dempsey (Dublin) then read a paper on granulomatous conditions of the nose, which was reported in full in the *Journal* of July 29th (p. 194).

Professor J. T. Wigham (Dublin), speaking as a pathologist who had investigated some of these cases, stressed the difficulty of the histological differentiation between granulomata of syphilitic, tuberculous, and other origins, and also from sarcoma and fibroma. He did not like the term "malignant granuloma," but could not find a better one. Sir Robert Woods referred to the cases he had described in 1921; he had seen about five, all of which were in women. Radium and deep *x*-ray therapy cured some, while in others all treatment was hopeless. He was sure that the condition was essentially an infective one. Mr. J. F. O'Malley said that he had never seen a case, but certain cases of lupus and rhinoscleroma seemed similar. Dr. Robinson asked Mr. Dempsey if he had any knowledge of the frequency of carcinoma of the nose occurring in nickel workers. Mr. Scott Stevenson asked why radium was the only treatment tried. He had had a case of his treated by wide excision which appeared to be cured.

Mr. Dempsey, replying, stated that in his experience the disease was equally common in both sexes. In his cases both diathermy and the knife were out of the question. He was quite certain that the condition was due to some as yet undiscovered specific organism.

Plastic Surgery of the Face

Mr. A. B. Watkins (New South Wales) then read a paper on plastic surgery of the face with lantern slides. He showed many diagrams illustrating the principles of applying and maintaining adequate splinting in fractures of the nasal bones. Probably the most satisfactory was a modification of Carter's splint, made to his design by Messrs. Mayer and Phelps. Discussing implants for "saddle nose," he discussed the difficulty of getting large pieces of cartilage from the ribs without subjecting the patient to a severe pleural reaction. His knowledge of young elephant ivory grafts was limited, but they appeared very satisfactory. It was important to decide wheher a columellar graft was also required, or the results might be completely ruined. Other plastic nasal operations discussed were the straightening of a crooked septum, dislocated anterior end of the septum, reproduction of symmetry after excision of parts of the ala, and partial rhinoplasty. The paper was illustrated by lantern slides of photographs and diagrams, which made the various operative steps easily understood. Mr. J. F. O'Malley congratulated Mr. Watkins on his excellent paper and results, and remarked on the great patience required for plastic surgery.

SECTION OF DISEASES OF CHILDREN

Thursday, July 27th.

Deficiency Anaemias

With the President, Dr. Eric Pritchard, in the chair, Professor L. G. Parsons (Birmingham) opened a discussion on the deficiency anaemias of childhood. He outlined the recent growth of knowledge of these anaemias, beginning in 1920 with the work of Whipple and developed in this country more especially by Wilkinson, Davidson, Helen Mackay, and Witts. He stressed the conception that the red cells in the blood stream could not be separated from their precursors in the erythropoietic centres, and this was especially important in childhood since the blood-forming portion of the erythron was widely distributed, and in the infant there was very little reserve marrow space. Under abnormal conditions the marrow might show hyperplasia, hypoplasia, or aplasia. The present discussion, according to Professor Parsons, was concerned with the first of these, and the types of reaction could be classified as normoblastic and megaloblastic. Studies of the bone marrow indicated in all probability that in the usual hypochromic, deficiency, or nutritional anaemia of childhood there was a normoblastic type of change. Dealing next with the haematological picture of this type of anaemia, the speaker mentioned the colour index as being about 0.6 in a case of moderate severity, with only a slight diminution in the red cell count, a scanty number of reticulocytes, normal fragility of the red cells, and no constant changes in the platelets or leucocytes. Infection was very likely to occur in infants with this type of anaemia, and the blood picture might then be altered. Professor Parsons then considered in some detail the type of nutritional anaemia due to an inadequate supply of iron (or of iron and copper) in the diet. He quoted the recent observations of Helen Mackay on London babies, in whom a mild degree of anaemia was found to be always present, whether they were breast-fed or artificially fed. It was usually observed from the seventh month onwards, and the baby, although pale, was frequently well grown and well nourished. The anaemia apparently arose in many instances from the fact that neither breast nor cow's milk contained sufficient iron for the needs of the growing babe, and all cases could be grouped according as to whether the iron defect was due to deficient ante-natal storage, deficient post-natal supply, or a combination of both. The effectiveness of iron in the cure of this type of anaemia varied considerably as regards the rate of improvement, and this appeared to be related in part to the preparation of iron used and in part, possibly, to the presence or absence of copper as an impurity. Ferrous salts were more effective than ferric salts, and the best method was to employ ferrous sulphate in doses of 4 grains three times daily, with glucose added to the solution to prevent oxidation. The problem of copper was complicated, and animal experiments were at variance with results in babies. Copper seemed to play some part, said Professor Parsons, in the synthesis of haemoglobin, and was occasionally but not usually necessary for the cure of nutritional anaemia in infants. With yeast experimental work also produced certain difficulties. In coeliac disease a type of hypochromic anaemia arose which yielded readily to iron, and there was a similar type of anaemia present in scurvy, which responded to the administration of vitamin C. Deficient thyroid secretion also resulted in a similar anaemia in cretinism. Lastly, Professor Parsons dealt with the hyperchromic deficiency anaemias, which were very rare in childhood, occurring occasionally in coeliac disease and in rare infection with the bothriocephalus.

Dr. W. A. Alexander (Edinburgh) emphasized the difficulties of research into children's diseases, while pointing out at the same time the extreme simplicity of Dr. Helen Mackay's classic investigations into anaemia. He regarded the present time as the era of renaissance in haematology, and he regretted that the work of Parsons and his colleagues, with its immense practical value, was not as well known to the profession as it might be. It was significant, he continued, that the deficiency anaemias were less frequent in breast-fed infants, and this should be yet another reason for the confident encouragement of this method of feeding by all doctors. Mixed feeding must also be begun early, certainly in the second six months of life, and it was very important to encourage the prophylactic outlook, as exemplified in the case of diet, throughout medical education. He thought it was interesting to see how iron therapy, which had fallen into the background with the disappearance of chlorosis, had come to the fore again; there was no need for anyone to be fearful of iron as a producer of digestive upsets or of constipation. In conclusion, he stressed that pallor did not necessarily mean anaemia, and it was useless to give iron unless anaemia of the hypochromic type was present.

Dr. Dorothy Price (Dublin) spoke of the case with which it was now becoming possible to classify cases of anaemia in childhood and of the reticulocyte response as a great help in gauging the effect of treatment. In

her experience with examination of the haemoglobin of infants in Dublin she had not found such a marked degree of anaemia as compared with Helen Mackay's figures in London, and the results obtained were more like those published for Danish infants. Out of forty-five cases only eight showed a haemoglobin percentage below 60. The reason for this slightly better position as regards anaemia in Dublin might possibly be found in the fact that a very large proportion of the children were breast-fed, and, although weaning was often late, pregnancies frequent, and the maternal diet deficient in iron-rich foods, it was possible that maternal storage of iron was maintained by means of iron obtained from water or from potatoes boiled in iron vessels. Dr. Price concluded by mentioning that she found raw beef juice and raw eggs of value in preventing the occurrence of anaemia. Dr. R. E. STEEN (Dublin), stressing the complexity of the causation of the deficiency anaemias of childhood, especially as a pure dietetic deficiency seemed to be rarely found to blame, went on to speak of the essential identity of the nutritional anaemias of infancy and the hypochromic microcytic anaemia of women of the child-bearing period as described by Witts. He showed how the blood picture was identical in both varieties, and in the aetiology there were the three factors of reduced iron reserves, defective supply in the food, and defective absorption, being associated with achlorhydria in the older group. In the speaker's opinion the achlorhydria might very well be the effect rather than the cause of the disease, and in any case in childhood administration of acid did not cure the anaemia. Dr. Steen also spoke strongly of the need for careful choice of case, since it was useless to treat a child with iron whose hygienic surroundings were at fault. Dr. W. R. F. COLLIS (Dublin) suggested that subsymptomatic deficiency of vitamin C was probably a more common cause of anaemia than was generally realized. He thought that in hospital wards, where there was a risk of infection, blood transfusion was of value in getting anaemic infants quickly into a better state of resistance. Dr. H. P. WRIGHT (Montreal) described an experiment which he had carried out to see if extra iron added to the diet would help to prevent infection in an institution. No difference, however, could be found between the results in infants receiving extra iron and the control group. He wondered whether a slight degree of anaemia was really of very serious importance. Dr. A. T. MCKAY (Dublin) described a case of severe jaundice and anaemia in a newborn infant in which liver treatment had no effect.

The PRESIDENT thought that the amount of iron in cow's milk was not so much less than in human milk unless the former was diluted, as it so often was, to a high degree for infant feeding. It was his practice invariably to add iron to the diet of all artificially fed infants in the form of a broth made of crushed bones, which he regarded as a good prophylaxis against anaemia. He also gave nursing mothers Blaud's pill in large doses during the lactation period.

PULMONARY TUBERCULOSIS

Dr. W. R. F. COLLIS (Dublin) contributed a paper on the prognosis and treatment of pulmonary tuberculosis in childhood. He summarized the modern conceptions of the morbid processes involved, emphasizing that in the primary stage of infection the prognosis was good for healthy children, providing the dose of tubercle bacilli inhaled was not overwhelming and that the living conditions were good. The focal reaction in the lungs in the primary stage, he said, was an exudative process, not unlike that found in other pneumonic conditions, and it might resolve completely, as was illustrated in a series of *x*-ray photographs. When a child thus infected lived in unhealthy slum areas with a poor diet and constant exposure to intercurrent infection the progress was downhill in many cases. In the tertiary lesion—the adult type of phthisis—which was rarely met with in children before the age of 10 years, the outlook was generally regarded as bad. From an administrative point of view it was essential to differentiate these "open" tertiary cases from the primary stage group, since they should never be nursed together. In conclusion, Dr. Collis tabulated the necessary measures required for the diagnosis of pulmonary tuberculosis in childhood. These included an accurate history, both familial and general, a complete physical examination, tuberculin test, *x*-ray examination, sputum examination (with gastric lavage if necessary), and a determination of the sedimentation rate of the erythrocytes.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE

Thursday, July 27th

THE FAMILY PHYSICIAN AND MENTAL DISORDER

With the President, Dr. GORDON M. HOLMES, in the chair, the opening paper on the role of the family physician in the prevention of mental disorder and defect was read by Dr. H. R. C. RUTHERFORD. It was printed in full in our issue of July 29th (p. 188).

In the absence of Dr. J. G. PORTER PHILLIPS the discussion was continued by Dr. J. O'CONOR DONELAN (Dublin), who stressed the importance of prevention of mental breakdown, with particular reference to the strain imposed during school life upon the less brilliant adolescents in their attempt to keep up the pace set by their better-equipped confreres. This was a strain which might often be lessened by the timely intervention of the family doctor. Dr. J. MILLS (Ballinasloe) expressed agreement with the opener as to the importance of thyroid deficiency, focal sepsis, and undue strain during the school period in the aetiology of insanity. He drew attention to the help the family physician could give adolescents in their choice of profession, and expressed the opinion that all medical graduates should spend at least two months in an institution for mental disorders before starting general practice. Dr. T. A. GREENE (Carlow) was of the opinion that under present-day conditions the influence of the family physician on the lives of the masses was becoming very small. He considered that the hereditary factor in insanity had been overestimated and that too little attention had been paid to pre-natal influences, particularly infections in the mother. The improvement of housing and environmental conditions generally was a sphere in which the medical profession had a useful contribution to make. Dr. R. G. GORDON (Bath) pointed out that in psychiatric practice in England the psychoneurotic patients outnumbered the psychotic by roughly twenty to one, and that it was in the early treatment of the former that the family physician (in whose continued influence the speaker strongly believed) had an all-important part to play. While admitting the importance of physical disorder as an aetiological factor in psychoneurotic states, he thought that the precipitating cause of breakdown was usually psychological—in brief, a failure in the individual's adjustment to his environment. The opportunity for understanding the details of this maladjustment and for supplying the necessary reassurance lay particularly with the general practitioner. As regards mental deficiency, the speaker believed that in such cases a definite cellular defect of the cortex was found, and that a neuropathic heredity was usually present, even though the parents showed no outspoken mental disorder. The family physician should be in a position to give valuable advice as to the wisdom of such unstable persons having offspring. Dr. POTTS (Birmingham) stressed the importance of maternal infections, particularly influenza, malaria, and dysentery, in the aetiology of mental diseases. He considered that in any given case many factors were operative, but that the physical causes exceeded in importance the psychological ones, and should be dealt with first in treatment. Dr. ELIZABETH CASSON (Bristol) referred to the frequency with which Gram-negative, non-lactose-fermenting organisms of the Morgan type could be isolated from the intestinal contents of asylum patients, and to the beneficial results she had observed from vaccine treatment. Dr. C. B. MOLONY (Limerick) drew attention to the feeling of antagonism, often experienced by practitioners, towards patients suffering from mental disorders. He considered that earlier recourse should be made to psychiatrists in cases of mental disorder, and advocated the more general establishment of psychiatric clinics. Sir

Henry Brackenbury maintained that, though changing conditions were modifying the functions of the family physician, these were in no way being deprived of their usefulness to the masses. He drew attention to the numerous illogical deductions which had been made by previous speakers and the frequent irrelevance of the points which had been made. He particularly stressed the importance of the general practitioner's advice on the subjects of marriage and the birth of children, and observed that only maturity and experience in the practitioner could fit him for this important task. Dr. Davies of the general (Llanelly), speaking from the more cordial sympathy and practitioner, made out the staffs of mental hospitals and understanding practitioner in the neighbourhood served. He also laid emphasis on the importance of educating, from a medical point of view, those who were engaged in teaching children.

SECTION OF PHYSIOLOGY AND BIOCHEMISTRY

Thursday, July 27th

Nervous Control of Abdominal Viscera

With the President, Dr. T. H. Milroy (Belfast), in the chair, Professor D. T. Barry (Cork) opened a discussion on the effect upon abdominal viscera of sympathetic and parasympathetic excitation. He said that the method adopted for experimental investigation had already been described (*British Medical Journal*, 1933, i, 956). A statement made in that article was to the effect that cardio-inhibitor fibres might be found arising at a low thoracic level in the dog. In man all cardiac branches were said to rise above the root of the lung. When either vagus nerve was excited by a fairly strong current a balloon in most parts of the small intestine showed some degree of external pressure upon it. Stimulation of one or both nerves was followed by contraction in varying degrees. The antagonistic action of the splanchnic tone and vagal muscular impulses was demonstrated by tambour readings before and after splanchnic section. Atropine annulled vagal contraction both before and after splanchnic section, but it was increased by acetylcholine or pilocarpine injections, demonstrating that the fibres concerned were of true parasympathetic nature. Stimulation of the great splanchnic nerve produced, as had been generally recognized, inhibition of the gut and also excitatory actions, both rhythmic and tonic or peristaltic in type. In a given reaction from excitation of one branch of the double system of nerve supply certain elements received by communication from the other branch might be responsible for the result. What was the type of vagal fibres supplying the stomach? Intracranial vagal stimulation was reported to have produced gastric motor responses. While there was evidence to show that the motor fibres to the stomach were parasympathetic, it was probable that the sympathetic fibres conveyed inhibitory impulses. More work had to be done to make clear the mixing of elements in the two systems. The hyper-hypotensive reaction was characteristic of fairly strong stimuli to both peripheral vagi; atropine did not annul the reaction. This vascular response was not intensified by vagotrope substances, but was definitely annulled by injection of sympathetic paralysants. After section of the splanchnic nerves the vascular reaction to vagal excitation disappeared or was modified considerably. The conclusion from experiments was that both hyper- and hypo-tensive fibres were present in the vagus nerve. An interesting feature of vagal activity was the alteration in renal volume, excitation of vagus giving increase in some cases and marked decrease in others. Atropine had little or no effect on the renal constrictor response to vagal excitation. Acetylcholine, however, given in small doses, first caused a hypotensive effect, which was accompanied by immediate renal shrinkage; this was followed by a phase of enlargement, and shrinkage again occurred. After atropine, however, the immediate effect of acetylcholine was markedly hypertensive. The disappearance of vagal hypotension after splanchnic section might suggest that vagal depressor fibres passed into the splanchnic system. The influence of the vagus in causing hypotension might be due to the counteraction of splanchnic vascular tone. But after splanchnic section the vagal hypotensive reaction had a tendency to recover.

Professor B. A. McSwiney (Leeds) discussed the distribution of vagus and sympathetic nerves. Left and right vagus nerves mixed in the oesophageal plexus; therefore each were innervated from both nerves. Further, "the spinal parasympathetic" fibres supplied the motor fibres through the greater splanchnics. On stimulation of the thoracic sympathetic trunk or splanchnics contraction or relaxation of the stomach resulted, according to the type of stimulus used. With isolated nerve-muscle preparations results obtained pointed to the liberation of a chemical substance at the periphery—acetylcholine. Anatomically it might be possible to speak of two divisions of the autonomic nervous system, yet fibres in the sympathetic nerves might resemble in action and liberation of chemical substance fibres of the parasympathetic, and vice versa. Professor J. R. Learmonth (Aberdeen) limited his remarks to the nervous control of the bladder and terminal colon in man: a defect of neuromuscular co-ordination led to mega-bladder, mega-ureter, and megacolon. Records were given of the results obtained by removing the presacral nerve in six cases with this syndrome: three cases were completely relieved, one required division of the internal sphincter of the bladder, and two were unsuccessful, due probably to a heavy bladder infection. Professor John Beattie (Montreal) said that lesions of the anterior hypothalamus had been shown to result in peptic and duodenal ulcers; this might be caused by either release of lower centres or by actual irritation of the lesion itself. Stimulation of the tuber cinereum brought about transient vaso-dilatation of the pyloric segment of the stomach and the proximal part of the duodenum, lasting about one minute, and followed by blanching of the serous and mucous coats, with increased secretion of peptic juice. It was suggested that this brain lesion was irritative: if the vagi were cut in the atropinized animal ulcers were not produced. It was possible that prolonged vagal stimulation might in this way result in gastric ulceration. Dr. R. C. Garry (Glasgow) spoke of the control of defaecation in relation to constipation. There were two stages in defaecation: (1) contraction of the distal colon, and (2) dilatation of the anal canal. These reflexes depended on the integrity of the pelvic nerves and the lumbo-sacral region of the spinal cord. Dr. H. E. Magee (Aberdeen) said that ergotoxine and atropine suppressed hyperglycaemia in normal rabbits after administration of glucose by the stomach tube—this was partly due to delayed absorption causing inhibition of gastric discharge. In amytalized rabbits atropine, splanchnotomy, and vagotomy increased the rate of absorption of glucose and the degree of hyperglycaemia.

Urea in Health and Disease

Dr. W. R. Fearon (Dublin), in a paper on urea in health and disease, said that urea was one of the simplest and most widely distributed forms of organic nitrogen. It was a diuretic, a galactagogue, a solvent, and a precursor of urinary ammonia. Urea was formed almost entirely by the hepatic de-amination of surplus amino-acids. Professor J. W. Jessop had shown this formation of urea to be fairly constant. Owing to its unique diffusibility it was fairly uniformly distributed throughout the animal (with the exception of adipose and renal tissue): the normal range was 15 to 45 mg. per 100 grams fresh material, the average blood values being 13 to 38 mg. per 100 c.cm. One result of this diffusibility was that urea retention did not cause oedema. Physiologically two types of hyperuraemia might exist: (1) that due to increased production and (2) that due to decreased removal of urea. Both types were present in many clinical conditions. Abnormally low values of blood urea had been observed in acute hepatic inefficiency and in increased excretion. Uraemia could be divided into (1) simple uraemia or "urotoxaemia," due entirely to retention of urinary waste products; and (2) uraemia complicated by

extrarenal factors—for example, vascular hypertension, diffuse arteriolar and arterial disease, etc. The biochemical syndrome of a simple uraemia following total nephrectomy in man had been described by Thompson (1932). The term "urotoxaemia" was suggested as preferable to "uraemia," and might be defined as the pathological condition due to retention of urinary solutes in blood. In normal subjects blood urea might be temporarily markedly raised, with transient symptoms of urotoxaemia: this experimental "hyperuraemia" was profoundly different from that produced by abnormal retention. It was possible that in sustained and increasing hyperuraemia the urea acted as a narcotic.

Professor JOSEPH BARCROFT (Cambridge) said that the constancy of the composition of blood in *p*H, oxygen, water, etc., was well known but not understood. Perfused organs would function within wide ranges of *p*H, etc. The effect of variations in these constants seemed to be on the mental rather than on the bodily functions. It was possible that urea acted in the same way. Dr. GEOFFREY THOMPSON (Dublin) referred to a case of removal of the only kidney. Cerebral convulsions usually associated with uraemia might be caused by spasm of the cerebral vessels or oedema, and it was usually relieved by lumbar puncture. The term "urotoxaemia" was preferable when referring to retention of urinary solutes in the blood. Dr. DUNN said that in experimental nephritis the blood urea could be raised to from 600 to 700 mg. per cent., and if sufficient water was given the animals remained normal; urea had no effect *per se*. Without water, dehydration and uraemia followed, no further rise in urea necessarily taking place.

FOOD AND GOITRE

Sir ROBERT MCCARRISON (India), in a paper on food and goitre, illustrated by lantern slides and pathological exhibits, said that the thyroid was not an organ whose size was unalterably fixed, but one designed to adapt itself to environmental conditions. With variations in size there were also variations in histological appearance, the latter changing with the phases of the gland's activity. Factors influencing the size of the gland included hereditary influences, individual idiosyncrasy, age, sex, sexual activity, psychic factors, season, locality, altitude, distance from sea, sanitary conditions, and diet: of these, diet was the most important. The thyroid had a profound influence on the metabolism of food. Conversely, no organ was more sensitive to food conditions. Excess work might cause hypertrophy, and subsequent strain fibrosis; or, because of improper food, the physiological efficiency of the gland might become impaired. The more perfect the constitution of the diet the more normal and less variable the size of the gland. Further, the diet must be balanced. The chief excesses in ordinary diets were fats, limes, and certain unidentified substances in vegetable foodstuffs. An excess of fat or calcium favoured goitre production, but the effect was neutralized by additional provision of iodine. Certain unidentified substances in some vegetables (probably cyanides) depressed cell oxidation and were goitrogenic; although not due to an iodine deficiency the goitres could be prevented by iodine, thyroxine, manganese chloride, and to a less extent by thymol. There were certain definitely anti-goitrogenic foodstuffs whose value did not depend on their iodine content. Among these were milk, oatmeal, green vegetables, carrots, etc. Oxygen deficiency caused by constriction of the trachea or obstruction in the upper air passages was associated with an accumulation of colloid in the vesicles of the thyroid. Deficiency of vitamins A, B, and C were known to affect the thyroid unfavourably, and there was some evidence that vitamin D might not be without effect. Lastly, the question of iodine deficiency and goitre must be considered. There was no incontrovertible evidence that iodine deficiency was by itself the cause of goitre; nevertheless, a low iodine intake might, in certain conditions of diet and hygiene, predispose to occurrence of goitre, and might be a determining cause of its endemicity. Statistics were given showing the interaction between faulty food and insanitary conditions in the causation of goitre.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE-ON-TYNE

Those interested in the University of Durham have been aware that during the past two years various questions with regard to the administration of its affairs, including the question of the security of tenure of its teaching staff, have been raised, and that, with the consent of the Council of the College of Medicine, these matters have been the subject of an inquiry by Sir Amherst Selby-Bigge, who was asked to act in this capacity by the Marquess of Londonderry, Chancellor of the University. The inquiry was prolonged and searching, and the report presented states the conclusions of the commissioner as follows:

SUMMARY OF CONCLUSIONS

The inquiry was extremely protracted, because I felt it desirable that everyone concerned should have the fullest opportunity of saying what they thought and felt. The volume of evidence and the mass of documents submitted was very great. If my analysis of the various controversies or my comments or my conclusions are erroneous, it is not due to lack of material.

I cannot expect that my conclusions will be accepted by all who have been engaged in the recent controversies over the College administration. To a degree unparalleled in my experience of administrative inquiries the issues have been complicated by personal antagonisms and suspicions, and the imputation of ulterior motives.

I think that the action of the Court of Governors in asking that an inquiry should be held was fully justified in the circumstances which had arisen. My best hope is that the inquiry may have done something to clear the air, and that the mere fact that it has afforded opportunity for the expression of views and ventilation of discontents may dispose those interested in or concerned with the College to put aside old disputes and concentrate their energies on promoting its welfare.

I have expressed my views on a good many other points in the course of this report, but I may summarize my principal conclusions very briefly as follows:

1. I am of opinion that the complaint of maladministration brought against the College Council in respect of its action in the case of Professor Hutchens is not substantiated. I consider that the action of the Council was taken bona fide in what it believed to be the interests of the College, was not unreasonable, was not hasty or capricious, was not unfair in respect of procedure, and was taken on major grounds of expediency, the assertion of which does not violate the principle of security of tenure recognized by English universities. As regards particular features of the controversy, I see no sufficient reason to regard the measures of economy affecting Professor Hutchens's department as unfair in intention or result; I feel that in the matter of procedure relating to the division of his department there was an error of judgement on the part of the Council and the College officers, but that the decision to divide it was taken in the honest belief that it would be advantageous to the College; I am not convinced that Professor Hutchens gave the new arrangements prescribed by the Council a fair trial, and I feel that his attitude led to an "impossible position," which occasioned the Council's final decision.

2. As regards the termination of previous arrangements with Armstrong College for the instruction of medical students, I can express no opinion on the merits of the Council's action from an academic point of view. But even if the Council's decision was influenced to some extent by incidents arising out of the controversy relating to Professor Hutchens, I am of opinion that a charge of maladministration cannot be based upon it.

3. As regards the complaints concerning the Council's action as affecting the personnel of the Academic Board, concerning the conduct of the Board's proceedings, and concerning the defeat of proposals aimed at securing reform of the constitution, I regard the various disputes mainly as by-products of the major controversy relating to the case of Professor Hutchens. I find in them nothing to sustain the serious charge of maladministration, though they indicate the need

for reconsidering the Articles under which the College is governed, in several respects.

4. As regards the complaints directed against Sir R. Bolam personally, I find nothing in his actions which is inconsistent with a sincere desire to promote what he believes to be the best interests of the College or which would justify me in inferring motives discreditable to him.

5. As regards the constitution of the College, I am of opinion that there are defects in the Articles both in respect of drafting and substance which have contributed to recent difficulties and which require careful consideration.

RESOLUTIONS OF THE GOVERNING BODY

These conclusions have been before the Governing Body, which has now taken action as follows:

"That the Governors do proceed at the Annual Court to appoint a committee composed in equal numbers of members of the Court and of members of the Council who are also members of the Court to consider the recommendations of Sir Amherst Selby-Bigge as to the emendation of the constitution as contained in the Articles of Association of the College, or alternatively, draft provisions of a Royal Charter as may be deemed wise and to report to the Court." Carried unanimously.

"That a small committee, consisting of Sir Francis Blake, Chairman of the Quarter Sessions and the Northumberland County Council; Mr. Angus Watson, Deputy Lord Mayor; and Dr. Heawood, ex-Vice-Chancellor of the University of Durham, be asked to confer with Professor Hutchens and to report to the Annual Court." Carried unanimously.

Australia

[FROM OUR CORRESPONDENT IN SYDNEY]

The Australasian Medical Congress

The fourth session of the Australasian Medical Congress (British Medical Association) will be held at Hobart, Tasmania, from January 15th to 20th, 1934. Dr. D. H. E. Lines has been appointed president, Drs. H. N. Butler and W. L. Crowther joint honorary secretaries, and Dr. Stuart Gibson honorary treasurer. The whole of the accommodation at the University of Tasmania and the Philip Smith Teaching College has been made available to the Congress through the courtesy of the Chancellor of the University and the Director of Education of Tasmania. There will be ten sections—namely: medicine; naval, military, and air medicine and surgery; obstetrics and gynaecology; ophthalmology; oto-rhino-laryngology; public health, preventive medicine, and tropical hygiene; radiology and electrical therapy; paediatrics; pathology, bacteriology, and cancer research; surgery. The membership fee for those attending will be three guineas, and for those who are unable to attend two guineas. Each member will receive a copy of the transactions. It will be remembered that the third session was held at Sydney, New South Wales, in August, 1929, and that the fourth session was to have been held at Perth, Western Australia, in October, 1932, but had to be postponed on account of the prevailing financial difficulties. The Executive Committee at that time suggested that the session might be held in one of the eastern States of the Commonwealth, where proximity to the larger cities would encourage a good attendance, and heavy transport costs would be avoided. It is pointed out that since accommodation at Hobart is likely to be strained, those desiring to attend should apply for membership as early as possible.

Royal Australasian College of Surgeons

The sixth annual general meeting of the Royal Australasian College of Surgeons was held in Sydney from April 10th to 13th. It was attended by some 200 Fellows of the College, all the States of the Commonwealth and the Dominion of New Zealand being represented. The proceedings were opened at the Conservatoire of Music by Sir Isaac Isaacs, Governor-General of the Commonwealth, and this was followed by the ceremony of the formal admission of fourteen newly elected Fellows. The second George Adlington Syme Oration was delivered by Professor F. Gordon Bell, professor of surgery in the University of Otago, New Zealand, on "Hospital Problems and the Education of the Surgeon." All members of the British Medical Association living in and around Sydney and all members of hospital boards and others interested in hospital problems were invited to attend the opening meeting. The annual business meeting of the College was held on April 11th, and on the same day and the two succeeding ones the Fellows of the College attended surgical demonstrations at various hospitals in Sydney.

Hamilton Russell

Robert Hamilton Russell, F.R.C.S.(Eng.), F.R.A.C.S., who died on April 30th, after a motor accident, at the age of 73 years, was a leader of his profession in Victoria, and his work on hernia and fractures had made him famous throughout the world. In Victoria he was almost idolized by the majority of his fellow practitioners, especially those who had come in contact with him as students; he was beloved by practically all. While on the staffs of the Children's and the Alfred Hospitals he was able to employ his natural skill as a teacher. His wisdom, his culture, the excellence of his methods, and his ability to impart learning to others made his demonstrations and lectures a delight to all who had the opportunity of attending them. Hamilton Russell was truly great and noble, yet was he modest withal. He was a kind and lovable gentleman, a wise teacher, a thinker, and a clinician of great learning. His name will ever be an honoured one in the annals of Australian medicine and surgery.

Royal Prince Alfred Hospital

An increase in the subsidy allowed by the Government of New South Wales has made possible the reopening of the 200 beds at the Royal Prince Alfred Hospital, Sydney, which were closed in April, 1931, owing to financial stringency. A building to house the medical school of the University of Sydney is being erected in proximity to the hospital. It is, of course, necessary for the proper functioning of the medical school that the hospital's full complement of beds should be in commission, and the Minister for Health of New South Wales has intimated that knowledge of this fact influenced the Government in its deliberations concerning the subsidy.

Scotland

Inquiry into Scottish Health Services

The first meeting of the committee which has been appointed to inquire into the policy and organization of the Scottish health services[1] was held in Edinburgh on July 28th, with Sir John Dove-Wilson, K.C., in the chair. On behalf of Sir Godfrey Collins, Secretary of State for Scotland, who was detained in London on important Government business, Mr. John Jeffrey, Secretary of the Department of Health, attended at the opening of the meeting. Mr. Jeffrey first referred to the recommendation of the Lovat Committee, that an independent inquiry into health services should be instituted. This recommendation came at a time when there was growing conviction in several quarters that this branch of the public service was in need of a comprehensive overhaul. The development of health services had been especially rapid

[1] See *British Medical Journal*, July 1st, p. 27.

during the last twenty or thirty years. On top of the basic public health services for dealing with sanitation, water supplies, and food supplies, there had been added, from time to time, national health insurance medical services, school health schemes, maternity and child welfare schemes, specialized services for lunacy and mental deficiency and other conditions, besides other services that will come under the committee's review. It was not too much to say that, looking back on history, the development of these services has been more or less haphazard. No doubt each service was fully justified by the circumstances of the time, but the result was that they had now a congeries of activities, and it was not possible to regard them as they ought to be regarded, under a carefully planned system, as component parts of a common structure designed to achieve a central purpose. The stocktaking which the committee was about to embark on was inevitable. It had become urgent because of doubts whether in fact the services were developing on sound lines and whether they were doing their jobs in the most effective and economical manner. Some of the services appeared to be lagging behind the rapid growth of knowledge of prevention and treatment of disease—more especially prevention. Difficult administrative problems were also emerging—for example, the relation of the general practitioner to the statutory health services, the future of Poor Law medical service, and so on—and these problems could not be determined until they were quite sure of their aim and what was the most desirable line of development for the future. The fundamental question was the aim or aims of national health policy. It was no light task, Mr. Jeffrey continued, on which the committee was about to embark. The terms of reference had been deliberately framed so as to make the inquiry both fundamental and comprehensive. The committee would have to take stock of all that was being done to promote and safeguard the health of the people of Scotland. It would have to look at the aims and history of the several branches and assess their worth against what was considered the aim or aims of policy. The importance of the committee lay in the fact that the future of Scotland depended in large measure on what was done to promote the physical and mental quality of the people. The policy and organization of the future could not but be influenced by the conclusions which this committee arrived at. The Secretary of State had asked him to say that he would follow the work of the committee with great interest.

The committee, on Mr. Jeffrey's departure, proceeded to consider the scope of the inquiry and procedure. The chairman briefly reviewed the problem, and suggested that in view of the comprehensive and fundamental nature of the inquiry no decisions as to procedure should be taken at present. This meeting should be regarded as preliminary. After a general discussion, the committee adjourned until October. Its terms of reference are "To review the existing health services in Scotland in the light of modern conditions and knowledge, and to make recommendations on any change in policy and organization that may be considered necessary for the promotion of efficiency and economy."

International Dental Federation

The twenty-seventh annual meeting of the International Dental Federation, including representatives from nine countries, opened on July 24th in the Royal College of Surgeons of Edinburgh. Mr. J. W. Dowden, President of the College, in welcoming the delegates, said that these conferences were a great stimulus to men from different parts of the world, who were apt to look at problems along different lines. Dr. Georges Villain of Paris, president of the Federation, said that this Federation was founded in Paris in 1900, and its first general meeting was held at Cambridge in the following year under the presidency of Sir Michael Foster. This was the fourth meeting held in Great Britain. The Federation had as its object the organization of the dental profession for the advancement of dental science. It was a special pleasure to meet in Edinburgh, which was regarded as one of the principal centres of dental education. At the close of the opening session Dr. William Guy, F.R.C.S.Ed., who is retiring from the position of dean of the Edinburgh Dental School, was presented with a portrait of himself, to which colleagues and past students had subscribed. Dr. Guy, in returning thanks, said that when he became dental surgeon to the Royal Infirmary in 1895 chloroform had been the anaesthetic continually used in dental operations which required more time than the brief period of unconsciousness produced by nitrous oxide, and fatalities were then distressingly frequent. To-day in the Edinburgh Dental Hospital, however, between 5,000 and 6,000 operations were performed each year without fear of accident or mishap by the method of single-dose anaesthesia which he had adopted.

Central Midwives Board

The examinations of the Central Midwives Board for Scotland, held simultaneously in Edinburgh, Glasgow, Dundee, and Aberdeen, have just concluded, with the following results:

Out of 140 candidates who appeared for the examination, 122 passed. Of the successful candidates twenty-seven were trained at the Royal Maternity Hospital, Edinburgh; eleven at the Elsie Inglis Memorial Hospital, Edinburgh; two at the Deaconess Hospital, Edinburgh; thirty at the Royal Maternity Hospital, Glasgow; nine at Stobhill General Hospital; three at the Eastern District Hospital; one at the Western District Hospital; nine at Bellshill Maternity Hospital, seven at Govan Maternity Hospital; two at Barshaw Hospital, Paisley; five at Motherwell Maternity Hospital; two at the Maternity Hospital, Aberdeen; nine at the Maternity Department, Royal Infirmary, Dundee; two at the Royal Infirmary, Perth; one at the Royal Infirmary, Stirling; and the remainder at various recognized institutions.

England and Wales

Welsh Board of Health's Report

The report of the Ministry of Health for the year 1932-3 (Cmd. 4372, H.M. Stationery Office, 5s. net) contains a section dealing with the activities of the Welsh Board of Health. The work of the Department is reviewed under the headings of national health insurance, contributory pensions, and public health. There were in Wales at the end of last year 968,200 persons insured for health insurance purposes, of whom 211,150 were women. A total sum of £1,733,600 was paid out in benefits; sickness benefit accounted for £641,300, disablement benefit £369,100, maternity benefit £92,500, medical benefit £515,800, and other benefits £114,900. The cost of administration was £322,900. Claims for sickness and disablement benefits continued to decrease, though heavy increases in claims were general in the early weeks of 1933, during the severe influenza epidemic. During the year a series of conferences of representatives of approved societies and insurance practitioners was held with the object of promoting a better understanding of the requirements as to medical certification. There were 916 doctors (including twenty-nine women) giving treatment to insured persons in Wales, and 2,601,288 prescriptions were issued by doctors. The total payment for medicines and appliances supplied by doctors and chemists was £105,600, representing an average cost of 2s. 4.7d.

per insured person. Ten doctors practising in sparsely populated rural areas in Wales attended post-graduate courses as a result of the provision of grants towards meeting the cost of their locumtenents, travelling and subsistence expenses, and course fees. These doctors attended the fortnight's course specially provided for them in Cardiff by the Welsh National School of Medicine. The standard of service provided for insured persons continued to be on the whole satisfactory. It was necessary to deal with breaches of terms of service on the part of some practitioners, and in twenty cases amounts varying from £1 to £10 were withheld from remuneration. In the section on public health and sanitary administration it is stated that there were in Wales on March 31st, 1933, thirteen county medical officers of health and 145 district medical officers of health, of whom fifty held the D.P.H. The Department's medical officers continued the series of surveys of counties and county boroughs in Wales, which are being made in order to ascertain whether the councils are maintaining a reasonable standard of efficiency and progress in the discharge of their functions relating to public health services. It was not disclosed that any one service called for special criticism, but the survey reports have emphasized the need in rural Wales for the further enlightenment of the inhabitants in matters pertaining to personal and domestic hygiene and to diet. One recommendation is that expectant mothers in remote country districts should come to the towns for confinement in order to secure a higher standard of medical care for the mother during labour and the puerperium. The death rate from tuberculosis in Wales for 1932 was 977 per million of the population ; this is the same as for 1930 (last year it was 1,065), and is the lowest yet recorded for the Principality. Treatment for tuberculosis in Wales is provided by the Welsh National Memorial Association, on behalf of the county and county borough councils, in accordance with the scheme made by the Minister of Health, after consultation with the councils, under the Local Government Act, 1929. The association controls seventeen residential institutions, which provide 1,487 beds ; additional accommodation is proposed by the erection of a new hospital for 300 beds at Sully, near Cardiff. There were fourteen centres in Wales for the diagnosis and treatment of venereal diseases, including three auxiliary centres working in conjunction with maternity and child welfare centres. The report states that there has been no marked expansion of maternity and child welfare schemes, but that several of the authorities have taken steps to improve their maternity services. The infant mortality rate for Wales for 1932 was sixty-nine per 1,000 live births, as compared with an average rate for the last five years of 71. The puerperal mortality rate for 1932 was 6.26 per 1,000 live births ; for 1931 the rate was 5.43. There were 291 maternity and child welfare centres at the end of 1932, and 25,318 children under 1 year, or 63 per cent. of the total number of live births notified, attended these centres for the first time during the year. Ante-natal clinics amounted to seventy-four, and the number of expectant mothers who attended was 8,589, or 20 per cent. of the total number of births notified. There were 1,648 midwives practising in Wales last year, and 86 per cent. of the total births registered were attended by midwives.

London Voluntary Hospitals

The annual statistical review for 1932, published by King Edward's Hospital Fund,[1] provides further proof of the strength of the financial supports upon which the voluntary hospitals of London rest—namely, voluntary gifts and contributions for services rendered. Despite adverse circumstances voluntary gifts, other than legacies, showed an increase of £36,000, while the total voluntary gifts to the maintenance of these hospitals amounted to £1,699,000. The detailed figures show an increase of £18,000 in the amount received from the general body of subscribers and donors, though, as was to be expected from the financial stringency of the last two years, the total was less than the high figures of 1928 and 1929. There was also an increase of £19,000 in the grants from the King's Fund in aid of maintenance. If receipts for building and endowment are included, the total voluntary gifts in 1932 amounted to £2,173,000. The next source of income, receipts for services, again showed an advance on previous figures, reaching a total of £1,463,000. In 1932 the total income of the 145 London hospitals covered by the review amounted to £3,826,000, only £3,000 less than in 1931, when legacies totalled a larger sum than usual. Notwithstanding an increase in the volume of work, the hospitals were able, as the result of special efforts, to effect economies that reduced the total running expenditure by £28,000. The net result was that the aggregate surplus of income over expenditure for the year was £101,000; as against £76,000 in 1931. If the individual hospitals are taken separately 1932 shows a further improvement over 1931 in the total amount of the deficits, £100,000 against £124,000 in 1931, while there was only a slight set-back in the numbers, 85 having surpluses and 60 deficits, as against 87 and 58 respectively in the previous year. No doubt some of the hospitals with deficits were in a position of serious difficulty, but hospitals with deficits one year are often among those with surpluses in the next, as a result either of better fortune or of special effort. The results of the past three years of financial depression must have laid at rest, so far as London is concerned, the doubts expressed during that time as to the effect of the economic crisis on the finances of the voluntary hospitals. And now that there are signs suggesting that the clouds may be beginning to pass, the evidence of the figures inspires the hope that, if the public continues to recognize the value of their work and of their special contribution to the hospital service, the London voluntary hospitals, having weathered the storm, will go forward with renewed strength.

[1] King Edward's Hospital Fund for London, 10, Old Jewry, E.C.2. (Price 1s., post free 1s. 3d.)

Maternal Mortality

The following correspondence has passed between the National Federation of Professional Workers and the Minister of Health.

32, Gordon Square, W.C.1,
July 15th, 1933.

Dear Sir,

This Federation, which includes public health officers among its affiliated organizations, is much concerned on behalf of the maintenance and the extension, whenever and wherever possible, of maternity and child welfare work. I am desired by my executive committee to express to you the anxiety of this Federation at the evidence to be discerned in some quarters of a dangerous desire to economize in these very vital services.

We believe that you and your responsible officers would view with considerable concern any sign that the local authorities were restricting these services or were failing to extend them in due proportion to the ever-increasing needs of the work. There is, however, reason to believe that various local authorities still fail to make full use of their powers under the Maternity and Child Welfare Act of 1918, and we should be glad to learn that you are taking steps to see that such authorities are rising to the full measure of their responsibilities.

Yours truly,
Stephen W. Smith,
General Secretary, National Federation of Professional Workers.

Ministry of Health, Whitehall, S.W.1,
July 26th, 1933.

DEAR SIR,

I am obliged for your letter of July 15th on the subject of the maternity and child welfare services, telling me of the anxiety of the National Federation of Professional Workers lest the efficiency of these services should suffer as the result of the desire of local authorities generally to effect economies. The maintenance and development of these vital services is, by common agreement, a matter of first necessity. The policy of the Government in the matter was dealt with by me in the House of Commons on July 7th, when I said that constant pressure would be brought to bear wherever necessary to raise to a proper level the standard of the maternity services. This policy is also emphasized on page 3 of Circular 1311, issued to local authorities in March last; and the intentions of the Government and the Ministry of Health in the matter having thus been made widely known to local authorities generally, I do not consider that any further steps are at the moment necessary to bring them to notice. Full advantage will be taken of the special opportunity afforded by the general survey of the health services of local authorities by medical officers of the Ministry now in progress to press for necessary developments, and ensure that a proper standard of efficiency is maintained.

Publicity has been given to a statement that there has been a recent "deplorable increase" in the maternal death rate. The deaths per 1,000 live births during 1932 were indeed 4.21 as compared with 4.11 in 1931, an increase of 0.01 per cent. of live births. The rate for 1932 was, however, lower than that for the three preceding years, 1928–30, which were—1928, 4.42; 1929, 4.33; 1930, 4.40. It is not possible to attribute these small variations in the yearly rate to any specific causes, or indeed to assign to them any statistical significance. The suggestion has been made that the increase in 1932 is connected with the amount of loans sanctioned during the year for maternity homes, etc. The suggestion is obviously baseless. A reduction of fresh capital expenditure could not reduce the efficiency of the existing services. It would have no effect of any kind in the same year. In fact the number of ante-natal clinics in England increased by eighty-four during 1932, making a total of 1,277 such clinics, and there was also an addition of 274 maternity beds during the year. These facts show that local authorities generally are continuing to improve and increase the maternity services.

It is indeed a matter of concern, with which we cannot be satisfied, that the maternal mortality rate, although it has shown no increase of any statistical significance, has not shown the same marked and satisfactory fall that has been shown of late years both by the general death rate and notably by the infant mortality rate. It is this that makes it necessary to press ahead wherever necessary with raising the standard of the relevant services. But it can serve only to weaken our attack upon the evil to attach an exaggerated significance to minor variations in the rate, and to attribute them to causes with which they are wholly unconnected.

In view of the importance of the subject, I am sending the correspondence to the Press.

Yours faithfully,
E. HILTON YOUNG.

The Housing Problem

At the end of September and the beginning of October the Minister of Health, Sir Hilton Young, proposes to visit the areas of certain local authorities in order to make closer contact with the personnel and work of the authorities. Among the conditions to which he will devote particular attention will be the practical and local aspects of slum clearance and reconditioning. His visit will coincide with the period during which housing authorities in general have been requested by the Minister to submit schemes for dealing with slums within a period of five years. In the autumn of last year the Minister of Health paid similar visits to Tyneside and the counties of Lancashire, Glamorgan, Monmouth, and Brecon. This autumn the authorities to be visited will be for the most part county boroughs.

CORRESPONDENCE

Treatment of Leg Fractures

SIR,—Mr. Wardle's article on "Fractures of Both Bones of the Leg," in the *Journal* of July 22nd, raises so many controversies that it is impossible to discuss them all in a short criticism. Several statements, however, cannot be allowed to pass without protest.

No one will disagree that in the reduction of fractures correct alignment is more important than perfect apposition, but surely we do ourselves great discredit as surgeons if we believe we are not skilful enough to achieve both criteria in almost every case without the awful and dire results to union and adjacent joints that the author so gloomily forecasts. His difficulty in obtaining good apposition seems to be due to the fact that he applies plaster without traction—no oblique or comminuted fracture can be held reduced without traction, however complete the anaesthesia, and skeletal traction need be no more forcible than manual traction.

I am quite prepared to agree that practically all leg fractures can be reduced by manual traction if they are seen early enough, provided there is an adequate team, but such a team is not always to hand and the surgeon must have at his disposal a single-handed method.

One is surprised to find the author advises fixation of the knee in extension for these fractures; if such a position is adopted the leg will rotate within the plaster at the site of fracture. The knee, of course, should be semi-flexed in order to prevent such rotation, and there is no comparison between the comfort of the two positions.

When Mr. Wardle refers to recent compound fractures he does not mention reduction of the fractures by direct manipulation at the time of operation—surely all surgeons are agreed upon this as a routine measure. Complete rest is one of the secrets of obtaining union in a compound fracture, and to suggest that a split plaster is adequate immobilization for a compound tibia and fibula is certainly wrong. Compound fractures treated by packing with vaseline gauze and by enclosure in plaster become a pitiable mess; the patients are an embarrassment to relatives and neighbours, they are a plague to their doctors, and they are a disgrace to the surgery of the land that gave birth to Lister.

The author admits having to replaster compound cases ten days after primary treatment, and mentions the possibility of slipping. I suggest such slipping to be the rule rather than the exception—the method is one I have tried myself and found wanting. There is nothing easier in the world than the treatment of a compound fracture of tibia and fibula on a Thomas splint using fixed traction with a pin through the os calcis. The method fulfils all desiderata: fixed traction can be maintained throughout and gives the fracture complete rest; the wound can be left alone as long as it does not smell; dressings, when required, can be done without fear of disturbing the fracture; union can be determined as soon as it has occurred, whereas it is always doubtful if the bones have joined until a limb has been removed from plaster—that is, until fixation is lost.

Mr. Wardle then considers other methods. With his remarks on open operations in simple fractures I am in entire agreement, but when he condemns skeletal traction in such a whole-hearted way one is bound to believe he has little experience with the method. I am far from believing in sticking nails into every fracture I see, but really those who use skeletal traction must be credited with a certain amount of skill. Mr. Wardle should realize that unless gross carelessness is used a fractured tibia and fibula cannot be over-extended by the ordinary skeletal traction used to reduce the fracture because the maximum

length of the limb is fixed by the deep fascia and intermuscular septa, which are like sheets of linen and do not stretch, except under a strong traction over a long period.

Mr. Wardle gives three reasons against the use of skeletal traction—sepsis, pressure sores, and stiff ankles. We in Leeds have treated large numbers of fractures with pin traction. Sepsis only occurs when pins have to be kept in more than six weeks, and it is only in the very severe fractures that this is necessary; the organisms are saprophytic and the infection quickly clears up with mild antisepsis on removal of the pin. Pressure sores can be avoided with care and stiff ankles, which are very rare indeed, are due just as much to the injury at the time of accident as to pin traction; no one with an extensive experience of skeletal traction would advance these objections.—I am, etc.,

Leeds, July 26th. R. Broomhead.

Sir,—Mr. E. N. Wardle, in his article on fractures of the tibia and fibula, has launched an attack against the use of skeletal traction which cannot be allowed to pass unchallenged.

I should like to deal briefly with some of the disastrous complications which Mr. Wardle suggests may follow this method of reducing such fractures. (1) Sepsis following the introduction of a pin through the os calcis is almost unknown, provided that the pin is not retained as an instrument of traction for a long period. (2) Circumferential pressure at the edge of the window cut over the dorsum of the ankle can always be prevented by undercutting the margins of the window. (3) Skeletal traction properly applied cannot possibly cause "an enormous amount of damage" to the soft tissues. (4) There is no theoretical evidence to suggest that stiffness of the knee or ankle results from skeletal traction, and in practice these complications are not encountered. (5) Far from favouring non-union, reduction by skeletal traction ensures better end-to-end apposition, and consequently minimizes the possibility of non-union. Mr. Wardle's impression that union is more rapid in the presence of lateral displacement (other factors being equal) is contrary to all accepted beliefs about the union of fractures.

It is to be hoped that Mr. Wardle's exaggerated criticisms of a useful method of treatment will not prevent its adoption by those surgeons who have not yet experienced the efficacy of this method.—I am, etc.,

Liverpool, July 22nd. Norman Roberts, M.B., B.S., F.R.C.S.

Total Hysterectomy for Non-malignant Conditions

Sir,—I have long recognized Dr. Herbert Spencer to be a brilliant controversialist—"never wanting arguments to prove him in the right." Perhaps if you had found space for the illustrations which accompanied my paper, Dr. Spencer's criticisms in the *Journal* of May 6th (p. 802) might have been modified. Be that as it may, I still maintain that, as my operation leaves no portion of the uterus except the outer layer of the supravaginal cervical muscularis, and as it is impossible for cancer or infection of the uterus to occur when the operation has been properly performed, the title "total hysterectomy" for all practical purposes is correct.

I have demonstrated the operation to many surgeons, and after examination of the specimens, which is always carried out, no one has said that any structure had been left behind which could be a source of danger or ill-health, or that the operation was not a total hysterectomy. The rare cases where cervical development of a myoma has involved the portio are, as Dr. Spencer says, unsuitable for my operation. For such I have carried out a complete hysterectomy, using the technique described in the *Journal* of April 29th only up to a certain point. The difficulty of dealing with these cervical tumours vanishes to a great extent if a miniature Australian wool-hook, one of which I presented to Dr. Spencer many years ago, is used to haul the uterus upwards, as if one were pulling a cork from a bottle, while at the same time the scissors working close to the tumour enucleates it, allowing the ureters and other important structures to fall away in safety.

The danger of sarcoma mentioned by Dr. Spencer is remote, and is far more than outweighed by the great advantages of my operation, as detailed in the paper in question. With regard to embolism, I did not suggest catgut as a cause, but possibly silk. Also I did not say I had never had a case of embolism. I have had three in my surgical experience, but not one (it so happens) following the operation by this method. As to fibrosis uteri, Dr. Spencer says this condition "never requires the mutilating operation of hysterectomy." The Doyen hysterectomy, by destroying the keystone of the vaginal vault, shortens the vagina, interferes with the sexual function, and favours prolapse, and therefore may be correctly described as "mutilating," but such a term is in no way applicable to the operation which I advocate, which presents none of these defects and which gives the patient a sense of well-being to which probably she has long been a stranger.

With great deference to Dr. Spencer, I submit that for a woman approaching the menopause suffering from haemorrhage and discharge there is no treatment—electric, diathermic, or radiological—which with such certainty and safety will cure her symptoms, remove the septic focus in the cervix, secure her against the development of cancer, quickly restore her health, and leave no unpleasant sequels (always provided the ovaries are not interfered with) as the operation which I laid before the profession in the *Journal* of April 29th (p. 741).—I am, etc.,

Sydney, Australia, June 14th. Ralph Worrall.

"Mutation of Tubercle Bacilli"

Sir,—In your issue of July 29th appears a communication from Dr. Nathan Raw on "Mutation of Tubercle Bacilli." Dr. Raw evidently finds it easy to explain the causation of pulmonary tuberculosis. But it is not easy to accept his facts, nor easy to accept his conclusions. I read his account of a case of pulmonary tuberculosis with previous glandular disease, as reported in the *Journal* of February 27th, 1932. As a serious contribution I was amazed it should have been published. "Presumably bovine" is valueless. He reports a further case now—and this report is to my mind also valueless. "Examinations of the pus and glands, and animal inoculation, showed definite bovine tubercle bacilli." We are asked to accept this statement, and no proof is furnished to substantiate it. Was the virus grown direct from pus or gland? Would he publish a complete proof of the results of animal inoculation with this virus? Can we have the same proofs for the virus from sputum?

Even should Dr. Raw be able to satisfy those competent to judge the type of culture, has he proved his case? He has not. He neglects the possibility of a "second infection" after the *recovery* from the "first," and this "second infection" might have been human type. It is well to review the work of competent observers, and surely Dr. Raw should not brush aside all the work of Dr. Stanley Griffith and others on types of

bacilli in various tissues, and on one bit of evidence acceptable to himself seek to make such sweeping assertions as follow in his communication.

How does Dr. Raw explain the fact that most of the cases of bone and joint tuberculosis in children are due to human type tubercle bacilli? My own figures[1] in bone and joint lesions (56 per cent. in children under 5 years and 78 per cent. in children 5 to 15 years) are human type infections, and Dr. Griffith's figures[2] are 66 per cent. human type in children under 5 years and 76 per cent. in the age group 5 to 15 years. In other lesions we find similar figures. Tuberculous meningitis in children gives 70 per cent. human type viruses. If Dr. Raw is to be believed, then mutation has been very rapid in all these children. But let us take it that mutation may be possible. Why do we not hear of a transitional type from him? I have recovered a bovine type virus of full bovine type virulence to the rabbit from a hyperplasia of bowel in a woman of 53 years.[3] Surely there was time for mutation here. And, lastly, possibly I have had more opportunity than any other observer of examining viruses from multiple lesions—glands and sputum, bone and sputum, testis and sputum, etc.—and never have I encountered a virus which differs in type in one lesion from that in another.

There are many other points on which one would care to ask questions, particularly as to the alleged paths of infection; and what does Dr. Nathan Raw mean by primary pulmonary tuberculosis? I have sought rather to point out that this belief of Dr. Raw is absurd, and I hope it will not blind anyone to the greater problem—the protection of the child from infection from the human type bacillus of human origin.—I am, etc.,

W. T. MUNRO, M.D., F.R.C.P.Ed.

Glenlomond by Kinross, July 29th.

Allergy

SIR,—In his address on allergy (*Journal*, July 8th, p. 43) Dr. G. W. Bray emphasizes the importance of heredity. "During childhood the chief aetiological factor is the hereditary tendency, which can be demonstrated in one-half to two-thirds of all cases." He might go further and say that a hereditary element enters into 100 per cent. It enters even in bunions, and in the choice of shoes that go to make bunions. What Dr. Bray does not say is that 50 per cent. of his asthmatic children are "only" children—and the "only" child is a pampered child—and of the remainder he does not say how many are the first child, and therefore the "only" child till number two comes along to give number one a chance of less pampering. Without pampering, less allergy—and less heredity. The hereditary element, however big it seems to bulk in statistics, probably does not on the whole *weigh* more than 10 per cent. in prognosis and treatment, for by simple treatment directed to food, bowels, bath, and exercise 90 per cent. of asthmatic children get well and stay so. (One type of case, however, in which heredity weighs enormously is the tall, underweight, hypopoietic, eosinopenic type—a small class, and refractory to treatment.) There is less chance of improvement when the child is cursed with two grannies and three or four aunts, for, as Dr. Bray says, the hereditary element tends to pass by the female line; so does the pampering. Chocolates, ice creams, "candies" galore—and allergy results, "inherited" along the female line.

Three months ago I was asked by a "vet" to see an asthmatic dog—spasmodic cough, harsh pelt, eosinophils 20 per cent., no intestinal parasites. It was dieted, given mercurials, iodide, and belladonna. In a month it was normal, with 4 per cent. of eosinophils. Two months ago a pathologist told me he was taking home some chloroform to kill an asthmatic canary. I begged him not to, but to try small regulated feeds of simple seed instead of the rich diet on which it had been fed *ad lib.* Three weeks later he told me he had not believed a cure would result, but had done as suggested. The canary got well, and has nested. I have had similar experience with other canaries and dogs, also with horses (in one pit pony the eosinophils went down from 18 per cent. to 4 per cent.); but in none of these animals was there any history of asthma or allergy, not even among "the sisters and the cousins and the aunts." Much more might be said, but it is well to remember that not only may statistics be the greatest liars, but the most impertinent ones. It is also well to remember that the increase of allergy has kept pace with increased consumption of sugar, not to mention other carbohydrates. According to Dr. J. Boyd Orr this country spends a million pounds a week on sugar; in the United States of America, which is pre-eminently the land of allergy, the consumption of sugar is about five pounds per head weekly, or more than twice ours. The "heredity" of gout has gone down with change of social customs.

Dr. Bray has done much excellent work on asthma, and was entitled to be somewhat categorical in such an address, but he seems to me to have got the heredity factor out of focus, and in the new dazzling light on allergy there is some blindness to other less obvious yet general factors that matter as much, if not more.—I am, etc.,

Glasgow, July 24th. JAMES ADAM.

Use of Quinine in Normal Labour

SIR,—I would like to add my testimony to that of Dr. W. M. Hewetson (*Journal*, July 22nd, p. 170) regarding the value of quinine administered during the last three or four weeks of pregnancy. I have been so impressed by the universally good results obtained that I feel very strongly that, whatever other treatment may be used, quinine should be given as a routine.

For the last six or seven years I have given every case 1/2 to 1 grain of quinine t.d.s. for about four weeks before the calculated date of labour. In addition, I give one capsule of radiostoleum t.d.s. for about four months. Dr. Hewetson's conclusions are exactly the same as mine—namely, a short, easy labour, very little haemorrhage, much less shock, a quick recovery, and an ideal temperature chart.

One of my earliest cases was that of a lady who had had a very protracted previous labour, but with the above treatment labour was almost painless, and so rapid that the baby was born within half an hour. When I arrived the mother was very comfortable, and presented no evidence of shock. Her first remarks to me were: "I can hardly believe that I have had a baby." The shock after the previous baby was so great that she was nervy and irritable for the best part of a year.

The results in every case will not be so fortunate, and, of course, we all know that some women have just as easy a confinement without any treatment. I have a great deal of sympathy with women in their confinements. Some have a wretched time; the shock is often very great, and complete recovery a matter of months. It is the duty of the profession to do everything in its power to help, and I feel sure that the treatment outlined would go a long way towards lowering the maternal mortality rate by lessening shock and the risk of infection.

[1] Griffith and Munro: Relative Incidence of Human and Bovine Types of Tubercle Bacilli in Human Tuberculosis in Scotland, *Journ. Path. and Bact.*, 1932, xxxv.

[2] Griffith: Types of Tubercle Bacilli in Human Bone and Joint Tuberculosis: Ibid., 1928, xxxi.

[3] Anderson and Munro: Tuberculous Hyperplasia of the Large Intestine, *Edinburgh Med. Journ.*, March, 1931.

How quinine acts I do not know, but it seems in some way to lessen the resistance of the soft parts, which is so often the cause of a delayed and protracted labour, due possibly to a special action on the peripheral nerve endings.—I am, etc.,

Birkenhead, July 24th. D. J. Gair Johnston.

Aetiology of Acute Rheumatism

Sir,—Dr. Heanley's letter (*Journal*, July 15th) serves a very useful purpose in bringing my thoughts on this discussion back to the droplet, and Schlesinger's paper. The latter is to its credit in certain recent advances in the study of rheumatism—advances published since the Bath conference to which Dr. Aston Key refers. Most important of these advances is the rediscovery of a "lag period" of from ten to twenty-one days between an acute nasopharyngeal infection and the first signs of the rheumatic state. The clinical identification of this precursor fever is difficult except in institutions and small communities permitting local epidemiological study, yet the literature on the subject includes the description of many epidemics of acute rheumatism, producing altogether hundreds of cases in which the basic wave of precursor fever has been observed. In these waves the primary nasopharyngitis is obviously by droplet spread, and although the infection may enter by other portals the nasopharynx is the usual route. In a few waves the nasopharyngeal flora has been investigated, and various strains of haemolytic streptococci have been found in epidemic prevalence. Of those persons attacked by the precursor infection only a small percentage suffer rheumatism, and these are susceptibles showing a peculiar tissue reaction to streptococci.

As Dr. Schlesinger suggests, the hypothesis that acute rheumatism is an allergic response to infection by certain streptococci is well founded, but still lacks complete elucidation. It is of little value in practice. On the other hand, the recognition of a primary acute and transitory nasopharyngeal disease—distinct from the chronic throat—is of immediate value, and can be applied to the prophylaxis and treatment of the rheumatic state.

The droplet is the key to the situation, and when we consider droplets we must also think of dew-point, humidity, temperature, vapour pressure, condensation nuclei and dust, and other terms of pure physics governing the existence, passage, and range of spread of droplets. *A priori* these are also terms governing the geographical and seasonal distribution of rheumatic fever and other droplet-borne infections, the type of disease encountered at a given place at a given time depending on local epidemic prevalences. Rheumatism is liable to occur in sensitive persons brought into contact with a widespread streptococcal parasitism. Yet, given prepared soil and special seed, the crop will still depend on the sowing.—I am, etc.,

Stratton on the Fosse, July 27th. W. H. Bradley.

Arthritis and Allied Conditions

Sir,—I have read with interest in the *Journal* of June 17th the British Medical Association committee's report on arthritis and would like to take the liberty of pointing out an erroneous statement under heading IV—namely, that the climate of Egypt is dry. Unfortunately, many practitioners and the laity in the United Kingdom believe this to be a concrete fact.

The average rainfall in Cairo is about two to three inches a year; in the provinces of Upper Egypt it is less, and in the Delta slightly higher. The rainfall can be excluded as a source of humidity, but throughout the Nile Valley there is continuous evaporation of moisture from the richly irrigated lands all the year round, and for three months of the summer most of the fertile valley of Upper Egypt is submerged by flood waters, which render even the little villages and towns of the Upper Nile damp and unhealthy. Some towns are low-lying and in winter have many damp dwellings. The Mediterranean and Suez Canal are humid. The ideal climate is on the edge of the desert, where the air is dry and the summer nights are cool—for example, Mena, glorified by the Pyramids and the Sphinx; Heliopolis, a suburb of Cairo; and Helouan, which is world-famous for its medicinal baths.

The position I have held in Egypt for the past six years has taken me all over the country, and I have lived in all the large towns and frequently visited many of the small villages. During this period I have met with innumerable cases among Egyptian girls and women of muscle and tendon pains and swollen joints, especially the ankles, without any temperature, and in the absence of evidence of dental caries or of a catarrhal diathesis. The majority lead sedentary lives and have long hours of study or teaching, with bad home conditions; and they all have anaemia. Most of these patients give a history of constipation with flatulence, and in some cases of menstrual irregularities, very often with dysmenorrhoea. I can only recollect one case, that of a woman of 40, in which, after repeated attacks of painful and swollen joints, definite arthritic changes developed. The pain and swellings disappear after a few days or weeks without treatment other than irregular doses of sodium sulphate and rest from duties.

These cases are also numerous among the upper classes of the country, who lead sedentary lives and live well, and among the English and European residents, who in many cases play games vigorously in the sun and take no precautionary measures against the sudden fall of temperature after sundown, and a large percentage of whom are starved of vitamins. Fresh vegetable salads, raw fruit, and pasteurized milk and cream are excluded from their diet in fear of dysentery and other intestinal infections. Rheumatic fever is relatively common among native children and young adults.

I would like to mention here that many English and Continental doctors advise their tuberculous and cardiac patients a long sojourn in Egypt. In my opinion the climate is a death snare for such cases. Instead of building up resistance these patients lose it, and especially those with tuberculosis.—I am, etc.,

Cairo, June 27th. Mavis Grant Zane.

Sir,—Whatever may be the ultimate verdict on the Arthritis Committee's report, which appeared in your issue of June 17th, I am one who will always value it for several reasons. Confronted as the committee was with the stupendous difficulty to supply something that would satisfy a critical audience, every member of which it knew was waiting for information, surely one's thanks are due for the work this entailed. And the more so when we realize that, besides providing us with a handy reference on all that is known and unknown on the causes and treatment of arthritis, it is stamped with a practicality of utterance that may go far to unravelling a tangled skein in time. But is complete silence our only means of expressing satisfaction, complimentary though that is at times?

Is it nothing to be supplied with a simplified nomenclature founded on clinical types, designed on purpose to relieve us of that difficulty we have had in deciding what precise pathological condition was present in most

of the cases we have met with in the past? And is not a burden lifted by a ruling which seems to suggest that more advantage may come from early treatment than from the time we used to spend in trying to refine our diagnosis in a disease that is allowed, by the committee itself, to be little understood and shrouded in mystery still?

Again, to those who by force of circumstances have been driven to think that most cases of arthritis may have a toxic base, is it not pleasing to find the report now stressing the infective theory of the disease so strongly—so energetically, indeed, that it seems to call on everyone so minded to test out disinfectants new and old? Here I would like to say what pleasure it has given me to find that a systemic disinfecting method I introduced for arthritis some nine years ago has not been included among treatments thought of doubtful value.—I am, etc.,

London, July 20th. HERBERT W. NOTT, M.R.C.S., L.R.C.P.

Prophylaxis of Malaria

SIR,—We are much interested to see Dr. A. L. Hoops's paper in your issue of June 10th (p. 993) describing his satisfaction in Malacca with atebrin (Bayer) for malaria. Being ourselves the introducers of the valuable remedy to this territory, we should like to say that in our experience there is never any need to reinforce the action of atebrin with injections of quinine. In this country, with its blackwater record, not only should we never care to do so, but in urgent situations we have employed the 0.1 gram tablets of atebrin, as any other hypodermic tablets, crushing them with the piston in a sterile syringe and, after solution, injecting, without any but beneficial results. We are surprised that Dr. Hoops can obtain fifteen of the tablets in Malaya for 75 cents. (1s. 9d.). We ourselves have not been able to obtain the same, landed even at Bulawayo, for less than 5s. 3d.—We are, etc.,

Northern Rhodesian Clinical Laboratory, Broken Hill, July 7th. C. VOIGT, E. MARY VOIGT.

Psychology and the Curriculum

SIR,—Before we are finally committed to a further expansion of a curriculum that already exceeds the limit of intelligent assimilation, would it not be well for us to sit back and consider whether we wish our sons to be wise physicians or examination athletes? If a referendum were feasible about this matter in which the whole body of our profession voiced its considered view I doubt if 1 per cent. would vote in favour of the quantitative view of medical education which is at present held to be essential. The tree of medical knowledge has developed many branches, and each tends to become jealous of its distinctive claim to prestige. Thus vested interests are formed which have to be conciliated with so many hours of the student's time in the form of lectures, demonstrations, examination questions, etc.

Now medical psychology has grown powerful enough to assert its claim for academic consideration, and bids fair to compete with the older members of the medical family in exacting its full portion of the student's time, and, presumably, interest. Does the profession as a whole realize that behind this last claim upon the overburdened student's time there is a determined attempt to graft the methods and teaching of Freud upon the tree of British medicine? Psychology is a vast subject, and infinitely complex; hence its apparent simplification by the easy Freudian formulae is an inviting compromise. Until medical psychology has been able to throw off this Freudian spell it would be disastrous, in my opinion, to bring so controversial a branch of medicine into the curriculum at all.

For the present I believe it would be wiser and safer to leave the student absolutely free to acquire his psychological standpoint in the open seminar method. If at every teaching hospital there was instituted a psychological seminar in which a skilled practical psychologist gave demonstrations of case material, and made it his special aim to answer questions and discuss actual clinical problems from the psychological standpoint, I believe the interest of the student would be kindled, instead of being killed by a surfeit, and at the same time he would be free to realize that the way of qualitative understanding is more valuable for the physician's art than quantitative information.

I trust, Sir, that you will allow this matter to be ventilated in your columns, as I am confident that the profession is unaware of the dangers involved in the contemplated extension of the curriculum.—I am, etc.,

London, N.W.1, July 27th. H. GODWIN BAYNES.

"Nerve Energy"

SIR,—Without sharing Professor Burridge's dogmatism (*Journal*, July 22nd, p. 172), and without presuming to know all that was in Professor Howell's mind when he wrote the passage I quoted in my letter on "Nerve Energy" (June 10th), I venture to assert that Professor Howell was *not* thinking of the nerve-muscle preparation when he used the words in question (*Text-Book of Physiology*, ninth edition, Saunders, 1924, p. 134)—the context proves this. The section just before the one quoted has to do with the internal structure of the nerve cell *in situ*, and with the conduction of impulses through it; and the section which follows deals with the histology and biochemistry of fatigue of nerve centres—topics which do not arise out of a consideration of the isolated nerve-muscle preparation.

Professor Burridge ascribes to Professor Howell and to "the majority of physiologists" (among whom, I suppose, I am included) views about the behaviour of the cells of nerve centres which, I submit, are nothing short of a travesty of what we do in fact believe. It is dangerous to generalize about what the majority do or do not hold, but our leaders in this field—Sir Charles Sherrington and Professor Adrian, to name only two—have during the last few years shed a very great deal of light on neural and neuro-muscular rhythms.

As for myself, if there is one thing more than another which has interested me ever since 1890 it is spontaneous or inherent neural rhythms and protoplasmic rhythmicality in general. I have written of neural rhythms in my three books on "Nerves"; and in the work, *The Rhythms of Life and Other Essays in Science* (1929), Professor Burridge will find the whole of the first chapter devoted to a discussion (in popular but, I hope, not inaccurate language) of vital rhythms. I do not believe it true that the majority of physiologists have lost sight of the existence of the intrinsic rhythmicality of nerve centres, and that they regard these as inert until a stimulus rouses them to activity. The whole tendency of modern neurology is to recognize and render both visible and *audible* the precise rhythms of nerve impulses.

Both nerve energy and its rhythmic expressions I regard as realities, and in my letter of June 10th I was pleading for as much recognition of these things by the teachers in physiology as has already been accorded them by clinicians and psychiatrists.—I am, etc.,

Chiswick, July 21st. D. FRASER-HARRIS.

Obituary

E. COLLIER GREEN, O.B.E., M.R.C.S.

Senior Ophthalmic Surgeon, Derbyshire Royal Infirmary

We regret to announce that Mr. E. Collier Green, senior ophthalmic surgeon to the Derbyshire Royal Infirmary, died on July 30th, after a long illness, in the institution to which he had devoted so much time and thought.

Edwin Collier Green was born on September 30th [illegible] near Rawdon in Yorkshire, his father being the Rev. S. G. Green, D.D. After leaving school he studied architecture for a short time, but eventually entered St. Thomas's Hospital, and obtained the M.R.C.S. diploma in 1881. In July, 1882, he was appointed assistant to the house-surgeon at the Derbyshire Royal Infirmary, the minutes recording that the post was tenable for six months; and thus commenced a career, lasting over half a century, which has done more than that of any other individual to mould the destinies and add to the prestige of that hospital. He served as house-surgeon until 1887. He then went to Moorfields, now the Royal London Ophthalmic Hospital, to make a special study of diseases of the eye, and in 1888, when the governors of the Infirmary decided to open an ophthalmic department, Mr. Collier Green was chosen as the first honorary ophthalmic surgeon. He established and maintained an up-to-date clinic, gaining the confidence and respect of the profession in the district in this and also in his private consulting practice, being actively engaged in both until his last illness. For a number of years he held the post of honorary ophthalmic surgeon to the Burton-on-Trent Infirmary, and gave his services to many other institutions in Derby, including the Children's Hospital, the Railway Servants Orphanage, and the Royal Institution for the Deaf and Dumb. He was one of the first ophthalmic referees under the Workmen's Compensation Act. During the war he was assistant county director of the Southern Area of the British Red Cross Hospitals, and in 1920, in recognition of his services, he was made O.B.E. He became county controller of Voluntary Aid Detachments.

He was the first secretary of the Derby Medical Society, in which he took an active interest; and in his year of office as president used his skill as a photographer to show a series of photomicrographs, at a time when they were something of a novelty. He filled the office of president of the Derby Photographic Society, and his knowledge of photography, the microscope, and the lantern was put to great practical use in professional work and scientific meetings. The confidence of the profession in the district was shown by their action in persuading him to remain chairman of the Derbyshire Division of the British Medical Association for two years in succession, in that exceptional time when the National Health Insurance Act was passing into law. At the Annual Meeting of the Association in 1905 he was vice-president of the Section of Ophthalmology.

With the busy life of a consultant in ophthalmology, and unfailing regularity of attendance at his hospital clinics, Mr. Collier Green found time for an amount of administrative hospital work the value of which cannot be overestimated. His knowledge of hospital architecture was wide and detailed, and the board of management came to rely on him for advice, both as to the efficiency and to the economy of any new building or structural alterations. His long term as chairman of the house committee is a tribute to its trust in him. Perhaps, above all, his colleagues on the honorary medical staff would like to say that their own unity, and the harmonious understanding which has existed at all times between themselves and the board of management, is largely to be attributed to Mr. Green's wise leadership. The whole profession locally will feel his loss. His advice was sought in all sorts of medical problems, private and public, and always given with kindly wisdom. To some he seemed a link with the past, but to all an active leader, always interested in new developments and using his influence to provide the latest scientific equipment demanded by the progress of medical science. His wife and only daughter survive him; the former was the eldest daughter of the late Rev. G. Curgenven, for many years honorary surgeon to the Derbyshire Royal Infirmary. His long association with St. John's Church, Derby, and many other private activities, have made him one who, though without public office, was a leading citizen as well as a leader of the profession. H. B.

JAMES CARMICHAEL, M.D., F.R.C.P.Ed.

Consulting Physician, Royal Hospital for Sick Children, Edinburgh

The death took place on July 24th, at his residence in Northumberland Street, of Dr. James Carmichael, one of the oldest and best-known practitioners in the city of Edinburgh. Dr. Carmichael was born at Edinburgh in 1843, his father having been also a practitioner of medicine. On the completion of his course in medicine he graduated M.D. in 1864, and he was one of the last survivors of those to whom this degree was given immediately upon completion of a medical course. After graduation he became resident physician with Professor Sanders in the Royal Infirmary of Edinburgh, and after a tour of study on the Continent he settled in practice at Burntisland, where he remained for some six years. Returning to Edinburgh in 1873, he devoted his attention specially to diseases of children, and he was one of the pioneer teachers in this department. He early became connected with the Royal Hospital for Sick Children at Edinburgh, where he was successively assistant physician, physician, and consulting physician.

Dr. Carmichael was the author of *A Manual of Diseases in Children*, published in 1893, and he contributed numerous articles to current medical literature, most of them dealing with disorders of childhood. For many years he was chairman of the Society for the Prevention of Cruelty to Children and a member of the League of Pity Committee, and he took a great deal of practical interest in these bodies, and devoted much time to increasing their efficiency. Although he conducted a wide and successful practice he occupied himself much in social events connected with the medical profession, and was a keen member of the Royal Company of Archers, in which he twice won the King's Prize. He was also an enthusiastic golfer, and for many years was a well-known figure on the links at Musselburgh, where he played every Wednesday in a medical foursome. He is survived by a widow, a son who is also a specialist in children's diseases, and by two daughters, while another son, who was a well-known Edinburgh surgeon, predeceased him some years ago.

THE LATE LIEUT.-COLONEL BROWN, I.M.S.

Sir Leonard Rogers writes: I should like to pay a brief tribute to the memory of my old friend Edwin Harold Brown, whom I knew well for two decades in Calcutta, and whose career was fully described in the *British Medical Journal* of July 22nd. In addition to holding high medical and surgical qualifications and occupying important civil surgencies in Bengal, Colonel Brown was well versed in indigenous drugs and was a high authority on Indian diets, so essential to success in practice among Indians. These qualities made him peculiarly well fitted for the physicianship and professorship of materia medica at the Calcutta Medical College, and it was much to the surprise of his many medical friends that he was passed over for

this post, with the result that he resigned from the service and very soon took the foremost place as a consultant in Calcutta, to the benefit especially of his numerous Indian patients, but to the serious loss of the I.M.S., with whose members, however, his genial personality and generous nature enabled him to maintain the friendliest relations. His decease is a serious loss to medicine in India, a country he understood and loved and to whose service he gave his best unstintingly.

Dr. JOHN MATHIESON MACMILLAN, who died recently, had been for many years chief dental surgeon to the Great Western Railway Medical Fund Society at Swindon. After studying medicine in Glasgow he obtained the L.D.S. in 1892, and the L.R.C.P. and S.Ed. and the L.R.F.P.S.Glas. diplomas in the following year. He then began practice as a dental surgeon in Glasgow, and in 1905 was appointed dean and lecturer in dental surgery at the Glasgow Dental Hospital and School; he was also examiner in dental surgery for the Royal Faculty of Physicians and Surgeons. At the Annual Meeting of the British Medical Association in 1910 he was vice-president of the Section of Odontology. In that year, owing to impaired health, he decided to take up fruit farming in British Columbia, but returned in 1915 to join the R.A.M.C., and acted as inspector of dental services to the Northern Command, with the rank of major. On returning to civil life he started practice at Wolverhampton, but after the death of his son, while a student at Guy's Hospital, he decided to devote the rest of his life to the service of the industrial classes, and accepted the post at Swindon.

MEDICAL BRANCHES OF THE SERVICES

REPORT OF WARREN FISHER COMMITTEE

The report of the committee appointed by the Prime Minister rather more than two years ago to inquire into the dearth of medical officers in the three Medical Services[1] has now been presented to Parliament. As announced elsewhere (p. 245) the matter will receive early consideration by the Naval and Military Committee of the British Medical Association. We print below a summary of the contents of the report.

SHORTAGE OF RECRUITS

The recruiting of doctors for the Defence Services has been unsatisfactory ever since the war, and the medical branches have been carrying on under great difficulties, with the assistance of retired officers and other medical men engaged on short term contracts. These could not be employed over-seas, and the regular officers have therefore had much more than their fair share of oversea service, and have also been deprived of the opportunities ordinarily given to them of taking specialist and other courses of advanced study. Improvements in the rates of pay of the Medical Services introduced on the recommendation of a committee which sat in 1925 and 1926 had no permanent effect in encouraging recruiting.

CONSTITUTION OF COMMITTEE

The Government accordingly decided in 1931 to set up an authoritative committee under the chairmanship of Sir Warren Fisher, Permanent Secretary to the Treasury, to ascertain the causes of the shortage of recruits, and to propose a remedy. It included the Permanent Under-Secretaries of State for War and India, the Permanent Secretaries of the Admiralty and the Air Ministry, an Assistant Secretary at the Treasury, the heads of the three Medical Services—Surgeon Vice-Admiral Sir Arthur Gaskell, Lieut.-General Sir Harold Fawcus, and Air Vice-Marshal J. McIntyre; two representatives of the civil profession—Professor George E. Gask of St. Bartholomew's Hospital, and Dr. A. M. H. Gray, Dean of University College Hospital Medical School; and Mr. Lindsay Scott of the Air Ministry as secretary.

The financial crisis of the autumn of 1931 prevented the committee making progress with its problem: while the effect of the abandonment of the gold standard was uncertain no useful conclusions could be reached as to the financial attractions that the Services needed to offer to compete effectively with civil medical employments.

REPRESENTATIONS OF THE B.M.A.

Before the committee was appointed representations in favour of substantial increases in the pay and pensions of the Medical Services had been made to the Admiralty, War Office, and Air Ministry by the British Medical Association, and had been published by the Association in the *British Medical Journal* of April 25th, 1931. The committee considered these representations, and also received a deputation from the Association, headed by Sir Henry Brackenbury.

MEDICAL STUDENTS' EVIDENCE

The Warren Fisher Committee was already aware from the minutes of the committee which sat in 1925 and 1926 of the views on its problem of the deans of the principal medical schools throughout the country. It appeared, however, that the most direct way of finding out the causes of the failure of recruiting was to ask those to whom recruiting appeals were actually made, and the committee therefore secured as witnesses two senior students from St. Thomas's, two from Guy's, two from University College, and two from St. Bartholomew's. This method of approach to the problem proved entirely successful, and the candid evidence of these young men gave the committee a clear and lively picture of the reaction of typical elements in the schools to the possibility of a career in the Services.

ALLEGED LACK OF PROFESSIONAL OPPORTUNITY

From the evidence it received the committee concluded that, while an important deterrent to recruiting was the lack of economic attraction of the career, a deterrent of equal importance was the strongly held belief that the career offers no adequate opportunity to a keen doctor to practise his profession. The effect upon recruiting of such an impression being obviously disastrous, the committee considered it of the first importance to correct the impression—and to correct it authoritatively—so far as it was proved to be wrong, and, so far as it was found to be right, to remove to the greatest degree possible the professional disabilities found to exist.

The committee accordingly asked Professor Gask and Dr. Gray to make an independent investigation into the opportunities for professional work provided by the Services as at present organized. This investigation, which extended to all types of posts in the three Services, proved that the belief that the Services provide no adequate professional opportunity was to a considerable degree erroneous. The conclusions which Professor Gask and Dr. Gray reached were that the opportunity of specialist work, though limited, was attractive, and that appointment to a major hospital provided opportunity of a kind only available to a limited number of general practitioners in civil life. On the other hand, they found that all the Services included, though to different degrees, posts which provided professional opportunity inferior, and sometimes much inferior, to that ordinarily expected in civil life. In that respect the Services were at a recruiting disadvantage with competing employments, the degree of the disadvantage depending on the proportion of an officer's total service that was spent in these posts. Further, the Services were at a disadvantage in that promotion to higher rank often involved the abandonment of professional for administrative duties.

ECONOMIC DISADVANTAGES

On the economic side the committee found that the career in the Services suffered from certain disadvantages. It was too short, and officers retired relatively young from the

[1] Cmd. 4394. London: H.M. Stationery Office. 1933. (9d.)

middle ranks could not educate their families satisfactorily on their pensions and could not easily obtain good civil employment. Moreover, promotion was too slow, and too few officers could reach the higher ranks. The amount of oversea service, or service afloat, and the frequency of moves were also disadvantages.

On the other hand, the investigations undertaken by the committee into the economic advantages offered by the principal types of competing employments, the Colonial Services, the Local Government Services, and general practice, did not lead it to conclude that these were greater than those of a Service career. As regards general practice, it expresses the opinion that, while it offers much greater prizes, the earnings of the average practitioner are not such as to make the career more attractive economically than that in the Services, and are less than was commonly supposed. The committee points out, however, that the different types of employment appeal to different types of men, and it thinks that life in the Defence Services attracts only a limited number of young doctors.

GENERAL CONCLUSION AND PROPOSALS

The committee's broad conclusion is that the Service career must be improved materially, both in the opportunity it provides for professional work and in the economic advantages it offers. The committee finds the means of effecting this dual improvement in a reorganization of the Services, and it is satisfied that such a reorganization can be effected without increase in their normal cost. It points out that the provision of additional money for the Medical Services from within the present total of Defence Votes means a reduction in the fighting strength of the Forces, and it is definitely unwilling to recommend any increased charge on the Exchequer.

Reorganization Recommended.—The committee proposes to reorganize the Services on the basis of a reduced total establishment of officers by the elimination of posts which provide insufficient professional work. Professional opportunity will further be improved under the new organization by the fact that all officers who make the Services their life career will be allowed to specialize, if qualified to do so; that specialists will be enabled to spend a considerable part of their career in practising their specialty; and that the opportunity to rise to the higher ranks without abandoning professional for administrative work will be largely increased.

Economic Improvements.—On the economic side, the reorganization will give earlier promotion, a larger proportion of officers reaching the higher ranks, a larger average pension, and a longer career. Thus in the Army the rank of lieut.-colonel will normally be reached about the age of 42, instead of about 48, as under the present organization, and colonel about 50, instead of about 53. Moreover, a large majority of officers will, in future, be enabled to reach the rank of colonel, and thus to retire with the larger pension of that rank. The ages of compulsory retirement are made the same in all three Services, and are such that no officer will be retired before 53, that a large majority will serve to 57, and a minority till 60.

Financial Value of Career.—Except for certain limited adjustments the committee recommends no alterations in the pay scales, which it considers to be well designed to give a satisfactory financial career, provided the length of the career and the prospects of promotion are improved as the reorganization which it proposes allows them to be. Quoting the case of the revised Army career, which it recommends as the standard for all three Services, it shows that the increase in emoluments resulting from its proposals amounts to an average of nearly £150 a year throughout the period of an officer's career between the ages of 35 and 50, when his family responsibilities are greatest. In the early and in the later years of the career the improvement, as compared with the emoluments of the present career, amounts to more than £50 a year.

Limited Number of Permanent Officers.—The committee emphasizes the duty laid upon the employing Departments not to enter more officers with the prospects of a life career than is justified by the number of posts of higher responsibility available for them later to fill. It considers that the present higher establishment is unduly restricted, and that the number of posts involving higher responsibilities justifies a substantial increase in the number of officers employed in the ranks of surgeon commander and surgeon captain, lieutenant-colonel and colonel, wing commander and group captain. Even, however, when this increase in the higher establishment is made, and when the reduction it recommends in the total establishment is effected, the proportion of senior to junior posts is too small to allow of all officers being entered for a life career. The effect of doing so would be to bring the Services back to their present condition, in which promotion occurs too late, too few officers get it, and too many retire from relatively low ranks and with correspondingly small pensions.

Short Service Entry.—Since the obligation to provide a career of adequate length and with adequate prospects of promotion appears to the committee to be an overriding one, it necessarily follows that some officers must be carried who will not be given a life career. It considers that the best way to carry a margin of non-permanent officers is to enter all officers in the first instance for short service. From these short service officers will be chosen each year the numbers to be retained for life careers with the prospects of promotion already mentioned. Those short service officers who do not desire, or are not chosen for, permanent retention will be transferred to the Reserves and given a gratuity large enough to assist them largely in buying a practice. The normal short service period in all three Services will be five years, on completing which a gratuity of £1,000 will be paid. In the Navy and Air Force, however, officers will be entered in the first instance for only three years and, if they retire after that period and do not serve on for five years, they will get a gratuity of £400.

Improved Professional Opportunity.—The committee is satisfied that the reorganization it proposes will place the Service career on a favourable basis as compared with competing civil employments in the quality and amount of the interesting professional work, both of a specialist and of a general character, which it offers. Coupled with the economic improvements which the reorganization will effect, it believes that the Services will be in a strong position to attract recruits of excellent quality from the medical schools.

Service Over-seas and Afloat.—In the reorganized Services a large proportion of the posts over-seas and, in the Navy, afloat, will be filled by junior officers to whom the opportunity to serve abroad or in a sea-going ship will be an attraction. The amount of such service falling on the officer of over six years' service will be reduced to modest proportions.

Mobilization.—The reserve provided by officers who are not retained for life careers will much more than make good the reduction recommended in the establishment of regular officers, and the committee therefore considers that the position of the Services on mobilization will be strengthened by the reorganization proposed.

Medical Scholarships.—Hitherto, the committee points out, officers and men have been able to put their sons into the combatant branches of the Services at favourable financial terms, but no assistance has been available as regards the medical branches, though the cost of providing a medical education is beyond the reach of many Service parents. It therefore recommends the creation at the expense of public funds of a small number of scholarships open to sons of members of the Forces who wish to enter the Medical Services. These scholarships will be administered for the Departments by the Lord Kitchener National Memorial Fund, and the same standards will be set for acceptance, both as regards ability and as regards need, as the Fund sets for the award of Kitchener Scholarships.

Effect on Existing Officers.—The committee wishes to make it clear that the improvements which its proposals will effect in the career open to future entrants cannot automatically apply to existing officers. The application of the proposals to these must be examined by the Departments, and the increased opportunities of promotion equitably distributed so as gradually to bring the ages of promotion down to the earlier ages recommended.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

Before Parliament rose for the Summer Recess on July 28th, the Royal Assent was given in the House of Lords to the Slaughter of Animals Act, the Local Government and other Officers Superannuation (Temporary Provisions) Act, the Manchester Royal Infirmary Act, the Middlesbrough Corporation Act, and the Samaritan Free Hospital for Women Act.

On July 25th the House of Lords in committee made further amendments to the Local Government and other Officers Superannuation (Temporary Provisions) Bill, read the Bill a third time, and returned it to the Commons, who accepted the amendments on July 26th. On the motion of the Earl of Kinnoull, the Lords amended Clause 1 to authorize that for computations under the Bill a reduction in remuneration could be disregarded if it took place between September 1st, 1931, and July 1st, 1932. The latter date was substituted for April 1st, with the consent of the Government. On Clause 5 (Interpretation) the Government accepted an amendment declaring "reduction in relation to remuneration includes a reduction by way of deduction or refund." Another amendment deleted the provision that in Scotland the limiting date should be May 16th, 1932. As stated above the Bill received the Royal Assent on July 28th.

Scarlet Fever in Scotland

Replying on July 26th to the Duchess of Atholl, Sir G. COLLINS said there were 13,458 cases of scarlet fever notified in Scotland in the first two quarters of 1932, and 13,317 in the first two quarters of 1933. The corresponding figures for 1930 and 1931 were 6,914 and 7,671 respectively. He was concerned at the continued prevalence of the disease. As a first step in the consideration of what further preventive or other measures might be taken to reduce the incidence, the Chief Medical Officer of the Department of Health for Scotland had arranged to confer at an early date with the medical officers of health of the areas most seriously affected.

Compensation for Road Accidents

The Road Traffic (Compensation for Accidents) Bill was before the House of Lords in committee on July 25th. Lord HALSBURY moved to insert in Clause 1, Subsection 1, "provided no damages shall be recoverable if the owner proves to the satisfaction of the court that the damages were not caused by any wrongful act of the owner."

Lord DANESFORT, in resisting the amendment, quoted the judgement of the House of Lords in the case of Rylands *v.* Fletcher, that "where a person brings upon his land anything which would not naturally come upon it and which is in itself dangerous and may become mischievous if not kept in control, though in doing so he may act without personal wilfulness or negligence, he will be liable in damage for any mischief thereby occasioned." That principle might be conclusively applied to the motor cars which caused 6,000 deaths and 200,000 injuries in one year.

Lord PLYMOUTH said Lord Halsbury's amendment would alter the whole purpose of the Bill, which contained proposals formulated by a Select Committee after very careful examination. The Government had come to no final decision on the principles of the Bill. He suggested that the Bill should be passed in its present form.

Lord HALSBURY's amendment was defeated by 41 to 5.

An amendment from Lord ELIBANK was accepted, which exempted an owner from liability for injuries caused by his car while unlawfully in the possession of some other person.

Lord HALSBURY moved to omit Clause 3, dealing with the amendment of Section 36 of the Road Traffic Act, 1930, with respect to payments to hospitals. He said this was not relevant to the Bill. Lord Moynihan had covered it in another Bill, drawn up in conjunction with the British Medical Association.

Lord DANESFORT said that Bill was solely for emergency treatment in hospitals and by doctors. This clause was for in-patients in really serious cases. Lord ELIBANK said Lord Moynihan was a party to Clause 3 being included. Lord LUKE said this clause was prepared by the British Hospitals Association and the King Edward's Hospital Fund, and sent back to the House in this amended Bill. The number of in-patients and out-patients using the hospitals in 1931 as a result of motor accidents was about 60,000. The total cost to the hospitals was estimated at £230,000. It was suggested that £25 should be the maximum charge the hospital should make, and that was now to be increased to £50. That average of about £4 a case in 1931 did not suggest there would be many £25 or £50 cases. Amendments relating to the conduct of solicitors and the application of the Bill to Scotland were discussed, and the committee stage ended.

Production of Clean Milk

In the House of Commons on July 27th, Dr. WALTER ELLIOT moved that the House approve the scheme under the Agricultural Marketing Acts, 1931 and 1933, for regulating the marketing of milk. He said the scheme contained special provisions with regard to certified milk and grade A (T.T.) milk producers, a small body that, for four or five years, had rendered conspicuous service in the interests of clean milk throughout the country. The special case of these producers was discussed with the promoters, and they gave an assurance that they would undertake to move the Board, when constituted, to except the sales of certified and Grade A and T.T. milks sold under those designations under Part VI of the scheme, and would undertake not to withdraw the exemption without the consent of the Government, unless a majority of the persons producing those milks desired that the exemption should be withdrawn. He would be prepared to consider any representations which the board might make for the revocation of this exemption, should the market increase or should the exemption appear contrary to the interests of other registered producers.

The House approved the scheme.

Industrial Hygiene

On July 28th, on the motion that the House of Commons adjourn, Mr. RHYS DAVIES discussed the report for 1932 of the Chief Inspector of Factories and Workshops. He said the Home Office had hardly commenced to establish a health and medical department covering factories and workshops. The result was that the improvement in the health of the community as a whole was more rapid than the improvement in the welfare of those employed in factories and workshops. Accidents due to transmission machinery showed an increase. The inspectorate was not adequate, and vacancies in it had not yet been filled. The Home Secretary should ask the Medical Research Department of the Home Office to cause inquiries to be made into the effect of the six-loom system on the health of weavers. Statistics of fatal and non-fatal accidents should also show the number of people employed in that section of industry. The figures for the chemicals, paints, colour and varnish, and glue-making sections of industry were ominous. So were those relating to docks and building operations. Regulations respecting those operations should be brought up to date. An increase of fourteen cases of lead poisoning was attributed to shipbreaking, and some means could have been found to prevent it arising. The passing of the Lead Paint Act had reduced the cases of lead poisoning in painting from sixty-four in 1931 to forty-three in 1932. Figures for industrial cancer were distressing. There were 131 cases with forty-four deaths reported during the year from ulceration of the skin within the ambit of industrial cancer; thirty-three cases with one death from pitch; thirty-seven cases with eighteen deaths from tar; one from paraffin, and sixty cases with thirty-five deaths from oil. Of these sixty cases from oil, fifty-seven occurred among cotton mule-spinners. Had any progress been made in preventing this disease? Why should there have been ten fatal cases at one nickel works? There was cancer among dye-workers in Huddersfield. In the year 1932 there were 323 deaths from asbestosis or silicosis, with or without tuberculosis. It behoved the Home Office to be more alert. Some diseases caused

101 Surgical Treatment of Malignant Suppurative Phlebitis

G. Schöne (*Deut. med. Woch.*, April 21st, 1933, p. 616) advocates the routine practice of proximal ligature of veins infected secondarily from neighbouring suppurating foci. He has ligatured the internal saphenous and cephalic veins frequently in order to prevent pyaemic thrombi passing into the blood stream. The majority of these patients were robust young men, and their clinical symptoms were severe. The operation consists in radical extirpation of the entire venous tract until healthy vein is reached. He has excised the internal saphenous vein from the instep to the saphenous opening, and the cephalic vein from the forearm to the deltoid. Some cases healed by first intention, but in others severe complications ensued—large metastatic abscesses or pyarthrosis of small or large joints. In some instances the operation failed and fatal pulmonary metastases followed. Schöne has resected the femoral vein for suppurative phlebitis following a gunshot wound in the middle third of the thigh; also the angular vein for malignant boil on the face. He refers to the successes attending numerous cases of ligature of the jugular vein for lateral sinus thrombosis, complicating otitis media. Schöne describes a case of parametritis in which, on the tenth day, he exposed both common iliac veins extraperitoneally. The right hypogastric vein was evidently inflamed and adherent, though not entirely thrombosed. The right common iliac vein was scarcely affected macroscopically. A two-inch length of the vein was resected. The proximal ligature was close to the vena cava. On the left side the great veins were not obviously inflamed, although there were small thrombi in the ureteral venous plexus. The same procedure was followed as on the right side. Both wounds were carefully packed with gauze. The muscles were approximated with catgut sutures; the skin incisions were not closed. After the operation the temperature fell rapidly; further progress was uneventful. He has had eight similar puerperal cases with three deaths. In three cases the vena cava was ligatured. All these patients had rigors, and the prognosis was very grave. In view of the high mortality in such cases and of the prolonged illness of patients who recover it is claimed that the results attained justify the heroic measures.

102 "March Foot"

J. S. Spred and T. H. Blake (*Journ. Bone and Joint Surg.*, April, 1933, p. 372) identify under the name of "march foot" what they describe as a definite clinical entity, comprising a painful swelling of the forefoot, often associated with an insidious fracture occurring spontaneously in one of the metatarsal bones. Following excessive foot strain there is pain in the forefoot with tenderness over the anterior portion of the second or third metatarsal. A definite swelling ensues, which yields to rest, but the symptoms recur. There are two clinical groups. In the first the condition progresses to oedematous swelling over the dorsum of the foot and localized tenderness over the affected metatarsal. After a week or ten days the foot returns to normal. In the second group the onset is similar, but there are subsequent stages of periosteal proliferation, spontaneous fracture, and excessive callus formation. After two or three months the fracture unites, the callus condenses and disappears, and the bone appears to be perfectly normal clinically and radiologically. The author reports a series of ten fractures in nine patients. He defines the *x*-ray appearances as follows. Soon after the onset there is no bony change, but after two or three weeks there is observable a little periosteal fuzziness at the site of the beginning fracture. A short time afterwards the periosteal shadow becomes more distinct and circumscribed, and the irregular outline of the fracture is usually clearly visible. Signs of union develop next, with circumscribed callus which may be mistaken for sarcoma. Treatment includes rest and hot applications, followed by toe exercises or strapping. Arch supports may be necessary. The average disability, where fracture has occurred, is from four to eight weeks.

Therapeutics

103 Treatment of Malaria

W. Fletcher (*Trop. Dis. Bull.*, April, 1933, p. 193) reviews the literature relating to the newer lines of treating malaria, with special reference to the synthetic drugs. The experiments which led to the isolation of plasmoquine are summarized. In subtertian malaria this derivative of amino-quinoline was found to destroy all forms of *P. vivax* and *P. malariae*, and the gametocytes of *P. falciparum* in the peripheral blood. By itself it had, however, no destructive action on the schizonts, and was therefore associated with quinine. It was found to be more effective than quinine in benign tertian and quartan malaria, reducing the relapse rate materially, but certain strains of parasite appear to be resistant. Plasmoquine acts also as a prophylactic, but it is possible that the dose required for complete protection is too large to be safe. The toxic action of this drug is more pronounced than was at first supposed, and symptoms of poisoning may start abruptly. A reasonably safe daily dose is said to be about 0.03 gram, provided that it is given for a period of not longer than six or seven days without a break. Fletcher concludes that the real value of this drug lies in its power to cure rather than to prevent the spread of malaria. Atebrin is safer; the usual dose is 0.1 gram three times a day, twice this amount being generally well tolerated. It destroys all forms of benign tertian and quartan parasites, and also the schizonts of malignant tertian, but leaves the crescents untouched. One of its great advantages is that a short course of five days' treatment appears to be as efficient as a long course of quinine. Stovarsol is said to be of great value in chronic cachectic malaria, but only acts on the benign tertian parasite, and is usually combined with quinine.

104 Treatment of Typhoid Carriers

T. Kjellstrand (*Hygeia*, April 30th, 1933, p. 295) gives an account of two paratyphoid B carriers and five typhoid carriers on whom cholecystectomy was performed. The attack of paratyphoid or typhoid fever responsible for the carrier state had occurred from two to thirty-three years earlier. In five of the seven cases the infection had been conveyed by the carriers to isolated persons, or in small epidemics. In three cases the infection had been conveyed through milk or other food handled by the carriers in the course of their work. All of them were women, and as many as five of the seven had been subject to ailments, such as abdominal pain, referable to the gall-bladder. Evidence of cholecystitis was found in four cases at the operation; in one of these cases the gall-bladder was the seat of an early adenocarcinoma. The motions ceased to contain enteric bacilli after the operation in four cases. The author has also collected several cases from the literature—ninety-one in which cholecystectomy abolished the carrier state and thirty in which it failed to do so. Of sixteen cases already published in which only cholecystostomy was performed, nine ceased to be carriers. Discussing the indications for cholecystectomy in typhoid carriers, the author distinguishes between those who are personally embarrassed by coincident signs of inflammation of the gall-bladder and those who are not. For the former class the problem is comparatively simple; cholecystectomy should be performed as early as possible in the hope of later complications being avoided. But when a carrier is symptom-free, the decision for or against cholecystectomy should be taken only after the pros and cons have been carefully considered in each case.

105 "Free Diet" in Diabetes

K. Stolte (*Med. Klinik*, April 21st, 1933, p. 561) advises that all diabetics—even children—should be permitted a greater choice of food, while glycosuria and hyperglycaemia are controlled by appropriate doses of insulin. Children on a "free diet" continue to thrive, and occasional carbohydrate excess does not disturb the

"total" metabolism. It is evident that such a diet satisfies a systemic need which cannot be assessed; the patient's appetite is a guide to the quantity of albumin, fats, and carbohydrates that he can assimilate. Stolte anticipates that these revolutionary ideas will evoke opposition. His former practice was based upon the experience of the pre-insulin period, when diabetes and derangement of carbohydrate metabolism were thought to be so closely connected. He believes that the current teaching that faulty degeneration of the liver in diabetes results from disturbance of carbohydrate metabolism is incorrect. The overloading of the liver with fat may be due to absence of other vitally important substances besides insulin. A remarkable fact has been noted by various observers—namely, that the diabetic who receives a dietary rich in carbohydrate requires less insulin than the patient who has an excess of fat in his diet. Such excess may inhibit the action of insulin. This places the question of fat metabolism in diabetes in an entirely new light. The formation of acetone bodies from fats was formerly the most alarming symptom of diabetes. Though this danger is now less, there is, it is stated, incontestable evidence that excess of fats will produce hyperglycaemia in healthy persons as well as in diabetics, and that therapeutic failure has been described frequently as an expression of "insulin resistance." Stolte hopes that it will soon be recognized that the administration of an excess of fats is a therapeutic error closely analogous to the administration of common salt to patients suffering from nephritis accompanied by oedema.

Laryngology and Otology

106 Allergy in certain Oto-Laryngological Conditions

J. A. WATSON (*Minnesota Med.*, June, 1933, p. 390) calls attention to various diseases of the throat and ear which are attributable to an increased irritability of smooth muscle or increased capillary permeability, or to the association of both. This allergic state has long been recognized as being concerned in nasal conditions such as rhinitis, but there are still too many instances of surgical intervention in cases due to bacterial or protein sensitization. The author states that he never examines a case of ear trouble without a careful inquiry into the personal and family history as regards allergy. He suggests that many of the acute exudative recurring forms of mild so-called middle-ear catarrh may be no more than the allergic transudation of fluids loaded with colloids, amino-acids, urea, uric acids, and creatine through abnormally permeable capillaries. This might well result in a chronic condition of the mucous membrane analogous to what is found in the nose and nasal sinuses, and induce progressive deafness. An injury to the auditory nerve might follow a similar transudation into the labyrinthine spaces. Certain forms of what are at present regarded as inflammatory conditions of the larynx and pharynx may have a similar aetiology. Watson discusses the work of Barber and Oriel in connexion with a possibly specific proteose obtained from the urine. He endeavoured without definite success to use this substance therapeutically, and was unable to confirm its specificity. He adds that in these cases the possibility of the existence of "physical allergy"—to heat, cold, and light—should not be overlooked.

107 Latent Pharyngeal Carcinomata

According to P. C. HUET (*Presse Méd.*, June 7th, 1933, p. 908) cancers arise in the rhino-, oro-, and laryngo-pharynx which cause no subjective phenomena or functional trouble for a more or less lengthy period; the first sign is a cervical adenopathy. These latent neoplasms are of frequent occurrence and are often undiagnosed. In cervical adenopathies, probably secondary, with absence of all functional signs indicative of a precise localization, every cavity (the mouth, nasal fossae and sinuses, pharynx, larynx, and oesophagus) tributary to the involved ganglia should be systematically explored. The elective sites of crypto-cancers with a cervical ganglionic onset are the three divisions of the pharynx, and, in order of frequency, the peritubal region and vault of the cavum, the palatine tonsils, and the piriform sinuses. In the cavum the tumour can be hidden in the folds of an hypertrophied pharyngeal tonsil, or in one of the depressions surrounding the pharyngeal orifice of the tube. Rhinoscopy and palpation often prove negative, and salpingoscopy alone ensures an exact investigation of this region. Examination of the piriform sinuses is usually easier, and the laryngoscopic mirror often suffices for the examination of these cavities. If results are negative direct hypopharyngoscopy should be performed, and subsequently a radiograph in profile should be taken. The latter will show in the infiltrations of the sinuses an enlargement of the crico-vertebral space extending to the retrocricoid region. Simple inspection by digital palpation will reveal any anomaly of the palatine tonsil. Examination with the stylet is also of practical use. Huet insists that a single negative examination is of no value unless all means of investigation, including biopsies, have been employed.

108 Malignant Disease of the Ear

P. SOBEL (*Thèse de Paris*, 1933, No. 147), who records twelve illustrative cases in patients aged from 3 to 86, states that malignant disease of the ear is a rare condition, the gravity of which varies according to its situation and the stage at which the diagnosis has been made and treatment commenced. The most frequent form is cancer of the external ear, the prognosis of which is usually favourable, as its course is prolonged and the surgeon is able to operate in time. If the middle ear is invaded a cure may be effected by a petro-mastoid operation followed by application of radium, but if the whole of the mastoid process and the skin covering it is involved, a fatal issue is almost the rule, however extensive the operation. Data concerning malignant disease of the internal ear are scanty, diagnosis is very difficult, and the treatment unsatisfactory.

Obstetrics and Gynaecology

109 Chordotomy for Inoperable Carcinoma Uteri

According to F. SCHÜCK (*Zentralbl. f. Gynäk.*, April 22nd, 1933, p. 913) pelvic pain can be cured by the operation of chordotomy—that is, surgical division of the ascending tracts of the spinal cord, in which sensations of pain are conveyed. The operation is indicated in patients with inoperable carcinoma of the uterus, to whom present-day treatment by combined operation and radiation gives a comparatively long survival period of up to three years or even longer. The necessary use of morphine and anti-neuralgic drugs to control the pain in these women is harmful to the general condition, and renders the patient incapable of living a natural life; these disadvantages can be avoided if chordotomy is done soon after treatment of the neoplasm, narcotics being reserved for the terminal stages. Schuck describes the technique of the operation, in which bilateral partial resection of the antero-lateral bundles cuts out the crossed pain impulses without affecting muscle sense and spatial perception. He has done the operation in twenty-five patients, with one death, no instance of muscular paralysis, and no recurrence of pain. Rarely, a unilateral operation may be done in cases in which the pain is confined to one side.

110 Tumours of the Round Ligament

F. HORINE (*Amer. Journ. Obstet.*, April, 1932, p. 446), who reports a personal case, has collected thirty-six cases of the different types of tumours of the round ligament which have been reported since 1914. The ages of the patients ranged from birth to 76 years, the average age in thirty-one cases being 38 years. In twenty-two the tumour occurred on the right side, in nine on the left,

and in two was bilateral, while in three the situation was not recorded. The symptoms were as a rule very slight and consisted chiefly of pain at the site of the tumour during menstruation. The nature of the tumour in thirty cases was as follows: fibroma, six cases; fibromyoma, five; adenomyoma, four; dermoid cyst, fibrosarcoma and sarcoma, Wolff's tumour and varicosities, two cases each; and cystic fibroma, cystic lymphangioma, fibroleioma, leiomyoangioma, fibromyosarcoma, osseous tumour, fibromyxoma, fibromyxoleioma, lipoma, lymph gland in ligament and tuberculous cyst, one case each. Horine's patient was a married woman, aged 54, the mother of three children at full term, who had had a swelling in each inguinal region for a year before admission to hospital. A diagnosis of bilateral hydrocele of the canal of Nuck was made, and operation was performed on the right side. A hydrocele of the canal of Nuck was found and removed, while on the left side an encapsulated fatty tumour was found adherent to the extraperitoneal portion of the round ligament, from which it was separated. The issue of the case is not recorded.

111 Obesity and Pregnancy

S. Davidovici (*Thèse de Paris*, 1933, No. 144), whose work is based on sixty-two cases observed at the Baudelocque Maternity Hospital, Paris, during the period 1923–32, states that among 26,100 admissions the association of obesity and pregnancy, while not very frequent, is not exceptional. Apart from increase in weight the pregnancy in such cases is characterized by frequency of renal complications, though they are not usually of a severe character. The obstetrical diagnosis is usually difficult owing to the thickness of the abdominal wall. Labour is generally protracted and more frequently difficult than that in women who are not obese. The dystocia may arise at the engagement of the foetal head in the pelvis, and it is very frequent to encounter difficult delivery of the shoulder. Delivery does not always take place naturally, as considerable haemorrhage may occur and necessitate artificial delivery. Owing to the frequency of difficult labour the maternal death rate is fairly high on the days immediately following delivery. The children have always a weight heavier than normal. The causes of difficult labour in the cases are numerous—namely, poor quality of the muscles of the abdominal wall, lack of engagement of the head, the presence of masses of fat in the pelvis (reducing the normal diameters), feeble uterine contractions, and excessive size of the child. Although the prognosis is often gloomy, numerous obese women have a normal delivery. As a general rule such patients should be delivered in a maternity hospital. If operation is required the most rapid method should be chosen and spinal anaesthesia should be employed.

Pathology

112 Combined Test for Liver and Kidney Function

Elek and Oppenheimer showed that after a dose of galactose the urine secreted during six hours by patients with hepatic disease fell far short of that secreted by normal subjects in similar circumstances. Meczner (*Wien. Arch. f. innere Med.*, 1933, Bd. 23, p. 401) reports similar results after investigating nineteen hepatopathies, six cases of renal disease, and eight normal controls. The patients received 40 grams of galactose in 1 litre of water in the morning before food, and the urine was collected hourly for six hours and then after a further six and twelve hours. The volume of urine, its specific gravity, and its galactose content were determined. The simultaneous testing of both liver and kidney function was desirable, since, in certain diseases, both are disturbed—for example, in Weil's disease, in pregnancy, etc. In normal subjects 50 to 100 per cent. of the fluid is excreted in the first two hours, whilst in liver diseases only 6 to 40 per cent. is excreted in the same time. The later course of the excretion is the same in both normal and abnormal cases. In liver disease the total excretion of the fluid may still not have occurred even after twenty-four hours. The simple Volhard test with water alone does not show the liver deficiency so well, since up to 70 per cent. of the fluid may be excreted in two hours. In normal cases and those with hepatic disease the specific gravity of the urine in this test falls by from 10 to 20 points, even when 40 to 60 per cent. of the fluid is retained, but in severe renal disease it remains unchanged or even rises because of the excretion of galactose. In combined renal and hepatic disease the excretion of galactose continues at a relatively high level for longer than in either normal or hepatic subjects. In partial explanation of these phenomena in liver disease the author found that the water content of the blood in such conditions as cholelithiasis, congestion of the liver, cirrhosis, etc., was between 78 and 80 per cent., whilst normal blood contains 83 to 87 per cent. water.

113 Kahn and Wassermann Reactions

C. Raffaele (*Giorn. di Batteriol. e Immunol.*, April, 1933, p. 735) made a comparative study of the Kahn precipitation reaction and the Wassermann reaction in 200 patients, of whom 100 were syphilitic and 100 not syphilitic. The results were as follows: In seventy both reactions were positive and in 111 both negative, in seven the Wassermann reaction was positive and the Kahn reaction negative, and in twelve the Wassermann reaction was negative and the Kahn reaction positive. In 181 cases, therefore, or in 90.5 per cent., the results of the two reactions were the same. In six of the seven cases when the Wassermann reaction was positive and the Kahn reaction negative the disease was not syphilis, while in most of the cases in which the Wassermann reaction was negative and the Kahn reaction positive latent or cured syphilis was present. Raffaele comes to the conclusion that the Kahn reaction, in addition to possessing a simple and rapid technique, is more sensitive than the Wassermann reaction, with which it should therefore always be associated in clinical examinations.

114 Serum-Virus in Vaccination against Yellow Fever

H. B. Aragao (*C. R. Soc. de Biol.*, April 27th, 1933, p. 1471), having previously satisfied himself that in order to obtain a firm immunity to yellow fever it is essential to use the living virus, has carried out a few experiments to determine which is the most reliable method of preparing the vaccine. The proposal, made by certain workers, that mouse-brain virus should be inoculated in a small dose, was examined. Experiments with monkeys showed that even after the virus had been passed through over 200 mice it was still capable of producing fatal infection, and that the blood of monkeys so vaccinated could be shown either by the mouse test or by feeding mosquitos to contain the virus. Attention was therefore directed to the use of serum-virus mixtures. Two human subjects were injected subcutaneously with a mixture of 4 c.cm. of immune human serum and 0.001 gram of fresh mouse virus. Both of these subjects experienced a fairly definite febrile reaction a week later, and in the blood of one of them the virus was shown to be present by the mouse test. Both of them developed antibodies, and their blood serum became capable in a dose of 2 c.cm. of protecting monkeys against infection with 0.001 c.cm. of virulent blood. Three more human subjects were given a preliminary dose of 3 c.cm. of immune serum, followed six hours later by the serum-virus mixture. The subsequent reactions appeared to be less severe, virus was not demonstrated in their blood, and a month later their serum protected monkeys in a dose of 2 to 6 c.cm. One of these subjects was later given a dose of 0.001 gram of mouse virus without accompanying serum; no febrile reaction occurred, and the titre of his serum rose. The author therefore favours vaccination with serum-virus mixtures, combined with a preliminary injection of serum.

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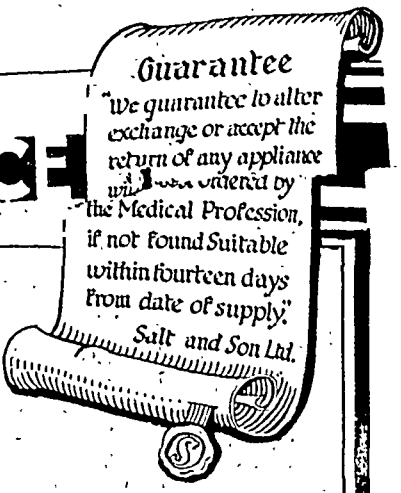
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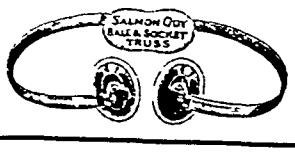
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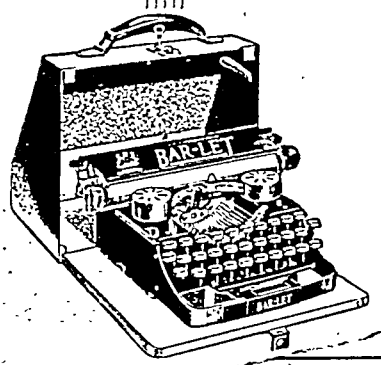
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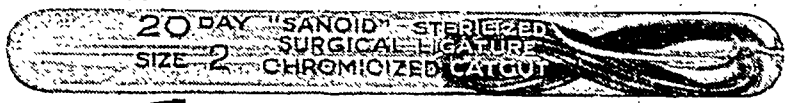
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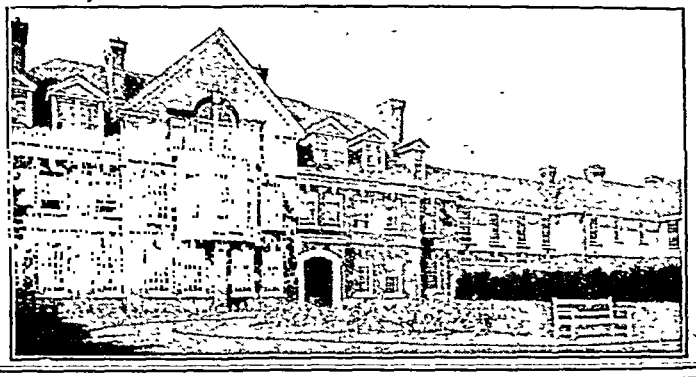
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PRE-REGISTRATION MEDICAL AND DENTAL EXAMINATIONS.

The necessary courses of Instruction in Chemistry and Physics and in Biology may be attended in the University.

For syllabus and further information apply to STANLEY BARNES, M.D., D.Sc., F.R.C.P., Dean.

UNIVERSITY OF LONDON, UNIVERSITY COLLEGE.
FACULTY OF MEDICAL SCIENCES.

SPECIAL COURSE FOR THE PRIMARY FELLOWSHIP EXAMINATION OF THE ROYAL COLLEGE OF SURGEONS.

Special SHORT COURSES in ANATOMY and PHYSIOLOGY will begin on Wednesday, August 30th, 1933, in preparation for the December Examination.

ANATOMY: J. KINK, M.B., Ch.B., F.R.C.S.E.
PHYSIOLOGY: H. BARCROFT, M.A., M.R.C.S., L.R.C.P.

The Course in Anatomy (including Embryo[illegible] [illegible]ures and demonstra[illegible] [illegible]mitted to use the [illegible] seum of Anatomy at [illegible] in Physiology, Bio[illegible] consists of lectures [illegible] together with revision of practical work in those branches of the subject which are of particular importance in Medical Practice.

Full particulars may be obtained on application to—

University College, London. C. O. G. DOUIE, Secretary.
(Gower Street, W.C.1.)

WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.1.

THE "WANDER" SCHOLARSHIP IN DISEASES OF CHILDREN

Applications are invited for the office of "WANDER" SCHOLAR, REGISTRAR, and CLINICAL PATHOLOGIST to the Children's Department. Salary £250 per annum. Duties to commence September 1st. Candidates must be registered Medical Practitioners, who have held a resident Hospital post or posts, one of them preferably in diseases of children. The office is a whole time one, and is tenable for one year. Applications (six copies), together with six copies of three recent testimonials, should be submitted to the undersigned (from whom further details regarding the duties of the office can be obtained), not later than Friday, August 11th.

By Order of the House Committee,
CHARLES M. POWER, Secretary.

M.D. THESIS

(Camb., Edin., Glas., Durham, &c.)

SKILLED COACHING, GUIDANCE, and ADVICE from Special Tutors, in conformity with the Regulations of the various Universities.

Apply for particulars and free booklet, "Hints on Writing a Thesis for the M.D. Degree," to the SECRETARY, Medical Correspondence College, 19, Welbeck Street, London, W.1.

THE CANCER HOSPITAL (FREE),

Fulham Road, London, S.W.3.

UNIVERSITY OF LONDON
DIPLOMA IN MEDICAL RADIOLOGY.

A course of study in Physics and Radiology qualifying for the Diploma in Medical Radiology of the University of London will begin on October 10th, 1933, at the Cancer Hospital (Free), Fulham Road, S.W.3.

Full particulars can be obtained on application at the above address to Professor J. M. WOODBURN MORISON, or from the undersigned.

CLEMENT COBBOLD, Secretary.

THE QUEEN'S UNIVERSITY, OF BELFAST.

JOHN DUNVILLE RESEARCH FELLOWSHIP IN EXPERIMENTAL PATHOLOGY.

Applications are invited on or before September 18th, 1933, for the above post.

Applicants must be of British nationality and hold a registrable medical qualification.

Salary £350—£500 a year according to experience.

Conditions of appointment can be obtained from the Secretary, Queen's University.

THE KING EDWARD VII WELSH NATIONAL MEMORIAL ASSOCIATION.

Applications are invited for the posts of half-time ASSISTANT TUBERCULOSIS OFFICERS (three in number) to be attached to the Cardiff, Newport, and Pontypridd areas respectively, and commencing duty on October 1st next. The appointments are limited to one year at a remuneration for the year of £250, subject to an emergency deduction of £6 10s. During their tenure successful candidates will be expected to take during the other half of their time the Course for the Diploma in Tuberculosis Diseases (Wales) at the Tuberculosis Department, Welsh National School of Medicine, and afterwards sit the examination.

Applicants must have held a house appointment in medicine or surgery, for at least six months in a general hospital, and must also have held either a post as resident for a period of 12 months in an institution for the treatment of tuberculosis (medical or surgical) or a period of whole-time work accepted by the Senate as equivalent thereto.

Applications, stating age, qualifications, and previous experience, together with copies of three recent testimonials, to be sent to the undersigned not later than August 31st.

Memorial Offices, Westgate Street, Cardiff. D. A. POWELL, Principal Medical Officer.

LURGAN UNION (NORTHERN IRELAND).

Applications are invited for the post of MEDICAL OFFICER of the LURGAN INFIRMARY.

Candidates must possess the Fellowship of one of the Royal Colleges of Surgeons.

Full scope for private and consultant practice will be allowed. The present Hospital is in process of reconstruction and will be available for the treatment of private patients. The salary is £300 per annum, with £25 for giving lectures to Probationer Nurses.

Applications, with testimonials, and certificates of registration will be received by the undersigned up to 10 o'clock a.m. on Aug. 17th.

By Order,
J. CALVERT,
Clerk's Office, The Union, Lurgan (N.I.). Clerk of Union.
July 25th, 1933.

COUNTY COUNCIL OF THE ISLE OF ELY.

APPOINTMENT OF SCHOOL DENTIST.

The Education Committee of the above Council require a School Dentist to commence duties at an early date. Salary £500 per annum. Candidates must be able to drive a motor van (equipped as a dental clinic). Further particulars can be obtained on application to the undersigned. Applications, giving details of qualifications, experience, etc., together with copies of not more than three recent testimonials, must be sent so as to reach the undersigned by first post on September 2nd.

Education Dept., County Hall, March. E. J. P. OSBORNE, Director of Education.

METROPOLITAN BOROUGH OF GREENWICH.

APPOINTMENT OF TUBERCULOSIS OFFICER FOR THE COUNCIL'S DISPENSARY AND ASSISTANT MEDICAL OFFICER OF HEALTH.

The Council of the above Borough will, at its meeting to be held on September 20th, or at an adjournment thereof, proceed to the appointment of a Tuberculosis Officer for the Council's Dispensary and Assistant Medical Officer of Health, and applications are invited for the appointment.

Candidates must be registered Medical Practitioners who, prior to April 1st, 1930, have held the appointment of Tuberculosis Officer or Medical Superintendent with the approval of the Minister of Health, or who, subsequent to qualification, (1) have had at least three years' experience in the practice of his profession; (2) have spent in general clinical work a period of not less than eighteen months, of which not less than six months have been spent in a Hospital as Resident Officer in charge of beds occupied by general, medical, or surgical cases; and (3) have received special training, for a period of not less than six months, in the diagnosis and treatment of Tuberculosis. Candidates must possess a Diploma in Public Health.

The person appointed will have charge of the Tuberculosis Dispensary under the administrative direction and control of the Medical Officer of Health, shall be personally responsible for the diagnosis and treatment of all patients at the dispensary, shall carry out the duties of Tuberculosis Officer, and shall visit for the purpose of keeping observations on his own patients, but not generally for domiciliary treatment. He shall be available for consultation with general practitioners, and shall act as Medical Officer to the Tuberculosis Handicraft Centre and the Tumour Diagnostic Clinic.

He shall perform such duties as may be considered necessary by the Medical Officer of Health.

The inclusive commencing salary will be at the rate of £750 per annum, rising by biennial increments of £50 to a maximum salary of £1,000 per annum.

The successful candidate will be required to devote the whole of his time to the service of the Council, shall not engage in private practice, and shall reside within the Borough.

The appointment will be terminable by three months' notice in writing on either side, and will be subject to the provisions of the Council's Superannuation Act.

Applications must be made on forms to be obtained from the undersigned, stating age, qualifications, and experience, accompanied by not more than three recent testimonials, must be sealed up and endorsed outside "Medical Officer," and must reach me not later than 10 a.m. on Monday, August 21st.

Canvassing members of the Council, either directly or indirectly, will be a disqualification, but there would be no objection to a candidate, if he so desires, sending copies of his application and testimonials, which may be addressed to the Town Clerk.

Stamped addressed foolscap envelope must accompany application for form.

F. J. SIMPSON,
Town Hall, Greenwich Road, S.E.10. Town Clerk.
July 21st, 1933.

COUNTY BOROUGH OF BIRKENHEAD.

DEPARTMENT OF THE MEDICAL OFFICER OF HEALTH.

BIRKENHEAD INFIRMARY.

RESIDENT MEDICAL OFFICERS.

There are at present vacancies for Resident Medical Officers at the above Hospital. (550 beds.) Candidates must be male and unmarried.

Salary £300 p.a., with residence, board, and laundry. The appointments will be tenable for one year.

Applications must be made on forms to be obtained from Dr. D. MORLEY MATHIESON, Medical Officer of Health, 9, Hamilton Sq., Birkenhead, and must reach me not later than Saturday, August 19th.

E. W. TAME,
Town Hall, Birkenhead. Town Clerk.

WEMBLEY HOSPITAL.

Applications are invited for the post of RESIDENT MEDICAL OFFICER, unmarried and fully qualified. Previous experience in similar post an advantage. 43 beds (9 private), being extended to 51 beds. Salary £150 per annum, the appointment being for six months, with eligibility for reappointment. Quarters now being built, and until finished (December), suitable arrangements will be made adjacent to Hospital. The successful candidate will be required to commence duty during the first week in October. Applications, stating age, qualifications, and experience, together with copies of two recent testimonials, should reach the undersigned on or before August 23rd.

C. A. PAINES, Secretary.

URBAN ... ERTON AND
URBAN ... SHALTON

JOINT APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

Applications are invited for the appointment of Medical Officer of Health, subject to the provisions of the Public Health (Officers) Act, 1921, and the Sanitary Officers Order, 1926. Candidates must not be more than 45 years of age.

The person appointed will be required to perform all the duties imposed on a Medical Officer of Health under relevant Acts and Orders, and shall be responsible to the respective Councils, in a supervisory capacity or otherwise, for Maternity and Child Welfare work in each of the above-named districts, and will also be required to carry out all such duties as the respective Councils may, with the consent (if necessary) of the Ministry of Health, from time to time direct.

The person appointed must reside within the Urban District of Merton and Morden; must not engage in private practice and must devote whole time to the duties of the office.

The appointment will be subject to the approval of the Ministry of Health; will also be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

The inclusive salary will be £900 per annum, with no allowance for travelling expenses, but office accommodation, stationery, and clerical assistance will be provided by each authority.

Applications, stating age and date of birth, qualifications, and experience, accompanied by copies of not more than three recent testimonials, should be addressed to the Clerk, Council Offices, Kingston Road, Merton, S.W.19, so as to reach him not later than 12 o'clock noon on Monday, August 21st, endorsed "Medical Officer of Health."

Canvassing, in ar ... is prohibited, and will

C. J. MOUNTFORD,
Clerk of the Merton and Morden U.D.C.
J. W. WRIGHT,
Clerk of the Carshalton U.D.C.
July 29th, 1933.

CITY OF LIVERPOOL.

PATHOLOGIST.

Applications are invited for the appointment of full-time Pathologist at the WALTON HOSPITAL, Liverpool, at an inclusive salary of £750 per annum, subject to temporary deduction as authorised by the City Council. Any fees received in connection with the appointment to be handed over to the City Council.

Candidates, who must be fully qualified and registered, must have specialised in Pathology and Biochemistry, and have had considerable experience in a recognised pathological department.

The gentleman appointed will be responsible for the work undertaken at the Group Laboratory, Walton Hospital, and will be required to co-operate generally with the Medical Staffs so far as this particular service is concerned.

Forms of application and particulars of the duties may be obtained from the Medical Officer of Health, Municipal Annexe, Liverpool.

The appointment will be made subject to the Local Government and Other Officers Superannuation Act, 1922, and the Standing Orders of the City Council, and will be determinable by three calendar months' notice on either side.

Applications, endorsed Pathologist, to be forwarded to the undersigned not later than August 26th.

Canvassing of members of the City Council, either directly or indirectly, will be regarded as a disqualification.

WALTER MOON,
Municipal Buildings, Liverpool. Town Clerk.

THE KING EDWARD VII WELSH NATIONAL MEMORIAL ASSOCIATION.

Applications are invited from duly registered Medical Practitioners (male and unmarried) for the posts of:

(i) JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER at the North Wales Sanatorium, Llangwyfan, near Denbigh (236 beds for pulmonary and non-pulmonary cases in adults and children).

(ii) JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER at the Glan Ely Tuberculosis Hospital, Fairwater, near Cardiff (186 beds for pulmonary and non-pulmonary cases in adults and children).

Salary in each case £250 per annum, plus maintenance (subject to an emergency deduction of £10 12s. 6d. per annum). Each appointment is limited to a period of one year.

Applications, stating age, qualifications, and previous experience, together with copies of three recent testimonials, should reach the undersigned not later than Friday, August 11th.

Memorial Offices, Westgate Street, Cardiff. D. A. POWELL, Principal Medical Officer.

THE COLONIAL MEDICAL SERVICE

A limited number of vacancies exist at present for MEDICAL OFFICERS in the WEST AFRICAN MEDICAL STAFF.

QUALIFICATIONS:—Applicants must be British subjects of European parentage. They must be fully qualified and be under 35 years of age. Preference will be given to candidates under 30 years of age who have held hospital or public health appointments or who have special knowledge of anaesthetics, radiology, surgery, medicine, ophthalmology, gynaecology and midwifery, diseases of the ear, nose and throat, venereal diseases, etc.

SALARY:—£660 per annum rising by annual increments of £30 to £720 per annum, then, on confirmation, £720 rising by annual increments of £40 to £960 per annum, together with a seniority allowance (payable only in West Africa) at the rate of £72 per annum. After three years' service on £960, the salary may be raised to the scale of £1,000—£50—£1,150 together with a seniority allowance of £100 per annum. In Nigeria and the Gold Coast a temporary levy on salaries is at present in operation.

QUARTERS:—Free furnished quarters are provided or an allowance in lieu.

PASSAGES:—Free first-class passages are provided on first appointment and when proceeding on or returning from leave.

COURSE OF STUDY:—Selected candidates before proceeding to West Africa will be required to undergo a course of instruction, leading to the Diploma in Tropical Medicine and Hygiene. The course will commence early in October.

Further particulars and a form of application may be obtained, on application in writing, from the Director of Recruitment (Colonial Service), 2, Richmond Terrace, Whitehall, S.W.1. Completed applications must reach the Director of Recruitment not later than August 23rd.

WEST RIDING OF YORKSHIRE MENTAL HOSPITALS BOARD.

APPOINTMENT OF MEDICAL SUPERINTENDENTS.

The West Riding of Yorkshire Mental Hospitals Board invite applications from duly qualified Medical Practitioners for the appointment of Medical Superintendent at the following Mental Hospitals of the Board:

(a) MENSTON, near Leeds (1,800 patients);
(b) WADSLEY, nr. Sheffield (1,980 patients);
(c) WAKEFIELD (2,400 patients).

Candidates must have had previous experience as the Medical Superintendent or a Senior Assistant Medical Officer of a Mental Hospital. Preference will be given to candidates who have obtained a Diploma in Psychological Medicine, and have served the office of House Surgeon or House Physician at a General Hospital.

The person appointed will be required to devote his whole time to the duties of the office, and act in conformity with the provisions of the Lunacy Act, the general rules and regulations of the West Riding of Yorkshire Mental Hospitals Board (as approved by the Board of Control), and of the Visiting Committee.

The minimum and maximum salaries fixed for the position are £1,000 and £1,400, the annual increments being £50 (subject as to salary and increments to a temporary economy deduction in accordance with the Board's scale). The salary to be paid will (within those limits) be according to qualifications and experience.

The person appointed will be provided with an unfurnished house, which shall be deemed to be valued, for superannuation purposes, at the sum of £50 per annum. The salary and value of the unfurnished house will be subject to deductions under the Asylums Officers Superannuation Act, 1909.

Applicants must state for which Mental Hospital (or Hospitals) they wish to apply, and applications must be made on a form, which can be obtained, together with further particulars, from the undersigned, to whom the completed forms should be returned not later than September 2nd.

Canvassing in any form will be a disqualification.

(Signed) G. L. BANNER, A.S.A.A.,
Clerk and Treasurer of the Board,
Clerk of the Visiting Committees of the:
Menston Mental Hospital,
Wadsley Mental Hospital,
Wakefield Mental Hospital.

Board Offices, Wakefield. July, 1933.

CITY AND COUNTY OF BRISTOL.

HAM GREEN HOSPITAL AND SANATORIUM.

JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER (Male).

Applications are invited for the above appointment, which is tenable for 12 months, at a salary of £250 per annum, subject to a temporary reduction of £6 10s. per annum.

The institution consists of 266 fever beds and 156 beds for all forms of tuberculosis. Candidates should have held a resident appointment in a general hospital for at least six months. Applications, accompanied by copies of three recent testimonials, to be sent to the Medical Officer of Health, 40, Prince Street, Bristol, not later than August 12th.

KEPPLESTONE NURSING HOME LIMITED, ABERDEEN.

Wanted, a whole-time RADIOLOGIST to take charge of the X-ray Department in the Home. Particulars to the appointment can be had from the Secretary, 21, Golden Square, Aberdeen.

COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE.

MIDDLETON-IN-WHARFEDALE SANATORIUM.

The County Council of the West Riding of Yorkshire invite applications for the appointment of JUNIOR RESIDENT MEDICAL OFFICER at the Middleton-in-Wharfedale Sanatorium, near Ilkley (300 beds). The appointment will be for one year. Salary at the rate of £250 per annum, with board, residence, and laundry.

Hospital experience is an advantage.

Applications, together with copies of recent testimonials, should be sent to the County Medical Officer, County Hall, Wakefield, not later than August 14th.

County Hall, Wakefield. July, 1933.
J. CHARLES McGRATH, Clerk of the County Council.

THE WELSH NATIONAL SCHOOL OF MEDICINE.
UNIVERSITY OF WALES.

The Council of the Welsh National School of Medicine invites applications for the post of JUNIOR ASSISTANT in the MEDICAL UNIT. The appointment is a Temporary one for a period not exceeding two years, is subject to three months' notice on either side, and the salary is £250 per annum. The successful applicant will be expected to take up duties early in October, and will be required to devote his whole time to the duties of the office.

Applications, accompanied by not more than four testimonials, must be received by the undersigned, on or before September 15th.

Twelve copies of application and testimonials are required.

The Welsh National School of Medicine, The Parade, Cardiff.
S. C. EDWARDS, Secretary.

LONDON COUNTY COUNCIL.

HOUSE PHYSICIAN required for six months in the first instance at HIGH WOOD HOSPITAL FOR CHILDREN, BRENTWOOD, ESSEX. Salary £80 a year, with board, lodging, and washing. Remuneration and conditions are subject to review. Duties assigned by Medical Superintendent and include, if necessary, assistance at other establishments under the control of the Council.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 5a), County Hall, S.E.1, returnable by August 19th. Canvassing disqualifies. Inquiries should be addressed to Medical Superintendent.

COUNTY MENTAL HOSPITAL, WINWICK, WARRINGTON.

Applications are invited for the post of ASSISTANT MEDICAL OFFICER. Candidates must be male, single, and under 35 years of age. Commencing salary £500, rising by annual increments of £25 to £600, with further increase on promotion, subject to a deduction of 5 per cent. under the Asylum Officers Superannuation Act, 1909. There are no emoluments. The selected candidate will be required to live in the Hospital, and will be provided with board, lodging, etc., for which a charge of £150 a year is made. A temporary abatement from the gross salary will be made, the amount of the abatement on £500 being £18 15s. The possession of a Diploma in Psychological Medicine will entitle the officer to an additional £50 per annum. Applications, giving full particulars, with testimonials (copies only), should reach the Medical Superintendent not later than the first post on August 9th.

CITY OF EXETER.

DEPUTY MEDICAL OFFICER OF HEALTH and ASSISTANT TUBERCULOSIS OFFICER.

Applications are invited for the appointment of Deputy Medical Officer of Health and Assistant Tuberculosis Officer for the City and County of the City of Exeter, at a salary of £600 per annum, rising by four annual increments of £25 each to £700 per annum (subject to temporary abatement), and to deductions in accordance with the provisions of the Local Government and Other Officers Superannuation Act, 1922.

The successful candidate will be required to pass a medical examination.

Candidates, whose age should not exceed 45 years, must be registered Medical Practitioners (male) of not less than three years' standing, and possess the Diploma of Public Health or its equivalent, and must have special experience in the treatment of infectious diseases; experience in modern methods of the diagnosis and treatment of tuberculosis; and general pubic health experience.

Although the work will be largely in Tuberculosis the successful candidate will also be required to take a part in the general work of the Department under the supervision of the Medical Officer of Health.

Canvassing, either directly or indirectly, will disqualify.

Applications, endorsed "Deputy Medical Officer of Health," accompanied by copies of three recent testimonials, must be received by me not later than Tuesday, August 29th.

Application forms and particulars of the appointment may be obtained from the undersigned:

10, Southernhay West, Exeter. August 2nd, 1933.
C. J. NEWMAN, Town Clerk.

DERBYSHIRE COUNTY COUNCIL.

WHOLE-TIME WOMAN ASSISTANT MATERNITY AND CHILD WELFARE MEDICAL OFFICER.

The Derbyshire County Council require the services of a fully qualified whole-time Woman Assistant Maternity and Child Welfare Medical Officer experienced in Ante-Natal work, Midwifery, and Children's diseases, to hold (under the direction of the Medical Officer of Health) consultations at the Ante-Natal and Maternity and Child Welfare Centres of the Derbyshire County Council, and (under the like direction) to perform such other duties as appertain to the office.

The salary will be £600 per annum, rising by £25 per annum to £700 per annum, subject to a temporary economy reduction.

The appointment will be a designated post under the Local Government and Other Officers Superannuation Act, and the successful candidate will be required to pass a medical examination.

Applications must be sent to the undersigned, together with copies of not more than three recent testimonials, not later than Monday, September 4th.

New County Offices, Derby. August 1st, 1933.
W. M. ASH, County Medical Officer.

BIRMINGHAM AND MIDLAND HOSPITAL FOR WOMEN.

HOUSE SURGEON (man or woman) wanted for six months *from October 1st*. Salary to be £75 per annum. Applications, at the rate of £75 per annum. Applications, with full particulars and copies of testimonials, to be sent not later than August 31st, to HUGH C. ASTON, 45, Newhall Street, Birmingham.

CARDIFF ROYAL INFIRMARY.
(Associated with the Welsh National School of Medicine.)

HONORARY ASSISTANT PHYSICIAN REQUIRED.

Applications are invited for the vacancy arising in the office of Honorary Assistant Physician.

The Regulations provide that each Honorary Physician and Honorary Assistant Physician shall be a Graduate in Medicine of a University of the United Kingdom, and he shall not practise Surgery or Midwifery. He shall also be, or within a year of his appointment shall become, a Fellow or Member of the Royal College of Physicians of London, or a Fellow of one of the other Royal Colleges of Physicians in the United Kingdom.

Each candidate is required to send fifty copies of his application and testimonials (for circulation amongst memb[illegible] of the Election Committee and Medical [illegible] qualifications, appointmen[illegible] endorsed "Honorary Assi[illegible] reach the undersigned on or before [illegible] September 2nd.

LEONARD D. REA, Secretary.

DORSET COUNTY HOSPITAL, DORCHESTER.

APPOINTMENT OF HOUSE SURGEON.

The Committee of Management are open to receive applications for the position of House Surgeon to take up his duties on or about August 10th.

Every candidate must be unmarried and possess a registered qualification to practise medicine and surgery from some recognized Body in Great Britain or Ireland. Salary £160 per annum, with board and lodging. The appointment is for a period of not less than six months. All applications, accompanied by copies of three recent testimonials, should be sent at once to the Secretary, Dorset County Hospital.

Candidates must be of British nationality.

LONDON HOSPITAL, E.1.

Applications are invited for the post of SURGICAL FIRST ASSISTANT AND REGISTRAR. Candidates must be Fellows of the Royal College of Surgeons. The salary is £300 per annum, payable by the Hospital and Medical College jointly.

The appointment is for one year, but is renewable annually, on application, for two further periods of one year.

Applications should arrive at the Hospital not later than by the first post on Saturday, October 14th.

Further particulars may be obtained from the House Governor.

ARTHUR G. ELLIOTT, House Governor.

DONCASTER ROYAL INFIRMARY.
(185 Beds.)

HOUSE PHYSICIAN (male) required immediately. The appointment is for six months. The House Physician will also act as House Surgeon to the Ophthalmic, and Ear, Nose, and Throat Departments. The position offers opportunity of gaining good Medical experience. The successful candidate will be eligible for reappointment. Salary at the rate of £175 per annum, with residence, board, and laundry. Applications, giving full particulars, and copies of three recent testimonials, to be sent to the undersigned immediately.

WALTER R. SMITH, Secretary-Supt.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.11.
(121 Beds.)

HOUSE PHYSICIAN (male) required. The appointment is for six months, commencing on September 1st. Salary £120 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered

Applications, stating age, qualifications, and experience, with copies of not more than three recent testimonials, should be sent to the undersigned on or before August 16th.

W. S. RANDOLPH BISS, Secretary-Supt.

MANCHESTER BABIES' HOSPITAL, Burnage Lane, LEVENSHULME.
(80 Beds.)

The Board of Management invites applications for the appointment of an HONORARY ASSISTANT PHYSICIAN. Candidates must possess special experience in the Metabolic Disorders of Infants. Applications, together with copies of testimonials, to be sent to the undersigned by August 25th.

LOUISE BAILEY, Secretary.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.1.

Applications are invited for the post of HOUSE [illegible] six months from August [illegible]hs in Casualty and Out-patient Depart[illegible] Salary at the rate of £120 per annum, with board and residence.

Applications, stating age, experience, and qualifications, accompanied by copies of four testimonials, to be sent to the undersigned at once, from whom rules and other particulars can be obtained.

By Order of the Committee of Management,
W. H. SIDNELL, Secretary-Supt.

July 4th, 1933.

GENERAL HOSPITAL, NOTTINGHAM.
(386 Beds.)

A HOUSE SURGEON is required at the above Institution for the Ear, Nose, and Throat Department containing 40 beds, and a large Out-patient Department. The appointment is for six months. Salary at the rate of £150 a year, with board, residence, and laundry. Candidates are desired to send applications, giving particulars as to age, qualifications, and experience, together with copies of testimonials, to the undersigned. Duties to commence on Saturday, October 14th.

Preference will be given to candidates with previous experience.

PETER M. MacCOLL, House Governor & Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

HOUSE SURGEON required September 1st.
CASUALTY OFFICER required September 1st.
Some Ear, Nose, and Throat work additional. Six months' appointments. Salary at the rate of £100 per year, with board, lodging, and laundry.

Applications must be made on forms to be obtained from the undersigned, and must be sent in, with copies of not more than four testimonials, on or before August 22nd.

CHARLES H. BESSELL, Secretary.

July 24th, 1933

THE PRINCESS BEATRICE HOSPITAL, Richmond Road, Earl's Court, S.W.5.
(General Hospital—80 Beds.)

Applications are invited from suitably qualified candidates as SENIOR RESIDENT MEDICAL OFFICER. Preference will be given to candidate with F.R.C.S. Must have had previous experience. Appointment for one year from October 1st. Salary £150 per annum, with board, residence, and laundry. Applications to be sent to the House Governor not later than August 22nd, together with copies of three recent testimonials.

GOLDEN SQUARE THROAT, NOSE, AND EAR HOSPITAL, London, W.1.

Applications are invited for the post of HONORARY ASSISTANT SURGEON, and should be addressed to the undersigned.

Applications should state age, qualifications, and experience, should be accompanied by copies of three testimonials, and should be received not later than August 14th.

Candidates are requested to call upon the Members of the Honorary Staff.

F. P. CARROLL, Secretary-Supt.

July 24th, 1933.

GOLDEN SQUARE THROAT, NOSE, AND EAR HOSPITAL, London, W.1.

Applications are invited for the post of HONORARY ANAESTHETIST, to attend at such times as may be appointed.

Applications, stating age, qualifications, and experience, and accompanied by copies of three testimonials, should be received by the undersigned not later than August 14th.

F. P. CARROLL, Secretary-Supt.

July 24th, 1933.

GOLDEN SQUARE THROAT, NOSE, AND EAR HOSPITAL, London, W.1.

Applications are invited for the post of HONORARY REGISTRAR.

Applications, stating age, qualifications, and experience, and accompanied by copies of three testimonials, should reach the undersigned not later than August 14th.

F. P. CARROLL, Secretary-Supt.

July 24th, 1933.

FREE EYE HOSPITAL, SOUTHAMPTON.

Required for three weeks from August 19th, LOCUM TENENS OPHTHALMIC HOUSE SURGEON. Salary £6 6s. per week. Apply, E. T. KEMP, Secretary.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park Place, Cheetham Hill Road, MANCHESTER.

The Committee of Management require the services of a SENIOR HOUSE SURGEON and a JUNIOR HOUSE SURGEON, both duly qualified who are to commence duties on September 1st.

Senior House Surgeon, salary £130 per annum, with board and residence; Junior House Surgeon, salary £100 per annum, with board only.

Applications, stating age and experience, with copies of recent testimonials, to be sent to the Secretary, Mr. JAMES C. DANIELS, 38, Barton Arcade, Manchester, as soon as possible.

ROYAL EYE HOSPITAL, St. George's Circus, Southwark, S.E.1.

HOUSE SURGEON and ASSISTANT HOUSE SURGEON required at the above Hospital. The appointments are, in the first instance, for a period of six months, with board and residence as from October 1st.

Salaries: House Surgeon at the rate of £150 per annum; Assistant House Surgeon at £100 per annum.

Candidates must be registered Practitioners.

Applications, with copies of three recent testimonials, should be sent to the Secretary at the Hospital not later than Monday, Aug. 28th.

F. E. D'ALTON, Secretary.

ROYAL EYE HOSPITAL, St. George's Circus, Southwark, S.E.1.

The Council invite applications for the appointment of HONORARY PHYSICIAN, learned in Neurology, to the above Hospital. Candidates must be Graduates in Medicine of a British University and Fellows or Members of the Royal College of Physicians of London.

Applications, with three copies of testimonials, to be sent to the Secretary on or before August 28th.

F. E. D'ALTON, Secretary.

KING GEORGE HOSPITAL, ILFORD.
(8 miles from London.)

Wanted, a HOUSE SURGEON, to commence duty on September 1st, for a period of ten months; two months as Casualty Officer, six months as House Surgeon, and two months as Deputy Resident Medical Officer in charge of the Casualty Department. Salary £100 per annum; £10 bonus on completion of appointment, and two weeks' holiday. Candidates should send their applications, with three recent testimonials, and call on the members of the Honorary Medical Staff indicated by the Secretary as soon as possible.

G. AUSTIN HEPWORTH, Secretary.

KING GEORGE HOSPITAL, ILFORD.

Applications are invited for the appointment of ASSISTANT OPHTHALMIC SURGEON to this Hospital. Further particulars may be obtained from the undersigned to whom applications should be sent not later than Aug. 10th.

G. AUSTIN HEPWORTH, Secretary.

ROYAL HOSPITAL, RICHMOND, SURREY.

JUNIOR HOUSE SURGEON (male) required to take up duties on October 1st. Salary at the rate of £100 per annum, with board, furnished apartments, and laundry. Candidates must be fully qualified, registered, and single. The appointment will be for six months, after which the successful candidate will be eligible for the senior post. Applications, stating age, experience, and copies of three recent testimonials, must be forwarded to the undersigned not later than August 15th.

RICHARD ALLEN, Secretary.

GREAT YARMOUTH GENERAL HOSPITAL.
(72 Beds.)

Applications are invited for the post of HOUSE SURGEON (one of two appointments). Applicants must be male and unmarried. Salary at the rate of £140 per annum, with board, residence, and laundry.

Applications, stating age and qualifications, together with copies of three recent testimonials, to be forwarded to the undersigned.

FRANK JENNINGS, Secretary.

ST. MARY'S HOSPITALS, MANCHESTER.

HOUSE SURGEON for the WHITWORTH PARK HOSPITAL (Children's Department) for a period of six months from August 16th next. Salary at the rate of £50 per annum, with board and residence.

Applications, with copies of three testimonials, to be sent to the undersigned on or before the 15th instant.

R. RATCLIFFE, Secretary.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands.

Town or District.	Town or District.	Town or District.
HOSPITAL	**CONTRACT PRACTICE** (contd.)	**PUBLIC HEALTH** (contd.)
NORTH LONSDALE HOSPITAL, BARROW-IN-FURNESS *(Visiting and Resident Appointments.)*	MARDY, GLAMORGAN. *(Workmen's Medical Scheme)*	FULHAM BOROUGH COUNCIL. Maternity and Child Welfare Department. *(Assistant Medical Officer—Woman)*
CONTRACT PRACTICE	NEATH AND DISTRICT. *(Medical Aid Association.)*	HERTFORDSHIRE COUNTY COUNCIL. WARE SANATORIUM. *(Assistant Medical Officer.)*
EBBW VALE, MON. *(Workmen's Medical Society.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association)*	COUNTY BOROUGH OF NEWPORT PUBLIC ASSISTANCE INSTITUTIONS. *(Resident Medical Officers—Male.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society) (Workmen's Medical Scheme.)*	COUNTY BOROUGH OF SOUTH SHIELDS. HARTON INSTITUTION AND CLEADON COTTAGE HOMES. *(Medical Officer)*
LLWYNPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme)*	**PUBLIC HEALTH**	CITY OF YORK. *(Assistant Medical Officer of Health—Woman.)*
LOWESTOFT MEDICAL INSTITUTE. *(Medical Officer.)*	DORSET COUNTY COUNCIL. *(County Medical Officer of Health.)*	

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments)*	Dr. J. G. HUNTER (Medical Secretary, New South Wales Branch), 135, Macquarie St., Sydney, N.S.W.	QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.
VICTORIA. *(All Institute or Medical Dispensaries)*	Dr. J. P. MAJOR (Hon. Sec., Victorian Branch, British Medical Association, Medical Society Hall, East Melbourne, Victoria.	*(Toowoomba Associated Friendly Societies, Medical Institute, Toowoomba)*		WESTERN AUSTRALIA. *(Contract and Lodge Practices)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.

August 2nd, 1933. By Order of the Council. G. C. ANDERSON, Medical Secretary.

ROYAL SALOP INFIRMARY, SHREWSBURY. (150 Beds)

APPOINTMENT OF RESIDENT HOUSE PHYSICIAN.

Applications are invited from fully qualified men for the appointment of Resident House Physician, vacant July 15th. Salary £160 per annum, with board, residence, etc. The appointment is for six months in the first instance, subject to re-appointment for a further period of six months. Resident Staff comprises Resident Surgical Officer, House Physician and Casualty Officer and Resident Anaesthetist. The Resident House Physician is Resident Officer to the Medical Wards of the Hospital under the direction of three Honorary Physicians, and is also Resident Officer to the Maternity Department for difficult cases under the direction of the Honorary Obstetrician.

Applications, stating age, qualifications, experience, nationality, and accompanied by copies of three recent testimonials, to be sent to the undersigned forthwith.

Board Room, June 13th, 1933. J. W. NOBLE, Secretary Supt.

LIVERPOOL OPEN-AIR HOSPITAL FOR CHILDREN.

THE MARGARET BEAVAN HOSPITAL, LEASOWE, MORETON, WIRRAL. (260 Beds—Surgical Tuberculosis and Orthopaedics)

Vacant on October 1st, the post of JUNIOR RESIDENT MEDICAL OFFICER.

Salary £200 per annum, with board, residence, and laundry.

Applications to be sent not later than September 1st, to the Senior Medical Officer.

ROYAL EAST SUSSEX HOSPITAL, HASTINGS. (Beds 125.)

Applications are invited for the post of HONORARY ASSISTANT SURGEON to the Hospital.

Applicants must be Fellows or Members of the Royal College of Surgeons of England, or a Fellow or a Licentiate of the Royal College of Surgeons of Edinburgh or Ireland, or a Graduate in Surgery of one of the Universities of the United Kingdom or Ireland, and also be duly registered under the Medical Acts.

Applications, with three copies of recent testimonials, should reach the Secretary not later than Saturday, August 19th.

WILFRID G. KEMSLEY, Secretary.

EAST SUFFOLK AND IPSWICH HOSPITAL. (232 Beds—7 Residents.)

Wanted, September 1st, HOUSE SURGEON (British, male). Salary at the rate of £120 per annum.

Applications, stating age, qualifications, and experience, to be sent to the undersigned, together with copies of three recent testimonials.

The Hospital, Ipswich. ARTHUR GRIFFITHS, Secretary.

HOUNSLOW HOSPITAL, STAINES ROAD, HOUNSLOW, MIDDLESEX. (70 Beds)

Wanted, MALE HOUSE SURGEON, British nationality. Appointment at £150 p.a., with board, residence, etc., for six months.

Applications, stating qualifications, age, and experience, and enclosing copies of three recent testimonials, should be sent forthwith (marked "House Surgeon" top left hand corner) to W. T. Ross, Secretary, Hounslow Hospital.

COVENTRY & WARWICKSHIRE HOSPITAL. (307 Beds Main Hospital) (40 Beds Alcock Convalescent Hospital) (Seven Resident Medical Officers.)

RESIDENT HOUSE SURGEON (Male) wanted. Salary £125 per annum, with board, laundry, and attendance provided. Candidates must be duly qualified and registered.

Applications, stating age and enclosing copies of recent testimonials, should be sent to the undersigned immediately.

(Miss) R. HOOPER, Secretary.

July 25th, 1933.

INGHAM INFIRMARY, SOUTH SHIELDS.

Wanted, SENIOR and JUNIOR HOUSE SURGEONS (male). Salaries £200 and £150 per annum respectively, with residence, board, and washing. No out visiting. Candidates must hold registered qualifications in medicine and surgery. The appointment will be terminable by one month's notice. Applications, stating age and accompanied by copies (which will not be returned) of recent testimonials, to be sent to the undersigned from whom further particulars may be obtained.

JOHN POTTER, Secretary.

BUTE HOSPITAL, LUTON.

HOUSE SURGEON (male) wanted to commence duty on September 1st. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, nationality and experience, together with copies of not more than three recent testimonials, should be sent to the Secretary of the Medical Advisory Committee at the Hospital.

(Appointments continued on p. 34.)

British Medical Journal
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ASSISTANCIES.

WANTED IN SOUTH COAST TOWN, ASSISTANT, male, English or Scot. Must have good experience in general practice and panel work, and capable of taking sole charge. Good prospects are offered to suitable candidate. At present the Assistant would be indoor. Salary £300 per annum, and all ordinary car expenses. Very little night work. — Address, No. 5810, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANT, INDOOR, PANEL and private Practice, near Derby. Suit recently qualified man, R.C., Irish preferred. Salary £250—£300, according to experience. Car provided. Send testimonials. Usual bond.—No. 5806, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — ASSISTANT, NICE SUBURB. Midland Univ. Town; abstemious and reliable essential. Married or single. Nice pleasant house, new dist. Good prospects. Small salary to start. State quals., etc., fully. Photo. —No. 5837, B.M.A. House, Tavistock Sq., W.C.1.

WANTED.—ASSISTANT IN PRACTICE, including fever hospital. Scope for eye work. Married or single. £7 weekly, *with rooms and board.* State height, exp., and if teetotal. — Address, No. 5833, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANTSHIP OR LOCUM WORK, with or without view, by M.R.C.P. (Edin.), Indian; exper. G.P. and panel; young, energetic, abstainer, drive car. Free now.—Address, No. 5816, B.M.A. House, Tavistock Square, W.C.1.

WANTED BY TWO PARTNERS, IN PANEL and private Practice in University Town, a young, male ASSISTANT, to live out, able to drive car or motor-bicycle. Commencing salary £500 per annum.—Address, No. 5818, B.M.A. House, Tavistock Square, W.C.1.

WANTED, INDOOR MALE ASSISTANT, single, aged about 30, for panel and private Practice in pleasant seaside resort. Salary £300 p.a. — Address, with refs. and photo., No. 5606, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — OUTDOOR MALE ASSISTANT for mixed Practice, South-West England. Young, energetic, able to drive car. For further particulars apply, with references and photograph if possible, Address, No. 5830, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—SEPTEMBER.—INDOOR ASSISTANT, general Practice, South Wales. Suit recently qualified man; Scotsman preferred. Usual bond. Salary £300. State age and full particulars. — Address, No. 5838, B.M.A. House, Tavistock Square, W.C.1.

WANTED, AN INDOOR ASSISTANT IN A Glamorganshire mining Practice. Salary £300 per annum. Usual bond.—Address, stating age, references, etc., No. 5815, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANTSHIP OR LOCUM WORK by M.B., B.Ch.Camb. Free Oct.—Dec. 31st; ex R.M.O. Three years' experience G.P. Married. — Address, No. 5841, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, INDOOR ASSISTANT, male, single, age about 30, for panel practice in industrial area, Midlands. £300 to start. — Address, with refs., photo., No. 5827, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY. — INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view. Good salaries. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross St., Manchester, 2.

WANTED.—INDOOR ASSISTANT. SALARY £300. Large Practice, Lancashire. Car provided. Hospital experience essential. State full particulars. — Address, No. 5802, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — PART-TIME ASSISTANT FOR Country Practice, 1/2 hour from West End. Work light. Time for reading. Moderate salary. — Address, No. 5820, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, PART-TIME ASSISTANT for mornings chiefly. No visiting. — Address, No. 5813, B.M.A. House, *Tavistock Square, W.C.1.*

ASSISTANTSHIP, WITH DEFINITE VIEW to Partnership, wanted by M.A., M.B., Ch.B.(Aberdeen); aged 29; Protestant; 4 years' experience better-class G.P. Near London or in South-East Counties. Own car. Free when required. — Address, No. 5823, B.M.A. House, Tavistock Square, W.C.1.

INDOOR ASSISTANT WANTED NOW.—Mixed Practice, West Riding City. Vacancy due to illness. £300 p.a. to start with.—Address, No. 5811, B.M.A. House, Tavistock Square, W.C.1.

M.B., B.CH., REQUIRES ASSISTANTSHIP; ex H.S., young, energetic, total abstainer, married. Religion—Jewish. Excellent testimonials. Free now.—Address, No. 5842, B.M.A. House, Tavistock Square, W.C.1.

LOCUMS.

WANTED. — HOSPITALITY LOCUM (Woman). Own car. August 29th to September 13th. House, sea front. Pleasant garden. Hospitality one or two people (besides locum). — Address, No. 5828, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—LOCUMS BY MEDICAL WOMAN with six years' experience private and panel Practice. *Dispensing.* Free middle of August. — Address, No. 5829, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—LOCUM (WOMAN), AUG. 12th—26th. Small town, Shropshire. Panel and private. Work light. Own car. Terms: 6 guineas per week.—Address, No. 5825, B.M.A. House, Tavistock Square, W.C.1.

LOCUM. — RETIRED COLONEL, I.M.S. London or Surrey. Own car. No midwifery. — Address, No. 5822, B.M.A. *House*, Tavistock Square, W.C.1.

M.B., CH.B., REQUIRES POST AS LOCUM; ex H.S. and H.P. Well experienced in private and panel *Practice.* — Address, No. 5843, B.M.A. House, Tavistock Square, W.C.1.

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WANTED.—PARTNERSHIP IN A FIRM OF two or three, *within 25 miles of London.* Advertiser, would be willing to undertake a preliminary assistantship, he is 29, married, ex H.S., and has had 4 years' experience of general practice. A good house and garden is essential. The necessary capital would be available.—No. 5824, B.M.A. House, Tavistock Sq., W.C.1.

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WANTED, BY A FIRM OF DOCTORS WHO keep Two Dispensers, a trained BOOKKEEPER, who must be experienced and have good references.—Address, stating age, salary required, experience, etc., No. 5626, B.M.A. House, Tavistock Square, W.C.1.

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DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeuse-Dispensers, are invited to write, wire, or 'phone Temple Bar 5858, THE DISPENSERS' BUREAU, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

LADY DISPENSER, BOOK-KEEPER, RECEPtionist, requires POST. Five years' experience, private and panel. Willing to assist Dr. in surgery, good at housekeeping & gardening. Apoth. Hall diploma. Gd. tests. *Now free.* —No. 5836, B.M.A. House, Tavistock Sq., W.C.1.

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M.D., M.R.C.P.(LOND.), ENGLISH, MALE, aged 30, long Hospital experience, wants PART-TIME POST; not general practice. Has six half days to spare. — Address, No. 5507, B.M.A. House, Tavistock Square, W.C.1.

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WANTED. — PRACTICE IN YORKSHIRE, Durham, or Northumberland; town or country. Income £1,500 or over. Panel 1,200 or more. Capital available.—Address, No 5608, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — PRACTICE FROM £1,000 TO £2,000 in Kent, Surrey, Sussex, or Hants; or good London suburb. Capital available. — Address, No 5637, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, PRACTICE, WITH fair panel, by Indian Doctor. Capital available £1,000.—Address, No. 5817, B.M.A. House, Tavistock Square, W.C.1.

COUNTRY PRACTICE, NEAR TWO PROSperous Towns in Somerset, for disposal. Income £1,250 p.a. Panel 921. Easily worked, practically no midwifery. Nice house and large well-stocked garden to rent. Premium £2,000. —No. 5809, B.M.A. House, Tavistock Sq., W.C.1.

COLLIERY AND CONTRACT PRACTICE, Glamorgan, for sale. Panel 1,100. Income 1932, £1,300. Local Cottage Hospital. Surgery optional. Reasonable figure accepted for quick sale. Vendor anxious to leave for urgent private reasons. — Address, No. 5839, B.M.A. House, Tavistock Square, W.C.1.

DEATH VACANCY. — LONG-ESTABLISHED MEDICAL PRACTICE in Co. Donegal for immediate sale. Receipts last year £900. Appointments £152 p.a. House can be rented, 2 reception, 4 bedrooms; garden. — BRITISH MEDICAL BUREAU, 72, High Street, Belfast. No 23

FOR SALE. — IN A CITY IN NORTHERN Ireland, MEDICAL PRACTICE, including 1,100 on panel, with Branch Surgery.—BRITISH MEDICAL BUREAU, 72, High Street, Belfast. No 22.

FOR SALE. — VERY OLD-ESTABLISHED General Medical PRACTICE (West Riding Town). Panel has hitherto been declined but offers great scope. Present Practitioner retiring from general practice to specialise. Gross receipts last three years average £1,890.—Address, No 5812, B.M.A. House, Tavistock Square, W.C.1.

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FOR SALE.—PANEL AND PRIVATE PRACTICE in East London suburb. Income of £1,500 per annum, including panel of 2,300. Small house to rent. Best cash offer above £4,000 will be considered.—Address, No 5826, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE.—PANEL (NEARLY 1,450) AND private PRACTICE; pleasant town, Kent, 35 minutes Charing Cross. Large panel and private area. Great scope. House to let with garden. Price £5,000.—Address, No. 5844, B.M.A. House, Tavistock Square, W.C.1.

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12 ESSEX.—PARTNERSHIP IN WELL-ESTABLISHED PRACTICE of £3,600 p.a. in an industrial area within 15 miles of London. Good appointments and panel about 3,700. Visits 3/6, few 5/-, medicine included. House contains about 4 bedrooms, bathroom, etc., and can be either purchased or rented on lease. One-third share at first at 2 years' purchase.

13 YORKSHIRE (W.R.).—PARTNERSHIP (AFTER PRELIMINary Assistantship) in well-established and increasing Practice of £4,500 p.a. in an important town. Panel 3,200. Incoming Partner should have held Hospital appointment, and have good knowledge of Midwifery and Anaesthetics. One-third share at first to suitable man, who should not be more than 35 years of age Premium 2 years' purchase.

14 EASTERN COUNTIES.—COUNTY TOWN.—VERY OLD-ESTABlished middle and upper-class PRACTICE averaging £1,190 p.a. Panel 120. Visiting fees 7/6 to 15/6. Ten-roomed house in good residential part with garage and garden for sale. Scope. Premium £2,450.

15 LONDON, S.W.—WELL-ESTABLISHED EYE, EAR, NOSE, AND Throat Connection in Suburban District. Cash receipts last twelve months £432 (mostly from Eye work), including appointment worth about £120 p.a. Corner detached non-basement house (7 bedrooms) with garages and very nice garden. Price of freehold and Practice, £2,350.

16 WEST OF ENGLAND.—PARTNERSHIP IN VERY OLD-ESTABlished Practice of nearly £1,750 p.a. in small town in beautiful part of the country. Panel over 1,350. Fees average 7/6. Premium one-half share 2 years' purchase.

17 WITHIN 10 MILES (SOUTH) OF LONDON. — PRACTICE about £1,800 p.a. in well-populated suburban area. Panel 1,500. Surgery premises may be purchased or rented. Nice private residence (7 bed and dressing rooms, etc.) at reasonable rent. Premium £3,000.

18 S.E. COAST. — SMALL SELECT RESIDENTIAL SEASIDE Resort.—PARTNERSHIP in well-established and easily worked Practice of £2,234 p.a. Panel about 700. Fees range from 3/6 to £1 1s. (chiefly 5/- to 10/6). Very little midwifery or night work. Handsome well-built detached house standing in its own grounds containing 6/7 bedrooms, etc., and with good garden and garage, etc., for sale. Partner should be aged 35-45 and hold London degree and be interested in games. Premium one half share £2,250.

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19 EAST ANGLIA. — PARTNERSHIP IN OLD-ESTABLISHED Country Practice of £2,750 p.a. in most beautiful part, easy distance of the coast. Panel 1,150. Fees 3/6 to £1 1s., medicine extra. Suitable house available. Small Cottage Hospital. Good scope for increase. Premium one-third share two years' purchase.

20 S. COAST.—RESIDENTIAL TOWN AND WATERING PLACE. —PARTNERSHIP in well-established Practice of about £1,500 p.a. Panel 1,500. No midwifery. Good house to purchase, or it might be let on lease. A one-half or three-fifths share would be sold at two years' purchase.

21 DEVONSHIRE.—WELL ESTABLISHED COUNTRY PRACTICE in beautiful district near the Coast. Cash receipts average £1,376 p.a. Panel over 725. Nice house (7 bed and dressing rooms, etc.), with central heating, electric light, main drainage, etc. Large garden and garage for sale. Sport of all kinds. Premium £2,100.

22 LONDON, N.W. — WELL ESTABLISHED PRACTICE ABOUT £650 p.a. in Residential District. Panel 300. Visits chiefly 5/-, including medicine, others 3/6 to 7/6. Not much midwifery. House, containing 3 bedrooms, etc., to rent. Considerable scope for young energetic man. Premium £900.

23 S. WALES.—IMPORTANT SEAPORT TOWN.—PARTNERSHIP in sound old-established Practice averaging £3,500 p.a. Panel 2,800. Incoming Partner should be a Scotsman aged about 30—35, and preferably Edinburgh or London trained. There is a nice house for sale. To a suitable man a one half share would be sold at 1½ years' purchase.

24 S. AFRICA.—RADIOLOGICAL PRACTICE IN A MOST DElightful Town with excellent climate. Cash receipts last year £1,450. Scope.

25 FAMOUS INLAND WATERING PLACE AND HEALTH Resort.—Well-established non dispensing PRACTICE. Receipts last three years averaged £986 p.a., including a select Panel of 280. Fees 5/- to £1 1s. Particularly attractive house with large garden, for sale. Scope. Premium £750.

26 BIRMINGHAM. — PARTNERSHIP (AFTER PRELIMINARY Assistantship) in Suburban Practice of about £2,500 p.a. Increasing Panel of 2,400. House (5 bedrooms, etc.) with garage accommodation to rent at about £65 p.a. Applicant should have held Hospital Appointments and have experience in General Practice. Two-fifths share would be sold at first to suitable man at 2 years' purchase.

27 LONDON, E.—OLD-ESTABLISHED CASH AND PANEL PRACTICE of about £1,200 p.a. in residential part of populous district. Good appointments and panel 950. Small house (3 bedrooms, etc.) in pleasant road to rent on lease. Scope for increase. Premium £2,200 or offer.

28 SUFFOLK AND NORFOLK BORDERS.—SMALL PRACTICE IN Market Town. Earnings 1932, £285, including panel of 80. Nice house (6 bedrooms), garage, and good-sized garden. Price of freehold £850. Excellent schools. Plenty of sport. Cottage Hospital. Premium £450.

29 LONDON, E.—CASH AND PANEL PRACTICE OF OVER £600 p.a. in populous district. Panel 590. Small house to rent on lease. Premium £800

30 S. WALES.—PARTNERSHIP (AFTER PRELIMINARY ASSISTantship) in well-established Practice of nearly £5,000 p.a. in important Industrial Town. Good appointments and panel of nearly 3,000. After Preliminary Assistantship a one-third share would be sold at first to a suitable man who should have held Hospital Appointment and have some knowledge of Midwifery and Anaesthetics

31 WEST OF ENGLAND.—PARTNERSHIP IN OLD-ESTABLISHED PRACTICE over £2,200 p.a. in County Town. Panel about 1,000. Premium one half share 2 years' purchase. Good prospects for well qualified physician (preferably M.R.C.P.), who would have opportunity of getting on Staff of Hospital in near future.

32 LONDON, N.—PRACTICE CARRIED ON BY MEDICAL WOMAN in populous area. Cash receipts average £480 p.a., including panel 527. Visits 2/6 to 3/6. Small house (6 rooms) to rent at £50 p.a. on lease. Practice capable of increase. Premium 1½ years' purchase.

33 LONDON, N.—PRACTICE CARRIED ON BY MEDICAL WOMAN in populous district. Cash receipts average £270 p.a., including panel 360. Scope for midwifery. Six-roomed house to rent at £70 p.a. on lease. Premium 1½ years' purchase.

34 BORDERS OF SHROPSHIRE AND CHESHIRE.—OLD-ESTABlished PRACTICE averaging £1,055 p.a. in Market Town. Panel 850. Nice detached house (5 bedrooms, attics, etc.) with garage and old world garden, etc., for sale. Educational facilities. Well-equipped Cottage Hospital offering scope for one keen on Surgery. Premium £1,580.

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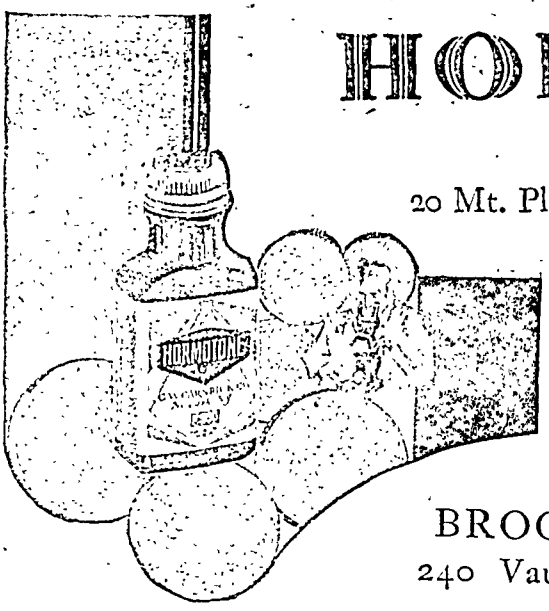
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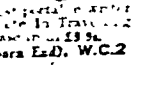
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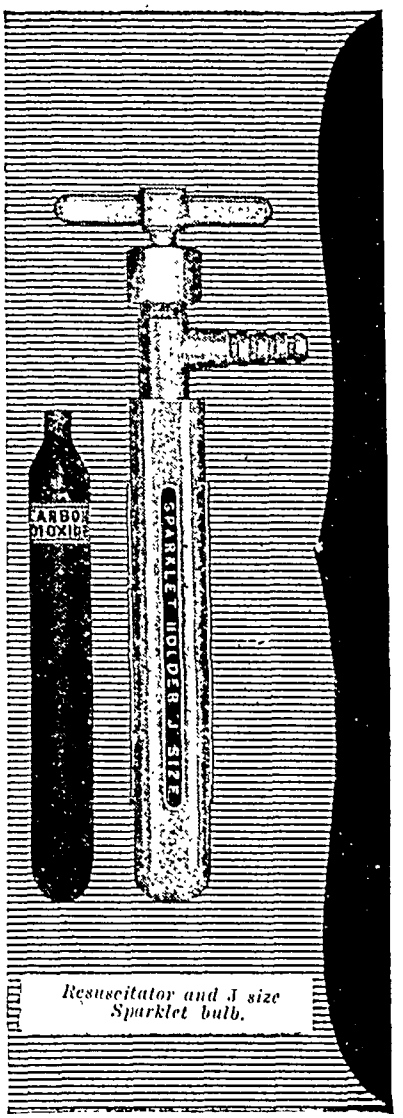
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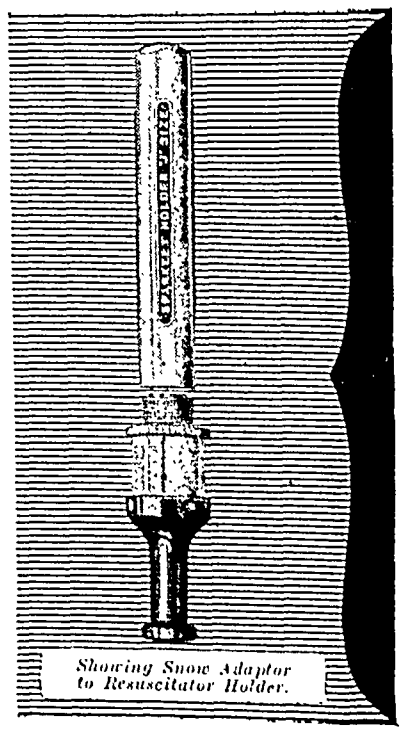
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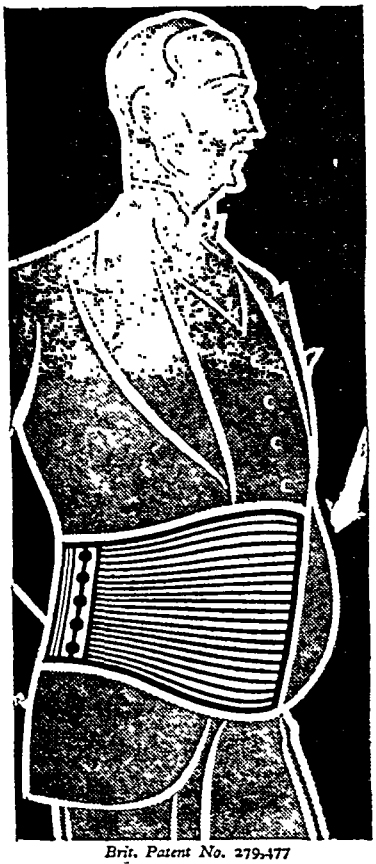
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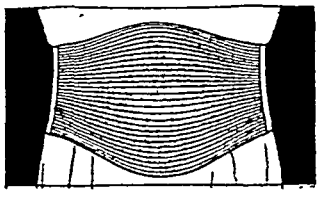
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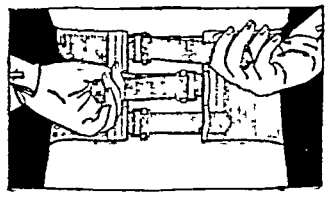
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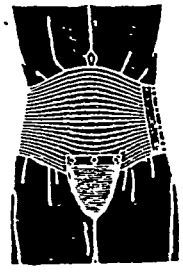
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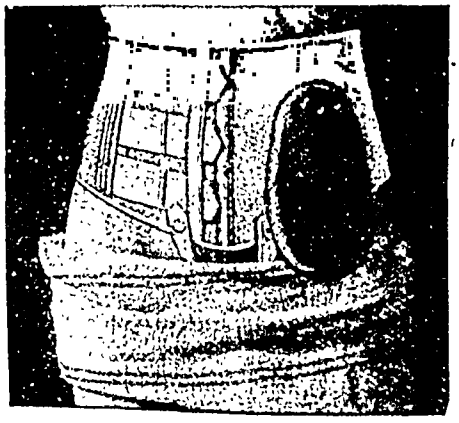
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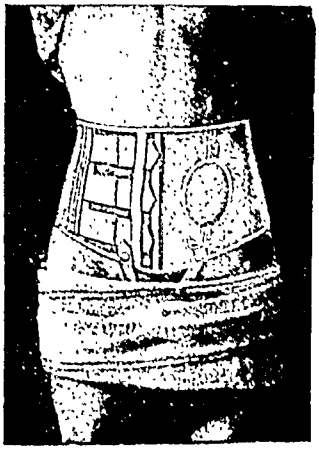
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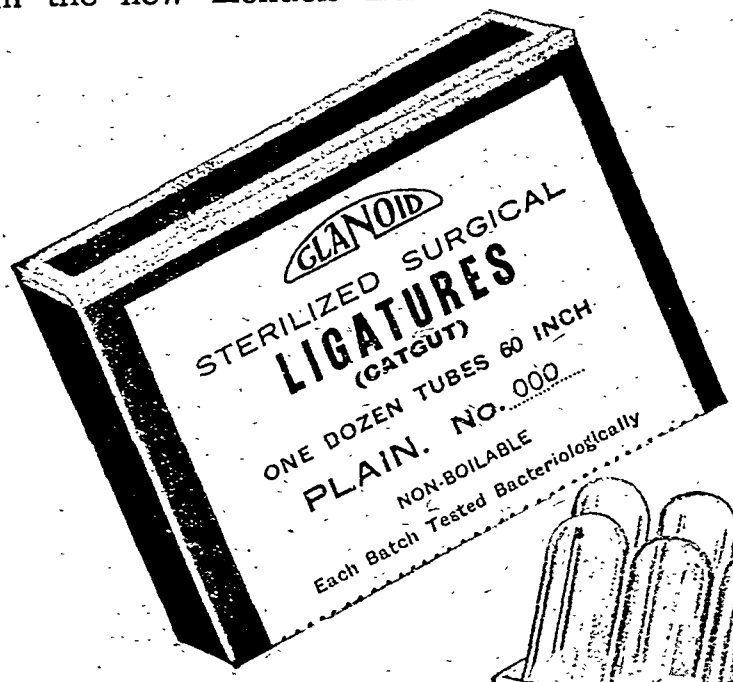


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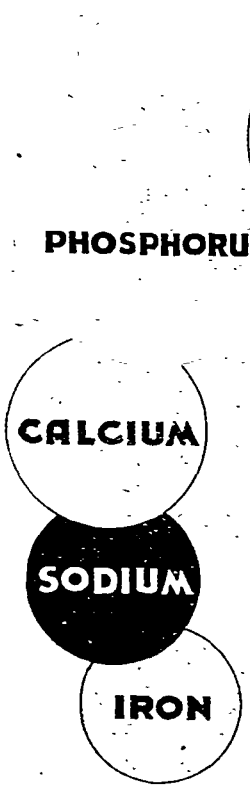
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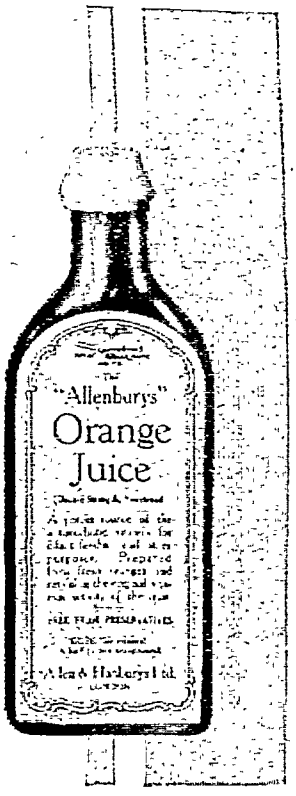
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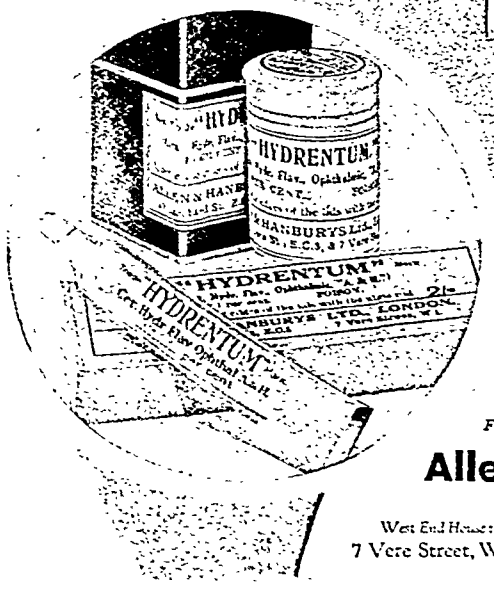
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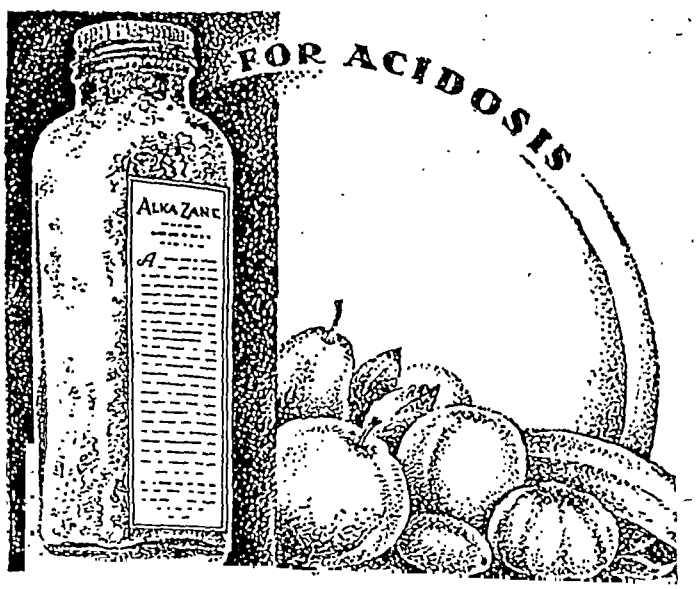
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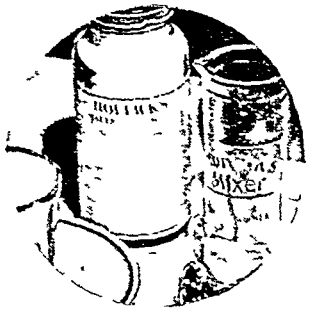
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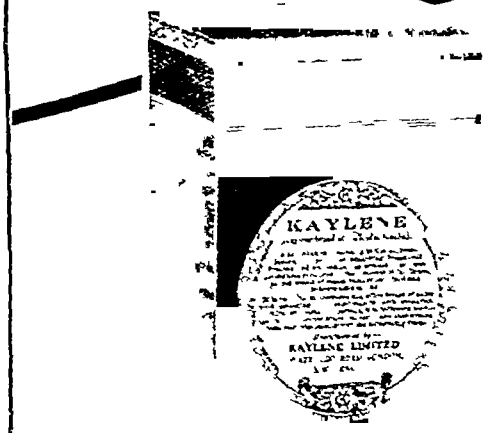
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O O O O O



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Date: c. 2980 B.C.(?) The illustrations c. 700-332 B.C.

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VITAMINS *without* FAT

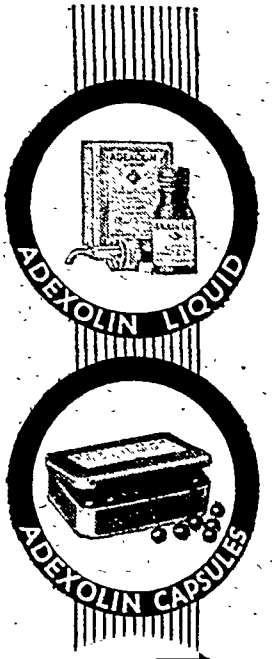
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G.L.49

An Address

ON

NATIONAL HEALTH POLICY: A CRITICAL SURVEY *

BY

J. L. BROWNLIE, M.D., D.P.H.

CHIEF MEDICAL OFFICER, DEPARTMENT OF HEALTH FOR SCOTLAND

On looking, for the first time in cold print, at the title of this discussion I had the feeling that it was rather too ambitious for what I had to contribute. I do not propose to conduct a critical survey of national health policy, I know, indeed, that I could not implement any such proposal. In national health policy in this discussion we are embracing the whole range of activities of which the State takes cognizance as affecting the health of the people. These activities include the work of the public health official, the medical practitioner—whether in public or private practice—the hospitals, and various specialized bodies engaged directly or indirectly in work which contributes to our knowledge of disease or to healthy living, they also include medical teaching and research. What I want to do is to gather up certain broad lines of criticism that have been emerging with increasing force in recent times, and to suggest to you that the case has been established for a detached and scientific review of our achievements, aims, and organization. My conviction is that until such a review has been carried out and certain fundamental questions answered we cannot hope to advance appreciably further either in organization or in results.

The improvements in our sanitary environment, the control of infections, the virtual wiping out of major plagues and pestilences, the reduced infantile mortality and general death rates, and our lengthened span of life have justly provided the theme of many paeans of triumph at annual conferences. We are entitled to claim that medical science has contributed much to these results, and I do not wish for a moment to depreciate them as real causes of satisfaction. But the undercurrent of dissatisfaction persists and grows stronger. How far do the falling death rates signify a definitely higher standard of physical fitness in the race? The public health services have to meet the attack that in some directions they are actually dysgenic in their operation. There is scarcely a medical administrator who is not ready to declare that our results fall short of what we had hoped for, and that, in many directions, they are meagre in proportion to the amount of effort expended in their achievement. The insurance medical service is criticized on the ground that, through deficiencies of scope and organization, the quality of its service lags behind the advance of medical science. There is a mass of invalidism that persists despite our knowledge of means to prevent it. There is much criticism of the medical curriculum. All these criticisms and dissatisfactions need not be taken at their face value, but their causes are various, they come at widely different angles, and it would be foolish complacency to ignore them. I do not propose to go over them in detail or in any definite order, I propose merely to show by some observations that there is substance behind them.

In Scotland we have recently secured highly suggestive data which give point to some of the criticisms of present health policy. The Department of Health for Scotland in 1930 instituted a morbidity statistics scheme. This scheme involves the routine collection of all medical certificates of incapacity among the insured population. By the collation of the statistics of incapacity the Department is in a position to supplement the ordinary statistics of mortality with those of morbidity among the insured population according to age, sex, occupation, and locality. This appears to me to be an important development, it may be a landmark in the history of public health of the same kind, though not of the same significance, as the institution of the comprehensive system of vital statistics last century. The following quotation from a recent summary by Dr. McKinlay, Statistical Medical Officer of the Department, will illustrate:

"Comparison with the present statistics shows how grossly distorted a picture of the real sickness incidence is afforded by mortality or institutional morbidity figures. Conditions there are, in fact, almost the reverse of actual general practitioner experience. The principal causes of death take very inferior positions as causes of disability. Tuberculosis, malignant disease, heart disease, pneumonia, kidney disease—conditions all too frequent in mortality or in teaching hospital experience—account for a very minor proportion of the cases of disability, but of course, in view of their higher average duration, for a somewhat higher, but still none too prominent, position in the time lost from sickness. On the other hand, we notice what heavy contributions, both in point of numbers and duration, are made by influenza, minor diseases of the upper respiratory tract (which include affections of the tonsils and adenoids, nasal septum, and related sinuses), accidents, the acute and chronic rheumatic conditions (lumbago, arthritis, synovitis, bursitis, brachial neuritis, and sciatica), the inflammatory and septic conditions of the skin and cellular tissues, and the digestive upsets labelled gastritis and gastro-enteritis."

Dr. McKinlay has suggested that the picture presented by these morbidity data could be utilized with much benefit for teaching purposes, and would at least help the embryo physician to visualize how different from his teaching experience will be his future work among the general population. In Scotland there are 2,000 insurance practitioners, and during the year to which this summary relates there were only 2,000 cases of terminated incapacity ascribed to tubercle, 774 to malignant disease, 3,666 to gastric and duodenal ulcer, and 7,022 to appendicitis. It is obvious, after making all necessary allowances, that many of the conditions so constantly appearing in hospital work may not be seen once in the course of a whole year by many doctors in general practice.

The bearing of these and other features of the morbidity statistics on the present controversy over the medical curriculum is obvious. I need not elaborate that point. At the moment I am more concerned with their bearing on the general direction of national health policy. Do they not tend to confirm—as the late Sir James Mackenzie used to maintain—that medical policy generally, as well as medical teaching, is directed too much to the end results instead of to the beginnings of disease? Ample diagnostic and specialist facilities are provided for tuberculosis, heart disease, and cancer; but every practitioner can testify to the difficulty he experiences in securing the necessary help, either in the way of diagnostic aids or treatment facilities, for nervous and cardiac debility, "D.A.H." and tachycardia, gastritis, bronchitis, and rheumatism—the conditions which he meets daily in his practice. The medical student is taught to apply some of the latest advances of medicine—the electrocardiogram, biochemical tests, and so on. Where are the facilities for using this knowledge once he is engaged in practice?

This deficiency of diagnostic facilities is one of the patent defects of the national insurance medical service. It is not the only one or even perhaps the most important, as members of the British Medical Association are well aware. The insurance medical service has taken its place as an essential part of our social organization. It is essential in the sense that we cannot think of

* Read in opening a discussion in the Section of Public Health at the Annual Meeting of the British Medical Association, Dublin, 1933.

returning to the old conditions—including club practice—which the national insurance scheme superseded, and it is unlikely that the community would ever contemplate with equanimity abandoning a scheme which ensures to the industrial population at call the services of a qualified medical practitioner. This scheme has done an enormous amount of good work, and on the whole it has justified itself. But it would be extravagant to claim that it has realized the expectations of those who launched it. When the scheme was started it was believed that preventive work would gradually emerge to play an important part alongside treatment. Where is the preventive service now? Has the operation of the scheme raised the quality of the medical profession as a whole? Most insurance practitioners, conscious, as they have every right to be, of the good work they do under the scheme, are yet ready to admit that their work does not achieve its full results, that they are hampered by limitations in the scope and range of the service, and by the inadequacy of necessary facilities for diagnosis and treatment. They are ready to admit, too, that much of their labour is devoted to ills of which the means of prevention are well established but are not used.

You are all familiar, no doubt, with the proposals of the British Medical Association to repair the deficiencies of the insurance medical service. Broadly stated, the Association desires to make the service complete: (1) by providing a medical service not merely for the class at present insured, but also for their dependants and others in like circumstances; and (2) by putting behind that service organized facilities for diagnosis and treatment in supplement of the practitioner's own resources. But may I suggest—without entering into any discussion of the Association's proposals—that the deficiencies of the insurance medical service are not simply a matter of statutory provision or of organization. If you have agreed with me in my previous suggestions, you will agree now that these deficiences reach back through organization and so on to the medical curriculum, and beyond the medical curriculum to the fundamental aim of national health policy.

The quality of the insurance medical service depends in the last resort on the quality of the insurance practitioner, and if his training is too much concerned with end-results how can he be expected to deal adequately with the mass of ailments, constituting the bulk of his daily work, which are not end-results, but which are the early stages of critical disease? To extend and supplement our existing organization without first having a clear idea of what the organization is aiming at, is to risk repeating old failures. If we clarified our aims we might find that changes more fundamental than additions to the present organization were required. We might find, for example, as I have suggested, that changes were necessary in the medical curriculum. We might find, also, that the reason the national health insurance service has done little as a preventive service is that medicine generally, as manifested in the training of medical students, in medical research, in our hospitals, and in our organized health services, is too much concerned with postponing death rather than with the promotion of healthy living.

If we turn to what we commonly call the public health services—sanitation, maternity and child welfare, school health services, infectious diseases, and so on—we encounter much the same mixture of satisfactions and dissatisfactions, and the same fundamental difficulties due to obscurity or confusion of aim. In these services prevention traditionally plays a large part. From our earliest attempts to control the spread of infection by measures of isolation, through the great development last century of pure water supplies, effective sewerage, and improved sanitary environment, the history of public health has been dominated by the idea of prevention. It should be remembered that there has always been an interplay between public health and the relief of poverty; and the rise during this century of social legislation in the form of insurance acts, special measures for maternity and child welfare, for control of tuberculosis, and so on, properly understood, was a continuation and development of this historical connexion. It was inevitable with this development that the balance should shift somewhat from prevention to treatment; and I am not sure that the emphasis has not shifted a little too far.

You are all familiar with the criticisms, now current, of individual services. It is said of the school medical service, for example, that too much of the work is merely the cataloguing of defects; of the tuberculosis service that tuberculosis is an eminently preventable disease, and that if some part of the money and effort devoted at present to treatment in sanatoriums were added to the inadequate measures for prevention, much more could be achieved. The success of the measures we have in operation for the systematic supervision of dairy herds, for example, ought to encourage us to further preventive efforts. There is little doubt, too, that the whole sanatorium policy calls for review in the light of what we have learned since it was instituted in 1912. It is said of our measures for controlling infection that, although much has been achieved, the persistence of the toll which the commoner infections—diphtheria, scarlet fever, measles, and whooping-cough—levy on child life is a reproach in view of our knowledge of immunization, nutrition, and other protective and preventive measures. Of the child welfare service it is said that it tends to drift from its preventive purpose to the pleasant exercise of not too discriminate philanthropy. Our measures for safeguarding motherhood have to suffer the reproach of a stubbornly unyielding death rate of mothers in childbirth. One could go on with this catalogue. Many members present could no doubt go much further than I, and, like myself, they would not find any pleasure, or be indulging any carping spirit, in itemizing criticisms.

We are conscious of failure in certain directions, and we are all anxious to discover the causes. Something is certainly due to defects of organization. The British Medical Association stresses the defect due to the separation of the family practitioner from the public health services. It urges that participation of the family practitioner in the work of the local authorities on maternity and child welfare, school health, and public assistance would make for a better service. That proposal, again, I am not going to discuss beyond pointing to the obvious fact that development of the public health and public assistance services on a whole-time salaried basis—that is, broadly, on existing lines—would lead to a State medical service operating on a scale that might be regarded as formidable. But if we admit that our organization for the public health should be based on the family practitioner, are we not thrown back again on the training of the practitioner and on the fundamental aims of health policy? If prevention of disease and the promotion of healthy living are regarded as the fundamental aims of policy, some alteration will have to be made in the training of the family practitioner before the execution of policy can be handed over to him.

It is urged also by the British Medical Association that the absence of an organic link between the insurance medical service and the local health authorities is a patent defect of organization. It can be readily agreed that the British Medical Association is right. But to establish the liaison, for example, by transferring the work of insurance committees to town and county councils, cannot be done as a mere matter of organization. Behind this

question, as behind most of those I have touched on, and many others such as the relation between industrial medicine and the other services, lies the deeper question of the aims of national policy.

Nowhere in the Statute Book can I find any definition of aims that would give us a unifying line through our problems of organization. The truth is, as we all know, that the health services have grown up haphazard. From crude beginnings at control of infection they now embrace a range of scattered activities that include sanitation, infectious diseases services, with special branches for tuberculosis and venereal diseases, school medical service, maternity and child welfare, industrial medical inspection, national health insurance, and several others. Each development of a service or addition to the number of services was made in response to some special need or feeling of the times. The result is a congeries of disparate activities. The insurance practitioner works in his field, the child welfare officer in his, the school medical officer in his, and none is inspired by the feeling that he is linked to the others by a common purpose.

It is my own belief, and the belief of many others, that we cannot and should not expect to solve our problems of defective results or organization until we have arrived at a definition of policy that would unify, so far as is possible, the whole range of activities bearing on the health of the people. That is not a job solely or even primarily for medical men; but the medical man must make his contribution along with the biologist, sociologist, administrator, and the plain citizen. The need for a clear definition of policy has been reinforced by the development of biological science in recent times. I do not mean by biology the crude propaganda that masquerades as eugenics, although the criticism that in some respects we are striving officiously to keep alive the weak at the expense of the strong, and thus doing injury to biological principles and to the race in the long run, has to be met. But biology, the science of life, and that branch of it, social biology, which deals with the numbers and quality of population, has much to say to us that could not be said when many of the present services and much of our existing organization were established. It will be strange if, in the light of modern biological knowledge, we do not find it necessary to adapt our services and organization so as more directly to promote healthy living. I do not imply that philanthropy should be shut out from the health or other social services; far from it. Philanthropy is a good old word, much abused, and the spirit it expresses, I hope, will live on in all our activities. What I imply in my plea for a biological assessment is a clearing of our minds so that we shall know when we are serving a biological and when a philanthropic purpose, and we shall regulate our activities accordingly.

The present is a time for stocktaking in medicine and in health policy. We have to discover our aims; we have to assess the worth of our present activities and modify them where necessary, so that they may most fittingly achieve the ends of defined policy. From such a stocktaking there will come, I believe, not merely improved organization, but also a new inspiration, which will carry us to achievements in public health greater than any we have known.

THE PRESENT POSITION OF SEROLOGY IN RELATION TO THE PATHOGENIC COCCI*

BY

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During the past decade there has been a rapid expansion of our knowledge of the pathogenic properties of the cocci which cause disease in man—more especially of the Gram-positive group. The chief advance has come from the realization that staphylococci and streptococci are true toxin-producing organisms in the same sense that the diphtheria bacillus and tetanus bacillus are toxin producers. Although no true toxin has been discovered for the pneumococcus,[1] improved methods of production of antibacterial serums have brought a new hope in the treatment of pneumonia. I propose to discuss the bearing which these and other advances have had upon the serology of the pathogenic cocci in relation to the recognition, prevention, and treatment of the human diseases for which they are responsible.

STAPHYLOCOCCUS

It has frequently happened in the history of mankind that a calamity has been turned to good account through the stimulus it has provided for more thorough investigation and research. While the existence of staphylococcal toxins had been fully realized and many of their properties had been described (Neisser and Wechsberg,[1] 1901; Kraus and Pribram,[2] 1906; Nicolle and Cesari,[3] 1914; Parker,[4] 1924), a disaster at Bundaberg, Queensland, in 1928, led to a more intensive study of staphylococcal toxin and antitoxin by Burnet[5 6 7] (1929, 1930, and 1931). In this disaster twelve of twenty-one children, who had been inoculated with contaminated diphtheria toxin-antitoxin, died from acute staphylococcal septicaemia. Subsequent to the work of Burnet in Australia, the investigations of Weld and Gunther[8] (1931) in America, Parish and Clark[9 10] (1931), Panton, Valentine, and Dix[11] (1931), and Panton and Valentine[12] (1932) in England, amongst others, served to make the properties of staphylococcal toxins and antitoxins more apparent.

Toxic Products

Toxins prepared by a special method kill rabbits, guinea-pigs, and mice rapidly, produce skin lesions in guinea-pigs and rabbits (necrotoxins or dermotoxins), and have a destructive action on leucocytes (leucocidins) and erythrocytes (haemotoxins or haemolysins). An enterotoxic substance, which caused vomiting and diarrhoea in monkeys, has also been described by Woolpert and Dack[13] (1933), who have made a special study of strains of staphylococcus from cases of food poisoning. There was a rough correlation between the amount of this food poison and the amounts of killing toxin, dermotoxin, and haemolysin. Although Burnet formerly regarded the various toxic constituents as manifestations of a single toxin, the work of Weld and Gunther[8] (1931) and Woolpert and Dack[13] (1933) suggests plurality of toxins, and Glenny (unpublished) has found at least two haemolysins with specific antibodies. In human disease the various toxic properties, which have been demonstrated in animals and *in vitro*, undoubtedly play their part; the lethal effects were only too clearly demonstrated at Bundaberg. There is no skin test for susceptibility or immunity to staphylococcal infections in human subjects analogous to the Schick and Dick tests. The reactions

* Read in opening a discussion in the Section of Pathology at the Annual Meeting of the British Medical Association, Dublin, 1933.

which follow the intradermal injection of toxic filtrates cannot be correlated with the amount of circulating antitoxin (Bryce and Burnet,[11] 1932).

Toxoid

Staphylococcal toxins may be rapidly converted into toxoid by formaldehyde. Toxoid is innocuous to laboratory animals, but can still bind antitoxin *in vitro*, and is an efficient immunizing agent, producing an increase in the amount of circulating antibody. Encouraging results have been reported from its use in the treatment of persistent, intractable, or recurrent staphyloccal diseases (Panton and Valentine,[12] 1932, Dolman,[13] 1933). We have provided some clinical friends with toxoid for use in cases of the kind under controlled conditions in an endeavour to confirm these observations.

Antitoxin

Antitoxin which is also an antihaemolysin can be prepared by the inoculation of horses and rabbits with a culture filtrate, but not with washed whole staphylococci. The serum can be concentrated. Apart from its capacity to neutralize toxin *in vivo* and *in vitro*, its most interesting property is that when it is given intravenously to rabbits with, or a few hours after, a certainly fatal dose of virulent living culture it prolongs and in some cases saves life. It is perhaps not generally realized that the use of antitoxic serum in staphylococcal infections is a recent development, for the older anti-staphylococcal serums were produced in response to immunization with suspensions of staphylococci and not toxic culture filtrates. The excellent results which have been obtained with antitoxin in laboratory experiment, and the promise which has attended its use in a small number of patients, justify more extensive clinical trial, especially in staphylococcal septicaemia. It is likely to be most effective in cases in which toxaemia is predominant, and should be given early, in large doses, and by the intravenous route. It is a rational form of therapy, for, theoretically at least, a serum which neutralizes toxins impedes one of the more important modes of attack by the staphylococcus, and thereby aids the natural defences of the tissues. On the other hand, one has to admit that contradictory reports have been made as to its usefulness. Its effect on the invasive properties of the coccus has not yet been determined, and it cannot be expected to take the place of surgery in such conditions as osteomyelitis, and staphylococcal abscess of the kidney, although it may be a useful adjunct. I have already referred to the plurality of toxic constituents in staphylococcal filtrates; antibodies to these substances are developed in different amounts in the serum of horses undergoing immunization. Further clinical investigation is necessary in order to assess the importance of these differences in antitoxic serums.

Streptococcus

Haemolytic Streptococcus Exotoxin and its Specificity

As in the case of the staphylococcus, the early literature of the haemolytic streptococcus contains many references to haemolysin, leucocidin, and the toxic symptoms produced after the injection of culture filtrates into animals. A new era of research followed the discovery by the Dicks[16] (1924) of the rash-producing (erythrogenic) property of the exotoxin of a scarlet fever strain. Filtrates were subsequently prepared not only from streptococci isolated from scarlet fever, but also from septic sore throat, erysipelas, puerperal fever, and other infections. There is still some difference of opinion as to the interrelationship of these toxins, but it is coming to be recognized that in most cases there is, if not identity, at least a common valency. "A clear-cut disease specificity of haemolytic streptococcus exotoxin quite definitely does not exist" (Williams,[17] 1932). Parish and Okell[18] (1928) and Okell[19] (1932) have stressed the essential similarity of toxins of the majority of strains from different sources. These workers found that scarlet fever antitoxin, prepared by the immunization of horses with filtrates of the Dochez strain of *S. scarlatinae*, could counteract toxaemia in rabbits infected not only with cultures of haemolytic streptococci from scarlet fever, but also from erysipelas and puerperal septicaemia. Homologous antitoxins, prepared with the less toxic filtrates of erysipelas and puerperal strains, were also effective, but to a less extent than the scarlet fever antitoxin. McLachlan[20] (1927), J. Smith[21] (1927), and other workers have performed cross-neutralization tests in Dick-positive subjects, and also concluded in favour of the very close relationship of the toxins used. Wadsworth[22 23] (1932 and 1933) has, however, noted that marked qualitative variations may be encountered in the toxins, even of two closely related strains, but that with selected cultures—for example, the Dochez N.Y.5—a serum could be prepared which neutralized the toxin of a large number of strains. Wadsworth agrees with Parish and Okell that there is no known method of distinguishing between the so-called *S. scarlatinae* and other human haemolytic streptococci, such as *S. erysipelatis*, and that "phasic variations" on the part of the streptococcus developing under special conditions of susceptibility on the part of the host would explain the apparently "specific" clinical conditions resulting from infection. He distributes for the treatment of all streptococcal infections a monovalent serum prepared by the immunization of horses with a scarlet fever strain of streptococcus—the Dochez N.Y.5—a procedure which has also been recommended by the English workers.

Antitoxin Treatment of Scarlet Fever

There would appear to be little doubt in this country and in America as to the value of scarlatinal antitoxin in the treatment of the initial toxaemia of scarlet fever, but there is very conflicting evidence as to its usefulness in preventing the septic complications. In the laboratory we found that while we were able with antitoxic serum to protect rabbits from the acute phases of the septicaemia resulting from the intravenous injection of culture, the majority of rabbits developed arthritis towards the end of the first week or later. Protection was never obtained against this phase of the infection with any antitoxic or so-called antibacterial serum we used. It is perhaps not surprising, therefore, that the incidence of septic complications has not been greatly influenced in hospital wards. Banks[24 25] (1932 and 1933) has had excellent results following the intravenous use of antitoxin; septic complications were almost wholly prevented, and the period of morbidity was reduced to just over a fortnight. On the Continent, however, where more serious outbreaks have occurred, the newer therapy has not established itself as an unqualified success, even in combating the initial toxaemia. It is possible that difficulties in connexion with titration, and thus with ensuring supplies of potent serum, have here played a part. Veldee, Stevenson, and Mitchell[26] (1931) have also concluded that "there is not an irrefutable case for the use of streptococcus antitoxin in the treatment of scarlet fever," but it should be noted that the majority of their cases were mild, and the dosage for the more severe cases would be considered inadequate by most clinicians. From a general review of the clinical and laboratory evidence I have little doubt that the treatment of scarlet fever with antitoxin is a rational procedure and has come to stay.

Passive Immunity and Active Immunization

McClean[27] (1927), Joe and Swyer[28] (1929), Nabarro and Signy[29] (1931), and many others have injected antitoxin prophylactically in doses of 5 to 10 c.cm. into all the Dick-positive contacts of cases of scarlet fever in hospital wards. Passive immunity is conferred which lasts for about a fortnight. At Great Ormond Street Hospital the method has been highly successful; nearly all cleft-palate and hare-lip patients are Dick-tested, and, if positive, given antitoxin before operation; scarlet fever rashes do not occur as in the pre-antitoxin era. Operations on the mouth region are carried out almost with impunity in any ward where scarlet fever is present. While serum has been used prophylactically in many other institutions in England with highly satisfactory results, it is, rather surprisingly, not employed to the same extent in the United States of America.

Dick-positive persons can be actively immunized with toxin, and become in this way negative (Dick and Dick,[16] 1924). Williams[17] (1932) recommends five subcutaneous injections of 500, 2,000, 10,000, 20,000, and 40,000 S.T.D. (skin test doses), and retests after one to six months. The majority of fever hospital superintendents are emphatic that active immunization is worth while, and state that nurses naturally Dick-negative do not contract scarlet fever.

Serum Treatment of Streptococcal Infections other than Scarlet Fever

The efficacy of haemolytic streptococcal antitoxin in combating non-scarlatinal infections has also been the subject of inquiry, and, although a beneficial effect has sometimes been reported, there have been many failures, and some years must elapse before a final judgement is possible. Wadsworth[23] (1933) has had striking improvement in erysipelas, the effect on the toxaemia preceding by a short interval in most cases the improvement in the local lesions; in other cases, however, serum therapy was without avail.

(Incidentally, in rabbit experiments, Parish and Okell[18] (1928) could find no evidence of specific blocking with antitoxin of the skin reactions produced by haemolytic streptococci injected intradermally, although, as stated above, they were successful in controlling the toxaemia following the intravenous injection of haemolytic streptococci from various sources. Their results regarding the influence of antitoxin on skin lesions were thus at variance with those of Birkhaug[21] (1925).)

In miscellaneous streptococcal infections, with and without bacteriaemia, Wadsworth has had good results, provided the appropriate surgical measures were also employed whenever indicated, but his most encouraging cases were those of septic sore throat, in which the response to serum therapy was "even more striking and spectacular than in scarlet fever or erysipelas." The last claim is surprising, for one would hardly expect passive antitoxic immunity to have much influence on the local faucial manifestations of streptococcal disease. Wadsworth insists that in all streptococcal diseases early administration and adequate dosage are all-important if success is to be achieved.

Another recent paper to which I must refer is that by Benson and Rankin[22] (1933), who deprecate the use in *puerperal septicaemia* of large doses of expensive serum, which have not only been ineffective, but have caused unpleasant symptoms, especially after intravenous injection. They make an exception for its use in the rare cases of puerperal scarlet fever. Since the vast majority of haemolytic streptococci from whatever source are capable of producing erythrogenic toxin *in vitro*, the use of antitoxic serum is theoretically sound treatment, even in those cases in which rash is absent. One might expect the antitoxin in certain instances to "tip the beam" in favour of recovery. However, some clinicians of repute, though not all (see Wadsworth,[23] 1933), have come to the same conclusion as Benson and Rankin, as to the inadequacy of streptococcus antitoxin in puerperal cases. Apparently the extent and severity of the local condition, in particular the presence or absence of dying or necrosed tissue, are much more important factors in determining the prognosis than is the amount of erythrogenic toxin passing into the circulation. In this connexion it is of interest to note that there is no significant difference between the liability of Dick-positive and Dick-negative pregnant women to invasion with the haemolytic streptococcus (Joe,[32] 1929). On reviewing the situation I feel I cannot lightly dismiss the presumptive evidence that scarlet fever antitoxin may be a useful therapeutic measure in the early high fever of puerperal streptococcal infections.

Although an antibacterial action on a homologous strain has been attributed to serums prepared experimentally by Lancefield and Todd[24] (1928), Downie[25] (1930), and others, no *antibacterial serum* is at present available to combat the pyogenicity and invasive properties of the streptococcus. Recently hope was raised by the preparation of an antihaemolysin of high titre by Todd[26 27 28 29] (1932 and 1933). Unfortunately "haemolysin" cannot be identified with the pyogenic principle.

Titration of Antitoxin

Titration of antitoxin is still a matter of considerable difficulty, no method having yet met with international acceptance. The skin neutralization test on human subjects—determining the quantity of antitoxin which will neutralize a known amount of toxin on intradermal injection—is much used in America. Veldee[19] (1932) has recently devised a similar skin neutralization method on the inner surface of the rabbit's ear. This method is still in the experimental stage, but has not proved very satisfactory in our hands. It is apparent from recent publications (Wadsworth,[23] 1933) that there is difference of opinion in America as to the minimum standard of potency for issue, and that many serums have been issued in the past of relatively low value. In our own laboratory the Parish-Okell[41] rabbit method—finding the quantity of antitoxin which will neutralize a culture of the Dochez streptococcus, or a dose of toxin given intravenously—has been used for many years, and a review of the evidence gives reason for believing that the rabbit method has ensured the production in England of serums which have been satisfactory clinically; tested by this method they have corresponded in potency to the best serum made abroad. My colleagues, Dr. Buttle, Dr. O'Meara, and Miss Whatley, have recently been engaged in investigating other and less expensive methods of titration. Dr. Buttle has been able to evaluate serums on the skin of selected rabbits—not necessarily chinchillas—on the lines originally suggested by Fraser and Plummer[42] (1930), (see also Kolchin: *Journ. Immunol.*, 1933, xxiv, 397), and Dr. O'Meara has had encouraging results with a flocculation test akin to the Ramon method for diphtheria toxin and antitoxin. Although it cannot be assumed that the reacting substances in the flocculation test are identical with the erythrogenic toxin and antitoxin, the method should prove a useful adjunct to other tests, even if it cannot replace them. A similar method has been used in Park's laboratory in New York (see Williams,[17] 1932), to determine tentatively the strength of toxins, but O'Meara has shown that the test can be applied to both unconcentrated and concentrated antitoxins. Research is constantly in progress to improve the potency of streptococcal toxins by studying the growth factors, as has been done for diphtheria toxin. Another recent development has been the selection of the most suitable horses for immunization, by ascertaining the presence or absence of natural

antibody. It is hoped that the future application of knowledge acquired in these studies will ensure the preparation of antitoxin of much higher potency than hitherto. With improved serums some advance should be possible in the therapy of streptococcal disease.

Precipitation and Agglutination

Time does not permit of a consideration of the analysis by Lancefield[13 41] (1928 and 1933) of the antigens present in the haemolytic streptococci, nor of the careful work on agglutination by F. Griffith[45 46] (1926 and 1927) and others. The observations of Glover and Griffith[47] (1931) on the common streptococcal infections of school age are, however, of considerable epidemiological importance. In the words of Okell[19] (1932), the present position with regard to agglutination is "much the same as with the meningococci and pneumococci where in larger epidemics certain types tend to recur, yet in interepidemic periods the organisms may be serologically heterogeneous."

Rheumatism

Acute rheumatism is now regarded by some workers as a condition of hypersensitiveness induced by some focus of streptococcal infection usually assumed to be in the tonsil. The allergic state can be set up by a large variety of streptococci (Swift et al., [48] 1931), of which the haemolytic group is probably the most important (Coburn,[49] 1931). Glover and Griffith[47] (1931) and Coburn and Pauli[50] (1932) regard as significant the comparative incidence of haemolytic streptococcal tonsillitis and rheumatic manifestations. In this country and in America investigations are now in progress on the dermal reactions frequently obtained with extracts of streptococci in rheumatic subjects (Collis,[51] 1931). It has been shown by Todd[37 38] (1932 and 1933) that abnormally high antistreptolysin titres may be present in the serum of rheumatic fever patients: this is further evidence of the association of acute rheumatism with previous haemolytic streptococcal infection. Antistreptolysin and antitoxin are apparently independent antibodies.

Non-haemolytic Streptococci

Apart from their possible role in the aetiology of rheumatic affections, the non-haemolytic streptococci may produce subacute infective endocarditis and occasionally septicaemia. On the whole, measures of treatment so far adopted—vaccines, immuno-transfusion, and the administration of serums prepared against the organisms isolated—have been singularly unsatisfactory.

Pneumococcus

I propose to restrict my remarks to certain aspects of the serology of the pneumococcus which have specially interested me, and to leave the more general discussion to Dr. Cruickshank, who has for some years been concerned in an investigation into the value of the serum treatment of pneumonia in Glasgow, and who gave the Milroy Lectures this year on pneumococcal infections.

Preparation and Titration of Serum

Antipneumococcus serum is prepared by the intravenous injection into horses of suspensions of dead virulent pneumococci. In some laboratories living organisms are subsequently injected to complete the course of immunization. The serum, which is type-specific, can be concentrated (Felton,[52] 1925). Titration of serum is really limited to the mouse protection test, the usual technique being an adaptation of the League of Nations method—that is, determining the smallest amount of serum which will protect mice against 0.01 c.cm. or 0.001 c.cm. of a culture of which the minimum lethal dose is 0.0000001 c.cm. to 0.000000001 c.cm., all the injections being given intraperitoneally (Felton,[52] 1925; Parish and Trevan[53](*a*) [53](*b*) 1930). Goodner[54] (1928) has suggested a method of titration in rabbits involving the intravenous injection of serum following the intradermal injection of culture, but this test is impracticable for the routine examination of large numbers of samples of serum. Sabin[55] (1933) has confirmed Goodner's observation that the rabbit intradermic method may give a different evaluation of potency from the mouse intraperitoneal method. *In vitro* methods of titration have also been investigated. The agglutination titre does not correspond with the antibody content measured by the mouse protection test. The precipitation value obtained with the soluble specific carbohydrate (Wilson Smith,[56] 1932) shows a much closer correlation with the mouse test values than does the agglutination titre, and it is therefore possible that the precipitation test may be useful in controlling the routine immunization of horses. Very recent work concerns the preparation and titration of a stable dried standard of potency based on the Felton standard, Type I (Hartley, Parish, Petrie, and Wilson Smith—*Lancet*, 1933, ii, 91). Dr. Hartley is now engaged in preparing a similar dried standard serum, Type II. A unit is defined as a certain definite weight of the dried product, and not, as in the case of the original Felton liquid standard, as that amount of serum which will protect against a million fatal doses of culture. By the use of this stable standard more accurate potency estimations of commercial serums should be possible. It follows that the labelled unitage of serums will be more correctly stated, and the clinician will thus be better equipped to estimate his dosage.

Treatment with Serum

The very high degree of protection obtained in mice would lead one to expect better results than have been reported in the treatment of pneumonia in man. In the mouse, however, the type of disease produced is not pneumonia, but a general septicaemia. When the serum is given intraperitoneally to mice at the same time as a million fatal doses of the homologous organism the animals can be saved; administered up to four hours afterwards it is still possible to "catch up" this massive infection (Parish,[53] (*a*) 1930). Petrie and Morgan[57] (1932) have made an exhaustive study of the therapeutic efficiency of serum against much smaller infecting doses, and have saved mice twelve hours after infection, even when there was demonstrable bacteriaemia. One is therefore encouraged to continue research on methods of preparing the most suitable suspensions for the immunization of horses, and on the concentration of serum. By the use of improved methods of immunization it has already been possible to prepare, in selected horses, unconcentrated serum of unusually high potency. This unconcentrated serum has the outstanding merit of cheapness. It is now generally agreed that serum reduces the mortality from Type I pneumonia in man, and probably produces a slighter, but still appreciable, effect on Type II cases. The therapeutic efficiency of serums prepared against other pneumococcal types is now being investigated in America. The serum should be given intravenously in large and, if necessary, repeated doses. The patient's clinical condition is usually regarded as the best indication as to further dosage, but Francis[58] (1933) has recently made use of a test injection of the soluble specific carbohydrate, given intradermally six to eight hours after the administration of serum. If no reaction is observed within half an hour a further amount of serum is given, but if the response is positive additional serum is unnecessary, for recovery has already begun. The work of Alston and Lowdon (*Brit. Journ. Exper. Pathol.*, 1933, xiv, 1) does

not support the view that positive skin reactions are associated solely with recovery from pneumonia.

Reactions After Intravenous Injection

In the early days of concentrated purified serum (Felton,[52] 1925) the reactions which occurred after intravenous injection were a serious drawback to its clinical use. With improved methods allergic manifestations have seldom been severe, and have yielded to the administration of adrenaline. For some years we have used mice for the detection of batches of serum of abnormal toxicity. A group of ten mice receives intravenously doses of 0.5 c.cm. of each concentrated serum, and the immediate and late effects are observed; if more than two of the animals die the batch is regarded as unsuitable for clinical use. We believe that this test has materially reduced the chance of reactions following the intravenous use of serum.

Serological Typing

One of the great deterrents to the use of serum has been the necessity for the serological typing of the infecting organism. Speedy and more accurate typing is now possible by such methods as those described by Sabin[59] (1930), Armstrong[60] (1932), Logan and Smeall[61] (1932), and Valentine[62] (1933). (See also Sabin: *Journ. Amer. Med. Assoc*, 1933, c, 1584.)

MENINGOCOCCUS

The serology of the meningococcus is on a much less satisfactory basis than that of the organisms we have just considered, for up to the present we have been severely handicapped by the lack of a reliable animal test for the differentiation of toxic products or the titration of serum. The position, however, will be radically changed if recent work, to which I shall shortly refer, is developed and confirmed.

Endotoxin and Exotoxin

The toxin of the meningococcus has usually been regarded as a typical endotoxin which can be liberated from the bodies of the organisms by autolysis, solution in 0.025 N NaOH, lysis by fresh guinea-pig serum, and various other methods (Besredka,[63] 1906; Gordon,[64] 1920; Murray,[65] 1929; Malcolm,[66] 1932). In comparative tests in mice, guinea-pigs, or rabbits no very reliable or constant results have been obtained with endotoxin or with dead cocci, although there is no doubt about their toxicity in sufficiently large doses. For many years all attempts to prepare a soluble toxin from the meningococcus have been unsuccessful, but recently Ferry, Norton, and Steele[67] (1931), Ferry[68] (1932), and Krestownikowa, Belkina, Dosser, and Lasowsky[69] (1933) have prepared filtrates from cultures on hormone broth, which were not only toxic to laboratory animals but were also antigenic. Rake[70] (1933) has studied the biological properties of "fresh" and "stock" strains, although not from the standpoint of toxin production. He refers to considerable differences between recent and old strains, the failure of recent strains to adhere to rigid type-specificity on subculture, and the ready growth, with pellicle formation, of the "smooth" recent strains on hormone broth. It is therefore possible that many workers in the past have failed to obtain a potent exotoxin because they have used "rough" cultures or unsuitable conditions of growth.

Preparation and Titration of Serum

Polyvalent antimeningococcus serums are prepared by injecting horses intravenously with suspensions of from four to eight strains, representative of the different serological types, and replaced every few months as more recent strains become available. The use of living cultures is emphasized by some serologists. A long course of immunization is advisable, since there is no completely satisfactory test of potency. It is true that Schwartzman[71 72] (1929 and 1931) has spent considerable time in elaborating the method which is known by his name, and which consists essentially in the intracutaneous injection of the test materials followed by an intravenous injection which makes skin reactions develop. For intravenous injection a weak solution of agar (Sickles,[73] 1933) is as useful as a specific meningococcus filtrate. The method is not an easy one to carry out, and requires a careful adjustment of the conditions; nor is there any evidence that it is an accurate measure of antibody. Murray[65] (1929) refers to the power of serum (1) to neutralize endotoxin (Gordon,[64] 1920), (2) to promote phagocytosis, and (3) to produce lysis of the meningococcus. He states that on the basis of these properties it should be possible to assess the therapeutic efficiency of a serum. Wadsworth[74] (1932) has fallen back on the agglutination test, which is admittedly unreliable, and merely indicates that horses have received immunizing injections with a number of strains. We also employ this method, and, like Wadsworth, give a potency index to each serum by averaging the agglutination titres for a few strains. Very recent work concerns the preparation of antitoxin by injecting toxic filtrates into horses (Ferry, Norton, and Steele,[67] 1931; Krestownikowa et al.,[69] 1933). The antitoxin content of the serum is apparently titratable clinically and in the laboratory.

Treatment with Serum

Ferry has claimed that antitoxin prepared as described above had a curative and protective action in guinea-pigs injected with a lethal dose of culture, while the ordinary antimeningococcal serum had little or no effect. He states that antitoxin was also of value in experimental meningococcal meningitis in the monkey. If this work should be confirmed and applied clinically to human infections a great advance will have been achieved. There is a good deal of evidence that antimeningococcal serum prepared in the ordinary way is of value clinically, but, as Topley and Wilson[75] (1929) have stated, it

> "has never been given under conditions which from a statistician's point of view could be considered satisfactory. To do this, it would be necessary to give the serum to alternate cases in an epidemic, and to treat both series of cases in other respects in identically the same way. This would mean performing a lumbar puncture on the control cases with the same frequency as on the serum-treated cases, since the effect of this measure alone appears to be of value. Until such a series is tried, we shall not be able to form a just opinion of the actual worth of the serum itself."

I give their view verbatim, for it illustrates the difficulty which the clinical observer may encounter who sets out to form a just opinion of the value of a new remedy. Methods of concentration of serum have recently been introduced, but in the absence of a satisfactory method of titration it is impossible to be certain that some essential constituent has not been lost during the process of refinement. The practical value of the concentrated product has not yet been demonstrated on a large scale. Another form of treatment which is being given a trial at present is the intrathecal injection of antimeningococcus serum to which fresh unheated human serum ("complement") has been added (Fairley and Stewart,[76] 1916; Bunim and Wies,[77] 1933). The rationale of this therapy is that, since complement is virtually absent from the cerebro-spinal fluid, and absent from antimeningococcal serum, some benefit might accrue from

making good the deficiency; the mechanism responsible for the sterilization of the spinal fluid might possibly be assisted.

Precipitation

Zozaya and Wood[78] (1932) have stated that the soluble specific carbohydrates and "nucleoproteins," obtained from the various types of meningococci and other Gram-negative cocci, have very similar properties and are not type-specific. In their experience the precipitable substance did not appear in the serum of horses undergoing immunization until the fourth month or later. Agglutination and precipitation did not run parallel.

Gonococcus

Toxic Products

Tulloch[79] (1929), writing in the *System of Bacteriology*, has stated that we have "frankly to admit ignorance of the precise nature both of the invasive mechanism and of the disease-producing mechanism of the gonococcus." Cultures, filtrates, and autolysates are all toxic to laboratory animals, the maximum toxicity being after prolonged incubation—which perhaps suggests that so-called "endotoxins" liberated by autolysis of the cocci are the essential toxic constituent.

Serums and Vaccines

As in the case of antimeningococcus serum, there is no adequate method of titration of the so-called "antibacterial" serum used in the treatment of gonorrhoea and its complications. Satisfactory evidence as to its clinical efficacy is also lacking. Vaccines may be of some value in the prevention and treatment of complications, although the published evidence does not lend itself to statistical analysis.

Precipitation, Agglutination, and Complement Fixation

I have previously mentioned that the soluble specific substances and nucleoproteins of all the Gram-negative cocci have very similar properties and are not type-specific (Zozaya and Wood,[80] 1932). As regards agglutination, serological types exist for the gonococcus as for the other organisms we have considered, but the difficulties in the technique of the agglutination reaction are considerable, and it is not always easy to reconcile the results of different workers. The complement-fixation test (see Tulloch,[79] 1929; Price,[81] 1930; Osmond and Oliver,[82] 1929) is of value in the diagnosis of gonorrhoea, but great care and experience are necessary in the technique of the reaction and in its interpretation. It is generally negative in the early stages of the disease, and positive for some time after cure has been effected. It is almost always positive when complications are present, and is therefore of considerable value in the diagnosis of arthritic and gynaecological diseases. The reaction ceases to be of diagnostic significance if specific vaccine treatment has been employed.

Conclusion

It will be seen from this brief review of the serology of the pathogenic cocci that considerable advances have been made of recent years in connexion with the Gram-positive group. As regards the meningococcus and gonococcus, the present position is much less satisfactory, but there are already some indications that more efficient antimeningococcal serums may become available. So far the serologist's most valuable contribution to the gonococcus problem has been the complement-fixation test.

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AN INVESTIGATION ON THE PHARMACOLOGICAL ACTION OF SOME NEW SUBSTITUTES FOR MORPHINE AND HEROIN

BY

G. NORMAN MYERS, M.D., Ph.D., M.Sc.

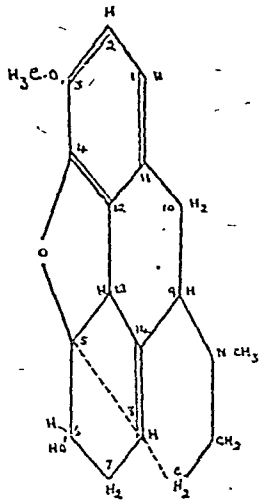
BEIT MEMORIAL RESEARCH FELLOW

(From the Pharmacological Laboratory, Cambridge)

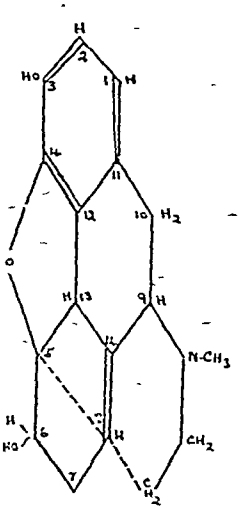
The fact that new substances akin to morphine are always being produced by the chemical industry is due to the desire to find, by means of fresh chemical combinations, a substance which is as useful as morphine but has not its harmful effects. During the past few years three new synthetic drugs have been manufactured and extensively used on the Continent as substitutes for morphine and heroin. These drugs are being manufactured in Germany, and are marketed under the trade names of "dilaudid," "dicodid," and "eukodol" respectively. The clinical literature on these drugs is fairly extensive, but little has been published with regard to their pharmacological action. Eddy,[1] however, gives an extensive survey of the literature bearing on dilaudid. The object of this investigation was to determine some of the more important pharmacological actions of these drugs and to compare them with morphine and heroin.

Dilaudid.—Chemically this is the hydrochloride of dihydromorphine. It is a derivative of morphine, and is manufactured from this source. The chemical relation to codeine, morphine, and dicodid is apparent from the following formulae. Dilaudid is a white amorphous substance which is soluble in water and alcohol but is insoluble in ether. The aqueous solution has a neutral reaction. The name "dilaudid" is a registered trade name patented by Knoll A.-G., of Ludwigshafen-on-Rhine. The

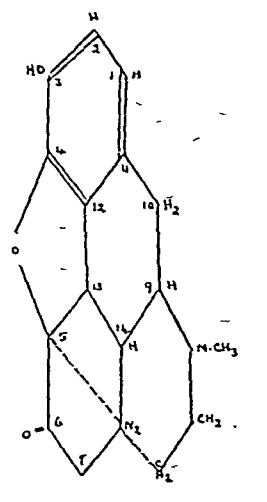
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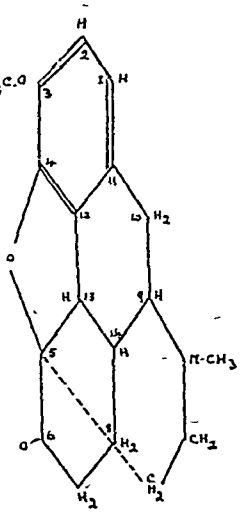
MORPHINE



DILAUDID



DICODID



drug is marketed as a substitute for morphine, and the makers claim for it an analgesic action and a quieting effect on the respiration.

Dicodid.—Dihydrocodeinone is the basis of dicodid. It is manufactured by a patent process by Knoll A.-G., of Ludwigshafen-on-Rhine. Its chemical structure shows it to be a derivative of thebaine. Since, however, it can be obtained from codeine, it must be regarded from the standpoint of production as a derivative of codeine, and so of morphine. Dicodid is the bitartrate of dihydrocodeinone. It is advocated as an analgesic and as a sedative of the respiratory tract.

Eukodol.—This drug is the hydrochloride of dihydroxycodeinone and is manufactured by a patent process by E. Merck of Darmstadt. Eukodol is not a derivative of morphine. It is manufactured from thebaine, and as opium contains but a small quantity of thebaine the amount of eukodol manufactured must therefore be very limited. No process is known for the manufacture of thebaine from morphine or codeine. It is used as a respiratory sedative and as an analgesic.

ACTION ON THE ALIMENTARY CANAL

(*a*) *Isolated Intestine.*—The small intestine of young rabbits weighing about 800 grams was used. The isolated intestine was suspended by the Magnus method in a Tyrode bath and the movements recorded on a kymograph.

Dilaudid.—In a concentration of 1 in 100,000 the drug causes a gradual increase in movements, which reach a maximum effect after about twelve minutes; no change in tone was recorded. This effect is followed by a gradual depression of both tone and movements. A solution of 1 in 50,000 rapidly produces a temporary initial increase in the movements of the intestine; this is soon followed by depression of movements and loss of intestinal tone. A concentration of 1 in 20,000 causes a rapid depression of both tone and movements.

Dicodid.—A concentration of 1 in 100,000 at first produces an increase in intestinal movements without any change of tone. Later, however, there is a depression of both tone and movements. A concentration of 1 in 20,000 causes an immediate initial increase in tone and movements, which is rapidly followed by a depression of both tone and movements.

Eukodol.—This drug has little effect upon the intestine. A solution of 1 in 100,000 is entirely without effect on the isolated intestine. One of 1 in 20,000, however, produces a gradual increase in intestinal tone, but has no effect upon the movements.

These results show that dilaudid and dicodid have a similar action upon the isolated intestine. Weaker concentrations at first stimulate the movements; this is followed by a depression. Weak solutions of these drugs have no effect upon the tone of the intestine. Greater concentrations, however, cause depression of both the movements. These effects are similar to, but much weaker than, those produced by heroin in the same concentrations. Heroin has a greater effect on the intestinal tone. Eukodol has no marked action on the isolated intestine and, in this respect, differs from dilaudid, dicodid, and heroin.

(*b*) *Intact Intestine.*—This was studied in pithed cats, which were kept alive by means of artificial respiration. A balloon recorder was placed in the lumen of the intestine and connected to a water manometer and a recording tambour. The drugs were injected intravenously via a cannula ligatured into the external jugular vein.

Dilaudid.—The intravenous injection of 1 mg. of dilaudid produces an immediate but insignificant loss of tone. After a few minutes the gut movements begin to increase. An injection of 10 mg. produces a well-marked increase in tone and movements, which may continue to increase gradually for thirty minutes or more. These increased movements are completely inhibited by an injection of 0·5 c.cm. adrenaline 1 in 20,000, or 0·5 unit of pituitrin.

Dicodid.—This drug in doses as small as 0·5 mg. causes an increase in intestinal tone and movements (Fig. 1) which can be inhibited by the injection of adrenaline or pituitrin. Larger doses of 20 mg. produce an immediate inhibition of movements, an effect which resembles the inhibition caused by adrenaline; complete recovery of both tone and movements follows in about ten minutes.

Eukodol.—Injections of 5 mg. or less have no effect whatever on the intestine. 10 mg., however, cause a marked increase in tone and movements; the intestine recovers to its normal condition fifteen minutes later.

These results agree with those obtained using isolated intestine, and clearly show that dilaudid and dicodid in small doses stimulate the tone and movements of the intestines in the same manner as small amounts of morphine or heroin. Depression of the intestine quickly

follows the injection of large doses. Uhlmann and Abelin,[2] who studied the action of morphine, hold that the effects on the small intestine are essentially similar in excised intestines and in living animals—namely, that very small doses depress the peristalsis, slightly larger doses stimulate the movements, and still larger doses produce a maximal stimulation, followed by paralysis. It will be seen that the results obtained in this investigation using dilaudid, dicodid, and eukodol closely approximate those of morphine. The early stage of depression described by Uhlmann and Abelin for very small doses of morphine was not obtained with dilaudid, dicodid, or eukodol.

(*c*) *Pyloric Sphincter and Stomach Movements.*—The movements of the pyloric sphincter were recorded by using a modified form of the apparatus described by Elliott.[5] Stomach movements were recorded by the balloon method. Cats which had been pithed and kept alive by means of artificial respiration were used, and all injections were given intravenously via the external jugular vein. The abdomen was opened and the recorder passed through an artificial opening made in the wall of the duodenum until the membrane rested in the sphincter of the pylorus.

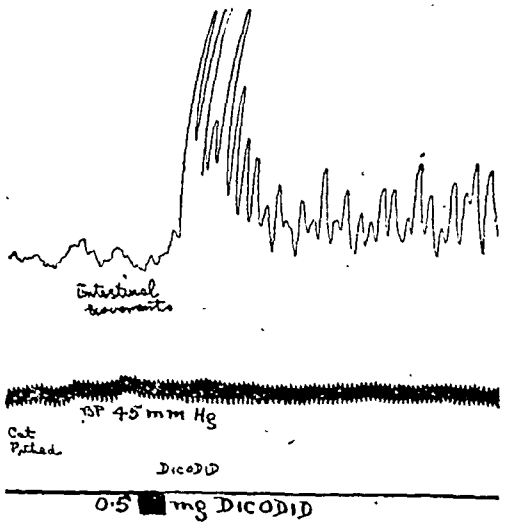


FIG. 1.—Intestinal movements and blood pressure, showing the effect of injecting 0.5 mg. dicodid.

The stem of the recorder was ligatured to the duodenum so as to prevent the apparatus slipping from the embrace of the sphincter. The abdomen was then closed and a water manometer attached to the pyloric recorder. Another manometer was connected to the balloon in the stomach, each manometer being connected to a recording tambour.

Dilaudid.—The intravenous injection of 0.5 mg. or 1 mg. of this drug produces a gradual well-marked increase in the movements of this sphincter, which reach a maximum effect after about thirty minutes. These increased movements may be continued for a period of two or three hours. At the same time the stomach movements are markedly increased, but the general muscular tone is not altered. The action on the stomach is slow and gradual, and reaches a maximum effect after about forty minutes. Larger doses of 10 mg. produce a similar effect, which is more rapid in onset and not so prolonged.

Dicodid.—The action of this drug upon both the pyloric sphincter and the stomach is so small as to be negligible. The injection of doses of 10 or 20 mg. produces only a slight increase in the tone and movements of the pylorus and the stomach.

Eukodol.—Ten mg., when given intravenously, produce a slight increase in the movements of the sphincter without any change in the muscle tone. The *movements* return to normal in ten or fifteen minutes. Smaller amounts of the drug have no effect, or an effect which is so small as to be negligible. The action on the stomach is similar to that of dicodid, but it is a little more marked. The movements are only slightly increased with doses of 10 to 20 mg.; the tone is not altered. Smaller doses have no effect. This feeble action of dicodid and eukodol is very similar to that of codeine.

Dilaudid is the only one of these three drugs which has a marked effect on the pyloric sphincter and the stomach, and in this respect it resembles morphine. Magnus,[3] who investigated the passage of the alimentary contents by *x*-ray methods, found that morphine acts upon the stomach, producing contraction of the sphincter antri pylori, and the pyloric and cardiac sphincters; this caused a delayed passage of food from the stomach to the intestines. Other observers[4] have shown that morphine tends to produce nausea and vomiting, and that the effect is independent of the mode of administration, the action being central. For comparative purposes it was decided to record the movements of the pylorus and the stomach, produced by morphine hydrochloride in exactly the same way as already described. It was found that an injection of 5 mg. causes a slight increase in the movements of the

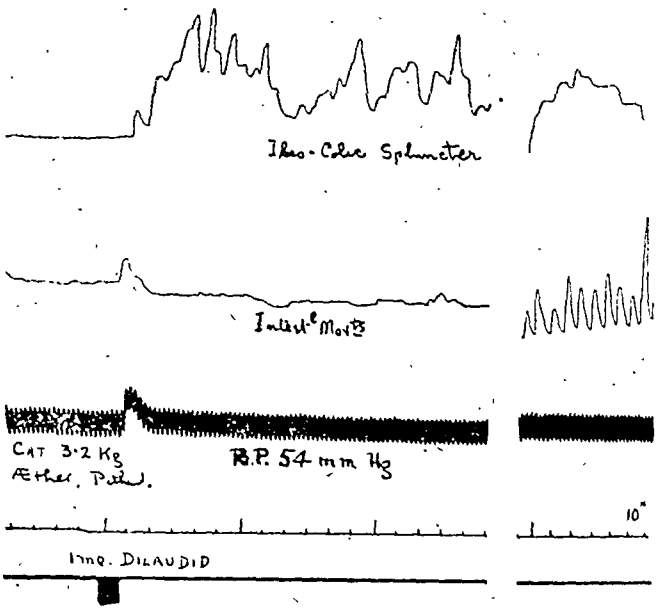


FIG. 2.—Upper tracing shows movements of the ileo-colic sphincter. Lower shows intestinal movements. One mg. dilaudid injected, six minutes interval. Time, 10 seconds.

stomach, but has little effect on the muscle tone. The movements and the tone of the pyloric sphincter are, however, increased in a most marked way. This action on the sphincter is slow and gradual, and only begins to take place two or three minutes after the drug has been injected. An injection of 20 mg., however, causes a most marked increase in both the tone and the movements of the stomach, which, when they reach a certain magnitude, result in true vomiting or retching by the animal. The pyloric sphincter shows a gradual but profound increase in tone and movements. Heroin in doses of 5 to 20 mg. increases the movements of the sphincter without altering the general tone of the muscle. This drug apparently has no effect on the stomach movements, as no changes were recorded using injections of 0.5 to 30 mg. These results show morphine to have a most active effect on the stomach and the pyloric sphincter. In this respect dilaudid resembles morphine much more than either dicodid or eukodol, which have a much weaker action.

(*d*) *Ileo-colic Sphincter.*—The movements of this sphincter were studied in cats which had been pithed and kept alive by means of artificial respiration. The method described by Elliott[5] was adopted. All injections were given intravenously via the external jugular vein. The method of recording was similar to that employed in the case of the pyloric sphincter.

Dilaudid.—One mg. when injected causes a profound increase in movements and tone, which lasts for ten to twenty minutes (Fig. 2). Larger doses of 10 mg. have a similar but

more marked effect which lasts for a longer period; it is common for the tone to be still increasing as long as thirty to forty minutes after the injection. An injection of 0.25 c.cm. adrenaline 1 in 20,000 inhibits these increased movements, but slightly increases the tone of the sphincter.

Dicodid.—This drug has an action similar to dilaudid; 1 mg. and 10 mg. produce the same effects as dilaudid.

Eukodol.—Injections of 1 mg. have no effect on the sphincter, but doses of 10 mg. cause an immediate increase in tone similar to that produced by dilaudid. These effects continue for ten to fifteen minutes, when the condition of the sphincter returns to normal.

Morphine.—The tone of the sphincter is immediately increased after the administration of 2 to 10 mg. Heroin in similar doses produces the same effects, which were found to last, in some cases, for thirty minutes or more.

These results show that dilaudid, dicodid, and eukodol increase the tone of the ileo-colic sphincter in the same manner as morphine and heroin. It is interesting to note that dicodid, which has such a weak action on the pyloric sphincter, has a well-marked action on the ileo-colic sphincter. Elliott[2] has shown that stimulation of the sympathetic nerves in the lumbar roots of the spinal column causes the sphincter to contract. He also showed that adrenaline produces the same effect as sympathetic stimulation—that is, constriction of the sphincter. It would appear from these results as if these drugs act either on the sympathetic system or directly on the intestinal muscle.

RESPIRATION

Cats anaesthetized with ether and urethane were used. Respiratory movements were recorded in two ways. First, by means of a ligature from the xiphisternum to a hook in the centre of a tambour, which was in turn attached to a recording tambour. The second method was by means of a tambour placed against the chest. Blood pressure was recorded from the right carotid artery, and the drugs were injected intravenously via a cannula ligatured into the external jugular vein.

Dilaudid.—This drug produces a most profound effect on the respiration, which becomes slower and deeper. The general effect resembles that produced by morphine. Doses as small as 0.25 mg. were found to slow the respiration from a normal rate of 70 or 80 per minute to 16 or 20 per minute, the depth being gradually increased to twice the normal amount. Larger amounts of the drug produce similar effects, but the respiration rate was never slowed to less than 16 per minute without causing complete failure of the respiratory centre in the medulla, which necessitated the use of artificial respiration.

Dicodid.—This drug has an action on respiration which is very similar to that of dilaudid and morphine. When given intravenously the breathing becomes slower and deeper. One mg. was found to slow the respiration from a normal rate of 60 per minute to 16 per minute, while the depth was increased. Similar effects were produced by larger doses.

Eukodol.—This drug has a marked effect upon the respiration. Even small doses cause a slowing and deepening, which is similar to that produced by dilaudid, dicodid, and morphine. An injection of 0.125 mg. has a most marked action; 0.5 mg. was found to slow the respiration of a 2-kilo cat from 40 to 16 per minute, and more than double the depth of respiration.

Heroin.—The action of this drug is similar; 0.5 mg. slowed the respiration from 46 to 16 per minute. The increase in depth with this amount of the drug is not so pronounced as with dilaudid or dicodid.

Toxic doses of any one of these drugs produce a serious progressive depression of the respiratory centre, as shown by the marked decrease in rate, depth, and efficiency of respiration. In each case the respiration is finally arrested before the heart is seriously injured. It is evident, therefore, that dilaudid, dicodid, and eukodol in both therapeutic and toxic doses produce an effect upon the respiration which is similar to that of morphine and heroin. An interesting observation with regard to the toxicity of dilaudid and eukodol was made as a result of these experiments. It was found that if an initial dose not exceeding 1 mg. per kilo be injected into an anaesthetized cat then the respiration becomes slower and deeper. Much larger doses of 30 to 40 mg. per injection can be now given without having much further effect on the respiration. On the other hand, if an initial dose in excess of approximately 5 mg. per kilo be given, then the respiration ceases and the animal dies. Similar observations were made with eukodol in similar doses. The explanation of this increased tolerance to dilaudid and eukodol after therapeutic doses is not apparent. One might suggest that some form of tissue immunity is quickly developed, or that the tissue cells become more able to detoxicate the drugs, or that excretion is facilitated in some way or other. Further experiments are now in progress with a view to obtaining an explanation of this phenomenon. Large doses of dicodid are tolerated well by anaesthetized cats, it being almost impossible to kill the animal with the drug. Experiments on the bronchioles of cats showed that dilaudid, dicodid, and eukodol have no action on this structure.

ACTION ON VAGUS CENTRE IN MEDULLA

Cats anaesthetized with urethane were used, and the blood pressure and the respiratory movements recorded. Both vagi were cut, and the central end of each stimulated in turn until the minimum current to produce an effect on the respiration was determined. The drug under test was then injected intravenously and the stimulations repeated. Typical protocols are tabulated below.

TABLE I.—*Cat (3.4 kilos)*
Dilaudid

	Vagus	Coil	Result
Normal	Left	30	—
		27	—
		24	+
		21	+ +
1 mg. dilaudid (intravenous)		30	+ +
10 minutes' interval		33	+ +
		36	+
		39	—

TABLE II.—*Cat (2.8 kilos)*
Dilaudid

	Vagus	Coil	Result
Normal	Right	21	—
		18	—
		15	— —
2.5 mg. dilaudid		21	+ —
		24	— —
		27	—
10 minutes' interval ...		27	—
		24	—
		21	—
		18	—
		15	+ +

TABLE III.—*Cat (3.6 kilos)*
Dicodid

	Vagus	Coil	Result
Normal	Left	30	—
		27	—
		24	— +
1 mg. dicodid		27	— +
		30	+
		33	—
10 mg. dicodid		27	+ — —
		30	— +
		33	+
10 mg. dicodid		36	—
		30	—
		27	— —

TABLE IV.—*Cat (2.5 kilos)*
Eukodol

	Vagus	Coil	Result
Normal	Left	33	−
		30	++
⅛ mg. eukodol...		33	−
		30	++
¼ mg. eukodol...		30	+
		27	++
1 mg. eukodol		30	−
		27	+
		24	+
		21	++

The results set out in Tables I and II show clearly that the sensitivity of the central vagus is considerably increased after the administration of small doses of dilaudid. Larger doses quickly depress the vagus after a short period of initial stimulation. Table III shows that dicodid in small doses stimulates the vagal centre, while larger doses lead to depression. Eukodol appears to depress the vagus centre from the beginning, even with very small doses. Jackson and Ewing,[6] Cohn,[7] and others have shown that morphine increases the reflex excitability of the vagus centre. It is obvious, therefore, that dilaudid and dicodid resemble morphine in this respect, while eukodol is devoid of this action.

THE CORD

Dilaudid and dicodid in large doses have a well-marked action on the spinal reflexes. One large dose of either of these drugs, or several smaller doses given within a short space of time, will produce twitching of the limbs or the whole body. These twitchings, when severe, are of a convulsive nature, and can always be produced in the conscious, pithed, or anaesthetized animal. A series of intravenous injections of either of these drugs, totalling 20 mg., given within fifteen minutes, was observed to produce increased reflexes with struggles in a pithed cat weighing 2 kilos. Smaller doses of 1 to 5 mg. do not visibly affect the spinal reflexes. Nau[8] compared the effects of morphine, dilaudid, and heroin on the central nervous systems of tadpoles, frogs, toads, and fishes. He concluded that all three drugs produced paralysis and convulsions. Larger doses per kilo of dicodid than of dilaudid are required to increase the reflexes. It was found by experiment that an average cat weighing 2.5 kilos required a total of 40 mg., given in smaller doses in a series of intravenous injections, to produce twitchings. The period during which the reflexes are increased may vary from a few minutes to almost an hour, according to the amount of the drug injected. The twitchings can be abolished immediately by injecting curare or by destroying the cord. They never take place with therapeutic doses, but only when these amounts are grossly exceeded. These effects are similar to those produced by morphine hydrochloride, which is much more active in this respect than either dilaudid or dicodid. Injections of 0.5 mg. of morphine hydrochloride will produce the same effects in a cat anaesthetized with urethane as 20 to 40 mg. of dilaudid or dicodid. Heroin produces similar effects. Eukodol, in even large doses of 60 to 100 mg., has no effect on the spinal reflexes. This is not what one would expect in view of the fact that eukodol is manufactured from thebaine, which is a powerful convulsant.

BLOOD PRESSURE

The effect of dilaudid, dicodid, or eukodol on the blood pressure is so slight as to be almost negligible. Injections of 0.5 to 5 mg. of dilaudid produce a slow gradual rise of 10 to 15 mm. of mercury in twenty to thirty minutes. Larger doses, of 20 mg. or more, generally have a reverse effect—a slight gradual fall of 10 to 20 mm. The heart is generally slowed; this is of central origin. Dicodid or eukodol in doses as large as 30 mg. have little or no effect upon the blood pressure or on the heart's action. With any of these drugs the circulation remains fairly good, even after toxic doses, until death occurs by paralysis of the respiration.

EFFECTS ON THE NORMAL ANIMAL

Dilaudid

(*a*) *Small Doses.*—A mouse weighing 16 grams was injected subcutaneously with 0.25 mg. dilaudid, and the following effects were observed.

10.40 a.m.—Injection given.
10.43 a.m.—The animal quickly showed signs of restlessness, and commenced to walk around the cage in a regular, monotonous way, with its tail stiff and erect. The respiration is markedly slower and deeper.
10.55 a.m.—There is great difficulty in using the hind limbs, which trail behind. The gait resembles the hyenoid walk seen in the dog under the influence of morphine.
11.5 a.m.—Marked analgesia is present; the animal does not resent pinching of the tail, as do the control mice.
11.40 a.m.—No change.
1.25 p.m.—The animal is walking better, but is still very restless. It walks continuously round the cage in an automatic way, and does not stop to rest like the control animals. It has no interest in food or its surroundings. It does not investigate obstacles placed in its path, but at once retraces its steps without trying to find a way around it. Should the obstacle be another mouse then it persistently pushes against it until it forces a way past.
1 p.m.—The gait is returning to normal, otherwise its condition is as before. The tail is still stiff and erect.
1.30 p.m.—There is a definite improvement. The condition has almost returned to normal. The animal stops to rest, and takes an interest in food. The gait is almost normal again, but the tail is still stiff and erect.
2 p.m.—Condition normal.

These results agree with those of Schoen,[9] who observed the effects produced in rabbits after the injection of dilaudid. He records slowing of the respiration, analgesia, abolition of postural reflexes, and an increase in general muscular tone.

(*b*) *Toxic Doses.*—One mg. of dilaudid was injected subcutaneously into a 16-gram mouse.

2.30 p.m.—Injection.
2.43 p.m.—The tail is stiff and erect, respiration is markedly slower and deeper, and the mouse walks around in an automatic fashion without resting.
3.5 p.m.—The animal is now more sensitive to noise than the controls. The restlessness is still present. The hind limbs become stiff and spastic from time to time, which renders walking very difficult.
3.15 p.m.—Walking is becoming increasingly difficult.
3.30 p.m.—The gait is more spastic than before, and the spinal reflexes are enormously increased.
3.45 p.m.—The hind limbs appear to be paralysed. The animal can only move a few inches at a time, and then falls as if intoxicated, with its hind legs stretched out rigidly behind and the tail stiff into the air.
3.55 p.m.—Both hind limbs and fore limbs appear paralysed. The animal is almost unable to move.
4.20 p.m.—Great difficulty is experienced in recovering its posture after having been placed on its back. The reflexes are still very active.
4.23 p.m.—Convulsions, followed by death.

Dicodid

(*a*) *Small Doses.*—One mg. was injected subcutaneously into a 16-gram mouse:

10.45 a.m.—Drug injected.
10.50 a.m.—Tail stiff and erect. Respiration is slower and deeper. The animal walks around the cage in a manner similar to that described for dilaudid. There is great difficulty in walking. The animal stops from time to time, and rests on its belly with its hind limbs stretched out stiffly behind. There is marked analgesia present.
11.20 a.m.—Condition the same. The restlessness continues. The control mouse sits still most of the time, while the other keeps moving continuously in an automatic way.
12.10 p.m.—The paralysis of the hind limbs is passing away, and the mouse is now running around in an almost normal manner; but restlessness is still present.

2 p.m.—There is now an interest in food, and the animal is eating well.

2.35 p.m.—The condition is now almost normal again, and the animal is washing itself. It is still more active than the controls.

(*b*) *Large Doses.*—Ten mg. were injected subcutaneously into a 16-gram mouse. Death took place in fifty minutes in a manner similar to that already described for dilaudid.

Eukodol

(*a*) *Small Doses.*—A subcutaneous injection of 0.25 mg. was given to a 16-gram mouse.

10.40 a.m.—Drug injected.

10.55 a.m.—Respiration slower and deeper. There is a markedly increased activity. The mouse walks or runs continuously around the cage with its ears and tail stiff and erect.

11.10 a.m.—The condition has not changed beyond a pronounced increase in the reflexes.

11.40 a.m.—Food placed in the cage. The mouse immediately investigated it and ate a fair amount. Analgesia is present, as measured by nipping the tail.

12.10 p.m.—Condition as before.

12.45 p.m.—Condition appears normal again.

The effects produced by a subcutaneous injection of 5 mg. eukodol are almost entirely of a depressant character—apathy, stupor, and analgesia. The acute reflexes are heightened, but firm pressure, such as nipping the tail, which would be very painful in normal animals, elicits no response. There is a peculiar clumsiness and lack of co-ordination in the voluntary movements. The animal stands only with difficulty, walks unsteadily, and often drags its hind limbs in a manner not unlike the "hyenoid walk" described for morphine by Claude Bernard. The respiration is markedly slowed, and the tail erected. Complete recovery takes place later without any untoward symptoms. The effects produced in the mouse by dilaudid and dicodid are almost identical. Small doses of either of these drugs produce marked slowing of the respiration, and analgesia. Larger amounts increase the spinal reflexes, in addition. The toxicity of dicodid is very much less than that of dilaudid. Very large amounts of eukodol are tolerated by mice without any lethal effects. The stiff erection of the tail produced by these drugs has been described by Straub, as taking place in mice after the hypodermic-injection of morphine or its esters. Rassers[10] described the same effect with other convulsants, but generally only with large doses. Van Leersum[11] believes this to be due to intense tenesmus of the anal and bladder sphincters, originating in the medulla and transmitted through the pelvic nerves, while Heinekamp[12] refers it to stimulation of the spinal cord.

DISCUSSION

It has been shown that the pharmacological actions of dilaudid, dicodid, and eukodol are very similar to those of morphine. Dilaudid approximates very closely to morphine, but is much more toxic; smaller amounts of dilaudid than of morphine are needed to depress the respiratory centre. Dicodid, on the other hand, seems to lie midway between morphine and codeine. Dilaudid has a well-marked action on the gastro-intestinal tract. It stimulates the movements of the intestine and stomach as well as those of the pyloric and ileo-colic sphincters. This action on the gastro-intestinal tract resembles that of heroin. Dicodid increases the movements of the intestine and the ileo-colic sphincter, but has little effect on the stomach and the pyloric sphincter. Both of these drugs increase spinal reflexes and general muscle tone. They slow the respiration and increase the amplitude by depressing the respiratory centre in the medulla; they have little or no action on the bronchioles. Eukodol differs from the others in many ways. It has a much feebler action on the movements of the alimentary tract, and does not increase spinal reflexes. It has, however, a profound effect upon respiration, which is as marked as that produced by either dilaudid or morphine. Considering that this drug is manufactured from thebaine one might have expected some signs of it being a convulsant, but none were found. On the contrary, it produced depression of the respiratory centre and a marked diminution of pain sense. It has no effect on the bronchioles. It is interesting to note that any or all of these drugs when injected into mice produce a stiffening and an erection of the tail similar to that caused by morphine.

SUMMARY

1. Dilaudid, dicodid, and eukodol have an action on the respiration which is similar to that produced by morphine. They have little or no effect upon the bronchioles.

2. These drugs produce marked analgesia.

3. Dilaudid and dicodid have a marked action upon the tone and movements of the alimentary canal. This effect is very much less marked with eukodol.

4. Small doses of dilaudid or dicodid render the vagal centres in the medulla more sensitive; larger doses depress. Eukodol depresses the centre, even in small doses.

5. Toxic doses of dilaudid or dicodid increase the reflex excitability of the cord. Eukodol does not alter these reflexes.

6. The toxicity of dilaudid and eukodol is much greater than that of dicodid. Anaesthetized cats can withstand enormous doses of these drugs provided that they are administered after a smaller therapeutic dose. An initial large dose causes death from respiratory failure.

7. These drugs have only a negligible action on the cardio-vascular system. Dilaudid causes some slight slowing of the heart, which is central in origin.

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THE TREATMENT OF ACUTE OTITIS MEDIA IN ACUTE FEBRILE CONDITIONS*

BY

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We may assume that practically all cases of acute otitis media arising in acute febrile conditions develop as the result of a spread of infection from the nasopharynx along the Eustachian tube to the middle-ear cleft. This is particularly prone to occur in young children who have enlarged adenoids and tonsils when they develop a common "cold in the head," or suffer from any of the acute infectious fevers. It is estimated that the common "cold in the head" and influenza are responsible for more cases of acute otitis media than all the other infectious fevers combined. The percentage of middle-ear infections in influenza varies greatly in different epidemics. This is true also of all the infectious fevers, but probably about 10 per cent. of scarlet fever and measles patients

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develop an acute otitis media, about 5 per cent. of diphtheria patients, and a much smaller percentage of mumps, typhoid, and whooping-cough patients.

THE SPECIFIC FEVERS

1. Scarlet fever is very prone to give rise to an acute otitis media, either in the early stage of the disease or during convalescence. A sudden rise of temperature during convalescence should immediately direct attention to the ear as a probable cause of the pyrexia. The infection is liable to be fulminating and virulent, and to pass rapidly and deeply into the tissues, causing an early perforation, or even destruction of the drum membrane or a panotitis with labyrinthine involvement. Early paracentesis is called for to relieve pain, to lower the temperature, to afford free drainage of the pus which so rapidly forms, and to diminish the marked liability of spread to the mastoid and labyrinth.

2. Measles resembles scarlet fever in inducing an otitis media which may be virulent and rapid in its onset, and which may early spread to the deeper parts of the middle ear, causing mastoiditis and deafness. The membrana tympani quickly becomes red, swollen, bulging, and flesh-like; perforation rapidly ensues, and extensive destruction of the drumhead occurs. Both in scarlet fever and in measles there is an inherent tendency in the acute otitis media to develop into the chronic suppurative otitis media, and to require mastoid operation, even though an efficient myringotomy may have been performed and early and careful conservative treatment may have been instituted and maintained throughout.

3. Diphtheria is less frequently complicated by acute otitis media than either scarlet fever or measles. When antidiphtheria serum is administered in the early stages of the disease otitis media seldom intervenes. When, however, the middle ear becomes infected with the Klebs-Loeffler bacillus the otitis media may be most intractable and resist all treatment, so that a mastoidectomy may become necessary. In view of the fact that the discharge induced by the diphtheria bacillus is alkaline, it has been suggested that treatment with an acid, such as boric or citric acid, will be beneficial.

4. Influenza otitis media is characterized by a haemorrhagic exudate into the middle-ear cleft. In many epidemics the infection shows a marked tendency to spread to the mastoid very early, and it is not infrequently complicated by meningitis, which runs a very fulminating course and ends quickly in death. Haemorrhagic bullae are sometimes formed on the membrana tympani and on the walls of the deeper part of the external auditory meatus.

5. The acute otitis media occurring in cases of typhoid, pneumonia, whooping-cough, and mumps shows no special features. It may be of the nature of an acute catarrh of the mucous membrane of the middle ear, which may resolve spontaneously, or be evacuated by spontaneous rupture or by paracentesis of the tympanic membrane; or the inflammation may have passed on into the suppurative stage, and have produced the typical acute purulent otitis media and mastoiditis, which may be complicated by subsequent labyrinthitis or facial paralysis, or by intracranial sequelae such as meningitis, lateral sinus thrombosis, temporo-sphenoidal abscess, and cerebellar abscess, or by septicaemia.

BACTERIOLOGY OF ACUTE OTITIS MEDIA

Streptococcus haemolyticus is the most commonly found organism in the early stage of acute otitis media. The pneumococcus is also often present, particularly in cases of influenzal otitis media, and in pneumonia. *Staphylococcus aureus* and *albus* are frequently to be found in the discharge after a few days, but they may be absent in the initial stage. *Pyocyaneus* and diphtheria bacilli are also sometimes to be found in the discharge, and a mixed bag of other organisms.

My colleague Dr. J. H. Pollock investigated the bacteriology of the discharge in fifty-three cases of acute otitis media occurring in Cork Street Fever Hospital. He found after a few weeks that *Staphylococcus aureus* was present in thirty-one cases and streptococci in only five, although many of the cases of acute otitis occurred in scarlet fever patients. Diphtheria bacilli were found in fourteen cases. Dr. Pollock drew attention to the fact that they were often present in cases of measles and scarlet fever as a coinfection.

He found that autogenous vaccines were of considerable help in clearing up the otitis media if it persisted for more than a month.

TREATMENT

This will naturally resolve itself into: (*a*) general treatment and (*b*) local treatment. The former will consist of treatment of the specific fever—for example, anti-scarlet-fever serum in scarlet fever patients, and antidiphtheria serum in diphtheria patients, with rest in bed in a warm, but not overheated, room, and protection from changes of temperature which might increase the nasopharyngitis. A purge should be administered, and the patient should be put on light diet in the febrile condition.

Local treatment will fall into three categories: (1) abortive; (2) conservative, including myringotomy; and (3) operative—mastoid operation.

Non-operative treatment is undertaken if the drumhead, though red, is not bulging. Drops of warm glycerin of carbolic should be instilled into the ear. A diaphoretic mixture or aspirin should be given to induce sweating and to relieve pain. A hot-water bag should be applied to the ear, or an antiphlogistine poultice may be applied over the mastoid and over the ear. If the membrane begins to bulge no time should be lost in relieving the tension and pain by myringotomy. Hearing is better preserved by early myringotomy than by allowing the membrane to rupture. I have ceased to employ leeches to the mastoid or to use the ice-bag.

Indications for Myringotomy

In the early stages of acute catarrhal otitis media myringotomy is not often required. Surgical treatment becomes necessary when the drumhead is red and bulging. It is even more imperative when pain and tenderness over the mastoid are well marked. Paracentesis of the membrana tympani should not, in my opinion, be delayed, particularly if severe pain persists and the temperature remains high. A free oblique incision through the posterior portion of the drum membrane is made under nitrous oxide anaesthesia. I emphasize the necessity for a free incision in order to ensure adequate drainage and to obviate too early closure. The incision is best made in a vertical or oblique direction from below upwards and parallel with the handle of the malleus through the posterior portion of the membrane, or through the most bulging portion of the membrane. A carefully made incision of the membrana tympani will almost invariably heal with complete restoration of hearing when the discharge ceases, whereas a perforation resulting from spontaneous rupture, consequent upon pressure necrosis and destruction of part of the membrane, is less likely to close.

The subsequent treatment resolves itself into the adoption of a "wet" or "dry" technique, according to the circumstances of the case and the environment and social position of the patient. For ordinary routine practice in hospital and in the out-patient department I favour irrigation of the ear with a solution of boric acid or bicarbonate of soda several times a day, according to the amount of the discharge. This should be followed by

the instillation of a saturated solution of boric acid in alcohol (boric acid grains xxx, spirit. vini rect. ʒ i, aquae ʒ i) for ten minutes, the patient's head being *inclined to the opposite shoulder*. This should be repeated several times a day when the discharge is profuse, and less frequently as the discharge diminishes. The technique of "dry" treatment consists in applying the end of a narrow wick of iodoform gauze to the perforation, the other end projecting through the external auditory meatus. In this way the pus is drawn off by capillary traction.

Some otologists recommend the use of hydrogen peroxide drops for clearing the pus from the external meatus, prior to using the boric alcohol drops. On theoretical grounds this treatment is anathematized by other otologists on the assumption that the pus may be driven into the mastoid cells, the bacteria-laden discharge sitting loosely, so to speak, on the surface of the bubbles of oxygen as the peroxide is disintegrated in the tympanic cavity. A somewhat similar charge might be levelled, with equal cogency, against the use of the syringe, for surely the pus is conveyed by syringing through the perforation in the membrana tympani into the tympanic cavity. It is sometimes found that the fluid escapes into the nasopharynx along the Eustachian tube, and if it can pass so readily into the Eustachian tube, which communicates with the tympanic cavity anteriorly, it can pass almost as easily into the mastoid antrum posteriorly. To my mind these are purely hypothetical objections; in actual practice such spread of the infection is not likely to occur, but I would like to hear the opinions and experience of subsequent speakers on this point.

Politzerization and Inflation

In order to restore the hearing after an attack of acute otitis media, politzerization, or inflation through the catheter, may be carried out, but this should not be resorted to during the acute stages of the inflammatory process, and certainly not before perforation of the drum membrane has occurred spontaneously or by paracentesis, as I feel that infection may be carried to the mastoid antrum and to air cells which may not be infected already. Acute otitis media is very liable to periodical recurrence, particularly when the patient is suffering from large adenoids and tonsils. If, therefore, the attack is prolonged and the discharge does not cease, the offending adenoids and tonsils should be removed, particular attention being paid to lateral extensions of adenoids, which occupy the fossae of Rosenmüller behind the Eustachian tubes. Other pathological conditions in the nose, such as polypi, deviated nasal septum, and sinus suppuration should also be effectively dealt with to obviate a return of the acute otitis media.

Acute Purulent Otitis Media

It is not known what determines the type of middle-ear infection which ensues from infection with a given organism. Indeed, the acute purulent otitis media is probably only a later stage of the acute catarrhal otitis media which has not resolved. This is borne out by the well-established observation that on paracentesis of the drumhead in a case of acute catarrhal otitis media the discharge at first may be purely serous, and in twenty-four hours may be profusely purulent. It is probable that in all cases of acute otitis media the mastoid antrum is involved to a greater or lesser degree. It is certainly unlikely that when the tympanic cavity is full of catarrhal or purulent fluid some will not escape into the mastoid antrum through the aditus. Whether the mastoid antrum and air cells then merely act as an overflow reservoir, or become infected and give rise to a typical mastoiditis, will depend upon the virulence of the infecting organism and the immunity of the patient and the local resistance of the mastoid.

In the acute purulent otitis media the pus is specially prone to travel back into the mastoid antrum. It may be several days before the tympanic cavity is distended and the drum membrane bulges outward. Moreover, paracentesis of the membrane may not afford the immediate relief which occurs in the case of acute catarrhal otitis media. Myringotomy must be performed in the very earliest stage of acute purulent otitis media. In spite of all our efforts to afford ample drainage of the tympanic cavity by myringotomy, and notwithstanding careful attention to the details of disinfecting the middle ear by syringing and antiseptic drops, the mastoid only too frequently becomes involved in the suppurative process. Indeed, the mastoid in all likelihood is infected in all cases of acute otitis media to some extent, but in many cases it may be drained effectively through the aditus, as the inflammation subsides, without operation on the mastoid.

Indications for Mastoidotomy and Mastoidectomy

As we have seen, the mastoid is often involved early in cases of influenza, scarlet fever, and measles where the organism is virulent and the patient's immunity is lowered. When there is a free discharge through a perforation of the membrana tympani, but severe pain persists and the temperature does not subside—particularly if there is marked tenderness to pressure over the mastoid antrum or tip, accompanied by oedema, redness, and swelling over the mastoid, together with a bulging of the postero-superior wall of the meatus in close proximity to the drum—we may with safety conclude that the mastoid is not being adequately drained, and must therefore be opened.

These are the cases of manifest mastoiditis which cry out for operation, but there are many in which the indications for operation are not so apparent and obvious. Thus we not infrequently find some pain and mastoid tenderness in early acute otitis media which are rapidly relieved by timely paracentesis and conservative measures. The patient is not acutely ill, and the temperature gradually subsides with the provision of adequate drainage by myringotomy. If, however, there is any doubt in the mind of the surgeon it is far safer to operate than to allow the patient to run the grave risk of intracranial complications by ill-judged procrastination.

Simple Mastoid Operation

In most cases of mastoiditis complicating acute suppurative otitis media, some form of simple mastoid operation will suffice. The radical mastoid operation will be unnecessary, except in those comparatively rare virulent cases in which rapid necrosis of the labyrinth or of the tegmen tympani takes place and intracranial complications have already intervened.

Many variations in the technique of the original Schwartze operation have been introduced by different otologists. In fact, we may almost say "Quot homines, tot sententiae." The essential fundamental principles to be aimed at, however, are free drainage and the removal of all necrotic bone. It behoves us, therefore, thoroughly to open up the mastoid antrum, and to extend the operation to include all infected mastoid cells right down to the tip cell, which will frequently be found to be filled with pus, even though the intervening cells may appear to be comparatively healthy. If the bone below the middle cranial fossa is infected it must be removed to expose the dura. The same applies to the bone over the lateral sinus, where more infected cells may be found.

Cells at the root of the zygoma above and superficial to the mastoid antrum must also be attacked, and in like manner must the post-facial cells which lie behind the descending portion of the facial nerve be exenterated. Neumann's advice is: "Be radical in the conservative mastoid operation."

If we are entirely satisfied that all infected cells have been completely freed of pus and graulations we can now allow the cavity to fill with blood clot and suture up the mastoid wound without drainage, or a small silkworm-gut drain may be inserted into the lower end of the wound for twenty-four hours. In this way primary healing will take place in those cases in which the patient's general resistance has not been too severely sapped by a virulent infective fever. Most surgeons, however, prefer to act on the principle of "safety first"; they leave the mastoid incision partly open and drained by tube or gauze wicks.

The adaptation of Heath's conservative mastoid operation, in which the mastoid incision is completely sutured and the cavity drained with a tube through the posterior wall of the external auditory meatus after removal of much of the posterior bony wall of the meatus, commends itself to some otologists.

If there has been any exposure of the dura of the middle fossa or lateral sinus by the disease, and the dura is covered with granulations, and particularly if the patient is suffering acutely from toxaemia of the infection, it is certainly preferable to leave the wound widely open and to afford adequate drainage by tube or gauze wicks inserted in parallel strands and not packed tightly in the cavity. It is a safe procedure to treat the bony cavity with bipp, which also has the added virtue of facilitating the removal of the gauze wicks and diminishing the pain of the early dressings. The tube or gauze wicks may be changed in three days, and thereafter daily or every second day. As the discharge becomes serous they may be dispensed with and the cavity allowed to close. In this way healing will be complete in about three or four weeks, and the hearing power in most cases will be restored to normal and the perforation of the drum will be closed. This should be the ideal aimed at; and if properly and honestly aimed at it will be achieved.

Summary

In the early stage of acute otitis media abortive measures, such as rest in bed, administration of a purge, steam inhalations of friar's balsam, drops of warm glycerin of carbolic, a rubber hot-water bag to the ear, may suffice to bring about resolution and cure. If this is ineffective the drum membrane should be freely incised and adequate drainage of the tympanic cavity and of the mastoid antrum, via the aditus, afforded. This may bring about a restitution to normal of an infected mastoid. If temperature persists in spite of adequate drainage, and mastoid pain and tenderness increase, and the patient is obviously not improving, mastoidotomy becomes imperative, and should not be unduly delayed. By adopting such a definite course we may hope to avert the onset of the more serious complications of otitis media—namely, meningitis, lateral sinus thrombosis, cerebral and cerebellar abscess, facial paralysis, labyrinthitis, and deafness, the treatment of which is outside the scope of this paper.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

PERFORATED GASTRIC AND DUODENAL ULCER

A Survey of Fifty Consecutive Cases

During the period 1927 to 1931, I operated on fifty cases of perforated ulcer of the stomach and duodenum, and from a survey of these some interesting features emerge. These are recorded as under:

Sex.—Of the fifty cases all were males. In 1906 the late Professor Caird[1] of Edinburgh published a series of twenty-five consecutive cases of operation for perforated gastric and duodenal ulcer, and of these fifteen were females and ten males. Hamilton Bailey[2] in ninety-three cases had only nine females with perforated ulcer.

Age.—The average age was 39½ years, the oldest being 67 and the youngest 16.

Previous Symptoms.—Thirty-seven of the patients had suffered from previous attacks of stomach trouble, and the other thirteen denied any prior gastric symptoms.

Previous Treatment.—Out of the total number thirty-two had been treated by dieting and medicine, and twenty-four had been told that they had a gastric or duodenal ulcer.

Situation and Type of Ulcer.—In all cases the ulcer was chronic in type, and was situated on the anterior aspect of the stomach or duodenum. The situation of the ulcer in the fifty cases was: proximal to the circular vein of Mayo, 11; first part of the duodenum, 39.

Time between Perforation and Operation.—The number of hours perforated worked out at an average of nine. Fifty-one hours was the longest period perforated, and there were eleven cases in which the man was operated on within four hours of perforating. Details are shown in Table I.

Table I

No. of Hours Perforated	No. of Cases	No. of Deaths
3-12	41	2
13-24	5	0
25-51	4	2
Total	50	4

Type of Operation and Mortality.—The cases have been divided into three groups, according to the type of operation performed, and the mortality rate for each group is shown in Table II.

Table II

Group	Type of Operation	No. of Cases	Deaths	Mortality per cent.
1	Closure of ulcer with drainage of abdominal cavity	32	2	6.2
2	Closure of ulcer without drainage	5	0	nil
3	Closure of ulcer with drainage and gastro-jejunostomy	13	2	15.3
	Total	50	4	8

This gives a general mortality of 8 per cent. for the fifty cases.

Fatal Cases.—These are shown in Table III.

Table III

No.	Age	Hours Ill	Operation	Site of Ulcer	Day of Death
1	29	6	Closure of ulcer and gastro-jejunostomy	Duodenal	8th
2	58	48	Closure of ulcer	Duodenal	3rd
3	38	14	Closure of ulcer and gastro-jejunostomy	Duodenal	10th
4	46	25	Closure of ulcer	Gastric	2nd

In all four fatal cases drainage of the abdominal cavity was employed, and all had a general anaesthetic. The cause of death in three cases was bronchopneumonia, and in the fourth peritonitis.

Post-operative Complications.—Two cases developed right subphrenic abscess, and both recovered after further operation for drainage of the abscess. Two cases had recurrence of symptoms and required gastro-enterostomy. One case perforated a duodenal ulcer a second time one year after his first operation. One case developed acute appendicitis two years after operation.

Type of Operation.—The simpler the operation the better. In the last nine cases I used local infiltration with 1/2 per cent. novocain as an anaesthetic, the patient having received 1/3 of a grain of morphine half an hour previously. The ulcer is closed with through-and-through catgut stitches, and a piece of fat from the omentum is fixed over the suture line. If drainage is required, this is done by suprapubic incision made under local anaesthesia. The upper incision is closed in layers, and a drain of soft rubber left down to the peritoneum. "Pressoplast lace" dressing is applied.

SUMMARY

The important points emerging from this survey have often before been emphasized—namely:

1. The simpler the operation the better.
2. The methods and skill of the surgeon are not a very important factor (Rendle Short).[3]
3. The time factor is the important one.

REFERENCES

[1] Caird, F. M.: *Scottish Med. and Surg. Journ.*, 1906.
[2] Bailey, Hamilton: *Emergency Surgery*, vol. i.
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AN UNUSUAL PHARYNGEAL ABSCESS

I report the following case because I have never met an abscess in this situation, and because there were no definite signs—such as pain, tenderness, or swelling—whereby one could diagnose it. Moreover, the pyrexia, and such illness as the patient had, appeared sufficiently accounted for by the erysipelas.

A man, aged 24, was admitted into the Tolworth Isolation Hospital on June 2nd, 1933, with a diagnosis of erysipelas and a history of sore throat of ten days' duration. He had been in the Surbiton Hospital since May 17th for appendicitis.

On admission he did not appear very ill. There was swelling and redness over the bridge of the nose extending on to the right side of the face, with a few small blebs on the erythematous base; his tongue was furred, the fauces somewhat reddened, the temperature 102.4°, pulse 104, respiration 22. During the next four days his temperature swung between 102° or 103° in the evening and 98.4° or 99° in the morning, and there was extension of the erythema on the forehead and oedema of the left upper eyelid. On June 7th he complained of some difficulty in swallowing, but nothing could be seen in his throat to account for it. His neck was symmetrical and his chest normal. On the evening of June 8th he seemed comfortable, and took two tumblers of milk during the night. At 6 a.m. on June 9th his temperature was taken. A few minutes later he called out that he was going to choke, became black in the face, and died.

Post-mortem.—Pus was found on each side of, and a little behind, the thyroid cartilage, and an abscess track connecting the two passed between the larynx and pharynx, there being about three drachms of pus altogether. There was no obvious compression of the larynx or pharynx, though there was considerable oedema of the pharyngeal mucous membrane.

Surbiton. HARRY COOPER, M.D.

British Medical Association

CLINICAL AND SCIENTIFIC PROCEEDINGS

A CLINICAL STUDY OF EPIDEMIC CEREBRO-SPINAL FEVER IN CALCUTTA

At a meeting of the Calcutta Branch, held on March 11th, Dr. U. P. BASU read a paper on the above subject.

He said that during 1932 thirty-three cases of cerebro-spinal meningitis were admitted to the Calcutta Medical College Hospitals. As the disease was not common in that part of the world it had been thought worth while to collect and analyse these cases, an examination of the records of which revealed the following features.

Epidemiology

Five cases were admitted in February, twelve in March, two in May, one in June, two in July, seven in October, one in November, and three in December. Although the word "epidemic," used in the title of the paper, was not a happy expression, he was convinced that the cases recorded constituted two definite outbreaks of a small epidemic of cerebro-spinal meningitis in Calcutta. An epidemiological graph showed two peaks, the larger in March and the smaller in October. There was a period of complete lull during the months of August and September. Seeing that cerebro-spinal meningitis was a disease of winter and spring, the fresh outbreak in October was a novel feature of the epidemic. Further evidence in support of the epidemic nature of last year's cases could be obtained from a comparative study of the records of the Calcutta Medical College Hospitals for the three previous years. Thirty-one out of thirty-three cases in the present epidemic occurred within the jurisdiction of the district of Calcutta, and twelve of *these were of the fulminating type.* There was no occasion in which more than one case occurred in the same family, and in one instance only two cases occurred in the same street, but in different houses. As cerebro-spinal meningitis was a disease with a low degree of infectivity, and as the actual manner of spread was by *droplet infection from carrier to carrier*, and finally to susceptible individuals, one could easily understand why the infection appeared to be distributed in a scattered way throughout the city, and why there was no spread of infection among the remaining patients of the wards of the hospital. Instead of the disease being limited to infants, young children, and young adults—as in the sporadic cases—nearly one-third of the victims of this epidemic were of 30 years of age and upwards. Of the affected individuals twenty-seven were males and six females. Out of these, twenty-two were Hindus, seven Mahommedans, two Jews, one Anglo-Indian, and one "unknown."

Pathology and Bacteriology

In one case where blood culture was done there was no growth. Within a few hours of the onset of the disease, in many of the fulminating cases of the series, the cerebro-spinal fluid was turbid, pus cells were present, and necropsy showed evidences of meningeal involvement. Blood examination showed polymorphonuclear leucocytosis, varying from 11,000 to 23,000 per c.mm., except in eleven cases where the leucocyte count was below 10,100 per c.mm. In two cases the count went up to *32,000 per c.mm. and 33,000 per c.mm.* Cerebro-spinal fluid was under pressure in all cases but one, clear in one case, opalescent in four, turbid in twenty-five, haemorrhagic in two, and in one case it was sometimes clear, sometimes turbid, and sometimes tinged with blood. In two cases with recovery, cerebro-spinal fluid was turbid at first and clear later. Smear examinations of the cerebro-spinal fluid showed Gram-negative diplococci in seven cases, extracellular diplococci in one case, intracellular diplococci in three cases, and both in one case.

Pus cells were present in all but one. Culture of the cerebro-spinal fluid showed growth of meningococci in three cases only. Curiously enough, urine examination revealed albuminuria in seven cases—unquestionably a rare finding in this disease—instead of the commoner glycosuria. Pus cells were found in the urine in three cases, red blood cells in one, and bile pigment in one.

Symptomatology

Among the invasion symptoms vomiting was fairly common. Headache was complained of in twelve cases. As usual, the fever conformed to no particular type, and was irregular. One of the notable clinical features was the rapid loss of consciousness, even with a mild fever of few hours' duration. In the septicaemic stage, petechial or purpuric rashes on the trunk, and blotchy erythema on the extremities were absent, except in one case. There was a singular instance of painful symmetrical arthritis without effusion involving the various joints, and another instance of asymmetrical arthritis with effusion affecting one big joint. In those cases where the meningeal picture predominated there were not many evidences of implication of the cranial nerves, such as strabismus, ptosis, and nystagmus. In such cases the symptoms were chiefly referable to irritation of the roots of the spinal nerves, but there was actually no peripheral paralysis, excepting facial paralysis in one case only. Two fairly constant physical signs were rigidity of the neck, present in twenty-eight cases, and Kernig's sign, present in twenty-six cases. The deep reflexes varied, and knee-jerks were exaggerated in fourteen cases. Pupils were dilated in seven cases, contracted in seven, and unequal in one case.

Diagnosis

It is true that meningococcus could be grown in only three of these cases, yet a diagnosis of meningococcal meningitis was given in another twenty-eight cases on the strength of predominance of pus cells, and in some cases of Gram-negative diplococcus. If it was remembered that the meningococcus died rapidly outside the body—unless kept at blood heat in the specimens collected for laboratory examination—that it was chiefly phagocytized by the polymorphonuclears, and that it might not be demonstrated owing to its being subject to autolysis, there should not be any objection to such a diagnosis. Where the cerebro-spinal fluid presented a predominance of pus cells and contained no organisms, the infection would surely be meningococcal. Had it been due to any other pyogenic cocci they would have invariably shown themselves during the time of examination. Dr. Basu expressed his belief that if a routine blood culture were made—5 to 10 c.cm. of blood being employed for the purpose, and the culture repeated from day to day—a positive result could be obtained at least in a larger number of cases than was obtainable from cerebro-spinal fluid culture.

Prognosis and Treatment

Twenty-six patients died ; three of them lived for only twelve hours, nine lived for twenty-four hours, two for forty-eight hours, four for three days, four for four days, two for five days, one for six days, and one for sixteen days. Six patients recovered, and the remaining one was taken away from the hospital by the relatives. In most of these cases where the patient lived sufficiently long for a correct diagnosis to be made, and the condition was not altogether hopeless on admission, treatment was carried out by regular lumbar puncture, according to the needs of the case, and by the administration of the specific antiserum intrathecally, combined with intravenous injections. Hexamine was also given a fair trial in a number of instances. Study of these cases led to the conclusion that the moment they came under treatment, and before typing was possible, it was desirable to inject 50 to 100 c.cm. of the multivalent antimeningococcal serum, warmed to body temperature, and slowly administered intravenously—this to combat the septicaemia. At the same time 20 c.cm., warmed to 100° F., should be run in intrathecally daily, through a tube and funnel, after the preliminary removal of a larger amount of cerebro-spinal fluid. If necessary, the patient should be anaesthetized with chloroform, the foot of the bed having been raised, and the pulse and respiration watched. There was often a fall of blood pressure during the intrathecal administration. Treatment should be stopped when the fluid became free from meningococci and glucose reappeared. In the case of thick, purulent exudate it might be necessary to irrigate the theca with normal saline or 3.8 per cent. solution of sodium citrate, to prevent adhesions. If spinal block was present and clear fluid was obtained by lumbar puncture, serum could be administered by cisternal puncture. In children the anterior fontanelle should be utilized for this purpose. Intragluteal injection of 1 c.cm. of the turbid spinal fluid obtained by lumbar puncture was worth a trial. Experience forbade the administration of hexamine by any route. At the beginning of the epidemic the speaker obtained the sanction of the then principal of the Calcutta Medical College, Colonel D. P. Goil, I.M.S., for trying the effect of serum prepared from the local strains isolated from the patients of the hospital, and requested Captain N. N. Dutt, managing director of the Bengal Immunity Company, to type the organism and prepare the serum. The Bengal Immunity Company readily complied with this request, and, as the result of their labours, found out that Type IV was mainly responsible for the epidemic, and Type II partly. They put on the market antiserum prepared from the local strains. It was very difficult to give an opinion as to the efficacy of this serum at this stage. There was no foundation for the statement that imported antimeningococcal serums had been found unsatisfactory in the treatment of this disease. As far as his cases were concerned, he thought that the imported serums from reliable houses stood the tropical climate quite well, and gave excellent clinical results. All the cases that recovered were treated with polyvalent antimeningococcal serum from the Pasteur Institute, Paris. As regards results, he drew attention to the large number of fulminating cases in the evolution of an epidemic, and to the consequent heavy mortality. He also stated that perhaps the amount and route of serum administration were not wholly satisfactory in his cases.

In conclusion, Dr. Basu expressed his sincere thanks to Colonel J. D. Sandes, Colonel J. C. De, and Captain P. Ganguli, of the Calcutta Medical College Hospitals, for kind permission to publish their cases. Also to the authorities of the Campbell Hospital for permission to follow up the cases transferred to that hospital, and to the past and present members of his house staff for their kind assistance in compiling the records of the cases.

In the last annual report of the Institute for Medical Research at Kuala Lumpur the Director, Dr. A. Neave Kingsbury, records progress in connexion with the investigation of malaria and tropical typhus. The incidence of the latter disease is increasing in Malaya, and much remains to be done in the campaign against rats. The experimental prophylactic vaccine prepared by Dr. Anigstein proved to be disappointing. It may have some prophylactic value, but any consequent immunity appears to be very transient. Evidence was obtained that non-specific Kahn and Wassermann reactions might follow malarial infection, though less often in the case of the Kahn test. There seemed to be some correlation between the degree of positivity and the intensity of the infection. It is pointed out that this is a matter of importance to those who are undertaking the treatment of syphilis, for among the indigenous population it is not unusual to find a high parasite count in the absence of fever. When positive serological reports are received in respect of patients who do not present clear clinical pictures of syphilis it is deemed advisable, therefore, to examine a blood film before commencing antisyphilitic treatment.

Reviews

A RADIOLOGICAL STUDY OF THE DIGESTIVE TRACT

Dr. A. E. BARCLAY'S book on *The Digestive Tract*[1] is a radiological study of the anatomy, physiology, and pathology of the alimentary canal, not only embodying an up-to-date statement of our knowledge of the subject, but bearing the impress of the author's own views and considered opinions. Several chapters are given up to a description of the surface anatomy of the digestive organs shown by means of shadow photographs superimposed on photographs of the patient. Dr. Barclay has himself been a successful contributor and a pioneer in this method of approach. There are many difficulties involved, principally because the path of the rays that have produced the shadow picture is divergent, thus bringing about distortion, and because the slightest deviation from the true antero-posterior position in either series of photographs at once disturbs the relationships. Nevertheless considerable advances in the surface anatomy of the digestive organs have been made. The old idea of fixity of position has given place to a knowledge that there is wide normal variation in their relations both to the surface and to each other. It was early observed by radiologists, for instance, how much the tone of the stomach is affected by emotion and by stimuli from sensory organs, such as a sudden noise or bad odour; and, on the other hand, no causal relation can be made out between the form and position of the stomach and colon and the digestive symptoms. Many of the teachings of the textbooks of physiology need modification in the light of radiological observations. It will be allowed that, though many of the pioneering physiological experiments were made on anaesthetized animals, strictly physiological conditions may not be obtained in patients who have fasted for at least twelve hours and then taken an unaccustomed fluid meal in a darkened room. Many more observations are needed on healthy people taking ordinary meals made visible by added radio-opaque metals; but in view of the risks both to observer and to patient, which Dr. Barclay has so carefully pointed out, these should be carried out only by a trained and skilled radiologist.

For the pathological half of the book there can be nothing but praise. Here the young radiologist will find excellent guidance in obtaining and interpreting *x*-ray pictures and in avoiding pitfalls; while the experienced worker will be specially interested in Dr. Barclay's considered opinions on many of the outstanding problems. The intensive study of the mucous membrane of the stomach has led in modern times to a frequent diagnosis of gastritis, and this has been partly confirmed by observations with the gastroscope and by sections cut from parts of the viscus surrounding an ulcer that has been excised. The author points out the capacity of the muscularis mucosae for response to local and remote stimuli and for producing changes that may be well within the limits of normality, and he suggests that radiologists should exercise restraint in this new and precise method of investigation, at any rate until they have adequate proof that the changes they see and believe to be pathological do in fact consistently represent the conditions to which they are ascribed. His own studies of the mucous membrane in students are enough to assure him that a very wide range of changes in the mucous membrane pattern of the stomach is met with in normal healthy subjects. In the same tenor Dr. Barclay remarks on the radiological diagnosis of colitis, which he suggests should not be made unless the symptoms are fairly definite, and unless there is rigidity or tenderness over the suspected colon, and the observations are definitely confirmed. Dr. Rowden has contributed largely to the excellent chapter on the gall-bladder. In this and in all parts of the book the illustrations are sufficient and illuminating. In useful appendices the installation and running of an efficient radiological unit under varying conditions are adequately discussed.

Dr. Barclay's book is timely, and will meet a real want in present-day literature. Its appeal to the scientific worker in anatomy and physiology is not only as a summary of the results already obtained, but as a stimulus to further lines of research. Radiologists will use it as a textbook in their subject and for reference on all matters pertaining to the investigation of diseases of the digestive system. To the practitioner it offers an adequate and temperate statement of the present position of radiology applied to the alimentary tract.

[1] *The Digestive Tract.* By A. E. Barclay, O.B.E., M.A., M.D., D.M.R.E. London. Cambridge University Press. 1933. (Pp. xviii + 385, 275 figures. 36s. net.)

NEUROPATHOLOGY

"The nervous system is so intricate in its details of architecture, and so esoteric in its cellular types, that it presents considerable difficulties to the one who would study its changed appearances in disease. Indeed, it has jestingly been said that pathologists know all about all the diseases of all the organs—except the most important." With these words Professor WALTER FREEMAN introduces his little book on *Neuropathology*,[2] in which he seeks to set down in a concise form the pathological changes of gross or finer structure which are found in diseases of the nervous system. It is a record of considerable achievement. During the past ten years neuropathology has broadened out from the comparatively narrow lines on which it was based at the beginning of the century, and by the discovery of new cell types, by the study of new or rare forms of disease, and by the application of the experimental method, has achieved notable advances. This work has been stimulated partly by outbreaks of acute nervous disease such as encephalitis lethargica, acute disseminated encephalomyelitis, and poliomyelitis, partly by the application of silver impregnation methods to the neuroglia, and partly by parallel advances in the study of the normal by anatomists and physiologists.

Indeed, the pathology of the nervous system is now so vast a subject that there are few who are equally conversant with all its branches. The clinical neurologist is still more concerned with the localization of lesions than with their nature, although he is coming to realize the importance of the latter. The surgeon is chiefly interested in the study of tumours of the brain, especially the gliomata. Meanwhile, the experimentalist has been busy with research on the neurotropic viruses, on the manifold problems connected with the cerebral vascular system and, more recently, on the metabolism of the brain lipoids, and on the changes in the brain produced by metabolic anomalies elsewhere in the body. That the advances made along these varied lines have in very few instances reached this final objective makes them the more difficult to follow, and a statement of the actual position issued from time to time by authorities on the subject is therefore welcome.

Such a statement might well be expected from the professor of neurology at the George Washington University, and we are a little disappointed that in this book

[2] *Neuropathology.* By Professor Walter Freeman, M.D. The Anatomical Foundation of Nervous Diseases. London and Philadelphia: W. B. Saunders Company. 1933. (Pp. 349; 116 figs. 20s. net.)

PREGNANCY DIAGNOSIS STATION

REPORT OF FOURTH YEAR'S WORKING

BY

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Previous reports[1] dealt with the cases diagnosed by the station up to the end of January, 1932. The present report refers to the work carried out between the end of January, 1932, and January 31st, 1933. As previously, only cases submitted by practitioners, hospitals, or public health authorities are considered. There will be a separate report on the results of tests undertaken on selected samples in connexion with certain clinical studies. In all 2,368 cases have been dealt with in the period of the report; this figure does not include repeat tests. The total number of cases diagnosed since 1929 thus exceeds 5,500.

Technique

The modifications of the original technique which were introduced previously (routine detoxication with sulphosalicylic acid, etc.) were retained; detoxication was generally successful. Gradation of dosage was abolished, and equal doses of urine (0.4 c.cm. per injection) are now given to all mice.

Results

Reports from senders numbered 1,452. Of these, 1,432 contained a confirmation of the diagnosis, which had been "positive" in 772 cases and "negative" in 660. There were twenty reports in which the ultimate clinical diagnosis differed from the diagnosis submitted by the station; this would appear to give an error of 1.37 per cent. Analysis of the data, however, shows that in several cases the error was only "apparent" in the sense in which this term was used in previous reports. For instance, a "negative" and seemingly misleading reaction is obtained when the ovum has died, even though expulsion has not occurred. If cases of this and similar nature be eliminated, a "real" error of 0.89 per cent. is found. Of the "real" errors all but one were "negative errors"—that is, the station gave a "negative" diagnosis in the presence of pregnancy. In five cases of "negative error" pregnancy had been in its very early stages; repetition of the test (in two cases) three to four weeks later gave "positive" results. On the other hand, "positive" tests were obtained (and confirmed by clinical observation) as early as four days after the first missed period. In the case of samples collected very soon after the last menstrual period, it thus seems advisable (1) to regard a "positive" diagnosis as almost certainly correct, and (2) to have the test repeated after an interval of two to four weeks if the reaction is "negative" and the clinical diagnosis continues to be doubtful.

When this year's results are compared with those of previous years a not inconsiderable increase in accuracy is found. This year's data show that the test was correct in 99.11 per cent. of all those cases where clinical control was obtained; the highest previous figure was 97.8 per cent. It is possible that the improvement was due to the higher dosage used in last year's tests; on the other hand, the decrease in the incidence of errors may be spurious. By drawing conclusions from the data controlled by clinical findings it is implied that the distribution of errors in the whole group of tests is the same as in the controlled group. As has been mentioned in a previous report, this assumption may be mistaken. It is hoped that in future all those who avail themselves of the services of the station will fulfil the request to inform us of the ultimate clinical finding, and thus help to eliminate a possible source of erroneous conclusions.

"Negative" Test and Abortion

This year's "errors" again contain several cases in which a "negative" diagnosis with definite clinical signs of pregnancy was followed by abortion. The data are now sufficiently numerous to justify more detailed investigation; this is now in progress, and the results will be published shortly.

Friedmann Test

The station has carried out a number of Friedmann tests (rabbit tests—see last year's report) during the last six months. The results seem very satisfactory, but the number of tests controlled by clinical reports is still small. A report on the results will appear when the numbers justify an analysis.

Fees

The fee charged by the station for the Zondek-Aschheim reaction carried out on behalf of private practitioners will remain unchanged at 10s. The fee for hospitals or public institutions will be raised by 1s. to 4s. It is necessary to make this increase because the number of hospital cases rose during the last year to a surprising extent, and the fee of 3s. involved a considerable loss. As in previous years, the station was secured against deficit by a guarantee from the Medical Research Council.

Dispatch of Specimens

Careful packing of the specimen is essential, and the name and address of the doctor should be put on the parcel. It has occurred on several occasions that parcels were destroyed by the Post Office (in accordance with its regulations) when the bottle containing the sample was broken, so that fluid escaped. In several such cases the station was unable to trace the sender. It is therefore particularly requested that details regarding the case, and the name of the sender, should be forwarded to the station under separate cover, and that the fee accompany this information in order to save unnecessary expenditure and work. It may also be mentioned that the station does not send out or return containers for samples; any clean bottle will serve the purpose.

Finally, clients are urged to comply with the following requests: (1) to give full particulars of every case; (2) to inform the station of the ultimate result. The scientific value of the data collected by the station would be greatly enhanced if detailed information were given in a greater number of cases.

[1] *British Medical Journal*, 1930, i, 662; 1931, i, 860; 1932, ii, 759.

THE "POOR-WHITE" PROBLEM IN SOUTH AFRICA

[From Our Correspondent in Pretoria]

The report of the Carnegie Commission of Investigation on the "poor white" question has now been published. This Commission was the outcome of a visit paid to South Africa in 1927 by the president and secretary of the Carnegie Corporation of New York. The problem was represented to them to be in urgent need of investigation, and a request was addressed to the Corporation by the Dutch Reformed Church asking for support towards this investigation. The report is published in five volumes, dealing in turn with the economic, psychological, educational, health, and sociological aspects of the problem. Each of these aspects was the subject of special investigation by a technical expert, but the members of the Commission kept in close touch with each other throughout the inquiry, so that they were able to make very important joint recommendations.

As the term "poor white" implies, the European inhabitants of the country traditionally have a higher standard of living than the non-European. The majority of poor whites are still imbued with the conviction that they are superior to the Bantus, and this feeling has played an important part in preventing intermarriage between the races. There was an insufficient supply of European labour at the time when modern economic development began in South Africa. Consequently the economic system has been organized on a basis of cheap

native labour, and this has hindered the poor white from being absorbed in the new industrial system.

The unrestricted competition on the labour market between the unskilled Bantu and the poor white, and the low wages the European then receives, create conditions of poverty which have a demoralizing effect on the Europeans. The so-called colour bar is designed to restrict certain forms of semi-skilled labour to Europeans, to the exclusion of the Bantu. As the Commission points out, this "bar" will defeat its own end unless it is of a temporary nature and designed to give the protected Europeans the opportunity of increasing their skill. It is not sufficient for the State merely to provide the European with employment; measures must be taken to ensure that those who are assisted in this way are spurred on to greater personal efforts and to improved efficiency. A policy which, in certain spheres, protects an unskilled poor white by reservation of work against non-European competition makes such competition all the more severe in other parts of the labour market where the "colour bar" is not applied.

The poor white population of the Union is estimated at at least 300,000 out of a total European population of under 2,000,000. Their economic decline has been caused principally by inadequate adjustment to modern economic conditions. This has occurred especially among the older Dutch-speaking portion of the population, which has been severed from European progress and development for many generations, and has lived chiefly under the simple conditions of the pioneer. The discovery of diamonds and gold, the capitalistic exploitation of mines, the influx of immigrants with the modern business outlook, and the rapid penetration of railways into the interior quickly forced the development of the country into new channels from about 1880. The older settled white population was faced with entirely changed conditions, under the direction, mainly, of English-speaking persons.

The medical inquiry conducted by Dr. W. A. Murray, with the co-operation during the initial stages of Dr. E. H. Cluver (both of the Union Health Department), aimed at ascertaining to what extent ill-health was a cause of "poor whiteism." The data collected showed a high mortality among the children of poor whites. This mortality is attributed largely to insanitary habits and surroundings, which often lead to faecal pollution of water and food with resulting infection and death. The dwellings were usually found to be defective, and overcrowding is considered to account for much disease.

A nutrition study was carried out among school children in the Transvaal, including those who, besides being poor, were suffering from malaria. This investigation seemed to indicate that poverty and unsatisfactory diet generally had a more detrimental effect on nutrition than malaria or other diseases. The observations of the education expert support this. Poor white children suffering from malaria did not score noticeably less in scholastic and intelligence tests than similar children in other areas. In malarious districts the disease is, however, frequently accompanied by inadequate diet among the poor, and these two factors are palpably injurious to health. The investigations led to the conclusion that epidemic diseases, insufficient or unsuitable diet, and climate are not among the great primary causes of impoverishment of a section of the white population. The conditions of poverty and ignorance lead to lack of food and to wrong diet; these weaken the resistance of the poor white to disease and reduce his working power, thus making the problem more acute.

The diet among these people was found to be inadequate in many important respects. In a small percentage the quantity itself was found insufficient. More generally, the food was monotonous, being ill balanced and lacking in variety, especially in regard to vegetables; several important elements such as proteins, fats, and vitamins—particularly vitamin C—were insufficiently represented. Invariably the diet contained too high a proportion of starch, usually in the form of mealies but sometimes also in the form of potatoes. The chief causes of the inadequacies in the diet can be attributed to ignorance concerning the choice and proper preparation of food, and to poverty and unfavourable natural conditions. Droughts and other plagues in the semi-arid Karroo, for instance, often result in shortage of food; even under normal conditions the low rainfall in this region makes it difficult to grow vegetable food.

The examination of children of poor whites showed that the better-fed children were superior to the underfed children in height, weight, and chest measurement. Conditions of isolation and the lack of stimulating influences have contributed to keep the poor white family backward as regards housing and housekeeping, and have prevented and retarded the development of the social sense and of the consciousness of solidarity with neighbours. School children were selected as affording the most convenient and reliable material for the nutrition study. Variations in their health and physique formed a sensitive index of the health of the community, and in them could be clearly seen the evil results of poor heredity, of familial or communal ill-health, and of unfavourable environment. The methods employed in collecting the data consisted of a physical examination of each pupil in school, and a visit to his home to ascertain previous and present health, diet, health habits, and family circumstances. Wherever possible, the mother's statement was checked by personal observations in the home, and by inquiries from the school principal.

HEALTH OF THE ARMY IN THE U.S.A.

In his last report on the health of the Army Medical Department of the United States, Major-General R. U. Patterson draws attention to the relation of economic depression to military health figures. The number of enlistments, and more especially the number of first enlistments, has a very material influence on the Army morbidity and mortality rates, since communicable diseases occur much more frequently among men who have not been exposed previously to crowd infections. In consequence of the period of economic depression which prevailed in the country generally during 1931-2, there were comparatively few desertions, discharges by purchase, or loss of men for any other reason than expiration of term of service. There were therefore fewer vacancies to be filled by enlistments, the number being 49,274, as compared with 50,910 in 1930 and 61,898 in 1929. On the whole the health of the Army was very satisfactory during the year. The admission rate for sickness due to all causes was higher than in 1930, but this was largely owing to an epidemic of acute respiratory disease which occurred early in the year. The average admission rate to hospital from all causes for white enlisted men in the United States has fallen by about 76 per cent. during the past eighty years; the same rate for the respiratory group has declined by only 37 per cent. Fatalities from automobiles have increased so greatly during the past two years that deaths from this cause now head the list. In a large number of these cases faulty driving was clearly the cause of the fatality. General Patterson considers this increase in automobile deaths alarming, and urges that appropriate measures should be taken to bring about a reduction in the number of such accidents. He believes also that there is a large amount of unnecessary roughness in athletic games, injuries incurred while playing baseball coming first and football second. In the twelve months reviewed the admission rate for venereal disorders was the lowest yet recorded (45.6 per 1,000). He attributes the reduction during the last quarter of a century to the initiation of such control measures as education in sex hygiene, periodical physical inspections, adequate treatment of cases, restriction during the infectious periods, forfeiture of pay for absence from duty because of venereal disease, prohibiting military personnel from visiting the so-called "red-light" districts, better supervision in the administration of prophylaxis, and, finally, holding the unit commander responsible for the control of such diseases in his organization.

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RADIOLOGY OF THE DIGESTIVE TRACT

Before the introduction of the *x* ray into medicine the anatomy of the abdominal contents was dependent on information gleaned in the post-mortem room about their position and relations, supplemented by peeps at the viscera obtained during operation, usually while the patient was profoundly under the effect of anaesthesia. In regard to the function of the digestive organs even greater difficulties presented themselves. By means of tubes in mouth, stomach, and duodenum the chemical features of digestion were gradually elucidated, but the movements of the alimentary canal could only be determined indirectly by the introduction of balloons and other devices to indicate the pressures, or by inference from experiment on animals under anaesthesia. Dr. A. E. Barclay, in his book on *The Digestive Tract*, reviewed in another column, points out the great advances that have been made by observing radio-opaque substances during their passage through the alimentary canal. In the modern technique the radiologist watches the progress of what is really a meal, though for his own purpose it is made opaque. He thus approaches most nearly to a physiological condition, but it must be understood that much of the information is still incomplete and depends on inferences from the movements of the shadow contents as to their cause.

The principal difference from the old teaching of the anatomy founded upon observations in the dissecting room is the concept of mobility in the form and position of the stomach and intestines. Under what must be regarded as entirely normal conditions the lack of fixity is indeed remarkable. Not only do mental influences such as fear, nausea, and other strong emotions profoundly affect the behaviour of the viscera, but mechanical influences are of importance, and these lend themselves more readily to study. The chief mechanical factors responsible for change in shape are the posture of the subject (the influence of gravity) and the movements of the abdominal wall muscles, especially the diaphragm, but other factors must be considered, such as the balance between the distension of the organ by the bulk of the food and the tonic action of the intrinsic muscles of the organ, and pressure from other viscera. In the anatomical textbooks the levels of the diaphragm cited are based on observation of dead subjects, and *x*-ray study of corpses confirms the accuracy of this description, but it is far from being correct in the living. The tonic contraction of the diaphragm brings the "at rest" position of the domes two or three vertebrae below that of the dead subject. Of course there is considerable variation between the position in [illegible]nspiration and that in full expiration, but Dr. [illegible]has determined that in normal healthy students the position of the diaphragm at all stages of respiration is practically the same in the supine as in the erect position. The capacity of the chest in the ordinary healthy man is therefore practically the same in the vertical and supine, and even in the inverted position too. Dr. Barclay has been a pioneer in attempting to reproduce radiographic tracings superimposed on photographs of the subject so that they shall be more or less accurate representations of the organs that cause the shadows. This research is fraught with much difficulty. It has, however, made prominent the variation in position of what used to be regarded as fixed points, such as the pylorus (which is found free to move within a radius of some inches), the caecum, and the flexures of the colon. Fairly extensive movement of the liver has been observed in quite healthy subjects. This knowledge has led to a complete change of views on the subject of visceroptosis, since observations on healthy people show that the stomach, caecum, and colon are able to function normally irrespective of their positions. Operations for shortening the stomach and fixing the colon were based on false premisses, and a large range of mobility and variation of relationship is normal.

It is in elucidating the physiology of the movements of the alimentary canal, however, that radiology has been of such service, though much remains still to be discovered. In quite the early days of *x* rays Cannon made some valuable observations on the movements of the digestive organs of cats after giving bismuth with their food; but this method has been little followed up by purely scientific workers, and a great deal of the information acquired has been accumulated by radiologists during the routine examination of patients ingesting opaque meals. In this way, however, the normal and abnormal have become mixed up, and Dr. Barclay has done good service in gathering together the information scattered through the literature and rewriting the subject in the light of his own wide experience of the opaque meal in the clinic and of his results obtained while teaching students. He has included, naturally, some of his original work on the act of swallowing. According to his own observations several definite events are noticed: first, the whole larynx rises, then suddenly the pharyngeal space appears again, and into it comes the swallowed opaque mass. The bolus as it travels gives the impression of being sucked rather than pushed down, as if a negative pressure had been produced in the pharynx, and indeed all the conditions for producing negative pressure are present. The sequence of events had been worked out by Dr. Barclay from the *x*-ray appearance, but experimental proof of the negative pressure in the pharynx during swallowing has been obtained. The bolus passes down the gullet at a uniform rate, apparently uninfluenced by gravity, and enters the stomach through the cardiac orifice, which may function in three ways—as a patulous canal, as a sphincter which gives way before a peristaltic wave, or by invaginating its contents into the stomach. Food then passes down the lesser curvature under the influence of gravity and down a series of channels formed by the vertical folds of mucous

membrane to the pyloric antrum. As filling takes place the stomach maintains its tubular form, and this tube widens out as more food is taken, the heavier foods tending to sink to the lowest part. Normally there is no general churning of the food, but the foodstuffs are gently stroked by the secretion-bearing mucous membrane as each successive wave of peristalsis passes along.

In the emptying of the stomach the opening of the pylorus does not seem to be controlled ordinarily by the intragastric pressure: gravity and tonic action appear to play a part, but peristalsis is apparently not the chief motive power; and Dr. Barclay is certain that the opening of the pylorus does not depend on the acidity or alkalinity of the food. This part of the physiology of the stomach still remains obscure. In the small intestine, too, the passage of the food is so rapid that for fuller information we must await the advent of serial radiograms with cinematographic apparatus. In the large intestine, however, the process is slower, and from the terminal ileum the food is seen to be packed up into caecum and ascending colon, not much influenced by peristaltic waves, but perhaps forwarded by the pumping action of respiratory movement. In this way a continuous column extends from the apex of the caecum to the distal part of the transverse colon. At intervals, three or four times a day, a strong peristaltic wave projects a considerable mass of contents rapidly through the remainder of the transverse and descending colon. This mass movement is over in a very short time; the mechanism appears to be, first a relaxation of the tonic action of the muscular coats so that the haustral segmentations disappear, followed by a big peristaltic wave that sweeps the whole contents along. There may be at the outset a definite constriction formed, a *point d'appui*; the bowel distal to this first relaxes, and then contraction follows, driving the contents along in the manner of the law of the intestine enunciated by Bayliss and Starling. It is believed that these results will throw light on the disorders leading to constipation, since this mass movement may be absent or delayed, or it may be incomplete owing to lack of a *point d'appui* in an atonic colon, and thus the disability may be situated higher up in the intestine than occurs in the other form of constipation in which there is stagnation in the rectum. Dr. Barclay's book not only gives a full description of recent knowledge, but points the way to further advances.

THE AIMS OF MEDICINE

In his address to the Section of Public Health at the Annual Meeting of the British Medical Association in Dublin, printed in the present number of the *Journal* (p. 275), Dr. J. L. Brownlie, Chief Medical Officer in the Department of Health for Scotland, states clearly a number of points which are of fundamental importance in relation to national health policy, and about which doubts have been expressed and questions raised in a more tentative fashion by others during the past few years. He asks, in effect, what is the true aim of national health policy, and what should be the training and equipment of the medical practitioner in order that he may make his full contribution to its accomplishment? During the past hundred years, and more particularly during the present century, much has been accomplished of which we are properly proud. Man lives longer, children die less frequently, some major pestilences have disappeared and others are manifestly being brought under control, hazards have been lessened or removed, comforts have been provided. But, with all this, have we achieved a definitely higher standard of general race-fitness, and are all these extended years of existence, in young or old, really worth while? If the business of what is called preventive medicine is to make human life longer it has already attained success, and is perhaps within sight of the utmost it can accomplish; but if, in the words of Sir George Newman, it is "to make human life better, longer, more capable and useful, happier," then surely Dr. Brownlie is justified in asking us to pause, survey, and consider what should be done to reach more effectively and speedily this other and more worthy goal.

Dr. Brownlie might have made his main thesis even more striking if he had specifically referred to mental health as well as to physical. It is, of course, true that mental and physical unfitness often go together, but the increased notice that has recently been taken of mentally defective and mentally ill-adjusted children, the facts that tens of thousands of persons are annually admitted to mental hospitals, that each year there are thousands in this country who commit suicide or attempt to do so, that the psychoneuroses increase more rapidly than our facilities of treating them, that delinquency, disharmony in marriage, and drug-addiction are still so frequent, all show that the prevention of mental maladies is no less urgently required than that of physical illness. In singular appropriateness to Dr. Brownlie's address Dr Neil R Beattie has recently asked: "What purpose is served by preserving physical health, through teaching hygienic habits, if it means only healthy bodies having more or less sick or unhappily functioning minds obsessed by fears, prejudices, jealousies, inhibitions? What purpose is there in lengthening the span of life if it means only a little longer dragging out of a weary existence of thwarting, conflicts, dissatisfaction, frustration?"

Neither of these inquirers asks his questions to belittle what has been accomplished, or to cast any doubt upon the wisdom of the suggestions that have been made by the British Medical Association and others for improving, co-ordinating, or unifying existing public medical or social services. Accepting these as desirable, and even urgently needed, it yet remains to direct the common health purpose in the most essential direction, to stimulate action towards reducing the mass of invalidism, both physical and mental, which still persists despite our knowledge of means to prevent much of it, to avoid, as far as may be, the lag of medical practice behind the advance of scientific knowledge. The importance of medical education, both undergraduate and post-graduate in this regard, cannot be

exaggerated. Dr. Brownlie declares that "deficiencies reach back through organization to the medical curriculum, and beyond the medical curriculum to the fundamental aim of national health policy." He makes one striking application of this thought. The statistics of disability which are collected from Scottish insurance practitioners show conclusively that the causes of such disability differ widely from those which are recorded in tables of mortality. Yet we instruct the medical student, in the main, on cases which show the advanced consequences or end-results of morbid processes, instead of securing for him the experience, knowledge, and help which he needs for the diagnosis and treatment of such conditions as he will meet with in his daily practice.

The whole of wisdom with regard to medical training is not summed up in this criticism; but if, as is claimed, our organization for the public health should be based upon the family practitioner, the emphasis with which it is advanced is fully justified. Of like importance, though in a different field, is the indication which Dr. Brownlie gives that some of our social services and medical clinics (particularly those concerned with infant welfare) tend to drift from their preventive purpose to "the pleasant exercise of a not too discriminate philanthropy." Medicine and philanthropy are no strangers, but their respective aims and methods ought clearly to be distinguished instead of confused. Dr. Brownlie is to be thanked for calling attention to basic questions of this character.

LIPAEMIA AFTER FATTY MEALS

The problems of the absorption and metabolism of fats are complex, and yet have practical application in conditions such as obesity, diabetes, and lipaemia. Information about the variation of fatty substances in the blood in health and in disease has had to wait for suitable methods of estimation of these substances. MacLean, in his monograph on lecithin and allied substances, classifies the fatty constituents of the blood into (*a*) neutral fat and fatty acids; (*b*) cholesterol; (*c*) substances containing fatty acids, nitrogen, and phosphorus ("phosphatides"), such as lecithin; and (*d*) substances containing fatty acids, nitrogen, and a carbohydrate group, but no phosphorus ("cerebrosides"). These are all characterized by their solubility in organic solvents—alcohol, ether, benzol, etc.; and on evaporation of the solvent a greasy residue remains. A primary ether extract of dried blood contains the fatty acids and the greater part of the free cholesterol, but practically none of the phosphatides; these are obtained by subsequent extraction with alcohol. The analysis of these ether and alcohol fractions is a difficult matter—indeed, unreliable with the small quantities of blood that can be obtained in any bedside research on patients. Of the simple micro-methods, that of Bing-Heckscher is perhaps the most easily applied in clinical work. In it the amount of neutral fat and free cholesterol of 0.1 c.cm. of dried blood is determined in one estimation as the primary ether extract by means of a nephelometer. Nissen, in a recent monograph on alimentary lipaemia in man,[1] has used this method, understanding by the word lipaemia the neutral fat plus free cholesterol in the primary ether extract of the blood. Since the free cholesterol of the blood is uninfluenced by the fats of the food, this simple ether extract gives the measure of the variation of neutral fat in the blood. In a series of fifty-two healthy persons, students, nurses, and patients convalescent from indifferent diseases, the fasting values of the primary ether extract were found to be between 50 and 90 mg., averaging 64.6 mg. per 100 c.cm. of blood. The individual fasting values from day to day were remarkably constant. After a meal containing about 1 gram of fat per kilo of body weight, consisting of cream, rusk, and tea without sugar, an increase of the fasting value amounting to 15 to 100 per cent. occurred. The highest level of the curve was usually reached four to five hours after the fat intake. In repeated tests the ingestion of the same amount of fat on several days in succession gave a generally constant height of the curve. On ingestion of increasing amounts of fat in the same person the height of the curve was found to depend but little on the amount of fat, but the intake of large amounts of fat influences the length of the rise of curve above normal. Repeated ingestion of fat at a few hours' interval prolongs the curve but does not produce a rise of the curve above the highest level of the initial rise. In children the type of curve obtained approximates generally with that observed in adults. The course of alimentary lipaemia is influenced when carbohydrate is ingested together with the fat; there is a delay in the rise of the curve and a shifting of the apex to the right. Observations on patients with diseases which might be thought to influence fat metabolism were made by the same methods. In a quarter of the cases of obesity examined the alimentary lipaemia rose to a greater extent and continued above normal for a longer time, while the fasting blood lipaemia was higher. The curve thus resembles that obtained with the blood sugar values in certain cases of obesity; but, in general, little disturbance of the curve of alimentary lipaemia is found in obesity. Five of the six cases of arteriosclerosis examined gave distinctly abnormal curves with great increase over the fasting values and prolonged duration of the alimentary lipaemia; while cases of nephrosis and nephritis in pregnancy showed distinct disturbances from the normal course of the curve. Dr. Nissen's thesis for the doctorate gives an interesting survey of what is almost new ground, and research on these and allied problems of fat metabolism may be expected to throw light on many obscure bits of pathology.

[1] *Studies on Alimentary Lipaemia in Man.* By N. I. Nissen. Copenhagen: Levin and Munksgaard. 1933. (Kr. 2.)

MUSCULAR ENDURANCE

The craze for "record breaking" periodically calls forth accounts of feats of endurance that provide evidence of the capacity of human muscles for continuous work. This subject has recently been investigated by a group of American workers, who have obtained results with animals more surprising than any obtained with man. Dill, Edwards, and Talbot[1] studied the performance of a dog trained to run up an inclined plane and found that the chief factors limiting its performance were external temperature, supply of oxygen, supply of fuel, and supply of water. They eliminated these factors by adjusting the rate of work,

[1] Dill, D. B., Edwards, H. T., and Talbot, J. H.: *Journ. of Physiol.*, 1933, lxxvii, 49.

by providing suitable external conditions, and by allowing periodical rests for intake of food and water; they then found that the performance of the dog was virtually tireless. In one case a dog ran for seventeen hours with a five-minute period for rest and feeding every half-hour. In the seventeen hours it ran 132 km. (82 miles) and climbed 23 km. (14 miles), with a total energy output of 150,000 kg.m. per kilo of body weight. The animal had kept up an average pace of five miles an hour on a gradient of 1 in 6, and the height climbed was more than twice the height of Mount Everest. This performance is all the more remarkable because the dog is not usually credited with great powers of endurance. The reason for this is that a dog, when allowed to go its own way, chooses one that quickly produces exhaustion. There has, indeed, been a general belief that man has quite exceptional powers of endurance, but these experiments suggest that animals have greater endurance than is usually credited to them, and that man's superiority depends chiefly on his superior judgement. Leese, Hines, and Jordan[1] studied muscular endurance by another method, for they anaesthetized rats with amytal for several days and stimulated the gastrocnemius at regular intervals. They found that the muscle responded up to 100,000 times before exhaustion occurred. In this case the rats were not fed, and probably the limiting factor was exhaustion of sugar. Tests of muscular performance usually measure the maximum work that can be performed in a given time, and hence are tests of the efficiency of the circulation at least as much as of the efficiency of muscles. The experiments mentioned above demonstrate the remarkable efficiency of skeletal muscles when these perform slow but continuous work.

SURGICAL FILMS

In a survey and forecast of the value of cinematograph films in surgery which appears in the summer number of *Sight and Sound*,[2] Sir D'Arcy Power notes that there is no medical school in England which has a film library from which the student can reproduce mechanically what he has seen at the operating table. Recalling the "speed-merchant" surgeons of pre-anaesthetic days, such as Cheselden and Sir William Ferguson, he remarks that a film would have shown every movement of their 30-second lithotomies, and would reveal to us now, in these more leisured times, the secrets of a lost art. Nowadays, he continues, films in surgery could be used for three main purposes. By their means the house-surgeon could teach his dresser how to carry out such minor operations as removal of a crushed finger, the treatment of a poisoned hand, or the performance of circumcision; secondly, the doctor in practice who is obliged to relieve a strangulated hernia, remove an appendix, or apply forceps in a midwifery case would be greatly helped if he could look through a set of films to remind him of how these things were done in hospital. A third use for them would be for the post-graduate student who still has much to learn in the way of operative technique. The removal of a cancerous breast, of a deeply placed tumour in the brain, the performance of a complicated operation on the sympathetic system, or a thyroidectomy, might well give him pause. The more he studied the film the more inclined he would be to leave such operations in the hands of those more skilled than himself. Sir D'Arcy Power would be glad to see films replacing drawings and verbal explanations in the teaching of surgery; but two difficulties stand in the way—the cost, and the wear and tear of the films and of the apparatus which shows them. A single microscope once served for an entire class; now every student has his own. Perhaps in the future cinematographs may also become individual possessions.

[1] Leese, Hines, and Jordan: *Amer. Journ. of Physiol.*, 1932, c, 241.
[2] Fulwood House, High Holborn, W.C.1. Price 1s.

DOCTORS' HOBBIES

Some interesting steeds were trotted out in the Hobbies Exhibition which, housed in the Medical School of Trinity College, formed a novel feature of the Dublin Meeting. The exhibition owed its origin, collection, and arrangement chiefly to Dr. F. S. Bourke, who persuaded his medical colleagues in all the four Provinces of Ireland to overcome their natural shyness and reveal what it was that occupied them when the day's work was finished. The largest class of the fifty exhibitors were those who found their hobby in collecting Irish antiquities, so that one saw stone axes, bronze swords, flint arrowheads, copper hatchets, and other evidences of a prehistoric Ireland in abundance, along with the antlers, skull, teeth, and bones of the Irish elk, which lived shortly after the last glacial period in Europe. Other contributors had turned to the collection of oddments illustrative of primitive folk life in Ireland, such as a set of three tally irons and heater, found in a house in Co. Wicklow, cockspurs, a roasting spit, on which meat was cooked over the turf hearth, and rushlights, which glimmered in Ireland from at any rate the third century down to within living memory. Others, again, had garnered up old Irish tokens and obsolete coins, including St. Patrick's pence, dating from just before the Cromwellian period, the gun money of James II, traders' scrips of various sorts, and old Irish regal copper of the early nineteenth century. Philatelic and medal-collecting propensities were evidenced by a few doctors; others, with pardonable pride, showed their sporting trophies, evidence especially of their skill with rod and line, but including also the cups won by a famous Olympic athlete, Mr. Sean Lavan, at a long series of games and tournaments, national and international. Some of the displays took the visitor along strange bypaths, and brought to his mind the many odd ways in which collecting zeal finds an outlet: witness the collection of pot lids, all of the middle nineteenth century, designed primarily as containers for pomade, potted meats, and fish paste. Others showed how, on a miniature scale, swords may be beaten into ploughshares. For example, Professor Bayley Butler had a number of souvenirs of war in which French shells had become cream jugs and sugar basins, a French bullet had become a crucifix, and a paper-knife was the joint product of a French bullet and a German cartridge. It was the same ingenious fingers which discovered an unusual use for a laryngoscope—namely, to determine the depth of penetration of wood-boring beetles into structural timbers. Another exhibitor showed a soldering lamp which formerly was an aircraft shell-case, and a fire-blower which had been made out of an empty floor-polish tin and other odds and ends; also an "aural masseur," to which an old gramophone motor, one of the valves of a broken

euphonium, and some bits of scrap brass had contributed. It must not be thought, however, that the exhibition contained merely what was curious and ingenious; there was much that was beautiful and precious, including some choice collections of artistic work with brush and pencil and etching needle. Dr. F. S. Bourke himself showed some exquisite pen drawings, one or two representing Dr. Steevens's Hospital, and Dr. Boyd Barrett had some admirable works in oils, after paintings by Sir Thomas Lawrence and Giuseppe Ribera. Mention must also be made of the fine collection lent by Dr. T. P. C. Kirkpatrick, who placed among the "Hobbies" some beautiful examples of books printed in Venice in the fifteenth century; also a mezzotint portrait of Robert Adair, the eighteenth century Dublin surgeon, the original of the song "Robin Adair." There were so many things of interest in the exhibition that it is difficult to refrain from reproducing the catalogue—from the model of the brown trout caught in the Blackwater to the cartoon by Leonardo da Vinci. Certainly the diversity of doctors' recreations has never been so well illustrated, and we may expect, given some other Dr. Bourke in England, that this happy Irish precedent will be followed at future Annual Meetings. A word of praise should be added for the excellence of the printing of the catalogue by Mr. Colin O'Loughlin.

A MEDICO-HISTORICAL EXHIBITION

An exhibition, consisting of instruments, manuscripts, books, and drawings, illustrating the history of medicine, chiefly in Ireland, was presented in a room in Trinity College, and proved a source of great interest during the Dublin Meeting of the British Medical Association. For its selection and arrangement thanks are principally due to Dr. T. P. C. Kirkpatrick, Registrar of the Royal College of Physicians of Ireland. The instruments shown included some old midwifery forceps: one unique specimen was discovered in 1813 concealed in a house which had formerly belonged to the family of Chamberlen, a family who practised midwifery in England for over a hundred years round about the sixteenth and seventeenth centuries, and a member of whom, Peter Chamberlen the elder, invented the midwifery forceps. A bygone generation of doctors was recalled by the silver-topped malacca cane used by a Dublin physician in the early part of the nineteenth century; the stick contained an enema tube, to which could be attached a brass syringe. Various early stethoscopes were shown, also pestles and mortars, some ancient thermometers, a speculum (supposedly sixteenth century), and an endoscope designed by Francis Richard Cruise "for examining the interior of the cavities of the body," and described by him in 1865. An interesting little object was a James II gold "touchpiece," presented to the King by his afflicted subjects on his touching them as a cure for scrofula. Among the MSS. was a valuable assortment of autographed letters, one of them, dated 1870, in the firm and decisive hand of Florence Nightingale. There was also a MS. report of the post-mortem examination on the body of Dr. James Currie, the Liverpool physician and editor and biographer of Burns. The physicians signing the report were George Daniell and John Skelton of Exeter (Currie died at Sidmouth in 1805). A letter from this same Dr. James Currie, dated 1792, was also exhibited; his correspondent was Thomas Percival of Manchester, the author of an early book on medical ethics, and the letter expressed Currie's approval of a professional code which Percival had suggested. Another letter was from Baron Haller, the illustrious literary character of the eighteenth century, presenting his compliments to Dr. William Hunter; and yet another was from Sir Edward Barry to Lord Orrery, written in 1737, and making reference to George Cheyne, the physician whose weight was said to be thirty-two stone. Barry at this time was proposing to settle in Bath, where Cheyne was in practice, and it is mischievously observed that "Cheyne is still big enough to fill all vacancies." Among many other interesting exhibits were some early certificates issued by Dublin hospitals. There were also various illustrated prints relating to the history of Irish medicine, and some excellent early coloured drawings of anatomical and pathological specimens. These were the production of one William Burke Kirwan, who placed his artistic gifts at the service of Dublin doctors, and had some reputation in this respect until he was condemned to death in 1852 for the murder of his wife, a sentence commuted to penal servitude. Another very realistic picture portrayed an operation in the pre-anaesthetic period, dated 1817. The operation was performed by Rawdon Macnamara, and the print showed a violently resisting patient in a drawing room, the curtains and carpet of which, as well as the clothes of the surgeons, were liberally bespattered with blood. Overlooking all was the death mask of Jonathan Swift, the dean of St. Patrick's.

THE KITCHENER SCHOOL OF MEDICINE

The fourth report of the Kitchener School of Medicine, Khartum, covers the years 1931 and 1932. In the first of these the number of students under training was 33 and in the second 35. Salient features of the training are the exceptional degree of individual instruction which is rendered possible by the small size of the classes, the practical outlook of the whole curriculum, which is especially directed to the combating of the prevalent endemic and epidemic diseases in the Sudan, and the promoting of a real understanding of medicine rather than the mere memorizing of facts and theories. The required four years of training as a student are followed by a compulsory fifth year of post-graduate work. The assessors during the two years were Mr. V. Warren Low, F.R.C.S., Mr. A. K. Henry, F.R.C.S., and Dr. A. G. Biggam. The present report includes a detailed account and appreciation of the curriculum by Mr. Warren Low, who concludes that the four years' training is the equivalent of the five years' course elsewhere. He commends the compulsory house appointment in the fifth year as being an intelligent application of the old principle of apprenticeship, with the obvious advantage that it follows the scientific part of the education. Throughout the course the teaching of the ancillary sciences and of the earlier subjects of the medical curriculum is directed to the main objects of instruction—namely, clinical medicine and surgery. He considers that the success which has attended the work of the Kitchener School of Medicine since its foundation in 1924 will enable the junior medical posts in the Sudan to be filled by Sudanese medical practitioners rather than by foreigners.

101st ANNUAL MEETING
of the
British Medical Association
HELD IN DUBLIN, JULY, 1933

THE SECTIONS
SUMMARY OF PROCEEDINGS

During the next few months there will be published in the BRITISH MEDICAL JOURNAL *the opening papers communicated to the Scientific Sections of the Annual Meeting at Dublin. The reports of discussions in this and next week's issues are intended to give members who were not present a general idea of the proceedings.*

SECTION OF MEDICINE

Thursday, July 27th

RADIOLOGY IN HEART DISEASE

A discussion on radiology in the diagnosis of heart disease was held by a combined meeting of the Sections of Medicine and Radiology. Professor HENRY F. MOORE, President, took the chair for the first paper. He then asked Dr. GARRATT HARDMAN (Dublin), Vice-President of the Section of Radiology, to take the chair.

Dr. JOHN PARKINSON, opening the discussion, stated that *x*-ray examination gave evidence beyond the reach of percussion. Modifications due to thoracic build and overweight might be as great as those due to disease: examination in the oblique positions was as important as an anterior view. He discussed the importance of regional variations: the right ventricle might appear high on the left border and the left auricle often constituted part of the right border; to determine the presence of slight enlargement the *x*-ray findings must be related to the whole clinical picture. A simulation of enlargement was frequently due to scoliosis. He summarized the relative enlargements of the several components of the heart, and correlated *x*-ray findings with morbid anatomy by describing *x*-ray pictures confirmed by post-mortem findings. In toxic or exophthalmic goitre, he said, there was no very early assistance from *x* rays; coronary atheroma or myocardial disease might show distinctive shadows.

Dr. P. J. KERLEY opened the discussion from the radiological point of view. He did not claim that radiology had been helpful in the realm of pure pathology of heart disease owing to technical difficulties, but pointed out the value of screening and radiography in revealing the size of the heart and its various chambers, and the variations of its position due to bony deformities of the bony thorax and to emphysema. He explained the use of orthodiagraphy, teleradiography, and kymography. In teleradiography distortion was negligible. The value of kymography had yet to be substantiated. He mentioned a complicated system of *x*-ray measurements, valuable in physiological investigations. The small heart was more apparent than real. He referred to the difficulties of diagnosis in slight enlargements, and discussed differential *x*-ray diagnosis in atheroma, valvular diseases—particularly mitral stenosis—congenital heart disease, and the changes in the lungs due to passive hyperaemia of cardiac origin.

Dr. D. E. BEDFORD limited his remarks to the value of radiology in the diagnosis of congenital disease and disease of the pericardium, illustrating his subject with slides. Congenital disease showed anatomical deformities and no disease of muscle. He mentioned: (1) the scalloping of the under surface of the ribs, dilatation of the ascending aorta, and variation of the aortic knuckle in coarctation of the aorta; (2) the dilatation of the pulmonary artery in patent ductus arteriosus and pulmonary stenosis; (3) the enormous dilatation of the pulmonary artery and hypoplasic aorta in patent interauricular septum; and (4) the atresic pulmonary artery and large displaced aorta of Fallot's tetralogy. Dr. J. CRIGHTON BRAMWELL (Manchester) considered it was possible to predict the transverse diameter of the heart from weight and height in normal healthy subjects with an accuracy of about ± 10 per cent., but it must be remembered that athletes had unusually large hearts. Radiology was capable of revealing slight degrees of cardiac enlargement, even in obese and emphysematous subjects. Its greatest value was in revealing alterations in shape in the various chambers of the heart. Dr. L. ABRAHAMSON (Dublin) suggested that the exhaustive use of methods such as *x*-ray examination might ultimately free us from their use in some conditions. He demonstrated the value of radiology in doubtful cases of mitral stenosis, syphilis of the aorta in the absence of a diastolic murmur, and in obscure cases of cardiac failure due to retrosternal goitre. Owing to the unavoidable absence of Dr. HOPE FOWLER (Edinburgh), his paper was read for him. He mentioned the method of heart measurement of Fray, which was found successful in determining cardiac enlargement in 75 per cent. of his series, and the formula of Kahlstorf for measuring the volume of the heart. Dr. RALSTON PATTERSON (Manchester) mentioned some experiments by other workers proving that the heart size diminished—from an anteroposterior *x*-ray view—after exercise; also of his own, proving the same thing from a lateral view.

Dr. GARRATT HARDMAN (Dublin) thanked the speakers, pointing out that physicians who were also expert radiologists were rare, and that the radiologist must usually be ready to collaborate in assisting his medical colleagues to make a diagnosis. Dr. PARKINSON, in reply, agreed that the faith necessary for successful percussion was a thing of the past, and radiology was often essential to successful diagnosis.

OTHER PAPERS

Professor H. F. Moore then called upon Dr. M. A. CASSIDY to take the chair, and Dr. E. T. FREEMAN (Dublin) gave a paper on the treatment of fluid in the pleural cavity. He discussed effusions due to bacteria only. An argument against the removal of tuberculous fluid was that it acted as a splint to the lung; the removal, with gas replacement, was necessary to relieve intense dyspnoea and tachycardia: he mentioned the interstitial fibrosis frequently following absorption. Gas replacement prevented the dangers of simple aspiration of large quantities of fluid. In serous effusions expansion of the lung should be allowed to occur very slowly; in purulent effusions the lung should be induced to expand as soon as it was safe to permit it.

Dr. L. S. T. BURRELL being unavoidably absent, his paper, on the diagnosis and treatment of bronchiectasis, was read for him. In this he discussed the differential diagnosis between bronchiectasis and tuberculosis, neoplasm, abscess, and chronic bronchitis. In treatment, he stressed the danger of phrenic evulsion and the value of lobectomy.

Dr. PARSONS (Dublin) said that he very rarely aspirated tuberculous effusions. Dr. CASSIDY remarked that he had not often seen interstitial fibrosis following tuberculous effusions. Dr. FREEMAN replied that it was only when tachycardia and dyspnoea were extreme, and pyrexia was of more than four weeks' duration, that he advised aspiration.

SECTION OF PUBLIC HEALTH

Thursday, July 27th

NATIONAL HEALTH POLICY

Dr. W. M. FRAZER (M.O.H., Liverpool), one of the Vice-Presidents, was in the chair, and opened the second session of this Section by recalling that the scheme of social services was now a quarter of a century old. It had survived the period of intense economic stress during the last three years—a testimony to the soundness of its foundations. A salient feature to-day, however, was the regrettable lack of co-ordination between such organizations as those

associated with the insurance scheme, municipal health undertakings, voluntary hospitals, etc. He then referred to the 1930 pamphlet. The British Medical Association scheme for a national medical service had certain fundamental requirements, some of which had proved to be impracticable. It had been thought at first by the Association that hospital services could be provided by an extension of the insurance scheme, but financial difficulties would seem to preclude this. It had more recently been suggested that part of the work undertaken by public health authorities could be carried out by general practitioners on a part-time basis. Dr. Frazer thought that this would give rise to very serious administrative difficulties. In the discussion which would follow, he said, it would be well to bear in mind the recommendations that had been made by the British Medical Association.

Dr. J. L. Brownlie (Chief Medical Officer, Department of Health, Scotland) then read his paper on "A National Health Policy, a Critical Survey." It is printed in full in this week's issue of the *Journal* (p. 275).

Dr. E. H. M. Milligan (M.O.H., Glossop) advanced the opinion that any policy for the improvement of the national health would be incomplete unless preventive and curative medicine were linked more closely together. Both were, in the wider sense, preventive—the one preventive of the onset of disease and the other of death through established disease. The disconnexion in practice, therefore, between the public health service and the work of those engaged in private practice rendered the achievements of both much less effective than they ought to be. To remedy this state of affairs he suggested that national insurance work should be administered by local health authorities instead of by insurance committees, so bringing the curative service into close touch with public health departments. In order to mobilize the entire forces of the medical profession Dr. Milligan suggested that each health authority under this scheme should have an advisory committee consisting of representatives of the local Division of the British Medical Association. Such a committee, with the full power of the Association behind it, would be able to help the health authority enormously to deal with the problems with which it was faced. As regards Ireland the speaker considered that medical benefits should be included in the Saorstat health insurance scheme.

Dr. Maitland Radford (M.O.H., Shoreditch) agreed that there was a growing undercurrent of dissatisfaction, due to a fundamental lack of policy in the public health services. Inadequacy of individual purchasing power had, however, checked, diverted, or stopped the development of public health endeavour. Maternity and child welfare work had cut through this difficulty, and by intensive education had achieved most valuable results. He also cited the existence of a dental hospital in Shoreditch which provided treatment, for those living or working in the borough, on a graduated payment basis. Here was another real preventive effort, which aided poor persons who could not afford the fees of dental practitioners. More attention had been given to the treatment of tuberculosis than to its prevention, since personal economic considerations so often stood in the way of the latter. As to housing, the poorly paid worker could not afford the price of houses which conformed with modern hygienic requirements. Distribution of milk at welfare centres was inadequate, owing to the fact that many who needed and could not afford it were not classified as being entitled to receive it. On the answers to such questions depended the future of public health. Dr. C. Bastible (M.O.H., Wexford) said that modern medical education had been changing in recent years, adopting a more preventive trend in both medicine and surgery. In Ireland preventive medicine was less divorced from curative than in England, but more co-operation was necessary. A system of record-keeping by dispensary practitioners on the lines of that in the national insurance scheme in Great Britain would be desirable, although some difficulties would attend its inception. There was some danger, however, that intensive organization might tend to sterilize individual effort. In insanity and nerve diseases prevention would be much more effective than the treatment of the established condition. The supply of milk must also be safeguarded, and those responsible for its distribution should ensure that it was obtained from pure sources. There was need for the introduction into the education of children and adults of hygiene courses. The public required a much fuller knowledge of this subject than it at present possessed. Professor C. A. Bentley (Cairo) said that individual purchasing power was an essential without which the ideals of public health could hardly be realized. Public health was purchasable, and was governed by economic considerations. This he had found true in Egypt and Bengal. Dr. D. McKail (Glasgow) agreed that the time was fully ripe for an assessment of the relative importance of health services. In view of the history of these he concluded that the power of the central departments ought to be increased. Although many problems, such as that of housing, had been realized as urgent long ago, there had been a notable lack of remedial activity. Central departments should therefore be ordered to take the initiative in national health services, and not be obliged to wait on local stimulation. Local authorities ought to inaugurate new schemes, and improve and intensify many of those now existing.

Dr. Brownlie, in a brief reply, said that his original intention had been to provoke criticism, and he was gratified by the result. Many points had been brought up, and he hoped that there might be practical consequences in various quarters.

Isolation of Enteric Bacilli

Professor W. J. Wilson (Belfast) read a paper on the isolation of enteric bacilli from sewage and water, and its bearing on epidemiology. He showed that before the typhoid bacillus had been cultivated it was known that water and food contaminated with sewage matter were the vehicles by which infection was conveyed, and that the measures necessary for its prevention—pure water supplies, good drainage, and suitable methods of sewage disposal—had been undertaken before the isolation of the bacillus by Gaffky in 1884. Although sewage was known to be infective when it entered a water supply, it was only in 1928 that Wilson at Belfast, by means of a new medium, succeeded in demonstrating the constant presence of typhoid bacilli in small amounts of sewage. Since 1928 other workers had had success with Wilson and Blair's medium, and had found not only typhoid, but paratyphoid bacilli and the various types of food-poisoning organisms to be frequent inhabitants of sewage. After an epidemic of paratyphoid fever at Epping Sir Alexander Houston had found enormous numbers of paratyphoid bacilli present in the effluent from the sewage works as it entered Cobbins Brook, a tributary of the Lea, and into which he estimated that on February 18th, 1931, over 33,000 million paratyphoid bacilli were being discharged. This was a serious menace to the health of East London, which was supplied by water from the Lea below the point of entry of this brook. Of course, the Lea water was well purified before being distributed, but to afford greater security chlorination of the whole of Cobbins Brook was at once undertaken and had been continued, since the paratyphoid bacilli had been found to persist in the sewage. The bacilli that were found were probably derived from healthy "carriers," and not due to the multiplication of the bacilli in the sewage works. One of the most notable victories of preventive medicine had been the reduction to an almost negligible figure of the mortality from enteric fever. It had, however, to be borne in mind that the infective agent of the disease had not been eradicated, but that its opportunities had been curtailed, and that the control of the disease would only be secured by the vigilance of sanitary authorities. Professor W. D. O'Kelly (Dublin) referred to the extensive work which had been done by Professor James Wilson to introduce more precise methods of isolating typhoid bacilli. These had certainly led to the view that this organism was ubiquitous. There still remained a great deal to be learnt as to its incidence and pathology. General improvements in sanitary measures undoubtedly had a hidden influence on various kinds of micro-

organisms, and should be pressed on. Dr. J. L. BROWNLIE (Edinburgh) emphasized the importance of the problem of the carrier. What was wanted now was some way of determining the degree of virulence of the organism. Professor W. J. WILSON, replying, said that there was at present no way of determining virulence in the case of the typhoid bacillus. It was difficult to keep carriers under observation, nor could they reasonably be treated by operations on the gall-bladder. Ordinary germicides seemed to have no curative value. Stools reeking of coal tar products had been found to teem with bacilli. Education of the public should have a really practical outlook: persons should be instructed, for example, to wash their hands after visiting the closet. Facilities in this respect were, however, seriously lacking. It was curious that there were so few typhoid outbreaks, despite the apparent liability to mass infection.

SECTION OF ORTHOPAEDICS

Thursday, July 27th

FUSION OPERATIONS ON THE HIP-JOINT

After Sir WILLIAM DE C. WHEELER, the President, had taken the chair, Dr. M. S. HENDERSON of the Mayo Clinic opened a discussion on the role of fusion operations as applied to the hip-joint. Such operations, he said, were commonly performed for the relief of paralytic conditions, such as infantile paralysis, in which an anatomically normal joint was physiologically unsound, for diseased joints in which there was a serious degree of disorganization, and in painful conditions resulting from trauma and mechanical derangement. Few cases with infantile paralysis could be expected to benefit from fusion of the hip, as the vast majority of patients with flail-hip had, in addition, uncontrollable paralysis of the knee and ankle; however, if the paralysis was localized to the muscles around the hip, fusion was to be recommended. In non-tuberculous arthritis and traumatic conditions the speaker had been very disappointed with the results of reconstructive operations, and was convinced that except in cases in which both hips were involved arthrodesis afforded a better prospect of relief. In tuberculosis his practice was always to arthrodese the hip unless there was some definite contraindication, such as the presence of active kidney or lung disease or severe local secondary infection. Although the practice at the Mayo Clinic had been confined chiefly to adults, there was every reason to believe that the operation should also be performed in children.

Mr. G. R. GIRDLESTONE (Oxford) confined his remarks chiefly to tuberculosis of the hip, in the treatment of which arthrodesis could be employed to promote healing (especially in adults), and to prevent recurrence of disease or the development of late pain or deformity. It was his practice to establish the diagnosis in adult cases at the earliest possible moment—by biopsy, if necessary. If the patient's general and local condition was satisfactory he proceeded with immediate operative fixation. First, the infected joint was excised as thoroughly as possible (intra-articular arthrodesis), and then a broad flap from the outer table of the ilium was turned down and held in a slot in the great trochanter (extra-articular arthrodesis). Sometimes it was advisable to do the operation in two stages. In children, operation was deferred until serial *x*-ray films showed cessation of active disease as evidenced by recalcification. Preliminary intra-articular arthrodesis was only necessary when the joint cavity was filled with inflammatory debris. In the majority of cases extra-articular arthrodesis sufficed. In adults or children the great contraindication to operation was local sepsis. Cases with sinuses responded well to wide drainage followed by prolonged conservative treatment, and not infrequently spontaneous bony fusion ultimately occurred. In the treatment of non-tuberculous arthritis arthrodesis had a very definite place, but when the disease was bilateral it was essential that an operation, designed to allow movement, should be performed. A reconstructive operation of the Whitman type, or an extra-articular pseudarthrosis (as described by the speaker in the Robert Jones Birthday Volume), was to be preferred. Some excellent slides were shown demonstrating the remarkable powers of growth in extra-articular grafts.

Mr. W. R. BRISTOW was of the opinion that even in a case of infantile paralysis with a completely flail lower extremity great functional improvement followed fixation of the hip combined with stabilization of the foot and any form of treatment that would give the patient a slight degree of back-knee. In connexion with chronic arthritis of the hip he referred to the work of Mr. Max Page, who had operated on 150 patients with this condition. In his hands intra-articular arthrodesis had generally relieved pain, but fusion had occurred in only 50 per cent. For that reason Mr. Page now favoured the combined operation. Mr. Bristow agreed with the preceding speakers' advocacy of arthrodesis in children. The only serious danger was operative shock, and this was strictly proportional to the length of time of operation. Every effort should be made to complete this operation within forty-five minutes.

Mr. T. P. MCMURRAY (Liverpool) objected to the depressing conclusions drawn from statistics of conservative treatment in tuberculosis. Almost invariably enthusiasts for arthrodesis referred to the results of conservative treatment as practised twenty or more years ago. Modern conservative treatment could be relied on to give a high percentage of successes; in a series of 150 of his own cases that had been followed for six or more years 70 per cent. of his patients were able to do full work, 25 per cent. had pain or deformity, and only 5 per cent. were dead. He drew a parallel between excision of the knee in children so much in vogue a few years ago, and the present boom in arthrodesis of the hip. He hinted that the latter would, like excision of the knee, sooner or later fall into disrepute. There was, however, a place for the operation in cases in which the *x*-ray film showed a small femoral head in a large acetabulum and in which sound fibrous ankylosis could hardly be looked for. Miss E. M. HOLMES (Cardiff) quoted statistics from British, American, and Continental hospitals which led her to believe that conservative treatment properly carried out yielded a high percentage of cures. Arthrodesis had not the slightest effect on the healing of the disease, and, when successful, gave both surgeon and patient a false feeling of security. She claimed that even in adults conservative treatment was to be preferred. Mr. HARRY PLATT (Manchester) complained that the vast majority of statistics dealing with tuberculous arthritis were misleading, for the reason that inaccurate diagnosis was all too common. Children frequently suffered from transient arthritis of the hip that was certainly not tuberculous, and yet such cases often found their way into statistical tables as "cures." He supported the cause of arthrodesis. Mr. WHITCHURCH HOWELL was gravely concerned about operative shock in children, and asked how it might be reduced. Miss FORRESTER-BROWN (Bath) had seen a number of cases in children in which recalcification never occurred in the so-called healing stage of tuberculosis. In such cases she found that after arthrodesis recalcification took place most rapidly, even before the graft had become soundly fused. The part played by the graft was undoubtedly biological as well as mechanical. Recent work in Bath had shown that the sedimentation test was of some value in indicating when the disease had become quiescent; she wished to know if other surgeons had found it useful.

In reply, Dr. HENDERSON observed that post-operative sinuses were far less common in adults after the combined as opposed to the purely extra-articular arthrodesis. He joined Mr. Girdlestone in advising this type of operation.

HINGE GRAFTING

Professor A. K. HENRY (Cairo) read a short paper on hinge grafting, illustrated by lantern slides and a cinema film. The operation was of great value in such conditions as flail-foot, paralytic back-knee, and loss of digits. He had succeeded in placing grafts on both sides of the

knee-joint in such a way that they performed the function of a knee-cage. Hyperextension of the joint was impossible, and a limited though useful range of flexion was allowed. In a patient with large chondromata of the index finger he had removed the phalanges and half the metacarpal, making good the defect with a hinge graft. A fair degree of active movement was possible at the hinge, and the patient was able to lift a weight of two kilograms with the index finger alone.

Painful Feet

Mr. Philip Wiles read a short paper on the treatment of painful feet. The causes of this condition were chronic foot strain, minor deformities such as corns, and chronic arthritis. He insisted that a normal foot was characterized by free mobility in, and adequate muscular control of, all its joints. A foot might be perfectly flat in repose, but if the patient was able to produce an arch voluntarily the foot must be classed as normal. This was best illustrated by the so-called flat-foot of ballet dancers. Almost all foot trouble could be referred to the presence of intra- or peri-articular adhesions resulting from infection or trauma. Pain occurred when these adhesions were stretched in the ordinary process of walking. Treatment with supports could at best be only palliative, and might even do harm by leading to further stiffness in the tarsal joints. Clearly the only rational treatment was to restore full movement by manipulation sufficient to break down all adhesions, followed by exercises to restore muscular control to normal. Almost every case of foot strain could be cured in this way and, in carefully selected cases, arthritic feet could at least be made comfortable.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Thursday, July 27th

The Endocrines in Gynaecology

With a Vice-President, Miss Alice Bloomfield, in the chair, Professor Emil Novak (Baltimore, U.S.A.) opened the discussion on the gynaecological aspects of endocrinology. He began by reviewing the principles underlying present-day gynaecological endocrinology. Three important discoveries were described: the menstrual histological cycle of the endometrium; the ovarian follicle hormone (folliculin, theelin, oestrin), which governed the growth of the endometrium; and the anterior pituitary hormone (prolan), which activated the ovarian function and caused ovulation and corpus luteum formation. The action of the corpus luteum hormone (progestin) in changing the folliculin-stimulated endometrium into a secreting mucosa was described in some detail. In recent years much doubt had been thrown on the view that ovulation was a necessary preliminary to menstruation. The speaker considered that it was not, and he thought that some cases of sterility were due to anovulatory menstruation. Premenstrual curettings of these cases would show an absence of the progestin change in the endometrium. The actual cause of menstrual bleeding was a sudden lowering of the folliculin level in the blood. The present achievements of gynaecological organotherapy were not great. Many workers expected too much. Injections of folliculin could never stimulate a non-functioning ovary. Progestin was not yet available for clinical use. Prohibitively enormous doses of both these substances were required to reproduce the changes of the menstrual cycle in the human endometrium. More promising results were obtained by prolan preparations in the so-called functional bleedings. Sometimes the bleeding stopped within a few hours of the injection. Folliculin might be useful in some menopausal disturbances. The practice of gynaecology without at least some knowledge of endocrinology was fast becoming an incongruity. It was this asset, plus a knowledge of gynaecological pathology, which marked the difference between the real gynaecologist and the mere gynaecological operator.

Professor R. W. Johnstone (Edinburgh) read a paper in which points of special interest to the practitioner were discussed. He described the Pregnancy Diagnosis Station in the Animal Genetics Department of Edinburgh University, where practitioners could have the Zondek-Aschheim test carried out on specimens of urine: 6,600 samples had been tested, with only 2 per cent. error. It was interesting to find that a low oestrin content was often followed by abortion. Cases of amenorrhoea might be associated with either excess or deficiency of oestrin. Regarding therapy, he felt dismayed at the indiscriminate use of glandular extracts, which had been created almost exclusively by the deluge of often misleading and never disinterested brochures from manufacturing chemists. He made a strong plea for the examination of the patient's hormonal state before starting treatment, and urged the use of a laboratory such as the Pregnancy Diagnosis Station for this purpose. Gonadotropic hormones (prolan) were disappointing in primary amenorrhoea, but more hopeful in secondary amenorrhoea. Striking success had been obtained in the bleedings of puberty and in cases of metropathia haemorrhagica. They were also useful in habitual abortion, and possibly in dysmenorrhoea, where they might lessen the activity of the uterine musculature by stimulation of the corpus luteum.

Dr. B. P. Wiesner (Edinburgh) pointed out some of the complexities of the subject. No one had yet disproved the work by Dr. Crew and himself, which pointed to two anterior pituitary hormones: he believed that three or even four factors existed. There were also reactor factors present in the body which governed the effect of a hormone in a particular animal. Anterior pituitary hormones influenced behaviour: a virgin female rat would assume maternal behaviour after injection of these preparations. In 1,000 cases of secondary amenorrhoea there was no lack of the essential hormones in the urine; it was therefore useless to inject these patients with expensive extracts. Dr. Dominic J. Cannon (Kildare) thought that menstrual bleeding was an active process, and could not be explained by withdrawal of a hormone. If the previous speakers were correct dysmenorrhoea would occur in metropathia haemorrhagica; but this was not so. Dysmenorrhoea was a neuro-muscular derangement. He had treated such cases by resection of the presacral nerve. Dr. N. McI. Falkiner (Dublin) showed a series of photomicrographs of the corpus luteum at various stages. He believed that a hormone actively stimulated menstruation, and simultaneously caused bleeding to take place in the corpus luteum. No haemorrhage was seen in the corpus luteum of pregnancy. Dr. L. Carnac Rivett suggested that the uterine glands themselves produced a hormone. Lieut.-Colonel Smith, I.M.S., spoke of the use of thyroid medication in prostatic trouble in the male, and suggested its use in stout menopausal women. Dame Louise McIlroy spoke of calcium metabolism. Amenorrhoea was often a sign of early phthisis. She used corpus luteum and thyroid extract combined with potassium chlorate in cases of habitual abortion. A psychological shock might alter the function of the endocrine glands. Dr. E. Lewis Lilley (Leicester) and Mr. E. Farquhar Murray (Newcastle) asked if ovarian hormones were active when given by the mouth. Miss Alice Bloomfield discussed the use of anterior pituitary hormones in habitual abortion.

In reply, Dr. Novak said he doubted the value of urine hormonal tests: blood tests were better, but difficult to carry out. Animal tests showed that ovarian substance had no action when given by the mouth. Theelin had some activity by mouth, but the dose had to be five to thirty times that of a hypodermic dose. The cause of bleeding in metropathia haemorrhagica was a rapid variation of the balance between the anterior pituitary hormone and folliculin content of the blood.

Dr. P. M. F. Bishop read a paper on a modification of the Friedmann test for pregnancy. The Friedmann test on rabbits was easier to carry out than the Zondek-Aschheim test in mice, but hitherto had not been so accurate. He discussed the sources of error, and showed that these could be avoided by performing a laparotomy and inspecting the ovaries before injection of the urine to be tested. If the results were negative he injected known pregnancy urine, and after thirty-six hours again performed a laparotomy. By using the animal as its own control he had had no error of diagnosis in a series of 104 tests.

SECTION OF SURGERY

Thursday, July 27th

Disease of the Biliary Tract

With the President, Professor C J MacAuley (Dublin) in the chair, Professor D P D Wilkie (Edinburgh) opened a discussion on surgical diseases of the biliary tracts He said that as the subject was so large he intended to focus attention on certain points which were of practical interest to the general practitioner—namely, the local and general effects of diseases of the bile passages, indications for operation, and the results Apart from the local effects produced by gall stones, obstruction, carcinoma, pancreatitis, and hepatic cirrhosis, he had been struck by the distant results of infection Rheumatism, myocardial changes, fibrositis, and albuminuria had been found to be associated with focal sepsis in the gall bladder He emphasized the importance of the barium meal in the diagnosis in certain cases, and he had found that in as many as 10 per cent of females diagnosed as cholecystitis duodenal ulcer was present Professor Wilkie considered indications for operation under the headings (1) Recurring biliary colic, (2) chronic dyspepsia, (3) acute obstructive cholecystitis, and (4) stone in the common duct In the third group he did not, as a rule, advise operation in the acute stage, owing to the associated hepatitis and the increased vascularity and oedema of the base of the right lung, which resulted from the arrest of diaphragmatic movements Operation, however, had to be carried out occasionally, when the acute symptoms did not subside or increased within forty eight hours. Cholecystostomy was usually safer in these circumstances Operation was, as a rule, performed in from seven to ten days, and the speaker mentioned the importance, in performing cholecystectomy, of leaving a cuff at the neck of the gall bladder, since the exact anatomy of the ducts was obscured by oedema Patients who had once had acute obstructive cholecystitis were subject to recurring attacks When a gall stone was present in the common duct operation was imperative In discussing preoperative treatment Professor Wilkie said that he advised, when possible, reduction in weight by as much as two stone by dieting and exercises Jaundice and hepatic insufficiency should be actively treated by the administration of fluids and glucose, the injection of calcium chloride, and sometimes blood transfusion Surgery, when timely, was curative and safe, but free access and careful laparotomy, especially examination of the common duct and pancreas, were essential

Professor H L Barnsville (Dublin) said that the results of modern treatment of biliary diseases were, as a rule, excellent Gall stones undoubtedly occurred as the result of a general disturbance in metabolism, and when infection supervened he was of the opinion that the pathway was not the common bile duct Conservatism still had a place in the treatment of diseases of the gall bladder and biliary passages Referring to the group of cases of dysfunction of the bile tracts, he said that typical gall bladder symptoms were produced by spasms of the sphincter and muscularis mucosae of this viscus He agreed with Professor Wilkie that many cases of rheumatism and fibrositis were improved after removal of the biliary focus of infection In the case of a woman with auricular fibrillation and cardiac failure cholecystectomy performed over one year ago, had apparently relieved the patient of her trouble, and cholecystostomy in a man with severe secondary anaemia had produced a rapid improvement in the blood picture, and he had remained well in spite of the fact that he still had his gall bladder In conclusion Professor Barnsville thought pulmonary complications—infarction and collapse of the lung—were on the increase, and that he could not find any really tangible assistance in their prevention In these cases, however, the patient was invariably of what might be called the "nervously inert" type, and hence breathing exercises, movements of the limbs and trunk, and the avoidance of the unnecessary abdominal binder were essential after any upper abdominal incision

Mr G H Edington (Glasgow), in an analysis of 200 cases operated on for gall bladder disease, said that organisms had been discovered in over half the cases investigated bacteriologically, and that in 37 per cent marked fibrosis was noted in the subserous layer of the gall bladder It was doubtful whether cholecystitis took a share in the production of gall stones, but it was probable that the presence of stones might excite or aggravate inflammation of the gall bladder Mr Edington considered that, apart from conditions requiring anastomosis of the gall bladder to the duodenum or stomach, and cases in which there was reason to suspect stone in the common duct, the choice of operation lay between cholecystostomy and cholecystectomy With cholecystectomy the patient was rid of a presumably diseased organ It must be remembered, however, that there was probably also some degree of hepatitis or pancreatitis present Cholecystectomy did not provide the necessary drainage, and unless the gall bladder was markedly diseased there was something to be said for employing it as a natural drainage tube Another objection to cholecystectomy was that any subsequent operation was more difficult The late results were undoubtedly good Cholecystostomy would seem to be indicated when, with a gall bladder not too flagrantly diseased there was evidence of hepatitis or pancreatitis and drainage was necessary for a time

Professor R E Kelly (Liverpool) stressed the frequency with which stones were found in the common duct without jaundice and in some cases without pain In all cases the common bile duct should be viewed, and if it was dilated it must be opened If exploration was unsatisfactory help might sometimes be given by a transduodenal incision An early growth of the ampulla had been discovered in this way The duct was occasionally opened and no stone observed, but in his experience this only occurred in about 17 per cent of cases Stones were sometimes present in the hepatic ducts, they were of the pigment variety, and often very difficult to remove As a rule a stone ulcerated into the second part of the duodenum, but he had on one occasion seen a stone half way through the stomach wall Professor [illegible] mentioned a case in which the mesenteric border of the intestine was infiltrated with bile which had passed into the mesentery at its attachment over the pancreas In this instance there was a further collection of bile behind the second part of the duodenum He thought that many rounded gall stones were congenital, a mass of small stones being compressed like a sandwich When the common bile duct was opened white [illegible] generally indicated a bad prognosis whereas [illegible] bile meant there was a large opening into the duodenum The speaker briefly referred to the reconstruction of the common duct and exhibited an x ray photograph showing that the catheter used at the time of the plastic operation was still present after nine months Carcinoma of the gall bladder was always associated with gall stones, and removal of the growth gave disappointing results He thought that the complete transverse incision gave excellent access and pointed out that the incision opened itself up when the back was arched One had only to look at the transverse creases on one's waistcoat to appreciate the fact that the incision healed without tension

Mr A J Walton limited his remarks to causes of obstruction of the common duct The different causes of obstruction and their relative frequency, shown by a chart of the speaker's figures, included 662 cases of gall stones, with 103 obstructions of the common duct, forty-four cases of recurrent calculus, thirty four of reconstruction of the common duct, twenty eight of carcinoma of the common duct, forty seven of carcinoma of the pancreas, and sixty one of chronic pancreatitis Mr Walton described the symptoms of stones of the common duct, and gave the reasons why such stones were not infrequently overlooked at operation He illustrated by means of wall diagrams the methods by which the common duct might be injured The cases fell clinically into three groups (1) those injuries recognizable at the time of operation (2) post operative fistula with the escape of bile (here there was no back pressure, but the duct was narrow), (3) complete obstruction of duct—these cases were a dangerous risk owing to back pressure, but

the dilated duct was easier to find. Carcinoma of the common duct might occur at different sites, and the cases fell into four clinical groups. The symptoms of these groups were mentioned, and the methods of radical and palliative treatment described. Carcinoma of the pancreas was relatively common, and nearly 70 per cent. of the cases gave rise to obstructive jaundice. Chronic pancreatitis was also relatively common, and about 50 per cent. of the cases caused obstructive jaundice. Mr. MICHAEL SMYTH said that examination of the bile obtained by duodenal intubation was a most important method of investigation. The presence of mucus, leucocytes, and cholesterol should be sought for. Chronic gastritis was present in about 25 per cent. of cases of cholecystitis, and in about 50 per cent. of cases of gall-stones. Treatment of this gastritis by lavage with hydrogen peroxide, one drachm to the pint, was useful. He said that large doses of hexamine, as recommended by Hurst (100 grains three times daily), pre-operatively and post-operatively, helped to clear up the hepatitis and improve the infection. When drainage of the gall-bladder had to be carried out a self-retaining catheter was best employed. If the common duct had been explored he considered it advantageous to dilate the ampulla of Vater by means of Desjardin's forceps and to stimulate the drainage of bile down the duct by the administration of magnesium sulphate by mouth. Mr. Smyth gave an analysis of twenty-four cases of acute perforation of the gall-bladder, which he had obtained by the courtesy of the surgeons of the London Hospital. One patient was moribund on admission, and died before operation could be attempted. The remainder underwent operation, and there were eight deaths. Cholecystectomy had been successfully performed in one case. In the remainder, cholecystostomy with drainage of the peritoneal cavity had been carried out.

Mr. MCADAM ECCLES asked, Was he unique in the Section in having no gall-bladder? He collapsed on the same day last year as he was going to this Section. The diagnosis had been cholecystitis, and the symptoms were horrible pain and local tenderness, almost unbearable, and removed by morphine and confidence in the surgeon. Preparation for operation at his old hospital was excellent, and the anaesthetic and operation, five days later, just what they should be. Post-operative discomfort was far less than he had imagined, and was mainly due to flatulence. He had lost two and a half stone after the attack, and later recovered one stone. Careful after-treatment should be stressed, even to a surgeon—diminution of fats, no olive oil with salads, sugar superseded by saccharine, and so on. Exercise was essential, and as a rule, the bowels had to be helped. There was no hernia through this vertical scar, and he had much for which to thank the surgeon and nurses. Professor H. S. MEADE (Dublin) said that clinical symptoms were of more importance than the dye test. He had noted that tenderness was very often elicited by light pressure over the eighth and ninth costal cartilages. It was easier to operate on the acute cholecystitis than the subacute, and he thought that it was during the subacute stage that oedema of the lung and change in the liver occurred. The jaundiced case should not be left too long before operation was carried out. Mr. W. SALUSBURY (Northampton) said that complete exposure was essential, and showed a useful self-retaining retractor which could be manipulated with one hand. Mr. W. H. OGILVIE recommended surgical treatment as soon as the diagnosis of gall-stones was established. The characteristic pain of gall-stones was unmistakable, and should be sufficient to lead to diagnosis. The pain was very severe, sudden in onset, but not long continued. It had the rhythm of a colic. The pain was above the umbilicus and medial to the linea semilunaris. It was accompanied by retching but rarely relieved by vomiting. The attacks were unpredictable in origin and course. When attacks such as this were met with, gall-stones might be diagnosed with certainty and operation recommended with confidence. The fundamental risk of infected gall-bladder attacks was that of liver damage, and unfortunately many patients only came for surgical treatment in a condition of advanced hepatic insufficiency. Mr. Oglivie recommended continuous intravenous infusion by the drip method for this type of case, and spoke of this as the greatest surgical advance of the past ten years.

Professor WILKIE, in reply, said that in his experience lung complications were relatively rare. He used Kocher's incision, but thought that the transverse incision was very good. The surgeon must be sure before closing the abdomen that the common duct was empty, and he agreed with Mr. Walton that small and soft stones and biliary sand were not palpable. He advocated, when necessary, preliminary exploration of the common duct, with a small needle and syringe, since the condition of the bile gave a clue to the condition of affairs. Adequate exposure was the keynote of the surgery of the biliary tract. He did not agree with Mr. Smyth that gastritis was so common. Investigation appeared to show that hexamine, though it could be demonstrated in the bile, had little effect on the infection. With regard to the tender ninth costal cartilage, he had noted that more often there was a tender spot behind in the ninth intercostal space. As pointed out by Mr. Ogilvie, operation at an early stage was safe and very successful. If the liver was damaged the risks of operation were much increased. He agreed that intravenous glucose saline was the main essential in pre-operative and post-operative treatment in these advanced cases.

SECTION OF PATHOLOGY AND BACTERIOLOGY

Thursday, July 27th

SEROLOGY AND THE PATHOGENIC COCCI

With the President, Professor J. M. BEATTIE (Liverpool), in the chair, the opening paper, on the present position of serology in relation to the pathogenic cocci, was read by Dr. H. J. PARISH. (It is printed in full in this issue of the *Journal* (p. 277).

Dr. R. CRUICKSHANK (Glasgow) dealt first with staphylococcus and *Streptococcus pyogenes* infections. He pointed out that it was difficult to find any direct evidence of the importance of the exotoxins of these organisms in the clinical manifestations of infections. Consequently the therapeutic test—that is, the value of staphylococcal and streptococcal antitoxin in the treatment of corresponding infections—became correspondingly important. He gave personal experience, and quoted the work of Glasgow colleagues in the employment of staphylococcal and streptococcal antitoxin in such conditions as osteomyelitis, carbuncle, scarlet fever, erysipelas, puerperal sepsis, cellulitis, and streptococcal septicaemia. Regarding antibacterial serums, he referred to experience with anti-pneumococcal serums as illustrating the difficulties met with in their practical application. The virulence of the pneumococcus was closely correlated with its specificity, and therefore, to counteract the infection, a highly specific antibacterial serum was required. Fortunately, in the case of lobar pneumonia, although there were over thirty serological types of the pneumococcus, two-thirds to three-quarters of the cases were due to Types I and II pneumococcus, and antitoxin could therefore be given practically and economically. But in other bacterial infections—for example, those due to the streptococcus—there was a multiplicity of infective serological types, and the production of antibacterial serum became a practical impossibility. This was the obstacle which the serologist must try to overcome in the future. Dr. E. N. DAVEY (Gloucester) referred to his experience with puerperal fever, and mentioned that he had never known of recovery in a case of septicaemia with a positive blood culture for haemolytic streptococci. Professor BEATTIE thought that experience showed that serum treatment of meningitis was of decided value if the correct type of serum was given and if treatment was continued for four or five days.

In answer to further questions Dr. PARISH agreed that there was every reason to expect good results with toxoid treatment for staphylococcal infections. He thought cases of streptococcal septicaemia with a rash were the most likely ones to benefit by antistreptococcal serum. In answer to questions about the addition of complement to

protective serums, he suggested that this might be of value when spinal injections of serum were given, but complement was not necessary for intravenous injection. A hearty vote of thanks was accorded to Dr. Parish for what the chairman described as a useful and stimulating paper.

LYMPHADENOMA

Dr. C. E. VAN ROOYEN (Edinburgh) read a paper on recent work on the aetiology of Hodgkin's disease. He reviewed the history of the disease, and described the recent advances in our knowledge made by Dr. M. H. Gordon. In work published in 1932 Dr. Gordon reported that intracerebral inoculation of rabbits with suitable suspensions of lymphadenomatous tissue was followed in three or four days by highly characteristic changes affecting the central nervous system of the animal. Dr. van Rooyen gave a series of pictures illustrating this encephalitic syndrome, and described how it could be elicited. His experiments had proved that the encephalitic syndrome produced in the rabbit was specific for Hodgkin's lymphoid tissue, and consequently might be utilized as a biological test for the diagnosis of this disease. The precise nature of the syndrome produced in the rabbit was not the outcome of a simple traumatic and inflammatory change produced in the brain of the animal, but was probably due to the action of either a specific toxin or a filterable virus, derived from the human subject suffering from Hodgkin's disease. The present available data regarding the nature of this pathogenic agent neither confirmed the possibility of these effects being the results of a specific toxic activity nor excluded them from being due to the action of a filterable virus.

SECTION OF OPHTHALMOLOGY

Thursday, July 27th

VISUAL FIELDS AND INTRACRANIAL LESIONS

After the President, Mr. F. C. CRAWLEY (Dublin), had opened the meeting by welcoming the members to Dublin, Mr. A. A. MCCONNELL (Dublin) and Mr. H. M. TRAQUAIR (Edinburgh) opened the discussion on fields of vision in connexion with intracranial lesions. Their papers were printed in the *Journal* of August 5th (pp. 226 and 229).

Mr. NORMAN M. DOTT (Edinburgh) stressed how invaluable quantitative perimetry had proved in practice. Cases of tumour compression of each optic nerve simultaneously, and of carotid pressure, detected by arterial radiography, were shown. He described the distinction between true hemianopia and the irregular field depressions of post-neuritic optic atrophy. The results of other forms of compression in various situations with the exact mechanism of production of the field defects were also discussed. He doubted that permanent hemianopic defects occurred in true migraine, and showed that resection of Meyer's temporal loop did not result in hemianopic field defects.

Miss EUPHAN MAXWELL (Dublin) described a case of invasion of the left occipital lobe by the common lung fluke of Japan, and two cases of pituitary gland tumour in middle-aged women, contrasting the slow, continual progressive loss of vision in the one case as compared with the marked fluctuations in the other.

Mr. HUGH CAIRNS, in emphasizing the importance of quantitative perimetry in the diagnosis and management of chiasmal lesions, illustrated his remarks by cases of pituitary adenoma. Scotomatous bitemporal hemianopia was the most common defect in the earlier stages of pituitary tumour, so that examination of the peripheral field only precluded early diagnosis. Examples of recovery of fields after operation on pituitary adenomata were demonstrated.

Mr. G. JEFFERSON (Manchester) compared the evolution of perimetry with that of the investigation of cutaneous sensation. He confined his remarks to meningiomata of the tuberculum sellae, where diagnosis might be made with certainty by perimetry alone. Such cases were puzzling because *x*-ray examination was negative. Three cases of his illustrated the fact that careful perimetry alone would give the surgeon a chance of operating early and with success. Pituitary tumours did not always lead to recognizable somatic changes in the hands, face, etc.; they might reach large dimensions without altering the patient's appearance. Mr. P. G. DOYNE asked for an explanation of the directional movement of the edge of the field. Dr. L. W. WERNER (Dublin) gave details of an injury to the occipital lobe in a boy, and asked for information as to the prognosis.

Mr. TRAQUAIR, in reply, said that the movement of the field edge was due to nicking of the optic nerve by the dura mater covering the upper edge of the optic foramen. In chiasmal retrobulbar neuritis the clockwise or anti-clockwise movement was inexplicable. With regard to traumatization of the occipital lobe, that part of the brain substance which was affected purely by oedema would recover with resumption of function. Prognosis in such a case was facilitated by perimetry with serial objects. Mr. DOTT illustrated the first part of Mr. Traquair's reply by reference to one of his cases.

SECTION OF DISEASES OF CHILDREN

Friday, July 28th

VITAMINS IN PAEDIATRIC PRACTICE

With a Vice-President, Dr. KATHLEEN F. LYNN (Dublin), in the chair, Dr. L. J. HARRIS (Cambridge) opened a discussion on the value and dosage of vitamins in paediatric practice. Having shown the essential need for prophylactic measures, Dr. Harris discussed the methods available for giving vitamins. While cod-liver oil had proved of great worth in the past, it was sometimes difficult to reach a dose of this substance large enough to give complete protection without upsetting digestion. The modern preparations of irradiated ergosterol were recognized by a majority of workers, he said, as the best measure of wholesale protection. The use of such potent substances, however, raised at once the question of dosage, and, after stressing the need for expressing this in terms of the international standard, he suggested that an infant at 6 weeks of age might be started at 250 to 500 units daily, and gradually increased to 1,500 by the end of the first year. (This is equivalent to nearly five teaspoonfuls of good cod-liver oil.) From a public health standpoint it was probably best to incorporate irradiated ergosterol in the milk, either as was already done in certain dried milks, or by a wider use of irradiated milk—a method which would be of more value when the technical processes were more fully standardized. In the cure of rickets Dr. Harris recommended irradiated ergosterol as the method of choice, the suitable maximum curative dose for a severe case of rickets in a child between 1 and 2 years of age being about 5,000 international units of vitamin D daily. (This was about fifteen teaspoonfuls of cod-liver oil.) This raised the question of overdosage, and he argued that the risk was a real one, but was no reason for not using the remedy so long as the manufacturer's directions supplied with the commercial preparations of vitamin D were rigidly followed. For the human subject the toxic dose was quite close to the optimum curative dose, probably only about three times as much. Deficiency of vitamin A caused a characteristic abnormality in certain cell structures; vitamin B deficiency interfered with carbohydrate metabolism, leading to accumulation of lactic acid, and especially affecting the heart and nervous system; deficiency of vitamin C led to functional failure of certain highly active cells, especially in relation to the taste; while vitamin D appeared to have a more purely chemical effect upon calcium and phosphorus metabolism, controlling more especially the "net absorption" from the intestine. It followed from this that vitamin D was the proper remedy for infantile tetany and for the prevention of rickets in coeliac disease. Nursing and expectant mothers also required extra vitamin D. In conclusion, Dr. Harris spoke against the use of parathormone in tetany, since it did not influence the absorption of calcium and phosphorus.

Dr. W. R. AYKROYD (Geneva) agreed that correct nutrition was not a matter of instinct, a fallacy which

died hard. At the present time good nutrition was more likely to be found associated with a high degree of education and civilization than with primitive habits of life. In Southern Europe, and in most of the poorer countries of the world, children lived on a diet mainly composed of cereals. Such a diet was defective, and the children were below the physical standards of the school medical services in Great Britain, which, in turn, were below those in America. In regard to infants, Dr. Aykroyd continued, it was possible to think in terms of actual food factors, and a fairly exact programme of vitamin and mineral requirements could be worked out. In older children on a mixed diet the problem was not so simple, and he suggested that in judging the worth of any particular regime it should be possible to use as criteria the amounts of the more valuable foodstuffs present, such as milk, eggs, green vegetables, butter, etc., rather than in terms of actual food factors. This had the merit of being readily understood by the public. While there were as yet no fixed standards of vitamin requirements past the age of infancy, it seemed clear that the average child of the lower classes did not receive enough of those foods which were the most valuable sources of vitamins and mineral salts. Large-scale experiments had amply proved the value of extra milk in the dietary for such children. Finally, Dr. Aykroyd criticized the height and weight standards in use in England, observing that the current conception of a normal healthy child was largely based upon a study of children whose diet fell far short of perfection.

Dr. Colman Saunders (Dublin) asserted that in his experience it was unusual to find a child between 1 and 2 years of age without some evidence of old or active rickets. This was true even of breast-fed children, and he thought this was because the maternal diet was often very defective in vitamin D. He had seen three examples of tetany in breast-fed children this year, and he thought that it was not generally realized that breast milk did not contain more vitamin D than cow's milk, the latter, however, being given diluted, so that the baby got less of this vitamin when artificially fed. Dr. Saunders thought that irradiated ergosterol should be given to the nursing mother or to the baby during the winter months. In the case of the artificially fed baby it was important to consider the balance of the diet as well as its deficiencies in relation to rickets. He regarded tetany as commoner than was generally realized, and he had obtained good results in the treatment of the paroxysms of whooping-cough and idiopathic convulsions at school age by means of calcium and vitamin D added to the diet. Dr. H. E. Magee (Aberdeen) stressed the importance of the balance of the constituents in a dietary in the maintenance of normal nutrition, too much attention, in his opinion, being sometimes attached to the individual elements. He drew attention to the significance of blood phosphatase as an indication of impending breakdown in calcium and phosphorus metabolism. Dr. S. W. Clausen (Rochester, U.S.A.) mentioned the giving of extra vitamin B to children who were not gaining weight, and he pointed out that the extra carbohydrate intake might have something to do with the good results obtained. As regards vitamin A deficiency, he described recent experiments made to correlate the level of carotene in the blood with susceptibility to infection, the results showing only a slight relation. Dr. Clausen mentioned, in conclusion, the possibility of curing xerophthalmia with carotene. Dr. H. P. Wright (Montreal) spoke especially of the value of the potato as a source of vitamin C. He had recently found that four tablespoonfuls of mashed potato daily would completely protect a child from scurvy, and double this amount effected a rapid cure. This source of vitamin C was much cheaper than the orange. Dr. L. G. Parsons (Birmingham) said that he did not see anything like the same number of cases of rickets now compared with some years ago, and he thought statistics such as the opener had quoted on the prevalence of rickets should be accepted with caution. He mentioned that vitamin D obtained from irradiated milk seemed to be better utilized by the body than when it was taken in the more concentrated preparations. Dr. Parsons stated that he had seen five examples of pellagra in this country. Dr. Catherine Chisholm (Manchester) spoke of the value of heliotherapy, stressing that the wholesale administration of irradiated ergosterol presented many practical difficulties. "Good mothering" was, in her opinion, a very important part of the prophylaxis of rickets.

The Chairman pleaded for a return to the natural state of man as an "irradiated animal," and urged that the smoke over the big cities was a very serious factor in producing rickets. She quoted some experiments which showed the value of irradiating the nursing mother.

Common Sense in Paediatrics

Dr. Edouard Ceresole (Lausanne) read a paper on "Childhood, Common Sense, and Medicine," emphasizing that paediatricians still showed more interest in diseased conditions than in prevention. He instanced the problem of "breeding" as applied to the human race, and pointed out that in his own country, where natural advantages ought to have enabled them to produce a very fine breed of humans, they were still much behind in matters of hygiene. As regards the question of fresh air and sunlight, the speaker thought that these natural healers were still largely neglected. Artificial sunlight he regarded, with Rollier, as a very poor substitute. Dr. Ceresole emphasized, as a visitor, the striking contrast seen in England between the splendid physique of the public-school boy and that of the child from a poor district—a remarkable example of the effect of environment, in his opinion. In conclusion, he stressed the need for the medical profession to take a definite stand upon the alcohol problem.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE

Friday, July 28th

Poliomyelitis

At the second meeting of the Section, under the presidency of Dr. Gordon M. Holmes, the opening paper on the epidemiology and treatment of poliomyelitis was read by Dr. F. M. R. Walshe. He said that few nervous diseases had been subjected to such intense and fruitful study of recent years as poliomyelitis. The findings necessitated an almost complete revision of previous conceptions of the disease. Whereas up till five years ago it had been regarded as an acute specific fever consisting of a short-lived stage of general infection followed by an invasion of the meninges, and finally infection of the nerve cells, as shown by paralysis, the point was now being reached when the disease must be regarded as primarily and exclusively an infection of nervous tissue with no initial stage of systemic infection. The corollary from this was that the division of poliomyelitis into preparalytic and paralytic stages was an artificial one, and without pathological basis. This had important bearings on the question of serum therapy. Flexner had shown that, in monkeys, serum to be effective must be injected within twenty-four hours of the inoculation of the virus. In the twenty years since Netter introduced serum treatment no reliable statistical evidence of its efficacy had been produced, whereas the variable dosage and means of administration claimed as successful by different authors suggested that the value was *nil*. The results obtained in the best controlled series of cases yet available, in the New York epidemic of 1931, showed a slightly lower rate of paralysis in cases not treated with serum. The speaker considered that there was no reliable evidence that serum was of any value in treating the human disease, but doubted if hard facts would be equal to the task of cooling therapeutic enthusiasm.

Dr. R. W. Fairbrother (Manchester) said that the outstanding epidemiological features of poliomyelitis were its wide distribution but low incidence, its predilection for children, and its seasonal variation. Up to the present only one immunological strain of the virus had been obtained, but this was capable of variation in its virulence. The comparative immunity to the disease enjoyed by

adults was variously explained as due to the acquirement of immune bodies by one or more subclinical infections, and by the theory of "non-specific maturation," which supposed that the nervous system as years went by acquired an increased resistance to infections in general For the latter theory there was little evidence Dr Fairbrother referred to his work with Hurst, showing that in monkeys inoculated with virus into the brain, or into the sciatic nerve in such a way that the medullary sheaths were injured, the incidence of the disease was 100 per cent The proportion of cases developing the disease after intranasal application of the virus was appreciably less The extension of the virus in the nervous system had been proved to occur by axonal spread, and the virus was subsequently found in the greatest quantity in the medulla and the enlargements of the spinal cord The action of the virus was primarily upon the nerve cells, the meningeal reaction being secondary Turning to treatment, the speaker advocated the use of gargles of oxidizing agents, such as hydrogen peroxide or potassium permanganate, both as a prophylactic and during the convalescent period He considered the prospect of producing active immunity to be very remote, as this necessitated the use of active virus with its attendant dangers He believed that, while its value was still *sub judice*, the use of immune serum in the treatment of the milder cases was in accordance with theoretical considerations, and should be further tested He made a plea for the further testing of immune horse serum, the most powerful antiviral agent known

Dr J PURDON MARTIN remarked that if the view expressed by Dr Walshe that poliomyelitis was solely a disease of the nervous system were accepted, it would necessitate the revision of many of our conceptions of its nature and epidemiology The speaker considered the evidence in favour of a general systemic infection to be overwhelming, and referred particularly to the marked febrile disturbance, unlike that occurring in most cases of encephalitis, the general lymphatic hyperplasia, the occasional isolation of the virus from blood, and the development of immune bodies in the blood He noted the occurrence of poliomyelitis after certain cases of fracture, when the paralysis was most severe and lasting in the injured limb, and also cases of bulbar poliomyelitis which had followed tonsillectomy or acute tonsillar infection While accepting the view of Fairbrother and Hurst that in ordinary cases the portal of entry of the virus was from the nasopharynx, via the olfactory nerves the speaker believed that in exceptional circumstances the virus might be conducted by the nerves of the limbs or the bulbar nerves, in which case the major incidence of the paralysis would be upon the affected limb and medulla respectively He considered it probable that the nervous and systemic invasion occurred concurrently, and that the time factor between them might vary In such cases, if the systemic invasion preceded the neural the development of antibodies was likely to be rapid and paralysis slight Should the neural invasion precede the systemic the damage to the nervous tissue was likely to be great Dr Martin referred to the continued existence in textbooks of elaborate classifications of clinical types having little foundation in fact He would prefer to group the cases as spinal, brain stem, and abortive He doubted the existence of an encephalitis as a manifestation of poliomyelitis, and quoted the experimental fact that the cerebral hemispheres themselves appeared to be particularly resistant to the virus even in direct inoculation, merely acting as vehicles for axonal spread to the brain stem and spinal cord Referring to treatment he believed that some of the early successes claimed for immune serum were due to its use at a time when preparalytic diagnosis was becoming possible It was unwise to expect too much of serum, but, at any rate, in the early stages theoretical considerations supported its use

Professor S HALGHTON (Dublin) prefaced his remarks on the orthopaedic treatment of cases of poliomyelitis by reminding the meeting of the principles laid down by R W Lovatt of Boston The disease was to be regarded as having three phases (1) The acute attack, ending with the total disappearance of muscle tenderness (Treatment during this period consisted of complete physiological rest and splintage of affected muscles in a position of relaxation) (2) The stage of spontaneous recovery, lasting two to three years (Treatment consisted of splintage in the over corrected posture, graduated massage and muscle-training, and local heat Electrical treatment he considered to be without value) (3) The stage of irrecoverable paralysis (Here treatment consisted of correct splintage, tendon transplantation, and arthrodeses) On the whole he had found tendon transplantation disappointing, but had been impressed by the favourable results of arthrodeses, especially of the ankle joint Before the age of 14 he considered Whitman's astragal colotomy serviceable, but after that age he preferred Naughton Dunn's subastragaloid arthrodesis Dr RUPERT COLLINS (Cheltenham) dealt with the course to be adopted in the case of an outbreak of poliomyelitis in a public school In his opinion the school should be run on open air lines, but he was doubtful of the wisdom of using chemical gargles, owing to the danger of damaging the nasal mucous membrane—particularly its ciliated epithelium—and thus increasing the danger of infection Dr MALD FORRESTER BROWN and Dr R G GORDON (Bath) showed an interesting cinematograph film of the surgical treatment of poliomyelitis Dr JEAN MACNAMARA (Australia) emphasized the danger of applying facts determined in experimental poliomyelitis in monkeys to the natural disease in man Fairbrother and Hurst's work was done with a virus adapted to monkeys, but up to the present no similar experiments had been reported in which a virus freshly obtained from a human source had been used Had this been done the argument by analogy from monkey to man was open to question, as was illustrated by the case of yellow fever virus, which in man and most animals was viscerotropic, but in the white mouse intensely neurotropic The speaker stressed the marked clinical differences between the preparalytic stage of poliomyelitis in children and in monkeys the latter showing little febrile disturbance, marked nervous signs and never the "spinal sign" so constantly seen in children She regarded the virus of poliomyelitis as essentially possessing both viscerotropic and neurotropic elements Serum therapy was still handicapped by the impossibility of accurate standardization of the serum Dr MacNamara pointed out that the results obtained in the New York epidemic of 1931 were open to criticism and that it was freely admitted that the more severe cases received serum, the less severe being used as controls The difficulty of proving the usefulness of a therapeutic agent by statistics was evident, but many clinicians of experience were impressed by its value Mr WHITCHURCH HOWELL referred to the rapidity with which the pain and pyrexia of the initial phase subsided on complete rest and referred to cases he had observed in which a varicelliform rash over the dermatomes corresponding to the muscles chiefly affected had occurred He personally had been impressed by the clinical results of serum therapy Dr WICHT (S Africa) referred to the case of encephalitis in children, which showed none of the changes in the spinal fluid characteristic of poliomyelitis, and made a plea for the more accurate classification of encephalitides in early life Dr GORDON HOLMES remarked that the problem of serum therapy was essentially a practical and not a theoretical one and that the bulk of the evidence available was adverse to the view that it had any action in preserving life or diminishing the incidence of paralysis

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We have received from the Department of Scientific and Industrial Research the *Index to the Literature of Food Investigation* (vol iv, No 2) This contains a list of useful publications on the progress in the preservation and transport of food In addition to the title in each case, a short note is usually appended giving an indication of the subject-matter The volume is arranged in fifteen sections, dealing respectively with such topics as meat, fish, eggs, dairy produce, theory of canning, freezing and chilling, bacteriology, mycology, and engineering The *Index* is published by H M Stationery Office (price 2s 6d)

Ireland

Vital Statistics for 1932

The yearly return of marriages, births, and deaths in the Irish Free State has recently been issued. It is stated that the rate in 1932 per 1,000 of the population represented by the number of marriages (13,085) registered in Saorstat Eireann was 4.4, the average being 4.7 for the ten years 1922–31. The birth rate during the year, based on 56,167 births, was 18.9 per 1,000 of the estimated population, as against 19.3 per 1,000 for 1931 and an average of 20.2 per 1,000 for the ten years 1922–31. The birth rate for the city of Dublin was 25.3 per 1,000; for the borough of Dun Laoghaire, 16.7; for the county borough of Cork, 21.4; for Limerick, 25.8; and for Waterford, 26.1. For Northern Ireland the birth rate was 20.0; for England and Wales, 15.3; and for Scotland, 18.6. The rate for Belfast was 21.5; for Londonderry, 26.1; for London, 14.3; for Glasgow, 20.6; and for Edinburgh, 15.5. The rate in respect of deaths registered in Saorstat Eireann, numbering 42,957, was 14.4 per 1,000, as compared with 14.5 in 1931 and an average also of 14.5 for the ten years 1922–31. The death rate for the city of Dublin was 15.7 per 1,000; for the borough of Dun Laoghaire, 14.3; for Cork, 15.8; for Limerick, 15.7; and for Waterford, 18.3. The corresponding death rate for Northern Ireland was 14.2; for England and Wales, 12.0; and for Scotland, 13.5. For Belfast the death rate was 14.0; for Londonderry, 14.4; for London, 12.3; for Glasgow, 14.5; and for Edinburgh, 13.5.

Dublin Hostel for the Blind

The National Council for the Welfare of the Blind, at its recent meeting in Dublin, was able to report considerable progress and development during the year ended March 31st, 1933, especially in its home-visiting section. Routine visits to blind people during the year totalled 541, while the number of persons seen at the office by the home visitor was eighty-four. Visits on behalf of the blind numbered 148, and letters and written lessons ninety. Braille lessons were given to eleven blind persons, and two country cases received elementary lessons. Assistance was given by way of information, literature, etc., to seven readers who already knew Braille, and Moon lessons were given to two elderly blind persons. Four homeworkers have produced saleable articles. Numerous applicants for the old age pension, under the new legislation which provides that blind persons shall receive the old age pension at the age of 30 instead of 50, have received advice and assistance, and in five instances special relief was granted pending payment of the State pensions. Special relief has been given on eight other occasions on account of illness and distress, and three weeks' convalescent treatment at Stillorgan Home has been provided for an elderly blind man suffering from arthritis. Dr. T. G. Moorhead, who was present at the meeting, said that the council was worthy of the support of all citizens, and that last year's work showed amazing progress. Miss Armitage, the president, who had called the council into being, was doing wonderful work for the blind. The council was not created to give charity to the blind, or to take the place of the State or local councils in the payment of maintenance money. Its object was educational, instructional, and social. The practice of reducing pensions or local allowances to blind persons who earned more than 6s. a week deterred them from earning anything over that amount, and should be discontinued. The opening of the Athlone broadcasting station was a tragedy for the blind in Dublin who had crystal sets. He was glad, however, that there was a promise that the Dublin station would be reopened, and he wanted the authorities to know that there was a very definite demand for this reopening. Dr. F. Laverty said that, although much money was being spent in the Free State in pensions for the blind, they were very far behind in preventive measures. The school medical service was a step in the right direction, and an attempt was being made in Dublin to set up special classes for short-sighted children; much credit was due to the city school medical officers for the efforts in this direction. He regretted the prevalence in Dublin of trachoma, which he might describe as leprosy of the eye, and expressed the hope that there would be adequate efforts to deal with this condition.

England and Wales

The Medical Charitable Society for the West Riding of the County of York

The one hundred and fifth annual meeting of this society took place at Doncaster under the chairmanship of Dr. T. A. Glover of that town. The report which was presented gives clear evidence of the increasing scope and utility of the work which is being carried on. At the end of the report a table shows that the membership has gone up from 862 in 1921 to 1,182 for the year now current. Those who are familiar with the aims of the society, however, are surprised, not by the magnitude of this increase in the figures, but by the fact that the membership is not much greater than it is. The work is carried on in nineteen districts, to each of which one or two stewards are attached. It is the duty of these to make the activities of the society known to all suitable newcomers to the district concerned, and to collect the subscriptions of those who do not pay by bankers' order. Their most important duty is to keep in touch with the recipients and to advise the members at the annual meeting as to the claims of any new applicants and as to any change in the circumstances of those who are already on the list of the beneficiaries. This year there were forty-five applications for grants, and all these were met, the total amount voted being £2,092. The annual subscription is one guinea. During the existence of the society its funds have been enriched by some £7,000 in legacies and donations, and there have always been about a dozen friends of the society who, though not members of the medical profession, have been annual subscribers of one guinea. It is a tribute to the discretion with which the finances of the society have been managed that no less a sum than £89,174 has been given away in grants by the end of the last financial year, and that the society possesses securities for which it has expended the sum of £43,963. One of the most useful of its activities is that which concerns itself with the education of the children of necessitous members, or of deceased members who have not left adequate provision for this purpose. The influence and the direct voting power of the society and of its members have, in the past, been used to further the candidature of suitable lads for foundation scholarships at Epsom College. The society learned with approval of the change in the method of electing foundation scholars which has recently been made, and last year, as a direct consequence of this, a note to the following effect was added to the rule dealing with the education of those who seem suitable lads to help:

"This clause shall be regarded as entitling the society, at its annual meeting, to make a grant to Epsom College for

the purpose of contributing to the establishment of a scholarship or scholarships at the College, which would be open to the children of medical practitioners who are in straitened circumstances, or who have died without leaving sufficient money to enable their children to be adequately educated, provided that notice of a motion to such effect is printed in the circular calling the annual meeting, with a specification of the amount of the grant which it is proposed to make."

Under this addition to the rule, two grants of £50 have already been made to the College. It is the hope of those who are interested in the work of the society, and who are also admirers of the great work which is being done by Epsom College, that, year by year, a grant of this or of a greater amount may be made to its finances. The society has been gratified by a request from Epsom College that it should nominate one of its number to act on the special committee whose duty it is to advise as to the election of foundation scholars, and the choice has fallen on Professor M. J. Stewart of Leeds, who is the local representative of the College in the West Riding. Particulars of the work of the society may be obtained from Dr. Wardrop Griffith of Leeds.

Royal Victoria Infirmary, Newcastle

During 1932 the number of beds available in the Royal Victoria Infirmary was 556; with the thirty beds in the Innes Hopkins Memorial Home at Ryton-on-Tyne, the Infirmary had the command of a total of 586 until October, when there was an addition of five beds to the Memorial Home. The daily number of beds occupied on an average was 544, representing 92.6 per cent. of the total. This percentage was lower than in 1931, and the drop is attributed to the committee of management's scheme to reduce the numbers, with a view to bringing the work of the institution to more manageable proportions. It is remarked in the annual report that for many years a state of overcrowding has existed, which has been detrimental to the interests of the patients and to the smooth working of the hospital. It is added that there can be no doubt that since the number of beds occupied was reduced there has been an increase in the patients' comfort, an improvement in the nursing facilities, and a more complete scientific investigation of cases. The patients up to the end of 1932. In spite of the acute financial strain which continued throughout the year under review, the voluntarily subscribed income reached the figure of £60,627, which is only £4,507 less than in the previous year. Expenditure exceeded income by £3,142.

The Cancer Campaign in Yorkshire

The seventh annual report of the executive committee of the Yorkshire Council of the British Empire Cancer Campaign covers the twelve months ending March 31st, 1933. Reference is made to the great value of the Algernon Firth Research Institute, a description of which building was published in the *Journal* of June 10th (p. 1012). The total expenditure for the year under review was £11,817, which exceeded that in the previous year by £400, and was about the same as that two years ago. Since its inauguration in 1926 the council has spent more than £86,000, and still has available £71,000, but it is pointed out that this sum will not provide for more than seven years, and it is hoped that there will be considerable additions to the funds in the meantime from new donations. The report contains the usual accounts of the experimental work in progress in the Universities of Leeds and Sheffield and of various investigations, aided by smaller special grants. At Leeds, to which a grant of £6,698 was made for various purposes, Professor R. D. Passey and Mr. A. Lorse have been continuing the study of the products of cell injury and the processes of repair after such injury. Young's intrapleural route has been employed with a view to testing the presence of growth-promoting substances. It was found that any healthy sterile normal tissue so far tested, when placed in the pleural sac, will give rise to a marked hyperplastic reaction on the part of the cells of the serosa and of the cells of the marginal alveoli. This reaction always takes place in the immediate neighbourhood of the implanted tissue, in response, it is suggested, to some chemical agent, and not merely to the mechanical presence of a sterile foreign body. This was shown by the complete inability of an almost chemically inert body, such as a smooth piece of glass, to elicit the same response. Moreover, the relation appears to be quantitative, since it increases proportionately to the amount of tissue placed in the pleural sac. To a milder degree the same [illegible]

CORRESPONDENCE

Paying Patients in Voluntary Hospitals

Sir,—The honorary secretaries of the King Edward's Hospital Fund are very persistent in their endeavour to contradict certain statements made in a communication under the above heading in the *Journal* of September 15th, 1928, and now repeated in your issue of July 8th this year. No contradiction was issued in 1928.

In their communication published in your issue of July 15th they quote as an "actual conclusion" of the Pay Beds Committee of their Fund something which never appeared in any one of the fifteen conclusions of the published report of that body. That "quotation" must therefore be taken as their own opinion and interpretation. In itself it was quite irrelevant to my summary, which they criticized.

Now, in your issue of July 29th, they name what they term two "substantial differences" as between my summaries of the committee's conclusions (appearing on pages 34–36 of that report) and the conclusions themselves.

The first they state to be that I use the term "moderate means" instead of "small means" when referring to a group of patients whose treatment at voluntary hospitals the committee in its conclusions said should be similar to that given to those known as the "sick poor." The honorary secretaries state: "The paragraph which he quotes was the conclusion of an argument that the principle of providing accommodation at a cost to voluntary funds should *not* apply to those of 'moderate means' generally." My quotation was a conclusion of the Pay Beds Committee given in full, not a paragraph from somewhere else. The statement the honorary secretaries now make does not appear in any one of the fifteen conclusions of that committee. Here again one must suppose it is the opinion and interpretation of the honorary secretaries themselves. The other "substantial difference," as they term it, is that, whereas I summarize conclusion No. 13 of that report by stating "the committees of management should lay down certain rules or limitations as to the medical practitioners who should be allowed to attend these patients," the actual conclusion of the committee was "that each hospital should decide for itself whether or not it should lay down any limitations at all." It requires a good deal of dialectic skill to appreciate the difference between these two statements, for even if there are to be no limitations there certainly must be rules of some kind in every case.

The summaries of the Pay Beds Committee's conclusions which I ventured to make four years ago, and to repeat now, are absolutely correct. If the honorary secretaries of the Fund think otherwise and desire "to correct erroneous impressions," then it is up to them to produce evidence which is relevant and accurate. The thesis I have ventured to emphasize again is your statement (*British Medical Journal*, 1928, ii, 317) that if the proposals made in the Pay Beds Report are to be carried into effect—as it would seem to be the intention of voluntary hospitals just now—"the ranks of the younger consultants will be sadly thinned." This situation becomes more grave when one remembers that that committee, in its conclusion No. 14, expressed an opinion that "pay-bed accommodation for the well-to-do might well be provided on a limited scale by voluntary hospitals"; and in its conclusion No. 15 advocated "preparing and publishing year by year for *the information of the public* a list of pay-beds at the London voluntary hospitals, with rates of charge and other particulars." And these are hospitals almost all of which are entirely manned by a restricted visiting medical staff! That is, a few hundred medical practitioners to be assisted, by advertisement and otherwise, to absorb the greater part of the more interesting and remunerative medical experience, amongst the middle and upper classes, of over eight thousand of their colleagues in Greater London!—I am, etc.,

Hove, July 29th. E. Rowland Fothergill.

Treatment of Rodent Ulcer

Sir,—We have read the instructive paper of Dr. Finzi in the *Journal* of July 22nd (p. 137) with great interest, but feel that he dismisses the surgical treatment of rodent ulcer rather summarily. At the Birmingham and Midland Skin Hospital about fifty new cases of rodent ulcer are seen by us annually, and in many of these we have obtained very satisfactory results by excision or diathermy. A good percentage of these rodent ulcers have a diameter of about half an inch, and these, we think, are particularly amenable to surgery.

We cannot altogether agree that the cosmetic results after surgical procedures do not compare with those following radium, though we think this of less importance than the certainty of cure and the finality of the treatment. A proportion of our cases have been treated with unscreened radium and gamma-ray therapy, and we consider results with the latter method better than those obtained with unscreened plates. We can support Dr. Brain's statement that many excellent cosmetic results are seen after treatment with unscreened plates, though gamma radiation may be the method of choice. Drs. Roy Ward, Durden Smith, and Brain do not refer to the well-known fact that rodent ulcers affecting cartilage will not heal under the application of unscreened radium—a fact difficult to explain.

Perhaps the matter may be best expressed by saying that the patient who can be trusted to attend should be treated by radium, but the one who cannot should have an immediate "once and for all treatment"—surgery or diathermy. By this procedure it may be possible to reduce the number of those terrible cases with involvement of the eye, dura mater, etc., which are the result of procrastination.—We are, etc.,

Hugh Donovan.
Birmingham, Aug. 1st. E. Baylis Ash.

Persistent Occipito-Posterior Cases

Sir,—The interesting and instructive letter of Dr. C. L. Somerville of the Leicester Maternity Hospital, on the use of Kielland's forceps in persistent occipito-posterior cases (*Journal*, May 13th, p. 846), is worthy of careful consideration by general practitioners.

Several years ago, in introducing the discussion on a paper read by Professor Windeyer of Sydney University, before the Victorian Branch of the British Medical Association, on some common obstetric difficulties, I referred to the remarkable differences in the treatment of persistent occipito-posterior cases advocated in the medical schools of various parts of the world, and incidentally mentioned that one method of dealing with these cases was rotation by Kielland's forceps. This remark met with some adverse criticism by one or two subsequent speakers, who, however, had had no personal experience with this instrument, in spite of the fact that it is strongly recommended in such cases by several leading Continental authorities, some of whom go so far as to say that it is the only forceps the use of which should be taught to students.

At a subsequent meeting of the obstetric section of our Branch, during a discussion on Kielland's forceps, one of the obstetric surgeons of the Women's Hospital, Melbourne, stated that he had occasionally observed bruising

and other injuries of the foetal head after the use of this instrument. I thereupon pointed out what in my opinion was a slight defect in the construction of these otherwise admirable forceps. If this instrument, when locked in the ordinary way, is grasped by the handles, it will be seen that the blades come together unduly, so that the normal diameter between them at their widest part, which should be three inches, is considerably diminished, thus tending to compress the child's head unnecessarily. To obviate this defect, shortly after purchasing the instrument, I had a small metal wedge welded to the lower end of each blade at its junction with the handle. This prevents any undue compression of the foetal head, while at the same time the thickness of the wedge is not such as to interfere with the up-and-down sliding movement of one handle on the other, which Dr. Kielland considers an essential feature of his instrument.

I may add that Kielland's forceps may be used exactly in the same way as the ordinary forceps, are easy to apply, are, owing to their construction, really axis tractors, and are therefore the only ones that need be carried in the obstetric bag.—I am, etc.,

FRANK A. NYULASY, M.D.,
Formerly Honorary Obstetric Surgeon,
Women's Hospital, Melbourne.

June 20th.

Prophylaxis of Malaria

We have had opportunity to test the action of the venom of the Indian cobra, and could say without fear that the death is, as pointed out by Sir Leonard Rogers definitely due to central and not peripheral respiratory paralysis. The main action of the venom on the animal, in lethal and sublethal doses, is on the respiratory centre, the effect being one of stimulation and final paralysis. The investigation also suggested the possibility of the central vasomotor effect, and in sublethal doses there was invariably a fairly sustained rise in blood pressure. In India the indigenous medical men are said to use the venom of the cobra as a substitute for strychnine, to improve circulation in cases of failure. There seems to be pharmacological support for this use. The investigation further showed that the venom had no effect on the motor end-plates in the diaphragm or other respiratory muscles. The viperine venom, as tested with that of the Russel's viper, showed death by peripheral circulatory failure. The haemolytic and curare-like actions were inconsiderable.

Some of the current views on the venoms of poisonous snakes need revision. Further information on this subject could be had from the *Indian Journal of Medical Research*, vol. xviii, April, 1931, and vol. xix, April, 1932.—I am, etc.,

V. ISWARIAH, M.B.,
M.R.C.P.
Vizagapatam, S. India, July 8th.

Anaesthesia in Labour

SIR,—I have read with great interest Mr. Arthur Rees's paper on the use of chloroform capsules in labour in the *Journal* of August 5th (p. 241). It is a paper of great importance, as the time has now come when women have as much right to expect relief from the pains of labour as from the pains of dental extractions. I feel, however, that there is a greater future for gas and oxygen anaesthesia in labour than for chloroform. Mr. Rees says, for example, "I am convinced that these capsules [of chloroform] can be a very real danger." In the administration of gas and oxygen there is no danger at all, so far as I know. With proper technique, too, there is absolute relief from pain in all cases.

The objections raised against gas and oxygen are: (1) the expense, (2) the heavy apparatus required, and (3) the absence of skilled administrators. A practical portable apparatus was made for me for £10, including accessories. The British Oxygen Co. have an excellent hire service for cylinders. Each confinement costs about 5s. in gas and oxygen. There is still room for improved apparatus, but the first two objections do not hold. The method of administration is easy to learn, and with a little practice success is assured.

I have used gas and oxygen in my own practice for some little time, but, having only done some 100 cases, am not in a position to say whether this method is suitable for use by midwives. In any case an assistant would be required. Here is a fruitful field for investigators, and as this subject is of so great an importance to women some of our women practitioners might well carry out and publish a series of investigations. The use of gas and oxygen in labour has been neglected in this country. In how many maternity hospitals, for example, is it used at all? Perhaps our Ministry of Health could lead the way.—I am, etc.,

New Barnet, August 6th. JOHN ELAM.

Psychology and the Curriculum

SIR,—Dr. H. Godwin Baynes's letter in the *Journal* of August 5th (p. 267) is a timely reminder on the subject of how and when psychology shall be taught to the medical student. Nearly everyone, I think, agrees that the right sort of psychology can be, and is, most helpful in general practice, the first difficulty being *when* it shall be inculcated, and the second, *what kind*. That the curriculum is already overburdened I also think all will agree, and therefore it is practically impossible to squeeze in another subject.

My belief is that the wisest course would be to reduce the student's curriculum, but to insist on a six months' post-graduate course before the technically qualified man is allowed to practise. In this course the incubus of prospective examinations will have been lifted, and among other practical demonstrations given there should be lectures on psychology and also on general practice. No further examinations would be required, but the qualified man would have to produce evidence of having attended the prescribed number of lectures and demonstrations before he could be registered as one who had the legal right to practise in the national interest.

There is no doubt that psychology, if viewed through Freudian spectacles, is a complicated and, to my mind, risky subject to introduce; but in the understanding of the simple, common-sense, individual psychology of Adler and his followers there appears to me to be a brighter prospect for the human race and enormous help to the medical man who wishes to understand his patients.—I am, etc.,

Folkestone, Aug. 6th. G. FRANCIS SMITH.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Applications for the Gwynaeth Pretty Studentship, the holder of which shall devote himself to original research in the aetiology, pathology, and treatment of disease, with particular but not exclusive reference to those diseases which cripple or disable in childhood or early life, are invited, and should be sent, accompanied by copies of papers containing published work, and by testimonials and references, before November 1st, 1933, to Professor H. R. Dean, Department of Pathology, to whom also applications for further information may be addressed. The studentship is of the annual value of £200, and is tenable for three years. The place and nature of the studies of the student are subject to the approval of the professor of pathology, provided that the student shall be bound to pursue his studies within the University unless the managers dispense with this requirement for special reasons.

Applications for the Nita King Scholarship, the holder of which shall devote himself to original research in the aetiology, pathology, and prevention of fevers, are invited, and should be sent, accompanied by copies of papers containing published work, and by testimonials and references, before October 1st, 1933, to Professor H. R. Dean, Department of Pathology, to whom also applications for further information may be addressed. The scholarship is of the annual value of £50.

The Senate has appointed Dr. A. E. Barclay to represent the University at the fourth International Congress of Radiology, to be held in Zürich from July 24th to 31st, 1934.

UNIVERSITY OF LONDON

The following degrees were awarded by the Senate on July 19th:

PH.D. (BACTERIOLOGY).—M. A. H. Gohar (Lister Institute of Preventive Medicine).

PH.D. (PATHOLOGY).—P. R. Rao (St. Bartholomew's Hospital Medical College).

UNIVERSITY OF SHEFFIELD

Lewis B. Winter, M.A., M.D.Cantab., has been appointed lecturer in physiology.

QUEEN'S UNIVERSITY, BELFAST

The Senate has appointed C. J. A. Woodside, M.B., F.R.C.S.I., part-time lecturer in anatomy, and N. B. Graham, M.B., part-time lecturer in psychological medicine.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

At the quarterly comitia of the Royal College of Physicians of London, held on July 27th, the President, Lord Dawson of Penn, in the chair, the following were elected officers for the ensuing collegiate year: *Censors*, Sir Charlton Briscoe, Bt., Arthur J. Hall, Lord Horder of Ashford, Charles Bolton; *Treasurer*, Sidney P. Phillips; *Registrar*, Sir Raymond Crawfurd; *Harveian Librarian*, Arnold Chaplin; *Assistant Registrar*, C. E. Newman.

Awards

The Baly Medal, awarded every alternate year to the person who shall be deemed to have most distinguished himself in the science of physiology during the two years immediately preceding the award, was awarded to Dr. Robert Robison of the Lister Institute for his distinguished work on the esters of phosphoric acid and the enzyme phosphatase, and the part they play in bone metabolism.

The Moxon Gold Medal, awarded every third year to the person who should be deemed to have most distinguished himself by observation and research in clinical medicine, was awarded to Professor G. R. Minot of Boston, Massachusetts, for his valuable work on diseases of the blood.

The Weber-Parkes Prize and Medal for the best work already done in connexion with the aetiology, prevention, pathology, or treatment of tuberculosis in this country or abroad was awarded to Sir John McFadyean.

Appointments

The following appointments were announced: Dr. James Collier as Harveian Orator, 1934 (the forthcoming Harveian Oration in October next will be delivered by Sir Thomas Lewis); Dr. J. H. Sheldon as Bradshaw Lecturer, 1934; Dr. H. L. Tidy as Lumleian Lecturer, 1934; Dr. E. C. Dodds as Goulstonian Lecturer, 1934; Dr. C. H. Andrewes as

Oliver-Sharpey Lecturer, 1934; Sir Humphry Rolleston, Bt., as FitzPatrick Lecturer, 1934; and Dr. E. I. Spriggs as Croonian Lecturer, 1935.

Sir George Newman and Dr. J. W. McNee were re-elected representatives of the College on the executive committee of the Imperial Cancer Research Fund.

The Leverhulme Scholarships held by Dr. J. F. Brock and Dr. S. J. Hartfall were continued for another year, and the Murchison Scholarship was awarded (this year by the University of Edinburgh) to D. F. M. Batty and Alexander Brown.

Sir William Willcox was elected representative of the College on the Advisory Committee to be termed "The Poisons Board" under the Pharmacy and Poisons Act, 1933.

Dr. R. D. Gillespie was appointed to represent the College at the third biennial conference on mental health at the National Council of Mental Hygiene in November.

Membership

The following candidates, having satisfied the Censors' Board, were admitted members of the College.

Patrick Clarence Anderson, M.B.New Zealand, Baij Nath Bhandari, M.D.Durh., L.R.C.P., Anthony Curtis Byles, M.B.Lond., L.R.C.P., Alan Barham Carter, M.B.Camb., L.R.C.P., Bankat Chandra, M.B.Bombay, L.R.C.P., Idris Davies, M.D.Lond., L.R.C.P., Pierre Marcel Deville, L.R.C.P., John Harold Follows, M.D.Liverp., George Giglioli, M.D.Pisa, Richard Withers Gilmour, M.B.Durh., L.R.C.P., Myer Jacob Gordon, M.D.Belfast, Edward Emile Delisle Gray, M.D.Lond., L.R.C.P., William Pickup Greenwood, M.D.Lond., L.R.C.P., Eric Hamilton Hudson, M.B.Camb., L.R.C.P., Alexander Henderson Imrie, M.B.Glas., Beatrice Mary Joly, M.B.Lond., Emyr Wyn Jones, M.D.Liverp., Ronald Arthur Jones, M.B.Camb., L.R.C.P., Charles Herbert King, M.B.New Zealand, William Lennon, M.D.Belfast, John Charles Joseph McEntee, M.D.Dublin, John Angus McLean, M.D.Melb., Sher Mohomed Mallick, M.B.Punjab, L.R.C.P., Achanvittil Krishna Menon, M.B.Madras, Arthur William Morrow, M.B.Sydney, Robert Pierret, M.D.Lyons, Russell John Reynolds, C.B.E., M.B.Lond., L.R.C.P., Hyman Solomon Roseman, M.D.Dublin, Norman Lloyd Rusby, M.B.Oxf., L.R.C.P., William Walters Sargant, M.B.Camb., L.R.C.P., Ramchandra Vishwanath Sāthē, M.D.Bombay, James Tate, M.B.Belfast, John Wakefield de Witt Gray Thornton, M.B.Oxf., L.R.C.P., Ronald Ernest Tunbridge, M.B.Leeds, Kailash and Surgery; and the name of H. E. P. Yorke is now listed as recipients of the Diploma in Medical Radiology [illegible] been H. E. P. Yorke.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary meeting of the Council was held on August 3rd when the President, Sir Holburt Waring, was in the chair.

The fourth Macloghlin Scholarship of £120 per annum for medical students was awarded to Frank Philip Lovell of Monmouth School.

Mr. E. B. Dowsett, D.S.O., and Mr. A. T. Pitts, D.S.O., were re-elected members of the Board of Examiners in Dental Surgery. Mr. R. Davies Collev, C.M.G., was elected an examiner in pathology.

Diplomas of Membership were granted to 167 candidates who had passed the examinations in medicine, surgery, and midwifery of the Examining Board in England as follows:

G. E. M. Benson, C. G. Bree, N. Chakravarty, J. J. Chatterton, A. Das, Helen E. Dunsdale, R. G. Eccles, E. C. Fortune, D. L. Fromow, Pearl M. Heimsberg, C. L. W. Hoar, J. R. Hughes, B. I. Jackson, W. W. Jolly, S. H. Kessler, G. D. Lehmann, R. M. Littledale, J. A. S. Marr, T. Miles, R. Rao, M. Rob[illegible], M. A. Rugg-Gunn, P. Simon, P. G. Stanton, C. H. Yeo.

(The names of 143 of the successful candidates are published in the report of the meeting of the Royal College of Physicians of London in this issue.)

disease in Allbutt's *System of Medicine*. This not only collated the early literature, but was illuminated by the author's personal experience of cases, and at the time of publication it was recognized as a classic presentation of the subject.

A Nestor of the medical profession, Sir Joseph Verco will be missed by a wide circle of friends and old students, who looked to him for advice and wise counsel in the solution of difficulties, both personal and professional. In 1911 he married Mary I. Mills. There were no children of the marriage.

HARRY MORTIMER WHARRY, F.R.C.S.

Surgeon to Ear, Nose, and Throat Department, Bolingbroke Hospital

We regret to announce the death, at the age of 42, on August 1st, of Mr. H. Mortimer Wharry. He had been in indifferent health for some time, but he had recently returned to his duties, and his death came as a great shock to his friends and colleagues.

Mr. Wharry was the son of Surgeon-Major A. J. Wharry of the Egyptian Army, and received his education at Radley and New College, Oxford, coming to St. Bartholomew's Hospital for his clinical studies. He qualified with the conjoint diplomas in 1916, and was at once swept into war-time work, serving in France and later in Mesopotamia, returning at the end of hostilities to work for the English Fellowship of the Royal College of Surgeons, which he obtained in 1922. Mr. Wharry selected the department of oto-rhino-laryngology for his specialty, and worked as assistant in the special clinics for this subject at his own hospital and also in those at St. George's Hospital and at University College Hospital. At one time he was on the staff of the West-End Hospital for Nervous Diseases as laryngologist and otologist, and also on the staff of Mount Vernon Hospital. These positions he had resigned, and his main hospital work of recent years had been in connexion with the ear, nose, and throat department of the Bolingbroke Hospital. He was also a consulting aural surgeon to the Ministry of Pensions and to the Royal Masonic Institute for Girls. Mr. Wharry published some useful work on the subjects of lupus and on tuberculosis of the larynx in the earlier days of his career, but he found an increasing interest in the problems of deafness, to the solution of which he made some valuable contributions. He was chairman of the Medical Subcommittee of the National Institute for the Deaf, and a member of the combined research committee of the National Institute for the Deaf and the London School of Hygiene and Tropical Medicine. In association with Dr. G. P. Crowden he introduced the methods of prescribing scientific hearing aids for the deaf, and he was the inventor of the differential microphone and binaural electrical hearing apparatus. He was until recently actively engaged in a further study of some of the aspects of hearing tests.

Mr. Wharry was a man of wide interests. He was a Fellow of the Zoological Society, and he was fond of enumerating the very large number of outdoor sports and games in which he had taken part; he was an active member of the Park Lane Ice Club. He married in 1919, and leaves a widow, one son, and two daughters, with whom the greatest sympathy will be felt at such a sudden and premature bereavement.

PROFESSOR H. G. GREENISH

Professor of Pharmaceutics, University of London

The death of Professor Greenish, the dean of the Pharmaceutical Society's School of Pharmacy, marks the loss of a remarkable figure—representative of the best of pharmacy in the last forty years.

Henry George Greenish was born in 1855, and became lecturer in materia medica in the Society's school in 1890 and professor in 1893. He studied in Dorpat under Dragendorff, and in Vienna. In the following years he carried out much research and published his well-known *Text-Book of Materia Medica*, for long the standard British work. In 1917 the University of Paris conferred on him the honorary degree of Doctor of Science. He retired from his post as dean on July 31st last, and died on August 2nd. Those who did not know him sometimes expressed surprise that Greenish retained his post so long: the reason was threefold. In the first place, until three or four months before his death he remained young for his age, both in physique and in mentality, enjoying a happy disposition and an ever-present sense of humour. Secondly, he possessed in a peculiar degree the power to gain, and retain, the respect and affection of his students—to the end he was able to inspire them with the enthusiasm and the traditions which have long informed the Society's school. In the third place, he was a man of learning, erudite and distinguished, with a remarkable knowledge of pharmaceutical science.

Professor Greenish had a close connexion with three revisions of the *British Pharmacopoeia*: that of 1898, that of 1914 (of which he was one of the two editors), and that of 1932. He regarded pharmacy as an end in itself, and he attached little importance to its contact with medicine. This attitude of mind was perhaps inherited from his father and coloured by the old feeling of competition between the medical man and the pharmacist, both of whom kept open shop for the sale of medicines and poisons. He had a fear that if pharmaceutical education followed modern developments of medical science the pharmacist would become the servant of the medical man; this he was determined at all costs to avoid. If pharmacists were to occupy themselves with biochemical analysis he considered that their activities would be limited to the laboratories of institutions and hospitals, where they would work as subordinates. He regarded pharmacognosy (in the main the study of materia medica of plant origin) as the field in which pharmacists could make their proper contribution to the development of science.

Throughout his career Professor Greenish maintained a high standard of education in the Society's school, and thereby ensured that attempts were made to attain a similar standard in other schools. It is to the maintenance of this standard that pharmacists to-day owe their professional position, despite the loss of much of their professional activities. His great achievement during the last ten years of his life was to link the School of Pharmacy with London University by the establishment of the degree of Bachelor of Pharmacy.

PROFESSOR STORM VAN LEEUWEN

Director of the Therapeutic Institute of the University of Leyden

We regret to announce the death at Leyden, Holland, on July 30th, at the age of 50, of Dr. Willem Storm van Leeuwen, director of the Therapeutic Institute of the University of that town. Professor van Leeuwen had attained a considerable international reputation in many branches of medical science, and it will be remembered that it was he who was called in to investigate the mysterious deaths from the "poison-fog" which occurred in the Meuse Valley in the winter of 1930. Born at Kampen, Holland, in 1882, Storm van Leeuwen became at 21 a cavalry officer, and served for three years in the Dutch East Indies. Malaria caused his return to Holland, and it was not until he was 26 years old that he began at Utrecht his life study of medicine. As early as 1911 he was assistant to Professor Magnus, and he held this post until 1914. From 1915 to 1917 he was director of the Pharmacological Institute, Utrecht, and in 1919 obtained his professorship; a year later he succeeded van Leersum as professor at Leyden. The chief of his many

publications were on pharmacology, metabolism, and allergic diseases—especially the latter. He also wrote on physiology, diabetes, diuretics, narcotics, local anaesthesia, and the treatment of bronchial asthma.

Professor R. J. S. McDOWALL writes:

It must have come as a great shock to many to have learnt of the death of Storm van Leeuwen, but to those of us who knew him as a friend his death is indeed a loss. He was known to the world for his demonstration that, in Holland at least, asthma may be the result of the inhalation of moulds, which could be removed from the air by suitable purification. No one could have come into intimate contact with him without realizing that he was a man of very wide knowledge and affairs. He was as much at home in the laboratory as by the bedside, and showed an amount of appreciation and detailed power of criticism of experimental technique which was as unexpected as it is rare in one who is famed in the realm of practical therapeutics. But it was his wonderfully attractive personality which gave him so many friends. Even if he criticized—and he was fond of doing so—he did so with a sincerity which made it impossible for one to take offence; with sound advice and encouragement he was equally warm. He combined in a remarkable degree a great sense of the fitness of things with a geniality and light-heartedness which made him the joy of any party, and many will ever remember the intensely interesting and never dull evenings spent in his company and that of his ever-charming, helpful wife. He leaves to the world the memory of a great Dutchman and a great scholar; but to those whose privilege it was to know him as a friend he leaves that wonderful intangible, unforgettable "something" which tells us how fortunate we were that he passed our way.

a definite opinion on any subject that he had studied, and prepared to back it against all opposition. Perhaps to some he might, at times, have appeared a little domineering, but this was more a mannerism than a reality, due, I used to think, to a determination to reach the high ideal at which he aimed, and his advice was seldom found to be anything but sound. Of Collier Green it may be truly said that in filling a difficult post he leaves behind many friends and not a single enemy.

Medical News

The University of London now grants a diploma in nursing. The examination for this diploma, which is open to men as well as to women, consists of two parts. Candidates may enter for each part separately or for both parts at the same time. A copy of the regulations may be obtained from Mr. John Lea, M.A., University Extension Registrar, University of London, South Kensington, S.W.7.

The Midwives' Institute hopes to be in its new home, 57, Lower Belgrave Street, at the end of September. As previously announced, it is to share with the Queen's Institute for District Nursing the magnificent premises provided by the National Birthday Trust Fund as headquarters for midwifery in London.

The Members' Congress of the Chartered Society of Massage and Medical Gymnastics will be held from September 18th to 23rd, and all lectures and demonstrations will be given at University College, Gower Street, W.C. Registered medical practitioners will be admitted free of charge to the lectures and demonstrations, for which a card of admission may be obtained from the offices of

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if *reprints* are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the *British Medical Association* and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Intermittent Claudication

"H. V. D." writes: I should be grateful for any information as regards the beneficial results or otherwise following the injection of lacarnol and padutin in the treatment of intermittent claudication. I have a patient suffering from this condition, together with apparently an intermittent simple spasm of the urethra. Can I expect lacarnol to relieve the spasm also?

Income Tax

Share in Partnership : Cash Basis

"N. B." has acquired a one-third share in a firm assessed on the cash basis; he has not bought any book debts. How should the tax payable by "N. B." be computed, and who pays tax on the old book debts when they are received?

*** Partners cannot claim to be separately assessed, and the assessment must therefore be made on the full income of the practice. If the cash basis is continued, therefore, *all* the cash must come into the gross receipts, whether taken by the in-coming partner or not. Tax is payable on profits, whether received or not, and an assessment for, say, the year to April 5th, 1933, is in respect of the income of that year, and the tax charged thereon should be borne by the partners according to their respective shares for that year, though those partners may not have had the "cash receipts" on the basis of which the assessment was calculated. In our view, therefore, "N. B." should bear tax on one-third of the gross income, less the amount of his personal allowances. As a corollary it follows that a partner is not liable for tax on the amount of the cash received in payment of those past bookings which relate to a share in the profits which he has sold; otherwise tax would be paid twice on the same income.

Motor Car Depreciation and Obsolescence

"B. X." bought a new car in 1931 for £242. He sold it in October, 1932, for £140, buying a second-hand car of a different make but similar horse power and design, for £160. He has claimed to deduct £242 - £140 = £102, and the inspector of taxes is requiring further information in support of his claim.

*** The claim does not seem to be well founded in law. No allowance can be given for loss of capital, and any renewal claim must be restricted to the actual out-of-pocket expense—namely, £20. We advise "B. X." to amend the claim as follows:

Depreciation for 1932-3, 20 per cent. of £242 = £48, having a reduced value of £242 - £48 = £194.

Obsolescence claim, to be regarded as an *expense* of the year 1932, £194 - £140 = £54.

Depreciation claim for 1933-4, 20 per cent. of £160 = £32.

LETTERS, NOTES, ETC.

Competence in Midwifery

Dr. Albert E. Nicholls (Shrewsbury) writes: In the *Journal* of July 29th (p. 214) Dr. R. Owen Jones refers to the "ridiculously scanty training" of students and midwives, and blames the maternal mortality on this. Looking back on my own training at the London Hospital, which I take to be on a par with other great hospitals, I can only say that it was thoroughgoing. The hospitals give the student a splendid training, and after that it is "up to him." Critics are apt to forget that the student of midwifery has already a very considerable foundation of knowledge—anatomy, physiology, medicine, and surgery—upon which to build. If there is one thing a medical student is religious about it is asepsis. It is hammered into him until it becomes a fetish: this is the result of his surgical studies. The medical student has been gradually building for a few years, and the study of midwifery is another link in the chain of knowledge. If he set out *de novo* to study midwifery the course would have to be much longer. As he is applying knowledge he already possesses the course is of necessity shorter. If I produced a slogan for those who practise midwifery it would be "Don't hurry!" In the rush to save time one is apt to terminate labour. Given fair knowledge and skill—and that includes most of us—the doctor who will have the most satisfactory results will be he who absolutely refuses to hurry unnecessarily.

Pancreatitis in Mumps

Dr. C. Voigt writes from Broken Hill, N. Rhodesia: I was interested in Dr. A. H. Spicer's letter about so-called pancreatitis in mumps in the *Journal* of June 10th because I have experienced the condition myself. Restlessness, headache, nausea and vomiting, as well as pain, only when food—even fluid—entered the stomach, and hectic temperature were the symptoms, together with partial coma for forty-eight hours at the end of the first week of mumps. I had just the experience of Dr. Spicer's friend in America, and the difficulty in my case as to the true abdominal state was increased by anxiety about a scratch received just before while doing a post-mortem, and a question of cerebral malaria. One of my patients in the same epidemic had similar symptoms, but rather more abdominal pain. *There was no unequivocable evidence of acute pancreatitis.*

Treatment of Boils

Dr. S. P. Hastings (Auckland, New Zealand) writes: After twenty-five years' experience in the treatment of cases of furunculosis, I have come to the conclusion that the best local application is iodex. The method is simple. Cover the boil, and from 1/4 to 1/2 inch of the surrounding skin, with the ointment. Do this once or twice daily. If begun early the treatment causes the boil to disappear—it does not "come to a head." To see an angry-looking boil melt away, in almost thirty-six hours, when one begins to use this treatment, is a very pleasant surprise. With further experience one finds this is the usual happening.

Accommodation for Blind Children

During the past two years the number of sightless babies under 5 years of age has fallen by nearly 16 per cent. This diminution is largely due to the fact that the problem of blindness in infancy is now being tackled at its source. Compulsory notification of ophthalmia of the newborn is already showing good results. About one-quarter of all blind babies submitted for examination are found by the National Institute for the Blind to be "mentally retarded," and special accommodation and treatment must be provided for such cases. The present decrease in numbers will enable the Institute to deal more efficiently with this branch of its welfare work. Local authorities throughout the country have been notified that the Sunshine Home at Leamington is to be immediately evacuated by all "normal" blind babies, who will transfer to other Sunshine Homes, and that the building will be reserved exclusively for those needing the special treatment.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 34, 35, 36, 37, 40, and 41 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 38 and 39.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 124.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

115 Diabetes—a Survey of Cases

O. RÖMCKE (*Tidsskr. f. d. Norske Laegefor.*, April 15th, 1933, p. 392) urges the importance of intravenous injections of insulin in the treatment of diabetic coma, and offers a statistical analysis of the diabetic material treated in the Ullevaal Communal Hospital in Oslo from the beginning of June, 1923, to the end of May, 1932. During these nine years 32,684 patients were admitted to the medical wards, of whom 907 were diabetics (between 2 and 3 per cent.). About 50 per cent. (441) of these were treated with insulin, the proportion of insulin-treated patients rising from about 17 per cent. in the earlier years to 62 per cent. at the end of the period under review. A classification of the patients in ten-year groups showed that 475 were between the ages of 50 and 70. The proportion of insulin cases declined with the patients' age—a fact due to the dwindling severity of diabetes with advancing years. The mortality increased, however, with the years; it rose from 5.8 per cent. between the ages of 10 and 30 to 9.1 per cent. between the ages of 30 and 40, and to 13.6 per cent. between the ages of 40 and 50. It continued to rise in the next two ten-year age groups, and reached 35.9 per cent. among the patients over the age of 70. The mortality from diabetic coma alone reached its maximum between the ages of 30 and 40. Among the other causes of death cardiovascular diseases were prominent, sixty-eight of the 154 deaths being due to them. As many as eighty-one of the 907 diabetics were admitted to hospital in a comatose or precomatose state. There were thirty-seven deaths among these eighty-one patients, but only twenty-five were due to the coma. The mortality differed greatly according as the coma was complete or merely threatening. Of the twenty-seven patients admitted in a state of complete coma, twenty died, sixteen of the twenty in a state of coma, whereas of the fifty-four patients admitted in a precomatose state, only sixteen died, nine of these deaths occurring during the comatose state. When the eighty-one patients were classified according as they were treated before or after the end of 1925, it was seen that the mortality in the latter group

tion is the stage of "morphine hunger," the patient being almost entirely free from his intoxication. Convalescence does not commence until at least two weeks after the final withdrawal of morphine. The severity of the symptoms of deprivation varies greatly in different patients, and it is often necessary to prescribe morphine therapeutically at this period while endeavouring to distinguish between pharmacological need and morbid desire. The patients frequently simulate various pains in order to obtain morphine. A correct diagnosis requires much patience and psychological experience. It is clear that the dividing line between intoxication and habituation is wider and more indistinct than has been assumed hitherto.

time he feels pain over the back of the sacro-iliac joint and a sense of insecurity; pressure over the posterior superior iliac spine intensifies it. The condition is nearly always unilateral, and the only serious lesion to be excluded is the rare sacro-iliac tuberculosis. Most cases can be cured by manipulation; the remainder may need arthrodesis of the joint. Even after many years' duration complete cure may thus be obtained. Lumbo-sacral strain is quite different: the pain is localized horizontally across the back, above the base of the sacrum. Tenderness on pressure is definitely referable to the tip of the spinous process of the fifth vertebra, and just below it. The only satisfactory treatment is said to be division of the affected ligaments, followed by active movements of flexion and extension of the lumbar spine. Lumbar back strain has a sudden onset; there is a point of localized tenderness over the erector spinae muscle on one side. Treatment consists of immediate mobilization of the spine by manipulation under an anaesthetic, followed by massage and exercises. Spinal arthritis may be often confused with sciatica. There is tenderness over the sciatic notch and pain down the back of the thigh, but no prolongation down the region of the sciatic nerve. Much of the disability is due to periarticular inflammation and fibrosis, though the bony changes are permanent. The treatment consists of manipulation under an anaesthetic, followed by radiant heat, massage, including passive movements, and exercises.

120 Surgical Treatment of Endarteritis Obliterans

D. Danielopolu, A. Aslan, and I. Marcou (*Presse Méd.*, April 26th, 1933, p. 668) present a comprehensive yet succinct review of the physiological basis of sympathectomy for endarteritis obliterans. In this condition, or rather series of conditions, it has been demonstrated by the present authors as well as by others that the vessels show hypertonicity, hypercontractility, hyperexcitability, and an exaggerated reflex mechanism, with a diminished power of automatic regulation of vascular calibre. These phenomena are mainly due to disease of the vascular afferents and efferents. The calibre of the vessels becomes small, limb volume diminishes, and hence follow the events associated with so-called trophic changes—namely, ulcer, gangrene, intermittent claudication, etc. The authors class the triad—intermittent claudication, angina pectoris, and abdominal angina—as due to products of disordered metabolism, which results from insufficient circulation to the parts. Many years of physiological study have led them to the view that the condition of the limb vessels is regulated not only by bulbar centres, as taught by classical physiology, but also by centres in the cord, the midbrain, and the cortex. Unilateral stimulation of the caudal end of the lumbar sympathetic which had been sectioned between L.1 and L.2 produced marked vaso-constriction in the limb. This effect was not obtained when, in addition to section between L.1 and L.2, the lumbar sympathetic was also cut at the level of the sacral promontory, which showed that the vaso-constrictors travelled down the whole sympathetic chain before emergence and distribution to the limb. Later stimulation of the caudal end of the second point of section produced the usual constriction, thus clinching the matter. These procedures leave the vaso-dilators intact, since, according to Danielopolu, the cord carries centres for vaso-dilation, muscular tonus, etc., the efferents being carried by the spinal nerves to the limbs, and not traversing the sympathetic chain. Thus, as far as the lower limb is concerned, the indication in endarteritis obliterans is to intercept the course of the efferents and afferents which carry the reflex vaso-constrictor impulses. This is best obtained by section of the sympathetic chain at about the level of the sacral promontory, for here there is the greatest concentration of these fibres. Extirpation of the whole lumbar sympathetic, or the last lumbar, or the first sacral ganglion is, it is stated, useless. It is immaterial where one cuts the lumbar sympathetic, for the vaso-constrictors run along its whole length, no branches being given off to the peri-aortic plexuses.

Therapeutics

121 Digitalis Administration

D. M. Baltzan (*Canadian Med. Assoc. Journ.*, May, 1933, p. 527) insists that digitalis therapy should be mathematically accurate. Its objectives are threefold—full digitalization, partial (therapeutic) digitalization, and as a supportive tonic effect. The classical signs calling for the first of these measures are acute congestive heart failure, with or without arrhythmia; auricular fibrillation, with high ventricular rate; auricular flutter, with low-grade block; and tachycardia that is not primarily thyrotoxic or febrile. The potency of the digitalis preparation used should be exactly known. For full digitalization 0.15 cat unit per pound of body weight is required This is roughly the equivalent of 2.25 minims of the standardized tincture, 0.25 grain of the powdered leaf, and 1.5 c.cm. of the infusion. Partial digitalization is produced by one-half to one-third of the full dose. It is indicated in chronic auricular fibrillation, with moderate tachycardia and pulse deficit; some forms of circulatory decompensation, including passive congestions and static oedemas; and incipient heart failures complicating fevers, or even thyrotoxicosis. Potential myocardial failure is a signal for the third therapeutic objective. Examples of such failure are: rheumatic heart disease, with a history of previous broken compensation; the presence of an enlarged heart, with limited reserve force, or recurrent cardiac asthma (including hypertensive cases); dyspnoea in the aged, old coronary apoplexies not being excluded if there is circulatory impairment; and some cases of arrhythmia or extrasystole, in anticipation of paroxysmal fibrillation and flutter. Baltzan considers that when the drug is useful there is no contraindication to be considered except in the rare cases of Stokes-Adams's syndrome, and of the infrequent individual intolerance. It is not negatived by a normal regular pulse, existing hyperpiesis, pulsus alternans, or heart-block, although in the last of these caution is necessary. Digitalis, it is stated, should not be employed as a routine in preparation for surgical operations unless there is congestive failure, or in post-operative emergencies, or anaesthetic collapse. It is advisable in the early stages of coronary catastrophes, in neuro-circulatory asthenia, in thyrotoxicosis (apart from heart lesions, and as a routine in febrile conditions, unless congestive failure is imminent.

122 Dehydration Treatment in Epilepsy

D. M. Lyon and D. M. Dunlop (*Edinburgh Med. Journ.*, May, 1933, p. 266) report an investigation on the association between epilepsy and dehydration. The authors have succeeded in repeating, in adult epileptics, M'Quarrie and Peeler's observation that in the epileptic child "grand mal" convulsions can invariably be produced in twelve to forty-eight hours by giving water to the patient at the rate of 2 to 5 c.cm. per kilo body weight per hour, and inhibiting diuresis by the injection of pituitrin 1/2 c.cm. every three hours. The administration of alkalis also caused an increase in the occurrence of fits coincident with a rise in the alkali reserve of the blood. In a series of twelve cases no abnormality in the acid-base balance of the blood was demonstrable between fits, but a definite acidosis occurred during the convulsion. The therapeutic effects of dehydration were observed in a small series of patients who were having fits every day. In treating these cases the method aimed at controlling the seizures, or at least diminishing their number and severity. Two factors proved of importance: (1) that the patient should be dehydrated to some extent; and (2) that the alkali reserve of the blood should be reduced, at any rate to the lower limit of normality. A diet was therefore planned which, though not ketogenic, contained a reduced carbohydrate content. In addition, the patients' fluid intake was cut down to the minimum consistent with comfort, and the diet given was itself a dry one. Elimination of fluid was encouraged by a

daily dose of salts, and 10 grams of urea were given twice daily to stimulate diuresis. The alkali reserve was reduced by the administration of 20 to 40 grains of ammonium chloride three times a day, depending on the patient's response, as determined by the CO_2-combining power of the blood. Hard muscular exercise was encouraged, in cases treated as out-patients, in order to promote elimination of water by the skin, while in the cases treated as in-patients a similar object was successfully attained by an occasional hot-air bath. The effects of luminal were enhanced by maintaining a state of dehydration.

123 Intravenous Antitoxin in Scarlet Fever

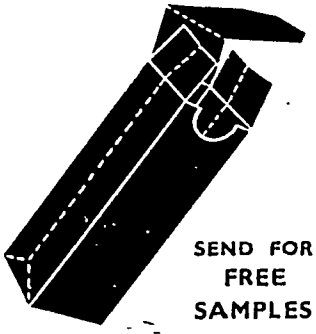
H. S. BANKS (*Journ. of Hyg.*, April 29th, 1933, p. 282) records his observations on 1,204 cases of scarlet fever treated by intravenous injection of antitoxin during a time of epidemic and non-epidemic prevalence covering four and a half years. The results in the average case were as follows: (*a*) fall of temperature by crisis in six to twelve hours; (*b*) disappearance of toxaemic symptoms, with general feeling of well-being, in six to twelve hours; (*c*) subsidence of faucial oedema in about twelve hours; and (*d*) fading of rash in twelve to twenty-four hours. Desquamation was as a rule entirely absent if the serum was not given later than the third day of disease, and modified to a fine powdering, with or without small flakes on the hands and feet, if the serum was delayed till the fourth or fifth day. Complications were reduced to the following remarkable extent: acute suppurative otitis media 0.9 per cent., mastoiditis one case only, nephritis and albuminuria 0.8 per cent., arthritis and rheumatism 0.16 per cent., simple adenitis 1.4 per cent., suppurative adenitis one case only, tonsillitis 0.7 per cent. There was only one death. The average stay in hospital was 16.6 days. Patients were requested to report at an out-patient clinic one to two weeks after their discharge, bringing with them a specimen of their urine. It was very rare to find any complications at the clinic, where there were only a few defaulters. Return cases ranged for each year of investigation from 0.9 to 3.4 per cent. of all discharges. There were only two readmissions, five and a half weeks and two and a half years respectively after their discharge. Banks regards intravenous injection of antitoxin as indicated in all cases of scarlet fever except the very mild, and in cases of asthma, eczema, hay fever, and other manifestations of allergy, in cases which have had a previous injection of serum within the last two years, and in those in which test for serum sensitiveness is positive. Such cases, however, form only a fraction of the total.

Miliary tubercles or trachoma are found occasionally. The cornea may be involved, and the scarring of the lids may produce ectropion or entropion. In the latter condition the resulting trichiasis may cause non-specific ulcers. In doubtful cases diagnosis may be confirmed by biopsy. Syphilis—chancre or gumma—must be excluded. Tuberculous conjunctivitis may resemble closely "Perinaud's conjunctivitis." This heals, usually without treatment, in three or four weeks. Treatment in the first instance is the general treatment of tuberculosis. Routine examinations are required to discover other foci—for example, pulmonary, etc. Local treatment, recommended by the author in early cases, is excision of the infected tissue. Application of a 20 per cent. lactic acid solution sometimes effects a cure. The best treatment is by Finsen light or *x* rays, but the danger of inducing cataract must not be forgotten. entropion or ectropion may occur, necessitating subsequent surgical treatment. The so-called "scrofulous" eye diseases are closely related to conjunctival tuberculosis. The commonest forms are conjunctival or corneal phlyctenular ulceration and infiltration, or pannus scrofulosus.

125 Ocular Findings in Retrobulbar Neuritis

A. J. BEDELL (*New York State Journ. of Med.*, March 15th, 1933, p. 361) sets out the usual signs and symptoms of this condition, but thinks that the pupillary reaction to light is of little diagnostic value. There is always a central scotoma, oval in alcohol and tobacco cases and in other types. Recovery is the rule, but recurrences suggest multiple sclerosis. The fundus must be examined with a dilated pupil. The cause may be multiple sclerosis, tobacco, alcohol, diabetes, or allergy, while fundal, cerebral, and mental conditions must be excluded. R. P. HIGGINS (p. 363) describes the acute fulminating type, which improves, and the more slowly developing chronic type, where the vision does not improve. Amblyopia and anopsia should be excluded. T. H. JOHNSON (p. 364) adds thallium (in a depilatory) and lead poisoning as causes. G. D. HOOPLE (p. 365) observes that the part played by the nose and accessory sinuses is uncertain. Retrobulbar neuritis and multiple sclerosis being often found together in subjects of sinusitis, he suggests that the sinusitis may be the cause of multiple sclerosis. W. P. HALL (p. 365) states that 5 per cent. of retrobulbar neuritis may be due to sinus disease, while I. H. VALONE (p. 369) puts the incidence at 3.5 per cent., compared with 50 per cent. due to multiple sclerosis.

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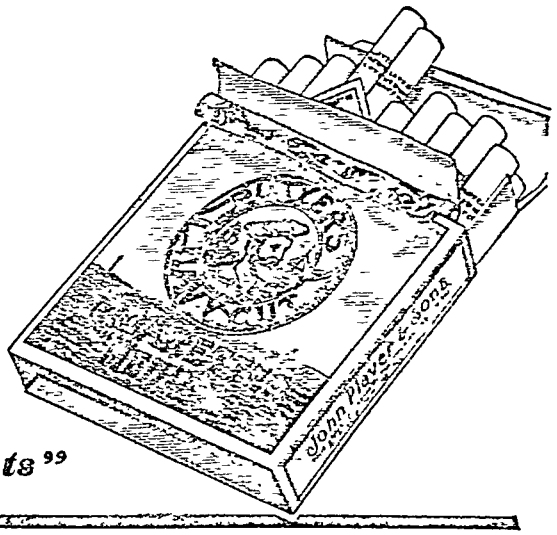
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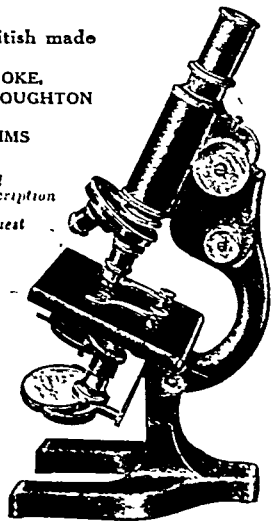
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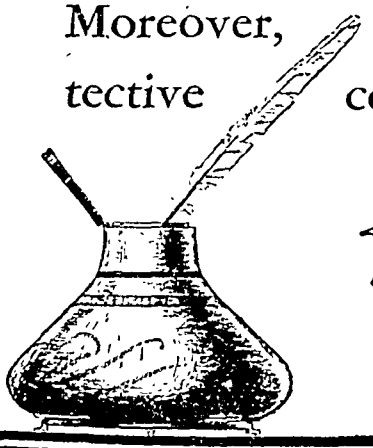
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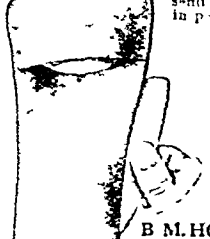
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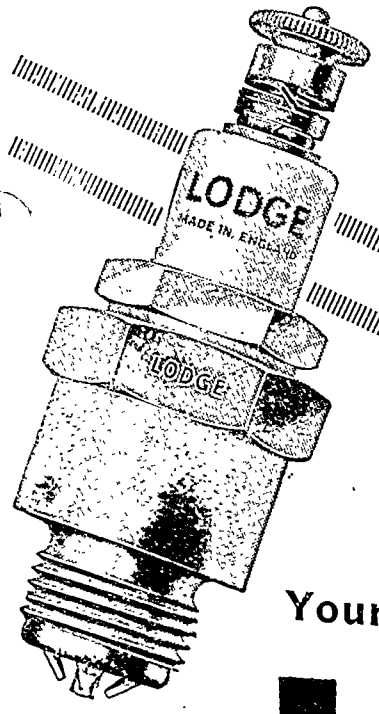
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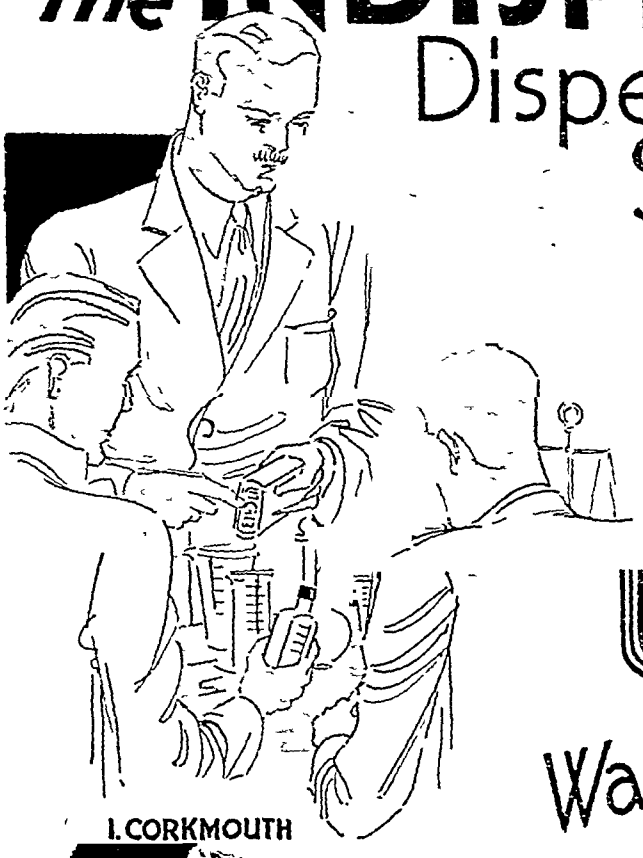
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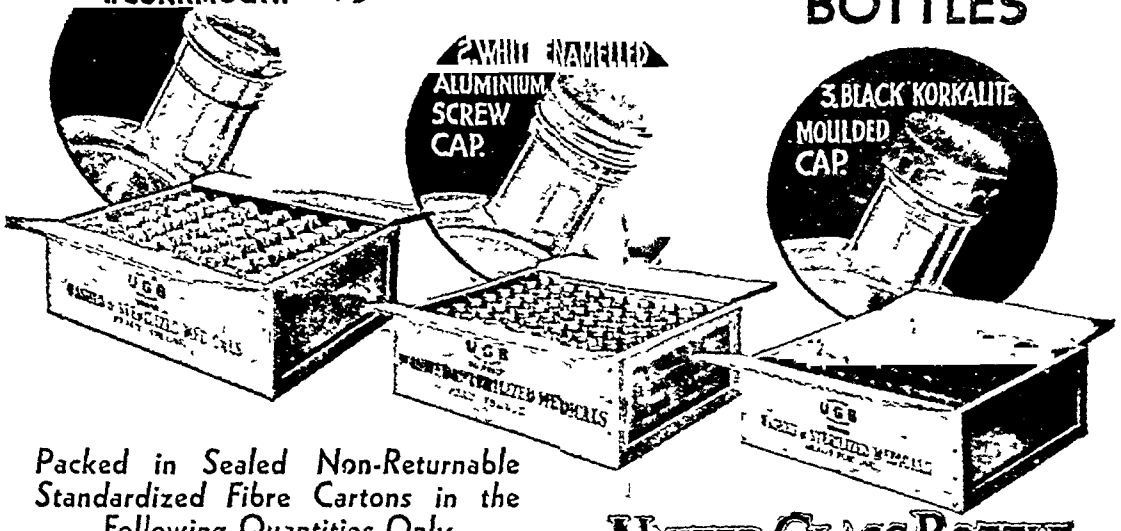


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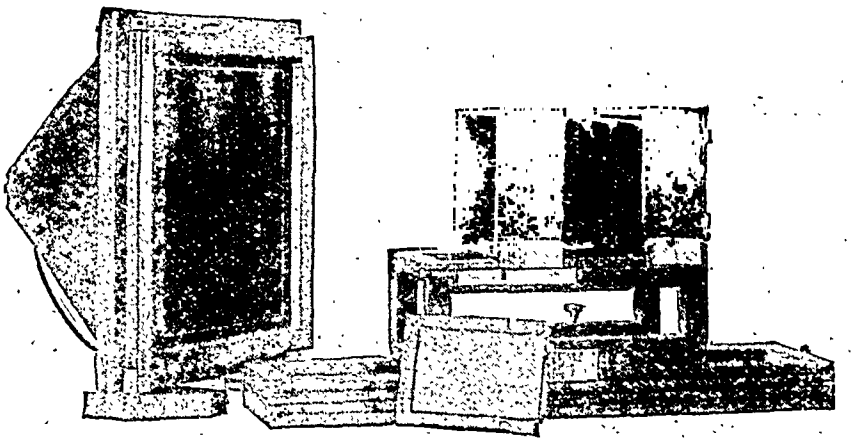
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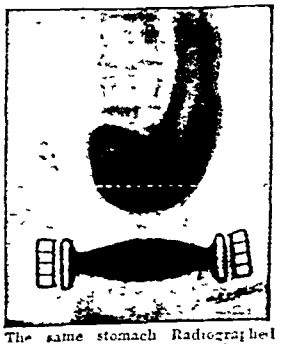
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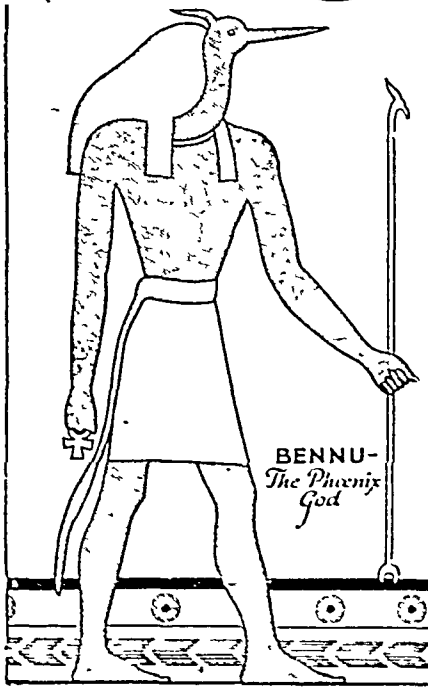
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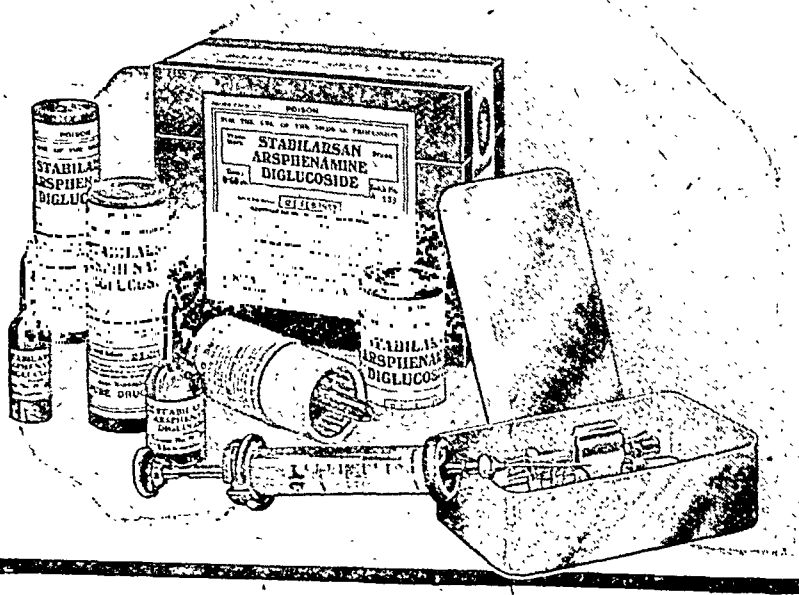
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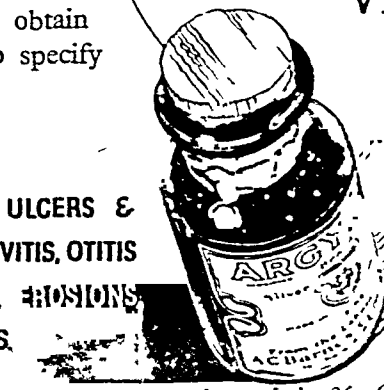
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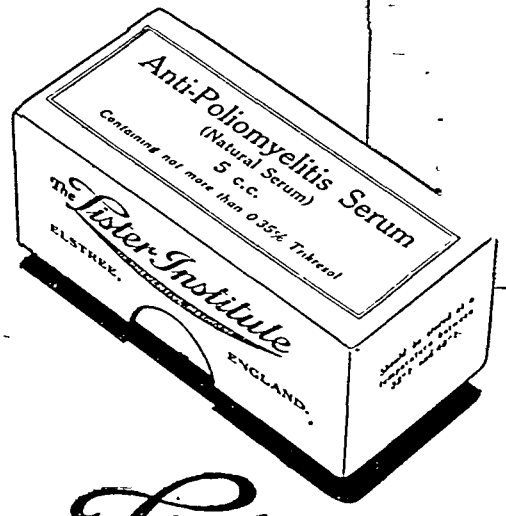
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REFERENCES:

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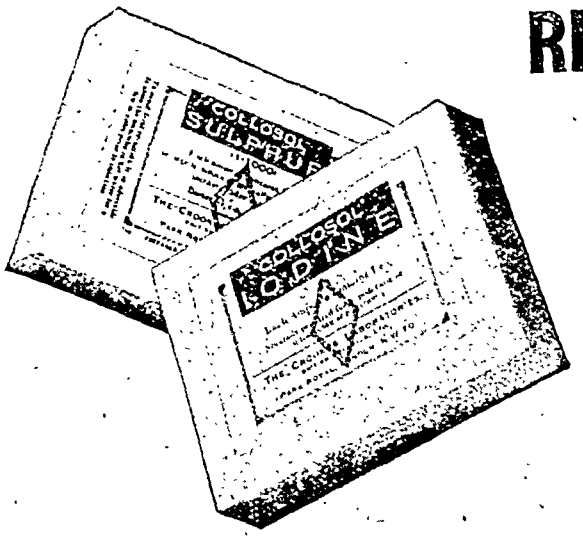
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Observations
ON
OCCUPATIONAL DERMATITIS*
BY

W. G. HARVEY, M.D., F.R.C.P.I.
PHYSICIAN AND DERMATOLOGIST TO THE ADELAIDE HOSPITAL, DUBLIN

Dermatoses due to industrial employment were recognized early in the sixteenth century by Paracelsus and Agricola,[1] who described skin disorders occurring in metal and salt miners. Ramazzini,[2] in 1700, wrote a treatise on diseases of tradesmen, in which he described with accuracy the dermatoses of bakers, farmers, and other artisans. In 1775 Percivall Pott described chimney-sweep's cancer, and later Robert Willan described the skin affections of bakers, shoemakers, washerwomen, and metal workers. Until recently, however, the references to occupational dermatitis were surprisingly scanty. But, latterly very numerous and considerable contributions to the subject have been made in France, Germany, America, and other countries, as well as in Great Britain, where Prosser White's *Occupational Diseases of the Skin*[3] constitutes a summary of the subject which has a world-wide reputation for its valuable and encyclopaedic information.

The reasons for the increased interest in these conditions are not far to seek. We live in an age where new industries have a high birth rate. Chemistry and physics have advanced with great rapidity, and these advances are ever being applied to industries of all and every sort. Our bread must be whitened, our leather dyed, our rabbit skins converted into rarer furs, our metal and furniture polished, our faces " lifted," and our hair and complexions transmogrified. Moreover, as has been aptly pointed out by O'Donovan,[4] our modern town homes have been turned into miniature chemical factories.

" The home worker," he states, " has her hands immersed in water for hours at a time ; hot alkaline cleansing lotions are in frequent use ; strong soaps and sodas, quick chemical cleansers, and even chloride of lime are employed to save time, while strong or dilute acids are used to clean lavatory basins and closet pans. Metal polishes, furniture polishes, leather preservatives, and metal pastes are sold extensively. Quick-drying enamels and paints, varnishes, special rapid paint renovators, storage batteries, disinfectants, insecticides, and artificial plant manures are in daily use."

These circumstances account for the greatly increased incidence of occupational dermatitis—the enormous increase in the statistics has probably other causes also. The provisions of the Workmen's Compensation Act have focused the attention of employer and workman on the subject, a whole host of chemical and other experts have investigated it, and dermatologists—especially those practising in large industrial centres—have become familiar with the clinical aspects, so that many cases heretofore unrecognized are now speedily entered up in their proper category.

Problems Confronting the Dermatologist

For the proper diagnosis and treatment of these cases much more than a mere knowledge of skin lesions is requisite. Painstaking and subtle inquiry, and an intimate and detailed knowledge of industrial processes, as well as of chemistry, are needed, and experts in these matters may have to be consulted. One great difficulty is that we are frequently concerned with matters of degree rather than kind.

The skin or external covering of our bodies reacts to an infinitude of stimuli, and it is difficult to name almost anything which in excess, or under special circumstances, may not give rise to skin lesions. It may not be easy to assess how far such an agent is merely actuating or is to be held fully responsible. Thus, sunlight, for all its health-giving properties, may produce an acute dermatitis if exhibited in excess to a healthy skin ; it may also determine, or at least aggravate, the lesions of lupus erythematosus, or pellagra, in special subjects. Air can cause damage by pressure, or the lack of it, and cold drying winds are baneful to certain skins. Even water can be an instrument of harm in many different ways. The skin damage may range from the painful and frequently fatal cancerous conditions produced by *x* rays, through the severe types of dermatitis caused by irritant chemicals, to the quasi-physiological callosities on a workman's hands, or to the so frequently seen rough patches on a child's cheek, due to an injudicious use or choice of soap. Nor is the skin a definite constant in the equation. It does not react as a mere chemical. The individuality of the patient, his previous history, and general health have to be examined, and such conditions as focal sepsis, xerodermia, and seborrhoea considered. Idiosyncrasy to outward applications or substances taken internally may have strange consequences.

I have seen a patient covered from head to foot with a most intensely vivid irritating scarlatiniform rash a few hours after taking a single grain of quinine. The same accident had occurred in her case twice previously. An old lady's skin, which appeared to be irritated by nearly every soothing application I could think of, reacted most satisfactorily to a weak solution of picric acid, which had proved irritating to two surgical patients I had seen in the same week.

Nomenclature

It would be helpful if we could have an *ex cathedra* pronouncement of the exact meaning of eczema, as well as of anaphylaxis and allergy, all of which fluctuate in meaning with different users.

As regards eczema, one school, finding the name a source of confusion, excludes it from its terminology, preferring " dermatitis." Another includes under the term all cutaneous reactions which are clinically covered by Tilbury Fox's definition, whether due to an external or an internal agency. Brocq regards eczema not as a specific disease, but as a specific type of reaction of the skin to a variety of causes in predisposed individuals He prefers the use of the adjective " eczematized " to the noun "eczema." Raoul Bernard[5] prefers the term "eczematoid," and speaks of occupational " false " eczemas These are, he says, all vesicular or weeping epidermites of which we do not know the cause ; when we do know the cause they cease to be eczema. He quotes Sabouraud to the effect that when we know all the causes there will be no more eczema. Percival[6] states that the terms " eczema " and " dermatitis " are now generally regarded as synonymous. Many other conflicting definitions could readily be amassed. For myself I can see no cogent reason to depart from what Wallace Beatty taught me—namely, that if an eruption possesses the clinical and histological characters of eczema it is eczema. Eczema to me notes a clinical syndrome. It is a particular type of dermatitis, just as dermatitis itself is a particular type of dermatosis (Darier, I think, holds a similar view). In this sense eczema is not a full diagnosis. I freely admit it. But I regard the term as useful, and I am indebted to the London Hospital for two excellent qualifying words —Sequeira's " diathetic " eczema, and O'Donovan's " exogenic " dermatitis

What are the differences between an exogenic dermatitis and a diathetic eczema? In a majority of cases we find in the former a history of a capable irritant, the

* Made in opening a discussion in the Section of Dermatology at the Annual Meeting of the British Medical Association, Dublin, 1933

confined to the seat of its application, not tending to spread, healing quickly when, and only when, the irritant is absolutely withdrawn and not recurring in its absence. In addition, we may get confirmatory evidence from patch tests, etc. On the other hand, a trade dermatitis *may* give rise to lesions appearing symmetrically, and in regions far remote from the application of the irritant, just as I have more than once seen a similar condition break out in a patient suffering from neglected varicose ulceration of one leg without a previous history of eczema. Foerster[7] would appear to restrict the term "dermatitis" to the localized form; he would, as I understand him, regard the spreading form as due to an induced allergy, and therefore coming under his definition of eczema—a dermatitis occurring in an allergic or specially sensitized skin. Allergy has, however, been frequently incriminated for the localized forms.

And what of eczema? Can we say that we are surely familiar with a diathetic eczema in which external irritation plays no part? I think not. No child is born with eczema, but eczema frequently makes its appearance after the infant's skin first meets such trivial irritants as soap, air, or light. Adamson regards protection as the keynote of the successful treatment of infantile eczema. Surely a profound truth. Lane[8] proposes what appears to me an excellent method of nomenclature, which would be valuable from the point of view of obtaining accurate statistics. He suggests "dermatosis industrialis" as a generic term to be in every case particularized, as, for example, "dermatosis industrialis, eczema, baker"; or "dermatosis industrialis folliculitis, oil." Incidentally both might be further particularized.

Percival[6] has quite recently investigated the "eczema" reaction to certain groups of skin irritants in different concentrations. He has shown that in the first group the reaction of the concentration to the percentage of positive reactions obtained was similar to many dosage and action relations known to exist between other drugs and tissues, under conditions where the intervention of antibodies need not be considered. Their relation, he remarks, seems to depend on an unexplainable individual variation in the population. I consider his paper a most apposite contribution at a time when almost every individual difference of reaction is labelled "allergic." He concludes with the observation that the common factor of individual variation which governs the cutaneous response to Group 1 substances raises a delicate point in connexion with the question of compensatable disability. One of our most difficult problems is to assess the liability where a dermatitis is in part due to occupation and in part caused by some slight departure from normal of the patient himself—for example, xerodermatous skin. There is also often a very considerable difficulty in getting a correct history of an exogenic dermatitis.

A most truthful lady with an eruption on her neck strenuously denied the possibility its being due to any external irritant, but at her next visit remembered a necklace of lacquer beads, which were most obviously responsible. On the other hand, a man who developed a scalp irritation from a hair restorer, and subsequently suffered from eczema in other parts, denied previous attacks, but I afterwards learnt of his having been previously treated for eczema.

Another difficulty, the psychological factor, is, as has been stressed by our president,[4] not sufficiently recognized. He maintains that "just as pains and disabilities (following a surgical accident) may disappear marvellously after a county court settlement, so too an application of "golden" ointment can work equal wonders in dermatology.

In dealing with the difficulties of symptomatology and diagnosis Raoul Bernard[5] lays it down that:

1. One substance can give rise to several different clinical syndromes.
2. Different substances may cause the same clinical picture.
3. A given profession may give rise to the most diversified dermatological entities (Oppenheim).

He recommends the cuti-reaction by test patches as a diagnostic method, and also its prophylactic use prior to employment; but he quotes Steiner as saying that only 12.5 per cent. give specific reactions, and Oppenheim that these cutaneous reactions vary from time to time even in a few days. He mentions that simulation is practised by methods which would appear to require an intimate knowledge of the action of drugs and other substances on the skin. Dr. Overton[9] has stressed a most important point—namely, that in many cases a trade dermatitis is caused not by the substances encountered at work, but by their removal by injurious substances—for example, strong alkalis, methylated spirit, turpentine, paraffin, petrol, naphtha, acetone, etc., used as cleansers, degreasers, etc.

It is obviously impossible in the space at my disposal even to touch on many of the occupational dermatoses. I will therefore refer to one or two particular instances, as examples of the type of problems that confront us, and the different opinions of authorities.

Baker's Dermatitis

This was recognized more than two centuries ago. It was supposed to have become much more common during and after the great war. Prosser White,[10] investigating the condition, arrived at the conclusion that "there is no eruption specific to or distinctive of these industries (bakers and confectioners), unless eczema can be so labelled," and suggests that the majority of these cutaneous disorders are "incidents in, rather than consequences of, the work." A. C. Parsons[11] investigated the matter very fully. He found the increase in general exaggerated, though there was considerable increase in some localities. Probably some 50 per cent. of the supposed cases were sugar dermatitis; others were scabies. The alleged causes of the condition are very numerous.

Cases are relatively common where the dough is hand-mixed, especially in the lack of proper cleanliness (dough drying on the skin), and Parsons regards protein sensitization as culpable in some of those cases where elderly workers become suddenly intolerant. The dry flour can hardly be to blame, as millers do not suffer similarly. (On the other hand, Mummery[12] shows that flour dust contains mycelium, which gives rise to an itchy vesicular rash resembling sudamina, from the vesicles of which the mycelium can be recovered. The condition can spread in the patient and to others by inoculation of skin abrasions.) McCormick Mitchell, quoted by Parsons,[11] stated that 55 to 65 per cent. of his cases were due to an acarus. Parsons was not impressed by the likelihood of the condition being due either to inferior war flour or to the chemicals used for whitening it. On the other hand, Teleke and Zitzke[13] found skin tests positive with ordinary flour in half the patients treated, with improved flour in two-thirds. Ammonium persulphate caused the severest reactions, and should, they consider, be discontinued as an improver. Dr. Zitzke[14] has carried out satisfactory desensitization experiments with rye flour and improved flour. Hansman,[15] as the result of experimental investigations, definitely incriminates ammonium persulphate, and believes the allergic nature of the dermatitis proved. C. Stern[16] finds no foundation clinically or experimentally for the belief that flour, or the substances generally used

in Germany for bleaching or improving it, are responsible for the eczema. Attempts to desensitize with flour are useless. Baker's eczema is a disease, like other industrial eczemas, in which a series of injuries can act like eczematous irritation and have a cumulative effect. De Jong[17] attributes the condition to salt, and compares it with that produced in drysalters and packers and rock salt workers. Probably excessive sweating is a predisposing factor. Ichthyosis has also been blamed. K. Wills[18] found dandruff a frequent accompaniment. Barber[19] refers to "inborn intolerance of certain substances applied externally." He also quotes a case of baker's eczema showing the phenomenon of local sensitiveness of the forearm skin to flour.

Dermatitis Due to Dyes

The dye industry gives rise to a number of cases of dermatitis occurring amongst workers in it and also in wearers of dyed material such as furs or the users of cosmetic hair dyes. The most commonly inculpated substances are para- and meta-phenylenediamine and para-amidophenol. But the mordants (metallic and chrome salts) used are also culpable. The skins themselves (if improperly cured) and the tanning materials may also prove irritants. The impregnated substance of the dye used is oxidized to the required colour, and it is somewhat generally held that these dyes and their fully oxidized products are comparatively harmless, while their intermediate oxidation products are the noxious irritants. In France this manufacture of artificial furs is an industry of considerable national importance, and it would appear from the French literature that by general hygienic methods—withdrawing the noxious dusts by fans, using machinery to replace the handling of the dye when in noxious concentration, and the use of gloves, etc.—the risks of dermatitis have been reduced to a low minimum. Balsac[20] states that, on examination of the employees in a factory using up to twenty four million rabbit skins per annum, he found no case of acute anilism, but a certain number of minor chronic conditions. He concludes that these would become rarer and more benign were the prophylactic rules more rigorously applied. Dr. Carles,[21] speaking of the aniline dyes, states that they are not certainly always noxious, but often become so if the skins have been insufficiently washed, or as a result of imperfect oxidation of the dye, or by predisposition on the part of the wearer. He stresses the importance in diagnosis of the topography of fur dermatitis. It is essential to bear this fact in mind, for if not so recognized and appropriately treated, scratching will cause the lesions to become eczematized, infected, lichenified, and deeply infiltrated. M. Audistère[22] emphatically states that if oxidation is complete the dyed fur ceases to be harmful, but adds that there is an individual factor, and that a person who for long has worn a fur without inconvenience may suddenly be affected for no known reason. He also mentions "emanation" from certain dyes which is manifest on the paper in which the article is wrapt. Theoretically, he says, this should be harmless, but evidently is not. Casteneuve[23] mentions a case in which an impurity (arsenic) in the dye, rather than the dye itself (in this case fuchsine), was the noxious agent. Ingram[24] does not consider the intermediate oxidation product theory proven. From his experiments he concludes that dye dermatitis is essentially allergic. Some 4 per cent. of normal individuals show an idiosyncrasy to the phenylenediamines. His positive patch test cases had a latent period of from twenty four hours to twenty-four days. This renders the test a formidable matter to use, as has been suggested, prophylactically, on workmen prior to employment. Babalian and Reitlinger[25] are of opinion that ursol dermatitis is not allergic, but a purely local reaction of eczematous or pruriginous type. As regards the identification of a dye in a suspected fur, H. E. Cox[26] has worked out a very complete method of chemical analysis, and has demonstrated the different microscopical appearances of the furs of different animals. Callan and Strafford[27] show that these tests may be interfered with by leather extracts or tannin materials, a conclusion which Cox fully endorses.

Cancerous Conditions

The frequency of an occupational cause in cancer of the skin is probably insufficiently recognized. Creosote and coal tar and its derivatives are potent sources, and they are being increasingly employed in road making, wood preserving, gas making, etc. Soot, tar, creosote, anthracene, and other products—at any rate in their impure forms—are known to be carcinogenic. Mineral oils are a well recognized source. X rays have made a costly death roll. Chronic solar dermatitis may give rise to the classical "sailor's skin," but is probably a carcinogenic factor of far wider action than is implied by this condition. O'Donovan[28] has observed cancers of the hand in many outdoor workers (scavengers, farmers, road sweepers, etc.). Arsenic, used in sheep dip, paints, smelting operations, etc., is also a cause. The cause is apt to be overlooked in many instances on account of the considerable latent period in cancer production. Bland Sutton[29] has recorded a case of soot cancer with a latent period of thirty-five years. Many of the recorded cases of occupational skin cancer had long ceased to work at the incriminated industry ere the malignancy was recognized. S. A. Henry,[30] investigating mule spinner's cancer, has shown that the affection most frequently occurs in men employed at the industry for from thirty-five to fifty years, though it has been known as early as sixteen or as late as sixty-three years. In many cases, however, the tumours did not develop until a later date, the workman having retired from the industry some years previous to its appearance. Similarly, it has been shown that if animals are subjected to a cancer-producing substance for a time and the treatment is then stopped, tumours will develop later just as if the agent had been in operation the whole time. O'Donovan has shown that tar and creosote produce multiple carcinomatous skin lesions of a squamous and prickle cell type, mostly on the face, forearms, and scrotum. Secondary growths are uncommon. Anthracene in the pure form does not appear to be carcinogenic, but handlers of anthracene cake are liable to [illegible] carcinoma. These are usually single and squamous or horn celled. Other lesions—for example, acne, pigmentation, and telangiectasis—are common in such workers. Atrophy, vascularity, and some pigmentation of the [illegible] are characteristic of x ray dermatitis, and O'D[illegible] records fifteen recognizable erythematous superficial ulcers on the trunk of a professional radiographer.

Treatment of Occupational Dermatit

In respect of treatment of industrial d[illegible] first care should be prophylaxis. Personal [illegible] suggests vulnerability should be excluded [illegible] irritant industries. These include th[illegible] with delicate looking "tann[illegible]skins. B[illegible] that type in the treatment of [illegible] shrink from using any but the mild[illegible] It [illegible] cludes those with a tendency to hyperidr[illegible] seborrhœa, the xerodermatous and [illegible] lation is especially defective, thus [illegible]

more vulnerable and their healing power less. Next, employers should see that the handling of noxious substances is reduced to a minimum by the substitution of machinery, and should supply all possible facilities to the worker for the proper cleansing of his skin. The workman should be instructed in this essential procedure, and warned against the undue use of deleterious skin cleansers—for example, alkalis and defatting agents. Attention to the proper cleansing of workers' clothes is also often necessary. When required the use of gloves, or the preparatory treatment of the skin with unguents, varnishes, protective soaps, should be obligatory, and close-woven overalls tightly buttoning at wrists and neck may be necessary. Dust should be reduced to the utmost by means of special ventilators, electric fans, etc. In certain cases dermatitis may be avoided by the use of pure products where the crude substance may be baneful. The next essential in treatment is that the afflicted worker should be removed immediately from the irritant. The remedial applications employed will in every case depend on (*a*) the appearance of the skin lesion produced, and (*b*) the nature of the irritant producing it. It may require experience and careful investigation to determine the latter. In general, methods of desensitization appear to have met with only limited success. Radon is of special use in the malignant cases. Whatever remedies may be employed the importance of protection of the skin should never be lost sight of. Scratching may give rise to a vicious cycle of prolonged irritability, even apart from secondary infection.

Conclusions

Occupational dermatitis is probably a much more common condition than is popularly supposed, and is becoming commoner daily.

It is ever more important that dermatologists and others should be competent to recognize it, and diagnose fully its causes.

To do so is, in many cases, no easy matter. The co-operation of expert chemists and physicists, as well as employers of labour and employees, is necessary if in the future we are to succeed in doing the best for our patients and giving the fullest help to the State in the economic and hygienic questions involved.

It is regrettable that we are not in full agreement as to the meaning of all the terms we employ.

In many trades we are as yet far from unanimous on the mode of action of the agent or agents causing dermatitis.

In these matters we welcome all expert aid, from within and without the profession, and trust that a meeting such as this may help to solidify the foundation of this increasingly important subject.

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OCCUPATIONAL DISEASES OF THE SKIN*

BY

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Diseases of the skin caused by occupation not only present a difficult problem to those concerned with preventive measures, but they are also an increasing burden on industry in those countries where they are the subject of compensation, such as is the case in Great Britain. I should offer some apology for presuming to address members of this Section, and my excuse for doing so is conveyed in the first sentence of this paper. I look for guidance from members of this Section, with their greater knowledge of dermatology, who, by their expert advice, can assist those of us who are engaged in the preventive side of industrial medicine.

In Great Britain the diseases of the skin which we recognize as due to occupation extend over a very wide field. They may be divided very broadly into two groups. The first, and by far the largest, is covered by the comprehensive title "dermatitis and ulceration of the skin due to dust or liquids"; the second comprises diseases due to specific causes—namely, chrome ulceration due to chromic acid and certain chrome salts, and epitheliomatous ulceration of the skin produced by the now well-recognized carcinogenic agents, pitch, tar, paraffin, mineral oil, bitumen, and the compounds and residues of these bodies. Lastly, comes infection of the skin by the *Bacillus anthracis*.

Dermatitis from Dust or Liquids

Dealing first with dermatitis and ulceration of the skin produced by dust or liquids, Table I, showing the number of cases compensated from the year 1927 to 1931, clearly demonstrates the importance of the subject to which I have referred in my opening remarks.

* Read in opening a discussion in the Section of Dermatology at the Annual Meeting of the British Medical Association, Dublin, 1933.

TABLE I.—*Cases of Dermatitis and Ulceration of the Skin Produced by Dust or Liquids for which Compensation was Paid*

Year	Cases
1927	940
1928	1,215
1929	1,456
1930	1,521
1931	1,352

I would say here that dermatitis in Great Britain is not a notifiable disease as is, for example, lead or mercurial poisoning, or the other specific diseases of the skin which I have mentioned—chrome ulceration, epitheliomatous ulceration, and anthrax. We have, however, I am glad to say, a very good understanding with employers, so that the great majority report to us when they find cases of dermatitis occurring among their employees. I consider that we are therefore fully supplied with information regarding a large percentage of the cases. From this we have collected, so far as we have been able, particulars of the chief occupations in which these cases occur, and the causative agents. The following tables (II and III) have been compiled by my colleague Dr. Sibyl Horner.

It is by no means easy to establish the actual causal agent in each case, but it appears to my colleagues and myself that there are few, if any, substances used in industry that will not, in certain individuals, produce a condition which can be classed as dermatitis. Rightly or wrongly, we regard injury to the skin as often a primary factor in producing dermatitis, and we find not infrequently that friction plays a prominent part.

TABLE II

Occupations	1927	1928	1929	1930	1931	1932
Dyers and calico printers	46	50	54	104	82	104
Engineers	81	108	114	102	90	125
Labourers	22	31	31	74	56	57
Metal platers and polishers	21	47	53	65	44	64
Bakers and confectioners	33	58	50	58	56	52
French polishers	38	45	40	50	42	45
Painters	18	45	85	40	29	74
Leather workers and tanners	9	8	13	38	19	22
Chemical workers	52	37	58	31	35	40
Rubber workers	31	29	19	31	25	25
Sugar confectioners	11	26	37	30	30	38
Metal workers	19	16	27	28	21	31
Textile workers	23	18	22	20	25	29
Oil refiners	11	1	7	19	10	5
Printers	5	9	12	18	15	8
Sugar refiners	7	15	9	13	12	18
Pottery workers	6	7	8	13	5	18
Flour workers	5	3	12	9	3	9
Biscuit makers	2	4	12	8	20	30
Wood workers	11	7	8	5	7	9
Ammunition workers	7	3	24	7	7	8
Hat workers	5	6	5	5	—	5
Tobacco workers	3	11	10	7	2	11
Artificial silk workers	2	4	11	1	7	5
Glass workers	2	1	3	7	3	1
Paper workers	2	6	5	—	6	5
Preserved fruit and pickle workers	10	—	2	4	13	12
Fur workers	1	4	7	1	—	—
Enamellers	9	13	2	—	—	—
Boot and shoe workers	7	9	3	—	—	8
Builders and cement and stoneworkers	6	10	15	—	—	11
Other occupations	20	33	75	—	1	40

TABLE III

Causative Agents	1927	1928	1929	1930	1931	1932
Alkalis	72	129	157	150	155	148
Sugar	32	51	65	71	67	79
Oil	59	65	104	69	50	81
Chrome	6	19	35	57	23	51
Turpentine and substitutes	31	65	67	43	43	64
Dyes	34	32	41	47	40	48
Chemicals: unclassified	11	20	61	43	44	56
Friction and heat	17	23	25	45	31	65
Petrol, benzol, and methylated spirit	22	26	30	39	30	35
Dough	21	40	30	35	33	25
Acids	34	16	31	23	25	21
Paraffin	26	21	25	25	35	37
French polish	29	8	17	25	15	19
Nickel compounds	7	13	17	19	9	20
Accelerators	10	7	11	11	5	4
Flour	5	1	16	8	3	15
Wood dust	8	6	4	1	5	2
Explosives	3	1	15	9	3	8
Lime	8	7	2	2	—	—
Formalin	3	6	8	12	11	15
Parasites	3	3	3	9	—	1
Dinitrochlorbenzene	6	1	5	—	3	—
Tar, pitch, creosote	1	9	13	6	7	4
Water	4	6	8	—	4	2
Secondary dermatitis following injury	5	13	13	9	2	8
Other agents	30	28	31	8	15	150

Only recently I was concerned with an occurrence of dermatitis among girls employed in bleaching almonds. In this process the nuts were soaked, and all the girls had to do was to pick out the skins from the almonds and remove any adherent skin from the nut, which was easily done between finger and thumb. Nevertheless, a certain number of them developed dermatitis, commencing at the wrist, and at first sight the obvious cause seemed to be the essential oil. On inquiry it was found that those who developed the condition were those who wore long sleeves. It appeared to me that the primary cause was friction by the edge of the garment at the wrist; the essential oil subsequently, no doubt, played its part. My colleague Dr. Henry has recently investigated cases of dermatitis among those engaged in canning celery; here again it would appear that friction was to be regarded as a prime factor.

Having this in mind, therefore, it seems to me prevention lies in securing an intact skin. It is only inconsistent with this principle to employ any skin shows abnormality. A skin affected by [illegible] essentially one that will react unfavourably with any irritant, either a dust or a liquid. Irritants must apparently be included such substances as water and flour when these with the skin over prolonged periods. I we advocate preliminary examination of the hands and forearms of workers who are employed processes known to give rise to dermatitis.

The difficulty—and one for which I have found solution—is that in certain occupations one sort a moist, greasy skin, appears to be more easily while a somewhat harsh dry skin remains unaffected, vice versa. I would suggest that in all cases considered to be due to an industrial

close scrutiny of the skin is desirable in order to enlarge our knowledge of the predisposing skin condition, which is often loosely described as "susceptibility." Believing that injury to skin, whether caused by friction or accident, is a factor in the production of dermatitis, we advocate a periodic inspection of exposed parts of the skin so that any injury may be treated and, if necessary, the affected person transferred to work not exposing him to the risk. In some instances this is required in Great Britain by regulations or welfare orders—for example, the Chromium Plating Regulations, and the Biscuit Factories Welfare Order.

Special Prophylaxis

Of other preventive measures the most obvious, of course, is protection of the hands by means of gloves, and if the use of these were always practicable and could be made in all circumstances and carefully supervised, industrial dermatitis would, no doubt, be a thing of the past. In certain circumstances, such as the use of strong acids or alkalis, they are essential, but in other operations, such as biscuit-making, baking, sugar confectionery, and the like, and in certain mechanical operations, they cannot be used; indeed, in certain conditions they may be liable to produce grave accident. Moreover, there are certain delicate operations which do not permit the use of gloves. Sometimes the use of an emollient is, we believe, valuable, particularly where the skin is exposed to a defatting agent, such as spirit, turpentine, and the like. We recommend that this should be applied before work and after washing following work. Incidentally, suitable washing accommodation, with the accessories, warm water, soap, towels, etc., is essential in the prevention of dermatitis. There have recently been put on the market air-drying machines in place of towels, but present experience of these does not justify us in recommending their being installed in place of towels.

One of the most common causes of dermatitis is that due to oil—lubricating oil used in engineering works, more particularly. In my view the acneiform condition that this produces is due to the blocking of the hair follicles from grease and dirt, which occlude the mouth of the glands. We do not think that the septic condition which follows is due to the organisms present in the oil. Examination of such oils has shown that pathogenic organisms are rarely, if ever, present, and therefore we consider that the infection, when it does take place, occurs from the organisms whose normal habitat is the skin. We have found valuable as a measure of prevention the use of a solution—Dakin's solution. Buckets of this are placed in the wash-places or even in the shop, where the workers can immerse their hands prior to washing, or even before commencing work. We have found that this has reduced the incidence of this form of dermatitis.

Chrome Ulceration

Passing on now to the occupational skin diseases due to specific causes, the first I would refer to is chrome ulceration. This is due to the action of the salts of chrome and to chromic acid. There has been an increase in the number of notified cases of late years, following the introduction of a method of rendering metal surfaces non-rusting—namely, chromium plating (Table IV).

Here the worker is exposed to the chromic acid from the solution used in the bath in which the articles are immersed. The action of the chrome salts and chromic acid on the skin produces the typical "punched-out" ulcers characteristic of this form of skin disease. I am glad to say that the serious results which formerly occurred—namely, infection of the joint causing loss of fingers—are not now met with. The regulations for

Table IV.—*Chrome Ulceration*

Industry	1928	1929	1930	1931	1932
Bichromate manufacture	3	13	6	2	2
Dyeing and finishing	28	21	15	8	9
Chrome tanning	4	1	5	3	9
Chrome plating	17	59	57	41	47
Other industries	18	12	12	11	10
Total	70	109	95	65	77

chromium plating issued by the Home Office require, in addition to the other preventive measures which I have outlined above, examination of the hands and nose at fortnightly intervals by a medical practitioner—either the certifying surgeon or a duly qualified medical practitioner approved by the Chief Inspector. Arising from this examination a number of cases are notified, though the worker is not necessarily suspended from work. Special requirements are made regarding the first-aid treatment of wounds, and a cautionary notice is required to be exhibited in the works. In passing, I may remark that the dust of chrome salts, and the spray of chromic acid, produce ulcers of the mucous membranes, particularly the nose, in which perforation often occurs. It is interesting to record that, so far as I can learn, no serious sequelae of these ulcers of the mucous membrane occur.

Disease from Carcinogenic Agents

Epitheliomatous ulceration, or cancer of the skin, due to pitch, tar, mineral oil or paraffin, bitumen, or any compound, product, or residue of any of these substances, causes a greater number of fatalities than any other notifiable industrial disease. While the occurrence of epithelioma from pitch and tar has for many years been recognized, epithelioma due to mineral oil is a later recognition of this form of industrial disease. In 1922 Southam and Wilson collected particulars of cases of cancer of the scrotum occurring among mule-spinners admitted to the Manchester Royal Infirmary, and since that date the industrial origin of these cases has been established. From the figures given in Table V of notified cases it will be seen that there was subsequently a very considerable increase in the number notified, due undoubtedly to the recognition of the cause of this form of epithelioma.

Table V.—*Epitheliomatous Ulceration*

Causative Agent and Industry	1922	1924	1926	1928	1929	1930	1931	1932
Pitch and tar:								
Patent fuel works ...	19^{1}	11	27	20	27^{1}	24^{1}	29^{2}	16^{1}
Tar distilling	6	15^{2}	18^{3}	23^{4}	36^{3}	41^{1}	15^{1}	26^{3}
Gas works	2^{1}	1^{2}	15^{9}	17^{13}	16^{10}	23^{6}	14^{8}	17^{13}
Other industries ...	—	4^{1}	16^{2}	8^{2}	8^{1}	9^{2}	18^{4}	11^{2}
	27^{2}	31^{5}	76^{14}	68^{19}	87^{15}	97^{10}	76^{15}	70^{19}
Paraffin:								
Shale-oil works	5^{1}	2^{1}	2	2^{1}	4	—	2	1
Oil:								
Cotton mule spinning...	—	79^{17}	88^{20}	101^{36}	54^{24}	82^{21}	60^{19}	57^{22}
Other industries ...	—	11^{1}	21^{15}	4^{3}	20^{11}	15^{5}	18^{12}	3^{3}
	—	90^{18}	109^{35}	105^{39}	74^{35}	97^{26}	78^{31}	60^{25}
Total	32^{3}	123^{24}	187^{49}	175^{59}	165^{50}	194^{36}	156^{46}	131^{44}

The principal figures relate to cases, the raised figures to deaths.

The following table, giving the sites of the lesions, is of interest.

TABLE VI.—*Reported Cases of Epitheliomatous Ulceration (1920–32)*

Site	Pitch	Tar	Paraffin	Mineral Oil		Total
				Cotton Mule Spinners	Others	
Scrotum	125	110	10	487	60	792
Penis	2	10	—	14	4	30
Groin	2	3	—	10	2	17
Vulva	—	—	—	—	3	3
Eye and eyelid	45	14	1	10	2	72
Cheek	53	16	—	15	3	87
Lip	44	12	—	2	—	58
Head (scalp)	6	1	—	—	—	7
Forehead	8	5	—	1	4	18
Nose	32	7	—	5	3	47
Face	14	20	—	22	8	64
Chin	10	1	—	—	—	11
Ear	17	14	—	6	2	39
Neck	25	12	2	4	1	44
Arms (wrist)	20	47	14	68	8	157
Hand	10	22	5	22	10	69
Finger	4	4	—	3	1	12
Chest	1	—	—	1	—	2
Thigh	—	—	—	9	2	11
Knee	—	—	—	9	—	9
Leg	1	1	3	16	—	21
Foot (toe)	—	2	1	3	—	6
Multiple	29	14	1	8	4	56
Total	448	315	37	715	117	1,632

Preventive measures must be directed, of course, to the avoidance of contact with the carcinogenic agent, but by those acquainted with the industry it will be realized that it is almost impossible to ensure entire freedom from contact. There are no means available at the present time of eradicating this disease, but I think much can be, and has been, done by early detection and treatment. In Great Britain we have advocated and introduced extensively periodic medical examination of workers exposed to these carcinogenic agents. Cases of papilloma, or areas of keratosis, which may progress to malignancy, are in this way disclosed and treated. So far as I know, the treatment of choice is by radon. In the case of mule-spinners (those exposed to the mineral oil of self-acting mules) the schedule to the Workmen's Compensation Act has been extended to grant compensation for the period of treatment for early cases of papilloma or keratotic areas of the skin due to mineral oil. This, it is hoped and believed, will encourage treatment at an early stage. The judge or court has power to extend the fortnight of compensation if it is shown that a longer period of disablement is caused by treatment.

ANTHRAX

As regards the last of the occupational skin diseases with which I am concerned—namely, cutaneous anthrax—it would seem to me that this is in a different category. It arises among workers exposed to infection from infected wool, hair, hides, and skins. The cases of cutaneous anthrax notified in Great Britain during the last five years are enumerated in Table VII.

It is quite obvious that the only sure preventive measure lies in the disinfection of the infected material before it is handled. Disinfection, however, does not at present come within the realms of possibility for all classes of infected material. No practical method, for example, of disinfecting hides and skins has been devised,

TABLE VII.—*Anthrax*

Industry	1928	1929	1930	1931	1932
Wool	14^{2}	15^{2}	13^{1}	8^{1}	11^{1}
Horsehair	4^{1}	3	1	3	2
Hides and skins	24^{3}	25^{3}	27^{4}	7^{1}	2
Other	3^{2}	1	5^{1}	1	1
Total	45^{8}	45^{5}	45^{5}	19^{2}	15^{1}

The principal figures relate to cases, the raised figures to deaths.

although treatment with the sulphur lime process, in those cases where it can be applied, does seem to diminish the infectivity of hides. Some of you are no doubt aware that the Home Office has established a disinfecting station at Liverpool, dealing with certain classes of wool, and the extension of disinfection to others coming from infected districts is always under consideration.

While in Great Britain the general principles as to dust removal and cleanliness can be, and are, enforced by regulations, we cannot depend upon them to prevent entirely the occurrence of cutaneous anthrax. The disease does not, however, now present the problem that it used to do in the past, for the introduction of treatment by Sclavo's serum has, if the disease is taken in time, to a large extent eliminated a high mortality rate. Every effort, therefore, is necessary to ensure an early diagnosis of anthrax. Anthrax is by no means a common disease, and it is my experience that where fatalities do occur there has been failure to recognize the condition and a consequent delay in the patient receiving appropriate treatment. For this reason, in addition to notices exhibited in workplaces, where infected material is handled, the Home Office has designed a card which can be given to every individual worker. The object of this card is to hint to the medical practitioner invited to treat a local lesion in a worker exposed to risk that it is inadvisable to apply local treatment without at the same time eliminating the possibility of anthrax infection by means of a bacteriological examination.

These are, I believe, the principal occupational diseases of the skin. As I have already said, they present a difficult problem to those concerned with their prevention. They are also an economic factor of no inconsiderable moment. I have endeavoured to indicate, briefly, the general lines adopted in Great Britain to prevent, not only the occurrence of these cases, but also the severe results which occur if the primary condition has been neglected.

ROLE OF FUSION OPERATIONS AS APPLIED TO THE HIP-JOINT*

BY

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The invitation to address this Section and to open the discussion on the "Role of Fusion Operations as applied to the Hip-joint" is an honour which I deeply appreciate. My pleasure in accepting the invitation was somewhat tempered by an uncomfortable feeling that I had little new to offer on the subject. Fusion of the hip joint is not a common operation even in large surgical centres. As I stirred my memory I could recall the many difficult problems I had encountered in surgery of the hip, and my frequent indecisions as to the course to pursue, and alas! the too frequent poor results which followed my best judgement and efforts. With such a background

* Read in opening a discussion in the Section of Orthopædics at the Annual Meeting of the British Medical Association, 1933.

concluded that my best plan was frankly to present the results of those experiences in the hope that my audience might glean here and there something of interest and profit.

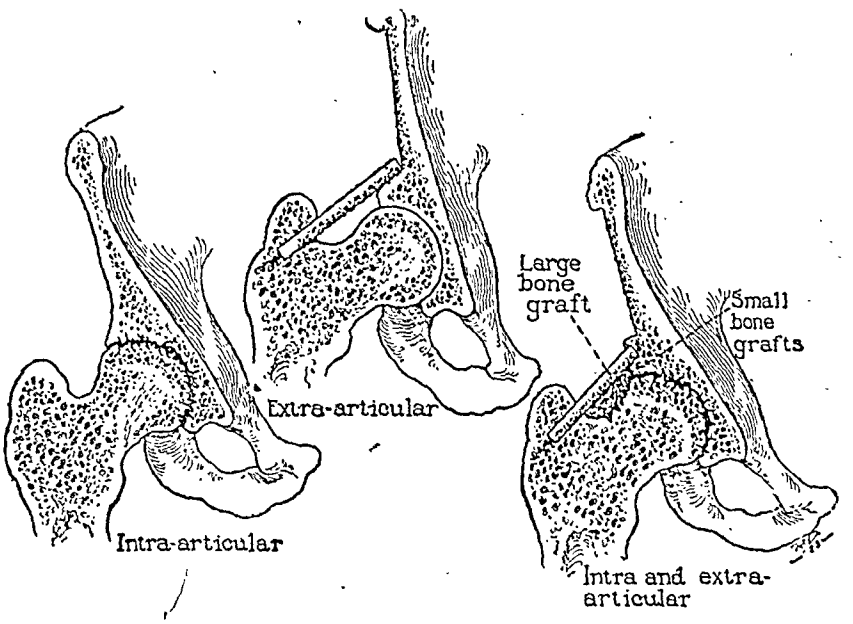
During the twenty-five years of my service in the Mayo Clinic caring for patients with orthopaedic disorders I can assure you that no patients have caused me and my colleagues more concern than those with lesions of the hip-joint, such as congenital, traumatic, inflammatory, tuberculous, osteoarthritic, or neoplastic. An operation on a hip-joint is a major surgical procedure, and the surgeon must be skilful and must exercise good judgement. While incoordinated haste may actually prolong the operation, safe speed is essential: prolonged operation on the hip-joint produces shock. Discussion of this topic is, in my opinion, timely. In view of the many more or less comparatively recent procedures in surgery of the hip-joint, such as the shelf operation for dislocated hips, congenital or paralytic, Lorenz's bifurcation operation, Schanz's osteotomy, the reconstruction operations of Whitman and Brackett, and arthoplasty for ankylosed and partially stiff hips, it would be well to discuss the part that fusion plays to-day in dealing with lesions of the hip.

Physiology

The function of the hip-joint is to furnish not only stability but mobility, the former to permit the erect posture and the latter to facilitate walking, sitting, stooping, and so forth. The joint owes its stability to the character of ball and socket, and to the tonic contraction of the surrounding muscles. A certain degree of negative intracapsular pressure in the acetabulum aids in keeping the ball secure, or dislocations would be more common in the flail-hips of paralysis. The ilio-femoral or Y ligament is important, for it prevents hyperextension, although reconstructed hips with good musculature following arthroplasty function without it. The most important function is stability, since mobility is not essential for walking; ankylosis in the favourable position of slight flexion and abduction permits an almost normal gait. Bilateral ankylosis is, of course, quite incompatible with anything approaching fair and comfortable locomotion. Motion without stability, as is encountered in infantile paralysis, causes a useless flail-hip. The muscles serve as the guy ropes to steady the pelvis on the weight-bearing leg, and when they fail the hip is useless for weight-bearing.

Fusion

Fusion may be employed for the sole purpose of furnishing stability, as in a paralytic flail-hip, which, although anatomically sound, is physiologically unsound. Or it may be employed in a hip definitely, anatomically, and physiologically unsound, as in tuberculosis, the object of the operation being not only to improve function by rendering usable a painful joint, but to eradicate disease. Fusion may be induced by any one of many operations, the technique varying. There are three main types of operation—namely, intra-articular, extra-articular, and a combination of these, called combined or mixed fusion.



Three main types of fusion operation on the hip-joint.

Intra-articular Fusion.—The purely intra-articular type of operation consists of wide exposure and opening of the joint, manipulating the head out of the acetabulum, and removing the cartilage entirely; the same careful removal of the cartilage is carried out in the acetabulum (see Figure). The object is to obtain contact of the raw bone of the head to the acetabulum and thus give opportunity for fusion. The frequent cause of failure in these cases has been due, I believe, to the fact that, with the head smaller and the acetabulum larger, there is a misfit, and consequently insufficient and unstable bony contact. This may be partially obviated by roughening the freshened surfaces of bone on both the head and the acetabulum; a procedure which has the advantage of permitting the removal of pathologic debris and tissue such as is encountered in tuberculosis.

Extra-articular Fusion.—This particular technique has been advocated because of its supposed simplicity and because it enabled the surgeon to avoid opening the capsule; the latter was considered to be an advantage in tuberculosis (see Figure). Both these premisses are, I believe, open to contention. There are two types of fusion. The para-articular, in which the bone graft is taken from some distant field such as the tibia, and the juxta-articular, in which the graft is taken from the wall of the ilium, as originally advocated by Albee, from the anterior superior spine as advocated by Ghormley, or from the great trochanter as advocated by Hibbs. The object of the operation is to obtain fixation of the joint by an extra-articular splint of bone bridging from the ilium to the femur. In performing this operation for tuberculosis, the site and extent of the disease are totally disregarded. Fusion of the joint surfaces is expected to follow the splinting action of the graft gradually.

Combined Intra-articular and Extra-articular Fusion.—This operation has the advantage of the two just mentioned (see Figure). The technique consists of removal of cartilage and exposure of denuded bone on the head of the femur and in the acetabulum. After the head is replaced in the acetabulum, a bone graft—obtained from the iliac wall, the anterior superior iliac spine, or the trochanter—is placed so as to bridge from the iliac wall to the femur as an additional guarantee for successful fusion. Experience in the Mayo Clinic has shown that in a series of cases of tuberculous hips in which this method was used, fusion was obtained more uniformly than by any other method, and just as quickly. Post-operative sinuses were less common, and when they did occur they healed in a shorter time than when the extra-articular method was used.

Treatment of Hip Lesions

In the Mayo Clinic from 1923 to 1932 inclusive, fusion of the hip was performed in the section on orthopaedic surgery on seventy patients; forty-three had tuberculosis of the hip, twenty-one arthritis due to some infectious process other than tuberculosis, three traumatic arthritis

following a fracture or a dislocation, two osteoarthritis, and one a dislocation due to infantile paralysis. The results are known concerning forty of the forty-three tuberculous patients and twenty-three of the twenty-seven non-tuberculous patients (see Table). They will be considered with the various types of lesions. There were no deaths that could be called surgical.

Seventy Consecutive Cases of Fusion Operation on the Hip-joint (1923–32)

Lesion	Cases	Results known	Fusion		Comment
			Cases	Per cent.	
Tuberculosis	43	40	37	92.5	Intra-articular method in 1 case; extra-articular method in 23 cases; combined articular method in 13 cases*
Infectious arthritis	21	17	14	82.3	Failure in 17.7 per cent.
Traumatic arthritis	3	3	3	100.0	—
Osteoarthritis	2	2	1	50.0	—
Infantile paralysis	1	1	1	100.0	—
Total	70	63	56	88.0	No deaths†

*Fusion time same, but fewer post-operative sinuses in combined method.
†One boy, aged 14, died ninety days after operation from disseminated tuberculosis.

Congenital Dislocation of the Hip

Irreducible congenital dislocation of the hip is a problem too frequently encountered. If the condition is unilateral, fusion is one of the methods to be considered for relief, but as I have never performed the operation for such a condition I cannot speak from experience. If the dislocation is bilateral the procedure may only be considered for one side. I have found the shelf operation so satisfactory that I employ it exclusively for irreducible congenital dislocations of the hip. Properly carried out it gives excellent function. So far as this condition is concerned, circumstances would have to be unusual to warrant the use of the fusion operation.

Infantile Paralysis

The residual paralysis following anterior poliomyelitis in the lower extremity is generally more severe and extensive distally, just the opposite of what occurs in the upper extremity. This fact reduces the cases of paralysed hips in which the fusion operation may be used to advantage to a comparatively small number. There is seldom any advantage in fusing a hip-joint if the knee and ankle below are also flail. It is only after most careful consideration that fusion of the hip should be undertaken in cases of infantile paralysis. Recurring dislocations in certain flail-hips can be prevented by fusion, but the shelf operation is preferred in America. In the series of cases reported here, one patient with double dislocation due to infantile paralysis was operated on; an infective process was also involved in this case. The result was good, but of course the operation was performed only on one side.

Traumatic Arthritis Due to Fracture-dislocations

Traumatic arthritis subsequent to a fracture-dislocation involving both the head and the acetabulum may be so painful that fusion is indicated. Many factors must be considered in the treatment, such as the social status and the age and temperament of the patient. The fusion operation is, I believe, first choice for this group, because remodelling and arthroplasty, particularly in cases in which there is much destruction of the surfaces of the joints, have been generally unsatisfactory. There is a tendency for callus to reappear after the operation, which limits motion and causes pain. Fusion was performed in the Mayo Clinic on three patients with traumatic arthritis. All obtained ankylosis; they were free of pain and were comfortable.

Infectious Arthritides

Some patients with arthritis following systemic infections due to streptococcus, staphylococcus, pneumococcus, and gonococcus recover without significant injury to the joints. Usually, however, ankylosis or so much injury to joint surfaces remains that movement is limited and painful. The hip is involved fairly often. When the inflammatory process is thoroughly quiescent function may be quite good if the hip is ankylosed or merely stiff without pain in a position that permits of weight-bearing. If this more or less satisfactory condition exists nothing is to be done. There is a group of cases, however, in which, owing to faulty mechanics, either osteotomy or a fusion operation is indicated to permit comfortable locomotion. Some patients are fortunate enough to have a good range of motion with only slight pain, and by restricting their activities may so control the soreness as to be reasonably comfortable. It is better that the condition should remain as it is, for it is not of a progressive type. Fusion causes a painless weight-bearing hip without motion, and this may be a good substitute for a hip that is very painful on use, but it must be remembered that a stiff hip is a handicap. Recommendation of fusion in such cases calls for careful study of the patient, his daily life, and his ability to accommodate himself to his existing handicap. However, patients often put up with great discomfort because they think relief cannot be obtained; they do not appreciate what pain and inconvenience they have endured until they enjoy the relief following the fusion of the joint.

Twenty-one patients were subjected to fusion operations for infectious arthritis (see Table). The type of infection causing the arthritis could not be determined, for the patients were seen long after the acute phase of their trouble had developed. Fourteen are known to have ankylosis, four were not traced, and three failed to obtain fusion.

Atrophic Arthritis; Arthritis Deformans

It is usually possible to draw a sharp line between the so-called atrophic and osteoarthritic type of arthritis, but in certain cases a patient may have a combination of the two. The intra-articular involvement of the hip-joint in arthritis of the atrophic type is characterized by wearing away of the articular cartilages and deepening of the acetabulum with a consequent progression of the head toward the pelvic cavity. The proliferation about the line of the joint which occurs in the hypertrophic type is lacking. The pelvic bone may become thickened within the pelvis opposite the acetabulum as a protective measure to prevent the head from pushing its way through. The fusing of this type of painful hip will relieve the pain, but it must be remembered that we are dealing with a case of arthritis of the progressive type. I have seen [illegible] who, after fusion of one hip, had trouble later with the other. Fusion should be undertaken with caution in cases of multiple arthritis, particularly if the knee and ankle are involved on the affected side.

I have classified cases of this type in the [illegible] group. There were only two of atrophic arthritis in which operation was performed. In both fusion was satisfactory, but in one the opposite hip became involved later as the arthritis extended; in the other the patient was satisfied, since the pain was relieved.

Osteoarthritis

This too common and disabling [illegible] is variously named morbus coxae senilis, [illegible]

arthritis, and so forth. Its treatment is so very unsatisfactory that it is only by exercising much restraint that I can keep my remarks within the bounds of this discussion. Briefly stated, there are three ways to deal with osteoarthritis of the hip: by manipulation, by plastic or reconstructive measures, and by fusion.

Manipulative measures may relieve pain in some of the earlier and milder cases. Plastic and reconstructive measures embrace excision of the osteophytic overgrowths called cheilotomy, remodelling and reducing the size of the head, excision of the head according to the technique of Whitman, and arthoplasty. All these methods have their staunch advocates. In fact, I have been almost startled by the satisfaction of certain eminent surgeons with their own favourite method of dealing with this most troublesome problem. I am free to confess that my own experience leaves me still far from satisfied with my efforts along these so-called reconstructive lines.

During the years covered by this study my efforts in dealing with osteoarthritis have been directed consistently toward preserving motion. I have used all the operations mentioned, with the result that function has been, on the whole, disappointing; although the pain was lessened, the results were not such as to awaken my enthusiasm. Brackett of Boston, in his study of painful hips, has approached the subject and presented his results in an impartial manner. He sums up the question as to whether "to fuse or not to fuse" a painful hip by saying that in the end "the individual makes the final decision." A stiff hip may be best for a labourer, but a hip with only a half or a third motion, even if slightly tender and painful, may be preferred by one whose work is in the office or the home.

At the Mayo Clinic fusion was done in only two cases of osteoarthritis. One operation was successful, ankylosis being obtained; the other failed, but pain was relieved. In the years previous to this report more fusion operations had been performed on patients with osteoarthritis, but, because of the occasional failure and the handicap of a stiff hip, I turned my efforts to the reconstructive type of operation to maintain motion. As I have stated, I am by no means satisfied with later results. Authorities agree that the obtaining of bony ankylosis in cases of osteoarthritis, particularly if patients are elderly, is not easy, for fusion often fails, and fibrous union only results. Subsequent adduction deformity in those cases in which fusion does not recur is therefore common.

Tuberculosis

In tuberculosis of the hip lies the greatest field for fusion. Conservative treatment, although successful in arresting the disease or maintaining quiescence in a fair percentage of cases, nevertheless gives permanent relief in too few cases to permit its acceptance as the preferred method. In America, where the population is perhaps more restive than in Europe, and in our outlying districts where suitable provision for care is lacking, it is difficult to carry out consistently the proper conservative measures. Patients do not take kindly to the prolonged recumbency that is so necessary in the conservative treatment of the acute stage of hip-joint disease. Perhaps the real reason for this intolerance of protracted conservative treatment lies at the door of the medical profession. Smith and Watters in 1926 published a report from the New York Orthopedic Hospital of the end-results of the treatment by conservative measures in 150 cases of tuberculosis of the hip. This report indicated that something was wrong with our generally accepted methods. Twenty-four per cent. of the patients died, 47 per cent. still had active disease, 27 per cent. had the disease in a quiescent state with little if any motion, and only 2 per cent. were free of all symptoms. This report stimulated increasing interest in fusion for tuberculosis of the hip. Fusion by natural processes, in my experience, has been extremely rare in tuberculosis of the hip. Fortunately, tuberculosis of the joints is on the wane in America; this is noticeable in our larger State and charitable orthopaedic hospitals.

An operation to produce fusion of the hip is a major procedure, and only patients in good general condition, without other active foci of tuberculosis and without draining sinuses, should be subjected to it. Many surgeons favour the extra-articular method, but it is my opinion that the combined intra-articular and extra-articular operation is the more suitable if the bone is tuberculous. One of my reasons for this preference is that it permits removal of the tuberculous material and caseating debris, and the curettage and obliteration of abscesses in bone. All cartilage can be removed from the head and the acetabulum, the bone can be freshened and roughened, and good contact can be secured. The bone graft can also be used to bridge from the ilium to the trochanter.

Fusion in cases of tuberculosis is fast becoming the generally accepted method for the adult, and the operation is gradually being used for children. Wilson in 1932, at the meeting of the American Orthopedic Association, reported a series of cases among children in which the extra-articular method had given very good results. At the same meeting I reported cases from the Mayo Clinic, mostly of adults, and attempted to compare the different types of fusion. The comparison, so far as it was possible to carry it out, showed that the radical or combined operation was just as safe as the more conservative operation.

There were forty-three cases of tuberculosis of the hip treated by fusion between 1923 and 1932 (see Table). The result was determined in forty cases, and in thirty-seven (92.5 per cent.) fusion occurred. One patient has a persisting sinus. Only one patient was operated on by the intra-articular method, twenty-three by the extra-articular method, and nineteen by the combined intra-articular and extra-articular method. In spite of the fact that the combined operation is a more extensive procedure than the extra-articular operation, the time required for fusion to develop was about the same; the results, however, were more certain, and the occurrence of post-operative sinuses was appreciably less.

Summary

Fusion operations as applied to the hip-joint obliterate mobility but leave stability. The various types of fusion are: the intra-articular, the extra-articular, and a combination of the two called the combined (mixed) intra-articular and extra-articular. The last-named is to be preferred because it gives better opportunity for thorough and complete freshening of the surfaces of bone, and for the removal of pathologic tissue and debris.

Irreducible congenital dislocations of the hip rarely, if ever, demand fusion. The same is more or less true in cases of infantile paralysis, although a higher percentage of these cases is to be considered for fusion. Fusion is more often to be favoured for the traumatic arthritides following fracture-dislocations. If hips are painful following infectious arthritides, in atrophic arthritis, and in osteoarthritis, fusion plays a very definite part, but it must be borne in mind that the operation is a major procedure, and so carries a definite risk. Elderly patients with osteoarthritis may fail to obtain fusion even after a carefully planned operation. It is the operation of choice as a final resource, and it should be used only in severe cases and after most careful consideration. The patient's temperament, his social status, his method of living, his type of work, etc., should be investigated.

In tuberculosis of the hip lies the greatest field for fusion, particularly among adults. The operation should be used for children oftener than it is at present.

PARA-OESOPHAGEAL DIAPHRAGMATIC HERNIA

BY

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While the essential factors in the cure of herniae in general are well established, defects of the diaphragm present a special problem to the surgeon for several reasons, the chief of which are: difficulty of access, congenital shortage of tissue (rendering approximation of the edges of the " ring " without tension almost impossible in some cases), and the continual movements of the diaphragm. When to these primary difficulties are added those of adhesion of contents to the sac and, in certain cases, the congenitally high position of the diaphragm, shortening of the oesophagus, and " thoracic stomach," the operation may become really formidable and fraught with considerable risk. In the case recorded here some of these problems were solved in a rather unusual manner. As over four years have elapsed since the performance of the operation without any recurrence of symptoms the method may claim to be considered satisfactory.

CLASSIFICATION

S. W. Harrington, in reviewing forty-five cases of diaphragmatic hernia dealt with at the Mayo Clinic, adopted the following classification:

- Non-traumatic
  - Congenital (usually without sac)
    - Through foramen of Bochdalek
    - Through dome
    - Through oesophageal opening
    - Through foramen of Morgagni
    - Through the gap left by the absence of the left half of the diaphragm
  - Acquired after birth
    - Through points of embryonic fusion
    - Through the same sites as the congenital type
    - Through the oesophageal hiatus (with sac)
- Traumatic
  - Indirect — Through any of the points mentioned above (when through the oesophageal opening there is usually a sac, but in the other types there is no sac)
  - Direct — Commonly following penetrating wounds (usually there is no sac)

Of the forty-five cases, thirty-one were through the oesophageal hiatus. Of these, twenty-three were acquired (history of trauma in ten), while in three there was a congenitally short oesophagus; thirteen were through the posterior half and dome of the left side, ten being due to indirect injury and three to direct injury. One case only was congenital, through the foramen of Bochdalek. The common type of hernia found in adult life, especially in the absence of trauma, is thus seen to be the para-oesophageal, and as the symptomatology of this variety is fairly definite and uniform it becomes possible at times to hazard a diagnosis upon this basis alone.

The development of the diaphragm is an exceedingly complicated and involved process, so that it is frequently difficult to determine with certainty the exact point at which developmental failure has occurred. In the case of para-oesophageal hernia, however, the failure probably lies in the development of that portion derived from the dorsal mesentery and the mesoderm of the receding Wolffian body. This not only leaves a defect of varying extent in the muscular and tendinous structures, but is also often associated with deformity in the conformation of the diaphragmatic dome and shortness of the oesophagus, with, perhaps, a " thoracic stomach." The surgeon contemplating closure thus not only has insufficient suitable tissue for suturing but may have to effect his closure round an oesophagus an inch or two shorter than normal. Even so, these difficulties have sometimes been overcome by the performance of a preliminary phrenicotomy, when the resulting diaphragmatic paralysis allows the defect to be closed without tension, while the elevation of the dome (of necessity less than is usually obtained, on account of the drawing together of the edges of the aperture) to some extent compensates for a short oesophagus. Indeed, in bad operative risks phrenicotomy may be adopted as the sole treatment: it prevents spasm with incarceration of the stomach, which usually is the only abdominal viscus involved in this type. In the case now to be described another method of overcoming these difficulties was adopted, and it proved entirely successful. In a short report there is no need to elaborate the pros and cons of the method, most of which, in any case, are self-evident.

CASE HISTORY

H. P., a well-developed man of 51, sought advice for a feeling of ill-defined discomfort under the left costal margin coming on a few minutes after a meal had been taken. The history extended back for two years, and started with occasional attacks of sudden dysphagia at long intervals. Recently, however, the attacks had increased in frequency, and now occurred with every meal. The sensation was described as a " pain having a character akin to obstruction to the gullet." Eructation brought relief, but was invariably accompanied by small quantities of fluid and food recently taken. He had developed a real fear of food, and had reduced his intake to two small feeds daily. Nevertheless there was no loss of weight, nor had blood or slime been observed in the vomit. The alarm and distress occasioned by the taking of food resembled that of an anginal attack, and afforded an explanation of the wrong diagnosis of angina pectoris sometimes made in these cases. The only other points of interest in the history were two incidents when the intra-abdominal pressure may have been unduly raised: five years previously, after a severe cold and violent coughing, a small supra-umbilical hernia had developed; while two years previously he had carried an adult male from one room to another after an accident, which effort caused " aching of the shoulders."

The patient was admitted to Charing Cross Hospital in March, 1929, and after a complete clinical examination, which proved negative, a provisional diagnosis of cardiospasm was made, with, it was thought, the possibility of gastric ulceration in addition. Radiography after a barium meal revealed an hour-glass stomach, the proximal loculus of which lay above the general level of the diaphragm and close to the lower end of the oesophagus, in which a certain amount of the meal was retained. It thus became clear that the diagnosis was one of para-oesophageal diaphragmatic hernia, but no evidence could be obtained as to the exact length of the oesophagus or the possibility of adhesions between stomach and sac.

The Operation

Operation was undertaken on April 18th, 1929, under intratracheal ether anaesthesia, skilfully administered by Dr. Howard Jones. An epigastric, paramedian laparotomy was first performed, the constriction of the stomach, where it passed through the diaphragm, was examined without any evidence of permanent damage to the wall in this situation being found. There were no intrasaccular adhesions, and after the admission of air to the sac, the stomach was easily reduced into the abdomen. The peritoneal sac passed through the diaphragm immediately to the left of the oesophagus and aorta (corresponding to a para-oesophageal defect), and was about 2½ inches wide by 5 inches long. The sac could easily be inverted into the abdomen, and its neck [illegible] aperture from the abdominal aspect applied and [illegible]. The abdominal wound was therefore packed and the patient turned on his right side for thoracotomy. The [illegible] was resected for practically its whole extent through a long [illegible] ing back to the spinous processes. The [illegible] opened widely, the lung was allowed to collapse [illegible] of the intratracheal pressure. After [illegible] protective measures the lung was [illegible] heart somewhat forwards, so giving a satisfactory exposure of the hernial sac, the parietal pleura over which was [illegible]

vertically. A thin fibrous layer covered the peritoneal sac; this was also incised, and, the greater part of the sac having been removed, the aperture was closed by a ring catgut suture. The muscular defect was now discovered to be considerable, but closure without any tension was accomplished by the use of tendino-muscular strips cut from the semispinales muscles at the vertebral end of the incision. Some six such sutures were "darned" over the aperture without strain, using the well-known Gallie technique for fascial sutures. The oesophagus was slightly short, but the level of closure was carried somewhat upwards as the oesophagus was approached. The reflected pleura was now sutured over the fascial "raft," and the superficial wound shut in the usual manner, the pleural cavity being completely emptied of air by raising the intratracheal pressure and so expanding the lung before the last pleural suture was tied. The patient was turned again on his back and the stomach was anchored to the anterior abdominal wall, after the fashion of a Rovsing gastropexy, before the abdomen was closed. This, it was thought, would prevent for the time any tendency on the part of the stomach to force the diaphragmatic barrier during the period of its consolidation.

Post-operative Progress

A small left-sided pleural effusion formed with slight fever, and there were signs of pleurisy at the right base. Repeated attempts at aspiration failed, however, to remove more than a few drops of sterile fluid from the left side. Further convalescence was uneventful, and the patient left hospital forty days after admission, taking all food without discomfort. Three weeks after the operation the radiogram showed the stomach in normal position with a small effusion at the left base. Six months after operation there was some flattening of the left dome and a suggestion that the bolus had been caught up in the oesophagus for a moment before entering the stomach. The patient was quite well, but said that he could "just feel" the food entering the stomach. His general health is now (1933) excellent and all dysphagic symptoms have completely disappeared. The notes from which the above record was compiled were made after the operation in 1929, but publication was delayed in order to test the permanency of the result. Since that time several cases have been recorded in which Gallie sutures or more massive grafts cut from the fascia lata were successfully used to close the diaphragmatic aperture.

Conclusions

My experience of cases of diaphragmatic hernia is too small to enable me to make any worthy comparison of the abdominal and thoracic routes of approach. In previous cases performed entirely through the abdomen I have felt dissatisfied not only with the access provided but also with the closure of the aperture solely by sutures, applied with difficulty and usually under tension. As these cases were chiefly ones in which incarceration had occurred or were post-traumatic, it would, however, hardly be fair to make any comparison. Harrington advocates the abdominal route, perhaps accompanied by phrenicotomy, and has obtained a large number of cures by this method. W. Salisbury, in this country, has recently described a case of herniation, apparently through the foramen of Bochdalek, in which, operation being by the abdominal route, the aperture was closed "with eight mattress sutures of double catgut, and the parts came together without any tension or difficulty." He states that he found the abdominal approach very satisfactory in every way, and considers that the thoracic approach should be reserved for cases with intrathoracic adhesions. This was, however, a definite congenital case without a sac, so that the problem of the efficient removal of the sac from the abdominal aspect did not arise.

It is suggested that the method here described, while undoubtedly necessitating a more severe operation than the abdominal approach, allows a closer approximation to the ideal radical cure than the mere suture of the edges of the aperture.

ELECTRO-SURGICAL TREATMENT OF MINOR ANAL CONDITIONS

BY

W. ARCH. MEIN, F.R.C.P.Ed., F.R.C.S.Ed.

BOURNEMOUTH

W. J. Morton, in 1881, was the first to apply oscillating currents to surgery. Since then many workers have enlarged the scope of this field of surgery.

There are at present three types of electro-surgical currents in surgical use: (1) the *monopolar*, or *Oudin*, current, which is one of highest voltage, as compared with (2) the *d'Arsonval*, or *bipolar*, current, of highest amperage, and (3) the *cutting* current, also a bipolar current. The difference in the effect on the tissues of these three currents is that the Oudin is a dehydrating current. The other two are coagulating currents. The difference between these latter two is one of damped and undamped oscillations, which in practice means depth of coagulation, the cutting current having a minimum of coagulation as small as 0.1 mm., whereas the other varies the depth of coagulation up to several centimetres. The cutting current, though sealing minute vessels and lymphatics, is not used for haemostasis. I have used all three currents in the treatment of ano-rectal conditions, and with one exception the operations have all been performed under local anaesthesia.

Technique

Local Anaesthesia.—Two to three ounces of 1/2 per cent. anaesthetic solution are used. Commencing at the right anterior aspect of the anus, half an inch from the muco-cutaneous junction, a zone of fluid is injected round the anus subcutaneously, sufficient solution being used to raise the skin above the surrounding tissues. On the completion of the ring the tissues are massaged in order to disperse the solution into the subcutaneous tissues. With the left index finger in the anus the operator injects another deep zone into the sphincter muscle, which can be felt to relax as the injection takes effect. Operative proceedings should not be commenced until the finger in the rectum is swept round and meets no area of resistance. The actual procedure is practically painless, and occupies about five minutes. A useful adjunct is 1/4 grain of morphine and 1/150 grain of scopolamine between one and one and a half hours before operation.

Pre-operative Aperient.—The usual pre-operative treatment for this region is carried out—that is, bowels are well opened three to four days before by some aperient, and then the lower bowel is washed out until clear. The patient is then given 10 minims of nepenthe three times a day, and a fluid diet.

Post-operative Treatment.—Nepenthe is continued as before operation, and the bowels are not allowed to act for anything up to seven days. This, of course, varies with individual patients, the criterion being the tolerance of the patient. On the sixth night cascara is given, and half an hour before the bowels act the following day four to six ounces of warm olive oil are slowly injected into the rectum and retained. The evacuation is then free and painless. All patients are advised to finish their toilet with cotton-wool moistened with some mild antiseptic.

Fissure, Polypus, and Fistula

Anal Fissure.—The current I use here is the monopolar, or Oudin, current. After anaesthesia a rectal speculum is introduced, and the fissure located and "sprayed" with this current. The result is a dehydrated eschar, which is left *in situ*. The immediate result is cessation of pain, due to the sealing of the exposed nerve endings. Three to four days after the operation the anus is gently swabbed out with a mild antiseptic. The patient is allowed up on the day after the operation.

One patient, C. C., a man aged 27, was suffering from tuberculous anal fissure, following several operations for fistula-in-ano, in 1929. A diathermy operation was performed in May, 1931, and by August of the same year the fissure had healed soundly.

Anal Polypi.—Perianal anaesthesia is administered, and the polypus is brought down. The base, if higher than the line of perianal anaesthesia, is injected with local anaesthetic. A pair of curved artery forceps are applied to the base of the pedicle, it being remembered that the pedicle has been stretched. Allowance should therefore be made for this when applying the forceps, otherwise they will be applied too closely. The polypus distal to the forceps is severed with the cutting current. The electrode is then applied to the point of the forceps, and the coagulating current turned on until a zone appears proximal to the forceps. If the base is very broad I usually apply a catgut ligature, but in the case of small polypi this may well be dispensed with. I should like here to sound a note of warning. If the polypus is above the line of peritoneal reflection the operator should remember that the ultimate slough will extend beyond the coagulated area visible at the time of operation. If too heavy or too prolonged a current is used a perforation into the peritoneal cavity may result, with disastrous consequences. In most cases the patient can be discharged in a week or ten days. The subsequent scar at the end of six to eight weeks is soft and pliable, and hardly discernible. I have had no recurrences up to date.

Fistula-in-Ano.—The results in these cases have been particularly gratifying. The technique I adopt here is, as far as I know, entirely my own. Local anaesthesia is administered as usual. A soft phosphor bronze wire about three inches in length is used as the positive electrode. The wire is introduced down the sinus in its entire length until a finger in the rectum feels the end of the wire just under the rectal mucous membrane. The wire is then withdrawn about a quarter of an inch. A medium coagulation current is then passed until the skin shows signs of coagulation. With the current still on the wire is withdrawn, and a dry dressing is applied. The patient is allowed up on the following day, the bowels being kept constipated in the usual manner. The almost instantaneous cessation of pain is the most gratifying feature of this operation. There is a slight amount of discharge from the sinus for about three days, but within a week this has entirely ceased.

A. B., a male, gave a history of tuberculous fistula-in-ano for eighteen months. He had had various operations without any success. Examination showed a perianal fistula. A diathermy operation was performed. Three months afterwards the patient stated, in reply to a "follow-up" letter, that he had had no recurrence of any symptoms, and that all discharge had ceased.

Haemorrhoids

Anaesthesia is given as usual. Some gauze is then rolled into a pear-shaped mass and inserted up the anus beyond the pile-bearing area. Traction is then made on it. This has the effect of everting the pile-bearing area. A needle, bent to form a small arc of a large circle, is used as the electrode. Each pile is punctured at the distal end, and the electrode is inserted for a distance of about half an inch. Coagulation current is then turned on until an area of coagulation appears at the entrance. About the same time the haemorrhoid proceeds to "boil." The electrode is removed with the current still on. In cases of thrombosed piles the technique is somewhat different. The ordinary straight needle is used. The pile is opened with a cutting current, and the clot evacuated by sponging. A ball electrode is then used, and the interior of the pile is thoroughly sprayed with the coagulating current. I do not now insert any sutures into the wound at all. Any anal tags are excised with the cutting current. No morphine suppositories are used, and the wound is dressed with a pyramidal dressing. The time occupied for each pile is approximately ten seconds. With this method there is practically no post-operative oedema, while subsequent pain is in most cases absent. I now allow patients to get up on the fifth day, and they are discharged on the seventh day, though I consider this is erring on the generous side. About a month afterwards the site of the operation shows practically no indication of any scarring to the naked eye. The amount of haemorrhage, except in one case of a "bleeder" (reported below), was about half a teaspoonful of blood, in some instances even less.

Case Record.—The following case, for the notes of which I am indebted to Dr. Storrs, is of some interest, and is therefore reported in full.

J. S., aged 37, gave no family history of bleeding. He served in the Army in 1916, and apparently had a post-traumatic haemarthrosis of the knee, which was tapped. Three and a half years ago he had a dental extraction, and bleeding was so severe that the patient nearly died. Two years ago he again had haemarthrosis, this time for no apparent reason; the knee was not tapped. A year ago the same knee was affected, and also the left shoulder. Nine months ago the right wrist became swollen while he was sawing some wood. Since the operation for haemorrhoids the right elbow became swollen in the absence of any history of injury—typical haemarthrosis. As regards the history of haemorrhoids, the patient stated that he had had bleeding per rectum for four years, and had lost about three-quarters of a pint a day. For some time he had been on intramuscular injections of collosol calcium. In view of the history of bleeding I was rather chary about risking a blood examination. When I saw him the patient was so anaemic, the bleeding having now become practically a continuous ooze, that it was obvious that unless something was attempted a fatal termination was inevitable.

On July 22nd, 1932, under general anaesthesia, a proctoscope was introduced. A pile on the posterior and lateral rectal surface, about half an inch from the anus, was seen to be continually oozing. This was coagulated with a strong current. Even then great difficulty was experienced in stopping the oozing. A large mass of piles on the right side was punctured, and a heavy coagulation current turned on. Once again extreme difficulty was experienced in stopping the bleeding. On the left side one puncture was made, which, however, did not result in bleeding. At the beginning of the operation the patient was given 1/2 c.cm. of collosol calcium intramuscularly. Bleeding being uncontrollable by this means, 2 c.cm. of haemoplastin was given intramuscularly, but blood was still seen to be clotting feebly. After about one and a half hours haemostasis was at last obtained; 2 c.cm. of haemoplastin was mixed with some vaseline, and the prolapsed mass was freely painted over with this. A small piece of gauze was also covered with it. A pyramidal dressing was applied, together with firm pressure. Although a full coagulating current was used, the operation took one and a half hours, and necessitated the measures indicated above. I felt some anxiety until the sloughs had separated, as I feared that haemorrhage might recur violently; but apart from a few streaks of blood there was no haemorrhage. The patient was discharged after a fortnight. He allowed his bowels to become constipated for three days after discharge, with the result that on evacuation he lost about a teaspoonful of blood. I have examined him since, expecting that, with the heavy coagulation and the consequent destruction of tissues, a considerable amount of scarring would result, but it was gratifying to see that the amount of scarring was no more than occurs in an ordinary case of haemorrhoids after excision and ligature. Up to date the patient has had no more haemorrhage.

Conclusion

I have been so struck with the ease of operation and the painless and shortened convalescence of these various conditions treated by diathermy, that I am emboldened to write this short preliminary paper. In this region of the body I now never consider using the older scalpel method. It must be realized, however, as Wyeth points out, that the surgeon using diathermy has to learn a new technique, and that each patient must be considered separately—the operator must understand his machine and his own limitations.

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OCCUPATIONAL DISEASES OF THE SKIN

In devoting so much time to the subject of occupational diseases of the skin at the recent Annual Meeting, the Dermatological Section displayed a proper appreciation of a very important but rather neglected subject. It will probably have been news to several to find that as many as 15,000 cases of dermatitis due to industrial causes are certified every year by the factory surgeons of Great Britain, but the burden of compensating the sufferers which has been placed on the shoulders of employers, who in their turn have transferred it (with a substantial consideration) to the insurance companies, is a very onerous one, and constitutes a real tax on industry. Those who have given attention to the subject are agreed that the problem of lessening the incidence of occupational dermatitis is one of preventive medicine rather than of therapeutics. Those workers who have once been attacked are often slow to recover, and are peculiarly liable to relapse on resuming their original occupation. They often appear to acquire a special sensitiveness to the materials among which they work, and not infrequently are ultimately compelled to change the nature of their employment—a matter of considerable difficulty to the modern worker. In this connexion it is worth mentioning that Dr. N. H. Mummery, whose experience as medical officer to the largest food-preparing firm in the country makes him specially familiar with the problems of occupational dermatitis, finds that treatment of the hands and forearms with small doses of x rays is not only efficacious in curing the dermatitis, but also raises the patient's degree of immunity against subsequent exposure. In popular parlance the x rays "harden" the skin. But prevention is the main line of attack.

Here it is impossible to exaggerate the importance of the work done by the late Sir Thomas Legge, who was senior medical inspector of factories at the Home Office for about thirty years, and by his successor, Dr. John C. Bridge, who contributed a most interesting paper to the discussion at Dublin. From 1907 onwards a constant stream of official literature has emanated from the Home Office with a view to guiding and compelling employers to take the necessary measures for the prevention of industrial dermatitis. And it should be added that in most instances the employers have been only too willing to do all in their power to the same end. The counsel of perfection in the prevention of dermatitis would appear to be the avoidance of all contact with the irritating substance by means of gloves, but this is in most cases impossible, certainly in all the food trades, which produce a very large proportion of the cases. Gloves are only employed in the presence of liquids possessing real corrosive power, such as strong acids or alkalis. In some instances protection can be afforded by the use of an emollient, especially when the skin is exposed to the action of defatting agents, such as alcohol, ether, turpentine, etc. When the hands are exposed to oil continuously, as in many branches of engineering, a peculiar acneiform dermatitis is often caused, which becomes, in many individuals, complicated by chronic furunculosis. This is due to the blocking of the sebaceous glands by grease and dirt. For the removal of such matter Dakin's solution, the basis of which is chlorinated lime and sodium bicarbonate, is recommended by Dr. Bridge. In the vast majority of cases, however, the chief precautionary measures consist in simple cleanliness. But the attainment of this is not so easy as it sounds. Soap and water themselves display distinctly irritating properties when used to excess or with the energy which is necessary when substances such as dough or sugar are allowed time to form a closely adherent layer upon the skin. It is most essential that the cleansing of the skin should be easy, and consequently the contaminating substances should not be allowed to remain any longer than is avoidable before removal. For this reason regulations have been made for the provision of proper supplies of water in all factories for the use of the workers. Many employers have gone further in this direction than the Home Office regulations actually insist upon, and special types of lavatory basin have been designed for use in factories and to be placed in close proximity to the actual site of the operations where the workers come into contact with adhesive materials. As a general rule it may be said that the larger the organization the more advanced are the measures taken for the protection of the workers. It is the small and struggling concern, where every penny is a consideration to the hard-pressed owner, which is likely to scamp its duty.

One important aspect of the prevention of industrial dermatitis is the selection of the personnel to be employed. Here, of course, the employer must act alone: Government cannot select his workers for him. But already most large employers insist on a preliminary medical examination of all persons before engagement, and in those occupations where dermatitis is apt to occur the condition of the skin is naturally scrutinized very closely. Not only should the hands and forearms be examined, but the skin of the whole body. Any person suffering from any skin eruption or any cutaneous abnormality must be excluded. In particular, any degree, however slight, of ichthyosis is found to predispose towards the development of dermatitis, and it is also found advisable to refuse the services of those who possess abnormally greasy skins or who tend to sweat unduly. Regular and frequent medical inspection of the workers is also to be practised, for, if detected in its earliest stages, dermatitis is far more amenable to treatment than if allowed to develop unhindered. It has been recommended that all candidates for employment in a trade in which dermatitis is likely to occur should undergo a preliminary test for sensitiveness towards the materials used. This,

however, is quite impracticable, nor would it prevent those numerous and rather puzzling cases in which individuals who have long remained unaffected suddenly become sensitive to the substances with which they have to work. In addition to dermatitis there are other occupational diseases of the skin, some of them even more serious to the individual patient, but fortunately not so common. These have been to a very large extent satisfactorily controlled by the measures of prevention originated by the Home Office. Anthrax has been stamped out by the institution of a disinfecting station where the imported raw materials, such as wool, hair, and hides, that harbour the spores of the bacillus, are regularly dealt with. Suitable regulations have minimized the incidence of mule-spinners' cancer. In short, the history of the measures taken against industrial diseases of the skin form a creditable chapter in the development of preventive medicine in Great Britain. Other highly civilized countries—even the United States of America and Germany—still lag far behind in the work of protecting employees against these troubles.

THE TREND OF PROGRESS IN PHARMACOLOGY

The British Pharmaceutical Congress met this year in London, and as it is ten years since it last met here the chairman, Mr. C. H. Hampshire, took the opportunity to make his opening address a review of the progress made in pharmaceutical chemistry and pharmacology during the past decade. The extent of these advances is remarkable, and the direction they have taken is also interesting and significant. A very large number of important new drugs have been introduced into therapeutic use, but of these only one—namely, ephedrine—is an active principle extracted from plants. Mention may also be made of a new and important active principle in ergot whose existence has been demonstrated, but this substance has not yet been identified. On the other hand, a whole series of important animal products has been introduced into therapeutics. The most important of these are: liver extract, parathyroid hormone, the hormone of the suprarenal cortex, the hormones of the anterior lobe of the pituitary gland, and the female sex hormones. In regard to the last two it may be pointed out that, since their therapeutic application is still in the experimental stage, it will be many years before a certain estimate can be made of their value, but they will probably be found to be of great importance. The discovery of insulin falls outside the period under discussion, but ten years ago the use of this substance was still in the experimental stage, and its development as a therapeutic agent has occurred chiefly during the last decade.

Knowledge of vitamins in recent years has advanced rapidly, but mainly along chemical lines. Ten years ago they were regarded as wholly mysterious substances, whereas to-day the chemical structure of the more important vitamins is known, and the synthesis of some of them has been achieved. Advances of this nature are less sensational than are discoveries of new vitamins, but nevertheless are of great importance for the therapeutic employment of these substances. The number of new synthetic drugs that have been introduced vastly exceeds the number introduced from all other sources, and their mere mass constitutes a serious difficulty in attempting to evaluate them. The new antimalarial drugs, plasmoquine and atebrin, are the most important of all the recent products, but among the many new local anaesthetics and hypnotics there are a few which already have established themselves as superior in certain respects to any drugs previously known. Other important new groups are the pentavalent organic antimony compounds, used in tropical disease, and the trypanocidal dye Bayer 205. The alterations made in the 1932 edition of the *British Pharmacopoeia* reflect these changes equally clearly, for no fewer than sixty vegetable drugs were deleted. It is true that twenty-four of these were of local interest in the Dominions, but subtraction of these still leaves a loss of thirty-six vegetable drugs. On the other hand, a large number of new synthetic drugs were introduced.

This brief summary shows clearly that therapeutics is advancing, chiefly along certain specific lines—namely, the introduction of new synthetic compounds and the discovery of active principles of animal origin. Chemotherapeutic substances are the most important synthetic group, and the hormones are the chief drugs of animal origin. Discussing the extent of the progress made, Mr. Hampshire pointed out that therapeutics to-day is reaping practical benefits from the pioneer work carried out in the preceding generation. In regard to the direction of these advances he remarked that this should influence the training of the pharmacist of the future. "Much of the preoccupation with details of vegetable structure which has existed in the past has now become useless, and less attention should be devoted to the study of plants in order to allow for training in the knowledge of animal biology and physiology. It is clear that in the future the pharmacist may be less of a botanist and more of a biologist." This acknowledgement of the changing needs of pharmacy is of interest to the medical profession, for it comes at a time when general dissatisfaction is being voiced with methods of medical education. Many of the proposals for educational reform have resolved themselves into an endeavour to cut down the training given in the preliminary sciences, but it is important to consider such proposals in regard to the probable future needs of the practitioner. If the pharmacist needs to understand the nature of the drugs he deals with, this applies equally to the doctor. The remedies likely to be of dominant importance in the future appear to be the synthetic chemicals and the drugs manufactured by the animal body. A knowledge of chemistry is necessary if the doctor is to make an intelligent selection from the flood of synthetic remedies put at his disposal by the enterprise of the manufacturing chemist. This need is accentuated by the luxuriant imagination displayed in nomenclature, which usually results in a single compound having dozens of different proprietary

names. On the other hand, a knowledge of physiology is equally necessary to provide a basis for discrimination between possible and impossible claims made in relation to endocrine products. Apart from these special problems created by commercial enterprise, there remains the general principle that the doctor ought to understand the nature of the tools he uses. The advance of science is providing therapeutic weapons of increasing accuracy and potency, and the profession of the future should be so trained as to use them intelligently. For these reasons it is to be hoped that any changes made in the medical curriculum will not involve too great a sacrifice of attention to the fundamental sciences of chemistry and physiology.

BRONCHIECTASIS

The hopelessness of the treatment of fetid bronchiectasis has begun, perhaps rather slowly, to lead to attempts at employing the new weapons—bronchoscopy and bronchography—in elucidating the early stage of the bronchiectatic process. While it has always seemed likely that there has been a dry stage to every case, no definite proof has been obtained. In this country we have rather tended to stumble upon various signposts without full consciousness of the direction in which they are leading. Thus, though the routine use of lipiodol had led to the discovery of dry bronchiectasis by many observers, it has only recently been pointed out[1] that the haemorrhagic types are really in a minority when these dry cases are considered as a whole. Again, bronchoscopy in this country has been largely concerned with the investigation of pulmonary suppuration[2] or of suspected neoplasm, and it is striking how little is shown on the average when the bronchi of patients with haemoptysis (but no evident suppuration) are inspected. The Sauerbruch school in Germany, and in America Graham[3] of St. Louis and Eloesser[4] of San Francisco, have made valuable collective contributions towards the differentiation of the congenital from the acquired types of stenosis and of bronchiectasis. The anatomical relation of the left duct of Cuvier to the left bronchus is said to account for the prevalence of the congenital type in the left lower lobe. Microscopical distinctions have been described between the acquired and congenital forms, and these have become susceptible of confirmation since lobectomy has been more frequently performed. Single congenital cysts lined with ciliated epithelium, and congenital cystic lung, termed by Grawitz "bronchiectasis universalis," are extreme results of the same condition. The single cysts often produce severe symptoms, notably haemoptysis, and they have been successfully excised on many occasions. Grawitz's type forms the commonest indication for thoracoplasty, and gives the best likelihood of a successful result since contralateral spread appears to be very slow. "Bronchial stenosis," says Eloesser, "has not had the attention it merits from its importance in the explanation of frequent yet obscure clinical phenomena and pathologic pictures." He goes on to give a long list of causes of the acquired form of compression stenosis, isolated examples of which are familiar to everyone. Following an atelectatic or pneumonic condition in children or young adults there is usually a period which may be from a few months to years before the classical signs of bronchiectasis develop—that is, before a bronchial dilatation which has occurred at some stage during this period has become infected. It is to diagnosis and treatment during this period and to the prevention of subsequent sepsis that all our attention should be directed. Of vital importance is the comparatively recent knowledge of the relation between disease of the nasal sinuses and pulmonary suppuration. As Ballon (quoted by Graham) has stressed, lymphatic absorption from the antrum and frontal sinus is by way of the submaxillary and internal jugular nodes to the lymph ducts, the great veins, the right heart, and the lungs. Graham and his fellow-workers devote eleven pages to a detailed account of this feature alone, referring to many cases (out of their total of 182) in which the discovery of this relation has directed treatment. While many writers have described the effects of various surgical procedures, the present need is for more detailed accounts of the type of spread and the prognosis of early cases, so that it may be understood, and described to the patient or his doctor, exactly where the alternative to radical treatment will lead him.

[1] Wall, Cecil, and Hoyle, J. C. *British Medical Journal*, 1933, i, 597.
[2] Morlock, H. V., and Pinchon, Scott. Ibid., 1932, i, 661.
[3] Ballon, Harry, Singer, J. J., and Graham, E. A.: *Journ. Thor. Surg.*, December 1931; June, 1932, i, 2.
[4] Eloesser, L. Ibid., i, 1.

NOISE IN BUILDINGS

The reduction of noise in buildings, with certain recommendations to architects, is the subject of Building Research Bulletin, No. 14, issued by the Department of Scientific and Industrial Research.[1] Noise prevention is no simple matter, and it calls for a good deal of ingenuity on the part of constructors of buildings. The very walls which are supposed to shut out noise may intensify it by their diaphragm action, like that of the cone of a loud speaker. Windows reflect most of the sound that strikes them, but should the frame be ill fitting or the panes large the portion of sound which is not reflected causes vibration of the window itself, and a noise is set up which may be more troublesome than the external sounds. Upper floors might be supposed to be less noisy than ground floors, but in fact they are more noisy, owing to the angle of reflection from the road paving or from opposite buildings. An exception is a roof floor above the cornice, set well back behind a solid parapet; this is relatively quiet, which may perhaps explain why poetry is associated with the attic. An objectionable feature of modern construction is said to be hard and dense wall and ceiling plasters and "jointless" floors. Reinforced concrete structure, when employed for such buildings as hospitals and hotels, in which mechanized equipment is unavoidable, presents an acoustic problem of its own, because of the difficulty of introducing discontinuity (and therefore breaking up sound transmission) between the skeleton of the building and the filling membrane, such as the wall panels. The very things which introduce hygiene into modern buildings may add to their

[1] H.M. Stationery Office. (9d. net.)

noisiness, and some people would prefer stagnant air to the noise of a ventilating fan, just as they would rather walk stairs than endure the continual noise of lifts. One thing for which we are grateful to this little bulletin is its attempt to bring before the mind's eye (or ear) that latest unit of science, the decibel. One decibel is the least difference in loudness which the ear can appreciate, and a scale of decibels has been worked out—a kind of spectrum of sound—beginning at zero, the threshold of audibility. The rustle of leaves in a slight breeze is 10 decibels above zero; a whisper at four feet is 20 decibels; quiet conversation is 40; a typewriting office is 80; a room with printing presses is 100, and an aeroplane cabin—the noisiest enclosed place, apparently, as yet invented—is only 10 decibels below the threshold of feeling, at 120. A certain level of sound is not only tolerable but desirable. Persons become acclimatized to it, and are unhappy in unusual silence, just as people who live near a mill have a troubled feeling only when the machinery stops. What is resented is the intruding noise of much greater loudness or shrillness than the customary level, such as the noise of a pneumatic drill intervening in the low buzz of conversation, or a strident motor horn in a moderately quiet street. In this pamphlet figures are even given to denote the average noise which can be readily tolerated in various surroundings: for example, the figure for a hospital is 8 to 12 decibels; for a music studio, 10 to 15; for apartments, hotels, and houses, 10 to 20; for theatres, churches, class-rooms, and libraries, 15 to 25, and for banks and public offices, 25 to 40. The degree of discomfort caused by a loud intruding noise depends upon the level of sound normal to the room or ward or auditorium.

B.C.G. INOCULATION OF NURSES

Dr. J. Heimbeck has now brought up to date the statistics concerning the nurses given subcutaneous injections of B.C.G. at the Ullevaal communal hospital in Oslo since 1927.[1] His controls go back to 1924. From that year onwards there were 266 nurses who, when they began work as probationers, were found to be Pirquet-negative, and of these 82 (30.8 per cent.) developed later some manifestation of tuberculosis. There were also 496 probationers found to be Pirquet-positive when they began work, and only 18 of these (3.6 per cent.) afterwards showed any manifestations of tuberculosis. Hence Heimbeck's ambition render Pirquet-negative probationers Pirquet-positive by B.C.G. inoculation. Since 1927 he has thus treated 243 Pirquet-negative probationers, of whom 119 became Pirquet-positive in response to the B.C.G. There were also 69 who remained Pirquet-negative, 16 who gave a doubtful reaction, and 39 who had to be discarded for statistical purposes. Only one of the 119 probationers becoming Pirquet-positive after B.C.G. inoculation subsequently developed manifestations of tuberculosis, in contrast with 22 (26.9 per cent.) among the 16 doubtful reactors and the 69 negative reactors. Heimbeck concludes that if a first inoculation of B.C.G. fails to provoke an allergic reaction, as evidenced by a positive Pirquet, the person concerned also fails to acquire immunity to tuberculosis. Accordingly, he gives such persons another injection of B.C.G. As it takes on the average about two months for B.C.G. to convert a negative to a positive Pirquet, and as another two months are needed when a second injection has to be given, it follows that in this interval of two to four months the person concerned should not come in contact with an infectious case of tuberculosis. But once B.C.G. has rendered a person Pirquet-positive, it is not only permissible, but even desirable, that he should be exposed to virulent tubercle bacilli in order that he may acquire a more lasting immunity than that which B.C.G. confers. Heimbeck has, however, known a positive Pirquet, induced by B.C.G., to last as long as three years.

[1] *Tidsskr. f. d. Norske Lægefor.*, May 15th, 1933.

INDUSTRIAL HEALTH

The thirteenth annual report of the Industrial Health Research Board records a year of steady progress in industrial investigations, though the Board does not claim that the work has reached authoritative or final conclusions. It is pointed out that many of the Board's investigations constitute critical long-range research, which may take years to show results. For instance, the vocational selection tests which are being made in the Royal Tank Corps have indicated that those recruits who did well in certain tests, involving intelligence and spatial perception, tended to be most proficient in driving and manipulating tanks and other vehicles. Consequently these tests have been handed over for practical purposes with the prospect of their helping to improve the standard of recruitment, but it will be some years before an adequate proof can be obtained of their efficacy. Again, an investigation concerning the factors involved in unemployability among boys has been started. The Ministry of Labour is co-operating, and an attempt is being made to find out some of the personal factors which tend to make employment hard to get and to keep as opposed to those that are often assumed to do so. A lengthy period must necessarily elapse before any results are available. The investigations conducted into the physiology and psychology of work must likewise be incomplete. The physiological investigations include a comparison of static and dynamic work, and an inquiry into the height, weight, and strength of a huge group of 10,000 men, while psychological investigations include a study of repetitive work—one on dexterity tests in various manual operations and their correlation with occupational success, and one on the effect of incentives on output. On the other hand, some of the investigations on the effects of environmental conditions have yielded definite results which can be applied directly to industry. For instance, the wearing of "ear defenders" by a group of weavers was found to diminish the adverse effects of noise so much as to increase personal efficiency 12 per cent. Other observations were made on a group of typists who were provided with noiseless typewriters. Their output was found to be significantly higher than that of typists using ordinary machines, and when, in the second year, the groups of typists were transposed, there was again a balance in favour of the users of the noiseless machines. Other environmental conditions investigated relate to the measurement of radiant heat in relation to its influence on warmth comfort, and the effects of lighting on efficiency.

these were treated by surgery alone, 46.9 per cent. by radiation alone, and 25.7 per cent. by a combination of these methods.

Mr. E. G. SLESINGER was unable to be present, and Mr. W. H. OGILVIE read his paper. He said that for the surgeon cases were divided into two groups—operable and inoperable. Radiation was most useful in the latter. It was essential that patients should be seen by someone who could assess the value of surgery and of radiation. In cancer of the oto-pharyngo-laryngeal region radium was the method of choice, except in the case of the lip and upper jaw. In the alimentary canal surgery remained the best method of treatment. In early carcinoma of the breast surgical results were so good that he did not think the use of radium was justified.

Dr. RALSTON PATERSON (Manchester) said that radium therapy was advancing rapidly in two directions. More types of malignant disease were coming within its scope, and results were being improved in each group. To illustrate this it was only necessary to study the steadily improving results which had been obtained during the last few years in carcinoma of the buccal cavity and of the uterine cervix. In radium therapy some accurate method of dosage was essential. There was no reason why the r unit should not be employed for gamma radiation, as it was for x rays, and he was using the unit in Manchester. It was possible to measure tolerance and lethal dosage in physical terms if the time factor was also expressed. He had found that the lethal dose for all epitheliomata was 6,000 r. In conclusion, Dr. Paterson supported Dr. Chance's plea for centralization of radiation work.

Mr. PEARCE GOULD, in reply, said that each speaker had contributed a great deal to the discussion, and he hoped that radiologists would go from the meeting with the feeling that they had the sympathy and co-operation of the surgeons. The discussion had revealed that the forms of malignant disease suitable for radiation were becoming well recognized. Earlier diagnosis would be one of the greatest advances in the treatment of malignant disease.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Friday, July 28th

ARTIFICIAL MENOPAUSE

The third day of the meetings of this Section was devoted to the reading of short papers. Dr. T. M. HEALY (Dublin) a Vice-President, was in the chair.

Miss LOUISA MARTINDALE read a paper on the artificial menopause, with special reference to the end-results obtained by various methods of induction. She presented a statistical analysis of 620 cases of metropathia haemorrhagica and fibromata uteri treated by operation in 312 cases, intensive x-ray therapy in 263, and radium therapy in forty-five. Surgery was used in cases in which the diagnosis was doubtful, in which the uterus was larger than a four months' pregnancy and was causing pressure symptoms, in which the fibroids were subperitoneal or submucous or undergoing degeneration, and in which the patient was young and a myomectomy could be performed. Irradiation was the treatment of choice in climacteric haemorrhages with fibrosis uteri. The menopausal disturbances were no more severe in the irradiated cases than in those of the normal climacteric. Temporary amenorrhoea was valuable as a treatment in certain types of psychosis and of tuberculosis. Mr. LEONARD PHILLIPS emphasized the necessity of a preliminary diagnostic curettage. He spoke of complications of radium treatment, mentioning vaginal discharge, pyometra, salpingitis, and phlebitis. In spite of these, he thought radium was the best method of inducing the menopause. Mr. GREEN-ARMYTAGE preferred hysterectomy to other methods of treatment. The President, Dr. BETHEL SOLOMONS (Dublin), discussed the question of embolism following on hysterectomy. One should be very careful in advising the induction of the menopause as a treatment for psychosis. Dr. E. W. MASTERMAN objected to hysterectomy with retention of ovaries being included in the discussion. Dame LOUISE MCILROY spoke favourably of x-ray therapy in cases of pelvic tuberculosis. Operation often did great harm in such patients.

In reply, Miss MARTINDALE said she always carried out a preliminary diagnostic curettage. There was a risk of cancerophobia developing if the patient knew she had radium treatment: marital relations were not disturbed after x-ray treatment.

DIAGNOSIS OF PREGNANCY

Dame LOUISE MCILROY read a paper on some difficulties in the diagnosis of pregnancy, with special reference to the Zondek-Aschheim test. She said that the usual signs of pregnancy—even to experienced practitioners—were often difficult to elicit. It was important to detect the intermittent contractions of the uterus. The Zondek-Aschheim test was of the greatest value in the early diagnosis of pregnancy, in cases of pregnancy, mole, etc. She then gave details of its use, and showed a series of photographs illustrating the employment of x rays in the diagnosis of pregnancy and of obstetric abnormalities. Mr. GREEN-ARMYTAGE confirmed what had been said regarding the clinical value of the Zondek-Aschheim test. He had also used it in the diagnosis of early ectopic pregnancy. Mr. CHASSAR MOIR pointed out that the test only indicated a *living* gestation, and might be negative in missed abortion or in cases of extrauterine pregnancy with serious haemorrhage. Mr. LEONARD PHILLIPS also spoke.

HYSTERECTOMY

Professor A. H. DAVIDSON (Dublin), in a critical survey of hysterectomy, dealt with a series of 210 cases. He made a strong plea for the total—as opposed to the subtotal—operation. His mortality for total hysterectomy was 1.58 per cent. There were few operative or post-operative complications, the operation could be done quickly, and the average length of stay in hospital was sixteen days. Dyspareunia following the operation had occurred in only one case. Many eminent gynaecologists advocated the total operation because there was a definite tendency for the stump of the cervix to become carcinomatous. He emphasized the importance of removing a chronically infected cervix; the improvement to the patient's general health was very great. Two cinematograph films were then shown, illustrating Professor Davidson's technique. Mr. GREEN-ARMYTAGE made an appeal for the wider use of the vaginal route for performing hysterectomy in cases of adenomyosis, precancerous cervices, small fibroids, and metropathia haemorrhagica. In his experience of 286 vaginal hysterectomies there was complete absence of embolism, and the patient got up on the eighth to the tenth day. Dr. BETHEL SOLOMONS said that there could be no hard-and-fast rule regarding the best type of operation; it depended on the individual case. He thought that hysterectomy was often advised and performed for insufficient reason; this was especially so in cases of psychosis.

EXTERNAL CEPHALIC VERSION

Mr. NORMAN WHITE read a paper on external cephalic version, prepared in co-operation with Dr. J. D. FLEW. He gave details of 300 cases of version performed during pregnancy at University College Hospital. An anaesthetic was used on ninety-two occasions. The optimum time for version was the thirty-fifth week. If done later there was greater risk of injury to the placenta, and of malpresentation. The operation when performed under an anaesthetic was not without risk. Bleeding had occurred six times in ninety-two successful cases and four times in twenty-eight cases of attempted version. In 293 cases the foetal mortality was 5 per cent. Details concerning the technique of the operation were given. Dame LOUISE MCILROY questioned whether these cases were not better left to nature. An abnormality was often present. X-ray examination should be made. With a patient under an anaesthetic the operator often employed too great force in a determination not to be beaten. Mr. LEONARD PHILLIPS said that a case could be made out for performing Caesarean section in a primiparous breech with extended legs where version had failed. Mr. CHASSAR MOIR said

the opinion of the meeting appeared to be divided on the value of external version. He strongly advocated this simple operation, which had practically no risk if performed with gentleness and care. By such means the foetal death rate in breech deliveries, which at present stood at the appalling figure of one in every three primiparous cases, could be reduced. Cephalic version also allowed estimation for disproportion to be made. Dr. GIBBON FITZGIBBON (Dublin) advocated induction of premature labour in breech cases. Dr. R. H. J. M. CORBET (Dublin) remarked that he did not perform version in the multipara with lax abdomen, because the foetus did not stay in its new position. The multiparous breech case might be difficult to deliver because of the large size of the foetus. Dr. JOAN K. ROSE (Edinburgh) said that she examined the vaginal flora before starting any obstetrical manipulation. Mr. L. CARNAC RIVETT did not agree that malpresentations were common after version.

"CAPSULE" CHLOROFORM ANALGESIA

Mr. L. CARNAC RIVETT read a paper on chloroform analgesia obtained by the employment of glass capsules which could be crushed by the attending midwife and inhaled on a mask held by the patient. It was not a method of anaesthesia. There was no danger, and the analgesia was satisfactory. The capsules were intended for use by midwives, not by doctors. They were cheap and could be employed over long periods; one capsule lasted for about ten minutes. Dr. E. W. MASTERMAN spoke of the enormous boon the capsules had been in the obstetric departments of London County Council hospitals. Dr. LETITIA FAIRFIELD said that prior to the introduction of capsules the resident anaesthetists had been greatly overworked, and sometimes it was impossible to give every patient an anaesthetic. That was now changed, and capsules were used with enthusiasm. In 861 cases there had been no bad effects, save that 5 per cent. of patients became noisy. Labour was not prolonged. The labour ward sister was first instructed by an anaesthetist, and was then allowed to give the capsules to normal cases, provided that assistance was within reach. Dr. BETHEL SOLOMONS asked who was to sign the death certificate if a death should occur while the patient was using the capsules. Dr. GIBBON FITZGIBBON (Dublin) also spoke. Mr. RIVETT replied.

SECTION OF OPHTHALMOLOGY

Friday, July 28th

SCHOOL MYOPIA

With the President, Mr. F. C. CRAWLEY (Dublin), in the chair, Mr. ARNOLD SORSBY opened a discussion on the control of school myopia. He discussed the various attempts that had been made to control myopia. Cohn, who believed that environmental factors were responsible, hoped that the problem would be solved by attention to school hygiene. Fifty years of work in that direction had, however, led to negative results. For the understanding of the problem it was essential that more should be known of the changes that took place in the growing eye. The growth of the eye was held to be completed by the age of 8; during this process the eye had become longer by about 8 mm. Such lengthening would represent an increase of refraction by about 30 to 40 dioptres. Yet the total refraction of the eye changed by hardly more than 2 or 3 dioptres. Obviously, marked and correlated changes took place in the anterior segment of the eye, and the study of these changes had been almost entirely neglected. Myopia, coming on after the age of 8, represented either a failure in that correlation—in which case the eye could not have completed its growth by the age of 8—or else it represented an independent process arising after the period of growth and consolidation. That it represented a failure in correlation was supported by the evidence of refraction curves. These showed a peak towards emmetropia, such as could not be explained by a chance variation. Correlation and its anomalies were therefore active processes. Moreover, the various refractive components of the eye were not free variables. The view that myopia could be explained as the chance combination of free variables themselves determined by heredity was not tenable, nor was the monistic conception of all myopia as the result of the inheritance of large retinae. Whilst attention to environmental factors had not solved the problem, the fatalism of those who regarded myopia as an hereditarily determined condition was not warranted. Knowledge of the physiology of the growing eye had still to contribute to the understanding of the problem.

Mr. BISHOP HARMAN said that the majority of cases began at the age of 5 and increased through school life. Astigmatism was definitely an exciting factor. There was overwhelming proof that drastic reforms in educational methods in countries where myopia was excessive had been followed by dramatic reduction in incidence. So, too, in England there was control of myopia in the mass, but the difficulty was to control it in the individual. Some cases progressed despite all care and treatment. He inclined to the view that in some cases there was congenital inadequacy in the fibrous tissue of the sclerotic. In such cases he stopped all schooling, prescribed open air, and gave small doses of iron. Such treatment checked the progress.

Mr. J. D. M. CARDELL found that in an area comprising 17,500 school children the level of myopia had remained steady during the last seven years at 2 per cent., and that on an average only one case per annum had to be sent to a myope school. He recognized a premyopic stage, and suggested how such cases should be treated. High myopes were kept, under supervision, at an ordinary school until they could no longer be taught with benefit to themselves. He stressed the tendency of myopia to enter upon quiescent stages. This led to errors in the estimation of the efficacy of any particular form of treatment. Dr. HARRIS TOMLIN (Dublin) recommended that examination should not be entrusted to inexperienced doctors or nurses, that pseudo-myopia was over-stressed, and that a full correction should be worn. Another speaker considered that the examination of each case should be completed in one visit. Dr. R. D. JOYCE (Dublin) stated that excessive convergence should be prevented, that a reading correction giving a large size retinal image should be ordered, and that the centring of the glasses should be accurate. Other questions raised in the discussion were answered by Messrs. SORSBY, BISHOP HARMAN, and CARDELL.

PROTECTIVE GLASSES

Mr. J. D. M. CARDELL read a paper on protective glasses in mountaineering and in industry. He said that the difficulty was to provide adequate protection with sufficient visual acuity for climbing under hazardous conditions. After a good deal of experimental work, in which he had the assistance of Messrs. Hamblin, he had evolved a goggle which, though not giving the fullest protection, was satisfactory from a practical point of view. It was light in construction, comfortable in wear, and adequate in ventilation. The same type of goggle, but with a film of silver of a thickness varying with the particular needs of any process taking the place of the coloured lamina, was suitable for protecting welders, iron puddlers, etc. The lamination of the glass protected against flying particles, and if a glass became cracked a fresh one could be instantaneously substituted by removing the clip inside the eye cup. The difficulty was to induce workmen to wear any protection at all, and the one feature which would recommend a goggle to them would be the adequacy of ventilation. Mr. Cardell later replied to the many questions put by the members on the subject of his paper.

OTHER MATTERS

Mr. CARDELL next demonstrated a simple apparatus for testing the vision of patients in bed. This consisted of a light and short tube, with Snellen's test type photographically reduced on a small circular lantern slide at one end, with a lens at the other of sufficient strength to relax accommodation. From the latter end a bar projected, having at its end a pad to rest on the superior maxilla below a trial frame. The test type could be detached and any astigmatic test substituted for it. This

apparatus had been made for him by Rayner of Bond Street, London, W.1.

At the Royal College of Surgeons Miss Pugh read a paper on, and gave a demonstration of, orthoptic treatment. She said that the chief instruments used in developing stereoscopic vision were the synoptophore, orthoptoscope, stereoscope, and cheiroscope. The first two were really a Worth's amblyoscope with many adjustments. The treatment required at least nine months for a stable result, and in many cases much longer, but the results were well worth the time and trouble spent. The degree of squint was a very great factor in the prognosis. In cases of convergent concomitant strabismus of 15 degrees or under there was a very favourable prognosis. Roughly about 77 per cent. of cases developed stereoscopic vision, with their eyes straight, in about six months' treatment. In cases of convergent concomitant strabismus of over fifteen degrees the training took much longer, and in some cases it was advisable that, after fusion had been developed, the eye should be put as straight as possible by operation and the training continued from three days after the operation. Cases of divergent strabismus of up to 20 degrees had a favourable prognosis. About 90 per cent. were successful in a comparatively short time—six months or under. Cases which had been operated on, and had a residual squint of 15 degrees or more, were often more resistant to treatment, and even where the deviation was less than 10 degrees a longer time was generally required than in cases of a corresponding degree in non-operated types. It would seem, then, that it was very necessary for a fusion sense to be developed before operative measures were undertaken.

SECTION OF HISTORY OF MEDICINE

Friday, July 28th

The Apothecary and Poet

Dr. T. P. C. Kirkpatrick, President of the Section, extended a warm welcome to the members present, who numbered fifty-seven. He then asked Dr. T. Wilson Parry to read a paper on "John Keats: Medical Student, Qualified Surgeon, and Poet."

Dr. Wilson Parry detailed the outstanding events in the life of Keats. At the age of 16, when he left school, he was apprenticed to a general practitioner at Edmonton, and remained with him for four years. He then entered Guy's Hospital as a medical student. At this time Keats was described as dressing shabbily, disregarding appearances as he did opinions, and possessing an amount of moral and physical courage which stood him in good stead. His profession was not of his own choice, and he found difficulty in applying himself to it. In the lecture room he seemed to sit apart and to be absorbed in something else. Yet at his qualifying examination for the Society of Apothecaries he displayed an amount of acquirement which surprised his fellow students. He was a contemporary of Bright and Addison. Keats never practised, but once or twice contemplated doing so when his literary prospects seemed poor. Early in 1818 he began a three months' period of nursing his brother Tom, who had phthisis, and undoubtedly then contracted the disease. A walking tour followed, but the weather conditions were so bad that an acute throat malady ensued. He went back to his brother, who died a few months later, and from that time the infection in himself progressed steadily. It was decided that he should spend the winter of 1820–1 in Italy, but the sea journey was very arduous, and he was acutely ill when he reached Rome, dying in February, 1821. Dr. Parry remarked that Keats in his poetry deliberately avoided anything relating to surgical art or medical science, but there was evidence in his writings of a keen power of observation. He had devoted his life to the cultivation and adoration of the beautiful. The speaker expressed his deep indebtedness to the poet, who had repeatedly enabled him, as a medical student to escape from the materialism of medical science. He was, surely, the doctors' poet, and his best work had been an inspiration to many, including the late Dr. Mitchell Bruce.

Sir Humphry Rolleston paid a warm tribute to the valuable and highly poetical content of Dr. Parry's paper. Some of the genius of Keats might have been attributable to the presence in him of the tuberculosis toxin. Dr. P. G. Lee (Cork) spoke of the debt of gratitude he owed to the work of Keats, who compared very favourably with other great geniuses, and well deserved to be studied by the medical practitioners of to-day.

Early Irish Hypnotists and Mesmerists

Dr. Cecil P. Smyly (Dublin) read a paper on the precursors and followers of Mesmer and Braid in Ireland. After a brief review of the work of these two, he mentioned that the ancient Irish Druids were described as having produced trance and clairvoyance. More than a hundred years before Mesmer, James Finaghty, a parish priest in Tuam, had acquired a great local reputation for "dispossessing of devils from such as he himself alone was pleased to judge possessed, and curing too, or at least pretending and attempting to cure, all other diseases by prayers and exorcism and touching and crossing and stroking, and (sometimes for some diseases) by blowing vehemently and laboriously into the ears of the diseased party." In 1663 and afterwards he assembled large crowds in Dublin to watch his treatment. To avoid a public trial before the Viceroy he fled to Galway, where he resumed his practices until the Archbishop of Tuam took him to task for saying that all the women in Ireland were possessed by the devil, and forbade him from practising any more. Valentine Greatrakes (1628-83) claimed to be able to cure the King's Evil, and, later, other diseases, by stroking the faces of the patients. Unlike Father Finaghty, he always refused any remuneration, and practised for a time in London. He died possessed of considerable wealth. In 1829 Richard Chevenix revived in London the subject of animal magnetism, having begun by treating the children of peasants in Ireland for various complaints. In London he was allowed to practise at St. George's Hospital and a military hospital. A "Mesmeric Infirmary" was established in Dublin in 1843, and in 1851 a series of lectures on mesmerism was delivered at the Rotunda. In some parts of Ireland mesmerism, animal magnetism, and electro-biology long remained familiar terms, and were regularly employed by laymen. At the end of the 'eighties Sir Francis Cruise, who had been for many years on the staff of the Mater Hospital, took up the study of hypnotism; he later visited the clinics of Liébault and Bernheim at Nancy, and of Luys and Charcot in Paris. In April, 1891, he had read a paper before the Royal Academy of Medicine. In July, 1893, a B.M.A. committee reported that it had been convinced of the genuineness of the hypnotic state, but had found nothing to support the theory of animal magnetism; that the treatment had its uses, but should only be practised by medical men, and then only with care and discretion—thus endorsing the opinions stated by Cruise.

Dr. P. G. Lee said that Greatrakes had achieved considerable success with eye diseases. His stroking or rubbing might conceivably have had some good results in pannus. An interesting problem was the place of his burial. He had undoubtedly done very well in his time, for his name was long remembered among the peasantry. Dr. Smyly replied that there existed a record that Greatrakes had expressed the desire to be buried in Lismore. He had been buried, however, in Athlone, in County Waterlow, in the nave of the church. During later reconstruction the exact site had entirely disappeared.

Aspects of Sir William Petty's Work

Dr. J. Prendergast gave an account of the life of Sir William Petty, the records of whom afforded a good illustration of certain sides of contemporary medical activities. Petty, who had been born in 1763 at Romsey, Hants, of humble stock, had made the first scientific survey of Ireland, advising against the wholesale confiscation of land and transportation practices, which were then prevalent. He had taken a great interest in mathematics, travelled widely on the Continent, and then lectured on anatomy and physiology at Oxford. He had

reformed the curriculum in that university, criticizing sternly its then unpractical outlook. He had taken a keen interest in clinical observation, like his contemporary Sydenham. After two years in Oxford he had returned to London, and practised near Cheapside. He had always been interested in the Royal Society and its work, especially in physics. He repeated many of the experiments personally, and confirmed the results. His earliest medical paper was on arthritis, but his findings were more interesting than reliable. In another paper on chemistry he followed the usual lines of his time. He had rejected the "doctrine of signatures," which attributed to certain plants resembling organs of the body the power to cure the related diseases. He was much influenced by the doctrine of the *Novum Organum*. He interested himself in the powers of the magnet. His Oxford lectures deplored the lack of facilities for investigation, and attacked the unsuitability of the accommodation for teaching. He praised anatomy, as conferring the power of understanding the body and of prolonging life. He believed that many lines of physical studies, such as optics, could be advanced by considering the nature of the organs of the body. Petty had kept in close touch with all the discoveries of his age. He strongly supported the conclusions of Harvey, and termed the coronary circulation the "least circulation" of the body. He had urged the value of post-mortem examinations, and left useful notes about the liver, kidneys, diaphragm, and walls of the arteries. Comparative anatomy and phrenology attracted his close attention. Petty's outstanding significance was the way in which he had advanced the scientific aspects of physiology and anatomy. Dr. Prendergast considered that hitherto this had not been adequately recognized.

Sir HUMPHRY ROLLESTON thought that a very complete analysis of the work of Petty had been presented. He asked whether it was the case that he had invented a special form of sailing vessel designed to obviate seasickness. The PRESIDENT referred to Petty's courage and resourcefulness, and cited an illustration. He had once been involved in a brawl with a man in a street, and had been challenged to a duel. Petty, who was then nearly blind, accepted the challenge, and, having the choice of weapons, demanded that the fight should be with hatchets, and in the dark. Dr. PRENDERGAST, replying, said that Petty had been much interested in naval construction. For preventing sea-sickness he had suggested double-bottomed boats, but they did not prove successful, and one was lost at sea.

BERKLEY ON THE TAR WATER

Dr. J. BELL (Dublin), in a paper with this title, said that few philosophers had exerted so profound an influence on medicine as did Bishop Berkley in his digression on tar water. Berkley, who had been educated at Trinity College, Dublin, took up new ideas in philosophy and developed them. His career had been marked by many high-minded philanthropic projects, one of the most remarkable being a missionary scheme for the evangelization of America by founding a college in Bermuda. He resided in Rhode Island for three years, but a promised Government grant of £20,000 did not materialize, so he returned with the recipe for making tar water—a reputed specific against small-pox—and became Bishop of Cloyne. A winter of unusual severity, followed by famine and disease, ravaged the population. Berkley dispensed tar water with dramatic success, and was thus led to commend it warmly for a list of diseases, including foulness of blood, ulceration of the bowels, consumptive coughs, pleurisy, peripneumony, erysipelas, asthma, indigestion, and inflammations of all kinds. He published his results in 1744 in a book entitled *Siris*, in which he described the preparation of this concoction. Tar water, raised to the dignity of a universal remedy, spread through Europe, despite the fact that very large doses had to be taken, and many stomachs found it difficult to tolerate the nauseous fluid. The medical profession became alarmed, and vigorously denounced this "epidemical madness of drinking tar water"; the resulting controversy lasted for many years. The remedy was used extensively in Dublin, and records of supposed cures were published in the *Dublin Journal*. Yet, after a time, the tar water craze abated, and the controversy terminated suddenly. Berkley had died in 1753, and an account of his life, written in 1784, had dismissed tar water in one paragraph. Dickens had referred to its use in *Great Expectations*, the morbid condition concerned being supposed bolting of food. Tar water lingered longer on the Continent, and Paris restaurants as late as 1890 were wont to place it on their tables. Dr. Bell closed with a comment on the reason for the development of such a reputation, and pointed out that the concoction contained guaiacol, pyrocatechol, creosol, and similar aromatic bodies. It would therefore have a definite action as a gastro-intestinal disinfectant, an expectorant, a deodorant, and an external antiseptic for various skin lesions. Probably the main impetus to its use, however, was Berkley's great reputation as a man of learning. From such past failures, concluded the speaker, had sprung our modern scientific methods of therapeutic research.

A specimen of tar water was supplied to members of the audience, some of whom tried it cautiously, and agreed as to its potent flavour. Dr. Bell explained that it had been prepared from the ordinary Stockholm tar of the *Pharmacopoeia*.

IRISH MEDICAL MEN BEFORE 1600

Dr. T. P. C. KIRKPATRICK, President of the Section, contributed an outline of early Irish medicine, Dr. J. D. ROLLESTON, a Vice-President, taking the chair.

The speaker defined three stages: (1) the prehistoric period, from Neolithic times until the reign of Cormac MacArt in the third century A.D.; (2) historic times, from the third century until the coming of the Anglo-Normans in the second half of the twelfth century; and (3) the Anglo-Norman period, until the foundation of Trinity College and of the University of Dublin. Although there had accumulated a wealth of evidence relating to development and culture in those early days, nothing had been found illustrating any kinds of medical or surgical practice. As in Egypt and Greece, there had been in Ireland a traditional god of medicine—Diancycht, physician of the mythical god-like race, the Tuathe Dé Danaan; he had cured the wounded arm of King Nuada of the Silver Hand somewhere about 1272 A.D. He had also been responsible for a highly curative medicated bath for wounded warriors. Various other medical heroes were mentioned in traditions of subsequent years, and it seemed probable that at the beginning of the Christian era medicine, as practised in Ireland, was quite as far advanced as that in Greece up to the time of Hippocrates, medical knowledge having been derived probably in some measure from Eastern sources. In the ancient laws, codified about the time of St. Patrick, were to be found set out the duties and obligations of the Liaigh or leech, to whom an honoured place was accorded in the social scale. Fees varied according to the rank of the patient and the nature of his malady. A very definite distinction was made between the "lawful" and "unlawful" physicians, based probably on whether the practitioner had satisfactorily [illegible] his obligations as a pupil apprentice. From [illegible] times there had been medical schools in Ireland [illegible] was likely that the students were instructed [illegible] apprentices of well-known physicians, the nature [illegible] teaching and discipline being indicated in the [illegible] Lanamhna, or law of social connexions. From [illegible] century onwards Ireland was sending out [illegible] missionaries, many with a knowledge of medi[illegible] pital system in prehistoric Ireland [illegible] developed, usually conducted in the [illegible] leeches. Many records of early [illegible] come down. With the influx of the [illegible] advances had followed the introduction [illegible] were attached to the households of [illegible] the profession of medicine became hereditary in certain families. A considerable number of Irish medical manuscripts had been preserved. In Dublin there were in the early days several hospitals, the most important of which was that of St. John Without the New Gate, which had been founded some time before [illegible] fifteenth cent[illegible]

in constant use. It had been abolished by Henry VIII.

Dr. J. D. Rolleston said that all must have deeply appreciated so masterly a summary of early Irish medical history. Sir Humphry Rolleston added that the papers that had been read had fully justified the existence in the B.M.A. of the Section of the History of Medicine, which was founded in 1927. The President, in a brief reply to questions, stated that the Welsh and Irish Druids had probably been in fairly intimate communication, and both groups had practised healing. Since the system of hereditary physicians had only come into use with the arrival of the Anglo-Normans, the distinction between "lawful" and "unlawful" physicians, which was of earlier date, must have had some other basis than consanguinity.

Imhotep

The proceedings of the Section terminated with the communication by the President of the contents of a paper by Dr. Gerald Garry entitled "Imhotep," the reputed first physician and Egyptian god of medicine. Dr. Garry stated that Imhotep was the first physician to stand out from the vistas of antiquity. Reference was made to the available writings, from which it was deduced that Imhotep was an ordinary mortal, not a professional physician, but a layman who practised healing by magic. His reputed divinity rested on very arguable premisses. The identification of him later with Ἀσκλήπιος was inexplicable. It would seem that he had received every honour during the time of the Ptolemies, and appeared as a physician in the Hermetic literature of the first century of the Christian era. Dr. Garry's opinion was that Imhotep might have been a learned scribe, a man venerated for his wisdom, and around whose name had gathered fabulous myths, rendering it difficult to separate the true from the false. The claims put forward on his behalf as the first recognized physician of antiquity were unjustifiable.

A cordial vote of thanks was tendered to Dr. Kirkpatrick for the part he had played in collecting the exhibits in the historical museum, and so enabling it to reach an exceptionally high level of interest and value.

SECTION OF PATHOLOGY AND BACTERIOLOGY

Friday, July 28th

Renal Function in Nephritis

With the President, Professor J. M. Beattie (Liverpool), in the chair, Professor J. Shaw Dunn opened the discussion on renal functional disturbance in acute and subacute nephritis. He dealt chiefly with the subject of renal oedema, and pointed out how in recent years there had been a recession from the original conception of oedema as the direct effect of a renal disability, and a greater interest in extrarenal factors. One of the fundamental objections to the view that renal oedema could be of the nature of retention of fluid resulting from failure of renal function arose from the fact that complete surgical anuria was not accompanied by oedema. There might, however, be special reasons for this which were not applicable to other forms of renal disability. He proceeded to review the main characteristics of the various forms of nephritis in which oedema occurred, and pointed out that the main features which all exhibited were diffuseness of lesion, involvement of all the nephrons, permeability of tufts to protein, and the persistence in bulk of tubular tissue. These degenerative changes were often unassociated with death or desquamation of cells, and the frequently good concentrating power for urea suggested that the cellular alterations were of less lethal import than their extent might imply. A theory of renal oedema which formerly received acceptance was Widal's view that the fault lay in retention by the diseased kidney of common salt and not of fluid. The water was judged to be held secondarily in order to preserve the isotonicity of the tissues. The main grounds for objection to Widal's theory were that very marked salt retention might occur the blood without oedema resulting, and that in some nephritic oedemas the blood showed no increase of water or salt. This led Volhard to the view that toxic substances absorbed from degenerate renal epithelium damaged capillary walls throughout the body, thereby making the capillaries unduly permeable. Owing to this leakage the kidneys received water and salt at too low a level of concentration. It was important to remember, however, that opinions as to the concentration or dilution of the blood were based on venous samples, and it was possible that the low salt and water values in the venous samples of nephrotic cases were no fair indication of the arterial blood content. A third theory of nephrotic oedema had been developed mainly by Epstein, who had drawn attention to the effect of the low colloid osmotic pressure of plasma proteins owing to loss by albuminuria. But the degree of the oedema did not always correspond with the amount of decrease of plasma protein, and resolution might occur in nephrosis without an antecedent rise of colloid osmotic pressure in the blood. Professor Shaw Dunn proceeded to discuss the question of fluid retention in the light of the filtration-reabsorption hypothesis of kidney function. According to this, in the normal working of the kidney a moiety of protein-free plasma with all soluble constituents was filtered by pressure from the blood passing through the tufts. In passage down the tubules, water, chlorides, and sugar were reabsorbed to an extent which left urea and other purely excretory substances highly concentrated. By this theory the amount of filtrate is very large in proportion to the amount of urine formed, but was not large in proportion to the amount of blood passing through the kidney. The amount of fluid reabsorbed was also large, so that the kidney acted in respect of water and salt as an organ of conservation rather than of excretion. A small error by way of excess of reabsorption would result in a real retention of water and salt in the body. Professor Shaw Dunn illustrated by means of a diagram how the events in different forms of nephritis might be accounted for on the basis of this theory.

Dr. W. Cramer described the form of nephritis which occurred in rats kept on a synthetic diet deficient in magnesium. When both calcium and magnesium salts were omitted the nephritis did not occur, and the lesion was therefore assumed to be due to a disturbance in the biological equilibrium of magnesium and calcium ions. Professor J. T. Wigham (Dublin) considered that oedema could not be explained on the basis of any one theory. Probably several factors were involved. Dr. John Gray (Aberdeen) pointed out that there was some reason to regard nephritis as due to some allergic effect on the glomerular capillaries, and that if this was so it might well be that the capillaries were generally damaged. In the acute and subacute varieties of nephritis increased capillary permeability was the cause of oedema. With regard to later nephritis with less active glomerular changes, one had to admit that a capillary hyperpermeability theory was no longer plausible, but here the renal retention view had to postulate an unexplained excessive tubular reabsorption. This might well occur, but evidence was lacking, and in the meantime Dr. Gray was more inclined to favour as the cause of such oedemas lowered plasma osmotic pressure, in spite of all the defects of that view. Dr. F. H. Smirk pointed out that the percentage of protein in the plasma could be diminished by reducing the amount of protein in the diet or in animals by a process of plasmapheresis. In such cases oedema might develop despite normal renal function, provided the protein percentage in the plasma was sufficiently reduced. This was of interest as an illustration of the development of a simple hypoproteinaemic non-renal oedema.

In his reply Professor Shaw Dunn agreed that the lowering of plasma protein in subacute nephritis or nephrosis was no doubt due to the considerable total daily loss of albumin in the urine. This continued leakage of albumin from the glomeruli might be due more to continuous perfusion of these capillaries by blood than to alteration in the permeability of the capillary walls. The actual percentage of albumin in the filtrate as it left the tufts was probably very low, and the high

percentage in the urine resulted from concentration by reabsorption of fluid. The high figures for protein in oedema fluids of acute nephritis were difficult to understand: they would suggest a considerable loss of protein from the blood which was not really observed in the early stages of acute nephritis. In famine oedema, referred to by Dr. Smirk, the plasma proteins were low, as in nephrosis, but even in that case the low osmotic pressure would not by itself account for excess retention of fluid in the body. There was no doubt a polyuria, indicating good renal capacity for elimination of fluid, but the amount excreted was less than the fluid intake. Retention here might be due to insufficiency of the natural diuretic urea in the renal filtrate.

Dr. W. E. CARNEGIE DICKSON showed a series of lantern slides illustrating variability and multiplicity in certain intracranial tumours. He was followed by Dr. T. B. DAVIE (Liverpool), who considered the criteria of malignancy in cerebral tumours, and by Mr. A. B. CLERY (Dublin), who discussed the question from the surgical point of view.

SECTION OF OTO-RHINO-LARYNGOLOGY

Friday, July 28th

TUBERCULOSIS OF THE LARYNX

With the President, Sir ROBERT WOODS (Dublin), in the chair, Mr. R. SCOTT STEVENSON opened the discussion on the treatment of tuberculosis of the larynx. Quoting Sir StClair Thomson, he estimated that there were 78,819 persons in England and Wales suffering from tuberculosis of the larynx. He said that the greatest advance in treatment since the introduction of sanatoriums was the production of artificial pneumothorax. It was the patient who had to be treated rather than the larynx, and for this reason an institutional regime was greatly preferable to out-patient treatment. After stressing the importance of early laryngeal examination, he then went on to discuss the methods of treatment. Vocal rest was one of the most valuable of these, and should be rigidly enforced if possible. Local treatment by the galvano-cautery was valuable in selected cases, but he had abandoned diathermy. After a careful and detailed survey of the literature and methods employed by Strandberg, Wessely, and others, Mr. Scott Stevenson had come to the conclusion that the results achieved by artificial sunlight were little better than those obtained by vocal rest and active treatment of the main disease.

Dr. F. R. G. HEAF, dealing with the prognosis of the disease, said that whereas forty years ago tuberculosis of the larynx was always regarded as incurable, this was not so to-day. He then discussed the factors in prognosis, stressing in particular the value of serial blood examinations. If these showed (1) a rapid sedimentation rate, (2) a high monocyte count, and (3) a low lymphocyte and eosinophil count, the prognosis was bad. Other factors were: the amount and type of pulmonary disease, the character and site of the lesion, the presence or absence of ulceration, the temperament of the patient, alcoholism, excessive smoking, occupation, etc. Cases affecting the aryteno-epiglottic region were mostly hopeless, especially in the young, while cases mainly corditic and inter-arytenoid usually did better. Localized lesions were better than generalized, and in lupoid cases one could give a reasonably favourable prognosis. Finally, he stressed the points that early diagnosis, efficient treatment of the main disease, and eradication of focal sepsis were of the greatest value.

Dr. C. D. S. AGASSIZ, discussing the frequency of the disease in children, said that the amount of tuberculous laryngitis in children was grossly underestimated. He had examined eighty-six girls between the ages of 11 and 16 years and had found fifteen with laryngeal signs. About 20 per cent. of children with a positive sputum had laryngeal signs. Nearly 50 per cent. of his cases showed no symptom whatever, and would have been missed unless the condition had been looked for. The prognosis was fairly good; as a rule only general treatment was available.

Dr. P. J. KEOGH (Dublin) said that the main principles in treatment were: (1) silence, (2) the co-operation of a first-class physician, and (3) the judicious and timely use of the galvano-cautery. Chaulmoogra oil in his hands had been fairly successful; he had not had much result from nerve block, and the results of artificial sunlight needed a great deal more investigation. Mr. H. S. BARWELL stressed the importance of sanatorium treatment. He very much doubted whether whispering was any less strain than gentle talking, and did not advocate its use. Dysphagia was best treated by orthoform: anaesthesin and euphagin were also good. In the severe pain associated with flask-shaped swelling of the arytenoids and ulceration of the epiglottis, by far the best results were obtained by removal of the most painful spot with punch forceps under local anaesthesia. Injection of the superior laryngeal nerve was occasionally good, but tracheotomy should never be performed except for the most urgent dyspnoea. Dr. J. R. WHEELER (Belfast) gave some figures showing the relation between laryngitis and severe chest lesions. Phrenic avulsion, thoracoplasty, and artificial pneumothorax greatly improved the prognosis. He agreed with Dr. Heaf in commending the great value of serial blood examinations. He advocated early removal of septic foci. Mr. P. J. DEMPSEY (Dublin) agreed that forced whispering was dangerous, and that it was impossible to evaluate any particular method of treatment by itself. Lactic acid paints were bad, and so were the extensive operations formerly in favour. He never removed septic tonsils in the presence of active tuberculosis. Mr. A. D. SHARP (Leeds) disagreed on the question of septic foci, and advocated their removal; he had seen good results from local application of ultra-violet light, and thought the galvano-cautery a very useful weapon; he even employed lactic acid in certain cases. Dr. J. B. HORGAN (Cork) gave some interesting figures on the frequency of tuberculous infections of the naso-pharynx in the post-mortem room, and hoped the young practitioner would soon learn to use the laryngoscope.

Sir ROBERT WOODS (Dublin) stressed the fact that it was the chronicity of the lesion that prevented it from healing, and that active local treatment with a view to producing an inflammatory reaction was indicated. For this reason he approved of the galvano-cautery, and had been getting very good results with deep x-ray therapy. Dr. R. R. TRAILL (Midhurst) gave an interesting case report showing the value of artificial pneumothorax in an apparently hopeless case. He had not had good results with artificial sunlight. Mr. R. R. WOODS (Dublin) said that it was the patient that cured the disease and not the laryngologist. The best general treatment was indicated. The meeting closed with a film made by Dr. WILLIAM BEAUMONT and presented by Mr. J. F. O'MALLEY on the treatment of tuberculosis of the larynx by means of the Kromayer lamp.

Corrigendum

Owing to an error Dr. M. A. Cassidy was reported (*Journal*, August 5th, p. 247) to have said at the discussion on essential vascular hypertension at the Section of Medicine that, "A night urine of low specific gravity which fixed after the patient had drunk a pint of water was ominous." This should have read "A night urine of specific gravity and a specific gravity of 1010 after drinking a pint of water ominous."

The L.C.C. recently authorized the [illegible] from July of this year of a consultant [illegible] hospital for children at Margate [illegible] Hospital, Lowestoft, to visit the hospitals [illegible] to be paid for each visit two guineas [illegible] or three guineas for an operation [illegible] It is not intended to make [illegible] to authorize the medical superintendent [illegible] to call in a local specialist [illegible] sidered that on rare occasions it may be [illegible] in a consulting physician and [illegible] made.

Nova et Vetera

PROFESSOR R. A. S. MACALISTER'S LECTURE: "PREHISTORIC IRELAND"

The Popular Lecture in connexion with the Annual Meeting of the British Medical Association was delivered to a very large audience in the Royal Dublin Society Hall, on July 28th, by Dr. R. A. S. MACALISTER, Professor of Celtic Archaeology, University College, Dublin. Dr. E. K. LE FLEMING, the Chairman of the Representative Body, who presided, explained that the Popular Lecture was in the nature of a slight return which the Association gave to the people in whose city it had held its Annual Meeting, in acknowledgement of so much that it had received from its hosts.

Professor Macalister, whose lecture was illustrated by slides and maps, took his audience back to the remotest period of Irish antiquity. At the time when the hunters of the old Stone Age roamed over forest-clad Europe, Ireland, so far as was known, was for the most part covered by a thick sheet of ice, and was therefore unsuitable for human life. In point of fact, one skeleton had been discovered of recent years in a cave in Southern Ireland which might possibly belong to that early period, but for the present it might be said that the old Stone Age was unrepresented among Irish antiquities. The first ascertained evidence of existence in Ireland belonged to something like 4000 B.C. At Larne, from which port the steamers went to Stranraer, might be seen, jutting into the harbour, a spit of sand, the shape of which accounted for its name—Curran Point. At its base there was a bed of gravel, the debris of an old sea beach, now some twenty-five feet above present sea level, and interspersed in this gravel had been found a number of flint implements, the earliest known handiworks of man in Ireland. These flint implements were of a very definite type and could be assigned to a civilization which took its rise probably somewhere along the south coast of the Baltic Sea, and from there spread westward over the northern parts of Europe.

EARLY SPANISH INFLUENCE IN IRELAND

The first occupants of Ireland were immigrants from Europe, and it was interesting to notice that in very nearly the same region flints had been found which indicated that their makers had had an Eastern European origin, and other flints of an entirely different character most closely corresponding with certain types found in the North of Spain. There had thus been a Spanish immigration into Ireland as well as an Eastern European immigration. It might be asked why the relics of these two immigrations were found at the same spot. The answer was that that north-eastern corner of Ireland was the only part of the country where flint was to be obtained. This was one of those curious instances in which Nature had capriciously bestowed her gifts. In the other parts of Ireland in this ancient time it would have been necessary to make implements of other stones, some of them extremely intractable, and while flint implements were generally easily recognized, it was not always easy to recognize these others. It was quite possible, therefore, that these two contending groups of people, of such widely different origin, had been in close proximity in other parts of the country, but had left no trace.

At this early period the interior of Ireland was covered by dense forests, interspersed with lakes much more extensive than anything now to be found. The forests harboured dangerous animals, like bears and wolves, and so did not present much attraction to the early settlers, who confined themselves mainly to the sea coast. As time went on the technique of the manufacture of flints improved, and another interesting fact was that of the two bodies of immigrants the Spanish influence appeared to be predominating over the Eastern European. It was this which accounted for the contrast between the antiquities of Ireland and those of England. Ireland might be described as an island of the Atlantic Ocean, Great Britain as an island of the North Sea. The antiquities of Ireland, unlike those of England, showed a close relation with those of Spain. The beautifully made lozenge-shaped spearheads were a very characteristic form of Irish flint. They were symmetrically made and carefully flattened in the middle, sometimes by chipping, at others by polishing down. That was not a common form in England, but it was a specifically Iberian form.

In the Spanish peninsula there were a great many caves which had served as human habitations in the Stone Age, and on the walls of these caves paintings had been discovered, chiefly figures of men and animals. The human figures were sometimes quite easily recognizable, but at others they were so much conventionalized that unless there were a series of them showing the gradual development of the conventional from the realistic form, one would not think of them as portraits of the human figure. Here the lecturer took his audience back to Ireland and showed a remarkable stone, found in what is now King's County—a broad flat stone, on which were marks indistinguishable from the Spanish marks. This was, with one exception, the oldest stone in Europe outside Spain, and definitely had very close affinities with the art of neolithic Spain. It indicated that a body of men of the Stone Age, between 3000 and 2000 B.C., made their way across the Bay of Biscay right into the heart of Ireland, and there indicated on a stone the fact of their arrival.

THE LATER STONE AGE

In this new Stone Age the tools, the handiwork, and civilization generally were improving, although a knowledge of the art of working metals had not yet been reached. One evidence in Ireland of the advance of civilization was the evident trading which was taking place. Flint implements were found to have travelled from the north-east to the whole country and to Europe. For example, stone axes were found in regions in which the stone was entirely foreign to the native product. This was not possible without travel, and travel was not possible without safe conduct, which argued some form of government or social order.

Perhaps the most striking illustration of a social organization was the way in which the men of the new Stone Age combined together in large numbers for a common purpose. Here Professor Macalister showed examples of the large erections found in Ireland and other countries in the shape of gigantic burial monuments, known as dolmens, or less correctly as cromlechs. These were also found in Spain and France, and in lesser numbers in England. A dolmen was a monument which consisted of a number of stones, usually three, set upright, with a flat stone poised on the top. Some of these covering stones were of gigantic size; one of them, a short distance from Dublin, weighed seventy or seventy-five tons. It was wonderful how the men of the Stone Age could have raised and poised them, and the fact that these stones had stood for thousands of years indicated that there had been some directing mind, of an architect or an engineer, engaged in the project. The lecturer reproduced a map showing the distribution of dolmens in Ireland, which indicated that the population was still mostly concentrated along the sea coast and the large rivers, while the central plain was almost bare of monuments.

THE METAL AGE

Coming further along in history to about 2000 B.C. he drew attention to the distribution of metals in the country. Nature had been fairly lavish to Ireland with gold, and considerable amounts of gold had been found from time to time in the rivers of Northern Wicklow. She had also been fairly generous in copper, but extremely niggardly in tin, a very important lack, because tin was absolutely essential in the Bronze Age before a knowledge of iron had been obtained. At first, and possibly for a slightly longer time than the rest of Europe, Ireland had to make shift with copper, and the earliest copper tools found in Ireland were flat axes. At the same time, or a little later, Ireland began to exploit her supplies of gold, and lunulae, or gold ornaments worn on the breast, began to be made. Ireland had already, in this early part of the Metal Age, begun to develop a trade in gold with foreign countries. Irish merchants set out across England to the Continent. He showed a map marking places where various tools had been discovered. The flat Irish copper axe was found scattered all over Ireland, and it was also found in England, following certain geographical lines which led across to the Continent. Probably an Irish merchant travelling with his axe would lose it at some ford, and there,

thousands of years later, it was found, and indicated the trade route. At any rate, these relics lay in the line of the trade march across the neighbouring country; and Irish gold ornaments found their way to Hanover, Valognes, and other places on the Continent. Professor Macalister described five stages of evolution through which the Irish axe had passed, and said that these five stages helped one to divide the Bronze Age into appropriate periods. The history of Ireland during those five periods was very interesting. With the disappearance of the flat axe pure copper also disappeared. Irish manufacturers had somehow or other become acquainted with tin, the nearest supplies of which were in Cornwall, and probably it was from Cornwall that Irish tin came. There were certain Irish remains in that county, from which one could draw the inference that at the beginning of the Bronze Age the Irish merchants or soldiers made themselves masters of the Cornish mines and were able to exploit them for the benefit of the Irish metallurgists. But somewhere about the fourth period of the Bronze Age the Irish suddenly lost control of the tin mines, and with this they lost their foreign trade, and became themselves subject to foreign exploitation.

Professor Macalister went on to describe the tall stones that were to be found in various places in Ireland, including the one at Punchestown, fifteen feet high. The great Celtic invasion, he said, began in the years 350 to 400 B.C., when the Celts superimposed their civilization on the inhabitants of Ireland.

The lecture was listened to with great appreciation, and a hearty vote of thanks was accorded at the close.

FACTORIES AND WORKSHOPS REPORT, 1833-1932

In the preface to his report[1] for the current year, which includes a review of the years 1833–1932, Mr. D. R. Wilson, H.M. Chief Inspector of Factories, introduces readers to a series of historical reviews, prepared by members of his staff, to mark the centenary of factory legislation. These reviews of the work of the inspectorate, which are presented under the headings of employment, safety, health, welfare, truck, piecework particulars, home work, Government wool-disinfecting station, and Home Office industrial museum, are a reassuring comment on the beneficent effects on the health and welfare of an industrial people which have been obtained by a hundred years of factory law.

Taking the sectional reviews one by one we find the first (unemployment) indicates the responsibilities imposed on the earlier inspectors—the germ of our present educational system, for example, was their care—and shows how the prevention of sweated labour and long hours has now brought about reasonable conditions of work, marred only by occasional lapses. The chapter on accident-prevention describes the recurrent series of problems which have to be met; as technique in safeguarding improves, new machines, each with their special risks, are introduced, and in this branch of the subject it seems doubtful whether finality can ever be achieved. In view of the progressively higher standard of safeguarding, however, both as regards quality and extent, it can hardly be doubted that, given equal exposure to risk, fewer accidents tend to occur each year. Welfare is dealt with in another chapter; though primarily a modern development, it is shown to have been introduced in isolated instances many years ago. The reviews dealing with the Truck Acts and the "piecework particulars" sections of the Factory Acts (both designed to ensure that the worker receives his proper wages) show that the abuses they were intended to remedy have now virtually disappeared, although supervision is still needed. Again, the history of home work and out work—systems under which work is done for an employer elsewhere than on his premises—is also surveyed, and the extent to which it has diminished in recent years is discussed. Mr. Wilson concludes with a tribute to employers and workers for helping to secure a standard of factory conditions which was long in advance of, and is still equal to, that of any other country. He states that the main functions of an inspector of to-day are instruction on matters within the law and advice on matters outside the law, rather than compulsion. After mentioning the increasing attention given by non-official bodies to discover and secure favourable conditions of work—for example, the Industrial Health Research Board of the Medical Research Council, the Industrial Welfare Society, the Institute of Labour Management, the National Safety First Association, and the National Institute of Industrial Psychology—Mr. Wilson takes a glimpse at the future, and states:

"Though the fine old Act of 1901 fortunately still operates effectively, many developments have occurred during the last thirty-two years which could not have been foreseen when it was drafted, and though it has been periodically amended by supplementary Acts since that time, there are still many anomalies, both in application and in requirements, which will call for consideration when the time arrives for further legislation. . . . The provisions in the Acts dealing with hours of employment are, in my submission [he continues], no longer in consonance with modern practice and modern tendencies. On the one hand, they permit hours of work much longer than those now usual in industry; on the other hand, they require rigid adherence to specified time-tables and withhold the greater elasticity in arrangement of working hours which can now be justifiably claimed."

HEALTH

In the health section the senior medical inspector, Dr. J. C. Bridge, notes the long period that elapsed before medicine was considered a necessary aid to the improvement of working conditions in industry. Two years before the passing of the Factory Act, in 1833, Dr. Thackrah had already published a book on *The Effects of the Principal Arts, Trades, and Professions*, and had turned particular attention to house painters and the need for exhaust ventilation for dust removal. But Dr. Thackrah was apparently not consulted on the legislation later introduced. After a brief outline of the conditions existing during the first forty-five years of factory legislation, Dr. Bridge describes a second period (1879 94), which marks the introduction of exhaust ventilation of injurious dusts by fan and of better sanitary conditions—both arising out of the 1878 Act. At this time there was prohibition of child employment in certain industries—for example, white lead manufacture and the mercury silvering of mirrors, dry grinding of metal and dipping of certain types of lucifer matches. The 1891 Act enabled the chief inspector to serve on the employer a notice proposing or requiring the adoption of special measures to meet cases in which machinery, processes, or type of labour were considered by the Home Secretary to be dangerous or injurious to health, and in cases where there was thought to be insufficient fresh air or too much dust. After this Act special investigation proceeded upon the dangerous materials in industry, and special rules followed for the manufacture of white lead, extraction of arsenic, enamelling of iron plates, and work on explosives and matches. Periodic medical examinations were also indicated at this time. In 1883 an Act was passed for the benefit of white lead workers, and nine years later special rules were drafted for earthenware and china workers. Arsenical poisoning is described in the annual report for 1879 and phosphorus poisoning in 1880. Anthrax existed in the same year. The third period (up to 1900) opened by the Act of 1895, was the occasion of compulsory notification by medical practitioners of cases resulting from lead, phosphorus, and arsenic, and of cases of anthrax contracted in any factory or workshop. Washing conveniences had, moreover, to be provided, and a reasonable temperature maintained in the work-rooms. The minimum of cubic space was also fixed, and committees were set up to consider whether certain processes were dangerous. Dr. Whitelegge's appointment as chief [illegible]

[1] Annual Report of the Chief Inspector of Factories and Workshops for the Year 1932 (including a review of the years 1833 to 1932). London: H.M. Stationery Office. 1933. (2s. net.)

in 1896 marks a definite stage in the development of medical work of the department. About this time mercury poisoning among hatters and furriers, and gassing by carbon dioxide and hydrogen sulphide, were the subjects of inquiry, and the file-cutting and potteries industries also came under investigation. By the end of 1900 the activities of the department had revealed the main causes of industrial ill-health and diseases produced by specific toxic substances known at that time. Sanitary conditions had much improved and ventilation had greatly extended. This year was also remarkable for the report on ganister dust. The 1901 Factory and Workshop Act consolidated the various Factory Acts. The child's age for employment was raised to 12, and power was given to the Secretary of State to make rules instead of regulations. The Workmen's Compensation Act of 1906 drew attention to diseases which could properly be made a subject for compensation. During this period Dr. Legge did his classical work on the determination of lead dust in the air, and brought back from Italy Sclavo's serum for use in anthrax, while Dr. Collis began a study of injury to health due to dust. The war period had a great influence on industrial medicine, and foreshadowed the appointment of works doctors. Inquiries were pursued into jaundice from tetrachlorethane, T.N.T., and arseniuretted hydrogen, and knowledge was advanced on the aplastic anaemia of T.N.T. and benzol. The last period (1919–31) is chiefly remarkable for work on fibrosis of the lung and occupational cancer, and on other diseases arising from complex chemicals—used, for example, as solvents of cellulose and in the manufacture of synthetic compounds. In conclusion, Dr. Bridge states that it is inevitable that in an age of rapid progress modern methods, with their attendant risks, should have supplemented old methods. Thus we find spraying of paint taking the place of the brush method, and cellulose solution replacing paint—methods of working all calling for inquiry as to the existence of any special risks and the necessity for special preventive measures.

Annual General Report

The remaining twenty-five pages of the report review, under the above heading, industrial conditions existing during the year 1932. Shipbuilding has had the worst year on record, but the hosiery and yarn-spinning trades have been more active, whilst vegetable and fruit canning, and films have greatly expanded. There has been a general decrease in accidents, though buildings under construction still show the greatest number of fatalities for one industry. As regards the dangerous trades, there has been a considerable improvement in dust prevention in work on asbestos, and satisfactory progress has been made in applying exhaust ventilation to rooms. In the building trade there has been better observance of the 1931 Building Regulations. In chromium plating the difficulty of securing provision of efficient exhaust ventilation has now been dealt with, and a high standard of compliance with regulations has been obtained. Deaths from reportable electrical accidents have been well below the preceding five-year average. Under the heading of "Health" we find a total increase over last year's figures of fourteen cases of lead poisoning—attributable wholly to an increase in ship-breaking—but a decrease in cases due to the painting of buildings. There were sixteen cases of anthrax, with one death; 131 cases, with forty-four deaths, of epitheliomatous ulceration of the skin; and a slight increase in chrome ulceration. Aniline poisoning shows a decrease, with only one severe case of anilism. One hundred and twenty-five gassing accidents were reported, eleven being fatal, ethylene chlorhydrin and hydrogen iodide (two varieties) being each responsible for one case. Dermatitis appears to continue at the same rate and from the same causes as in former years. Particulars are given of forty-two fatal cases due to asbestosis or silicosis with or without tuberculosis, while further interest is to be found in a study of trichlorethylene, used in cleaning clothes, and of other problems of research.

France

[From our Correspondent in Paris]

Fate of an Amateur Radiologist

The lot of the therapeutic philanthropist, who substitutes modern methods of publicity for a scientific training, is apt to be hard. Monsieur Auguste-Albert Vindevogel is a case in point. On May 31st, 1932, the medical society of Seine-et-Oise lodged a complaint against him with the authorities, whose interpretation of his motives and acts was so unsympathetic that they condemned him in March this year to ten months' imprisonment and a fine of one franc. Monsieur Auguste-Albert Vindevogel appealed against this verdict. The result of his appeal, recently published, was an augmentation of the term of imprisonment to one year, the infliction of a fine of 500 francs, not to mention the 3,000 francs he was condemned to pay to the local medical society, in addition to the costs of the appeal. The events which earned the appellant this judgement were as follows: Without possessing any medical degree or other qualification, he established himself as a therapeutic radiologist early in 1932 in a town near Paris. His material equipment included a radiographic and radiotherapeutic laboratory. Here he dealt out isolated components of the spectrum to patients who had been attracted by his advertisements. Had he limited himself to taking simple radiograms he could hardly have been condemned for the illegal practice of medicine. But his radiographic achievements were made the point of departure of various therapeutic ventures, as well as diagnoses and prognoses. He was, for example, prepared to treat fibromatous cancers in a couple of sittings. In the course of the judgement delivered against Vindevogel, it was ruled that doctors alone are qualified to give ultraviolet ray, high-frequency, and every other form of electrical and radiological treatment. It was also held that the apparatus unskilfully used by Vindevogel was capable of provoking acute or chronic radio-dermatitis, simple or pernicious anaemia, leukaemia, and necrosis of bone. It transpired in the course of this case that legislation introduced as recently as 1931 and 1932 has done much to protect the public from the unwarrantable excursions into medicine of persons like Monsieur Auguste-Albert Vindevogel.

Ephedrine in Serum Disease

In a recent communication to the Academy of Medicine, Dr. Pierre Paul Lévy drew attention to the growing frequency of unpleasant reactions to the injection of diphtheria antitoxin. At one time these reactions were rare. Now they are the rule rather than the exception. If even minor troubles are included among such reactions they occur, according to Dr. Lévy, in 80 per cent. of children and 95 per cent. of adults. Hitherto the best preventive of such reactions has been adrenaline. But it is a violent as well as a potent remedy, and its action lasts only for two or three hours. Another drawback is the necessity for giving it by parenteral injection. Now the chemical composition of ephedrine bears a certain resemblance to that of adrenaline, and asthma, which yields so strikingly to ephedrine, has many points of resemblance to serum disease. Ephedrine can be given by the mouth, and its action is less violent and more prolonged (five to eight hours) than that of adrenaline. Dr. Lévy has accordingly investigated the action of ephedrine given by the mouth before an injection of serum, and repeatedly afterwards, with a view to aborting any manifestation of serum disease. He gives one tablet an hour before an injection of serum, and for the next fortnight he gives one

tablet every eight hours. For children under the age of 4 years this tablet contains 1 cg. It contains 2 cg. in the case of children between 4 and 9, and 3 cg. in the case of children between 9 and 15. Hitherto he has seen no ill effects, however slight, from this medication. Among fifty-five children given ephedrine systematically on the above-mentioned principles there were as many as 47, or 85.4 per cent., who showed no sign whatever of serum disease. Among the remainder there was only one whose reaction to the injection was violent.

Ireland

Pre-school Infection of School Children

In the course of a paper read at the World Federation of Education Associations in Dublin, Dr. J. Farquhar Davidson (medical officer of health for Suffolk) referred to his experiences in dealing with the health of the school children in the area under his supervision, and stated his views upon the steps which were required to be taken in the treatment of children at schools. Neglect to correlate the pre-school with the actual school period was, he submitted, an error. A certain proportion of defects and diseases detected in school were the sequel of pre-school infection or illness, and non-control of the pre-school child caused many defects that required treatment later on. Supervision of the child before entry into school was urgent, for most defects developed between 2 and 5 years of age, and on the mid-phase of childhood (7 to 11) much depended. Physical conditions should therefore be placed first, and the school surroundings and curriculum should bear witness of this priority of need. Wise teaching of adolescents was next stressed, for this was the period of school life when mental and physical changes and developments of a profound type were present. If wise and proper preparation had been made in the age period of 7 to 12 this section of school life should commence with well-founded mental and physical stability. At this stage an important subsection on the art and practice of living might with advantage be included in the general teaching of hygiene. Such knowledge and understanding would obviate many of the mental and physical difficulties of the period of adolescence, and would prove of inestimable value in the future ordering of lives and conduct. The replacement of tainted knowledge by informative teaching and the common-sense control of this vitally important question formed one of the greatest mental and physical requirements of children at this age period.

Child Welfare Organization in Belfast

At a recent meeting of the Maternity and Child Welfare Committee of the Belfast County Borough Council, the committee had under consideration the number of clinic sessions at which child welfare and ante-natal work were carried out. Within the last four years the child welfare sessions have been increased from five to fourteen per week. Municipal ante-natal work was begun about eighteen months ago, and so far there have been six ante-natal sessions per week. It was decided to increase the number of ante-natal sessions to nine. The Medical Superintendent Officer of Health, Dr. C. S. Thomson, reviewed the organization at length, and explained the point of view of the British Medical Association and the nature of the fees expected under the Association's scheme. The committee decided, however, to continue as in the past, and to appoint a part-time medical officer for this purpose, the appointment to be an annual one.

Infectious Diseases in County Cork

Dr. R. Condy, county medical officer of health, in a recent report states that there has been an increase in mortality from preventable conditions, especially from enteric fever, a severe outbreak of which occurred in Kanturk Rural District, the town of Newmarket and its vicinity being chiefly affected. Improvements in water supplies and methods of sewage disposal in the town and other areas, such as Rathluire, constituted examples of urgent schemes which were nearing completion. Diphtheria was also prevalent in the early part of the year in the Bandon, Mallow, and Millstreet rural districts. The scheme of immunization had been extensively applied with beneficial results. The number of deaths from tuberculosis showed a slight decrease as compared with that of 1931, as was also the case with deaths from cancer and influenza. Provisional figures for maternal and infant mortality and the general death rate compared favourably with those of 1931, and with the average obtaining in other areas. The shocking hospital accommodation which was provided at Mallow District Hospital for patients suffering from infectious disease was a matter which had been, on more than one occasion, brought to the attention of North Cork Board of Public Health and Board of Assistance, and which was still awaiting remedial action. The fever portion of Mallow Hospital was of an entirely obsolete pattern, the wards and general equipment being in a dilapidated state. At one period of the year the wards were grossly overcrowded, with no facilities for segregation of cases, the general conditions being such as to render proper and efficient treatment of persons suffering from infectious disease a matter of great difficulty. It was to be hoped that an improvement in these conditions would be made with as little further delay as possible.

England and Wales

Radiotherapy at University College Hospital

We have received an excellent summary of the radiotherapeutic work carried out at University College Hospital during the year 1932. The material is mainly statistical, full details of the methods having been given in the report for the previous year. Owing to a breakdown in the high-tension transformer in the Stabilivolt unit, this was replaced by a new one; and as it was considered desirable that a lower kilovoltage and milliamperage should be used, the former was reduced from 200 to 190, and the latter from 8 to 7. For medium therapy the Mecapion was in some cases used instead of the Sabouraud pastille, the dosage being thus directly determined in "r" units. With the apparatus used it was found that—with a point-to-point spark-gap of 9 inches, 2.7 milliamperes, 3 mm. Al filter, focal distance 30 cm.—250 r was approximately equivalent to one pastille dose. For deep therapy the unit skin dose (U.S.D.) was used, this being defined as "that dose of radiation which, when applied to the normal adult skin of a healthy adult, in a single exposure of one-half to one hour, will produce a bright erythema in from seven to twenty-one days, followed by pigmentation and desquamation." The U.S.D. with 180 kv. peak and a filtration of 1 mm. Cu + 1 mm. Al was found to be equivalent to 800 international r units. The U.S.D. is 150 r greater than that used in the previous series of cases a deeper erythema was taken as the standard. Special care was taken in protecting the scrotum, the sensitive area; no washing with soap was allowed after [illegible]

the course of treatment or for some time afterwards, while vaseline was regularly applied as a routine procedure. It may be remarked in this connexion that in such cases it is essential that the skin should not be subjected to the action of any irritating application ; therefore soap, alcohol (eau-de-Cologne), and any ointments containing free fatty acids are absolutely contraindicated. From this point of view pure vaseline would appear to be an ideal material. The new patients treated in 1932 were 266 in number—188 malignant and seventy-eight non-malignant ; of these 122 were treated with radium and *x* rays, sixty-three with *x* rays alone, and three with *x* rays after having received radium treatment elsewhere. Very clear statistical summaries of the treatment are given, and the report contains a remarkable amount of valuable information in an unusually small space. In August, 1932, the hospital received on loan from the King's Fund 1 gram of radium, which is suitably mounted for mass therapy. Details of the treatment of eighteen cases are given, but the time during which this had been in use is obviously too short for conclusions to be drawn as to its ultimate results. Full details are, however, given of all the patients treated.

Medical Inspection of School Children

The London Education Committee, on the motion of Mr. Somerville Hastings, has been considering whether the equipment provided in medical inspection rooms for school children is adequate, whether the time allowed for inspection is long enough, and whether inspections are sufficiently frequent. In the earlier days of medical inspection no provision was made for special rooms. Now a medical inspection room is provided in all new, remodelled, and enlarged elementary schools. At the present time between one-fifth and one-fourth of the elementary schools have been provided with such rooms. A standard equipment, which includes a weighing machine, a reclining chair, and a portable lavatory, has been approved for medical inspection rooms ; school nurses attending inspections carry certain stipulated articles, and the school doctor invariably brings his stethoscope and other instruments. But authorities who have had experience of the administration of inspection in elementary schools are united in the opinion that complicated apparatus is out of place. The medical inspections in schools must be as homely as possible, and great precautions must be taken not to terrify the children. At one school, it is mentioned, the medical inspection was interrupted as the children became frightened on seeing a woman doctor habitually wearing on her forehead a mirror for reflecting light. It is considered that there would be numerous withdrawals of children from inspection if the methods and instruments of specialized examination were introduced, and it is far better practice to proceed on the assumption that the school medical inspection ascertains in the ordinary way the existence of defect, which should be specially investigated at a subsequent examination at a treatment centre or hospital. That the present methods are reasonably thorough in their results is shown, it is held, by the fact that at least one-fifth of the children leaving school at the present day have had tonsils and adenoids removed under the council's arrangement.

Certain alterations are recommended with regard to the frequency of examinations. It is felt that inspection should be held (1) on entry, (2) at or about the age of 7 (when retardation, dullness, or mental defect should be seriously considered), (3) at or about the age of 11, and (4) during the last term but one at school. This arrangement has been accepted, and will come into force from January next. The Board of Education prescribes, in addition to the entrance examination, an examination at the ages of 8 and 12. London provides an additional age-group examination—namely, one in the term before that in which the children leave the elementary school. During 1932 the number of children in London examined in the three statutory age groups was 180,905, and, in addition, 39,120 children had the extra examination in the term before leaving. Children referred for special examination by teachers and others numbered 95,855, and a further 58,870 were examined in connexion with outbreaks of infectious disease. On the average more than four-fifths of the children on the roll are seen by school doctors for some purpose or other in the course of the year. Every child also is seen some three times a year by a fully trained nurse, who picks out any requiring special examination by a doctor. It is considered advisable, however, to fix the second inspection at 7 instead of at 8 ; this would have the effect of making two inspections, instead of only one as at present, during the child's infant-school life. The third routine inspection should be at 11 instead of 12. Under the existing system the last two inspections, at the age of 12 and 13, are separated only by a short interval, and to put the first of these a year earlier would not be a disadvantage to the children and would save a good deal of work to head teachers in senior and central schools. It has been debated whether the final examination, in the term prior to that in which the child is due to leave school, should be continued, as it is not a statutory requirement. It has been for years, however, part of the London County Council's scheme, and it is thought that there are good grounds for retaining it. It gives a last opportunity of discovering and remedying physical defects. If it were omitted there would be no medical inspection between the ages of 12 and 16 years, a period which includes years very important in physical development. The examination may also have an important bearing upon the children's future employment. As for the length of time spent over the individual child, at a routine inspection session, normally lasting two and a half hours, each school doctor deals with twenty-five children, which gives an average of six minutes for each child. The school doctors are able to carry out the inspection at this rate to their own satisfaction, but any attempt to increase the number induces a feeling of racing against time. It is added that the part-time school doctor system in London enables certain sessions to be avoided which are disadvantageous to school organization. The Education Committee and the Central Public Health Committee of the council are now investigating, again on the motion of Mr. Somerville Hastings, the desirability of providing preventive and curative treatment for children between the ages of 14 and 16 years.

Dietitians in L.C.C. Hospitals

The advisability of employing dietitians in the general hospitals of the London County Council has been under consideration by the Central Public Health Committee. Information has been gathered from various hospitals and organizations which have experience in the employment of dietitians. In practically all instances these officers are in charge of a special dietetic kitchen and are responsible for "special diets" under the supervision of the medical and surgical staff of the institution. The special dietetic department is intended for the fuller development of medical and surgical research work and teaching, and is attached to the laboratories of the medical and surgical units, with its own store room, refrigerating plant, kitchen, and lecture room for the nursing staff. The departments are in charge of trained nurses with special qualifications (B.Sc. in Household and Social Science, University of London), and their duties consist of the management and organization of the special diet kitchen, the calculation of all special diets ordered, and their preparation,

cooking, and serving, the visiting of patients in the wards, instruction to out-patients and to in-patients on discharge, supervision of diabetic clinics, and teaching of nurses. The special diets ordered and prepared in the dietetic kitchen include: diabetic, ketogenic, low-protein, high-protein, liver, purine-free, high calcium, and any experimental diets which the physicians and surgeons wish to use in the carrying out of the research work for which they are responsible.

The Central Public Health Committee is of opinion that there is need for dietitians in the council's hospitals to improve not only the provision of special diets for special patients, but also the general organization of the feeding arrangements. At the present time few officers are qualified in this special work, and as a first expedient it is proposed to arrange facilities for training six candidates—State-registered nurses—at King's College of household and social science, University of London. The courses are for the duration of one year, the first six months of which are to be spent at the college and the second six months in the main kitchen and special dietetic kitchen of a hospital. The nurses, having obtained the diploma in dietetics, will be appointed dietitians to a hospital. It is stated that similar arrangements are in force at the David Lewis Northern Hospital, Liverpool, where the dietitian takes full control of the food service, plans menus, draws up special diets, and also attends the out-patients' dietetic clinic. It is also intended to take further steps to raise the general standard of feeding arrangements in the hospitals by means of the staff attached to the council's central organization. A woman officer in the public health department is to be appointed under the matron-in-chief with the title "domestic supervisor," and she will spend her time at various hospitals supervising the arrangements for the preparation and the service of meals and the general conduct of the domestic arrangements. Her salary will be £500 a year, rising to £600.

Work of Queen Charlotte's Hospital

The vital importance of ante-natal care is illustrated in the report for 1932 of the committee of management of Queen Charlotte's Maternity Hospital and Midwifery Training School, London, by the striking results obtained, the maternal mortality rate for those so safeguarded being 1.8 per thousand as against 32.9 in the unprotected, while the infant mortality rate was 22.6 as contrasted with 82.1 per thousand. The total number of in-patients during the year was 2,646; the main hospital dealt with 2,035, the Invermead auxiliary hospital with 360, and the isolation block with 251. Married women made up 2,419 of the total, and 227 were single women with their first child. It was again found necessary to continue the arrangements with the London County Council for the admission to its institutions of a certain number of patients at times when all the hospital accommodation was occupied. Apart from the cases booked, the increasing number of applicants who are necessarily refused admission for lack of accommodation emphasizes the urgent need for the provision of additional beds. The total number of patients attending the ante-natal department at the main hospital or the Kensington or Hammersmith district homes was 4,335, and there were 22,088 attendances during the year. At the infant consultation centre the number of attendances rose from 4,008 in 1931 to 4,493 in the year under review. Hospital midwives delivered 1,798 patients in their homes in the districts of St. Marylebone, Paddington, Kensington, Kilburn, and Hammersmith. The death rate for district out-patients was 0.9 per thousand. The isolation block, with its 251 patients, showed an increase of 22 on the previous year. In this respect it is noted that there has been a considerable decline in the number of private patients, and during part of the year only 65 per cent. of the beds were occupied. Although the cost of maintaining the isolation block has greatly increased the hospital expenditure, the results have proved that the work is fully justified, the deaths having fallen from 16.1 per cent. in 1931 to 11.2 in the year reviewed. Very definite progress is reported in the treatment of peritonitis. The treatment of pyelitis, which was frequently a matter of months, has been greatly accelerated, many cases being now curable in ten days to a fortnight, by means of a strict sugar-free diet. The laboratory has played an essential part in this new advance. It is mentioned in the report also, that every patient in the main hospital can now receive an anaesthetic during labour, and arrangements have been made to extend a like service to the auxiliary hospital and to the districts.

CORRESPONDENCE

Psychology and the Curriculum

SIR,—More than two thousand years ago a psychologist wrote:

"We must, then, no more ask whether the soul and the body are one, than ask whether the wax and the figure impressed on it are one, or generally inquire whether the material and that of which it is the material are one."

Galen was the last of the ancient physicians who consciously based his medical practice on that truth. As time passed, physicians tended more and more to interest themselves only in the wax, and to leave contemplation of the figure impressed to others. The physician had this good excuse—that much which Galen had said about the properties of wax was wrong, and that centuries of observation and research were needed to discover the truth—or some of the truth—about the body. In the meantime those who specialized in the nature of impressed figures had, in spite of the efforts of a certain mediaeval saint to make them realize the meaning of entelechy, made very heavy weather of the business. It is difficult to solve a problem if you ignore half the data. A generation or two ago the man in the street began to lose confidence in those who specialized in the forms of impressed figures. He has now begun to lose faith in those who specialize in the properties of wax. Hence the demand that medical students should be taught the principles of psychology.

To suggest, as Dr. Godwin Baynes does (*Journal*, August 5th, p. 267), that those university teachers who must try to solve the problem of instilling into wholly untrained minds unfamiliar general ideas are seeking to force young people to accept uncritically a particular technic is foolish—as foolish as it would be to charge the teacher of a class in elementary algebra with the design of inducing boys who could not solve a quadratic equation to manipulate the symbols of the infinitesimal calculus. Dr. Baynes's appeal to "the profession as a whole" is equally unwise. It is indeed the boast of our profession that we have always had individuals of our body eminent in every branch of science and learning. Psychology is no exception to this rule, as William James in the past and William Macdougall and Charles Myers in the present have proved. But the opinion of "the profession as a whole" on how the elements of psychology should be taught to medical students is about as valuable as the "opinion of the profession as a whole" on how motor car engines should be made. We are indeed divided whether our cars will run and we may in a generation be able to decide whether our children are as psychologically incompetent as we are. Beyond that we cannot, as a profession, go.

In the meantime, shouting "Yah! Freudian!" through the keyhole of the room where competent persons are trying to solve a difficult problem is about as helpful as the suggestion that the "seminar method"—a method exclusively applicable to well-grounded students of any subject and invaluable for them—can be used with raw youths who have left school with no knowledge whatever of the meaning of psychology.—I am, etc.,

Sedbergh, Yorks, Aug. 9th. MAJOR GREENWOOD.

Anaesthesia in Labour

SIR,—I should like to support strongly Dr. J. Elam's plea for the extended use of nitrous oxide-oxygen in labour (*Journal*, August 12th, p. 316).

It is generally agreed that the ideal anaesthetic in obstetrics should (1) provide immediate analgesia for the duration of the pains, leaving the patient unaffected between them; (2) provide complete anaesthesia during the actual delivery of the child and for any subsequent perineal repair; (3) cause no reduction in the force and frequency of the uterine contractions; (4) have no toxic effects on mother or child, even in the toxaemias of pregnancy; and (5) exert a constant effect in every case.

In the present state of our knowledge, nitrous oxide-oxygen is the technique which fulfils these requirements most closely. A simple intermittent-flow apparatus is desirable, and any fairly intelligent patient can administer the mixture to herself during the pains of the first stage of labour. When the head is beginning to pass over the perineum full anaesthesia is induced, and maintained for as long as is necessary. Dr. Elam places the average cost of gases used at 5s. per confinement. This can be materially reduced in hospital practice, Dr. J. King and Dr. J. Morgan estimating it at only 2s. (*Lancet*, August 15th, 1931).—I am, etc.,

London, N.W.8, Aug. 12th. C. LANGTON HEWER.

SIR,—Dr. John Elam's letter in the *Journal* of August 12th suggests that the use of gas and oxygen in labour has been neglected in this country, not only in private practice but also in our maternity hospitals. I think he is unduly pessimistic in his suppositions, for it is largely used, certainly in London, in many obstetric departments of the hospitals and also in the special maternity hospitals. In the wards of the Obstetrical Unit of the Royal Free Hospital, where every patient receives an anaesthetic throughout the second stage of labour, gas and oxygen given with Boyle's apparatus or the portable McKesson is the usual method for producing analgesia and anaesthesia. Here we, among other hospitals, are fortunate in having the services of a resident obstetric anaesthetist, who is paid from a fund provided by Lady Balfour of Burleigh. A paper summarizing the results of observations made in our wards on the use of various sedatives and anaesthetics is shortly to be published, and it is noteworthy that after three years' observations gas and oxygen is definitely the anaesthetic of choice.

In private practice the use of gas and oxygen for obstetrics is steadily increasing. There are several kinds of reasonably portable apparatus for sale or on hire, and if the anaesthetist is notified at the onset of labour it is not as a rule difficult for the apparatus to be transferred to the nursing home or private house in good time for the administration of the anaesthetic throughout the second stage of labour, or in some cases through the latter part of the first stage. The administration of sedatives and analgesics for the early stages of labour is usually decided upon by both the obstetrician and the anaesthetist. I consider the relief of pain in the early stages of labour leaves a wide field open for investigation.

The use of anaesthetics of any kind by midwives is a very debatable point, but I am in full agreement with Dr. Elam that gas and oxygen is a very much less dangerous anaesthetic to put into non-medical hands than chloroform in any form.—I am, etc.,

K. G. LLOYD-WILLIAMS,
Honorary Anaesthetist to the Gynaecological and Obstetrical Unit of the Royal Free Hospital.

London, W.C.1, Aug. 15th.

Use of Quinine in Normal Labour

SIR,—With the gradual accumulation of such evidence as that of Dr. Gair Johnston (*Journal*, August 5th, p. 265) there can be little doubt that soon this method will come into general use. It cannot be denied that such evidence is, in fact, adequate to support the very high claims made.

To understand the mode of action of quinine we may recall one or two biological facts. (1) The germ plasm for the following generation is set aside at a very early stage of the differentiation of the principal cellular systems in the blastodermic vesicle. "Weismannians" maintain that it is thenceforth not subject to modification by the acquired characters of the parent organism. (2) From clinical and physiological experience also it appears that the organ primarily concerned with embryonic development—the uterus—behaves as if it were so set apart to a considerable extent from the general metabolism and interaction of the maternal organs, for in toxic pregnancy it tenaciously harbours the embryo to the grave risk of the maternal life. Equally, clinical experience shows how promptly and efficiently it responds, in expulsive power, to good hygiene during gestation. Intelligent stockbreeders are fully aware of the contrast in risks of parturition afforded in their cows and mares when stalled and when kept in the open pasture. I well recall, when a youth on the farm, the vanishing of this anxiety when the pregnant animals were turned out to grass. (I have no statistics, of course, but malpresentations seem to have been rare then.) A month could make all the difference. Corresponding with this we have the well-known case of the ease of confinement of the washerwoman, while childbirth in the African negro mother is a thing to marvel at—that is, for Europeans. Thus we see the rapid response of the uterus to favourable influences.

In quinine we have a substance with an action on the uterus which is, I believe, more conspicuous than that on any other organ, though, as I pointed out (*Journal*, July 22nd, p. 170), its mode of action in malaria is by no means fully understood yet. Though experiments on animals could easily be undertaken, the small mammals have no difficulty in parturition; hence we must rely on clinical observation in the human. But this, too, is perfectly easy. I noticed that Mr. Gordon Luker (*Journal*, July 8th, p. 58), in a discussion at the Royal Society of Medicine in this connexion—namely, prophylaxis—spoke of the high favour with which he regards quinine.

My own experience points definitely to the view that, besides its apparently direct tonic action on the uterine muscle, quinine possesses a prophylactic one against bacterial invasion. But large doses definitely militate against the building up of this resistance. It is certain that quinine given in such doses as to cause buzzing in the ears exerts its depressant action on protoplasm. All forms of protoplasm are thus affected. Metabolic activity is reduced—pharmacological evidence. Hence temperature will fall from this cause alone and so produce a fallacy in deduction from the temperature chart. This is perhaps

not generally realized The dose must be strictly confined to what is gently stimulating When the method outlined in previous notes on the subject has come into general use, I expect to see in textbooks a reduction of 50 per cent in the times given as average duration for the stages of labour Such shortening of labour will reduce the temptation, and often the necessity, for intervention, and so would prove even more "fruitful" than the publication of a list of disasters as suggested by Dr R Owen-Jones (*Journal*, July 29th, p 214) Apart from the general idea that quinine is only for use in the Tropics, the stumbling-block appears to be what Naaman the Leper thought of the treatment prescribed—too simple to be credible

The above comments are an endeavour to assist faith by explanations When we have a substance with definite uterine action and an organ ready to do its duty by the foetus, we have a central situation which must radiate beneficently in many directions Though the use of quinine is not mentioned in the report of the symposium on puerperal fever at Dublin, and is not given a place in two articles in the August issue of the *Post Graduate Medical Journal*—on "Prenatal Care," and "Modern Improvements in Obstetrics"—I am confident that we shall yet hear much of the role of quinine in obstetrics—I am, etc,

London, W 6, Aug 7th W M HEWETSON

Treatment of Rodent Ulcer

SIR,—The letter of Drs Hugh Donovan and Bavlis Ash in the *Journal* of August 12th (p 314) demands comment, since the writers remark on "the certainty of cure and the finality of treatment" after surgical measures which they label as the "once and for all treatment" The origin of this slogan would be of interest

In his article Dr Finzi referred at some length to the large proportion of recurrences which follow the surgical treatment of rodent ulcers, and in our experience relapses after excision are not uncommon, although we are unable to say what proportion these failures represent One of our cases of rodent ulcer had suffered in competent hands three of these "once and for all treatments" before attending for radium therapy The early literature of this disease reveals the disappointing results of simple excision, and the frequency of uncontrollable relapses accounts for the name of "noli me tangere" applied to rodent ulcer Just before the introduction of *x* ray and radium therapy burning irons were used for the destruction of the early lesions, and in spite of the conspicuous scar thermal cauterization was generally considered an effective method of treatment When a rodent ulcer does relapse after excision its progress is usually characterized by rapid spread and by marked resistance to radiotherapy Diathermy is much less objectionable,-and radio resistant cases often respond to it It is certain that some cases of early rodent ulcer will relapse after any form of treatment, and experience of one's own failures makes one tolerant of those of other people

Drs Donovan and Ash refer to the fact that rodent ulcers involving cartilage respond badly to treatment with unscreened radium plates Most of these lesions occur on the pinna, and may be found to be of the squamous or mixed celled type of epithelioma, but this does not explain their peculiar resistance to radium or radiotherapy of any form Gamma ray therapy is better than beta ray therapy, but diathermy is more effective than either in these cases, and should follow the first failure to respond to irradiation, which, if successful, leaves a better scar—I am, etc,

London Hospital, E 1, Aug 14th R T BRAIN.

Suggested Operation in Tabes

SIR,—It has always appeared to me remarkable that no attempt has ever been made to apply practically the well known fact that tactile sensibility is often reasonably preserved in cases of tabes dorsalis in which there has been an almost complete proprioceptive sensory paralysis It is true that kinaesthetic impulses cannot pass along the degenerated fibres of the posterior columns, but is it not possible to establish artificially a consciousness of muscle and joint movements by utilizing the relatively intact cutaneous nerves and lateral columns of the cord? In other words, might we not by suitable surgery make an adjustment whereby each contraction of the ataxic patient's flexor and extensor muscles would induce a stimulation of certain cutaneous nerves, and thus supply his consciousness with information regarding the nature and degree of the movement which is taking place? The feasibility or otherwise of such an adjustment can, I think, be determined only by experiment—that is, by deliberate operation on an ataxic subject Unfortunately, the extreme rarity of tabes dorsalis in the Tanganyika Territory has hitherto debarred me from testing the efficacy of a certain hypothetical operation which has long suggested itself to me, and which seems to be sound in principle I am hopeful, however, that it may appeal to some of your readers as being worthy of a trial

The operation as I visualize it would proceed as follows On either side of the thigh a longitudinal doubly pedicled skin flap, about nine inches long would be prepared The edges of each flap would be sutured in such a manner as to result in the formation of a couple of genuine tubes lined internally with skin and covered externally by subcutaneous tissue Fourteen days later the distal attachment of each tube would be divided One tube would then be threaded through the substance of the quadriceps extensor while the other tube would be threaded through the substance of the hamstring muscles In this way a skin tunnel with sensitive walls would be made through the extensor and flexor groups of thigh muscles It is conceivable that each time one of these muscle groups went into contraction it would press together the walls of the skin tube traversing it and thus give rise to a definite cutaneous sensation of which an intelligent patient might learn to take advantage

—I am, etc,

W KERR CONNELL M B Ch B, D P H D T M & H

Dar es Salaam Tanganyika Territory July 17th Medical Department Sewa Haji Hospital

New Treatments for Old

SIR,—The recent interesting correspondence in the *Journal* on new methods of treatment well emphasizes the modern tendency of practitioners to get away from the conceptions of the older pharmacotherapy and to substitute in their place a quest for methods of treatment based on the successful reaction of biological functions to disease In these methods not only are physiotherapy and biochemistry playing an important part, but applied psychology is being brought in to release obstructive psycho physical inhibitions The keynote of success in modern treatment is surely to be found in the capacity of the individual for biological reaction, and, of course, individual capacity to react in the direction of health is influenced by physical, chemical, and psychological conditions.

But this correspondence also shows that, whilst success in treatment must depend on the systematic routine use in balanced proportion of physiotherapy pharmacotherapy biochemical methods, actinotherapy electrotherapy, psychotherapy, and the rest, there is too much stressing of the specialist therapy to the neglect of combined treatment. What is wanted is a clearer conception of the

need for treatment in which all the agents indicated above are brought into play to enable the individual patient to react against disease to the fullest capacity of his or her inherent biological strength. As a matter of fact, we need a new word to express such a therapy of living processes, and I suggest that this is to be found in the term "biotherapy."—I am, etc.,

London, W.1, Aug. 4th. EDWIN L. HOPEWELL-ASH.

Report of Warren Fisher Committee

SIR,—Members of the medical branches of the Defence Services will no doubt be anxious to give early consideration to the proposals contained in the Report of the Warren Fisher Committee dealing with the reorganization of the Royal Naval Medical Service, Royal Army Medical Corps, and Royal Air Force Medical Service.

The Naval and Military Committee of the British Medical Association will shortly commence the detailed examination of the above-mentioned report in the light of recent pronouncements, as endorsed by the Representative Body. It will be recollected that the Council must determine whether the report now published meets the recommendations advanced in evidence before the committee as conducive to more contented services. I am sure that I am expressing the wishes of each member of that committee when I say that it would welcome communications with the Head Office dealing with this subject in a constructive manner such as might assist the committee in its deliberations. All communications on this subject should be sent to the Medical Secretary, British Medical Association House, Tavistock Square, London, W.C.1.

Copies of the above report are obtainable on application to the Stationery Office, Adastral House, Kingsway, W.C.2, price 9d.—I am, etc.,

London, Aug. 16th. F. W. GOODBODY.

Rheumatism in the Tropics

SIR,—May I point out that Dr. Rose in his letter (*Journal*, July 29th, p. 216) is not quite correct in saying that there was a correspondence on the "incidence of rheumatism and allied diseases in the Tropics." So far as I am aware there has never been a correspondence on "rheumatism and allied diseases in the Tropics." In October and November, 1932, there was correspondence on "rheumatic fever in the Tropics." In the *Journal* of June 17th there was the Report of the B.M.A. Committee on the causation and treatment of arthritis and allied conditions, and this Committee excluded from the scope of its inquiry acute and subacute rheumatism. In the same number was reported the discussion at Eastbourne on soil and climate in relation to rheumatic diseases, and there was also an article on rheumatic diseases and health insurance.

I should like further to point out that there is no disease *allied* to rheumatic fever, except in the misinterpretation of the root of the word. Rheumatoid arthritis shows Aschoff bodies, which are similar to those of rheumatic fever. The lesions of yaws and syphilis were so similar that the late Sir Jonathan Hutchinson said that yaws and syphilis were one and the same disease. Sir Aldo Castellani, however, found the *Spironema pertenue*. With rheumatoid arthritis and rheumatic fever the clinical symptoms are so dissimilar that they can hardly be said to be the same disease, though knowledge of the cause of one may expedite the discovery of the cause of the other. The geographical distribution is, I believe, the same, and I have no doubt that residence in the Tropics proves beneficial to either.—I am, etc.,

J. TERTIUS CLARKE,
Late M.O. and H.O., I.M.S.

Obituary

W. H. MAIDLOW, M.D., F.R.C.S.

Ilminster, Somerset

With the death of Dr. William Harvey Maidlow of Ilminster, which occurred on July 29th after a short illness, a notable figure is removed from the medical world in the West of England. Dr. Maidlow was educated at Charterhouse and St. Bartholomew's Hospital. He qualified M.R.C.S., L.R.C.P. in 1891, becoming F.R.C.S.Eng. in the following year. He took the degree of M.B.Durham in 1892, being first in Honours and Luke Armstrong Scholar, and proceeded to the degree of M.D. in 1895. One of the most brilliant students of his year, he held the posts of house-surgeon, midwifery assistant, and assistant medical officer to the electrical department at his own hospital, and it was fully expected that he would remain in the metropolis and be appointed to the honorary staff of St. Bartholomew's. He had other views, however, and after acting for a period as resident medical officer to Taunton Hospital he joined in partnership with the late Dr. C. Munden of Ilminster, where for thirty-six years he carried on a large and exacting practice extending over a wide area. Dr. Maidlow was a fine example of a country practitioner, who kept himself fully abreast of the latest discoveries in pathology and therapeutics. He held the confidence of his patients to a remarkable degree, and his opinion was widely sought and freely given to his colleagues in Somerset, Dorset, and Devon. He was president of the West Somerset Branch of the British Medical Association in the year 1911. Cultured in every sense of the word, and widely read, he had a fund of information on many subjects outside the sphere of medicine.

G. W. CECIL HODGES, M.R.C.S., L.R.C.P.

We regret to announce the death from septicaemia, at the age of 59, of Dr. Cecil Hodges of Bridgnorth. He was the eldest son of the late Dr. George Hodges, who, seventy-five years ago, came from Ludlow to establish the practice which his son extended to an area of over one hundred square miles. Educated at Ludlow and St. George's Hospital, Dr. Cecil Hodges qualified in 1896, and returned to Cleobury North to assist, and then to succeed, his father. From that time until four days before his death—though latterly he was handicapped by ill-health—he had devoted himself to his life's work with skill and compassion. In keeping with his duties as a country practitioner Dr. Hodges took a leading part in all the organizations of village life, and was one of the few remaining doctors who combined professional activities with those of farming—a hobby which he conducted in order to indulge his intense love of all animals and of the English countryside. In his earlier days he had regularly followed the Wheatland Hounds, and never lost his affection for horses nor his antipathy for motor-cars. Latterly his activities widened, and he became president of the Shropshire Branch of the B.M.A. and of the Ludlovians Club.

A profound desire for knowledge and the isolation of his home inspired in him a great love of books. He was a source of information in all branches of antiquarian lore, and although the nebulous phraseology and conflicting theories of prehistorians confused him, he would take endless pains to assist an investigation carried out in the cause of Shropshire archaeology. He loved to explore the by-paths of history, and an old church acted as a magnet to him. He is survived by a widow and three sons, one tea-planting in India and two in his own profession.

W. A. SMITH, M.A.Oxon., M.B., M.R.C.S.

In the person of Dr. William Alexander Smith there has just passed away in Cambridge, at the ripe age of 81, a man of unusual gifts and charm. Qualified in 1880, he very shortly settled down to general practice in the village of Newport, Essex, where he remained for twenty-seven years until his retirement.

Tall, rather gaunt, and with piercing, deep-set eyes and old-fashioned military moustache, he had a striking and commanding presence—more like a general of infantry than a country doctor. But such he was, and well content to be so, though his qualities would have admirably fitted him to fill a professorial chair. His kindliness, his courtesy, his conscientiousness, his outstanding ability, and the humility which goes with great knowledge combined to make him esteemed alike by his patients and by a wide circle of friends. There was a transparent sincerity and simplicity about him, combined with a kindly humour and a shrewd judgement of men and things, that made up a singularly delightful personality. An omnivorous reader he absorbed a vast amount of learning, so that there was scarcely a subject on which he could not make an illuminating remark or raise a suggestive question. Philosophy, fiction, poetry, history, biography, archaeology, medical science, all engaged his study at every available moment. Yet he was no mere bookworm, being intensely practical, and at all times a delightful companion. His love of books occasionally led him into whimsical situations. At one time he used to go his rounds on horseback reading a book as he rode, while he and the horse have been seen by the roadside each taking a noonday "bait," while Smith read poetry aloud between mouthfuls.

Professionally he was a careful and scientific physician and an excellent surgeon. He kept himself abreast of the advancing body of medical knowledge. His opinion was valued by his colleagues and commanded respect, though always delivered with a certain modesty and hesitancy that were characteristic. Seldom dogmatic, and loathing all the arts of the cocksure charlatan, his straightforward character and sound professional knowledge enabled him to build up a large practice, extending over a wide area. Leaving Newport in 1908, he went to reside in Bristol, where he was welcomed by the scientific and literary societies of that city, and did useful work for the Ministry of Pensions. Two years ago failing health obliged him to relinquish all his activities, and later he removed to Cambridge, where he spent his last days.

W. T. WOOD, L.R.C.P., L.R.C.S.Ed.

We regret to announce the death on July 23rd, in his sixty-fourth year, at his residence, Creswell, Derbyshire, of Dr. W. T. Wood. A strong Protestant Irishman, Dr. Wood was a native of Cork, and was educated at Queen's College in that city, and at the College of Surgeons, Edinburgh, qualifying L.R.C.P., L.R.C.S.Edin., and L.M. and L.R.F.P.S.Glas. in 1894.

After a period in Birmingham and Bolsover, Derbyshire, he settled down into practice at Creswell, where he remained, except during the war, for the rest of his life. During this time he saw a mere hamlet grow into a large industrial township, and took his full share in its social, educational, and recreational developments. Locally he will be best remembered for his work in connexion with the ambulance movement, first as lecturer and then as honorary surgeon and superintendent of the local ambulance division. Although over military age he joined up with this division in September, 1914, with the rank of captain, and went to France. In February, 1915, he was attached to the 5th Battalion North Staffordshire Regiment, and served with them in the trenches. Following the battle of the Somme in 1916, Dr. Wood was transferred to the artillery, and remained on the western front until the end of the war, returning to civil life at Christmas, 1918. In later years he was made a Knight of Grace of the Order of St. John of Jerusalem. As president of the local branch of the British Legion he was a ceaseless champion of the cause of ex-soldiers, and left no stone unturned to ensure that justice should be done to the sick and disabled and to their dependants. Despite an extensive private practice he was for twenty-five years medical officer of health to Kiveton Park Rural District Council, and for twenty years to Worksop Rural District Council. In 1928 he was elected by a large majority to the Derbyshire County Council. As a member of the County Education Committee he devoted himself unreservedly to the interests of education, and was chairman of the Board of Governors of Clowne Mining and Technical Institute, a Governor of Shirebrook County Secondary School for girls, chairman of Creswell Council School managers, and a county council representative on the governing body of Chesterfield Grammar School.

He was an unsparing critic—and at the same time a keen and loyal supporter—of the British Medical Association, and his comparatively early death is a great loss to the Chesterfield Division, of which he was chairman in 1931–2. A man of independent mind and well supplied with the native instinct of opposition, he always tinctured his argument with common sense and good humour, though he could never be credited with suffering fools gladly.

THE LATE MR. HARRY MORTIMER WHARRY

Dr. G. P. Crowden writes: In 1930 Mr. Wharry suggested to the National Institute for the Deaf that the subject of the prescription of electric hearing aids for the deaf needed attention, and was instrumental in bringing into being a subcommittee for conducting an inquiry into the matter. Through the good offices of the late Dr. Eichholz, of the Ministry of Health, Mr. Wharry was put in touch with workers in the Department of Industrial Physiology at the London School of Hygiene and Tropical Medicine, where an investigation on parallel lines was in progress. A joint research committee was then formed, and during the next two years Mr. Wharry spent much time, not only in his consulting room and at the School of Hygiene, but also at his home testing and examining every variety and description of electrical and mechanical apparatus for the deaf. He was untiring in his efforts, and his observations rapidly led to the detection and actual assessment of defects in existing hearing aids and to suggestions for their improvement. He started a clinic at the Royal Ear Hospital and University College Hospital for the assessment of deafness and the prescription of hearing aids, on which subject he was working when his health broke down. The full fruits of Mr. Wharry's inquiries and suggestions have not yet been gathered, but without hesitation it can be said that the deaf will have reason to be grateful to him for his patient investigations, and, moreover, the manufacturers of hearing aids have already benefited by having their attention drawn to defects in existing instruments which can readily be remedied, thanks to the simple modifications and adjustments which Mr. Wharry devised.

It is a matter of the greatest regret that his pioneering work should have been brought so prematurely to a close.

Mr. Alexander Richard Anderson, C.B.E., F.R.C.S., who died on July 28th at his home in Boscombe, was for many years a leading surgeon in Nottingham and the neighbouring country. The son of Colonel R. Anderson, 56th Regiment, he received his medical education at St. Bartholomew's Hospital, qualifying L.S.A. in 1876 and obtaining the M.R.C.S. a year later. In 1884 he was admitted a Fellow of the Royal College of Surgeons of

England, and shortly afterwards became a member of the surgical staff of the Nottingham General Infirmary, and in due course was elected honorary surgeon, and later consulting surgeon. He had held office as president of the Nottingham Medico-Chirurgical Society, and during the war was consultant surgeon to the Bagthorpe Military Hospital. For his war service he received the honour of C.B.E. in 1919. Mr. Anderson was for nearly thirty years a member of the British Medical Association.

The following well-known foreign medical men have recently died: Dr. Leo Langstein, extraordinary professor of children's diseases at Berlin University and director of the Kaiserin-Auguste Viktoria House for combating infantile mortality, aged 57; Professor Juliano Moreira, the leading psychiatrist of Brazil; Dr. Vaclav Rubeska, formerly professor of obstetrics and gynaecology at the Karl University, and director of the Foundling Hospital at Prague, aged 79; Dr. Victor Mucha, extraordinary professor of dermatology and syphilology at Vienna, aged 56; Hofrat Professor Viktor Ritter von Hacker, an eminent Vienna surgeon, aged 81; Dr. Eugène Eeman, emeritus professor of oto-rhino-laryngology at Ghent; and Dr. Luis Samengo of Buenos Aires, well known for his work in the same branch of medicine.

Universities and Colleges

UNIVERSITY OF LONDON

The Right Hon. Lord Macmillan and Sir Edwin Cooper Perry, M.D., have been reappointed Crown Members of the Court for a further period of five years from October 1st.

Dr. R. A. McCance has been recognized as a teacher of biochemistry at King's College Hospital Medical School (Faculty of Science).

Dr. B. H. Stewart has been appointed a member of the King's College Delegacy for the remainder of the year ending February 28th, 1934, to fill the vacancy caused by the resignation of Sir Arnold Wilson.

Grants have been made out of the Thomas Smythe Hughes Medical Research Fund and the Beaverbrook Fund for the year 1933–4 for the following researches to be carried out at the Institution designated: To Donald Hunter, M.D., for special assistance in connexion with his study of the relationship of disordered haematopoiesis to bone disease (London Hospital). To Professor M. F. Lucas Keene, M.B., B.S., and Evelyn Everard Hewer, D.Sc., for the services of a histological technician, material, and microphotographs, if necessary, in connexion with research into the development, myelination, and connexions of the fibre tracts of the brain stem and thalamencephalon in the human foetus and infant, which is an extension of an earlier investigation in myelination (London (Royal Free Hospital) School of Medicine for Women).

Academic Diplomas in the following subjects are to be designated Academic Post-Graduate Diplomas: anthropology, archaeology, bacteriology, clinical pathology, comparative philology, medical radiology, psychology, public health, sociology and public administration, teachers'.

The following will be the syllabus in Psychology for the examination for the Diploma in Psychological Medicine for examinations held in and after 1935: Definitions and methods of investigation; cognition, conation, and affect; instinct and habit, attention, interest, and memory; the development of personality, intelligence, temperament, and character; the unconscious, the principles and methods of analytical psychology; psychological tests.

The Senate has appointed Professor W. Wright, D.Sc., M.B., Ch.B., L.R.C.P., F.R.C.S., a member of the Council of the East London College, and Dr. E. F. Rabey has been nominated as Governor of Highbury County School.

The celebration of Foundation Day in 1933 will take place on Friday, November 24th, instead of on Thursday, November 23rd.

A course of five Heath Clark Lectures, on "The Normal and Subnormal Mind," will be given by Professor C. L. Burt, D.Sc., Professor of Psychology in the University, at the London School of Hygiene and Tropical Medicine on Wednesdays, October 18th, 25th, November 1st, 8th, and 15th, at 5 p.m.

A Semon Lecture, on "The So-called Associated Paralyses of the Larynx and Pharynx (Multiple Cranial Nerve Palsy)," will be given by Professor H. Burger, Professor of Oto-[illegible] Dean of the Faculty of Medicine in the University of Amsterdam, at the rooms of the Royal Society of Medicine on Thursday, November 2nd, at 5 p.m.

The University medal at the M.B., B.S. examination for internal and external students, May, 1933, has been awarded to Albertine L. Winner (University College Hospital).

The appointment of Professor H. W. Florey, Joseph Hunter Professor of Pathology in the University of Sheffield, to the Sir William Dunn Chair of Pathology at Guy's Hospital Medical School was erroneously announced on July 27th.

London Inter-Collegiate Scholarships Board

The following awards of entrance scholarships and exhibitions have been made on the results of the Board's examinations: King's College Hospital Medical School: *Science Scholarship*: G. Beven. London Hospital Medical College: *Price Scholarship*: L. Grundstein. *Science Scholarship*: W. H. J. Baker.

University College

The following awards have been made in the Faculty of Medical Sciences at University College: *Entrance Scholarship*: B. Brownscombe. *Entrance Exhibitions*: G. B. Jones and J. I. P. James. *Bucknill Scholarship*: D. F. Eastcott. *Bayliss-Starling Memorial Scholarship (Physiology)*: L. Young. *Cluff Memorial Prize (Anatomy, Physiology, Pharmacology, and Chemistry)*: K. D. Fraser. *Ferrière Scholarship* (tenable at University College Hospital Medical School): D. V. Davies. *Sharpey Scholarship (Physiology)*: E. G. Murphy.

London (Royal Free Hospital) School of Medicine for Women

The following awards of scholarships have been made for 1933–4: *St. Dunstan's Exhibition*: R. C. Cassell. *A. M. Bird Scholarship*: A. E. Burch. *Mrs. George M. Smith Scholarship*: Y. Garland. *Special Mrs. George M. Smith Scholarships*: J. Simmons and R. Caggan. *Mabel Sharman Crawford Scholarship*: D. K. Paterson. *Dr. Margaret Todd Scholarship*: D. M. Gladwell. *Lewis Memorial Scholarship*: M. L. Penwill. *Sarah Holborn Scholarship*: A. Jones. *A. M. Bird Clinical Scholarship*: A. J. McNairn. *Alfred Langton Scholarship*: B. E. Barsby. *Ellen Walker Bursary*: B. J. Travers. *Flora Murray Bursary*: J. M. Cass. *Special A. M. Bird Bursaries*: E. J. R. Browne, J. C. Goodchild, I. H. Lamey, A. L. Musgrave, G. J. Greenhalgh.

Post-Graduate Scholarships

A. M. Bird Post-Graduate Scholarship in Pathology: D Woodman. *Mabel Webb and A. M. Bird Research Scholarship*: U. Shelley. *Edith Pechey Phipson Post-Graduate Scholarship*: Hope Trant.

Provided there be a candidate of sufficient merit, a Paul Philip Reitlinger Prize of £30 will be awarded on December 3rd for the best essay on "Contingency." Candidates must be matriculated students of the University of not more than 25 years of age on October 1st, who have not proceeded to a degree, or passed the examinations required for a degree, in any university. Essays must reach the University not later than October 1st.

The Services

DEATHS IN THE SERVICES

Colonel Henry Davis Rowan, late R.A.M.C., died at Bedford on June 6th, aged 71. He was born on March 7th, 1862, was educated at Edinburgh, where he graduated M.B., C.M. in 1883, and entered the Army as surgeon on August 1st, 1885, becoming colonel on March 1st, 1915, and retiring on March 7th, 1919. He served on the North-West Frontier of India in the Hazara campaign of 1888, gaining the frontier medal with a clasp; and in the war of 1914–18, in Gallipoli, where he was A.D.M.S. of the 10th Division, and in France. He received the Legion of Honour, as Officer, in 1917.

Lieut.-Colonel Henry Lawrence Esmonde-White, R.A.M.C. (ret.), died at Hounslow on July 27th, aged 77. He was born on July 3rd, 1856, was educated in the school of the Irish College of Surgeons, and took the L.R.C.S.I. in 1878 and the L.K.Q.C.P. in 1879, and subsequently the M.K.Q.C.P. in 1886, and the D.P.H. of the Irish Colleges in 1906. Entering the Army as surgeon on March 6th, 1880, he became lieutenant-colonel after twenty years' service, and retired on July 3rd, 1911. He served on the North-West Frontier of India in the Chitral campaign of 1895, with the relief column, and received the Frontier medal with a clasp, and on August 5th, 1914, rejoined for service in the war of 1914–18.

Medical News

The St Bartholomew's Hospital Old Students' dinner will be held in the Great Hall, at 7 for 7.30 p.m., on Monday, October 2nd, with Lord Horder in the chair. The honorary secretaries are Sir Charles Gordon Watson and Mr Reginald M. Vick.

The annual dinner of the Chartered Society of Massage and Medical Gymnastics will be held at the Connaught Rooms, Great Queen Street, on Wednesday, September 20th, at 7.30 p.m.

The Fellowship of Medicine and Post-Graduate Medical Association has arranged for the following courses to take place during September: on diseases of infants, at the Infants Hospital, Vincent Square, September 4th to 16th, to take place every afternoon; on psychological medicine, at the Bethlem Royal Hospital, Beckenham, September 5th to 29th, on Tuesdays and Fridays at 11 a.m.; on medicine, surgery, and the specialties, at the Westminster Hospital, S.W.1, from September 18th to 30th, to occupy the whole of every day; on diseases of the chest, at the Hospital for Consumption, Brompton, from September 25th to 30th; *on proctology, at the Gordon Hospital, Vauxhall Bridge* Road, in the afternoons, from September 25th to 30th; on rheumatism, at the Royal Mineral Water Hospital, Bath, during the whole of Saturday, September 30th, and Sunday, October 1st. In addition to the above a special tutorial course (for men graduates only) in medicine, surgery, and midwifery has been arranged to take place from September 29th to October 3rd, inclusive, at the Connaught Hall of Residence, 16, Torrington Square, W.C.1. Intensive lectures and demonstrations will be given the whole of each day, and will deal with the clinical conditions in which recent developments have occurred. Post-graduates attending this course will reside at the Connaught Hall. Full details are now ready and can be obtained from the secretary of the Fellowship of Medicine, 1, Wimpole Street, London, W.1.

A post-graduate course in diseases of the heart and blood vessels will be held at the Broussais Hospital in Paris from October 9th to 21st, under the direction of Dr. C. Laubry. The main topic will be the new views held with regard to certain of the more important cardiac syndromes. In addition to lectures there will be opportunity for clinical work. A diploma will be awarded at the conclusion of the course. The fee is 150 francs. Further information is obtainable from Dr. H. Dany, 1 Hopital Broussais, Rue Didcot 96, Paris 14.

A post-graduate course in internal medicine has been arranged to take place in Berlin from October 2nd to 14th. The course will include clinical work and pathological and other demonstrations. Details are available on application to the office of the International Post-Graduate Courses, Kaiserin Friedrich Haus, 7, Robert Koch Platz, Berlin, N.W.7.

The Fellowship of Medicine announces that a course in infants' diseases, specially arranged for medical officers of welfare centres, members of the London Public Medical Service, and others interested in nutritional disorders and dietetics, will be given at the Infants Hospital, Vincent Square, Westminster, S.W., from September 4th to 16th. The fee for the full course is £1 1s., and the names of qualified practitioners wishing to attend the course (the number is limited to fifteen) should be sent to the secretary, 1, Wimpole Street, W.1, by September 1st.

The London County Council announces that a three-months' course of lectures and demonstrations, in connexion with instruction in hospital administration for the D.P.H., will be given at the North-Western Hospital, N.W.5, and at the Brook Hospital, S.E.18, from October 2nd on Mondays and Wednesdays at 9.30 a.m., and alternate Saturdays at a time to be arranged. These courses comply with the requirements of the revised regulations of the General Medical Council which came into operation in 1931, and the fee for each is £3 13s. 6d. A course may, however, be taken under the previous regulations at a fee of £4 4s. Medical men desiring to attend either course must pay the requisite fee beforehand to the Medical Officer of Health, London County Council, Public Health Department (Special Hospitals), County Hall, S.E.1, giving full name and address.

The London County Council has decided that the fees to be charged in respect of courses of medical undergraduate and post-graduate instruction at hospitals for infectious diseases and small-pox shall be as follows: Course in diagnosis and treatment of fevers, £3 3s. for two months' course; course in clinical practice and hospital administration (for candidates for the D.P.H.), £3 13s. 6d. for twenty-four demonstrations, and £4 4s. for thirty demonstrations; course in diagnosis and treatment of small-pox (in cases in which a fee is payable), £1 1s. for three demonstrations.

King Edward's Hospital Fund for London has received the gift of freehold property to the value of about £18,000. This is to form part of the permanent capital endowment of the King's Fund, but is to be kept separate as a permanent memorial to the late William and Francis Radford from a member of the family.

During the last four years there has been a considerable increase of epidemic poliomyelitis in Germany. In 1931 there were 1,613 cases with a case-fatality rate of 11.2 per cent., and in 1932, 3,735 cases with a fatality rate of 8.4 per cent. Probably many more mild and doubtful cases have been notified than formerly.

Professor August Gartner, the doyen of German hygienists and former occupant of the chair of hygiene at Jena, has recently celebrated his eighty-fifth birthday.

The King of the Belgians has been made a doctor *honoris causa* of Strasbourg University.

A bust of the Nobel prizeman Dr. Fritz Pregl, professor of chemistry at Graz, has recently been unveiled in the hall of the University.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* unless the contrary be stated. Correspondents who wish that their communications should be authenticated with their name need not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proof. Authors' orders should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange four lines).

The **TELEGRAPHIC ADDRESSES** are:
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, Aitiology, Westcent, London.
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisement etc.), Articulate, Westcent, London.
MEDICAL SECRETARY, Medisecra, Westcent, London.

The address of the Irish Office of the British Medical Association is 15 Kildare Street, Dublin (telegrams, Bemaid, Dublin; telephone, 62880 Dublin); and the Scottish Office, 7 Drumsheugh Gardens, Edinburgh (telegrams, Associate, Edinburgh, telephone 24361 Edinburgh).

QUERIES AND ANSWERS

Stammering

"H. E." asks for suggestions for the treatment of a young man of 20 who began to stammer at the age of 5 following a long illness during which he was treated and nursed by his parents. When 17 years of age he was sent abroad for a year and came back practically cured. But the stammering gradually returned and at the present time he has great difficulty in producing any sounds at all in the better circles though he is very much better out of them and spends half the year at his university. His father stammered as a child but outgrew it.

Prophylaxis of Enteric and Cholera

Lieut.-Colonel M. S. Irani, I.M.S. (Bombay), writes: Will any of your readers, especially in the Tropics, kindly let me know through the columns of your *Journal* his experience of a preparation called "bilivaccine" as a prophylactic against enteric or cholera. This preparation is very extensively advertised in India and is freely used by the public. My own experience has not been very encouraging.

Income Tax

Travelling Expenses of General Practitioner

"T. M." has claimed a deduction for travelling expenses (£73 1s. 2d.), and has had a letter from the inspector of taxes in which he says: "Having regard to the use of a motor car in professional work, will you say of what these travelling expenses are composed?"

*** In fact, the £73 1s. 2d. in question covers cost of petrol, oil, tyres, cleaning, repairs, insurance, and licence, and the amount seems prima facie quite reasonable. It seems to us that the inspector of taxes is assuming that it refers to something other than motor expenses—for example, long-distance train travelling—and that a simple explanation of what the item covers will satisfy him as to the correctness of the claim.

Allowance for Loss in Business

"S. B. D." is in practice and is also interested in a commercial business as a partner with his brother. In the year ending April, 1931, the business made a loss. How can he obtain relief?

*** A claim to set off the amount of his share of the loss against his aggregate income for the year in which the loss was made is competent, but in the special circumstances would not assist, because all the tax suffered for that year has already been repaid. A set-off of the 1930–1 loss from the professional earnings of that year to complete the liability for 1931–2 is not allowable because business and professional profits fall under different "cases" of Schedule D. The only available relief, therefore, is that provided by the rule which allows "S. B. D." to carry forward his share of the 1930–1 loss against his share of future profits *of the same business*.

LETTERS, NOTES, ETC.

Holidays for Factory Girls

We have received the following letter, signed on behalf of the Factory Girls' Country Holiday Fund by the Countess of Sandwich, the Bishop of London, Mrs. Louise Creighton, Rev. R. F. Horton, the Very Rev. Dr. Hertz, Lady Margaret Loch, Sir Thomas Barlow, Miss Lilian Braithwaite, and Mrs. Anne Slater.

Will you allow us to make a very urgent appeal on behalf of the Factory Girls' Country Holiday Fund? Started many years ago in Central London at Saffron Hill, it ministers now to girls and women living and working as far apart as Stratford and Battersea. A visit to one of the many Factory Girls' Clubs scattered all over London, where these girls and women assemble and bring, week by week, for months, their own small contributions, often a few pence, towards a holiday ardently longed for as a rest from monotonous work and a change from the lifeless air of crowded homes, would touch the hearts of anyone more fortunate. A visit to the headquarters of the fund on a Saturday in July and August, the months in which the greater number of girls and women are sent away and come back, would convince a thorough sceptic of the real utility and value of our work. The fund aims at helping those who seek to some extent to help themselves, and at arranging a fortnight's holiday for them. This year, unfortunately, many of the girls and women, owing to lack of employment among other members of their family, cannot hope to have more than one week unless the response to our appeal is exceptionally generous. Our organization, in the course of a year, has become very complete. We have ready and waiting hundreds of homes with kindly cottagers, who will welcome their visitors and do their utmost to make them comfortable and happy. We have many experienced voluntary workers who place their services at our disposal, make all necessary arrangements, and take a friendly interest in the visitors as they come week by week. Our old subscribers have stood by us nobly through many difficult years. We are asking for more support from the kindly general public, and we do so in the confident hope that, bad as times are for most of us, they will not allow our girls and women to go without the little rest and change they need so much. Subscriptions and donations will be thankfully received and acknowledged by the honorary treasurer, Mrs. Slater, or Miss Mary Canney, 75, Lamb's Conduit Street, London, W.C.1.

Scented Ethyl Chloride

Mr. Albert Henning, chairman and managing director of Hedley and Co. (Leytonstone) Ltd., writes: I have recently seen some reports relating to a new mixture of ethyl chloride for anaesthetic purposes. There will always be active people eager to paint the lily; to "improve" a car with a chromium-plated strip down the front of the radiator; to perfume the most rapid anaesthetic, and so forth. A recent foreign attempt to "improve" ethyl chloride, under a fancy name, is supported by a brochure which deserves a little gentle criticism. The new preparation is a mixture of oil, ether, valerian, and essence of camomile, with ethyl chloride. The brochure states that this combination illustrates the theory of Burgi-Treupel, according to which "the mixture of different medicaments augments their good effects but avoids harmful results." Actually, Burgi's theory is that active drugs of different pharmacological action given together increase their activity (that is, their toxicity) markedly more than the sum of their action when given separately. "Augmenter les effets heureux mais écarter les effets nuisibles" is *not* exactly the "synergism" of the Burgi theory, although a pleasing notion, especially in French. The brochure goes on to state that if the special gag-inhaler be used any crystallization and freezing of the ethyl chloride is prevented and uniform vaporization secured; that the danger of too strong a concentration of ethyl chloride is avoided, which otherwise is produced because ethyl chloride first freezes (se congèle d'abord) and then rapidly melts (se dégèle brusquement). Might I humbly remind those members of the medical profession who have forgotten most of their chemistry that ethyl chloride freezes at about −140° C. and that the ice seen on the anaesthetic mask and the patient's skin when using ethyl chloride as a general or local anaesthetic is nothing but frozen atmospheric water vapour. The rest of the brochure extols the virtues of the new preparation in terms which express exactly the normal advantages of pure ethyl chloride over other anaesthetics for dental or surgical operations. I see no harm in scenting ethyl chloride, though the psychological value of so doing may easily be exaggerated; a simple way is to drop some eau-de-Cologne round the inside of or on the ordinary mask before administration. My firm also supply scented ethyl chloride in tubes when wanted, but I do not claim this to be an improvement on pure ethyl chloride. It is just a "selling point." The essential virtue of an ethyl chloride is its purity. When pure it is a stable compound of fixed chemical composition and cannot vary in quality.

Grenfell Calendar, 1934

The Grenfell Calendar for 1934, a copy of which we have already received, is designed to fulfil the double function of calendar and engagement diary. The number of pages has been increased from twelve to fifty-two, and on each page, as in previous years, there is a reproduction of a photograph of Labrador and a quotation from Sir Wilfred Grenfell's writings. The frontispiece is an "oil-facsim" portrait of Sir Wilfred Grenfell from a painting by Bernard Gribble. Despite the increased size and usefulness of the calendar, the price (3s. 6d.) has not been advanced. The calendar is being sold to benefit Sir Wilfred's work among the English-speaking fishermen of Newfoundland and Labrador, and can be obtained from the Grenfell Association of Great Britain and Ireland, 82, Victoria Street, S.W.1.

Hobbies Exhibition at Dublin

A correspondent reminds us that there was a hobbies exhibition at the Annual Meeting at Winnipeg in 1930. The description in the *Journal* of August 12th (p. 302), of a similar exhibition held at the Dublin Meeting as an "Irish precedent" is therefore inaccurate.

Digoxin: Corrigendum

In a note on digoxin (Messrs. Burroughs Wellcome and Co.) in the *Journal* of August 12th (p. 295), it was stated that this substance is water-soluble. It should be added that digoxin is *very sparingly* soluble in water but dissolves readily in dilute alcohol.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 30, 31, 32, 33, 36, 37, and 38 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 34 and 35.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 148.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

132 Measles and Rubella Complicated by Purpura

L. J. M. LAURENT (*Brit. Journ. Child. Dis.*, April–June, 1933, p. 104) reports the case of a male infant, aged 8 months, who, on the twentieth day of a mild attack of measles, developed extensive purpura of the face, arms, and thighs, without any haemorrhages from the mucous membranes. Examination of the blood showed red cells, 4,200,000 per c.mm. ; haemoglobin, 45 per cent. ; white cells, 12,400 per c.mm. ; polymorphs, 22 per cent. ; large mononuclears, 10 per cent. ; lymphocytes, 68 per cent. ; and thrombocytes, 220,000 per c.mm. No improvement followed intramuscular injection of 40 c.cm. of anti-streptococcal (scarlatinal) serum, but twenty-four hours after intramuscular injection of 50 c.cm. of fresh citrated blood from the mother the lesions ceased to extend, and in six days had completely disappeared. The case was remarkable because of the comparative rarity of purpura as a sequel of measles, and for the absence of thrombocytopenia and the rapid disappearance of the lesions after injection of the mother's whole blood.

133 W. GUNN (ibid., p. 111) records the case of a girl, aged 9¼ years, who had been subject to between one and three mild attacks of epistaxis yearly from the age of 5 years. Her mother had had similar attacks from her eighth to fourteenth years. The rest of the family, however, consisting of the father, three brothers, and a sister, had never had any epistaxis or petechiae of the skin or mucous membranes. The patient developed petechiae in each supraclavicular and antecubital fossa on the third day of an attack of rubella, and this was followed by attacks of profuse epistaxis. Examination of the blood showed no plasma or Türck cells. There was a thrombocytopenia of 61,800 platelets. The calcium content of the plasma was 8 mg. per 100 c.cm. Bleeding continued for five and a half minutes following puncture with a fine needle, and a small ecchymosis appeared almost immediately at the site of the puncture. Recovery followed intramuscular injection of 20 c.cm. of haemoplastin, followed a few hours later by 50 c.cm. of the mother's whole blood. In the onset of the purpura after the decline of the rubella rash, thrombocytopenia, normal plasma calcium content, and prolonged bleeding time, the case was almost identical with that reported by Pitten in 1929—the only other example on record of rubella complicated by purpura haemorrhagica.

134 Action of Tobacco and Nicotine on Coronary Output

CH. LAUBRY, J. WALSER, and L. DEGLAUDE (*Bull. de l'Acad. de Méd.*, cix, No. 16, 1933, p. 595) present a study of the coronary vasomotor changes caused by tobacco. In these experiments on an isolated rabbit's heart 2 to 100 drops of a 1 per cent. aqueous solution of nicotine in one litre of Ringer's solution (giving dilutions of 1 in 1,250,000 to 1 in 25,000) were employed. Small amounts (2 to 5 drops) of this mixture caused a constant increase (30 to 60 per cent.) in the coronary output ; with average doses (10 to 12 drops) a lesser increase of 5 to 20 per cent. was noted ; large doses (20 to 100 drops) produced a constant decrease of 10 to 20 per cent. Nicotine, therefore, exercises a marked vaso-dilator action in small doses, and is slightly vaso-constrictor in large ones. These variations are independent of the rhythm and amplitude of the cardiac contractions. With large doses a decrease in the coronary output was noted, despite a marked increase in the amplitude of the cardiac beats and an accelerated rhythm. The greater intensity of the vaso-dilator over the vaso-constrictor reactions proves the great predominance of the vaso-dilators in the coronary innervation. Lee has shown that half the nicotine in tobacco passes away in the smoke. An ordinary cigarette contains 2 cg. of nicotine, and its smoke, therefore, 1 cg. About half of this (1/2 cg. nicotine) will likely be inhaled. According to Zunz, 14 to 33 per cent. of this will be absorbed ; taking an average of 25 per cent., 1.25 mg. of nicotine will be absorbed from one cigarette, or 12.5 mg. from ten (an average daily consumption). This in the body blood content (five litres) represents a dilution of 2.5 mg. per litre, the equivalent of 6 drops of the nicotine-Ringer solution. In this dilution nicotine exerts no constrictive action on the coronaries. The authors conclude that in the anginal crises associated with tobacco intoxication the coronary vaso-constrictor element is *nil* or negligible, and that the toxic action on the nerves of the cardiac plexus is of primary importance.

135 Atypical Malaria

A. GLAZ (*Thèse de Paris*, 1933, No. 157), who records three illustrative cases in women aged from 25 to 35, states that the larval forms of malaria may give rise to a variety of morbid symptoms involving an organ, or group of organs, and that these manifestations may develop when the subject is far removed from the source of infection, and does not present any of the typical signs of malaria. The absence of splenic enlargement, parasites in the blood, or rise of temperature should not, therefore, exclude the diagnosis of that disease. The leucocyte picture and the sero-flocculation test will be of great help in the diagnosis of an affection which can often only be identified by the success of quinine treatment. The serological reactions such as sero-flocculation and the Wassermann test seem to indicate the existence of a toxin secreted by the malarial parasite and localized by preference in an organ presenting the least resistance. Psychoneuroses appear to be one of the most frequent of the atypical manifestations of malaria, even apart from any predisposing cause, but can rapidly be made to yield to intensive specific treatment.

Surgery

136 Infectious Gangrene of the Skin

FRANK L. MELENEY (*Surg., Gynecol. and Obstet.*, May, 1933, p. 847) discusses the differential diagnosis of certain types of infectious gangrene of the skin. The acute type diseases caused essentially by a single bacterial species comprise (*a*) gas-gangrene, and (*b*) haemolytic streptococcus gangrene. The chronic types are due to a mixture of organisms—which in pure culture are either innocuous or produce lesions which are not gangrenous—growing in symbiosis. They comprise (*a*) progressive bacterial synergistic gangrene, (*b*) gangrenous impetigo, (*c*) fuso-spirochaetal gangrene, and (*d*) amoebic infection of the skin. Meleney describes the symptomatology, differential diagnosis, and treatment of each type in detail. Haemolytic streptococcus gangrene, which is said, unlike gas-gangrene, to follow a superficial rather than a deep wound, has a sudden onset, with relatively mild general symptoms. There is a low fever but a rapid pulse, and lassitude, indifference, and somnolence are observed. Local signs are alarming, and there is extreme redness and oedema without sharp margins. Irregular dusky areas appear on the third, fourth, or fifth day, and are pathognomonic. They should be watched for in any acute fulminating inflammation. Blisters and bullae may appear over the dusky areas, and a rapidly developing extensive gangrene ensues. Treatment must be prompt, and should consist of long incisions to the limits of the subcutaneous necrosis. Necrotic tissue is removed as soon as possible with a

minimum of bleeding, and applications of hot moist heat are made use of until the cellulitis subsides. Subsequent skin grafting can be employed. In post-operative bacterial synergistic gangrene the essential organism is a micro-aerophilic, non-haemolytic streptococcus in the spreading periphery of the lesion, associated with a staphylococcus in the zone of gangrene. The condition usually follows the drainage of a peritoneal abscess, lung abscess, or chronic empyema, and is characterized by excruciating pain. The only effective treatment is extensive excision of the whole lesion, well beyond the red zone of advance, either with the electric cautery knife or with the scalpel. Skin grafting is done later. The author emphasizes that the early differentiation of these infectious forms of gangrene is essential in order that proper treatment may be instituted early.

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L. Waldeyer (*Deut. med. Woch.*, May 26th, 1933, p. 802) draws attention to the fact that whereas English and American surgeons have for long considered early operation as the best method of dealing with stones in the gall-bladder, it is only of recent years that German surgery has been inclined to this procedure. The author therefore presents the results of operation in such circumstances on 571 cases, and states that if the time of operation is carefully chosen the results obtained will in the great majority of cases lead to lasting cure. The patients in this series comprised 480 females and ninety-one males; the ages varied between 17 and 77 years, the majority being in the thirties. The mortality was as follows: chronic cholecystitis without stone (1.8 per cent.), chronic cholecystitis with stone (2.4 per cent.), acute cases (13.7 per cent.), simple occlusion of the bile duct by calculus (20 per cent.), septic cholangitis with occlusion (33.3 per cent.), cases with severe complications (57.5 per cent.). The presence of complications such as cholangitis, peritonitis, liver abscess, etc., appeared to increase the mortality to very high proportions, a fact which must influence any decision as to operation and prognosis. The question of age and operation mortality was investigated, and it was found that 75 per cent. of the fatalities occurred in cases above 40 years of age (post-operative pneumonias and circulatory failure). In uncomplicated cases and in young patients there was very little danger in the operation. Of 253 operated cases later investigated 158 seemed to be completely cured, eighty-seven complained only occasionally of symptoms referable to the biliary system, and eight were not improved at all. A second laparotomy in these eight cases led to the conclusion that either some calculi had been missed or there had been new formation. In all cases the failure was attributed to the fact that these were late cases.

Therapeutics

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Owing to the good effects produced by neosalvarsan in such conditions as pregnancy, pyelitis, puerperal fever, influenza, etc., and to the uncertain results obtained by balneotherapy and shock therapy in enteric fever, H. Wohlers and R. Audéoud (*Presse Méd.*, May 17th, 1933, p. 799) were led to try this drug in the last-named disease. The results in twenty cases show that neosalvarsan has a marked effect on the temperature, and benefits the general condition with a disappearance of the headaches and insomnia. The most favourable results were obtained in the earlier treated cases; hence, this treatment should be instituted as early as possible. The initial dose, given intravenously, is 0.15 gram, or, in robust patients, 0.3 gram; this should be followed by doses of 0.3, 0.45, and 0.6 gram at intervals of two, three, and four days. The treatment is well tolerated. Of the twenty cases, twelve reacted very markedly, the temperature dropping in one to seven days (most frequently in five) after the commencement of treatment; in four the result was less rapid, the temperature falling in about ten days; three practically hopeless cases died. Statistics show that these results are better than those obtained by balneotherapy, and compare favourably with those following the administration of antityphoid serum. Some authorities attribute the beneficial action of neosalvarsan to its bactericidal properties. The present authors do not concur in this, but believe that it is due to its stimulating action on the reticulo-endothelial system, the defensive role of which has been clearly demonstrated in recent years.

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K. Ebbehöj (*Hospitalstidende*, April 27th, 1933, p. 445), recording observations in a Danish hospital, notes that when this treatment was first introduced by Senn of Chicago in 1902 some scepticism was aroused, and it was not till Heincke's animal experiments proved that the *x* rays have a definite action on the blood and the blood-producing organs that this scepticism gave way to imitation. At the author's hospital the universal *x*-ray treatment of cases of leukaemia was begun a couple of years ago, at first sporadically and in conjunction with other treatment, and during the last year as the only treatment, except in special circumstances. During the

two years twelve cases of lymphatic and five of myeloid leukaemia have thus been treated Exposures are given alternately in front and behind the patient, as a rule every other day, and always under the control of frequent blood examinations With the exception of an old woman of 70, all the patients, even the most debilitated, felt perfectly well during therapy, although they reacted to it now and then with a slight rise of temperature The author points out that, though her results were by no means miraculous, they were good enough to warrant continuation of this treatment on the same lines as before As the number of patients undergoing this treatment is steadily increasing, she hopes shortly to present more numerically impressive material

Radiology

142 Radiology of False Biliary Calculi

It is well known that certain gall stones escape the most careful radiological examination, and, conversely, that skiagrams may exhibit shadows resembling those of biliary calculi in appearance and localization On the other hand, actual calculi may occupy an abnormal position M CHIRAY and A LOMON (*Presse Med*, February 18th, 1933, p 266) publish skiagrams of true and false calculi, the latter include shadows of lymph nodes, medicinal or other opaque tablets or capsules, duodenal air bubbles (resembling translucent calculi), and calcified costal cartilages, which sometimes resemble closely true calculi, but are more superficial True and false calculi may coexist In one case several tetra iodide capsules passed into the gall bladder through a duodenovesical fistula (demonstrated subsequently by ingestion of barium) In another case three shadows of calculi and of gas bubbles appeared on the same plate When the gall bladder has not been rendered opaque images of gas bubbles may appear in the colon or adjacent ileum, closely resembling images of calculi Warts beneath the right breast are a rare cause of error, but this may be avoided by preliminary inspection of the patient's skin One characteristic of false calculi is their very sharp outline, although the central portion may be indistinct Vesical papilloma may produce an image closely resembling a calculus, because it is actually within the gall bladder, but its immobility shows that it is actually attached to the vesical wall, in contrast with the change of position of a calculus when a series of skiagrams is taken Further, calculi often lie at the lowest part of the gall bladder, while a papilloma is almost invariably situated on the lateral wall The authors conclude that, to avoid an error in diagnosis, it should first be assumed that a calculus is present, and then, if skiagrams show a confirmatory shadow, one should consider the possibility of a 'false calculus"

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144 A New Intensifying Screen

LEONARD LEVY and DONALD W WEST (*Brit Journ Radiol*, February, 1933, p 85) describe a new and much more rapid intensifying screen, allowing great alterations in radiographic technique They have produced a form of zinc sulphide which they name "fluorazure," that is much more efficient than the best calcium tungstate The various characteristics of the new screens have been thoroughly tested and are described in full It is pointed out that, owing to the lower atomic number of zinc, zinc sulphide is inherently more suitable than calcium tungstate as a fluorescent substance, as its 'stopping power' is much less In spite of the fact that less x radiation is absorbed by the zinc sulphide screen than by the calcium tungstate screen, the brilliancy of its fluorescence is so much greater that the speed, or reduction of exposure obtained by its use as an intensifying screen may rise as high as six times that of calcium tungstate screens according to the kilovoltage used Calcium tungstate screens were tested carefully against fluorazure screens and it is shown that the latter are ten times as fast as the former at 30 kV, and that this ratio falls to six times at 35 kV four times at 65 kV and three times at 80 kV They are however substantially constant over the range employed for the human body These ratios have been found to be the same with both craft and transformer sets Various modifications of technique are required in using the new screen The great increase of speed enables radiographic work to be carried out with small power outfits in a way which was previously quite outside the scope of such equipment Where use is made of a Potter Bucky diaphragm which normally necessitates an increase of exposure by three times, the exposure will be somewhat less than at present required for non diaphragm exposures Even if a powerful outfit is employed, the reduction of exposures to one quarter the normal time means a greatly reduced wear and tear on the tubes and valves In certain cases also it is possible to double the distance between the film and the tube without increasing the exposure at present required A further change in technique is that radiographs can be taken at lower voltages than is at present customary, and a gain in contrast thus obtained It is shown that in using very soft radiations (20 to 25 kV peak) a great increase in contrast and a considerable reduction in exposure is obtained by using a back fluorazure screen The screens display non actinic phosphorescence after exposure to powerful actinic light but not to dark room illumination Fluorazure also shows triboluminescence—that is the production of visible light when subjected to mechanical stress—but it is claimed that in practice this does not produce fogging of the film

minimum of bleeding, and applications of hot moist heat are made use of until the cellulitis subsides. Subsequent skin grafting can be employed. In post-operative bacterial synergistic gangrene the essential organism is a micro-aerophilic, non-haemolytic streptococcus in the spreading periphery of the lesion, associated with a staphylococcus in the zone of gangrene. The condition usually follows the drainage of a peritoneal abscess, lung abscess, or chronic empyema, and is characterized by excruciating pain. The only effective treatment is extensive excision of the whole lesion, well beyond the red zone of advance, either with the electric cautery knife or with the scalpel. Skin grafting is done later. The author emphasizes that the early differentiation of these infectious forms of gangrene is essential in order that proper treatment may be instituted early.

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In view of the usual therapeutic failure of local applications and strict dietaries in acne, J. BELOT (*Paris Méd.*, February 4th, 1933, p. 98) maintains that radiotherapy is the best treatment for the majority of these cases. To understand its action, acne must be considered not only as a dermatosis but also as an inflammatory disease with successive attacks, and consequently as an essentially local affection. It commences and evolves in the cutaneous glandular follicles. Brocq has shown that the condition necessary for the transition of seborrhoea into acne is cystic degeneration of the seborrhoeic filament which ultimately forms a comedo. If the follicular orifice is occluded, the causal bacteria cease to extend outwardly but penetrate deeply, thus forming a suppurative acne. Irradiations take effect by their antiphlogistic action on the follicles, inducing rapid absorption of the inflammatory infiltrates and diminution of the osteo-follicular hyperkeratosis. Thus the sebum is discharged freely, with cessation of bacterial development and lessening of the secretory activity of the glandular cells. In punctate acne and acne simplex the classic forms of treatment are indicated. In indurated deep-seated acne papulosa, acne pustulosa, and acne phlegmonosa, radiotherapy is the method of choice and has given brilliant results. Belot applies weak doses of 1 H (160 R Solomon, or 70 r international) each week; these are not filtered, or only slightly so, and are delivered at an anticathode-skin distance of 20 cm. If the acne extends to other parts of the body besides the face this dose may be slightly increased. The method of irradiation is described. The surface to be treated should be divided into sectors and each be irradiated successively. Five to six applications are given, and are then discontinued for fifteen days. If improvement has occurred the dose may be reduced. A dosage greater than 10 to 12 H per sector is inadvisable. The evolution of the lesions and the tolerance of the skin must govern the treatment; all cutaneous reactions must be avoided. Local treatment and the use of ultra-violet or infra-red rays, high-frequency currents, and vaccines are contraindicated. Sulphur or magnesium peroxide, given internally, is a useful adjuvant; coexisting gastro-hepatic and genital disorders should be treated. In intractable cases one or two doses of tuberculin have proved beneficial. In cases which do not rapidly respond to radiotherapy other measures should be instituted, these, though possibly useless, are less harmful than irradiations continued for too long a period.

144 A New Intensifying Screen

LEONARD LEVY and DONALD W. WEST (*Brit. Journ. Radiol.*, February, 1933, p. 85) describe a new and much more rapid intensifying screen, allowing great alterations in radiographic technique. They have produced a form of zinc sulphide which they name "fluorazure," that is much more efficient than the best calcium tungstate. The various characteristics of the new screens have been thoroughly tested and are described in full. It is pointed out that, owing to the lower atomic number of zinc, zinc sulphide is inherently more suitable than calcium tungstate as a fluorescent substance, as its "stopping power" is much less. In spite of the fact that less *x*-radiation is absorbed by the zinc sulphide screen than by the calcium tungstate screen, the brilliancy of its fluorescence is so much greater that the speed, or reduction of exposure obtained by its use as an intensifying screen, may rise as high as six times that of calcium tungstate screens, according to the kilovoltage used. Calcium tungstate screens were tested carefully against fluorazure screens, and it is shown that the latter are ten times as fast as the former at 30 kV, and that this ratio falls to six times at 35 kV, four times at 65 kV, and three times at 85 kV. They are, however, substantially constant over the range employed for the human body. These ratios have been found to be the same with both coil and transformer sets. Various modifications of technique are required in using the new screen. The great increase of speed enables radiographic work to be carried out with small power outfits in a way which was previously quite outside the scope of such equipment. Where use is made of a Potter-Bucky diaphragm, which normally necessitates an increase of exposure by three times, the exposure will be somewhat less than at present required for non-diaphragm exposures. Even if a powerful outfit is employed, the reduction of exposures to one-quarter the normal time means a greatly reduced wear and tear on the tubes and valves. In certain cases also it is possible to double the distance between the film and the tube without increasing the exposure at present required. A further change in technique is that radiographs can be taken at lower voltages than is at present customary, and a gain in contrast thus obtained. It is shown that in using very soft radiation (20 to 25 kV peak) a great increase in contrast and a considerable reduction in exposure is obtained by using a back fluorazure screen. The screens display non-actinic phosphorescence after exposure to powerful actinic light, but not to dark-room illumination. Fluorazure also shows triboluminescence—that is, the production of visible light when subjected to mechanical stress—but it is claimed that in practice this does not produce fogging of the film.

Obstetrics and Gynaecology

145 Distribution of Prolan

P. Castagna (*Ann. di Ostet. e Ginecol.*, April 30th, 1933, p. 463) has obtained a positive Zondek-Aschheim test by injection into infantile mice of 3 c.cm. of liquor amnii. The anterior hypophyseal hormone was also present in extracts of artificially macerated amnion, and in the liquor after filtration, de-proteinization, or heating to 45° to 50°. He agrees with Philipp and others that the placenta produces considerable quantities of the hormone. The urine of the newborn infant was found to contain it, in somewhat less concentration than in the liquor amnii, during the first forty-eight hours after birth; it disappeared abruptly on the third day.

146 H. Kittner (*Zentralbl. f. Gynäk.*, June 3rd, 1933, p. 1272) mentions among the tissues and fluids which during pregnancy have been found to contain anterior pituitary hormone the following: decidua, corpus luteum (of pregnancy), tubal mucosa, skin, saliva, colostrum, cerebro-spinal fluid, and the contents of a cantharidin blister. He states that Metz found anterior pituitary hormone in the fluid contents of seventeen out of sixty ovarian or parovarian cysts, but that luteinization was not induced, but follicle ripening only, in the injected mice. Kittner reports having obtained the reactions typical of the Zondek-Aschheim test, including the third grade (luteinization), after injection of the fluid from a parovarian cyst removed during the eighth week of pregnancy. Zondek, it is stated, found sixty mouse-units of anterior pituitary hormone in the wall of a parovarian cyst in a pregnant patient; the cyst contents, however, were free from this hormone.

147 Uterine Rupture after High Caesarean Section

Believing that uterine ruptures after high Caesarean sections (these being performed on the corpus uteri) are more frequent than is usually considered, J. Snoeck (*Bruxelles-Médical*, May, 1933, p. 729) records two cases of this nature. In one, of which full details are given, the chief symptoms were marked anxiety and agitation, rapid pulse, slight rigidity over the left abdomen, vomiting, and symptoms of subocclusion. Sudden abdominal pain and signs of internal haemorrhage were absent. In both cases a high Caesarean section had been performed four years previously, and in neither was the placenta attached to the uterine cicatrix. From these cases and ten others recorded in the literature Snoeck presents the following facts. The rupture occurred during pregnancy or at the commencement of labour, never after a prolonged labour with strong uterine contractions. The onset, though occasionally sudden and dramatic, was usually insidious; in only one case were symptoms of haemorrhage noted, in the others the bleeding from the cicatricial rupture was slight. The classic sign of sensation of superficiality of the foetus was present in only three cases, and that of rising of the foetus and its disappearance on vaginal examination was always absent. Certain authors emphasize the occurrence of marked nervous symptoms and vomiting. In ten of the cases the rupture occurred from one to thirteen years after the previous hysterotomy, the period being unrecorded in two. In four cases the placenta was inserted on the cicatrix, in three elsewhere, and in five its site was not noted. The diagnosis rests on the operative antecedents and clinical symptoms of peritonism, inexplicable nervous disturbance, and vomiting. The maternal prognosis is better than that in rupture of a sound uterus during a spontaneous or dystocic delivery; the foetal prognosis is always grave. Snoeck believes that these ruptures are primarily due to the poor nature of the cicatrix, and that uterine superdistension, violent uterine contractions during prolonged labour, and the placental insertion on the cicatrix are only accessory factors. Owing to their frequency after high Caesarean sections he considers the low method to be the more preferable, even in simple cases.

Pathology

148 Serological Diagnosis of Weil's Disease

W. Gaehtgens (*Klin. Woch.*, May 6th, 1933, p. 697), studying an outbreak of this disease at Hamburg last year, used living spirochaetes for agglutination, but for complement fixation a phenolized suspension was prepared in the following way. A strain of *Leptospira icterohaemorrhagiae* was grown in a medium containing 40 per cent. normal rabbit serum and 60 per cent. sterilized tap water; the culture was centrifuged for three to four hours at 3,000 r.p.m., and the deposit containing the organisms was suspended in a quantity of 0.3 per cent. phenolized saline, corresponding to one-tenth of the original culture. In performing the test the serum was diluted, the complement and antigen being kept constant. Serums were examined from seventy patients suffering from, or suspected to be suffering from, Weil's disease. Positive reactions were obtained both by agglutination and by complement fixation in twenty-nine serums. Clinically, twenty-eight of the "positive" patients were suffering from Weil's disease, one being rather doubtful, while examination of the other forty-one "negative" patients rendered it probable that they were, in fact, not suffering from this disease. Two hundred control serums from patients with various diseases yielded uniformly negative results. Both agglutination and complement-fixation reactions seem, therefore, to be highly specific. The positive serums had an agglutination titre varying between 1 in 100 and 1 in 2,500, and a complement-fixation titre varying between 1 in 50 and 1 in 2,500. On the whole the titre was rather higher by agglutination than by complement fixation. Thus, in five serums from patients on the seventh or eighth day of illness the average agglutination titre was 1 in 600 and the average complement-fixation titre 1 in 300. In sixteen serums from patients in the second week of the disease the titres were 1 in 1,500 and 1 in 500 respectively. The complement-fixation reaction gave great help in cases where the reading of the agglutination reaction was difficult. Either test is generally positive by the end of the first week of disease.

149 A Corrected Sedimentation Test

A. C. R. Walton (*Journ. Lab. and Clin. Med.*, April, 1933, p. 711) describes a method of standardizing the erythrocyte sedimentation test which eliminates certain possible causes of error. Five years' experience with it has convinced him of its accuracy, and he recommends its general adoption. The tubes employed are 6 cm. long and have an internal diameter of 6 mm., the column formed by 1 c.cm. of blood in them being 32.5 mm. long. The sides of the tube must be parallel and the lower end flat. No deviation from the perpendicular is permissible while the test is in progress. To 4.5 c.cm. of blood is added 0.5 c.cm. of a 3.8 per cent. solution of sodium citrate; no further dilution of the blood is necessary or advisable. The optimum room temperature is 19° to 23° C.; temperatures above or below this limit induce marked deviations in the result. A red cell count on this sample is now made so as to ensure that for the actual test there will be at least 2 c.cm. of blood, the red cell content of which, after the appropriate addition of plasma, will register an even million figure (six, five, or four) of erythrocytes. The sample for testing is taken so that the sedimentation tube will contain 1 c.cm. of blood, the content of which is five million cells per c.mm. The tube is corked, and an even suspension of corpuscles is obtained by inverting and rotating it about its long axis. A heated glass rod is used to burst air bubbles. After the tube has stood for one hour the height of clear plasma lying above the column of red cells is measured. A modification of this method is described which requires only 1 c.cm. of citrated blood, though the author doubts whether it is so accurate as the first one, and does not advise its use with a cell count below three millions. It is, however, readily adaptable to the repeated study of any case, especially in children.



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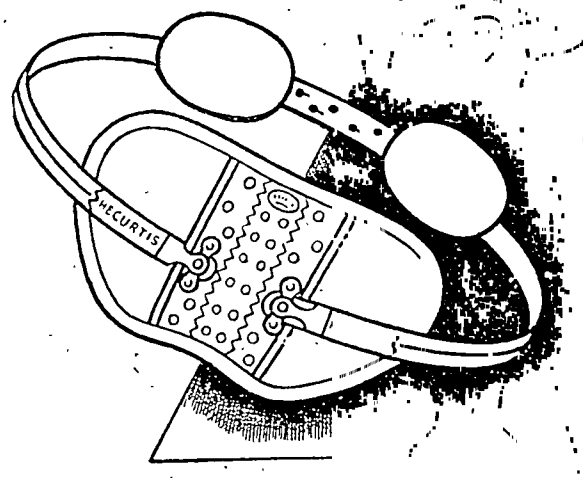


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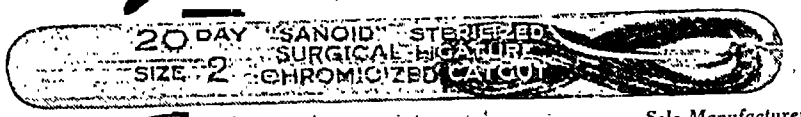


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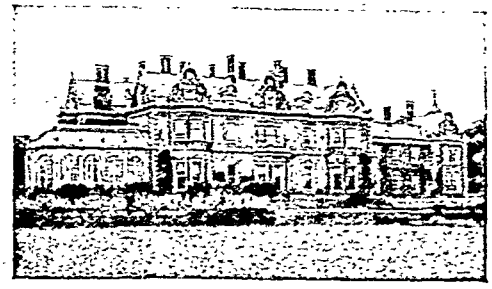
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FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS

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Dates of the Courses, 1933-34.

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April 9th—*June* 28th, 1934.

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(Associated with the General, Queen's and Special Hospitals for Clinical Teaching.)

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Further particulars may be obtained from Professor WILLIAM WRIGHT M.B. D.Sc. F.R.C.S. Dean, London Hospital Medical College Mile End, E.1

LONDON HOSPITAL MEDICAL COLLEGE.

Primary Fellowship Examination.

A COURSE OF INSTRUCTION for the above Examination will begin on Monday September 4th. The Fee for the Course is 15 guineas.

Further particulars may be obtained from Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S. Dean, Mile End, E.1

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GUY'S HOSPITAL MEDICAL SCHOOL, London Bridge, S.E.1.

A course of instruction in preparation for the FINAL EXAMINATION for the FELLOWSHIP OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND will commence on Monday, August 28th, 1933.

BERMONDSEY MEDICAL MISSION HOSPITAL, 44, Grange Road, London, S.E.1. RESIDENT HOUSE PHYSICIAN (woman) required in Sept. Ward and Out-patient work. Salary £100 p.a., board, lodging, and laundry. ...and testimonials before Aug. 31st to Medical Superintendent, SELINA FOX, M.D.

COUNTY BOROUGH OF WALSALL.

ASSISTANT MEDICAL OFFICER (MATERNITY AND CHILD WELFARE).—FEMALE.

Applications are invited from medical women under the age of 35 years for the post of an Assistant Medical Officer in the Public Health Department.

Salary £600 per annum, rising by annual increments of £25 per annum to £700, subject to approved service and to the Council's economy "cut."

Applicants must be duly registered Medical Practitioners.

The possession of a Diploma in Public Health will be considered an advantage.

Practical experience in midwifery practice and in ante-natal work is essential.

The duties will mainly consist of work in connection with the Council's Maternity and Child Welfare Scheme. The person appointed will be required to give her whole time to the service of the Council, and to work under the direction of the Medical Officer of Health.

Applications, on forms to be obtained from the undersigned, stating age, qualifications, training, and experience, together with three copies of testimonials, and endorsed on the envelope "Assistant Medical Officer" should be sent to the Town Clerk not later than first post, September 2nd.

The appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922.

Canvassing directly or indirectly, will be a disqualification.

Council House, Walsall. August 3rd, 1933. HERBERT LEE, Town Clerk.

COUNTY BOROUGH OF WALSALL.

MANOR HOSPITAL. (270 Beds.)

ASSISTANT MEDICAL OFFICER.

Applications are invited from duly qualified persons for the appointment of Junior Resident Assistant Medical Officer. The appointment, which is to commence on October 1st, will be for a period of twelve months, and the salary at the rate of £150 per annum, together with the usual residential emoluments.

The person appointed will be required to act under the general direction of the Medical Officer, from whom particulars of the appointment may be obtained.

Application, stating age, professional qualifications, and experience, accompanied by not more than three copies of recent testimonials, should be sent to the undersigned at once.

29, Leicester St., Walsall. August 18th, 1933. C. E. FOTHERGILL, Public Assistance Officer.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

NEWCASTLE GENERAL HOSPITAL. (650 Beds.)

TWO HOUSE PHYSICIANS AND ONE HOUSE SURGEON. (Male.)

The above posts will become vacant on October 1st, and applications are invited from duly qualified and registered Medical Practitioners.

The salary in respect of each of the appointments, which are tenable for six months, is at the rate of £150 per annum, with board, lodging, etc.

Applications, stating age and qualifications, together with copies of not more than three recent testimonials, to be addressed to the Medical Officer of Health, Town Hall, Newcastle-upon-Tyne, 1.

BARRY URBAN DISTRICT COUNCIL.

SURGICAL HOSPITAL.

HOUSE SURGEON (Male).

Applications are invited for the above appointment.

Candidates must be duly qualified and registered. Salary £200 per annum, with board, and lodging.

Preference will be given to a candidate with previous experience, especially in the administration of Anaesthetics.

The successful candidate must devote the whole of his time to the duties of his office, and to assist the Medical Staff, and act under the supervision of the Medical Superintendent, who is also Medical Officer of Health and School Medical Officer.

The appointment will be for a period of six months, to be renewed, if thought fit, for another period of six months, but not for any subsequent period.

The successful candidate will be required to commence duties on August 24th.

Applications, stating age, qualifications, positions held, with copies of three recent testimonials, to be sent to Dr. P. W. KENT, Medical Superintendent, Public Health Office, Barry, as soon as possible.

(Signed) T. D. HOWELLS, Clerk.

August 8th, 1933.

DERBYSHIRE COUNTY COUNCIL.

WHOLE-TIME WOMAN ASSISTANT MATERNITY AND CHILD WELFARE MEDICAL OFFICER.

The Derbyshire County Council require the services of a fully qualified whole-time Woman Assistant Maternity and Child Welfare Medical Officer experienced in Ante-Natal work, Midwifery, and Children's diseases, to hold (under the direction of the Medical Officer of Health) consultations at the Ante-Natal and Maternity and Child Welfare Centres of the Derbyshire County Council, and (under the like direction) to perform such other duties as appertain to the office.

The salary will be £600 per annum, rising by £25 per annum to £700 per annum, subject to a temporary economy reduction.

The appointment will be a designated post under the Local Government and Other Officers Superannuation Act, and the successful candidate will be required to pass a medical examination.

Applications must be sent to the undersigned, together with copies of not more than three recent testimonials, not later than Monday, September 4th.

New County Offices, Derby. August 1st, 1933. W. M. ASH, County Medical Officer.

COUNTY BOROUGH OF WOLVERHAMPTON.

NEW CROSS HOSPITAL.

The Public Assistance Committee invite applications from single gentlemen, duly qualified, for appointment as an ASSISTANT (RESIDENT) MEDICAL OFFICER.

Salary will be at the rate of £200 per annum, with apartments, board, attendance, etc. The appointment is limited to a term not exceeding one year.

Applications, stating age, qualifications, and experience, and accompanied by copies of recent testimonials, must be addressed to the Public Assistance Officer, Stafford Street, Wolverhampton.

Town Hall, Wolverhampton. August 1st, 1933. J. BROCK ALLON, Town Clerk.

WEST RIDING OF YORKSHIRE MENTAL HOSPITALS BOARD.

APPOINTMENT OF MEDICAL SUPERINTENDENTS.

The West Riding of Yorkshire Mental Hospitals Board invite applications from duly qualified Medical Practitioners for the appointment of Medical Superintendent at the following Mental Hospitals of the Board:

(a) MENSTON, near Leeds (1,800 patients);
(b) WADSLEY, nr. Sheffield (1,980 patients);
(c) WAKEFIELD (2,400 patients).

Candidates must have had previous experience as the Medical Superintendent or a Senior Assistant Medical Officer of a Mental Hospital. Preference will be given to candidates who have obtained a Diploma in Psychological Medicine, and have served the office of House Surgeon or House Physician at a General Hospital.

The person appointed will be required to devote his whole time to the duties of the office, and act in conformity with the provisions of the Lunacy Act, the general rules and regulations of the West Riding of Yorkshire Mental Hospitals Board (as approved by the Board of Control), and of the Visiting Committee.

The minimum and maximum salaries fixed for the position are £1,000 and £1,400, the annual increments being £50 (subject as to salary and increments to a temporary economy deduction in accordance with the Board's scale). The salary to be paid will (within those limits) be according to qualifications and experience.

The person appointed will be provided with an unfurnished house, which shall be deemed to be valued, for superannuation purposes, at the sum of £50 per annum. The salary and value of the unfurnished house will be subject to deductions under the Asylums Officers Superannuation Act, 1909.

Applicants must state for which Mental Hospital (or Hospitals) they wish to apply, and applications must be made on a form, which can be obtained, together with further particulars, from the undersigned, to whom the completed forms should be returned not later than September 2nd.

Canvassing in any form will be a disqualification.

(Signed) G. L. BANNER, A.S.A.A.,
Clerk and Treasurer of the Board.
Clerk of the Visiting Committees of the:
Menston Mental Hospital,
Wadsley Mental Hospital,
Wakefield Mental Hospital.

Board Offices, Wakefield. July, 1933.

CITY OF LIVERPOOL.

CITY INFECTIOUS DISEASES HOSPITALS.

ASSISTANT RESIDENT MEDICAL OFFICER.

The Port Sanitary and Hospitals Committee of the Council of the City of Liverpool invite applications for the above office. Salary £200 per annum, together with board, residence, etc. (subject to a temporary deduction as authorised by the Council).

The appointment is for a term not exceeding one year, and is not renewable.

Every candidate will be required to possess a registered Medical and Surgical qualification, and should have a knowledge of Bacteriological methods.

The person appointed will not be allowed to engage in private practice, and will be required to devote whole-time service to the duties of the office.

Applications to be made upon forms obtainable from the Medical Officer of Health, Municipal Annexe, Dale Street, Liverpool, to be endorsed "Resident Assistant Medical Officer," and returned to the undersigned so as to be received not later than 10 a.m. on Wednesday, August 30th.

Municipal Buildings, Liverpool. WALTER MOON, Town Clerk.
August 12th, 1933.

THE WELSH NATIONAL SCHOOL OF MEDICINE

UNIVERSITY OF WALES.

The Council of the Welsh National School of Medicine invites applications for the post of JUNIOR ASSISTANT in the MEDICAL UNIT. The appointment is a Temporary one for a period not exceeding two years, is subject to three months' notice on either side, and the salary is £250 per annum. The successful applicant will be expected to take up duties early in October, and will be required to devote his whole time to the duties of the office.

Applications, accompanied by not more than four testimonials, must be received by the undersigned on or before September 15th.

Twelve copies of application and testimonials are required.

The Welsh National School of Medicine, The Parade, Cardiff. S. C. EDWARDS, Secretary.

BOROUGH OF ILFORD.

APPOINTMENT OF ASSISTANT SCHOOL DENTAL SURGEON.

The Ilford Borough Council invites applications from registered Dental Surgeons of either sex holding a degree or diploma in dental surgery for the above appointment.

The inclusive salary of the office will be at the rate of £450 per annum, rising by annual increments of £25, to a maximum of £500 per annum.

The duties of the officer appointed will be mainly connected with the dental inspection and treatment of school children, but the successful candidate will be required to assist when necessary with the other dental services of the Council.

The person appointed will be required to devote his or her whole time to the duties of the office, to reside within the Borough, to work under the general supervision of the Medical Officer of Health of the Council, and to enter into a contract with the Council for the due performance and fulfilment of the duties and conditions of the appointment.

The appointment will be subject to the Staff Regulations of the Council and the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful applicant will be required to pass a medical examination.

Candidates must not be more than 45 years of age.

Applications, which must be made on forms obtainable (with list of duties) from the undersigned, accompanied by copies of three recent testimonials (which will not be returned) and endorsed "Dental Surgeon," must be received at my office at the Town Hall, Ilford, not later than noon on Wednesday, August 23rd.

Canvassing members of the Council or Education Committee, directly or indirectly, is prohibited and will disqualify.

By Order,
ADAM PARTINGTON,
Town Clerk.

Town Hall, Ilford.
August 3rd, 1933.

BIRMINGHAM PUBLIC HEALTH DEPARTMENT.

TUBERCULOSIS SECTION.

Applications are invited from single registered Medical Practitioners for the post of ASSISTANT RESIDENT MEDICAL OFFICER in the Tuberculosis Section of the Public Health Department. The successful candidate will be employed both in a Sanatorium and in a Dispensary.

Candidates should have held a resident General Hospital appointment or an appointment in some Institution set apart for the treatment of those suffering from Tuberculosis. Experience in Surgical Tuberculosis is essential.

The salary will be at the rate of £400 per annum, rising by annual increments of £25 to £450 per annum, with emoluments valued at £150 per annum, subject to the abatement in force from time to time.

The officer appointed will be required to refund to the Council all fees, allowances, and emoluments (other than the foregoing) received by him.

The appointment will be subject to the Birmingham Corporation's Superannuation Scheme, to the candidate passing a medical examinations, and to one month's notice on either side.

Forms of application may be obtained from, and should be returned with three recent testimonials to, the Chief Clinical Tuberculosis Officer, 151, Great Charles Street, Birmingham 3 by 9 o'clock on August 31st.

Council House, Birmingham. F. H. C. WILTSHIRE, Town Clerk.

SWANSEA COUNTY BOROUGH.

INFECTIOUS DISEASES HOSPITAL.

RESIDENT MEDICAL OFFICER.

The Council invite applications for the above appointment from duly qualified unmarried medical practitioners. The salary will be at the rate of £350 per annum, together with emoluments. Previous experience in an Infectious Disease Hospital and in simple bacteriological technique is desirable. The appointment is for one year and not renewable.

Applications (on special forms with particulars of duties, can be obtained from the Medical Officer of Health, Public Health Offices, Swansea), to be sent in not later than September 5th.

BRADFORD CHILDREN'S HOSPITAL.

HOUSE SURGEON and HOUSE PHYSICIAN (Ladies) wanted immediately; fully qualified. Salary £100, with board, residence, and laundry.

Applications, stating age, with recent testimonials, to

J. W. LONGLEY, Secretary Staff

CITY OF MANCHESTER.

PUBLIC HEALTH DEPARTMENT.

BOOTH HALL HOSPITAL.

APPOINTMENT OF ASSISTANT MEDICAL OFFICER.

The Public Health Committee invite applications from qualified Medical Men for the position of Assistant Medical Officer at the Booth Hall Hospital for Children (750 beds), Charlestown Road, Blackley, Manchester.

Every applicant must be a registered Medical Practitioner and unmarried.

Preference will be given to applicants with previous Hospital experience and good surgical experience.

The Hospital is a recognised training school for nurses, and is equipped with all modern Hospital requirements.

Salary £250 per annum, subject to a temporary deduction of £2 10s. per annum. The amount payable is, therefore, £243 10s., with board, residence, and laundry in addition, subject to the terms and conditions of the Manchester Corporation Grading Scheme. No bonus.

The appointment will be made, in the first instance, for a period of six months. The successful candidate however will be eligible for re-appointment for a further period of six months, and not renewable thereafter.

Applications, stating fully the age, training, qualifications, and experience of the candidates, with copies of three recent testimonials, and endorsed on the envelope "Assistant Medical Officer, Booth Hall Hospital," must be addressed to the Medical Officer of Health, Civic Buildings, 1 Mount Street, Manchester 2, and not to members of the Committee or Council, and must be received by him not later than Friday, August 25th.

The candidate appointed will be required to commence duty as soon as possible after appointment, to devote the whole of his time to the duties of the position, to pass a medical examination, to contribute to the Corporation Superannuation Fund, and to execute the Deed of Service.

Canvassing in any form, oral or written, direct or indirect, is prohibited.

Town Hall, Manchester, 2. F. E. WARBRECK HOWELL, Town Clerk.
August 14th, 1933.

COUNTY BOROUGH OF SOUTHAMPTON.

ANTE-NATAL MEDICAL OFFICER, GYNÆCOLOGIST, AND CONSULTING OBSTETRICIAN (Part-time).

Applications are invited from Medical Practitioners, with special experience in Obstetrics and Ante-natal Work for the appointment (part-time) of Ante-natal Medical Officer, Gynæcologist, and Consulting Obstetrician at a salary of £300 per annum.

Form of application and particulars of appointment may be obtained from the Medical Officer of Health, Civic Centre, Southampton, and must be returned to the Town Clerk, Civic Centre, Southampton, endorsed "Gynæcologist," on or before August 31st.

R. RONALD H. MEGGESON,
Town Clerk.
August 8th, 1933.

COUNTY BOROUGH OF PRESTON.

SHAROE GREEN HOSPITAL (250 Beds).

JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER (female).

Applications are invited from fully qualified and registered practitioners for the above appointment. Salary at the rate of £100 per annum, with full board and residence. Appointment in the first instance will be for six months.

Applications, stating age, qualifications and experience, together with copies of three recent testimonials, should reach the Medical Superintendent, Sharoe Green Hospital, Fulwood, Preston, not later than Friday, [illegible]

THE WEIR HOSPITAL
Grass Road, Balham, S.W.12.

JUNIOR RESIDENT MEDICAL OFFICER (male, unmarried) [illegible] dates must be [illegible] tered. Salary £150 [illegible] residence and [illegible] testimonials [illegible] whom further [illegible]

LOWESTOFT AND EAST SUFFOLK HOSPITAL.

ASSISTANT HOUSE SURGEON and ASSISTANT HOUSE PHYSICIAN required [illegible] qualified [illegible] with [illegible] Medical [illegible]

ROYAL VICTORIA INFIRMARY, NEWCASTLE-UPON-TYNE. (725 Beds.)

The House Committee invite applications for the post of HONORARY ASSISTANT SURGEON to the Orthopædic Department.

According to statutory provision every candidate must be a registered Graduate in Surgery of any University recognised by the General Council of Medical Education and Registration of the United Kingdom, or a registered Fellow, Member, or Licentiate of one of the Royal Colleges of Surgeons of the United Kingdom, provided that he is practising as a Surgeon and not as a General Practitioner. It is desirable that applicants should be Fellows of the Royal College of Surgeons, England.

Applications must be sent to the House Governor and Secretary, Royal Victoria Infirmary, Newcastle-upon-Tyne (from whom further particulars may be obtained), not later than Wednesday, September 20th.

The appointment will be made on Thursday, October 5th.

Personal canvassing will be considered a disqualification for office. Candidates may, if they so desire, forward a copy of their application and testimonials to each member of the House Committee.

S. DUNSTAN,
August 10th, 1933. House Gov. & Sec.

BLACKBURN AND EAST LANCASHIRE ROYAL INFIRMARY.

The Board of Management invite applications for the post of HONORARY ASSISTANT SURGEON.

RULE 54.

"No gentleman shall be considered eligible for the post of Physician who has not obtained his degree at one of the Universities of the United Kingdom, and who does not also possess a Surgical qualification; nor for the post of Surgeon, who has not received a Diploma in Surgery and Medicine from one of the Incorporated Colleges of Surgeons or Universities of the United Kingdom."

Applications, stating age, qualifications, and experience, together with copies of three testimonials, to be sent to the undersigned not later than noon on Wednesday, August 30th.

Royal Infirmary, Blackburn. T. DEWHURST, Assistant Secretary

THE LIVERPOOL SANATORIUM. DELAMERE FOREST, FRODSHAM. (175 Beds.)

ASSISTANT TO THE MEDICAL SUPERINTENDENT

The Committee of Management invite applications for the post of ASSISTANT to the MEDICAL SUPERINTENDENT at a salary of £250 per annum, with board, residence, and laundry.

The appointment will be for twelve months, commencing as soon as possible. Candidates must be fully qualified and registered.

Application forms may be obtained from the Medical Superintendent at the Liverpool Sanatorium, Frodsham, to whom they should be returned, accompanied by copies of three recent testimonials, not later than Wednesday, August 30th.

RADCLIFFE INFIRMARY AND COUNTY HOSPITAL, OXFORD.

Applications are invited for the following posts which will become vacant on October 1st:

ONE RESIDENT SURGICAL OFFICER.
TWO HOUSE SURGEONS.
ONE HOUSE PHYSICIAN.
ONE OBSTETRIC HOUSE PHYSICIAN.

The first-mentioned appointment will be made for twelve months with a salary at the rate of £200 per annum, the remainder for six months with salaries at the rate of £120 per annum, with board, etc.

Candidates must be male and qualified.

Applications, with four copies of three testimonials, must be sent to the undersigned on or before Saturday, September 2nd.

A. G. E. SANCTUARY, *Administrator.*
Radcliffe Infirmary & County Hospital, Oxford.

LEICESTER ROYAL INFIRMARY. (472 Beds.)

HOUSE SURGEONS, HOUSE PHYSICIANS, AND CASUALTY OFFICERS.

Vacancies are expected on October 1st for House Surgeons, House Physicians, and Casualty Officers. Salaries at the rate of £125 per annum. Applicants must have held a Resident Hospital post or had similar experience of Hospital work.

Appointment will be for six months, and will be made on September 13th. Applications should be forwarded on or before September 1st to the undersigned, accompanied by copies of three testimonials. HENRY T. FLOWMAN,
August 14th, 1933. Assistant Secretary.

THE PRINCE OF WALES'S GENERAL HOSPITAL, London, N.15.

The following resident posts will be vacant on *September 15th next*:—

(a) ONE JUNIOR HOUSE PHYSICIAN;
(b) TWO JUNIOR HOUSE SURGEONS.

Salary at the rate of £90 per annum, board, residence, and laundry.

The following resident posts will be vacant on October 1st next:—

(c) ONE SENIOR HOUSE PHYSICIAN;
(d) TWO SENIOR HOUSE SURGEONS.

Salary at the rate of £120 per annum, board, residence, and laundry.

Appointments held for six months, but holders are eligible for a further term.

Candidates (male) must be fully qualified and registered, and applications (on the prescribed form), together with copies of three recent testimonials, should be sent to me on or before the first post on Saturday, September 2nd.

J. C. BURDETT, Director.

CUMBERLAND INFIRMARY, CARLISLE. (160 Beds.)

Resident Medical Staff—Four qualified Officers.

The following posts are vacant on October 1st—six months' appointment—male. Previous experience desirable:

(a) HOUSE SURGEON.
(b) HOUSE PHYSICIAN.
(c) SECOND HOUSE SURGEON.
(d) HOUSE SURGEON TO SPECIAL DEPARTMENTS. (Eyes, Ear, Nose and Throat).

Salary—House Surgeon (a) at the rate of £175 per annum; (b) (c) (d) £155 per annum, board, residence, etc., in each case.

Applications, stating age, nationality, qualifications, etc., with copies of not more than four testimonials, must be received by first post on Wednesday, August 23rd, by the undersigned, who will supply further particulars if desired.

Separate applications required for each post.

J. G. HOWITT, Secretary.

MILLER GENERAL HOSPITAL, Greenwich Road, S.E.10.

Applications are invited for the following posts:—

HOUSE SURGEON. Salary £100 per annum.
HOUSE PHYSICIAN. Salary £100 per annum.

Board, residence, and laundry are provided.

Candidates (male) must be unmarried. The appointments are for six months from October 1st next. There are six Resident Officers.

Applications, stating age, nationality, qualifications, and experience, accompanied by copies of not more than three recent testimonials, to be sent to the Secretary, not later than August 29th.

August 12th, 1933.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, Marylebone Road, N.W.1.

ASSISTANT RESIDENT MEDICAL OFFICER (Male) required to commence duty on October 1st. Applicants must be registered. Appointment for three months. On completion of this appointment the selected candidate will be expected to proceed to the post of Senior Resident Medical Officer (for three months) on the recommendation of the Medical Staff. The salary of the Assistant Resident Medical Officer is at the rate of £80 per annum and of the Senior Resident Officer £100 per annum with board residence and washing allowance (4/- weekly). Applications, with copies (not originals) of not more than three testimonials, will be received by the Secretary up to September 4th.

H. B. STOKES, Secretary-Supt.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, Marylebone Road, N.W.1.

DISTRICT RESIDENT MEDICAL OFFICER (male or female) required to commence duty on October 1st. Applicants must be registered. *The appointment is for six months.* The salary is at the rate of £80 per annum with board, residence, and washing allowance (4/- weekly). Applications, with copies (not originals) of not more than three testimonials, should be sent to the Secretary by Sept. 4th.

H. B. STOKES, Secretary-Supt.

DONCASTER ROYAL INFIRMARY. (185 Beds.)

TWO HOUSE SURGEONS (Male) required immediately. Five House Surgeons are resident. Salary at the rate of £175 per annum, with residence, board, and laundry.

This large industrial area offers excellent opportunities for gaining experience.

Applications, accompanied by not more than three testimonials, to be sent to the undersigned immediately.

WALTER R. SMITH, Secretary-Supt.

ROYAL SALOP INFIRMARY, SHREWSBURY. (150 Beds.)

APPOINTMENT OF CASUALTY OFFICER AND RESIDENT ANAESTHETIST.

Applications are invited from fully qualified men for the appointment of Casualty Officer and Resident Anaesthetist vacant immediately. Salary £160 per annum, with board, residence, etc. The appointment is for six months in the first instance, subject to re-appointment for a further period of six months. Resident Staff comprises Resident Surgical Officer, House Physician, and Casualty Officer and Resident Anaesthetist.

Applications, stating age, qualifications, experience, nationality, and accompanied by copies of three recent testimonials, to be sent to the undersigned forthwith.

Board Room. J. W. NOBLE,
August 11th, 1933. Secretary-Supt.

HOSPITAL CONVALESCENT HOME, PARKWOOD, SWANLEY, KENT. (For the reception of patients (women and children) in an early stage of convalescence from the London Hospitals.—120 Beds.)

The Trustees of the Hospital Convalescent Home invite applications for the post of LADY RESIDENT MEDICAL OFFICER, which will become vacant during October. The appointment is for a period of six months. The salary is at the rate of £200 per annum, with quarters and full board. Candidates should have had recent Hospital experience.

Applications, stating age, qualifications, and full details of experience, should be accompanied by copies of three recent testimonials, and addressed to C. M. POWER, Esq., Secretary, *Hospital Convalescent Home, c/o Westminster* Hospital, Broad Sanctuary, London, S.W.1, on or before Thursday, September 7th.

BIRKENHEAD GENERAL HOSPITAL. (156 Beds.)

Applications are invited for the following Resident (Male) posts for the six months commencing October 1st.

SENIOR HOUSE SURGEON. Salary £150 per annum.
SECOND HOUSE SURGEON. Salary £100 per annum.
HOUSE PHYSICIAN. Salary £100 per annum.
CASUALTY OFFICER. Salary £100 per annum.

All with board, residence, and laundry.

Applications, stating age, nationality, and qualifications, together with three recent testimonials, to reach the undersigned as early as possible.

W. H. DANIELS, F.C.I.S.,
Secretary-Superintendent.

CORNELIA & EAST DORSET HOSPITAL, POOLE, DORSET. (107 Beds.)

HOUSE SURGEON—HOUSE PHYSICIAN.

Applications are invited (from single men) for the post of House Surgeon, salary £150 per annum with usual emoluments; and House Physician, salary £100 per annum with usual emoluments.

Duties to commence September 1st next for six months.

Applications, stating age, experience, and qualifications, together with *copies of three* recent testimonials (which will not be returned), should reach the undersigned at the Hospital as soon as possible and not later than Aug. 23rd.

E. S. FOLEY/ Secretary.

EDINBURGH HOSPITAL FOR WOMEN AND CHILDREN, Whitehouse Loan, Edinburgh. (56 Beds.)

Applications are invited from fully qualified medical women for the posts of (1) JUNIOR HOUSE SURGEON rising to Senior House Surgeon after three months: honorarium at rate of £25 per annum for first three months, £50 per annum for *second three months*, with board, residence, and laundry. Also (2) HOUSE PHYSICIAN for six months at rate of £50 per annum.

The appointments are for six months from October 1st. Applications, with copies of testimonials, to be sent by August 26th to the Secretary, 1, Bruntsfield Crescent, Edinburgh.

EAR & THROAT HOSPITAL, BIRMINGHAM.

THIRD HOUSE SURGEON wanted (non-resident). Must be qualified and with Clinical experience. Salary at the rate of £150 per annum, with lunch on six week-days, and an allowance at the rate of £50 per annum in lieu of full board and lodging. Appointment for six months, commencing October 1st. Applications and *testimonials to be forwarded* on or before September 12th to the undersigned.

W. H. LOMAS, *Secretary.*

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands.

Town or District.	Town or District.	Town or District.
HOSPITAL	**CONTRACT PRACTICE** (*contd.*)	**PUBLIC HEALTH** (*contd.*)
NORTH LONSDALE HOSPITAL, BARROW-IN-FURNESS. (*Visiting and Resident Appointments.*)	MARDY, GLAMORGAN. (*Workmen's Medical Scheme.*)	FULHAM BOROUGH COUNCIL, Maternity and Child Welfare Department. (*Assistant Medical Officer—Woman.*)
CONTRACT PRACTICE	NEATH AND DISTRICT. (*Medical Aid Association.*)	HERTFORDSHIRE COUNTY COUNCIL. WARE SANATORIUM. (*Assistant Medical Officer.*)
EBBW VALE, MON. (*Workmen's Medical Society.*)	OAKDALE, MON. (*Medical Officer for Medical Aid Association.*)	COUNTY BOROUGH OF NEWPORT PUBLIC ASSISTANCE INSTITUTIONS (*Resident Medical Officers—Male.*)
GILFACH GOCH, GLAMORGAN. (*Workmen's Medical Scheme.*)	OGMORE VALLEY, GLAMORGAN (*Wyndham Colliery Medical Aid Society.*) (*Workmen's Medical Scheme.*)	COUNTY BOROUGH OF SOUTH SHIELDS. HARTON INSTITUTION AND CLEADON COTTAGE HOMES (*Medical Officer.*)
LLWYNPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN. (*Workmen's Medical Scheme.*)	**PUBLIC HEALTH**	CITY OF YORK (*Assistant Medical Officer of Health—Woman.*)
LOWESTOFT MEDICAL INSTITUTE. (*Medical Officer.*)	DORSET COUNTY COUNCIL (*County Medical Officer of Health.*)	

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch	Town or District.	Hon. Sec. of Division or Branch
NEW SOUTH WALES. (*All Friendly Society Appointments.*)	Dr. J. G. HUNTER (Medical Secretary, New South Wales Branch), 135, Macquarie St., Sydney, N.S.W.	QUEENSLAND. (*Brisbane Associated Friendly Societies Institute.*) (*Toowoomba Associated Friendly Societies, Medical Institute, Toowoomba.*)	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. (*Contract Practice Appointments.*)	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 150, Wellington, New Zealand.
VICTORIA. (*All Institute or Medical Dispensaries.*)	Dr. J. P. MAJOR (Hon. Sec., Victorian Branch, British Medical Association, Medical Society Hall, East Melbourne, Victoria.			WESTERN AUSTRALIA. (*Contract and Lodge Practices.*)	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.

August 16th, 1933. By Order of the Council. C. C. ANDERSON, Medical Secretary.

DEVONSHIRE ROYAL HOSPITAL, BUXTON, DERBYSHIRE. (300 Beds.)
(A National Hospital for Rheumatism and Allied Diseases.)

Applicants are invited for the post of ASSISTANT HOUSE PHYSICIAN (male) to commence duties September 1st. Candidates must be fully qualified and registered. The appointment is for a minimum period of six months, and may be extended for a further period of six months. Salary commencing £150 per annum, and rising to £175 after three months' service, with board, residence, and laundry.

Applications, endorsed "Assistant House Physician," stating age, experience, and qualifications, together with copies of three recent testimonials, must be forwarded without delay to the undersigned, from whom any further particulars may be obtained.

This appointment offers special facilities for any gentleman preparing a thesis or wishing to undertake research work, and the Hospital contains a Pathological Laboratory and Biochemical and X-ray Departments.

Canvassing will disqualify.

By Order of the Committee of Management,
A. PRESTON TURNER,
General Supt. & Secretary.

CHELMSFORD AND ESSEX HOSPITAL AND DISPENSARY,
London Road, CHELMSFORD.

RESIDENT MEDICAL OFFICER required. Salary at the rate of £150 per annum, with board, lodging, and laundry. Hospital contains 120 beds. Applications to be sent to the Secretary, Chelmsford and Essex Hospital, not later than Monday, September 11th.

MANCHESTER ROYAL INFIRMARY

RESIDENT CLINICAL PATHOLOGIST (Male)

The Board of Management of the Manchester Royal Infirmary invite applications for the above post, which will be vacant on October 4th. Applicants must hold a medical and surgical qualification and be registered. The duties are whole time and to work under the Director of the Clinical Laboratory and to be responsible for all urgent pathological laboratory work. Salary £100 per annum with board residence and allowance for laundry. There will be facilities for research work or study for D.P.H., or other qualifications.

Applications, with testimonials and stating age, to be sent to the Chairman of the Medical Board not later than August 25rd.

By Order,
F. G. HAZELL,
August 5th, 1933. Gen. Supt. & Secretary.

BIRMINGHAM & MIDLAND SKIN HOSPITAL, John Bright Street, BIRMINGHAM.

Applications are invited from registered Medical Practitioners to act as CLINICAL ASSISTANTS in the Out-patient Consulting Room each afternoon, except Saturday and Sunday.

Honorarium at the rate of Half a Guinea per attendance for one afternoon per week. Appointments tenable for one year commencing October 2nd.

Applications (one copy), stating age, qualifications, experience, and afternoons at liberty, should be addressed to the Secretary, not later than September 1st.

The work of the Hospital can be seen each afternoon by doctors and *bona fide* students.

HUBERT SUMNER, Secretary.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART,
Westmoreland Street, Marylebone, W.1.

RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Resident Medical Officer (male). The appointment is for a period of six months from October 1st, but may be renewed for a further period not exceeding six months.

Salary at the rate of £150 per annum with board, residence and washing.

Candidates, who must be duly registered Medical Practitioners, will not be expected to call on the Honorary Medical Staff, but should send their applications with copies of three recent testimonials, to me at the Hospital not later than Saturday, September 16th.

ROBERT G. E. WHITNEY,

BRISTOL GENERAL HOSPITAL

The Committee invites applications for the appointment of HOUSE PHYSICIAN.

The appointment will be for six months from to January 31st, 1934 with salary at the rate of £80 per annum, [illegible] provided in the Hospital.

Candidates must be registered members of the Medical Arts and [illegible] and must have good personal character and [illegible] had recent experience in the administration of anæsthetics.

Forms of application [illegible] Secretary, and must be returned [illegible] with copies of [illegible] testimonials, [illegible] from whom further [illegible] THOMAS W. [illegible]

(Appointments continued on p. 36.)

British Medical Journal
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WANTED.—EXPERIENCED PRACTITIONER with thorough knowledge of German language for TRANSLATIONS of medical literature into English. *Send references, state experience, price, and terms.*—Address, No. 6030, B.M.A. House, Tavistock Square, W.C.1.

RESIDENT PATIENT RECEIVED; DOCTOR'S private house, Skye, sea air, outdoor recreations, trained nurse, quiet locality, library, motoring. No licensed premises.—Address, No. 5961, B.M.A. House, Tavistock Square, W.C.1.

YOU ARE INVITED TO VISIT THE CENTRAL RESEARCH CLINIC, 20/22, Chenies Street, W.C.1. A private hospital where General Practitioners find £20,000 worth of Equipment which they can use for the benefit of their patients and themselves.

ASSISTANCIES.

WANTED.—LADY OUTDOOR ASSISTANT IN large General Practice (Lancashire). Salary £330 p.a.; commission on midwiferies and operations. £48 p.a. upkeep of her own car. Excellent self-contained house, furnished large essentials. Free. Usual bond. Photo and references.—Address, No. 6003, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANT, MARRIED OR single, with experience equal to Eye work, E.N.T., or lumbar punctures. Seven guineas p.w., with board and lodgings. State height, age, and if tectotal. Send photo.—Address, No. 5926, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANTSHIP OR LOCUMS at once. Woman highly qual., exp., well received. Grateful offers hospitality immed. and future. London or easily accessible, while waiting post, or between locums, in return help.—No. 6027, B.M.A. House, Tavistock Sq., W.C.1.

WANTED.—ASSISTANT, WITH VIEW TO Partnership, in industrial practice in the Midlands. Young Scotsman preferred. Salary £300 p.a., with board. Give full particulars.—Address, No. 6122, B.M.A. House, Tavistock Square, W.C.1.

WANTED AT ONCE, MALE ASSISTANT, single, aged about 30, for panel and private Practice in pleasant South-west seaside resort. Salary £425, and car allowance. Good prospects.—Address, with references and photo, No. 6022, B.M.A. House, Tavistock Sq., W.C.1.

WANTED IMMEDIATELY, ASSISTANT FOR Suburban Practice in Midlands. Salary £350, all found. Must be energetic, reliable, and abstainer. Motorist essential. Usual bond. —Address, No. 6012, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY.—MALE ASSISTANT, about 27, single, for private and panel Practice in S. Yorks Town. Some Hospital and G.P. experience essential. Commencing salary £400. All found.—Address, No. 6048, B.M.A. House, Tavistock Square, W.C.1.

WANTED, AN INDOOR ASSISTANT IN A Glamorganshire mining Practice. Salary £2-3 per annum. Usual bond.—Address, stating age, references, etc., No. 6023, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — INDOOR MALE ASSISTANT, single, R.C., Irish, motor cyclist, aged about 30, for General Practice in University Town. Salary £300. Usual bond.—Address, with references, etc., No. 6014, B.M.A. House, Tavistock Square, W.C.1.

WANTED, OCTOBER, WOMAN INDOOR ASSISTANT (Protestant), for panel and private Practice in Birmingham Suburb. View Partnership in 2 years. Send full particulars and photo.—Address, No. 6013, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—AN INDOOR ASSISTANT, MAN or woman, for private and panel Practice in Midland town. Salary £300 p.a. Car provided. Usual bond.—Address, No. 6036, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANT, INDOOR, MALE, young, single, newly qualified, general country Practice Norfolk Broads. Salary £250—£300. Car provided. — Address, No. 6125, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY.—INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view; good salaries. State full particulars.—BRITISH MEDICAL BUREAU, 33, *Cross Street, Manchester, 2.*

ASSISTANCY WANTED BY M.B., CH.B., married tectotal, 29 years of age. General, Maternity, and Fever Hospital experience. Also general practice. Excellent testimonials. Keen. Reliable. Drive car. Free.—Address, No. 6019, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANCY WANTED BY EXPERIENCED M.B., B.Ch. (Hons. Graduate). Ex H.S. and H.P. Post-graduate Midwifery course. Anaesthetist. Energetic. Abstainer. Capable of sole charge. State salary. — Address, No. 6034, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT, MALE, MARRIED OR SINGLE, wanted, with view to Partnership later. Share worth £1,000 p.a. Industrial Practice Lancashire City. State full details.—Address, No. 6042, B.M.A. House, Tavistock Sq., W.C.1.

ASSISTANTSHIP WANTED BY SCOTCH Graduate, M.B., Ch.B., aged 27, three years general practice. *Good references.* Own car. Free now.—Address, No. 6028, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP, WITH VIEW, WANTED BY M.B., B.Ch., ex H.S. Excellent testimonials. married, aged 27 years, keen, energetic, abstainer; drive car. Free now.—Address, No. 5964, B.M.A. House, Tavistock Square, W.C.1.

YOUNG M.D., EX H.P. LONDON AND MANchester and experienced G.P., with first-class testimonials, seeks ASSISTANTSHIP with Evangelical Christian Doctor, with view to partnership. — Address, No. 6032, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIPS.

WANTED.—PARTNERSHIP OR PRACTICE by young married man. Five years' experience of general practice. Within 60 miles London, Eastern Counties excepted. Interested in Midwifery and Anaesthetics. Good house and garden essential. Country district preferred. Also good schools. Capital available.—Address, No. 6017, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — SMALL SHARE IN SOUND mixed Practice, by able, active, and successful practitioner. Recently disposed of Practice Desirous of working another 8 or 10 years in congenial surroundings. Capital available. Branch acceptable, as Assistant if necessary.—Address, No. 6011, B.M.A. House, Tavistock Square, W.C.1.

PARTNER WANTED.—FLOURISHING PRACTICE, large South Coast Resort, doing £3,200 p.a., single-handed. Under 30, keen, hard worker; preferably F.R.C.S.Eng. 1,600 panel, and good-class visitors and residential; great scope. Hospitals available. Central house must be taken over. 1/3 share, 2½ years' purchase. — Address, No. 5938, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIP WANTED IN A FIRST-CLASS General Practice not over half an hour's rail journey from South Kensington. Purchaser, who is of wide experience and an ex Regional Medical Officer, seeks a small share in a very active concern where good work only is required. — Letters to IATROS, Authors' Club, Whitehall Court, S.W.1.

KENSINGTON OR LONDON, W.—WANTED PARTNERSHIP or Outdoor ASSISTANTSHIP by F.R.C.S. Capital available.—Address, No. 6123, B.M.A. House, Tavistock Sq., W.C.1.

M.B., CH.B., F.R.C.S.E., REQUIRES POST of PAID PARTNER or would manage branch practice. Scotsman, 41. Protestant. Many years' experience and well-received in all classes of practice. Highest references. — No. 6049, B.M.A. House, Tavistock Sq., W.C.1.

PARTNER WANTED AFTER PRELIMINARY Assistantship. One-third SHARE worth £1,000 p.a. Purely industrial practice, Northern City. House to let, or if single, furnished. State details.—Address, No. 6043, B.M.A. House, Tavistock Square, W.C.1.

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A DISPENSER, LADY, DESIRES POST WITH doctors. Hall certificate. Experienced. Quick and accurate dispenser. Good book-keeper. Used to Surgery routine. Good testimonials.—Address, No. 6033, B.M.A. House, Tavistock Square, W.C.1.

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DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeuse-Dispensers, are invited to write, wire, or 'phone Temple Bar 5858, THE DISPENSERS' BUREAU, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

DOCTOR'S NIECE, GENTLEWOMAN, 32, AS SECRETARY-RECEPTIONIST. Quiet, tactful, of good manner and appearance. Special experience with neurotics.—"M.C.," c/o Messrs. BARTON AND PEARMAN, 10, Norfolk Street, Strand, W.C.2.

GROUP CLINIC.—REQUIRED FOR GROUP Clinic in course of formation: DENTAL SURGEON and CARDIOLOGIST. All participants of the Group must be on the staff of a hospital. For full details, Address, No. 6031, B.M.A. House, Tavistock Square, W.C.1.

LADY DISPENSER, BOOK-KEEPER, RECEPtionist requires POST. Apothecary Hall Diploma. 5 years' experience private and panel, good reference, now free. In or near London preferred.—Address, No. 6029, B.M.A. House, Tavistock Square, W.C.1.

RADIOLOGIST (WHOLE-TIME) WITH SUBstantial remuneration wanted for Kepplestone Nursing Home. Particulars of the appointment can be had from the Secretary, 21, Golden Square, Aberdeen.

SANATORIUM OR OTHER INSTITUTION FOR Tuberculosis. General Practitioner, special knowl. Tuberculosis and Chest Diseases, including A.P. Therapy, whose age debars any public appointment, desirous of temporary or permanent POST.—At present doing *sanatorium* locum tenens. Free mid September.—Address, No 6010, B.M.A. House, Tavistock Sq., W.C.1.

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THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 85, Eccleston Square, S.W.1 (Telephone: Victoria 2722), supplies qualified Dispensers, Book-keepers, *Laboratory* Assistants, Sanitary Assistants, Male *Nurses*, Mental and Special Treatment Orderlies, *Dental* Clerk Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

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HONOURS M.B., AGED 31, OWN CAR, OPEN to do short LOCUMS, pleasant parts; or hospitality wife and boy.—Address, No. 6016, B.M.A. House, Tavistock Square, W.C.1.

LABORATORY ASSISTANT REQUIRED FOR three weeks as LOCUM TENENS. Send particulars to Secretary-Superintendent, County Hospital, Lincoln.

LOCUM. — RETIRED COLONEL, I.M.S. London or Surrey. Own car. No midwifery. — Address, No. 6018, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL WOMAN (ELDERLY) DOING Summer LOCUMS. Light work only. No midwifery. Open to ENGAGEMENT. Now in Midlands. Prefers North Country or Scotland. —Address, No. 6120, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES.

WANTED BY HONOURS GRADUATE, AGED 31, sound Country PRACTICE, pleasant part southern half England. Income £1,200—£1,600. Convenient to shops and educational facilities. Good house (modernised) to rent or buy. Advertiser keen on Anaesthetics and Midwifery. Preliminary Assistantship entertained.—No. 6015, B.M.A House, Tavistock Sq., W.C.1.

WANTED, BRIGHTON OR DISTRICT, PRACTICE, £750 to £1,500 p.a., preferably with panel, 2½ years' purchase. Cash paid. Sound concern. Replies treated in strict confidence. — Address, No. 6020, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—PRACTICES OR PARTNERSHIPS. Incomes £600—£1,500 p.a., early sale almost assured. Messrs. PEACOCK & HADLEY, 19, Craven Street, Strand, W.C.2, have a large number of applicants wanting to get settled for the winter, any part or district.

WANTED.—GOOD-CLASS PRACTICE OR PARTNERSHIP, with scope. Residential Country or Town with educational facilities. Advertiser highly qualified. Capital available.—Address, No. 6044, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, PRACTICE OR PARTNERSHIP, preferably with panel, South of Thames, between Southampton and Cliftonville. Income £1,000 upwards. Ample capital. Mod. house and garden, rent or buy.—No. 6057, B.M.A. House, Tavistock Sq., W.C.1.

WANTED, IN OR NEAR GLASGOW. PRACTICE or PARTNERSHIP in good residential district. Income £1,500 upwards. Advertiser aged 35, married. Free November. Capital in hand.—Address, No. 6031, B.M.A. House, Tavistock Square, W.C.1.

WANTED, IN OR NEAR LONDON, PRACTICE, £1,500 to £2,000 p.a., with large panel. Pleasant house to rent. Cash available. —Address, No. 6007, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—PRACTICE, IN OR NEAR LARGE town. £1,300—£1,800 p.a.; substantial panel. House, with garden, to rent or lease.—Address, No. 6040, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—CASH AND PANEL PRACTICE in or near London. Large panel essential. —Address, No. 6006, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE. — VERY OLD-ESTABLISHED General Medical PRACTICE (West Riding Town). Panel has hitherto been declined but offers great scope. Present Practitioner retiring from general practice to specialise. Gross receipts last three years average £1,890—Address, No. 6025, B.M.A. House, Tavistock Square, W.C.1.

DENTAL SURGEON, EXPERIENCED, wishes CO-OPERATE with Doctor, extensive practice, large panel, populous area, Middlesex side. View to establishing Practice, including evening work.—ARTHUR ALDRED, L.D.S., Ashford, Middlesex.

BIRMINGHAM DISTRICT. — WANTED BY experienced Practitioner with additional qualifications, PRACTICE or PARTNERSHIP in residential area. Capital available. Own car. —Address, No. 6045, B.M.A. House, Tavistock Square, W.C.1.

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Please write clearly and print your name and address in block letters. State if a box number is required; there is no extra charge for this or for forwarding replies by post.

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BRITISH MEDICAL JOURNAL,
B.M.A. HOUSE,
TAVISTOCK SQUARE, W.C.1.
Telephone: Euston 2111

CAPITAL AVAILABLE TO PURCHASE PRACTICE of £1,000—£1,500 p.a. S.W. suburb of London. Advertiser requires fair-sized house and garden.—Address, No. 5368, B.M.A. House, Tavistock Square, W.C.1.

CLYDE COAST, AYRSHIRE OR RENFREWshire, PRACTICE or PARTNERSHIP wanted by M.D. Eight years' experience in G.P. Ample capital. Free in three months. Preliminary Assistantship if required.—Addr., No. 6046, B.M.A. House, Tavistock Square, W.C.1.

ESSEX. — LARGE TOWN. — WELL-ESTABlished mixed-class PRACTICE. Receipts average £750 p.a., including panel. Premium 1½ years' purchase. Nice house to be sold also —Apply, PEACOCK & HADLEY, 19, Craven St., Strand, W.C.2.

FOR SALE.—NUCLEUS OF A PRACTICE. panel about 50, within 12 miles Charing Cross, in rapidly developing Western Suburb Small premium. — Address, No. 6009, B.M.A House, Tavistock Square, W.C.1.

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F.R.C.S.ENG., AGED 47, STAFF GENERAL Hospital 14 years, desires small PRACTICE or SHARE in pleasant district, with definite scope for Surgery. Small or no panel preferred. —Address, No. 6024, B.M.A. House, Tavistock Square, W.C.1.

LANCASHIRE TOWN. — MIXED GENERAL PRACTICE, established over 30 years, average income last three years over £1,100. Panel 1,100. Large corner house, separate entrance surgery and waiting room. Ample scope for younger man. Price of Practice and house £3,150, or house could be rented at £100 p.a.—No. 5906, B.M.A. House, Tavistock Sq., W.C.1.

LONDON, S.E.—WELL-ESTABLISHED CASH and panel PRACTICE. Receipts (cash) average £15 per week and panel 650. Small corner house and garage, long lease. Premium £1,250, payable only £350 down, rest by instalments. Good scope for increase. — Apply, PEACOCK & HADLEY, LTD., 19, Craven Street, Strand, W.C.2.

MIDDLESEX.—WELL-ESTABLISHED CASH and panel PRACTICE. Cash taking £1,200 p.a., and, in addition, panel 500. Nice house, long lease. Premium £1,800.—Apply, PEACOCK & HADLEY, LTD., 19, Craven Street, Strand, W.C.2.

MANCHESTER.—OLD-ESTABLISHED GOOD house, garage, £60 Receipts £650, excellent scope Panel about 780, increasing. Price 1½ years' purchase, part deferred.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

MEDICAL MAN OF EXPERIENCE REQUIRES G.P. Receipts about £1,300 p.a. North of Scotland preferable, not essential.—Address, No. 6005, B.M.A. House, Tavistock Sq., W.C.1.

NICE RIVERSIDE TOWN. — OLD-ESTABlished PRACTICE. Receipts average nearly £800 p.a., including panel 420. Nice house to be sold. Premium for Practice £1,200 District is mainly residential. — Apply, PEACOCK & HADLEY, LTD., 19, Craven St., Strand, W.C.2.

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YORKS. — OLD-ESTABLISHED — RECEIPTS over £800, great scope Nice house garden, garage, rent £50. Panel 700 increasing Price £1,250 or offer, part deferred.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

HOUSES, CONSULTING ROOMS

WANTED — DOCTOR [illegible] SURGERY [illegible] Lodging free (2 rooms and [illegible] able from house [illegible] Bishopsgate 4691 [illegible] October 9th.—Address, No. 6042, B.M.A. House, Tavistock Square, W.C.1.

A FEW DOORS FROM HARLEY STREET 50 per cent. reduction [illegible] lent Light Consulting Rooms [illegible] Suite with Secretary's Room [illegible] of Three Rooms [illegible] For full particulars, address, No. [illegible] House, Tavistock Square, W.C.1.

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CHELSEA.—ROOMS ON GROUND FLOOR suitable for a Medical Practitioner, been used as a surgery for about 12 years. No premium, inclusive rent £78 p.a.—Apply, Owner's Agents, ANDREWS & HITCH, 69a, King's Road, Chelsea, S.W.3.

COMPLETELY REDECORATED HOUSE Upper Wimpole St. THREE CONSULTING ROOMS, ground and first floors, £150 to £275, including exp. receptionist, telephone, rates, heating, lighting, cleaning; three plates avail. —No. 6004, B.M.A. House, Tavistock Sq., W.C.1.

CONSULTING ROOMS TO LET. — HARLEY Street and Mayfair districts. Particulars sent on application. Those having consulting rooms to let should send particulars to ELGOOD & Co., 10, Henrietta Street, Cavendish Square, W.1. Langham 2601.

CONSULTING ROOM, WHOLE OR PART-time. Also BEDROOM in newly decorated house near Harley Street. To let together or separately.—Address, No. 6124, B.M.A. House, Tavistock Square, W.C.1.

CONVALESCENT, NURSING HOME, OR other Institution, Bexhill-on-Sea. Commodious and well-arranged DETACHED RESIDENCE, high ground with views to sea. 3 recep., 8 bed., bath., ample domestic offices. Secluded garden and garage. For sale privately or auction 24th inst. — Particulars from GORDON GREEN & WEBBER, 3, Sea Road, Bexhill-on-Sea.

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FOR SALE.—16-INCH OIL INDUCTION COIL OUTFIT (makers, X-Rays Ltd.) complete with 2 Andrews Leviathan tubes—9 inch diameter bulb. Lead-rubber lined tube box.—Apply, Hon. Secretary, NATIONAL SANATORIUM, Benenden, Kent.

1000 DOCTORS' A/C FORMS, 15/- CARR. PAID. Printed in the modern easily-read lettering on splendid paper. Write for sample. Letterheads, Cards, Envelopes, etc.—ANDERSON & SON, Printers, 1, Hill Place (near Surgeons' Hall), Edinburgh.

APPOINTMENTS.—Contd.

WEST LONDON HOSPITAL, Hammersmith Road, W.6. (234 Beds.)

Required ONE HOUSE PHYSICIAN, ONE HOUSE SURGEON (General and some Deep X-Ray Therapy), ONE HOUSE SURGEON for Throat, Nose and Ear Department (with some Anaesthetic duties). These three appointments (males) are tenable for six months from October 1st next, subject to one month's notice on either side. Salary at the rate of £100 per annum, with board, lodging, and laundry allowance.

Candidates must be registered under the Medical Act.

Applications (which must be on printed forms obtained from me) must reach me not later than first post on Thursday, September 14th. Selected candidates will be required to call upon such members of the Medical Staff as directed, to be in attendance at the Medical Council Meeting on Friday, September 22nd, at 4.30 p.m., and the House Committee Meeting at 5 p.m. the same day, when the appointments will be made.

H. A. MADGE, Secretary.

NORTH RIDING INFIRMARY, MIDDLESBROUGH. (General Hospital—150 Beds.)

Applications are invited for the post of SENIOR HOUSE SURGEON (male) to take up duties October 1st. Candidates must be unmarried and of British nationality. Appointment will be for not less than six months and renewable. Salary £200 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should be sent to the undersigned by September 11th.

GERALD A. KENYON, Secretary-Supt.

THE PRINCESS BEATRICE HOSPITAL Richmond Road, Earl's Court, S.W.5. (General Hospital—80 Beds.)

Applications are invited from suitably qualified candidates as SENIOR RESIDENT MEDICAL OFFICER. Preference will be given to candidate with F.R.C.S. Must have had previous experience. Appointment for one year from October 1st. Salary £150 per annum, with board, residence, and laundry. Applications to be sent to the House Governor not later than August 22nd, together with copies of three recent testimonials.

THE PRINCESS BEATRICE HOSPITAL, Richmond Road, Earl's Court, S.W.5. (General Hospital—80 Beds.)

RESIDENT MEDICAL OFFICER (male) required to act as House Surgeon and Casualty Officer for six months as from October 1st. Salary at the rate of £110 per annum, with board, residence, and laundry. Previous resident experience essential.

Applications to be sent to the House Governor not later than August 28th, accompanied by copies of three recent testimonials.

KING EDWARD VII HOSPITAL, WINDSOR. (181 Beds.)

HOUSE SURGEON required for six months from October 1st. Applicants must be fully qualified men or women, registered, and preferably have held a resident appointment.

Salary at the rate of £100 per annum, together with board, residence, and laundry.

Applications, stating age, qualifications, and experience, accompanied by testimonials, should be sent to the undersigned not later than September 4th.

ARTHUR E. CHURCHER, Secretary.

THE WOMEN'S HOSPITAL, CATHARINE STREET, LIVERPOOL.

There will be a vacancy for a HOUSE SURGEON at the above Hospital for a period of six months, commencing October 1st.

Salary at the rate of £100 per annum.

Applications to the Hon. Secretary of the Medical Board by September 16th.

NORTH STAFFORDSHIRE ROYAL INFIRMARY, STOKE-ON-TRENT.

HOUSE SURGEON required. Salary £150 per annum, with residence, etc. Previous Hospital Send application with immediately.

W. STEVENSON, ... ary & House Gov.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

Applications are invited for the post of RESIDENT ANÆSTHETIST AND EMERGENCY OFFICER (male) The appointment will be for three months from September 16th Salary at the rate of £130 per annum with board residence, and laundry Candidates, who must be unmarried and duly registered are requested to forward their applications, stating age qualifications, etc, together with copies of not more than four recent testimonials, to the undersigned on or before Wednesday September 6th

W H HEAD, Secretary Supt

COVENTRY & WARWICKSHIRE HOSPITAL (307 Beds Main Hospital 40 Beds Alcock Convalescent Hospital) Seven Resident Medical Officers

RESIDENT HOUSE PHYSICIAN (male) wanted Salary £160 per annum, with board, laundry, and attendance provided Candidates must be duly qualified and registered

Applications stating age and enclosing copies of recent testimonials should be sent to the undersigned immediately

(MISS) R HOOPER,
August 14th, 1933 Secretary

ALBERT DOCK HOSPITAL, Connaught Road, E.16 (SEAMEN'S HOSPITAL SOCIETY)

RESIDENT MEDICAL OFFICER required for six months from October 1st Salary £110 per annum, and a proportion of fees with board, residence and laundry Candidates must be male Applications with copies of three testimonial to be sent in by September 6th to the undersigned

Greenwich R E WARD,
August 14th, 1933 Secretary

HOSPITAL FOR TROPICAL DISEASES, Endsleigh Gardens W C 1 (SEAMEN'S HOSPITAL SOCIETY)

TWO HOUSE PHYSICIANS required for six months from October 1st Salary £120 per annum with board, residence and laundry Candidates must be male Applications with copies of three testimonials, to be sent in by September 6th to the undersigned

Greenwich R E WARD,
August 14th 1933 Secretary

ELSIE INGLIS MEMORIAL MATERNITY HOSPITAL, Spring Gardens, Edinburgh (60 Beds.)

Applications are invited from fully qualified medical women for the posts of (1) SENIOR HOUSE SURGEON for three months at the rate of £50 per annum (2) JUNIOR HOUSE SURGEON for six months honorarium at rate of £25 per annum from October 1st, with board residence and laundry Applications, with copies of testimonial to be sent by August 26th to the Secretary, 1, Brunt field Crescent, Edinburgh

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YORK COUNTY HOSPITAL (200 Beds)

The post of RESIDENT ANÆSTHETIST AND ASSISTANT HOUSE SURGEON will shortly become vacant Salary £150 per annum, with board residence and laundry

Applications from men or women stating age and previous experience together with copies of not more than three recent testimonial to be sent to the undersigned not later than 9 a m on Monday, August 28th

H E RYAN, General Supt

SOUTHAMPTON CHILDREN'S HOSPITAL AND DISPENSARY FOR WOMEN (45 Beds)

The Board of Management invite applications for the post of RESIDENT MEDICAL OFFICER (Lady) Six months appointment vacant shortly Salary at the rate of £150 per annum, with board residence and laundry Applications stating age and accompanied by copies of testimonials to be sent to the undersigned as soon as possible

ELLEN MATTHEWS Secretary

MANCHESTER AND SALFORD HOSPITAL FOR SKIN DISEASES

HOUSE SURGEON

Applications are invited for the post of House Surgeon Must be unmarried The appointment is for six months from October 1st Salary at the rate of £100 per annum, with board and residence

Application with copies of three testimonials to be sent to the undersigned, Quay Street, Manchester, on or before Monday, August 28th

JOHN VALL, Secretary

CHELTENHAM GENERAL AND EYE HOSPITALS

The Board of Management invite applications for the post of HOUSE SURGEON (male) at the General Hospital

Candidates must be unmarried and have a registered qualification in Medicine and Surgery Salary £200 per annum with board, lodging, and laundry

Applications with copies of testimonials to be sent in sealed envelopes marked House Surgeon to the undersigned not later than August 26th

J CUMMING SMITH F C I S, Secretary
The General Hospital, Cheltenham
August 14th 1933

ACTON HOSPITAL, W 3

JUNIOR RESIDENT MEDICAL OFFICER (male, unmarried) required to commence duties September 1st (promotion to Senior Officer in October if satisfactory)

Salary £150 per annum with board, residence and laundry Candidates must be fully qualified and registered.

Applications, stating age, nationality and qualifications together with a copy of three recent testimonials, should reach the Secretary Acton Hospital Gunnersbury Lane, W 3, by Monday, August 21st

DONALD C D SWORD
August 8th 1933 Secretary

GENERAL LYING IN HOSPITAL York Road, Lambeth, S E 1

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER AND ANÆSTHETIST Salary at the rate of £100 per annum with board, residence and laundry Appointment for three months commencing October 1st The successful candidate will subject to satisfactory service, be required to succeed to the Senior Medical Officer's post for a further three months

Applications stating age and qualifications with copies of three recent testimonial to be sent to the undersigned not later than Sept 1st

LILY HEARN, Secretary

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST

CROSSLEY SANATORIUM, DELAMERE

The Board of Management invites applications for the post of HONORARY CONSULTING THORACIC SURGEON Candidates must be Fellows of the Royal College of Surgeons

Applications accompanied by copies of testimonials should be sent not later than August 31st to Mr W HUNT Secretary, 40 Hardman Street Manchester

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ROYAL UNITED HOSPITAL, BATH (170 Beds)

Wanted at once a HOUSE PHYSICIAN Salary £175 per annum Residential Staff of four The appointment will be for not less than six months, as from August 15th Candidates must be male, unmarried, and of British nationality Applications with three testimonial to be addressed to the undersigned immediately

J LAWRENCE MEARS
July 29th, 1933 Secretary Supt

STROUD GENERAL HOSPITAL STROUD GLOS

HOUSE SURGEON (male or female) required Candidates must be fully qualified and duly registered Salary £150 per annum with board residence and laundry Applications stating nationality with copies of testimonial to be sent to the undersigned from whom further information may be obtained

C FORD SPENCER Secretary

THE MIDDLESEX HOSPITAL, Mortimer Street W 1

An ANÆSTHETIST is required for the Dental Department The appointment is for six months from October 1 and the successful candidate will be required to attend three mornings per week remuneration 10 guineas per session

Application with copies of not more than three testimonials should be sent to the secretary Superintendent by Saturday Sept 16th

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THE BOARD OF MANAGEMENT MATER INFIRMORUM HOSPITAL BELFAST invite applications for the post of RADIOLOGIST to the Hospital as from September 1st

Applications should be sent to the undersigned from whom information may be obtained as to conditions of appointment

(Signed) J B MOORE,
Hon Secretary to the Board of Management

APPOINTMENT OF DEPUTY MUNICIPAL HEALTH OFFICER.

ADVERTISEMENT

THE MUNICIPAL COMMISSIONERS OF GEORGE TOWN PENANG require a Deputy Municipal Health Officer for permanent staff, the appointment being in first instance, upon a three years agreement

Candidates should be between 25 and 30 years of age and preferably unmarried The appointment is not suitable for Lady Doctors

Candidates must be Graduates in Medicine and Surgery of one of the British Universities or must hold the qualifications of the College of Surgeons and Physicians of London, Edinburgh or Ireland, they must also hold a registrable qualification in Public Health A Diploma in Tropical Medicine is desirable

The selected candidate must pass a medical examination as to his fitness for service in the Tropics

Salary $7 200 - $7 500, $7,800 respectively for the three years of the agreement and thereafter (if service be continued) to $10 200 per annum The exchange value of the dollar is 2s 4d fluctuating at which rate the initial annual salaries of the appointment is £840 There is no income tax at present

Free first class passage with half pay on the voyage out will be provided for the selected candidate and if married, passages for his wife and children under ten years of age

An allowance for the main enance of a motor car for use on duty will be granted

For a married officer quarters will be allotted if available (rent equal to 6 per cent of salary) or an allowance in lieu thereof

Eight months leave on full pay with passage paid is normally granted after four years service

There is a compulsory Provident Fund for Municipal Servants of which the person appointed must be one a member Its chief points are as follows members contribute 10 per cent of their salaries and the Commissioners make a donation of a similar sum After ten years approved service or a death or (with certain conditions) on forced retirement at any time the amount standing to an officer's account (contributors subscriptions and Commissioners donations with accrued interest) is paid to him or his representatives as the case may be

Penang is one of the beauty spots of the Eastern World George Town is situated on the coast within three miles of the Penang Hills Railway, running up to the Hill Station 2 400 feet above sea level There are excellent facilities for swimming riding golf tennis cricket and all usual games The population of George Town is about 150 000 and the day temperature about 80° to 90° F

Applications stating whether married or single and giving age and birthplace with details of education training and experience generally and referring particularly to the qualifications mentioned above and accompanied by copies (not originals) of testimonials to be lodged with Messrs PEIRCE & WILLIAMS Chartered Civil Engineers 1 Victoria St London S W 1 Agents for the Commissioners not later than August 31st

Further particulars if desired can be obtained from the Agents

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ALL SAINTS HOSPITAL FOR CENITO URINARY DISEASES Arundel Street West Square St George's Road S E 11

RESIDENT HOUSE SURGEON (male) required on October 1st for six months being three months as Junior House Surgeon with salary at £100 per annum followed by three months as Senior House Surgeon with salary at £150 per annum Applications giving particulars of age experience, qualifications enclosing copies of three recent testimonials should reach me not later than September 1st

D H EADS Secretary

VICTORIA CENTRAL HOSPITAL WALLASEY

Applications are invited for JUNIOR HOUSE SURGEON (male) at the rate of £150 per annum with residence, and laundry with free attendance to Senior House Surgeons time

Candidates chosen will be expected to remain for six months

Applications with full particulars and testimonials to be sent to the Secretary

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THE ROYAL FREE HOSPITAL CHELSEA HOSPITAL

The Board invite applications for the post of RESIDENT HOUSE PHYSICIAN at the Royal Free Hospital Gray's Inn Road W C 1 and at the Chelsea Hospital for Women Arthur Street S W 3 The appointment will be for six months from October 1st Salary at the rate of £100 per annum with board residence and laundry Applications stating age and qualifications together with copies of three recent testimonials should be sent to the undersigned not later than September 1st

LEONARD PARSONS Secretary

BIRMINGHAM AND MIDLAND EYE HOSPITAL,
Church Street, BIRMINGHAM.

The Committee of Management are about to appoint an ASSISTANT SURGEON to this Hospital, and now invite applications for the post.

Election will be for three years as from October 1st, but the applicant appointed will be eligible for re-election.

Candidates must hold the following qualifications: F.R.C.S. of England or Edinburgh, or Membership of the Royal College of Physicians, London, or Graduate in Medicine of a British University, and a Diploma in Ophthalmology.

Applications, together with testimonials, certificate of registration and of age, should be addressed to the General Superintendent, and forwarded so as to reach him not later than Monday, September 4th.

A copy of the rules and regulations will be forwarded on application to the undersigned.

J. W. PEARCE,
July 8th, 1933. Gen. Supt. & Secretary.

BIRMINGHAM & MIDLAND EYE HOSPITAL,
CHURCH STREET, BIRMINGHAM.

HOUSE SURGEON required at the above Hospital. Salary £130, rising to £150 at the end of six months, and £10 laundry allowance.

Applications, together with copies of not more than three testimonials, should be addressed to the undersigned, from whom further particulars can be obtained.

J. W. PEARCE, General Supt.

CHEADLE ROYAL, CHEADLE, CHESHIRE.

An ASSISTANT MEDICAL OFFICER, Male, required in the above Registered Hospital for Mental Diseases. Candidates must be duly registered, unmarried, and not more than 35 years of age.

Salary £350 per annum, with board, attendance, furnished apartments, and laundry.

Appointment in first instance for twelve months. Facilities for reading for higher degrees, D.P.M., etc.

Applications, accompanied by copies of three recent testimonials, to be sent before August 28th, to the Medical Superintendent.

THE QUEEN'S HOSPITAL FOR CHILDREN,
Hackney Road, London, E.2.

HOUSE SURGEON required September 1st.
CASUALTY OFFICER required September 1st.
Some Ear, Nose, and Throat work additional.
Six months' appointments. Salary at the rate of £100 per year, with board, lodging, and laundry.

Applications must be made on forms to be obtained from the undersigned, and must be sent in, with copies of not more than four testimonials, on or before August 22nd.

CHARLES H. BESSELL,
July 24th, 1933 Secretary.

THE STOCKPORT INFIRMARY.
(140 Beds.)

Applications are invited for the post of HOUSE SURGEON (male). Salary £150 per annum, together with board, residence, and laundry. The Resident Staff will consist of a Resident Surgical Officer, two House Surgeons, and a House Physician.

Applications, with copies of three recent testimonials, stating age, nationality, and qualifications, to be sent to the undersigned not later than August 28th.

H. G. PRICE, Secretary-Supt.

MACCLESFIELD GENERAL INFIRMARY.
(General Hospital 100 Beds.)

Applications are invited for the appointment of SECOND HOUSE SURGEON for a period of six months. Salary £150 per annum with board and residence. Candidates must have had experience in the administration of anæsthetics.

Applications, with copies of three testimonials, should be sent to the undersigned at once.

A. E. HANRAHAN, Secretary.

GREAT YARMOUTH GENERAL HOSPITAL.
(72 Beds.)

Applications are invited for the post of RESIDENT SURGEON (one of two appointments). Applicants must be male and unmarried. Salary at the rate of £140 per annum, with board, residence, and laundry.

Applications, stating age and qualifications, together with copies of three recent testimonials, to be forwarded to the undersigned.

FRANK JENNINGS, Secretary.

HERZL MOSER HOSPITAL,
LEOPOLD STREET, LEEDS.

RESIDENT MEDICAL OFFICER required [illegible] time for post-graduate [illegible] years.

WORCESTER ROYAL INFIRMARY.

Applications are invited for the post of THIRD HOUSE SURGEON to begin duties early in September.

The Hospital is equipped with new Operating Theatres, Pathological Laboratory, Orthopædic Department, E.N.T. Department, up-to-date X-ray Department, etc.

Salary at the rate of £120 per annum, together with board-residence.

The post offers exceptional scope for Medical and Surgical experience.

The successful candidate will be eligible for posts of Second and First House Surgeons, which will later become vacant. (Salaries, £[illegible] and £180 per annum respectively.)

Applications should state full particulars as to age, whether married or single, qualifications, etc., and should be accompanied by copies of three testimonials.

Applications to be received by the undersigned not later than Saturday, August 26th.

PERCY N. GLASS, Supt-Secretary.

KING GEORGE HOSPITAL, ILFORD.
(8 miles from London.)

Wanted, a HOUSE SURGEON, to commence duty on September 1st, for a period of eight months; six months as House Surgeon, and two months as Deputy Resident Medical Officer in charge of the Casualty Department. Salary £100 per annum; £10 bonus on completion of appointment, and two weeks' holiday. Candidates should send their applications, with three recent testimonials, and call on the members of the Honorary Medical Staff indicated by the Secretary as soon as possible.

G. AUSTIN HEPWORTH, Secretary.

LIVERPOOL HEART HOSPITAL.

ASSISTANT PHYSICIAN.

Applications are invited for the position of Assistant Physician to the above Hospital. The Hospital is run as one unit, and is particularly well equipped for Research. The Assistant Physician will be eligible for a part-time Research Fellowship of £200 per annum, tenable for five years. Outside candidates will receive the same consideration as local men. Applications, which will not be considered unless received before September 1st, to be sent to the Secretary, Miss LEWIS, 14, Cook Street, Liverpool.

ROYAL EYE HOSPITAL,
St. George's Circus, Southwark, S.E.1.

HOUSE SURGEON and ASSISTANT HOUSE SURGEON required at the above Hospital. The appointments are, in the first instance, for a period of six months, with board and residence as from October 1st.

Salaries: House Surgeon at the rate of £150 per annum; Assistant House Surgeon at £100 per annum.

Candidates must be registered Practitioners.

Applications, with copies of three recent testimonials, should be sent to the Secretary at the Hospital not later than Monday, Aug. 28th.

F. E. D'ALTON, Secretary.

ROYAL EYE HOSPITAL,
St. George's Circus, Southwark, S.E.1.

The Council invite applications for the appointment of HONORARY PHYSICIAN, learned in Neurology, to the above Hospital. Candidates must be Graduates in Medicine of a British University and Fellows or Members of the Royal College of Physicians of London.

Applications, with three copies of testimonials, to be sent to the Secretary on or before August 28th.

F. E. D'ALTON, Secretary.

ROYAL INFIRMARY, WIGAN.
(180 Beds.)

HOUSE SURGEON (male) required for a period of six months commencing October 1st. Salary £150 per annum, with board, apartments, and washing. Staff consists of R.S.O. and three House Surgeons. Applications, stating age and qualifications, with copies of three recent testimonials, should be addressed to the undersigned as soon as possible.

A. STANLEY BRUNT,
August 10th, 1933. Gen. Supt. & Sec.

ROYAL LIVERPOOL BABIES' HOSPITAL, WOOLTON.

Required, RESIDENT MEDICAL OFFICER for the above Hospital. The appointment to be for a period of six months commencing October 2nd. Salary at the rate of £90 per annum. Applications, with copies of testimonials, to be sent to the Chairman of the Hospital, c/o the Child Welfare Association, 9, Copperas Hill, Liverpool, on or before Monday, September 11th.

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SOUTH COAST. — FAVOURITE RESORT. — £500—£600 p.a. and ample scope. Panel of 580. Ill-health cause of sale. Very little midwifery. Visiting fees 3/6 to 10/6. Small modern corner house (3 bed.) with garage and good garden. Price, House and Practice, £2,050.—No. 9189.

MIDLANDS.—IMPORTANT BUSINESS AND Manufacturing Town. Assy. with view to one-third share in PRACTICE of £1,800 p.a. Salary as Assistant £300 indoor and all found. Applicants must be able to undertake refractions.—No. 9188.

EAST COAST. — SELECT RESORT. — HALF SHARE of about £2,250 p.a. Senior retiring. Panel about 700. Very little midwifery, some very good fees. Visits mostly 5/- to 10/6. Fine modern detached house in own grounds. 7 bed., etc., gard. For sale at £2,750. Mortgage for £1,500. Suit man aged about 40; pref. Lond. Grad. and keen on games.—No. 9187.

S. W. OF ENGLAND.—BEAUTIFUL COUNTRY, within 6 miles of good-class resort. Share worth £500 or more with scope. Fees 5/- to 30/-. Not much midwifery. Panel and parish appt. Fine house on main road, 5 bed (fitted h. and c.), good surgery accom., etc., on long lease. Hunting, fishing, and all sport.—No. 9182.

BERKS. — OLD-ESTABLISHED. — COUNTRY PRACTICE, about £700 p.a. has been £1,100. Panel about 500. Visiting fees 2/6 to 7/6. Very little midwifery. Splendid house, specially built for Vendor, with two acres of grounds, 2 reception-rooms, 6 bedrooms, surgery, and waiting rooms, etc. Consider £4,000 offer for practice and house freehold.—No. 9175.

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WANTED BY EXPERIENCED GRADUATE with £4,000 at command, a General PRACTICE with panel in a country town or near one, N. of England or Scotland preferred. Can negotiate at once. Details received in confidence by PERCIVAL TURNER. (Quote No. 168.)

WANTED BY M.D., M.B., B.S., &c. TO INvest up to £3,000 in a Practice or Partnership in a Provincial Town or near one in S. of England. Inc. from £1,000 a year upwards. House to rent pref. Details in confidence received by PERCIVAL TURNER. (Quote No. 167.)

WANTED BY EXPERIENCED MARRIED Practitioner (English) a PARTNERSHIP or good mixed PRACTICE with some panel in a Provincial town or country returning an income of £1,200 a year or more. Good house required; can invest up to £5,000. Details received in confidence by PERCIVAL TURNER. (Quote No. 160.)

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SOUTH COAST.—OPHTHALMIC PRACTICE situate in fashionable seaside resort. Excellent freehold house available, large garden. Receipts over £700. Fees 1 to 2 gns. Scope for Surgery. Premium 1 year's purchase.

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LINCOLNSHIRE.—Very old-established mixed G.P. situate in agricultural district. Suitable house with large garden and garage to rent at £50 p.a.; freehold may be purchased for £500. Receipts over £900. Panel over 700 (plus mileage and drugs). Fees 3/6 up. Appointments. Scope for increase. Premium £1,550.

KENT.—*Country G.P.* situated in growing locality. Receipts £630 p.a. Panel 350, plus rural area's grant. House to be rented at £78 p.a. Premium £1,200, to include drugs, etc., and certain furniture.

NORTHANTS.—Mixed Country PRACTICE. Receipts (approx.) £1,500 p.a. Panel 950. Appointments. Premium £2,500. For attractive freehold house with large garden and tennis court £2,500.

BIRMINGHAM.—Old-established middle-class G.P. with excellent scope for increase. Receipts £500 p.a. Panel 75, increasing. Excellent good-class house to be rented at £75 p.a. Suitable for lady or gentleman. Premium £350, or near offer, to include drugs and certain furniture.

LONDON, W.C.—Better middle-class G.P., with scope. Choice of accommodation on rental. Receipts approx. £600. Panel 180 (increasing). Fees 3/6 up. Premium £600, or near offer, to include all furniture, drugs, fittings, and fixtures.

LONDON, E.—Old-established mixed G.P. in thickly populated locality. Receipts over £900. Panel nearly 1,000. Fees 2/- up. Three appointments. Within easy access of City and West End. Suitable house to rent at £100 p.a. Good scope. Premium £1,800 or

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2. LONDON, E.—Old-established, selling owing to ill-health. Receipts last year £330, previously much more. Panel 300. Prem. £450. House to buy or rent.
3. SANATORIUM.—South England.—Old-established, in beautiful country. Property in good condition. Good doctor's house. 65 acres of ground, electric light, etc. Receipts average £3,000—£10,000 p.a.
4. HEREFORDSHIRE. — Unopposed Country PRACTICE. Receipts £600 p.a. Good house, with separate surgery and garden. Panel over 400, dispensing and mileage.
5. S. WALES.—Panel and Contract PRACTICE, returning over £700 p.a. Panel 550. House to rent £45 p.a. Golf and tennis. Prem. £750.
6. BERKSHIRE. — Country Town PRACTICE held by Lady Doctor. Panel 90. Receipts £154 last year. Plenty of scope. Suitable accommod. on sale or lease. Prem. £150.
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Specially trained Nurses for Mental and Nerve cases. (All Nurses are insured under the Employers Liability Act, 1906.) Apply the Supt.

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BIRMINGHAM AND MIDLAND EYE HOSPITAL,
Church Street, BIRMINGHAM.

The Committee of Management are about to appoint an ASSISTANT SURGEON to this Hospital, and now invite applications for the post.

Election will be for three years as from October 1st, but the applicant appointed will be eligible for reelection.

Candidates must hold the following qualifications: F.R.C.S. of England or Edinburgh, or Membership of the Royal College of Physicians, London, or Graduate in Medicine of a British University, and a Diploma in Ophthalmology.

Applications, together with testimonials, certificate of registration and of age, should be addressed to the General Superintendent, and must be delivered before Monday, September 4th.

A copy of the form of application and rules and regulations will be forwarded on application to the undersigned.

J. W. PEARCE,
July 8th, 1933. Gen. Supt. & Secretary.

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BRITISH MEDICAL ASSOCIATION, TAVISTOCK SQUARE, W.C.1.

BIRMINGHAM & MIDLAND EYE HOSPITAL, CHURCH STREET, BIRMINGHAM.

HOUSE SURGEON required at the above *Hospital. Salary* £130, *rising to* £150 at the end of six months, and £10 laundry allowance.

Applications, together with copies of not more than three testimonials, should be addressed to the undersigned, from whom further particulars can be obtained.

J. W. PEARCE, General Supt.

CHEADLE ROYAL, CHEADLE, CHESHIRE.

An ASSISTANT MEDICAL OFFICER, Male, required in the above Registered Hospital for Mental Diseases. Candidates must be duly registered, unmarried, and not more than 35 years of age.

Salary £350 per annum, with board, attendance, furnished apartments, and laundry.

Appointment in first instance for twelve months. Facilities for reading for higher degrees, D.P.M., etc.

Applications, accompanied by copies of three recent testimonials, to be sent before August 28th, to the Medical Superintendent.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

HOUSE SURGEON required September 1st.

CASUALTY OFFICER required September 1st. Some Ear, Nose, and Throat work additional. Six months' appointments. Salary at the rate of £100 per year, with board, lodging, and laundry.

Applications must be made on forms to be obtained from the undersigned, and must be sent in, with copies of not more than four testimonials, on or before August 22nd.

CHARLES H. BESSELL,
July 24th, 1933. Secretary.

THE STOCKPORT INFIRMARY.
(140 Beds.)

Applications are invited for the post of HOUSE SURGEON (male). Salary £150 per annum, together with board, residence, and laundry. The Resident Staff will consist of a Resident Surgical Officer, two House Surgeons, and a House Physician.

Applications, with copies of three recent testimonials, stating age, nationality, and qualifications, to be sent to the undersigned not later than August 28th.

H. G. PRICE, Secretary-Supt.

MACCLESFIELD GENERAL INFIRMARY.
(General Hospital 100 Beds.)

Applications are invited for the appointment of SECOND HOUSE SURGEON for a period of six months. Salary £150 per annum with board and residence. Candidates must have had experience in the administration of anæsthetics.

Applications, with copies of three testimonials, should be sent to the undersigned at once.

A. E. HANRAHAN, Secretary.

GREAT YARMOUTH GENERAL HOSPITAL.
(72 Beds.)

Applications are invited for the post of HOUSE SURGEON (one of two appointments). Applicants must be male and unmarried. Salary at the rate of £140 per annum, with board, residence and laundry.

Applications, stating age and qualifications, together with copies of recent testimonials, to be forwarded to the undersigned.

FRANK [illegible] Secretary.

HERZL MOSER HOSPITAL, LEOPOLD STREET, LEEDS.

RESIDENT MEDICAL OFFICER required. Salary £270 per annum. Ample time for post-graduate study. Apply Secretary.

WORCESTER ROYAL INFIRMARY.

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The Hospital is equipped with new Operating Theatres, Pathological Laboratory, Orthopædic Department, E.N.T. Department, up-to-date X-ray Department, etc.

Salary at the rate of £120 per annum, together with board-residence.

The post offers exceptional scope for Medical and Surgical experience.

The successful candidate will be eligible for posts of Second and First House Surgeons, which will later become vacant. (Salaries £150 and £180 per annum [illegible] respectively.)

Applications should state full particulars as to age, whether married or single, qualifications, etc., and should be accompanied by copies of three testimonials.

Applications to be received by the undersigned not later than Saturday, August 26th.

PERCY N. GLASS, Supt-Secretary.

KING GEORGE HOSPITAL, ILFORD.
(8 miles from London.)

Wanted, a HOUSE SURGEON, to commence duty on September 1st, for a period of eight months; six months as House Surgeon, and two months as Deputy Resident Medical Officer in charge of the Casualty Department. Salary £100 per annum; £10 bonus on completion of appointment, and two weeks' holiday. Candidates should send their applications, with three recent testimonials, and call on the members of the Honorary Medical Staff indicated by the Secretary as soon as possible.

G. AUSTIN HEPWORTH, Secretary.

LIVERPOOL HEART HOSPITAL.

ASSISTANT PHYSICIAN.

Applications are invited for the position of Assistant Physician to the above Hospital. The Hospital is run as one unit, and is particularly well equipped for Research. The Assistant Physician will be eligible for a part-time Research Fellowship of £200 per annum, tenable for five years. Outside candidates will receive the same consideration as local men. Applications, which will not be considered unless received before September 1st, to be sent to the Secretary, Miss LEWIS, 14, Cook Street, Liverpool.

ROYAL EYE HOSPITAL,
St. George's Circus, Southwark, S.E.1.

HOUSE SURGEON and ASSISTANT HOUSE SURGEON required at the above Hospital. The appointments are, in the first instance, for a period of six months, with board and residence as from October 1st.

Salaries: House Surgeon at the rate of £150 per annum; Assistant House Surgeon at £100 per annum.

Candidates must be registered Practitioners.

Applications, with copies of three recent testimonials, should be sent to the Secretary at the Hospital not later than Monday, Aug. 28th.

F. E. D'ALTON, Secretary.

ROYAL EYE HOSPITAL,
St. George's Circus, Southwark, S.E.1.

The Council invite applications for the appointment of HONORARY PHYSICIAN, learned in Neurology, to the above Hospital. Candidates must be Graduates in Medicine of a British University and Fellows or Members of the Royal College of Physicians of London.

Applications, with three copies of testimonials, to be sent to the Secretary on or before August 28th.

F. E. D'ALTON, Secretary.

ROYAL INFIRMARY, WIGAN.
(180 Beds.)

HOUSE SURGEON (male) required for a period of six months commencing October 1st. Salary £150 per annum, with board, apartments, and washing. Staff consists of R.S.O. and three House Surgeons. Applications, stating age and qualifications, with copies of three recent testimonials, should be addressed to the undersigned as soon as possible.

A. STANLEY BRUNT,
August 10th, 1933. Gen. Supt. & Sec.

ROYAL LIVERPOOL BABIES' HOSPITAL, WOOLTON.

Required, RESIDENT MEDICAL OFFICER for the above Hospital. The appointment to be for a period of six months commencing October 2nd. Salary at the rate of £90 per annum. Applications, with copies of testimonials, to be sent to the Chairman of the Hospital, c/o the Child Welfare Association, 9, Copperas Hill, Liverpool, on or before Monday, September 11th.

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SOUTH COAST. — FAVOURITE RESORT. — £500—£600 p.a. and ample scope. Panel of 580. Ill-health cause of sale. Very little midwifery. Visiting fees 3/6 to 10/6. Small modern corner house (3 bed.) with garage and good garden. Price, House and Practice, £2,050.—No. 9189.

MIDLANDS.—IMPORTANT BUSINESS AND Manufacturing Town. Assy. with view to one-third share in PRACTICE of £1,800 p.a. Salary as Assistant £300 indoor and all found. Applicants must be able to undertake refractions.—No. 9188.

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S. W. OF ENGLAND.—BEAUTIFUL COUNTRY, within 6 miles of good-class resort. Share worth £500 or more with scope. Fees 5/- to 30/-. Not much midwifery. Panel and parish appt. Fine house on main road, 5 bed (fitted h. and c.), good surgery accom., etc., on long lease. Hunting, fishing, and all sport.—No. 9182.

BERKS. — OLD-ESTABLISHED. — COUNTRY PRACTICE, about £700 p.a. has been £1,100. Panel about 500. Visiting fees 2/6 to 7/6. Very little midwifery. Splendid house, specially built for Vendor, with two acres of grounds, 2 reception rooms, 6 bedrooms, surgery, and waiting rooms, etc. Consider £4,000 offer for practice and house freehold.—No. 9173.

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MANCHESTER. — ABOUT £650 P.A., INcreasing, old-established PRACTICE. Panel 790. Opposition less than usual. Visiting fees 4/6 and 5/-. Lowest surgery fee 2/6. House off main road, 4/5 beds., 2 recep., and sep. surgery. *Rent £60 on lease.*—No. 9144.

MANCHESTER.—£1,300 P.A. PANEL 1,776. Well-estab. working and middle-class Practice. Very few midwifery, at 2 and 3 gns. Visits 3/6 to 5/-. Premium 1½ years' purch. Double-fronted main road house, with 6 bed., etc., *for sale at £1,150, good mortg.*—No. 9143.

LONDON, N.W. — SUBURB. — RECEIPTS average last three years £540. Panel 150. Visits 5/- up. Surg. 3/6 to 5/-. Mids. 8 to 10 p.a., fees 3 to 6 gns. Prem. £500. Gd. house, with garden. 5 bed., 2 recep., sep. surg. and gar. Rent £100 p.a. *on long* lease.—No. 9142.

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23 DEVONSHIRE.—WELL-ESTABLISHED COUNTRY PRACTICE in beautiful district near the Coast. Cash receipts average £1,376 p.a. Panel over 725. Nice house (7 bed and dressing rooms, etc.), with central heating, electric light, main drainage, etc. Large garden and garage for sale. Sport of all kinds. Premium £2,100.

24 S. WALES.—IMPORTANT SEAPORT TOWN.—PARTNERSHIP in sound old-established Practice averaging £3,500 p.a. Panel 2,800. Incoming Partner should be a Scotsman aged about 30—35, and preferably Edinburgh or London trained. There is a nice house for sale. To a suitable man a one-half share would be sold at 1½ years' purchase.

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28 LONDON, E.—OLD-ESTABLISHED CASH AND PANEL PRACTICE of about £1,200 p.a. in residential part of populous district. Good appointments and panel 950. Small house (3 bedrooms, etc.) in pleasant road to rent on lease. Scope for increase. Premium £2,200 or offer.

29 SUFFOLK AND NORFOLK BORDERS.—SMALL PRACTICE IN Market Town. Earnings 1932, £285, including panel of 80. Nice house (6 bedrooms), garage, and good sized garden. Price of freehold £850. Excellent schools. Plenty of sport. Cottage Hospital. Premium £450.

30 LONDON, E.—CASH AND PANEL PRACTICE OF OVER £600 p.a. in populous district. Panel 590. Small house to rent on lease. Premium £800.

31 S. WALES.—PARTNERSHIP (AFTER PRELIMINARY ASSISTantship) in well-established Practice of nearly £5,000 p.a. in important Industrial Town. Good appointments and panel of nearly 3,000. After Preliminary Assistantship a one-third share would be sold at first to a suitable man who should have held Hospital Appointment and have some knowledge of Midwifery and Anaesthetics.

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33 LONDON, N.—PRACTICE CARRIED ON BY MEDICAL WOMAN in populous area. Cash receipts average £480 p.a., including panel 527. Visits 2/6 to 5/6. Small house (6 rooms) to rent at £50 p.a. on lease. Practice capable of increase. Premium 1½ years' purchase.

34 LONDON, N.—PRACTICE CARRIED ON BY MEDICAL WOMAN in populous district. Cash receipts average £270 p.a., including panel 360. Scope for midwifery. Six-roomed house to rent at £70 p.a. on lease. Premium 1½ years' purchase.

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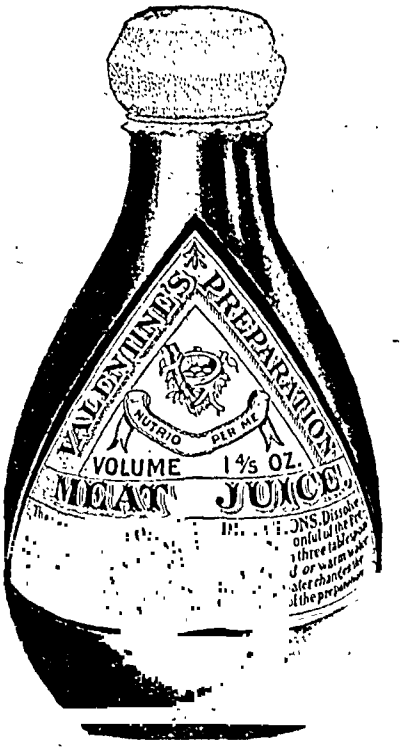
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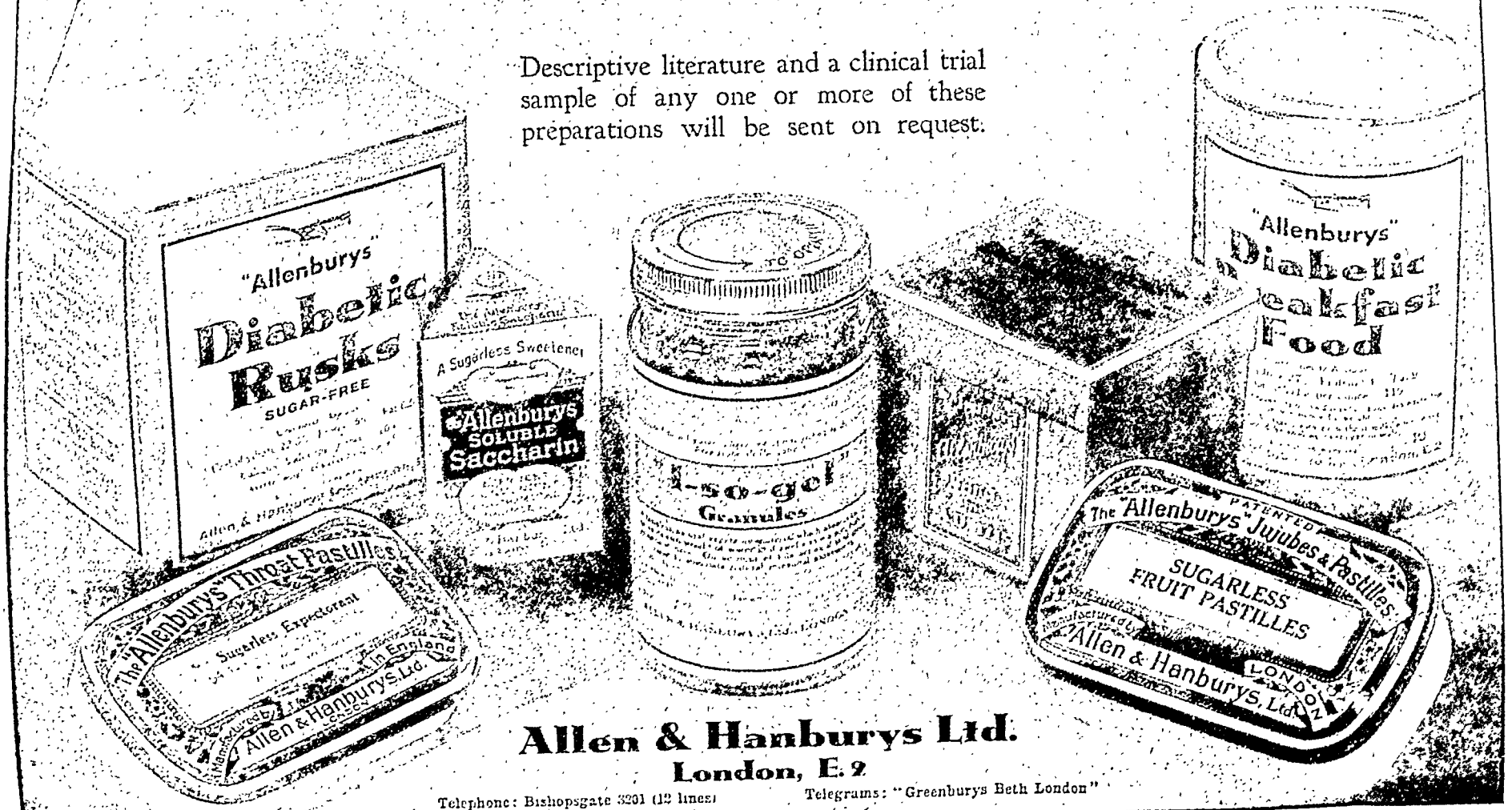
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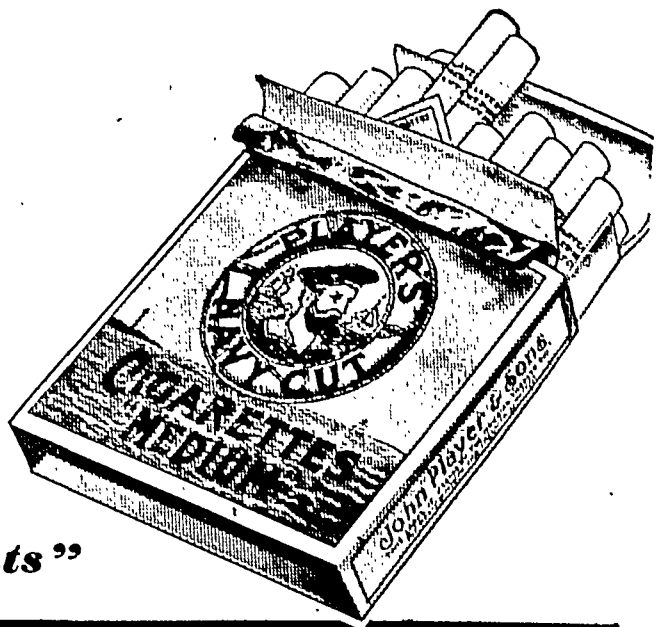
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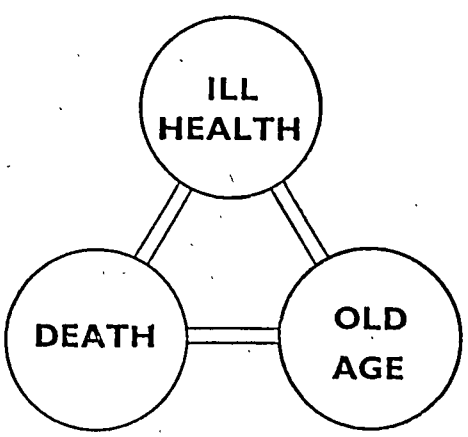
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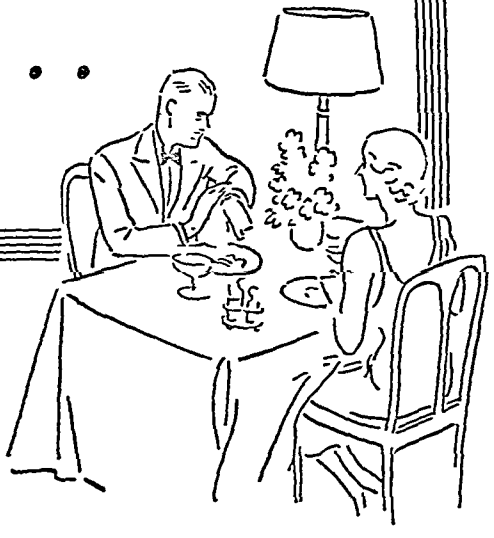
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It must be reliable.
It must be simple to use.
It must be unnoticeable in use.
It must require no after-effort.
It must be immediately effective.
It must not depend upon physiological conditions.

"MIL-SAN" is the final outcome of their work. It meets the demands laid down. It more than meets them, since in addition it is definitely soothing, hygienic and antiseptic. Five years of laboratory work and clinical observation satisfies them it is an efficient contraceptive.

Complete Outfit 7/6 Refills 5/-
SPECIAL OFFER:
1 Complete Outfit and 3 Refills - - 21/-
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Prescribe NORVIC Reg'd

BLUE CARTON CREPE BANDAGES AND BINDERS

"NORVIC" Crêpe Bandages and Binders are woven by a special process ensuring exceptional elasticity which is easily restored by washing. Their flexibility and adaptability are points of great importance in maternity and in all surgical cases, and they have proved a convenient means of retaining dressings in position.

70% wool quality. Fully Guaranteed. Entirely British made.

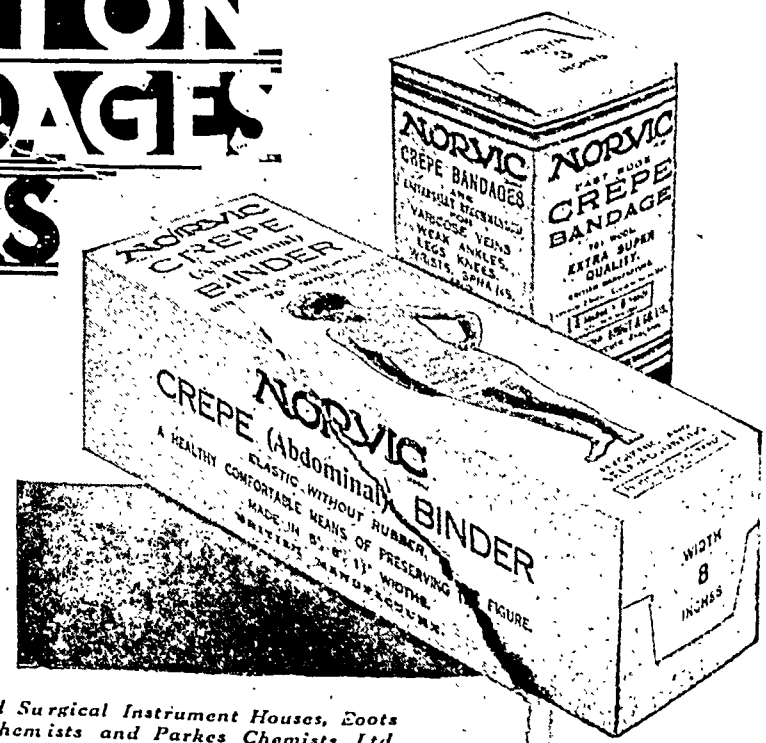
PRICES:

CRÊPE BANDAGES

2"	2½"	3"	3½"	4"	width
1/6	1/11	2/3	2/8	3/-	

CRÊPE BINDERS

6"	8"	11"	width
4/6	6/-	8/3	



Stocked by all leading Chemists and Druggists and Surgical Instrument Houses, Boots 940 branches, Timothy Whites, Taylors British Chemists and Parkes Chemists Ltd.

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Guarantee
"We guarantee to alter exchange or accept the return of any appliance without cost ordered by the Medical Profession, if not found Suitable within fourteen days from date of supply."
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THE IDEAL TRUSS FOR SUMMER WEATHER

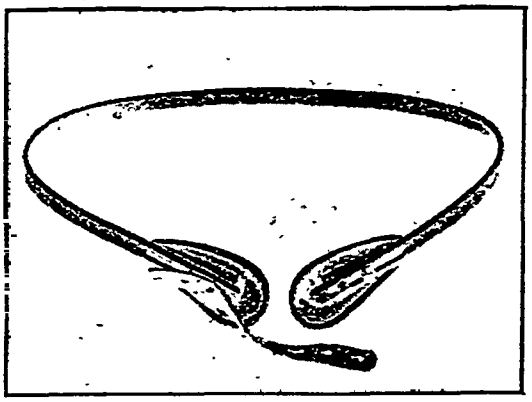
Cool . . . .

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OUR CELLULOID COVERED TRUSS SPRING WITH SOLID CELLULOID PAD is the most hygienic Truss possible for use in hot weather. With this Truss, a patient may safely bathe, the truss being capable of being dried easily.

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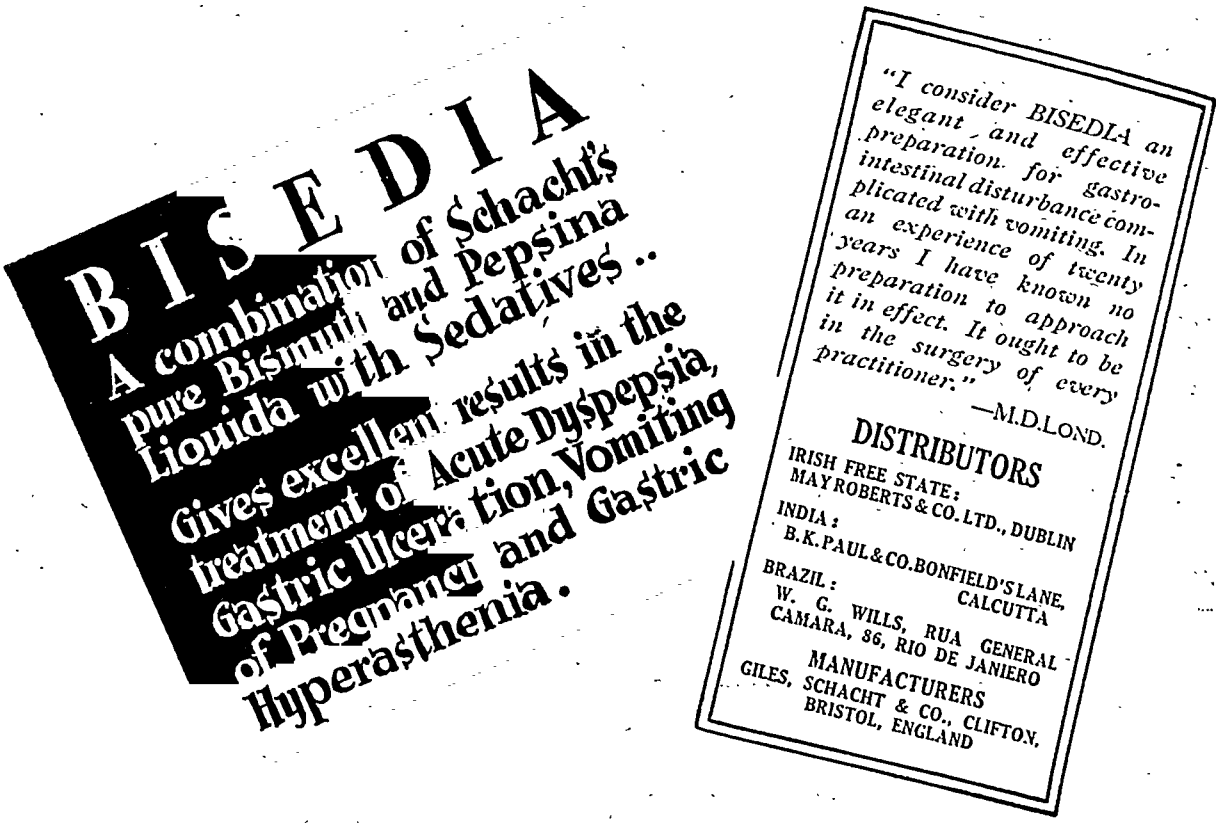


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In Vitamin B Deficiency

Marmite is prescribed in all conditions associated with Vitamin B deficiency; it is ordered—often a teaspoonful three times a day and sometimes more—to prevent and correct constipation, to guard against infectious diseases, in malnutrition, in anorexia, and as a tonic in general debility and convalescence.

For all infants the recommendation made in the Medical Research Council's Report is:—

"Marmite—for Vitamin B complex—a small quantity daily."

(*Vitamins: A Survey of Present Knowledge*, 1932, p. 276)

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Marmite is stated to be of particular use in the treatment of certain anæmias. That Addisonian pernicious anæmia can respond to Marmite therapy is a matter of no little importance to all those who have cases of this disease under their care. It is claimed that primary and relapse cases respond to large doses of Marmite, whilst maintenance cases require only small quantities.

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(*The Lancet*, October 8th, 1932, p. 781)

In Jars: 1 *oz.* 6*d.*, 2 *oz.* 10*d.*, 4 *oz.* 1/6, 8 *oz.* 2/6, 16 *oz.* 4/6.

Special quotations for supplies in bulk to hospitals and institutions.

Sample and literature on application to—

THE MARMITE FOOD EXTRACT CO., LTD.

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A
powerful
Haemostatic and Styptic

TRADE MARK "STYPTICIN" BRAND
COTARNINE HYDROCHLORIDE
for
Uterine Haemorrhage

Also of value in bleeding from the
Kidneys, Bladder, and Urethra
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Enteritis, diarrhoeas and intestinal infections. Two ampoules per day to be administered by mouth.

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Absolutely innocuous.

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Remineralize with

COMPOUND SYRUP OF HYPOPHOSPHITES

FELLOWS

(TRADE MARK)

IRON
SODIUM
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CALCIUM

to overcome the marked mineral depletions caused by such acute infections as acute bronchitis, coryza, the debility of old age, and postoperative conditions.

Compound Syrup of Hypophosphites "Fellows" contains all the essential elements in a perfectly balanced solution. Unbalanced cell metabolism induced by a depleted mineral content is speedily overcome when these elements are supplied in a form which the body can readily assimilate.

Compound Syrup of Hypophosphites "Fellows" does this effectively. It therefore becomes the one most valuable preparation in these conditions.

Suggested dose: One teaspoonful three times a day well mixed with water.

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FELLOWS MEDICAL MFG. CO., LTD.

286 St. Paul Street, West, Montreal, Canada.

A Distinct Advance Over Preparations of Acetyl-Salicylic Acid

Acetyl-salicylic acid possesses a notable disadvantage. Physicians have proved that it cannot be tolerated by patients suffering with a delicate stomach. Consequently, the value of this medicament in the wide field in which it is indicated is very seriously reduced.

"Alasil" completely overcomes this objection. By combining calcium acetyl-salicylate with "Alocol," unfavourable secondary action upon the stomach is prevented. This beneficial influence is undoubtedly due to the presence of "Alocol" (Colloidol Hydroxide of Aluminium), which preparation has brilliantly stood the test of practice in the treatment of hyperacidity and other ill conditions of the gastric tract. "Alasil" is therefore a triumph over acetyl-salicylic acid. It enables higher doses to be administered and maintains the patient's system under its influence for a greater length of time. Analgesic, Antipyretic, and Sedative, "Alasil" is indicated in all cases where acetyl-salicylic acid has been used heretofore.

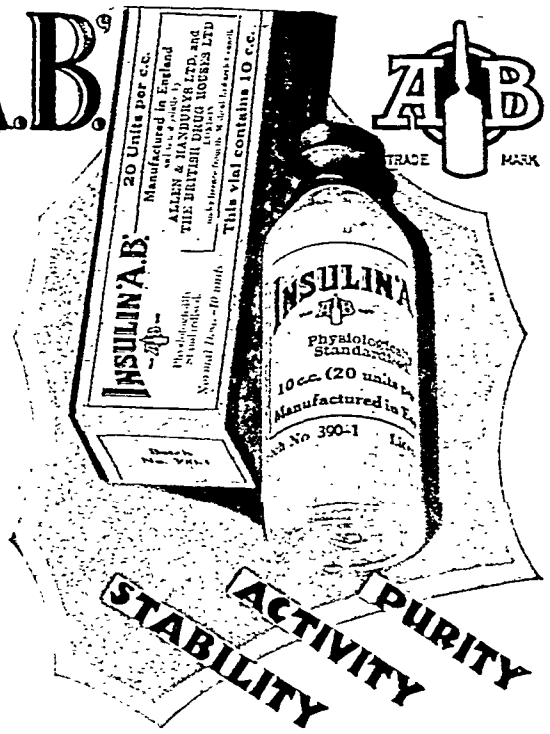
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Alasil

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INSULIN 'A.B.'



The world-wide supremacy of Insulin 'A.B.' is due to its unequivocal purity no less than to its well-known potency and stability under all conditions.

Insulin 'A.B.' contains the minute quantity of phenolic preservative originally recommended by the Medical Research Council and still considered necessary by bacteriologists *(Lancet,* Sept. 12, 1931, pp. 582-584) as a complete safeguard against the development of bacteria that may be accidentally introduced during self-administration.

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20 units per c.c. Packed in bottles containing:
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80 units per c.c. Packed in bottles containing:
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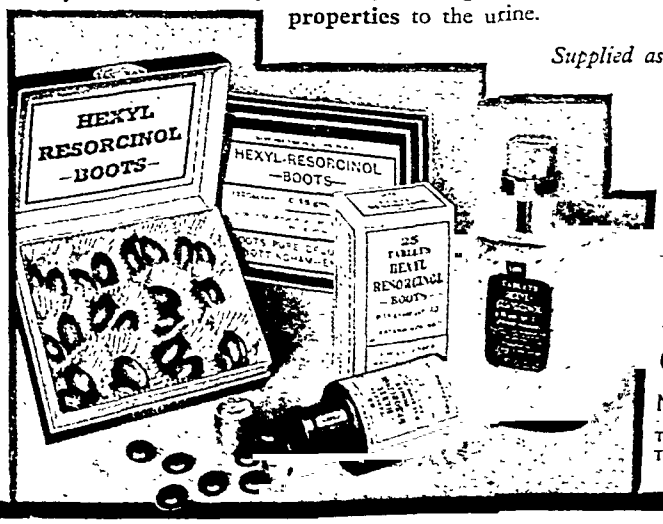
Full particulars and the latest literature will be sent free to members of the Medical Profession.

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HEXYL-RESORCINOL—BOOTS

A powerful urinary and **intestinal antiseptic** administered *per os* in specially prepared **Gelatin Capsules** and in **Enteric Coated Tablets.** Non-toxic in therapeutic doses. Non-irritating to the urinary tract. Excreted by the kidney unchanged in sufficient percentage to impart **active bactericidal properties** to the urine.



Supplied as follows:

SPECIAL GELATIN CAPSULES
Boxes of 24 and 100
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Literature sent on request.

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Ether Soluble Tar Paste

(Prescribe - - - - - 'E.S.T.P.' Martindale)

For Skin Affections

Issued in 2-oz. pots, 2/6; 4-oz., 4/6; 8-oz., 7/6

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'Roche' Products in Anaesthesia

ROCHE

Vide LANCET, July 1, 1933, p. 18
PRACTITIONER, April, 1933, p. 437
B. M. JOURNAL, Jan. 28, 1933, p. 143

'OMNOPON'-SCOPOLAMINE

'Omnopon' gr. 1/3 with Scopolamine gr. 1/300
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1 c.c. Ampoules. Boxes of 12. Also special Hospital packings.

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Owing to its analgesic properties Soneryl is invaluable. Samples and literature sent on request.

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". . . leaving a marvel of healing"



The application of Acriflavine dressing is now the acknowledged treatment for wounds of all descriptions; for instance, in the treatment of burns —for which it is often employed to the exclusion of all other forms of treatment—it is reported (*Lancet*, 1933, 1, 830) that *". . . no reaction takes place in the wound, but the film (scab) increases somewhat in thickness and falls off in about ten days, leaving a marvel of healing. The epidermis is even with the surrounding skin which adjoining the burn is free from swelling or infiltration."*

Acriflavine 'B.D.' is supplied in the form of an emulsion specially for the treatment of burns; it is available also in powder form, in tablets, in solution, in bougies and in suppositories.

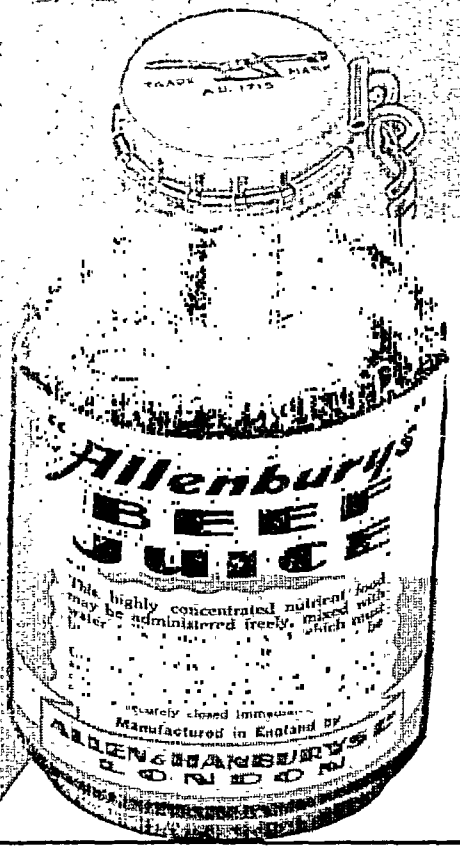
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Made entirely from Beef



The "Allenburys" Beef Juice is prepared from prime, lean **English Beef** by a special process which conserves all the nutritive constituents and the vitamins in a natural, unaltered and assimilable form. The juice of the fresh beef is extracted under pressure and concentrated in vacuo, a low temperature being maintained throughout the process to ensure that the albumens of the beef are not coagulated.

Price 3/- per bottle

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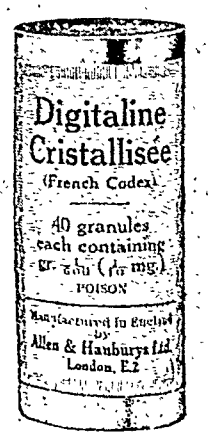
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LONDON, E.2

Telephone: 3201 Bishopsgate (10 lines). Telegrams: "Greenburys Beth London."

Digitalin Granules "A. & H."

gr. $\frac{1}{240}$ ($\frac{1}{4}$ mg.)





gr. $\frac{1}{600}$ ($\frac{1}{10}$ mg.)

Physiologically Standardized

Digitalin Granules, "A. & H.," a British preparation, consist of the *Digitaline cristallisée* of the French Pharmacopœia. This substance is the most active principle of digitalis leaves, and, because of its reputation for uniform activity, it has long been popular, particularly on the Continent. Its use is recommended by high authority in cases where galenical preparations of digitalis have failed.

For Prescribing:
In tubes, containing 40 granules, 2/6 each
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In bottles, containing 250 granules, 12/6 each
Subject to the usual professional discount.

Descriptive literature and clinical trial sample will be sent post free on application.

Allen & Hanburys Ltd., London, E.2.

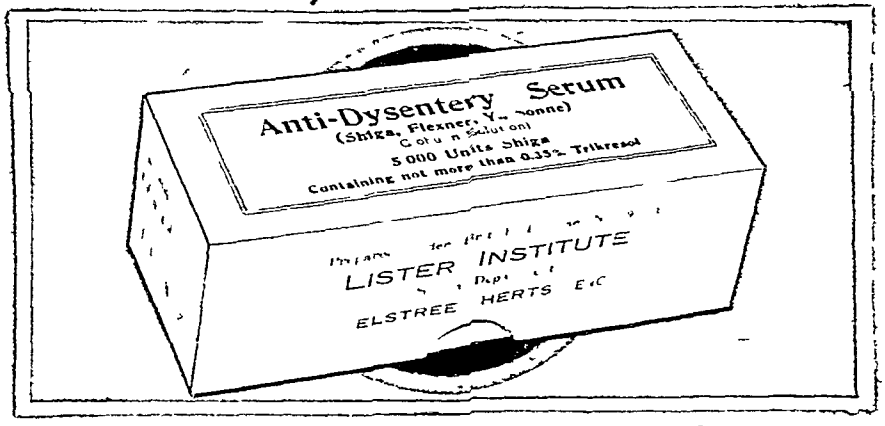
Telephone: 3201 Bishopsgate (10 lines) *Telegrams:* "Greenburys Beth London."

The Lister Institute

OF PREVENTIVE MEDICINE

Therapeutic Substances Act, 1925 Manufacturing Licence No 9

Antitoxins, Vaccines and Sera



Acne Vaccine
Composed of Staphylococcus Aureus and Bacillus Acnes
1 c.c. phials, supplied in various strengths.

Anti-Dysentery Serum (Multivalent)
Shiga (5 000 units) Flexner Y. Sonne)
(Globulin Solution)

Anti-Meningococcus Serum (Multivalent)
(Globulin Solution)
In phials of 3 c.c. equivalent to 10 c.c. natural serum
" " 5 c.c. " " 15 c.c. " "
" " 10 c.c. " " 30 c.c. " "

Anti-Pneumococcus Serum
In phials containing 10 and 25 c.c.

Anti-Streptococcus Serum (Multivalent)
" " " (Puerperal)
" " " (Erysipelas)
In phials of 3 c.c. equivalent to 10 c.c. natural serum
" " 8 c.c. " " 25 c.c. " "
" " 10 c.c. " " 30 c.c. " "

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In phials containing 235, 470, 940 and 1 880 million organisms per c.c.

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In phials containing 330 and 660 million organisms per c.c.

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In phials of 500 1 000, 2 000 4 000 6 000, 8 000 and 10,000 units

Concentrated Tetanus Antitoxin
In phials of 1 000, 3 000 10 000 15,000 and 20,000 units (1 000—500 U.S.A. units)

Staphylococcus Vaccine (Mixed)
(Aureus, Citreus, and Albus)
In phials containing 500 1 000 and 2 000 million organisms.

Staphylococcus Vaccine (Aureus)
In phials containing 500, 1 000 and 2 000 million organisms.

Vaccine Lymph

A descriptive pamphlet, issued under the Authority of the Governing Body of the Lister Institute, will be sent on request.

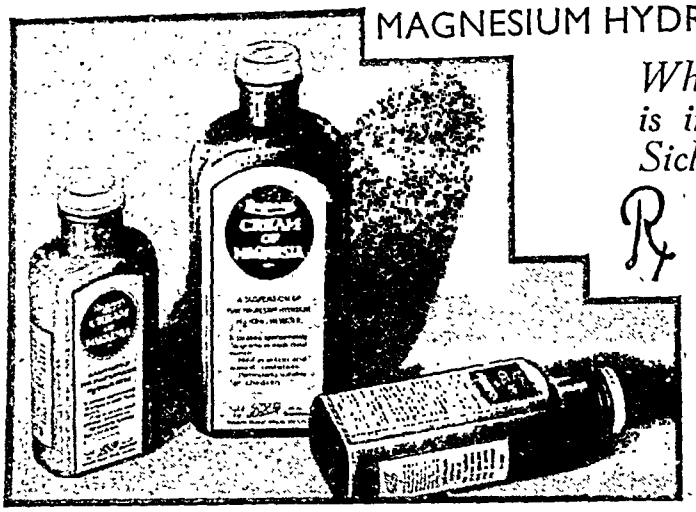
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Telephone Mayfair 2216 (three lines) *Telegrams* "Vereburys Wesdo London."

Regesan CREAM OF MAGNESIA

MAGNESIUM HYDROXIDE $Mg(OH)_2$ Suspended in Water



When an Antacid and Mild Laxative is indicated—For Dyspepsia, Heartburn, Sick Headache and Biliousness.

℞ One or two teaspoonfuls of REGESAN CREAM OF MAGNESIA diluted with water.

8oz. (approx.) 1/- 16oz. (approx.) 1/9

Also available in the form of Regesan Cream of Magnesia Wafers. Each wafer contains the equivalent of two teaspoonfuls of Regesan Cream of Magnesia. Pleasant to take and convenient for travelling.

1/- per tin of 18 wafers.

Discount to the Medical Profession.

Full size trial sample free to any medical practitioner in Great Britain ONLY, on application by postcard to BOOTS THE CHEMISTS, STATION STREET, NOTTINGHAM.

BOOTS PURE DRUG CO. LTD. Nottingham, England.

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". . . after testing B.D.H. Ephedrine preparations extensively and finding them reliable . . . I now prescribe them regularly."

— — —, L.R.C.P., L.R.C.S.

Whilst the administration of Ephedrine for the relief of asthma is now adopted as a routine method in general practice, the physician recognises that discrimination in the choice of the product employed is essential.

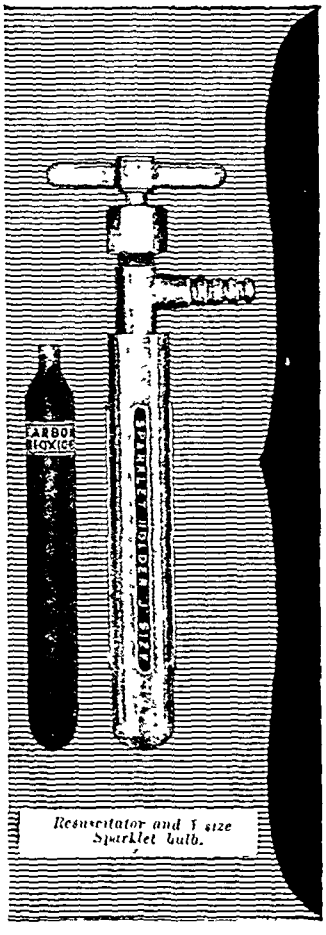
Hence he chooses Ephedrine B.D.H., a natural product manufactured in the laboratories of The British Drug Houses from the plant Ephedra Vulgaris (Ma Huang of China), long experience in clinical practice having demonstrated, as indicated in the report cited above, that this brand of Ephedrine can be relied upon to produce the maximum therapeutic effect without any attendant toxicity.

Ephedrine B.D.H. may be employed, with the fullest confidence, for the control of spasm of the bronchial muscle in bronchial asthma, and, generally, for giving prompt relief and comfort to patients suffering from nasal congestion and blocked respiratory passages.

EPHEDRINE B.D.H.

Literature and sample on request

THE BRITISH DRUG HOUSES LTD. LONDON N-1 Eph/22



Resuscitator and "J" size Sparklet bulb.

CARBON DIOXIDE IN GENERAL PRACTICE

An Easily Portable Apparatus

CARBON DIOXIDE (CO_2), and OXYGEN and CARBON DIOXIDE MIXTURE, are now becoming more and more generally used, not only in all forms of respiratory emergencies, but in the routine treatment of chronic respiratory diseases, such as ASTHMA, HAY FEVER, PNEUMONIA, WHOOPING COUGH, etc., etc.

In the past these gases have only been available in cumbersome cylinders, so that the CO_2 or GAS MIXTURE treatment has been difficult and expensive.

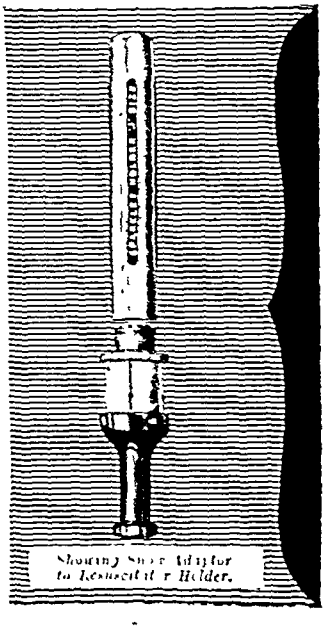
Now, however, a simple compact apparatus is available in the Sparklet "Pocket Resuscitator" (here illustrated). Measuring only ten inches long, it can be carried in the handbag *anywhere*, a turn of a lever instantly releasing the required stream of pure CO_2, OXYGEN, or MIXTURE GAS when and where needed.

PRICES (British Isles):

RESUSCITATOR, "J" Size (as illustrated)	32/6
Extra if required:—	
RUBBER BAG AND FACE MASK Mention whether ADULT or INFANT size mask is required	17/6
RUBBER TUBING with NASAL TIP, for use in treatment of ASTHMA, VASOMOTOR RHINITIS, and HAY FEVER	2/6
BULBS "J" Size, for use with Resuscitator containing:	
CARBON DIOXIDE, Box of 6 10.6 Refilling ditto	4/6
OXYGEN, " 12/- " "	6/-
O_2 & CO_2 MIXTURE, " 12/- " "	6/-

Of all leading Surgical Instrument Houses.

The Sparklet Pocket RESUSCITATOR



Showing Snow Adaptor to Resuscitator Holder.

MAKE YOUR OWN CO_2 SNOW PENCILS

Not only can the RESUSCITATOR, above described, be used for the administration of Carbon Dioxide in respiratory emergencies, and in the treatment of ASTHMA, HAY FEVER, etc., but with the aid of the Sparklet CO_2 SNOW ADAPTOR, CO_2 Snow Pencils may be produced by the Practitioner, INSTANTLY—ANYWHERE—and at LOW COST.

Write for booklets "The Uses of Carbon Dioxide in General Practice" and "The Uses of Carbon Dioxide Snow in the Treatment of Skin Blemishes" to—

Sole Makers: SPARKLETS LTD., Head Office, LONDON, N.18.
Town Showroom: 93, REGENT STREET, W.1.

ADAPTOR 12 6
RESUSCITATOR HOLDER, if required 5/-
Prices in British Isles

The Sparklet Pocket CO_2 SNOW ADAPTOR

ANTISEPTIC DERMOLIA

Contains Zinc Oxide, Thymol, Carbolic Acid, etc., in a specially selected base agreeably perfumed.

Duncan

Indicated in Eczema, Psoriasis, Dermatitis, Pruritus Ani, Burns and Scalds, &c., &c.

ANTISEPTIC EMOLLIENT HEALING

Supplied in tubes and in ½ lb., 1 lb., 2 lb., and 4 lb. tins.

SAMPLE AND PRICES ON APPLICATION.

DUNCAN, FLOCKHART & CO.,
EDINBURGH & LONDON,

104/8, Holyrood Road. 155/7, Farringdon Road, E.C.1.

Valentine's Meat-Juice

IN the Treatment of Weak Babies, in the Gastric and Enteric Troubles of Infants and in the Wasting and Febrile Diseases of Children, the Ease of Assimilation and Power of Valentine's Meat-Juice to Sustain and Strengthen has been Demonstrated in

Hospitals for Children.

The quickness and power with which Valentine's Meat-Juice acts, the manner in which it adapts itself to and quiets the irritable stomach, its agreeable taste, ease of administration and entire assimilation recommend it to physician and patient.



Physicians are invited to send for Clinical Reports.

For sale by European and American Chemists and Druggists.

Valentine's Meat-Juice Co., Richmond, Virginia, U.S.A.

JB 95

45

UNITS OF VITAMIN B **IN EVERY OUNCE OF BRAN**

Recent laboratory experiments with commercially prepared bran show that it is a particularly suitable addition to the diet of persons who do not wish to put on weight as one ounce of bran contains 45 units of Vitamin B and *very few calories.*

The "bulk" in Kellogg's ALL-BRAN is less than 8 per cent of its composition, the remainder being made up of carbohydrates, protein, fat and mineral salts. Special cooking, flavouring and crumbling processes make Kellogg's ALL-BRAN soft and palatable. Within the body it absorbs a large amount of moisture, forming a soft mass which gently clears the intestines of waste. Kellogg's is the original, 100% ALL-BRAN and is 100% effective.

Except in the cases of patients whose intestinal tracts are highly sensitive, or who suffer from intestinal conditions where the use of any form of fiber would be contra-indicated, Kellogg's ALL-BRAN may be safely prescribed. It may be served either as a cereal with cold milk or cream, or cooked into biscuits, bread, etc. A full-sized packet will be sent free to any doctor requesting it.

Composition of Kellogg's ALL-BRAN	
Total Carbohydrates	67.2
Protein	13.3
Fiber	7.6
Fat	2.6
Ash	7.6
Moisture	1.7
	100.0

Kellogg's

ALL-BRAN

Made by KELLOGG *in* LONDON, CANADA
KELLOGG COMPANY of GREAT BRITAIN, Ltd.
Bush House, London, W. C. 2



The Weaning Period

FROM six months of age onwards, the mineral constituents of the infant's dietary assume increasing importance. Not only must the necessary salts be present: investigation shows that, for instance, the proper ratio between the proportions of calcium and phosphorus must be maintained.

■ ■ ■ ■

"Allenburys" Malted Food No. 3 is specially adapted for use after six months of age. It contains the necessary amount of iron, of calcium and phosphorus in correct ratio, and of anti-rachitic vitamin D.

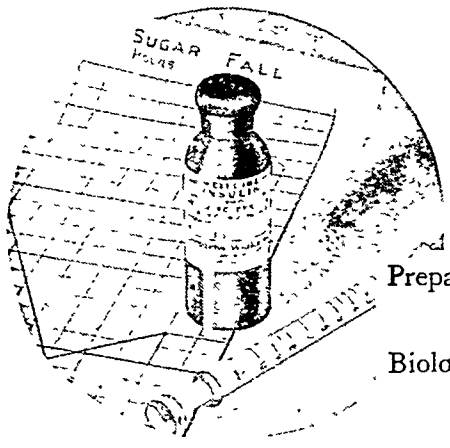
■ ■ ■ ■

"Allenburys" Malted Food has a basis of specially cooked and dextrinised wheaten flour; this is changed by the malt diastase present into a complex of dextrins and sugars which form the infant's introduction to starchy food.

■

This announcement regarding the "Allenburys" Foods is No. 9 of a series which will be continued.

RELIGIO-MEDICAL SERIES, No. 46—ANCIENT EGYPTIAN



INSULIN of exceptional purity

Prepared under strict scientific control by Burroughs Wellcome & Co.

Biologically standardised at The Wellcome Physiological Research Laboratories.

'WELLCOME'
Trade Mark *Brand*
INSULIN

'TABLOID' INSULIN HYDROCHLORIDE
10 UNITS
HYPODERMIC STERILE
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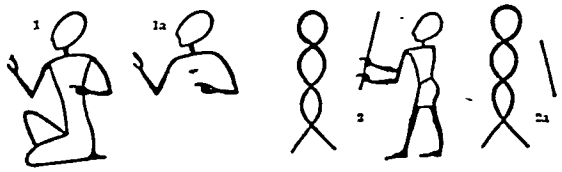
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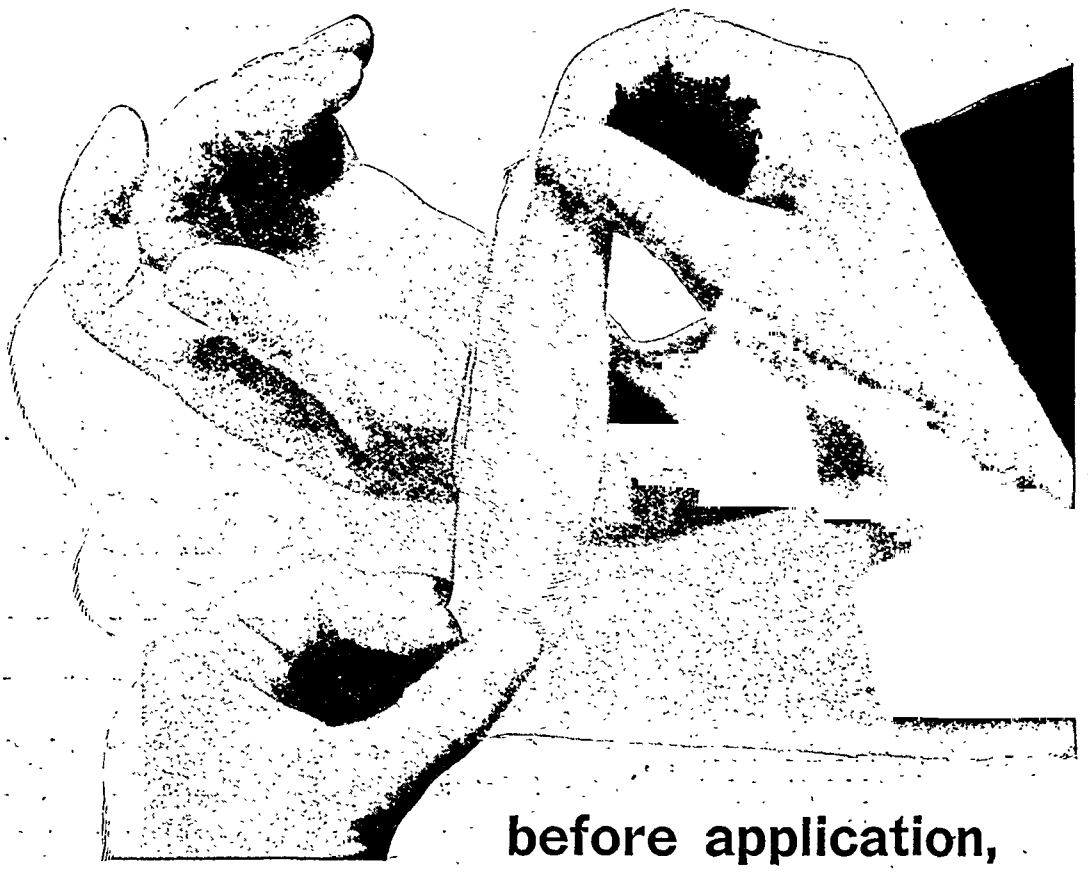
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A Paper

ON

THE PREVENTION OF ACCIDENTS AND COMPLICATIONS IN THE COURSE OF TREATMENT IN CHRONIC OSTEOMYELITIS *

BY

H. WINNETT ORR, M.D., F.A.C.S., F.A.O.A.

LINCOLN, NEBRASKA

Almost exactly sixty-six years ago—on August 9th, 1867—Joseph Lister, then professor of surgery in the University of Glasgow, spoke before the British Medical Association at a meeting in Dublin "On the Antiseptic Principle in the Practice of Surgery." No one needs to be reminded of the epoch-making character of that address. It began a revolution in the practice of surgery; lives and limbs have been saved and suffering has been alleviated beyond any possibility of computation. It is instructive to recall, however, that this revolution was a gradual one. It was not until eight years later—in 1875, at Edinburgh—that Lister, again before this Association, gave his address "*On the Effect of the Antiseptic Method upon the General Salubrity of Surgical Hospitals.*" It was in this address that he brought together his own observations and clinical experiences, and those of a number of other distinguished teachers of surgery, as to the clinical value of asepsis and antisepsis. With your kind permission I shall endeavour, somewhat in the manner of Lister's Edinburgh address, to bring to your attention at this time a slightly different method for the employment of the "antiseptic principle" in dealing with osteomyelitis and some of the accidents and complications that have commonly attended and followed this disease.

When Lister became professor of surgery at King's College, London, in 1877, not more than three or four surgeons in London had accepted, or were employing, the antiseptic method. Not only so, but in the odd sixty years since that time the antiseptic method as designed by Lister has been so altered that most cases of osteomyelitis, compound fracture, and other infected wounds are treated with less regard for the original antiseptic or aseptic principle than they would have been in 1870 by Lister himself. In surgical practice before the time of Lister acute infections of all kinds were the rule after injuries and surgical operations. Erysipelas, gangrene, septicaemia, and other septic complications, as well as amputations after compound fractures, were looked upon as unavoidable accidents—that is to say, as customary complications and sequelae for which there was neither prevention nor satisfactory treatment. Even now we have a set of similar, though less severe, complications of wounds and compound injuries that are looked upon as at least excusable, if not unavoidable. A large amount of the terrible wound sepsis of the great war was blamed upon the character of the soil with which wounds were contaminated in Flanders. Secondary sepsis and septicaemia, shortening after compound fractures, delay in healing, deformity, and disability, were accounted for and excused by the difficulty of treating these severe wound infections.

It is to this phase of the subject that I particularly desire to direct your attention. I am strongly of the opinion that these septic complications and their after-effects in osteomyelitic and compound injuries may, and should be, prevented by proper operative precautions, management of the patient, and after-care, and it is of a method designed to prevent and to correct acute operative and post-operative infections, septicaemia, contracture deformity, and disability that I wish to speak.

EVOLUTION OF THE METHOD

It seems inevitable that one who interests himself in the prevention or treatment of sepsis should become a disciple of Lister. So in the search for a method of treatment I turned first of all to his earlier teachings with regard to the fundamentals of the prevention of inflammation and infection. The method of treatment which I have worked out consists in a combination of the antiseptic method and of certain other technical methods which have been shown by illustrious British surgeons to be of fundamental importance in surgical practice. I refer especially to the employment in surgical practice of the natural forces of repair, as enunciated by John Hunter; the protection of the patient against irritative motion and muscle spasm, as set forth by John Hilton; the protection of the wound against chemical irritation and infection, as originally taught by Lord Lister; and the use of mechanical apparatus to secure immobilization and rest in correct position, as was advocated so long and so successfully by Hugh Owen Thomas of Liverpool and Sir Robert Jones.

It must be said that my own convictions as to the importance of combining these various factors into a plan of treatment did not crystallize until we were faced with the apparent failure of the antiseptic system during the great war. The antiseptic method had been so carefully worked out by Lister, and had been so universally and so successfully employed, that it seemed incomprehensible that it could be at fault. That we had so many bad results in infections and in compound fractures must, it appeared, have been due rather to difficulties of some other kind. During my military experience in one of the hospitals in France we suggested that bad results after compound infected fractures and in other infected wounds must result from the neglect of factors other than the antiseptic method.*

In making a study at that time to determine the reasons for our poor results in war wounds and compound fractures, I first re-read all of Lister's contributions upon this subject. Naturally I turned first of all to the Dublin address. I was struck at once with the fact that our so-called modern antiseptic practice did not conform at all to the exact rules originally proposed by Lister himself. One of the fundamentals of Lister's teaching was that we must protect and defend the wound surface not only against infection, but against injury by trauma or chemical irritation as well. Consider for a moment what we were doing during the years of 1917, 1918, and 1919 in our military hospitals. There was constant use of chemicals of all kinds in compresses, fomentations, drainage tubes, irrigations, and frequent dressings. Neither the wound nor the patient had protection or rest. Not

* Read in opening a discussion in the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Dublin, 1933.

* *The Treatment of Orthopaedic Patients in Base Hospitals*.—The considerations involved in the treatment of war wounds in base hospitals must be made to include not only existing and imminent surgical pathology, but ultimate position and function of injured parts as well. It is these latter points which in both civil and military surgery, operators have been prone to overlook. A bleeding or an infected wound, especially if of [illegible] makes an immediate and urgent demand upon the [illegible] tion. There has been a tremendous accumulation [illegible] this war to prove, however, that wounds of [illegible] character heal better if all the parts involved are [illegible] diately and adequately maintained in as [illegible] normal anatomical relations. The different effects [illegible] upon the patient's ultimate career should [illegible] to require comment. It is a fact, [illegible] of the stress of war conditions [illegible] surgeons to interest themselves [illegible] called the orthopaedic surgeon at [illegible] hospitals for treatment or to prepare [illegible] States have not been [illegible] Memo. No. 178, Hq Hospital Centre Savenay, Nov. 1918.) [3780]

only so, but organisms of all kinds were permitted to drift into the wound or were actually carried by the surgeon, his assistants, or nurses into dressing fields that should never have been disturbed at all. In addition, the splints employed in fractures and similar injuries were loosely applied, disturbed, or even removed so that wet dressings might be applied and frequently changed. Plaster-of-Paris casts, the most efficient form of immobilization dressing that we know, were fenestrated, split, bivalved, or otherwise bedevilled, so that they never were, or soon ceased to be, efficient for the purposes for which they were designed.

Altogether our methods for post-operative care were such that Lister, Hunter, Hilton, and Thomas, and their teachings, were forgotten or ignored on behalf of an operative and post-operative programme in which the patient and his wounds were not permitted suitable continuity, or asepsis, antisepsis, protection against secondary infection, or immobilization and rest in correct position. Many poor results in fractures and chronic infections were the inevitable consequence.

Its Application

In my first attempts to revise the clinical methods which appeared to be at fault, and which seemed to be responsible for many poor results, I was influenced by two principal considerations: first, that both local and general (and acute and chronic) septic complications should be provided against; and secondly, that well-understood and established measures of immobilization in correct position should be employed from the orthopaedic viewpoint. I felt that adequate fixation in casts or splints would contribute not only to the patient's general comfort, but would prevent spasmodic contracture of muscles, pain, deformity, and ultimate impaired function and disability. Happily it was soon found that the first of these demands for a different surgical therapeutic method were met to a large extent by correct and constant application of the considerations involved in the second.

After this period of study and reflection I undertook to determine the effect upon patients with acute and chronic infections of the changes in treatment that I considered would conform to this altered viewpoint. It appeared that patients with chronic osteomyelitis, having survived the acute infectious period, and having become somewhat accustomed to the organisms which they were carrying, might be safely tested first by immobilization in plaster-of-Paris casts and by having their wounds infrequently dressed. I felt that such patients, having already demonstrated a degree of acquired immunity, could protect themselves against any ordinary amount of infection that might accumulate in the wound. My application, soon after, of the same method to compound fracture, acute osteomyelitis, and other patients in whom no such built-up immunity might be assumed, was based upon a slightly different theory. This was that in such cases we should, by early drainage, débridement, and by avoiding exposure of the wounds for dressings, keep the degree of infection down to an amount that the patient could "absorb" (in the sense that one "absorbs" punishment of other kinds), and this has proved to be correct.

During 1920 and 1921, therefore, a few such patients were treated by immobilization in plaster, with long intervals between dressings. It was soon found that not only did the patients do well, but that they ceased to have complications in the way of local and general sepsis, that pain was diminished, and that a few of them actually healed in the first cast. This soon led to bolder methods. Some of the more actively infected wounds were drained, some with deformity were corrected even in the presence of active suppuration, and the same immobilization and dressing methods were employed. An improvement in results followed at once, so that as time went on compound fractures, acute osteomyelitis, soft part infections, and many other conditions were treated in this way. This method has now come to be called the "method of immobilization and rest." A high percentage of healing without complications, with prevention of deformity, and with many other advantages has thus been developed. Patients who had been dressed daily for years were found to go on to complete healing in the course of a few weeks or months with only one or two dressings, and with a minimum of pain, inconvenience, expense, and with much less than the usual incidence of acute complications, infectious sequelae, and ultimate deformity and disability.

The exact programme which was worked out for these cases now more than ten years ago is given below.

THE "ORR" METHOD IN OSTEOMYELITIS, COMPOUND FRACTURES, AND OTHER INFECTIONS

Outline

1. Immobilize patient at once in best position possible on operating table.
2. Do a thorough débridement or drainage operation if necessary.
3. Pack entire wound open with sterile vaseline gauze, using no sutures or drainage tubes.
4. Apply an extensive well-fitting plaster-of-Paris cast.
5. Do not disturb the cast, the wound, the dressings, or the injured part, except for definite complications.

The Method in Detail

1. *Preliminary*

(*a*) Secure best position of the injured limb possible by traction, manipulation, etc.

(*b*) Use the simplest and least possible number of movements in reducing fractures or in correcting deformities.

(*c*) Employ moleskin traction, pins, or ice-tongs if found to be necessary, included in the cast to maintain length and correct position.

(*d*) Do not move or manipulate inflamed or injured parts during or following the operation.

2. *The Operation*

(*a*) Make an incision or opening that will thoroughly uncover (saucerize) the infected area.

(*b*) Remove foreign material and dead or dying tissue as much as possible.

(*c*) Do not curette or damage healing and protective portions of the wound cavity. No attempt is to be made to remove all diseased or infected tissue.

(*d*) Do not remove bony or soft parts that may contribute to repair.

(*e*) Wipe out with iodine and alcohol, just as the skin was prepared, in order to give a clean field for the dressing.

3. *The Closure*

(*a*) Fill cavity with a vaseline gauze pack from the depths to the surface of the wound. Pack gently but firmly.

(*b*) Use no drainage tubes or other mechanical irritants in the wound.

(*c*) Use no chemical as a dressing at any time.

(*d*) Do not suture or cover any infected area with flaps of muscle, fascia, or skin.

(*e*) Cover with a dry, sterile, absorbent pad to take up drainage at the edges of the vaseline pad.

4. *The Splint*

(*a*) Maintain the length and position already obtained, and immobilize the affected part in such a manner that no muscle spasm or contracture can occur.

(*b*) Plaster-of-Paris, well-fitting and extensive, has been found to be most satisfactory as an immobilizing device. Its efficiency has been greatly improved by the plan following.

(*c*) Moleskin adhesive straps or skeletal fixation devices to be included in the cast will ensure fixed traction, control of fracture fragments, and comfort for the patient.

5. *The Dressing*

(*a*) Plaster-of-Paris casts are applied so as not to be fenestrated or split. In this way the temptation to inspect or dress the wound is prevented.

(*b*) Secondary dressings, when done, should be done in the operating room and aseptically.

(*c*) The injured part is not to be moved nor the wound surface to be damaged.

(*d*) Do not hesitate to employ anaesthetics for secondary dressings.

(*e*) Make late dressings as infrequent as early ones.

IMPORTANCE OF ROUTINE

In the further consideration of chronic osteomyelitis at this time it should be borne in mind that all forms of bone infection (in whatever manner they may have arisen) are under discussion. One of the too common teachings about chronic osteomyelitis, compound fractures, and, indeed, many other injuries and diseases, is that the surgeon and the method of treatment must adapt themselves to the individual patient, to the particular type of injury or disease, and to the circumstances surrounding the particular case. It is my definite opinion that such considerations interfere with proper treatment. In undertaking to develop a new method of therapy for these patients it was hoped that a plan might be found and systematized which would have a general application. It is my belief that such a plan has been found, and that *the more nearly we can approximate a standard routine* in dealing with these patients the better our results will be. We have learned that even bone and joint tuberculous patients with mixed infections will respond promptly to this plan of treatment, and in most cases go on in casts with infrequent dressings to as good a recovery as those who have been aspirated or drained aseptically. It is, of course, occasionally necessary to make departures for extraordinary conditions or circumstances. Speaking generally, however, it has been found possible to apply the plan of treatment described above almost without exception in dealing with all of these conditions. The prevalent notion that the individual patient and the individual surgeon must always have particular and different consideration for every case has been one of the commonest reasons for departure from established principles of treatment, and is responsible for many poor results.

With regard to the details of treatment in my method I have had hundreds of letters suggesting that this or that phase of the treatment might be modified or omitted. To all of these I have made the same reply—that the more closely we adhere to all the details the better our results will be. During the early years of my work for osteomyelitis patients I was often persuaded to leave off casts or splints, to do more frequent dressings, or in other ways to vary from my usual programme. In such cases I found that I encountered exactly those difficulties that we were so anxious to avoid. Those who do vary from this programme are quite certain to find that their patients will have pain, swelling, local or general inflammatory complications, or delayed recovery in one way or another.

CONCLUSION

I submit this discussion for your consideration in the hope that we shall be able to add something to the wonderful progress in surgery already made by many distinguished members of this Association. To review briefly what I have endeavoured to bring to your attention: adequate surgical drainage of infected areas; the maintenance of such drainage without exposing the wound to further trauma and infection; and prolonged protection of the wound, the injured or inflamed part, as well as the patient, against the evil effects of irritative motion, contracture deformity, and ultimate disability. These are all important functions of the attending surgeon. By such a programme the vital resources of the patient may not only be conserved but employed toward his recovery, limbs and lives may be saved, and the patients made more comfortable. They can also be taken care of at less trouble and expense than usual. If we have made progress in these directions we have made a definite contribution to this department of surgery. These features of surgical treatment and clinical results are difficult to study or to demonstrate in figures and statistical tables. We have had very few satisfactory reports of clinical results in osteomyelitis and compound fractures from our civilian clinics and hospitals. A study of the results obtained in wound infections and compound fractures from our military experience of fifteen years ago revealed many unhealed wounds, ununited fractures, and chronic infections years after the war was over. Similar figures from our civilian hospitals would show similar results. Suffering, metastatic infections, contracture deformities, incapacity for former occupations, and disability because of persistent pain do not appear in the statistical tables. I believe that we have been able to show, however, that with the simpler surgical therapeutic method I have described we have made definite improvement in these respects. Such clinical results can only be observed and recorded in general terms by surgeons and their associates on the basis of contact with patients and clinical experience. It is hoped that the plan which I have proposed will be given a trial. It is only upon the basis of such a special test that conclusions which are fair and which are scientific in the best sense may be reached.

[*Lack of space makes it impossible to print here Dr. Winnett Orr's case records and statistical tables. For the same reason the author's account of correspondence and discussions, relating to the method of treatment, and giving the experience of other surgeons, has been omitted. This additional material will be found in a reprint to be published separately.*]

THE SIGNIFICANCE OF VITAMINS IN PRACTICAL EXPERIENCE *

BY

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The task I have set myself to-day is to summarize certain evidence as to the real practical importance of vitamins in day-to-day clinical experience. First, however, I want to say how fully I appreciate the great honour which your president has paid me in asking one whose work has lain principally in the laboratory and not in the clinic to open this discussion. But let me add this, that it would be a mistake to suppose that the research worker is not interested in the immediate practical problems of the clinician. At the same time, I am only too well aware that many practitioners still regard vitamins as largely of academic interest, and suppose that correct feeding is a matter that can be left to "Nature," or "instinct," or "common sense."

If one is asked, How did our ancestors manage to get on so well before the era of vitamins, I think one can only reply that they did not. In 1730 out of all babies born in London 74 per cent. died before they were 5 years old; in 1770 the figure had been reduced to 50 per cent.; and by 1833 to 30 per cent. During the first quarter of the present century the death rate of infants under 1 year fell continually and steadily from 150 per 1,000 to 70 per 1,000. It would of course be unfair to minimize the important part played by other

* Read in opening a discussion on [illegible] Children at the Annual Meeting of the British Medical Association, Dublin, 1933.

factors, notably hygiene, in bringing about this wonderful improvement; only it does seem certain that another most important contributing cause has been the growth of the infant welfare movement, with the general adoption of improved methods of feeding. Next, what about relying on the free choice of natural foods, or on instinct? The futility of this idea becomes at once apparent when we recall that in our northern climates, particularly in many industrial districts, some degree of rickets has been almost universal—in the well-to-do classes, able to afford the proper "choice," no less than among the poor—and that no common foodstuff, not excluding milk itself, contains sufficient of the antirachitic vitamin to secure certain protection from rickets (assuming, of course, the child not to have the benefit of exposure to ultra-violet rays, in which our climate is so deficient).

Prolonged experiments carried out in my laboratory over a course of years[1](a) indicate that, contrary to the popular idea, animals have no general ability to distinguish by instinct between a diet containing and one lacking some essential dietary constituent. Only when the constituent in question produces some quite immediate beneficial response does the animal learn to discriminate in its favour. Since the effects of most dietary deficiencies are of gradual development and the protective food produces no sudden dramatic improvement, any ability to discriminate is in such cases quite out of the question, although the final result of the deficiency may be just as disastrous and often indeed fatal. Similarly, we have no evidence that a baby developing rickets acquires a special longing for cod-liver oil.

While it may be admitted that in this country certain vitamin deficiencies, such as beri-beri or pellagra, are of no immediate practical concern, it must be borne in mind that medicine knows no national boundaries, and it would be wrong to shut our eyes to the facts that no fewer than 30,000 individuals died from pellagra in one year recently in the southern parts of U.S.A., and that in the East beri-beri (including infantile beri-beri) claims its victims almost by the million. Both these diseases, like rickets, are now readily preventable by dietetic measures. The problem, in short, has become one for the administrator, the economist, and the sociologist as much as for the laboratory worker. The first point I wish to consider in detail is the prevalence of rickets, to show that it is almost inevitable unless special prophylactic measures are taken and to discuss the most suitable methods of therapy.

Prevalence of Rickets

In 1868 Gee[1] concluded that one-third of the school children of London were suffering from rickets, and in 1871 a similar figure was given for Manchester.[2] It is important to note, however, that the incidence must in reality have been considerably higher than this, since such figures related merely to the more obvious and severe manifestations: the milder and earlier rachitic changes, now readily diagnosable by *x*-ray examination, would have passed unnoticed. Coming to more recent times and more modern diagnostic technique, Lawson Dick[3] estimated in 1915 that no less than 80 per cent. of the children attending London County Council schools were rickety. Similar figures were given for Durham in 1920.[9] Sir George Newman's official report in 1929 to the Ministry of Health[11] states that "an examination carried out in London schools of 1,635 unselected five-year-old school children revealed the presence of rickets in 87 per cent." Roughly 50 per cent. of the children examined from various parts of England[4] showed some degree of rickets. Similar figures can be cited for the United States of America,[5 6 7 8] Germany,[12] France, etc.

With a slowly growing recognition of the absolute necessity of routine administration of an antirachitic agent an unmistakable improvement is becoming apparent. The crippling deformities so common at the beginning of the century are now by comparison relatively rare. It may be argued that many of the "mild cases" of rickets, detectable only by *x*-ray examination, are in fact almost physiological at a certain age or so slight as to be of little practical significance. Even so, as recently as 1919 a census of 16,000 cases of crippling in elementary school children showed that 11 per cent. were due to rickets.[13] I have not by me any very recent figures for comparison, but it is evident that there is still ample room for further improvement.

Incidence of Rickets with and without Treatment

In Table I are summarized the results of an experiment by Selkirk, Greenbaum, and Mitchell,[14] which is but typical of many carried out by numerous authors, comparing the incidence of rickets in untreated and in treated infants.

Table I.—*Incidence of Rickets in Negro Infants*

Prophylactic Treatment	Total Number of Infants in Group	Number of Cases of Rickets in Group	Rickets, per cent. Incidence
Untreated	22	17	77
Cod-liver oil	45	20	44
Irradiation plus cod-liver oil	43	9	21
Irradiation	78	15	19

Such figures could be multiplied a hundredfold (more examples are given below: see Tables II, III, and IV), and a close study of similar recent surveys should convince the disinterested student that, in the absence of special prophylactic measures, "some degree of rickets" supervenes in a very large percentage of instances, with a not inconsiderable sprinkling of cases of "severe rickets." We need not enter here into a consideration of the conditions applying in sunnier parts of the globe, where the intensity of ultra-violet radiation is sufficient to replace the vitamin D of the diet, provided the child is put out into the sunshine. But even there confinement indoors, as in the rite of purdah, often defeats the climatic advantage; and again, the diet may be lacking in adequate calcium and phosphate, which are as necessary as the vitamin itself for protection from rickety defects.

Table II.—*Prophylaxis of Rickets with Cod-liver Oil (after Gebhart, 1917)*

Treatment	Percentage showing Rickets after Three Months
Cod-liver oil	29
No cod-liver oil	70

Merits of Different Prophylactic Methods

Since we know that rickets was prevalent at a time when all babies were breast-fed, it is clear that breast milk is in itself an inadequate and uncertain antirachitic agent. This is confirmed by experimental animal feeding tests, which show that there is surprisingly little vitamin D in either human or cow's milk. As a supplement for the bottle, egg-yolk was at one time tried,[15] with a certain amount of success, but of course it is much less potent than cod-liver oil. The latter, although it has proved of immense value in the past, is in turn definitely inferior to the concentrated preparations of irradiated ergosterol now available (ostelin, radiostol, viosterol, calciferol tablets). The drawback to cod-liver oil is simply that it is sometimes difficult to reach a dose large enough to give complete protection without causing digestive upset

(Wilson[16]). Furthermore, different specimens may vary considerably in activity, whereas the "synthetic" preparation can be administered at a definite, accurately standardized level.

Many are the accounts which have appeared in the past few years emphasizing the advantages of irradiated ergosterol over cod-liver oil as a measure of wholesale prophylaxis (Table III), and a majority of workers are also agreed that it has been more completely successful than artificial sunshine baths, irradiated milk, or other forms of treatment.[17 18 19 20 21] Although there is no evidence of the prevalence of any widespread deficiency of vitamin A among the people of this country (and, indeed, milk fat itself is a fairly good source), there can be no harm, as a purely precautionary measure, in using a synthetic preparation in which vitamin A is present in addition to vitamin D ("adexolin," "radiostoleum"), in imitation of natural cod-liver oil, which, of course, contains both of these "fat-soluble factors."

TABLE III.—*Prophylaxis of Rickets (after J. H. Hess and others, 1930)*

Treatment	Number of Infants	Result after 5–8 Months' Treatment	
		Number of Cases of "Severe" Rickets	Number of Cases of "Slight" Rickets
No treatment	34	9	10
Cod-liver oil—1–3 teaspoons to 2 tablespoons a day	44	2	4
"Viosterol 100 D"—10 drops or less per day	6	0	6
"Viosterol 100 D"—10–20 drops per day	63	0	0

Dosage of Irradiated Ergosterol

The question of the most suitable prophylactic dose is of some importance. According to the early experiences (1928–9) of György,[19] Hess, Lewis, and Rivkin,[20] Sobel and Claman,[21] and others, the amount needed for full protection appeared to be "0.5 mg. of ordinary irradiated ergosterol" a day. Now, of course, specimens of irradiated ergosterol vary in potency, and results are therefore more accurately expressed, not in parts by weight, but (as has only recently become possible) in terms of the international standard. We may take it, however, that this dose of 0.5 mg. would be equivalent to about 2,500 to 5,000 international units of vitamin D—rather a high figure. For a time—after the danger of hypervitaminosis was first realized—there was a tendency for the dosage recommended to be on the low side. Alfred Hess advocated a standard dose of 10 drops a day of "100 D" (official U.S. vitamin D preparation, with 100 times the antirachitic activity of the cod-liver oil of the American standard) as sufficient to prevent any fall in blood calcium or phosphorus in the first year of life, but later[22] it was found advisable to increase the dose to 30 drops (equivalent to about 3,000 international units). J. H. Hess and co-workers[23] got inadequate protection with 10 drops or less ($< 1{,}000$ international units), but complete protection with 10 to 20 drops ($= 1{,}000$ to 2,000 international units: see Table III). To prevent rickets in premature infants, May[24] thought it necessary to give as much as 45 to 60 drops of "100 D" (equal to about 4,500 to 6,000 international units of vitamin D) for the first ten weeks and subsequently 20 to 30 drops ($= 2{,}000$ to 3,000 international units). The *British Pharmacopoeia* (1932) suggested 1,000 to 3,000 units as the prophylactic dose for infants. On the other hand, Mellanby[25] found that 1,500 international units were quite sufficient to produce a relatively slow rate of healing in actual cases of rickets, although 3,000 units were more effective; and he considers 5,000 units to be the maximum really needed for a cure. Now it is most important, in order to avoid hypervitaminosis, not to exceed the adequate dose. There is evidence that 10,000 units is on the borderline for hypervitaminosis. Perhaps a wise compromise, therefore, until more extended reports become available, would be to suggest 1,500 units a day as the standard prophylactic dose (equivalent to about 4½ teaspoonfuls of "good cod-liver oil"). This would apply to children of 1 to 2 years and upwards. For infants under 1 year—and there seems every reason to begin prophylaxis at an early age, say 6 weeks—the dose might start at 250 to 500 units and gradually increase to 1,500. Most cases of rickets occur in the second year of life, but everything is to be said for continuing prophylaxis for some years beyond, at least. Since the need for supplementary vitamin D seems less urgent after the second year, the dose might be kept constant at 1,500 units irrespective of the increase in body weight.

PUBLIC HEALTH MEASURES AGAINST RICKETS

From what we have already said it would appear that the administration of irradiated ergosterol is probably the most certain routine method so far available of preventing rickets. When dealing with the less intelligent class of parent, however, and also to save labour, there would seem to be some advantage in prescribing a food, such as "ostermilk" ("sunshine glaxo"), in which a standardized amount of the irradiated ergosterol has already been incorporated. Any possibility of hypervitaminosis is thereby ruled out. Another remedy is irradiated milk, but this promises to be of greater use in the future than at present, since the different preparations still vary considerably in their activities, some being relatively inactive and the different technical processes of irradiation not yet having been fully standardized. Coward[23] found that, taking the average for the different specimens of irradiated milk examined, no less than five and a half pints would be needed to provide the equivalent of a mere two teaspoonfuls of cod-liver oil. Satisfactory results, it is true, have been recorded by a number of observers in the last few years[26 27 28 29 30] (see Table IV), but others[31 32] find protection to be only partial.

TABLE IV.—*Irradiated Milk in Prophylaxis of Rickets (Schönen, 1929[31])*

Diet	Number of Children	Number of Cases of Rickets	Per Cent.
Irradiated milk	51	0	0
No irradiated milk	99	24	25

Direct irradiation of the child (*ultra-violet therapy*), if undertaken on a large scale, has the disadvantage of involving excessive communal organization and expense, apart, of course, from the difficulty of getting the infants to the clinic and, as Hess has pointed out, the danger of spreading infection among them when they are there. Heliotherapy, obviously enough, cannot be relied upon as a prophylactic agent in our northern climate, certainly during the winter months. We have not yet referred to an important recent innovation, halibut-liver oil, which is superior to cod-liver oil in that it may contain some ten times more vitamin D, and can therefore be easily administered at a higher level of antirachitic potency. Extensive clinical records and comparisons are not as yet available; but it seems certain, at least, that results cannot possibly be better than those yielded by the accurately standardized, concentrated solutions of "synthetic" vitamin D. The same applies to preparations now obtainable of fish-liver oils fortified with added vitamin D. In America extended trial has already been made of "yeast milk" (that is, milk obtained from cows specially fed on irradiated yeast, and having a greatly increased antirachitic potency). This remedy is simple, and needs no co-operation on the part of the mother; but, on the other hand, the dosage cannot be very accurately standardized, and it is doubtful how general its use will become.

Curative Treatment

For curative treatment irradiated ergosterol seems undoubtedly the method of choice, although it cannot be disputed that almost as good results seem often to have followed the combination of cod-liver oil with actinotherapy. As already indicated, the great advantage of irradiated ergosterol over cod-liver oil is that it can be given at so much higher a level of antirachitic potency. Cod-liver oil may sometimes prove nauseating and give rise to digestive disturbances, and, as statistics conclusively demonstrate, it frequently cannot be fed at a quite high enough antirachitic level to be fully effective. Further, its vitamin value may vary considerably from one specimen to another. It has been claimed[26 36(a) 36(b) 36(c)] that cod-liver oil is more effective than irradiated ergosterol in protecting humans when fed at the same number of rat units. This, however, in no way affects the force of the above conclusions. The explanation of the actual result may be the [illegible] amount of vitamin D in cod-liver oil as medicinal oil.

That irradiated ergosterol is in fact tending to replace cod-liver oil in clinical practice is evident from a considerable mass of literature. Hess, Lewis, and Rivkin[20 35] reported that irradiated ergosterol was the most satisfactory method of treatment in use, and highly specific: symptoms of rickets disappeared very rapidly, even in cases in which cod-liver oil had previously proved effective; the healing action could be detected by the naked eye within fourteen days. Wilkes and co-workers[37] obtained cures in every instance, and often more rapidly than with cod-liver oil. Aidin[38] also concluded that irradiated ergosterol was more effective, simpler, and more economical than cod-liver oil or direct irradiation; Sobel and Claman[21] stressed the speed of action and the benefit for infants with weak digestion who are unable to tolerate fat. Schaferstein[39] had unvarying success in a series of 315 prophylactic and 225 curative cases. Further clinical reports illustrating the value of irradiated ergosterol in curative treatment have been published from all over the world.[17 26 40 41 42 43] A suitable maximum curative dose for severe cases of rickets, say for children 1 to 2 years of age, would appear to be 5,000 international units of vitamin D a day. In the case of children under 18 months, or with milder cases of rickets, this should be reduced to, say, 3,000 units. (The dosage of 5,000 units is equivalent to 0.5 mg. of "ordinary solid irradiated ergosterol," fifteen teaspoonfuls of "good" cod-liver oil, or about 50 drops of the American "100 D"—that is, a solution of irradiated ergosterol one hundred times as active as a standard cod-liver oil. One gram of calciferol (crystalline vitamin D separated from crude irradiated ergosterol) equals 4 grams of ordinary irradiated ergosterol, or 4,000,000 grams of "good cod-liver oil."

J. H. Hess and co-workers[23] of New York, after considerable clinical experience, advocated in 1930 a dosage of 10 to 15 drops a day of "100 D" for mild rickets and 30 drops for severe rickets (equivalent to about 1,000 to 1,500 and 3,000 international units respectively); no ill effects suggestive of overdosage were seen after six to eight months' administration at this and higher levels. György[19 44] of Heidelberg at first recommended 2 to 3 mg. of irradiated ergosterol for severe cases of rickets, but later, after further clinical experience, the dose was reduced to 1 mg. a day (this being equivalent, as near as one can judge, to some 5,000 to 10,000 international units). Hess, Lewis, and Rivkin[20] found 1 mg. to be the adequate dose for an average case of rickets. Sobel and Claman[21] give as optimum doses: for children under 1 year of age, 1 to 2 mg. of irradiated ergosterol in divided doses two or three times a day; and for children over 1 year, 3 to 4 mg. Since, however, definite ill effects due to hypervitaminosis have been recorded with 2.5 mg.[20] (equivalent to about 1,200 to 2,500 international units) and with 4 mg.,[19] and there is independent evidence that 10,000 to 20,000 units is on the borderline of toxicity, it would appear safer to fix the maximum therapeutic (curative) dose not higher than 5,000 units (about 0.5 mg. of "ordinary irradiated ergosterol"). This is a little lower than the *B.P.* 1932 recommendation of 5,000 to 10,000 units. As already mentioned, Mellanby has more recently found that in practice 3,000 units is generally a sufficient dose. Fortunately hypervitaminosis seems less likely in actual curative treatment of rickets than in preventive treatment.

Avoidance of Hypervitaminosis D

Turning now to the question of hypervitaminosis, one finds that two extreme and opposite points of view are frequently put forward. The first is that the danger of hypervitaminosis is practically non-existent; the second is that in view of the great risk it would be safer to avoid concentrated preparations of vitamin D altogether. Taking the latter first, and admitting the risk, I do not [illegible] that on reflection many would agree that measures of a remedy should be thrown away merely because of the possibilities of misuse. It is conceded that the cure of rickets is most certain and rapid, and the right dosage is most readily administered when a concentrated synthetic preparation (irradiated ergosterol) is used. The solution to the problem then, to my mind, seems to be to take care that the directions for dosage are accurately and strictly adhered to. One would not lightly abandon the use of strychnine, for example, because the effective dose happens to be close to the overdose; but, rather, precautions must be taken to prevent misuse. As to the precise amount to be given of any particular commercial preparation of irradiated ergosterol, I think that the directions actually set out by the manufacturers can usually be relied upon, as the materials are accurately standardized: only, once again let it be emphasized, it is advisable to insist that they be followed rigidly. It would be an advantage if the strengths of the preparations in international units were always declared and the number present in each dose as recommended. Also, doses ought to be stated in accurate measured quantities rather than as so many drops.

Those who argue that the danger of hypervitaminosis is virtually non-existent base their case on the observation that the lethal dose for a rat is as much as 100,000 times the minimal dose. This argument is misleading, as I have pointed out elsewhere,[45] and for two reasons. First, the overdose is 100,000 times the minimal dose (that is, the amount needed to produce any visible effect at all in severe rickets), which is by no means the same thing as the optimal or therapeutic dose. And, secondly, and more important, there are also differences between species to be borne in mind. Whatever may be the case for the rat, for the human the toxic is indeed quite close to the optimum curative dose. The human seems relatively much more susceptible than the rat: *in spite of* the great difference in body weight, the actual weight of irradiated ergosterol needed to produce hypervitaminosis is nearly the same for the human infant as for the rat. Toxic effects due quite definitely to hypervitaminosis have been recorded in human babies receiving 2.5 to 5 mg. a day of irradiated ergosterol, while according to the clinical data of the same observers,[19 20 22 35] the optimum prophylactic dose of the identical preparation is about 0.5 mg. and the optimum curative dose as high as 1 to 2 mg. (that is, about one-third of the toxic overdose), and even higher doses—dangerously high—have from time to time been recommended by other workers.

Nature and Instances of Hypervitaminosis

It was first noted in Germany, by *Pfannenstiel*,[18] that excessive doses of irradiated ergosterol were toxic to experimental animals, and the lesions produced were

examined by Kreitmair and Moll.[47] However, these workers were unable to account for the condition thus produced; in fact, the rapid loss in weight led them to suggest that the effect might be due to an increased rate of basal metabolism. The writer and his co-workers at the Nutritional Laboratory in Cambridge were able to show that the condition was characterized by raised blood phosphate and/or calcium, and this, together with the excessive calcification of the growing bone, accompanied by calcification in certain soft tissues, could be logically contrasted with the lowered blood phosphate and/or calcium and the deficient calcification which occur in vitamin D deficiency. Hence the condition could legitimately be described as hypervitaminosis,[48 49 50 51 52] and it was shown, moreover, that it was due specifically to the vitamin D itself and not to some toxic impurity, as other writers had supposed. That the ill effects recorded clinically after exhibition of excessive amounts of irradiated ergosterol were due specifically to hypervitaminosis could not be doubted when one noted the nature of the symptoms, which were identical with certain features first recorded in experimental animals in our laboratory at Cambridge—namely, raised blood calcium or phosphate, overcalcification of bone endings, immense excretion of calcium salts in the urine, etc.

Hess, Lewis, and Rivkin,[20] giving 2.5 mg. of irradiated ergosterol a day, encountered what appear to constitute the first recorded cases of clinical hypervitaminosis. The abnormalities observed included three types of hyperphosphataemia, without apparent ill effects, and several cases of excessively calcified bone and of hypercalcaemia, two of the latter manifesting untoward clinical disturbances. György at Heidelberg relates a similar experience, using doses around 4 mg. of irradiated ergosterol. A single case of calcification in the kidney with fatal termination, apparently due to hypervitaminosis, was seen by Putschar,[53] and the following observations have also been recorded: three instances of renal lesions after vigantol[54]; renal damage after three teaspoonfuls of vigantol taken in error during one day[55]; raised blood calcium or phosphorus in normal children or adults given 5 to 10 mg.[56 57 58]; and loss of calcium by way of the urine in normal children given very large overdoses.[59] A recent fatal case is that reported by Thatcher[60] at Edinburgh, who described typical calcareous deposits in the kidney.

MODE OF ACTION OF THE VITAMINS

It is often said that nothing is known of how the vitamins work. This is no longer quite true. Thus, taking the vitamins in alphabetical order, we know that the primary effect of a deficiency of vitamin A is to cause a characteristic abnormality in certain cell structures, especially of mucous membrane cells and nerve cells. In vitamin B deficiency, carbohydrate metabolism cannot proceed normally and lactic acid accumulates, which, as we have shown elsewhere, causes a slowing of the heart rate,[61 62] and which in the central nervous system, as Peters[63] has worked out, is responsible for the convulsive symptoms. In vitamin C deficiency the primary failure is in the function of certain highly active cells—for example, odontoblasts, ameloblasts, etc.—and, as Fish and I[64] have shown, other changes observed are in reality merely secondary to this primary effect. Vitamin D, again, seems to have a more purely chemical action in relation to calcium and phosphate metabolism. Thus the effects of vitamins B and D appear to be most obviously "chemical" or "metabolic," while those of A and C are at first sight more noticeably "cytological," although one realizes, of course, that ultimately chemistry and cytology cannot be divorced in this facile manner, since the changes in the appearance of a cell are but the reflection of fundamental chemical changes proceeding within and around it.

Elsewhere I have described experiments confirming a detailed theory as to the mode of action of vitamin D.[65 66] The matter may be summed up as follows. Vitamin D causes an increased "net absorption" of calcium or phosphate (the two are mutually interdependent) from the intestine—that is, more calcium and phosphate are absorbed from the gut, or less are excreted back from the body into the gut. Thus the level of the phosphate and/or calcium in the blood rises and, as a purely secondary mechanical result of this, extra calcium phosphate is precipitated out into the bone. That is, the amount of calcification in the bone depends entirely on the amount of calcium and phosphorus in the blood: there is no fundamental error in the bone in rickets, but the fault is with the blood, and rickets is in this sense "a disease of the blood." If the blood phosphate and calcium can be kept at the right level sufficient bone salt is put down and so rickets does not develop, or, if it is already present, healing is brought about. This reasoning explains why in vitamin D deficiency (rickets) one has an excessive loss of phosphate or calcium in the stools, a low blood phosphate, and, in some circumstances, low blood calcium—hence an inadequate deposition of calcium salts in the bone. Whereas, in contrast, with too large doses of vitamin D we get the reverse picture—increased absorption, hypercalcaemia and/or hyperphosphataemia, and a resulting excessive degree of calcification.

VITAMIN D THERAPY APART FROM RICKETS

The essential point to bear in mind about vitamin D therapy, it appears to me, is that its effect is to increase the assimilation of the food calcium and phosphate. Hence vitamin D is the proper remedy for infantile tetany, a nutritional disorder seen in association with rickets and due directly to the hypocalcaemia. Similarly, vitamin D is the specific for juvenile rickets and osteomalacia (adult rickets). Such conditions are rare in this country, but very prevalent in certain regions. In coeliac disease, since fats are not tolerated in the diet, it is particularly necessary to administer vitamin D (as irradiated ergosterol), as a safeguard against rickets. The so-called "coeliac-rickets" is not a pathological entity, as the work of Parsons[63 66] and others has clearly shown. In the case of nursing and expectant mothers extra vitamin D is essential, not so much to protect the young (any direct action on the foetus or the milk is almost negligible) as to improve the calcium assimilation *of the mother herself* and help her to replace the large amounts of minerals lost to the child or in her milk. Renal (low calcium) rickets is a non-nutritional disorder, having its pathogenesis in a renal abnormality and defective excretion of phosphate in the urine, and is not amenable to vitamin treatment.

VITAMIN D AND THE PARATHYROID

The active principle of the parathyroid (parathormone) bears a superficial resemblance to vitamin D in its effect in raising the blood calcium. Certain of the symptoms of excessive dosing of the two are similar. On these grounds it has been supposed by many writers that vitamin D acts through the intermediary of the parathyroid. Again, infantile tetany has often been regarded as due to parathyroid deficiency, with the result that parathormone has been used in the treatment of this and similar conditions. I believe this point of view to be quite fallacious and such treatment a profound mistake, except, conceivably, in an emergency, where parathormone is permissible by reason of its immediate but purely symptomatic action. I have shown that parathormone, so far from having any

vitamin D-like effect, does not influence calcium or phosphate absorption in rickety conditions, but has in fact a definitely deleterious action, aggravating the underlying error, draining still further minerals from the impoverished bones, and causing a net loss to the body as a whole. As I have pointed out,[15] the reason for the similarity of the symptoms is simply that they are secondary to the hypercalcaemia which vitamin D and parathormone both produce, although by different mechanisms.

From a practical point of view in this country vitamin D is far and away the most important of the vitamins. I had hoped to give here some brief attention to the other vitamins, but exigencies of space have precluded it. I must therefore content myself by including in the following summary merely an abridged statement of my conclusions with regard to these other factors, and ask the reader who is interested in the exact evidence on which these conclusions are based to refer to the short article printed separately.[67]

CONCLUSIONS

1. Correct nutrition cannot be left to instinct, or to the use of "natural unspoilt foods," or to a varied diet, or to a process of free selection.

2. Recent official reports show that no less than 80 to 90 per cent. of the elementary school population in London gave evidence of having had some degree of rickets, notwithstanding the decreasing severity of the disease as now met with.

3. Statistical data have been collected to show that, under our climatic conditions, unless special prophylactic measures are taken, "some degree of rickets" supervenes in a large percentage of instances with an appreciable proportion of "severe" cases, no common foodstuff containing sufficiently large amounts of the anti-rickets vitamin. Cod-liver oil has proved a sterling remedy in the past, but has the disadvantage that it may be impracticable to give enough to ensure full protection in every case. Experience shows that the most certain remedy is irradiated ergosterol. From a practical standpoint, however, it is sometimes an advantage to use a food (for example, a proprietary dried milk preparation) in which the requisite quantity of irradiated ergosterol has already been incorporated by the manufacturers. Ultra-violet therapy has also given good results, but it presents practical difficulties in the administrative direction for "wholesale" prophylaxis. Experience is limited as yet with halibut-liver oil, which is richer than cod-liver oil in antirachitic vitamin, and with fish oils reinforced with extra vitamin, but these promise to be of value for the future. The claims for irradiated milk and "yeast milk" are also discussed.

4. For curative treatment irradiated ergosterol is undoubtedly the method of choice; it can easily be given at a sufficiently high and precisely standardized level.

5. When administering irradiated ergosterol, however, it is essential to adhere strictly to the correct dose, since overdosage gives rise to hypervitaminosis. Contrary to what is often supposed, the toxic overdose for the human is close to the optimum therapeutic (curative) dose (only three to four times greater). The clinical evidence is reviewed, and a dose of 1,500 international units a day is provisionally recommended for ordinary prophylactic use, and 3,000 (or a maximum of 5,000 units) for curative treatment. Experience shows that smaller doses may be only partially protective. The minimal toxic dose for the infant is about 10,000 units. Further clinical standardization is needed.

6. The mode of action of vitamin D is discussed, and parathyroid treatment is condemned for infantile tetany and other conditions of calcium or phosphate deficiency arising from inadequate retention of food calcium and phosphate.

7. Vitamin A cannot be regarded as a general anti-infective agent. Although we have no evidence of any widespread deficiency of it in this country in any way comparable to that of vitamin D, it is still advisable to ensure that diets are adequately provided with it. The offspring receives but a moderate amount pre-natally and in the milk.

8. The effect of extra vitamin B added to the infant's diet requires further study. There is no compelling evidence to support the suggestion that the prevalence of constipation and stasis is due to lack of this factor.

9. It is essential that all infants should be dosed with adequate vitamin C (as orange juice). This is destroyed to a greater or less extent during pasteurization of milk, which, however, is never a very active source.

10. Adequate nutrition is not possible for certain sections of the community under existing economic conditions; and much scientific knowledge of nutrition already won fails to gain sufficiently wide recognition or practical application.

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ON THE NERVOUS CONTROL OF ABDOMINAL BLOOD VESSELS AND VISCERA*

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The problem dealt with in this communication is that concerning the role of parasympathetic and sympathetic systems in the regulation of muscular movements and of vascular conditions in the abdominal viscera. The method adopted for experimental investigation has been already described (*British Medical Journal*, 1933, i, 956). A statement made in that article was to the effect that cardio-inhibitor fibres may be found arising at a low thoracic level in the dog. Cannon apparently recognized this possibility, to judge from his description of the procedure of cardiac denervation. In man all cardiac branches are said to arise above the root of the lung. The present writer has twice unwittingly stimulated these fibres below the root of the lung in the dog, once with a fatal result.

VAGAL INTESTINAL CONTROL

When either vagus nerve is excited by a fairly strong current a balloon in most parts of the small intestine shows some degree of external pressure upon it, as seen by a single prolonged up-stroke of the tambour lever. This contraction may take place as a response to stimulation of one nerve only, or it may fail to occur on stimulating either nerve. There are portions of the intestine where one can predict to some extent which nerve is going to show the greater influence. Jacobi said that in the rabbit the intestinal motor effects of the vagus were confined to one side. In the dog one gets no indication of such a distribution. In this animal I have found that in the upper reaches of the gut the action of the left vagus is somewhat more pronounced than that of the right, while lower down there seems to be little difference, at any rate in certain parts. The distribution of the nerves is not uniform, and there is no sharp definition of areas of right and left preponderance. Kuré and his associates say that the numbers of parasympathetic fibres supplied to the intestine vary greatly in different dogs.

If one now proceeds to cut the splanchnic nerves the intestine will often be observed to enter immediately into spontaneous rhythmic activity, but, if not, one has only to repeat the vagal stimulus to elicit rhythmic activity, which ceases with the stimulus and can again be evoked by repeating it. The splanchnic nerve inhibits particularly the rhythmic action induced by the vagus, but the antagonism is seen in quantitative as well as qualitative respect (Fig. 1). In this figure the arrows indicate the points of excitation and show the positions of corresponding points in the records. Note that there is a reversal of the blood pressure change and increase of the intestinal and gastric responses after splanchnic section. The observation points to the constant antagonism of splanchnic tone to vagal muscular impulses. Attention has recently been drawn by Jasper and Monnier and others to the rhythmic nature of the response to a single stimulus of the crab's nerve. The well-known Ritter tetanus is a somewhat similar phenomenon. It is a feature which is masked in most simple responses. Here in the intestine is presented a good instance of masking and unmasking of the phenomenon. The fact that at a particular moment the quiescent intestine is induced by vagal excitation to enter into rhythmic activity, which ceases with or soon after the stimulation, suggests that the pneumogastric nerve is directly concerned with this form of activity, which is regarded by many observers as a purely myogenic process. Of course the evocative stimulus is iterative, but the serial contractions outlast it. From one point of view the phenomenon is not strictly comparable to that in the crab's nerve, which enables a single excitation to cause serial impulses.

Vagal contraction of the gut was annulled by atropine in two experiments before splanchnic section and in three experiments after section, and it was usually enhanced by injection of acetylcholine or pilocarpine, thus showing the true parasympathetic nature of the fibres concerned. Bayliss and Starling stated that large doses of atropine failed to paralyse the intestinal vagus, as they obtained contractions on stimulating the nerve after injection of large doses of the drug. Possibly the conditions in which those very accurate observers worked differed in some way from those of the present experiments, in which neither electrical excitation of the vagus nor acetylcholine produced any contraction after injection of atropine to the extent of 0.7 mg. per kilo. Possibly, too, we are at cross-purposes as between sympathetic and parasympathetic elements, the interrelations of which will be considered later.

In experiments performed with A. and B. Chauchard we determined the chronaxies of the gastric response and the vascular reaction (to be presently described) of the pneumogastric nerve. The gastric motor chronaxy is the greater,

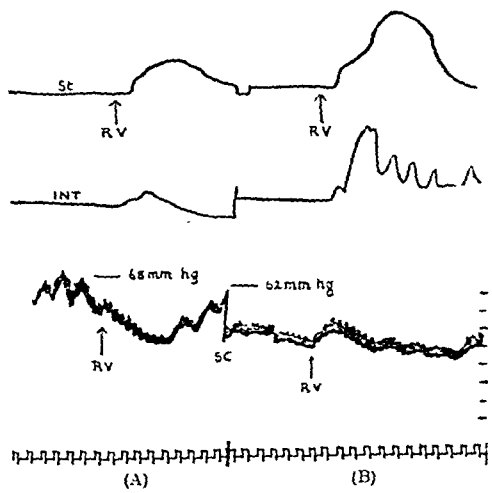


FIG. 1.—Curves of stomach and intestinal contractions and blood pressure. Excitation of right vagus (R.V.) before splanchnic section in (A), and after section (S.C.) in (B). Reversal of effect on blood pressure. Time = 5 seconds in all records, and excitation period 15 to 20 seconds.

the capacity measuring 0.5 mF., which, with a resistance of 10,000 ohms, represents a chronaxy of 2.0 σ as compared with 1.5 σ for the vascular pressor response. Section of the splanchnic nerves determined a *diminution* of the gastric vagal chronaxy, which demonstrates the influence of a nerve on the property of excitability of its antagonist, the quantitative change being probably determined by some modification of the effector mechanism in the end-organ.

EFFECTS OF SPLANCHNIC EXCITATION

Stimulation of the cut end of the great splanchnic nerve produces inhibition of the gut, an effect which is presently increased by the influence of the adrenaline secreted. This is the generally recognized form of the splanchnic action both on stomach and on intestine, but an excitatory action is also in evidence, the converse picture of vagal inhibition, as is easily demonstrated by stimulation of separate bundles of splanchnic fibres. Two distinct types of activity are

* Read in opening a discussion in the Section of Physiology and Biochemistry at the Annual Meeting of the British Medical Association, Dublin, 1933.

evoked by these motor fibres—namely, rhythmic and tonic. The former response, an increase of the rhythmic contractions already in evidence, may be immediate or may succeed a brief inhibitory phase. The tonic or peristaltic type of response is more commonly observed in a quiescent gut. The existence of nematode worms, seen in some experiments, seems to favour this tonic response, but it occurs independently of these parasites. The circulatory or vascular conditions in the gut are supposed to have an important influence in determining activity or quiescence of the muscle. Anaemia, as determined by vaso-constriction, or bleeding, or aortic occlusion, is said to lead to inhibition and rest, while the converse proposition that congestion tends to cause contraction, is implied. The type of response must also depend to some extent on these conditions, but the effects of nervous excitation show a good deal of independence of such variations. Motor effects from splanchnic stimulation were also observed by Bechterew and Mislawsky.

Exchange of Nervous Elements

In a given reaction from excitation of one branch of the double system of nerve supply certain elements received by communication from the other branch may be responsible for the result. In the absence of precise anatomical dissection

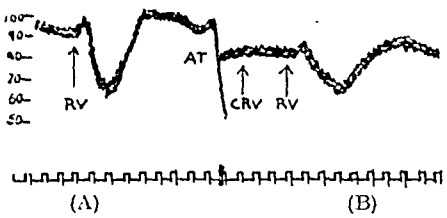


Fig. 2.—Effect of atropine negligible. R.V. excitation causes typical reaction before atropine in (A), and after in (B). At C.R.V. cervical vagus excited to show full effect of atropine.

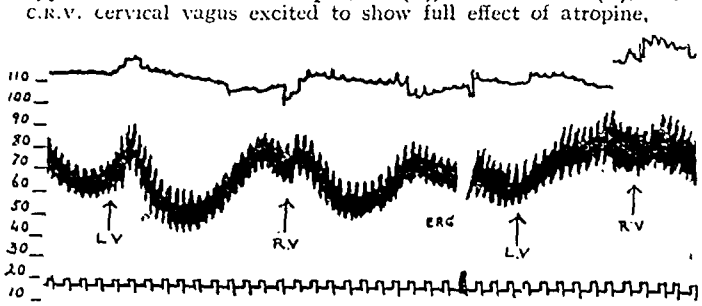


Fig. 3.—Effects of ergotinine citrate (5 cg. injected at ERG). Left (L.V.) and right (R.V.) vagal excitation. The drug caused a prolonged fall of blood pressure (folded out in the record). Renal volume on top.

and histological distinctions pharmacological tests provide a method of judging how far such communication comes into play. A discussion of the point has arisen concerning the type of vagal fibres supplying the stomach. From anatomical evidence these were said by Kiss to be sympathetic in kind, but McSwiney and Spurrell excited the intracranial vagus and got gastric motor effects. These workers could obtain no evidence physiologically of inhibitory and motor fibres being conveyed to the stomach by different elements. While they prove that the motor fibres to the stomach are parasympathetic—and I think that the action of atropine supports this view—these observers have not demonstrated that the inhibitory fibres are of the same kind. These fibres may be sympathetic. Occasionally in the atropined preparation inhibition replaces contraction of the stomach when the vagus is excited, but the evidence is not complete without the complementary test with ergot. Kuré and his co-workers are of the opinion that these inhibitory gastric fibres are of sympathetic type. The existence of sympathetic elements in the vagus trunk will presently be shown for the control of blood vessels. There is a close connexion between sympathetic and vagus in the dog.

We have already seen that the effect of excitation of the pneumogastric nerve is merely enhanced by splanchnic section, and therefore the main vagal supply to the intestine is independent, but this observation does not preclude the possibility of transference of some fibres from vagus to splanchnic. Parasympathetic fibres of spinal origin may find their way into the splanchnic, as is suggested by the work of Hasama, Kuré, and others, who found widely distributed parasympathetic fibres coming from the dorsal spinal roots. The effect of atropine on the tonic splanchnic reaction of the gut was a diminution without abolition. Further tests with atropine and ergot are necessary to determine the nature of the nerve fibres producing the response. The mixing of elements of the two systems will be referred to again.

Vascular Effects

The vascular effects obtained on stimulating the peripheral vagus have been previously described (loc. cit.). The hypo-hypotensive reaction is the characteristic one for fairly strong stimuli on both sides. In a few cases the pressor phase was more marked than the depressor one. With a galvanic current or a weak induced current the pressor effect alone is common, and occasionally no response occurs with such a current. The latent period of the hypotensive phase depends on the duration of the first phase, but when the former occurs alone the delay is about seven to ten seconds. Atropine does not annul the reaction, although the depressive effect is sometimes slightly diminished by large doses of this drug (Fig. 2). This vascular response was not intensified by injection of vagotrope sub-

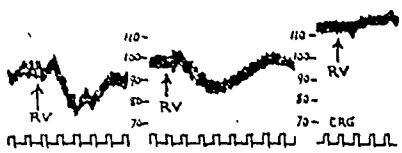


Fig. 4.—Effects of ergotoxine (0.5 mg. and 1.5 mg. at intervals). The vascular reaction is gradually annulled.

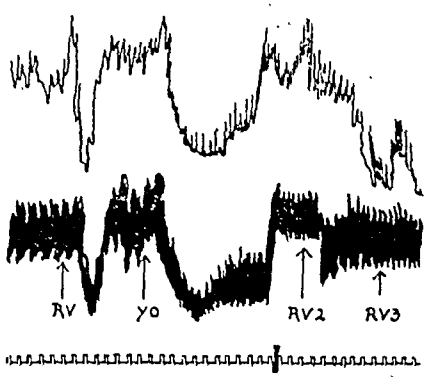


Fig. 5.—Effect of yohimbine (12.5 mg.) at second arrow mark; depressor action of vagus R.V.1, very feeble at R.V.2, and lost at R.V.3. Renal volume on top.

stances like pilocarpine and acetylcholine, but it was definitely annulled in several tests by injection of sympathetic paralysants, ergotinine citrate (Fig. 3), ergotoxine (Fig. 4), and yohimbine (Fig. 5). These drugs had a much more marked effect in abolishing hypotension than hypertension. This observation shows a certain degree of dissociation between the two phases as possible.

Effect of Splanchnic Section

After section of the splanchnic nerves the vascular reaction to vagal excitation disappears completely or is considerably modified. In some seven out of ten experiments in which the characteristic rise and fall of pressure occurred on stimulating the nerve, splanchnic section caused abolition of the depressive phase (Fig. 1). In experiments performed in the laboratories of the Sorbonne, where the galvanic stimulus was mainly employed, we obtained most often the pressor phase only, which disappeared in about half the cases when the splanchnic nerves were severed. In a few instances we were able to measure the chronaxy of the reaction before and after section. In my own separate experiments this pressor phase persisted in a majority of the tests on splanchnic section, whereas in practically all of them the hypotensive effect disappeared. In two experiments in which the vagal response was almost purely hypotensive before section it was reversed after it (Fig. 1). The significance of these observations will be referred to again. For the time being I conclude that there are hypertensive and hypotensive fibres

in the vagus nerve, and shall proceed to give an account of the attempts made to ascertain their seat of action. Of course, an objection may be raised to this form of investigation on the ground that strong faradic stimulation is abnormal, but the same must hold for any form of artificial excitation. So long as we demonstrate by any means the presence of elements with a certain form of activity, it is not unreasonable to infer that they have a purpose in the economy which can be evoked by some natural agency.

Oncometric Records

The volume of the spleen showed no change other than a passive one, corresponding to variations of blood pressure. Masuda observed similar passive changes in this organ after vagal stimulation in the neck. He observed no change of volume when the blood pressure change was compensated. Intestinal volume in two records underwent slight increase as a result of vagal excitation (right)—it was in a loop of jejunum—and a passive diminution with left vagal hypotention. Other parts of the intestine showed mostly a passive diminution. In all these experiments the hypotensive vascular response was in evidence, and judging by these results it seemed that intestinal vaso-dilatation was not enough to account for it, but we have to consider the possibilities of limited areas being affected and of our missing these in a particular experiment. Vaso-dilatation seems to occur in certain portions of the intestine, which are not the same for each nerve. Bunch stated that no vaso-dilator action of the vagus was observed in the intestine of rabbits and cats. In dogs, he said, peripheral vagus stimulation "may, in certain circumstances, give rise to vaso-dilatation of intestinal vessels."

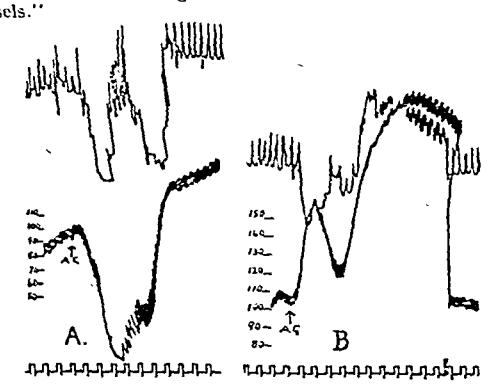


Fig. 6.—Effects of acetylcholine. A before and B after injection of atropine at interval. Readjusted levels in B. Renal volume above.

A somewhat intriguing feature of vagal activity is the alteration which occurs in renal volume. This showed increase after excitation of the pneumogastric in a few experiments. In some others it showed a well-marked decrease which was independent of pressure change. In some pronounced instances of shrinkage due to excitation of the nerve it was evoked several times when the hypotension was fully compensated. Béco and Plumier showed that excitation of the vagus caused diminution of renal volume. Tournade and his associates repeated their experiments and observed similar results; Rose Bradford had previously demonstrated the existence of both vaso-dilator and vaso-constrictor fibres in the renal splanchnic nerves. Hamet observed that section of the vagus led to diminution of renal volume, a change which he ascribed to the cutting off of afferent regulating impulses running up in the trunk of the nerve.

Action of Drugs

Atropine had little or no effect on the renal constrictor response to vagal excitation. The action of acetylcholine in this connexion seems to me to be of much interest. In doses up to 0.2 mg. per kilo acetylcholine caused, independently of electrical excitation, the usual hypotensive effect, and this was accompanied by immediate renal shrinkage (Fig. 6), which was followed by a phase of enlargement, and on this shrinkage occurred again. Atropine was then injected, and in a few minutes the previous dose of acetylcholine was repeated. The vascular action of this drug was now reversed; it became markedly hypertensive, while the shrinkage of renal volume took place as before. Feldberg and Minz obtained a pronounced rise of blood pressure in the pithed atropined cat from injection of acetylcholine, due, they say, to its action on splanchnic blood vessels. No special renal constriction is referred to. Hirose injected acetylcholine into intestinal, renal, and other arteries, and concluded that vaso-constriction occurred, as a rise of general blood pressure soon followed. That acetylcholine is a strong stimulant of sympathetic fibres is at once evident from its use after atropine. In strong dose it has both a direct and an indirect action, the latter arising apparently from the production of adrenaline. It has a double action on the kidney; vaso-constriction is evident in the early phase, then vaso-dilatation succeeds, and alternating periods of expansion and contraction occasionally last some time afterwards. The stimulating action of acetylcholine on sympathetic fibres was also observed by McMichael. He said it was of slow onset. Once the vagus is annulled, however, it is quickly in evidence; the sympathetic is at first masked by the parasympathetic action.

Discussion of Results

The disappearance of vagal hypotension after splanchnic section suggests at first sight that the vagal depressor fibres pass into the splanchnic system, but there are other ways by which the effect might be explained. The influence of the vagus in causing hypotension may be due to the counteraction of splanchnic vascular tone. When this is annulled by section of the nerves and a fall of pressure occurs, then if the mechanism be as suggested no further fall of pressure should arise with vagal stimulation. Section, however, does not always lead to a fall of pressure, or the fall, if it takes place, is quickly compensated. In such a case vascular tone is still in evidence, but vagal excitation does not affect it. The vagal hypotensive reaction shows a tendency to recover after a time, though it is never so pronounced as it was before interference with the splanchnics. It may be that the rupture of the splanchnic nerves disturbs vagal responses in some way other than by a break in the anatomical continuity, but the sudden and complete disappearance of the hypotensive reaction after this rupture is suggestive of continuity. Blocking and unblocking of splanchnic conductivity by a galvanic current caused some variations of the hypotension. Generally it was diminished but not quite abolished by the blocking current. Only a few such observations were made.

The question of the existence of sympathetic fibres in the gastric vagus, already referred to, opens up that of another with regard to the presence in the vagus trunk of sympathetic vascular fibres. The views of the Hungarian anatomist Kiss are of interest in this connexion. From histological and anatomical study he concludes that the relations between pneumogastric and sympathetic are the same as those between spinal nerves and sympathetic. The intracranial vagus, he says, contains large and small myelinated fibres, of which the latter are the more numerous. There are no true sympathetic or non-myelinated fibres in this part, but between vagal and sympathetic ganglia free communication occurs, the vagus containing pre-ganglionic and post-ganglionic (non-myelinated) fibres of sympathetic type. He says that all para- and pre-vertebral ganglia belong to the sympathetic exclusively. There are no grounds for the idea that there is a parasympathetic system in the abdominal cavity, and all so-called parasympathetic phenomena are negative sympathetic phenomena. Kiss apparently takes no account of pharmacological distinctions, nor does he consider differences of physiological effects. He distinguishes and classifies nerve units by their histological characters.

The pressor-depressor response to stimulation of the peripheral vagus already described was, as stated,

unaffected by atropine, like chorda tympani vaso-dilatation in the submaxillary gland. This observation suggested that it was due to stimulation of sympathetic fibres. Sympathetic paralysants annulled the response, the hypertensive phase being the more resistant. The action of ergot preparations on the sympathetic is generally said to be a paralysis of motor or vaso-constrictor elements, leaving depressor or dilator fibres intact, but some observers take a different view. Rothlin, Hamet and Rothlin, and Hamet state that motor and inhibitor sympathetic elements are paralysed by ergotamine and yohimbine. In the present experiments the vaso-dilator part of the response was more definitely abolished than the pressor phase by these agents. The thoracic vagus trunk in the dog accordingly contains fibres which regulate vascular tone and which give the reactions of sympathetic elements. The effects of splanchnic section suggest that they are transferred to this system, and there are two possibilities as to how it may happen. It may be that we are stimulating pre-ganglionic fibres in the vagus and that these join up with the splanchnic through an intervening ganglion—thoracic or other ganglionic group. The second possibility is that post-ganglionic fibres in the vagus are merely borrowed from the sympathetic chain to be restored to sympathetic groups in the splanchnic nerve. Certainly the vagal reactions are greatly modified by splanchnic section, and it looks as if at least some of the fibres concerned are cut in the process. The result is not to be explained by injury to vagal fibres in dissecting the splanchnic, for the reaction was frequently observed to exist after this procedure and before rupture. Possibly rupture injures vagal fibres to the coeliac ganglion. The abolition was best marked in case of the right vagus.

Concerning the seat of the vaso-dilatation, the work of McMichael and of Griffith and Emery is of interest. The former is satisfied, from the results of injecting acetylcholine, that there are no vaso-dilator fibres of parasympathetic nature in the liver. He does not seem to have stimulated the vagus nerve electrically to observe if a fall of blood pressure ensues. It may be quite true to state that there are no parasympathetic vaso-dilator fibres in the liver, yet the left vagus nerve may bring vaso-dilator fibres to this organ, fibres of sympathetic origin. Only in case of pneumogastric excitation producing hypotension with no increase of liver volume should it be said that the liver is not the seat of vaso-dilatation. McMichael further concludes from the effects of ergot that there are no sympathetic fibres in the liver. Griffith and Emery also are opposed to the view of Hallion and François-Franck that vagal dilatation of hepatic vessels does occur. Griffith and Emery stimulated hepatic nerves on visceral arteries. By this means it may be supposed that antagonistic fibres were simultaneously stimulated. Records of portal venous pressure showed a fall of this when the vagus was stimulated, but it is not possible to state if this was due to diminished resistance from the hepatic dilatation or to other change. Carnot, Gayet, and Merklen observed a similar fall of portal pressure from excitation of the pneumogastric nerve. They say that acetylcholine is of uncertain action on this pressure.

With regard to the changes of renal volume a feature was their variability in different animals. Ergot preparations diminished the shrinkage of the kidney. This observation of the failure of atropine to affect the reaction points to sympathetic elements as producing it. Kuré says that parasympathetic fibres are vaso-constrictor to the pulmonary vessels and dilator to the kidney and intestine. Tournade described a vaso-constriction of the kidney from vagal excitation, which causes increased secretion of adrenaline and thus adds to the direct nervous constriction. In the present experiments there was no clear effect either on blood vessels or intestine which could be ascribed to any marked secretion of adrenaline resulting from stimulation of the pneumogastric. But injection of acetylcholine when this nerve was paralysed by atropine had effects which could be best explained by increased secretion of adrenaline.

SUMMARY

The vagus nerves were stimulated peripherally below the origin of the cardio-inhibitor fibres. Motor effects on the intestine were obtained which were abolished by atropine and not affected by sympathetic paralysants. They are occasioned by parasympathetic fibres which really exist as myelinated units separate from the sympathetic. Inhibitory vagal fibres to stomach and intestine may be sympathetic in type. Vascular fibres exist in the vagus which on excitation yield hypertension and hypotension. These are unaffected by atropine, and are paralysed by ergot and yohimbine. They seem to be sympathetic elements. It is not possible to say if these occur in the vagus as pre- or post-ganglionic fibres. Stimulation of the vagus causes constriction of the kidney, but the reaction is well marked only in a certain proportion of animals. The nervous units responsible for this reaction behave like sympathetic elements.

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THE AETIOLOGY AND PREVENTION OF THE TOXAEMIAS OF PREGNANCY

BY

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There are distinct signs that individual observers are beginning to recognize that ante-natal clinics, as they are at present organized, have not served to lower the maternal mortality rate, and that even efficient ante-natal supervision cannot be substituted for sound midwifery. It is not, however, realized that the death rate per thousand live births from puerperal albuminuria and convulsions and the other toxaemias of pregnancy in England and Wales during 1931 was slightly higher than it was in 1921. The investigation into the causation of these toxaemias is therefore not merely a question of absorbing academic interest, but one of real importance, for until radical changes have been effected in our maternity services it seems probable that the only hope of

lowering the maternal mortality rate lies in preventing their occurrence.

THE "TOXINS" OF PREGNANCY TOXAEMIAS

The term "toxaemias of pregnancy" embraces many symptoms, syndromes, or diseases, and includes hyperemesis gravidarum, excessive salivation, chorea, neuralgia, peripheral neuritis, tetany, impetigo herpetiformis and dermatitis herpetiformis, accidental haemorrhage, acute yellow atrophy of the liver, severe anaemia of the pernicious type, the kidney of pregnancy, and eclampsia. There are, moreover, a considerable number of aberrant forms of toxaemia which are difficult to classify. A woman may die in coma in the absence of any other sign or symptom, and I attended one patient, diagnosed by a very competent neurologist as suffering from tuberculous meningitis, who commenced to make a complete and rapid recovery so soon as the uterus had been emptied. Each and every one of this imposing array of syndromes, manifesting symptoms differing from each other as widely as the poles of medicine and affecting every system of the body, is causally associated with pregnancy, for so soon as it is terminated the symptoms begin to disappear. Some of them—such as eclampsia, the kidney of pregnancy, and hyperemesis gravidarum—are peculiar to pregnancy, but by far the greater number are not. There is no analogy for the assumption that any one toxin could cause such a variety of symptoms, and if "toxins" are to be postulated the minimal number could hardly be small. Most writers on this subject have confined their attention to what they call the nephropathy of pregnancy and eclampsia, and with a fine disregard of clinical facts and of geographical and economic influences on the incidence of these diseases have formulated hypotheses of merely parochial application.

It is because the hepatic lesions which are frequently associated with eclampsia are so striking and occur in no other disease that the majority of authors have maintained that they can only be explained on the assumption that some peculiar toxin is elaborated in the products of conception. I have shown that in dogs similar lesions may be caused in the liver either by feeding the animals on a lean meat diet or by raising the intra-abdominal pressure. It was suggested that not only eclamptic convulsions but the pains associated with obstructed labour, and possibly even with normal labour, might cause haemorrhagic necroses in the periphery of the lobules of the liver.[1] Dr. R. M. Fry, assistant director of the Bernhard Baron Memorial Research Laboratories, Queen Charlotte's Hospital, was good enough to invite me to examine sections from the livers of several patients, which support this contention. The history of one of these cases is as follows:

> Labour was induced in a primipara because of a flat pelvis. Four days later definite labour pains commenced, but it was not until after a lapse of a further forty-eight hours that delivery was effected with the forceps. There was no albumin in the urine, the blood pressure was not elevated, nor were symptoms of toxaemia present. Vomiting commenced the day following delivery, and was associated with a slight degree of jaundice. Death occurred sixty hours after the child was born. There was no evidence of puerperal sepsis. Sections from the liver show widespread haemorrhagic necrosis, especially affecting the periphery of the lobules, although a single layer of liver cells often separates Glisson's capsule from the area of necrosis. Glisson's capsule in many areas shows severe degenerative changes, while the centres of the lobules are loaded with fat. The sections show the classical lesions which have been described as being peculiar to eclampsia. The patient did not suffer from any *toxaemia of* pregnancy, and was thought to have died from delayed chloroform poisoning.

In view of the experimental work to which reference has been made there can be little doubt that these hepatic lesions were caused mechanically by the labour pains, and if this view be accepted the strongest argument in favour of an elusive toxin peculiar to pregnancy falls to the ground.

PREGNANCY TOXAEMIA AND DIETETIC DEFICIENCY

The hypothesis[2] I have advanced is that there is no such thing as a toxaemia of pregnancy, if by this term a toxin or toxins peculiar to pregnancy be postulated, and that all the manifestations enumerated above as well as the ordinary morning sickness and the proneness of the pregnant woman to suffer from decayed teeth, falling out of the hair, brittle nails, and, less often, bleeding of the gums, are expressions of dietetic deficiency or deficiency diseases. Normally, deficiency diseases are due to the fact that the food absorbed, and usually the food ingested, is deficient in one or more essential substances. During pregnancy an additional, and usually the most important, factor is that the foetus robs the mother of essential substances, and renders a diet, barely sufficient for the mother, deficient for the mother and foetus. It is imperative to realize that of a thousand men fed on an identical diet deficient in vitamin B only a small percentage will suffer from beri-beri. The explanation of this is not clear, but the fact is beyond doubt. Beri-beri is frequently associated with pregnancy, and it is my belief that some of the cases of peripheral neuritis associated with pregnancy in this country are suffering from that disease. Deficiency in key substances during pregnancy disturbs "*la fixité du milieu intérieur*," and this physiological breakdown renders impossible "*la vie libre*."

I would restate my hypothesis in the following terms. All the ailments and "toxaemias" associated with pregnancy are caused by an absolute or relative insufficiency of some substance or substances in the diet, the most important of which is calcium, which leads to an inharmonious working of the various physiological processes in the body and ultimately to hepatic dysfunction. The variety of ways in which hepatic dysfunction may be revealed is only limited by the number of physiological processes in which the liver is concerned. Similarly, the variety of ways in which calcium deficiency may be revealed is only limited by the number of functions dependent on calcium ions. The final breakdown may be sudden as in some cases of eclampsia, or be preceded for weeks or even months by "toxaemic" manifestations. Albuminuria, cases of chronic nephritis excepted, is caused by mechanical dietetic factors, and is, in some cases, inevitable. If the liver is unable to detoxicate the toxins from the bowel they will gain entrance into the blood stream and damage the whole body, including the kidneys. If this hypothesis be true, it is clear that the toxaemias of pregnancy can only be prevented if an adequate diet be given throughout the period of gestation. Absence of water in the radiator or oil in the engine causes the pistons of a motor car to seize. Prevention is simple right up to the moment of the occurrence of the tragedy, which may or may not be heralded by warning symptoms, but once the seizure has occurred an expensive repair becomes necessary. In like manner the proof of this hypothesis cannot lie in the dietetic treatment of eclampsia, but in the prevention of the onset of the disease. The Dublin school has taught that eclampsia is due to an excess of food—an entirely different conception—and in this connexion it is interesting to recall the fact that the first patient in the series of cases of eclampsia published by Lever[3] in 1843 was a starving woman, who had lived for some considerable time on nothing but a daily meal of bread and tea. The object of this paper is to offer a few observations on an adequate

diet, with special reference to iron, iodine, and calcium; to discuss a few symptoms; and to report some results obtained by calcium therapy.

The Diet

The diet should be well balanced and should provide a sufficient number of calories. The pregnant woman, even when showing toxaemic symptoms, is perfectly well able to assimilate proteins as provided in eggs (lightly boiled or raw), milk, and cheese. Vegetables, parboiled for preference, salads, and fruit should form an important part of the dietary, for these foods not only contain important vitamins and essential mineral substances, but promote peristalsis. It would be ideal if every woman during the latter half of her pregnancy could be assured of an adequate supply of vitamins A, B, C, and D, and the question resolves itself largely into one of economics. Towards the end of pregnancy it is often advisable, for mechanical reasons, to allow four small meals daily rather than three large ones. Heartburn may be relieved by almost any alkali, but a teaspoonful of sodium bicarbonate in a little warm water taken a quarter of an hour after meals is satisfactory, cheap, and easily obtained.

There is little doubt that in some cases meat is definitely harmful to a patient suffering from an elevated blood pressure and albuminuria. The evidence that lean meat can cause severe damage to the liver is conclusive, but that this damage is caused merely by its high protein content is almost as conclusively disproved. It is probable that meat is harmful because of some other substance it contains, possibly guanidine or guanidine-like bodies; but of this there is at present no satisfactory evidence. In most cases fish may be substituted for meat with absolute safety. It is therefore advisable to limit meat to the midday meal after the twenty-fourth week of pregnancy, and to substitute fish if the slightest evidence of "toxaemia" be noted.

Iron

There are about three grams of iron in the body, of which three-quarters are combined as haemoglobin in the red blood corpuscles. The daily loss of this metal is small, but is not greatly exceeded by the amount ingested. Woman bleeds physiologically, man does not; it follows that she is the more likely, other things being equal, to suffer from anaemia. The demands of the foetus for iron are relatively high, and if the mother's reserves of the metal are low she will suffer from anaemia, which is much more common during pregnancy than is generally recognized. Blood counts should be made more frequently at ante-natal clinics, for apart from the possible harm done to the foetus and the dangers inherent in the severer forms of anaemia an anaemic woman is very liable to develop puerperal sepsis. Spinach contains more iron than any other article of diet, while eggs contain a fair amount in a form which is readily assimilated. If the woman appears to be anaemic Blaud's pills should be prescribed, and generously.

Iodine

Thyroxine exerts a very powerful influence on metabolism, and acts on the ovaries, the hypophysis, the adrenal glands, and the kidneys. The intake of iodine in the food is so small that most pregnant women in England come very near to suffering from iodine deficiency. In goitre belts it has been found possible to stamp out endemic goitre by giving pregnant women iodine. Although the importance of giving the expectant mother iodine for the sake of her unborn child has been appreciated, it has not been recognized that it should be given to her for the sake of her own metabolism. There is a fair amount of iodine in watercress, but it is not easily absorbed from this green food. It is therefore essential to advise her to take fish, especially herrings, and to use iodized table salt on the table and in the kitchen. Cod-liver oil may also be recommended, for not only is it rich in vitamins A and D, but it contains a considerable amount of iodine.

Significance of Calcium in Pregnancy

Lime salts are present in nearly every tissue of the body, and form the great mass of the inorganic constituents of the bones and teeth. They are not only essential to life but to many of the physiological processes and ferments of the body, and in their absence the heart ceases to beat and the blood to clot. The amount of calcium circulating in the blood remains remarkably constant at about 10 mg. per 100 c.cm. of serum, but of this amount probably only 2 mg. exist as calcium ions, while 4 mg. are in some form of combination with protein or possibly lipoids. Calcium is not easily absorbed from the alimentary tract, and in an adult the amount absorbed is roughly equal to the amounts eliminated in the urine and faeces. Any excess of intake over output is stored in the bones, and that last laid down is first requisitioned when need arises. This calcium may be referred to as the deposit account, whereas that in the blood and soft tissues represents the current account, the amount in an organ like the liver varying within wide limits. It is evident that there must be a very delicate mechanism which maintains a balance between absorption, deposition, and elimination, and there is a very intimate relation between the calcium and the phosphorus in the blood.

It has been estimated that a woman during the latter half of pregnancy requires as much as 1.6 grams of calcium daily, and that the foetus itself retains 8 grams of this mineral during the last four weeks of its intrauterine existence. The diet of very few women in England contains that amount of calcium, and of the amount ingested only a proportion is absorbed. It follows that the pregnant woman must, in the majority of cases, call upon her deposit account, as neither income nor current account is sufficient to meet the demands. Vitamin D controls absorption, but the exact relation between the parathyroids and vitamin D in regulating the serum calcium is not fully understood. Seeing that the skeleton contains more than a kilogram of calcium there is obviously always sufficient calcium in the bones to meet the demands of the body, but it does not follow that it is either readily available or easily converted into a suitable form, as free ions are believed to be necessary for many physiological processes. The great demands of the foetus on the maternal calcium have led various observers to suggest that eclampsia was caused by a deficiency of calcium in the maternal blood, and they have regarded the convulsions of this disease as a manifestation akin to the tetany which follows removal of the parathyroids. The serum calcium is definitely lowered during pregnancy, but not sufficiently to render any such hypothesis plausible. In 1928 a paper by Lamson, Minot, and Robbins[1] appeared which showed that the addition of calcium to the diet caused dogs, previously susceptible, to become tolerant to carbon tetrachloride poisoning, and this discovery was all the more important as it was accidentally made. As I had for some time been treating eclamptic patients with intramuscular injections of calcium chloride I at once wrote to Professor Lamson, expressing the opinion that these results were extremely significant from the point of view of the aetiology of eclampsia. In a letter to me he stated that

there was no significant difference in the blood calcium figures of the dogs which were susceptible and those which were tolerant to the drug. It follows, if these results are confirmed, that calcium can protect the body against at least one poison, and that measurements of the serum calcium afford no indication of the amount of calcium which can be so used. It is probable that, until it is possible to measure the amount of calcium in the form of free ions, estimations of serum calcium will only possess a very limited value. In the following year, Minot and Cutler,[3] working under the direction of Professor Lamson, published a short paper reporting the results of treating pre-eclampsia and eclampsia with calcium gluconate.

It is clear that during pregnancy it is essential to prescribe a diet rich in calcium and in vitamin D. Milk, cheese, and butter contain calcium in abundance in a form which is fairly readily absorbed, and every pregnant woman should take a pint or more of milk daily. The amount of vitamin D in milk varies enormously, and during winter may sink to a very low level, but this problem will be solved when irradiated milk is put on the market. It is extremely difficult to administer calcium by mouth. Calcium chloride is easily absorbed, but is irritant and increases the acidity of the urine, which consequently contains a larger amount of calcium. Calcium gluconate is converted in the stomach into the chloride, and so merely provides an expensive, if convenient, way of exhibiting the chloride. The ideal method of increasing the available amount of this mineral in the body is by injecting 10 c.cm. of a 10 per cent. solution of calcium gluconate (Sandoz) intramuscularly. The gram of calcium gluconate injected contains 0.093 gram of calcium element in a form which is readily ionized. Seeing that the total amount of calcium in the woman's serum does not exceed 0.3 gram, of which probably not more than 0.06 gram exists as free ions, it is obvious that one injection may double the amount of calcium ions in the blood. The injection is absolutely painless, and may be repeated at frequent intervals. Calcium levinulate is now on the market, and should be as good as, if not better than, the gluconate, but I have had no experience of this preparation.

Results of Calcium Therapy

It may be confidently asserted that it is possible to prevent teeth from decaying, hair from losing its glossiness and falling out, and nails from becoming brittle by ensuring that the diet during pregnancy is adequate in its content of vitamin D and calcium.

Excessive Salivation.—This symptom is exceedingly uncommon. The wife of a doctor commenced to suffer from a severe degree of this affliction, associated with a foul taste in her mouth, during the early weeks of her first pregnancy. She was kept for several weeks in a nursing home, but in spite of the most skilled treatment the symptom persisted unabated until after the delivery of the child. The symptom recurred early in her second pregnancy, and again all attempts at its alleviation proved unavailing. The husband consulted me several weeks after the symptom, as bad as ever, had manifested itself in the third pregnancy. I advised the intravenous injection of 10 c.cm. of calcium gluconate and certain additions to the diet. The symptom practically cleared up immediately, and the doctor described the result as "almost miraculous." As I did not see the patient herself psychological factors can hardly have influenced the result.

Vomiting of Pregnancy.—There is not, in my opinion, the slightest justification for assuming that any case of hyperemesis gravidarum can be labelled neurotic. It is my belief that the threshold of vomiting is lowered during pregnancy and that there is no difference in kind, but only in degree, between ordinary morning sickness and a fatal case of hyperemesis gravidarum. Those who have maintained that it is never necessary to empty the uterus for this condition and that all such patients may be cured by suggestion either have had a very limited experience or possess short memories. I have seen several cases in which the vomiting has been completely checked, although the patient has subsequently died or suffered from a severe attack of peripheral neuritis lasting for several months. In the last year or two quite a number of patients have been referred to me because of vomiting, some being in the early months, but the majority in the last few weeks of pregnancy. This is the type of note the patient brought from the ante-natal clinic:

"Slight trace of albumin. General condition poor. Poor colour and looks ill. Headaches occasionally. Blood pressure has varied from 134/68 mm. to 144 72 mm Hg. She is vomiting a good deal and has much heartburn. No medicine seems to help."

In each and every case the intramuscular injection of calcium gluconate cleared up the symptom almost immediately and the change in the patient was remarkable.

Cramps.—A number of patients in the last weeks of pregnancy have been referred to me because of cramps, usually of the muscles of the calves but sometimes involving the gluteal groups as well. The symptom is generally worse at night, and causes the woman to get out of bed and walk round the room. Besides being painful these cramps, by interfering with sleep, reduce the sufferer to a low state of health. In every case it has been found possible to clear up the symptom completely and in most cases immediately by the intramuscular injection of calcium.

Oedema.—There are three main causes of oedema which operate during pregnancy: (1) pressure, (2) excess of fluid intake over fluid output, and (3) altered permeability of the tissues.

1. There is no need to lay emphasis on the factor of pressure, except to point out that the widening of the intercostal arch and the elevation of the diaphragm by the bulk of the uterus raise the venous pressure in the thorax and so tend to cause oedema of the upper as well as of the lower extremities. The most severe degree of oedema may be due to mechanical factors and, in particular, to acute hydramnios.

2. The normal pregnant woman can excrete the usual amount of urine in the twenty-four hours, but during the latter months, owing to mechanical factors, the proportion of urine passed by night increases until the night/day urine ratio often exceeds unity. Although she can excrete the average daily amount of urine her response to water diuresis is frequently, if not usually, impaired, and this impairment is more marked in cases of the nephropathy of pregnancy. It is obvious that if more water is ingested than can be excreted oedema is inevitable. For this reason the indiscriminate water elimination treatment of the toxaemias of pregnancy is fundamentally unsound, and must lead to water intoxication and possibly death from either oedema or convulsions. Ardent exponents of this treatment can only save the woman from "drowning" either by cruel and otherwise useless purgation or by the timely induction of labour.

3. From time to time patients are encountered who for no very apparent reason exhibit oedema. In one such patient the oedema chiefly affected the face and upper extremities, and disappeared after one injection of calcium, although delivery did not take place until some weeks later. Another was sent from the ante-natal clinic to be admitted because of marked swelling of the feet, ankles, and over the shins; but no treatment was considered

necessary. When she was permitted to get up during the puerperium the oedema returned and was as bad as ever on the morning of her discharge, fourteen days after delivery, although she had been in bed for the previous twenty-four hours. She was given an intramuscular injection of calcium and told to return in two or three days, when she reported that the swelling had gone down shortly after she "was poked with the needle." There can be little doubt that oedema may, in some cases, depend on the permeability of the tissues, which may be altered by calcium.

Dermatitis Herpetiformis.—A patient thirty-seven weeks pregnant was referred with dermatitis herpetiformis, which she had had for over five weeks. After one intramuscular injection of calcium the rash commenced to clear up, and had disappeared before her confinement. The improvement in her health was remarkable, and she declares that she felt a "different woman" the day following the injection. Another patient with this condition only presented herself a fortnight before her confinement complaining of sleeplessness. An injection of calcium caused her to sleep naturally and led to a very great improvement in the rash, which she had had for several months.

Chorea.—Last year I saw one patient early in pregnancy with marked choreiform movements and severe peripheral neuritis, particularly affecting one side. She was put on a complete diet with the addition of calcium and vitamins A, B, and D, and improved astonishingly. When she came to be confined she appeared to be normal, and gave birth to a healthy child.

Blood Pressure.—The systolic blood pressure is not usually raised during pregnancy, while during the early months it may measure less than 90 mm. Hg. In those cases in which the blood pressure is markedly elevated the systolic blood pressure varies within a few minutes, sometimes by as much as 50 mm. Hg, and this, in my experience, is a constant phenomenon. Adrenaline is the one known physiological substance which could cause such a sudden, considerable, and transitory rise of blood pressure, and it would appear most probable that these patients suffer from "jumpy adrenals." Everybody is agreed that the diastolic blood pressure increases by about 5 mm. Hg during the latter months of pregnancy. Seeing that it is possible by constricting the chest with a rubber band to a degree which causes no inconvenience to raise the diastolic blood pressure by as much as 10 mm. Hg, it would appear logical to assume that the partial fixation of the chest effected by the bulk of the uterus operates in a similar manner. It is easy to raise the diastolic and to lower the systolic blood pressure directly by mechanical means, but it is probable that the rise in the systolic blood pressure which sometimes occurs as a result of these manœuvres is indirect, for it cannot be obtained in anaesthetized animals. The varying effects on the systolic pressure caused by constricting the chest depend on the degree of constriction effected. It has been found possible to lower the systolic blood pressure to its normal level in nearly every case by the injection of calcium gluconate and without rest in bed, providing treatment is instituted before the pressure has significantly exceeded 140 mm. Hg. Once the blood pressure has exceeded 150 mm. Hg it is usually impossible to bring it down to the normal level, and the degree of improvement obtained may be in large part due to the rest in bed.

Albuminuria

1. Albuminuria is common in girls and young women, the incidence decreasing after the twenty-sixth year.[5] The incidence of the albuminuria of pregnancy might therefore be expected to be highest in women below that age.

2. The 1,000 ante-natal clinics in England and Wales have merely served to lower the incidence rate of the albuminuria of pregnancy, but not that of eclampsia.

3. Women suffering from non-nephritic albuminuria usually pass an albumin-free urine during the early months of pregnancy.[6]

4. The most severe degree of albuminuria (and of oedema) may be associated with acute hydramnios, and may be cleared up by the Queen Charlotte Hospital method of tapping the amniotic sac without disturbing the pregnancy.

5. A slight increase of pressure in the renal veins causes albuminuria, and the mechanical-dietetic hypothesis is a simple and adequate explanation of the albuminuria of pregnancy.[7]

6. During pregnancy the amount of urine passed in the twenty-four hours is of much greater significance than the amount of albumin it contains. The routine measurement of the blood-pressure and testing of the urine for albumin at fortnightly intervals during the latter weeks of pregnancy are nevertheless of the utmost importance, and often make it possible to detect the early stages of impending "toxaemia."

7. There is no reliable evidence that the "kidney of pregnancy" is liable to undergo nephritic changes.[8]

Treatment of "Toxaemic" Patients

Seeing that the whole thesis of this paper is that the sole satisfactory method of treating the toxaemias of pregnancy is to prevent them, only a short account will be given of these cases. Dr. Bethel Solomons was kind enough to try the calcium and vitamin treatment on his toxaemic patients at the Rotunda Hospital, and obtained very unsatisfactory results. This was possibly to be expected, seeing that many of his cases were pre-eclamptic, and that he combined water elimination treatment with the calcium therapy.

The present report deals with twenty-three patients, of whom nineteen were primigravidae. Most of the patients were admitted with a raised systolic blood pressure (in more than half the cases it was 160 mm. Hg or higher) and albuminuria, while some further complained of headache and vomiting.

All the patients were put on a full diet with the exception of meat, and most of them were allowed fish. They were neither violently purged nor persuaded to drink large quantities of water, and in no case was sodium chloride withheld. They got up each evening, walked about the ward, and bathed themselves. In addition to the diet they were given radiostoleum (B.D.H.) one drachm three times daily, marmite, potassium iodide, and frequent intramuscular injections of calcium gluconate. Both parathormone and thyroid extract were tried, but did not appear to be beneficial. Liver extract proved definitely harmful in one case, the systolic blood pressure rising sharply from 145 to 190 mm. Hg, and its use was therefore discontinued. The daily output of urine, the amount of albumin in the morning specimen, and the morning and evening measurements of the blood pressure were charted. Water diuresis tests were made when possible.

Results

Oedema was conspicuous by its absence, and only persisted in two cases of twin pregnancy complicated by hydramnios. Five patients went into labour shortly after they were admitted, and one was admitted for induction of labour because of a dead foetus. In ten patients there was very definite improvement; the symptoms in some cases cleared up completely. One of this number was admitted at the thirty-seventh week of her pregnancy with a blood pressure of 160/120 mm. Hg, and a catheter specimen of her urine contained albumin ++. The urine became albumin-free, and the blood pressure dropped within five days to 128/90 mm. Hg. In the case of five patients it was found impossible to lower the blood pressure significantly. One patient had a fit two days after her admission, and was delivered normally of a healthy child fifteen days later. Labour was induced in only two cases: once because the patient was believed to be

overdue, and once because of hydramnios. Five babies were born dead, two being twins and three being macerated; and two premature babies died. It is interesting to note that although there were only four multiparae in this series, two of them gave birth to dead babies. Both had high blood pressures, but their urines were protein-free. The mother who gave birth to dead twins had been ill in hospital elsewhere for over a month before she was admitted to the ward. On admission her systolic blood pressure exceeded 170 mm. Hg; her urine contained albumin, the red cells were under 2,000,000 per c.mm., the colour index being 0·5; and she was jaundiced. She was in the ward for five weeks before delivery. The first foetus was macerated and the second was born dead, probably because too long an interval was allowed between the birth of the first and second twins.

All the mothers are well, and in no case could a diagnosis of chronic nephritis be made. The systolic blood pressure has remained high in two cases, and well above the average in two more, but there is no reason to believe that this elevated blood pressure did not in each case antedate the *pregnancy*.

CONCLUSION

It is inherently improbable either that any one toxin could cause the widely varying symptoms associated with the toxaemias of pregnancy, or that a number of separate toxins should originate in the products of conception. The fact that the hepatic lesions peculiar to eclampsia may be caused by dietetic or mechanical factors, or a combination of both, disposes finally of the strongest argument in favour of a pregnancy toxin. It is suggested that the foetus affects "*la fixité du milieu intérieur*," and that all the toxaemic disorders may be regarded as deficiency diseases. It follows that there is no fundamental causal difference between ordinary morning sickness and eclampsia. This hypothesis is not contradicted by any known fact, and is supported by the results of calcium therapy reported above. If excessive salivation, vomiting, cramps, dermatitis herpetiformis, oedema, and other symptoms can be cured by the injection of calcium, it is logical to suppose that they are caused by its deficiency. The number of patients who have been treated is small, but the success which has attended calcium therapy in such a variety of conditions warrants its extended trial. A great disservice has been done to the science of dietetics by those enthusiasts who stress this or that vitamin without considering the diet as a whole or the importance of personal hygiene. It is claimed that a complete, well-balanced, appetizing and easily digested diet, rich in the vitamins and in calcium, iron, and iodine, if given early in pregnancy, will prevent the onset of the toxaemias of pregnancy (but not always of albuminuria), although it may be necessary to increase the available amount of calcium by the injection of calcium gluconate: indeed, it might be expedient, and in the end economical, to give routine injections of this mineral at the thirty-second and thirty-sixth weeks of pregnancy. It is further believed that such a diet would increase the resistance of the woman to puerperal infection. The one advantage of this hypothesis, which is possessed by no other, is that it can be put to the test, and even under "field" conditions.

This work was done at the Hammersmith Hospital, and I should to take this opportunity of thanking my assistant Dr. B. Williams, until lately resident medical officer, and Miss V. Page, sister in charge of the maternity wards, for their loyal co-operation.

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Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

PRIMARY CALCULUS OF THE URETHRA

The following case seems of sufficient interest to be recorded.

A. B., aged 55, was admitted to the County Hospital, Wakefield, on March 4th, 1933, suffering from extravasation of urine. He stated that for ten years or more he had suffered periodically from gravel, with some pain in passing urine, and frequency. He very rarely consulted his doctor, but took copious draughts of barley-water. He worked in a coal mine and on the land. He had seldom had to cease work on account of the symptoms. Alert otherwise he seemed with regard to his genito-urinary tract, to be endowed with, in the circumstances, the priceless gift of mental torpor. He had never noticed any swelling in the perineum. A fortnight before admission he fell astride, but disregarded the injury. However, in an hour or two he had violent pain in the perineum, and blood was passed by the urethra. A sinus eventually formed in the scrotum, which gave him relief. On admission the scrotum was gangrenous, and cellulitis extended



The calculus, which measured 2½ in. by 1½ in. at its widest part.

on the left side of the abdomen in a slanting manner towards, and just beyond the level of the anterior superior spine of the ilium. The right testicle was absent, penis and right abdominal wall were not affected. There was a sinus in the scrotum, from which issued a foul-smelling discharge. A catheter was passed beyond the injured part without difficulty.

At operation the scrotum was incised in the middle line, and the knife impinged on a hard substance. A calculus, or fragment of a calculus, lying loose in the sloughing, foul-smelling tissues was removed. The finger was again introduced into the wound and what appeared to be a smaller calculus gripped tightly by the surrounding tissues, was discovered and removed by further incision. The anterior extremity of this was at the peno-scrotal junction. The left abdominal wall was incised. The gangrene had invaded the tunica vaginalis. Minute inquiry into the actual state of affairs was impracticable owing to the local and general condition of the patient. A rapid improvement followed the operation. Secondary suture was performed on April 1st, 1933, in the lithotomy position. In the left lateral wall of the urethra was an opening half an inch long. This led to a pouch roughly three inches by two from which the calculus had been removed. The proximal wall of this diverticulum had disappeared in the sloughing process, except at its upper and lower extremities. The distal wall was intact, and was lined with what appeared to be mucous membrane—pale, smooth, and thickened. The distal wall was incised, and a flap was raised to repair the defect in the left lateral wall of the urethra. The rest of the sac was excised. The testicle was replaced in the right side of the scrotum, and a catheter was tied in. The wound at the

catheter at no time presented the slightest difficulty. The fractured calculus weighed three ounces—the larger posterior portion weighing two ounces—and measured 2½ in. by 1½ in. at its widest part. It had apparently been fractured by the fall, which had also ruptured the wall of the diverticulum. Within a fortnight the patient was passing urine normally. X-ray examination of the genito-urinary tract was negative.

Professor Barger of Edinburgh, who analysed the stone, writes: "Qualitative examination revealed an absence of uric acid and urates, cholesterol, cystine, and oxalates. Ammonia, calcium, magnesium, carbonate, phosphate, and a trace of organic matter insoluble in mineral acid were present. I determined the amount of the following constituents quantitatively: Loss on ignition at red heat (NH_3, CO_2, organic matter), 23.2 per cent.; P_2O_5, 33.3 per cent.; CaO, 28 per cent. The rest (15.5 per cent.) is probably MgO." He adds: "The amount of organic matter was obviously very small. It is difficult to say how the above constituents are grouped, but I think it likely that 28 per cent. CaO, with 22 per cent. CO_2, was combined to 50 per cent. of calcium carbonate (amorphous), and that the other half was nearly all magnesium phosphate with some triple phosphate (ammonium magnesium phosphate). I imagine that the acidity of the urine must have been subnormal."

Wakefield. J. W. Thomson.

TABES DORSALIS IN AN EAST AFRICAN NATIVE

The recent paper by Gordon and Vint[1] reporting a case of general paralysis in a Kenya native is of interest owing to the comparative rarity of neurosyphilis among natives. In a discussion on the incidence of neurosyphilis in the Tropics[2] all the speakers stated that this condition was rare, and very few cases were reported, although all of them had had extensive experience of work in the Tropics. In looking through the literature available only a few more cases have been found. Wolff[3] reported a case of tabes dorsalis in a native of German East Africa, and quoted Ziemann as saying that he had only seen two cases among West Indians. Kirschner[4] saw two cases of tabes dorsalis in 3,800 native patients, and quoted a third reported by van den Bergh, while Walravens and Walker[5] reported five cases of cerebral syphilis seen at Elisabethville, three of which were diagnosed as general paralysis. The following case of tabes dorsalis in a native of Tanganyika Territory may therefore be of interest.

A Msukuma woman, aged 40–45, was seen on June 15th, 1932; she had had pains in the back and legs off and on for a month, and weakness of the legs of six days' duration. She said that the pain was of a stabbing character, starting in the loins and going round the abdomen towards the umbilicus, and also down the backs of her legs. The latter were thin and so weak that she was hardly able to stand, and she could only walk with the help of a stick, which she held in both hands in front of her. She admitted having had syphilis when she was young, but had had no treatment. On examination her bladder was found to be up to her umbilicus; but this was apparently causing her no pain. There was no pain on palpation of the lumbar region, but the muscles of the right side of the abdomen were slightly resistant. The knee-jerks were absent, and Romberg's sign was marked. The pupils reacted on accommodation, but very sluggishly to light. On lumbar puncture there was a cell count of 77 per c.mm., and the cerebro-spinal fluid gave a ++ Wassermann reaction. She was given tryparsamide, 3 grams intravenously, on two occasions, and then ceased to attend, refusing all further treatment.

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Reviews

A RADIOLOGICAL STUDY OF OTITIS MEDIA

In a supplement to *Acta Radiologica* Dr. Gösta Runström of Gothenburg presents a *Roentgenological Study of Acute and Chronic Otitis Media*.[1] An extensive account of the anatomy of the temporal bone takes the first place to enable the films photographed from different aspects and angles to receive correct anatomical interpretation. The study of the head and of the temporal bone in particular presents the most difficult problem which the radiographer has to solve, and that part of the book in which the technical difficulties are described will appeal chiefly to radiographers. How successfully the technique employed has overcome these difficulties is shown by the case histories with reports which accompany numerous plates of stereoscopic photographs of the temporal bone. There are, nevertheless, limitations to the pathological interpretation of the films, however perfect the technical result may be, and on this point the author insists emphatically. The chief points which can be elucidated are the relative density or degree of aeration of the cellular system, the density or decalcification with diminution in density of the cell walls, and the sharpness of outline or lack of definition of the cells. Decalcification, indistinct outlines, and defects in the cell walls are signs of osteitis. The necessity for correlating the clinical features of the case with the radiographic appearances is another point on which the author insists. There is nothing in the external aspect of the temporal bone to indicate the anatomical constitution of its interior, and this can be well displayed by radiography, but the interpretation of pathological changes requires special training, and must be correlated with the clinical examination.

This study demonstrates most beautifully how the application of physical science and exact mensuration have overcome a problem of great complexity. Examination of the plates and comparison with the case histories and reports will show otologists how much a radiographer with special skill, knowledge, and apparatus can accomplish in this field.

A COLLOIDAL THEORY

"Colloids and Micellae: their Role in Biology and Medicine,"[2] by Auguste Lumière, is a volume of some 800 pages, in which the author has summarized certain special views on pathology which he has advanced in a series of works published during the last decade. The volume is very well illustrated; thirty-four coloured plates of photomicrographs form a special feature. The remarkable technical perfection of these plates is not surprising in view of the services the author has rendered to the advance of photography.

M. Lumière's main thesis is that "the colloidal state is an essential and indispensable condition for life. Destruction of this state—namely flocculation—causes disease and death."

In a lengthy preface he makes the complaint that there has been a conspiracy of silence amongst medical authorities as regards his work. The publishers, however, speak of it as the scientific gospel of the future, suggest that it is the most important work that has appeared since the discoveries of Pasteur, and state that we are at the dawn of a new era—the colloidal era. It is almost superfluous to point out the difficulty of appraising the status of a book for which claims of this

[1] *A Roentgenological Study of Acute and Chronic Otitis Media.* By Gösta Runström. *Acta Radiologica*, Supplementum XVII. Stockholm: Acta Radiologica. 1933. (Pp. 88; 54 plates. Swedish crowns 20 net.)

[2] *Colloïdes et Micelloïdes.* Par Auguste Lumière. Paris: N. Maloine. 1933. (Pp. 806; 33 figures, 34 coloured plates. 75 fr.)

nature are made. This difficulty is increased by the fact that the author deals with some of the most obscure problems of pathology—namely, the nature of anaphylactic and other forms of shock, and the mechanism of immunity phenomena. The general line of argument of the author is indicated by the following quotation (p. 311):

"The colloidal theory, which enables us to understand the mechanism of shock, provides us at the same time with a key to its peculiar features, which no previous author has defined and still less has explained. If it be granted that the destruction of the colloidal state and the flocculation of certain plasmatic materials is the primary cause of the phenomenon, and that shock results from a mechanical excitation of endovascular sympathetic nerve endings by the flocculate, or by some other precipitate of any kind of composition but with a suitable physical form, one understands why substances so chemically dissimilar as barium sulphate, Prussian blue, or a protein antigen produce exactly the same effects."

One particularly interesting feature of this volume is that the author has made extensive researches into the history of the current theories of pathology. He points out that Magendie in 1839 demonstrated that rabbits could be sensitized to albumin, and that similar phenomena were recorded by various workers in the nineteenth century. No notice was, however, taken of these experimental facts until Richet and Portier "had the inestimable merit of producing a theory which proved extremely fertile although certainly incorrect." Throughout his text the author is at pains to emphasize the very numerous phenomena associated with anaphylaxis and immunity, which are either unexplained or else explained by theories that are obviously illogical. It is probable that most readers of this book will hesitate to accept the somewhat sweeping generalizations made by M. Lumière, but even if they disagree with the conclusions, they will find much to interest them in the argument.

OUTPUT OF THE HEART

Cardiac Output,[3] by Dr. ARTHUR GROLLMAN, is an exhaustive study of the output of the heart as estimated by a new method. The author claims that by means of using acetylene he can obtain much more accurate results than have been possible hitherto by any other method. The oxygen consumption of the subject is determined and the change recorded in the acetylene and oxygen content of a mixture containing these gases during rebreathing. If the barometric pressure is known he employs a formula, making use of these data, which gives the cardiac output. The method appears to have wide applicability, and determinations can be made accurately with ease and rapidity. Most people do not appear to object for long to the smell of acetylene, to which they soon become accustomed.

We do not propose to enter into a criticism of the technical details, but rather to record for possible readers of this interesting book some of the results obtained. The author shows that under constant physiological conditions a man's cardiac output is remarkably stable and reproducible within the limits of experimental error. His results appear to indicate that the output is constant from day to day, and not subject to daily or seasonal variations. On these grounds he thinks it possible to define a basal cardiac output somewhat analogous to basal metabolism. He finds that the cardiac output of normal individuals per square metre of body surface is 2.2 ± litres per minute, with an average deviation from the mean of only 6.4 per cent. Physicians will realize the importance of the considerable rise in the cardiac output which he has been able to demonstrate as taking place after a heavy meal. The cardiac output decreases during sleep in exactly the same way as might be expected in complete rest. The increase caused by exercise is determined a good deal by the part which the muscles play in returning the blood to the heart.

The effects of various drugs on the cardiac output were studied. Therapeutic doses of alcohol in normal persons had only a slight effect, and small doses of caffeine caused none. Tobacco sometimes increased the pulse rate, but did not affect the cardiac output. Digitalis appears to decrease the output in normal persons. Dr. Grollman thinks that this drug is only valuable where cardiac dilatation or marked arrhythmia occurs. Further studies are needed in cases of cardiac failure. A rapid and pronounced increase in cardiac output has been demonstrated following the intravenous injection of strophanthin. Adrenaline and ephedrine both increase the output of the heart. Paroxysmal tachycardia and auricular fibrillation have not as yet been extensively studied. Other workers have shown that the output falls considerably in these conditions, particularly when the heart rate is very fast.

Apart from the record of his own observations, which have not as yet been carried very far and will no doubt be much further extended, the author quotes very fully the observations of other workers using different methods. The book gives a full and interesting description of all the information available on this subject, and is of much importance both to the physiologist and to the physician. It may be well recommended as an extensive and valuable study; the matter is clearly set forth and well discussed. There is a good bibliography and the arrangement is clear and comprehensive.

THE COMPUTATION OF "STATISTICS"

Twenty-three years ago, when the first edition of Mr. Udny Yule's now classical textbook appeared, a student untrained in mathematics who wished to apply statistical methods outside the fields of demography or economics could find few guides. Now dozens of more or less competently written books are available. The latest English addition to the series is the work of a distinguished psychologist, Dr. SHEPHERD DAWSON,[4] whose choice of examples will recommend the volume to those wishing to apply statistical methods in the field of psychology. Any beginner who not only reads the text but works through the examples will acquire much useful information, but whether the merits of the volume justify an addition to the list of competing textbooks is a more doubtful question. The title of the book illustrates one of its weaknesses—namely, a tendency to introduce technicalities which the author either does not really understand himself or forgets to explain. To the man in the street *statistics* means, vaguely, something to do with tables of figures and calculations. Mr. Udny Yule's definition—"quantitative data affected to a marked extent by a multiplicity of causes"—is not too technical for an ordinary reader to grasp. Some years ago, Dr. R. A. Fisher, wishing to distinguish between the true value of a parameter descriptive of some feature of a "universe" or "population" and the *estimate* of such a parameter which could be formed from a sample only of the population, defined the estimate as a "statistic." The result is that we have one word used in two different senses: (*a*) statistics, in the man in the street's sense as corrected by Yule: (*b*) the plural of the technical term introduced by Fisher. Now "statistics" in Dr Dawson's title can only bear meaning (*b*), which will be unfamiliar to 99 per cent. of beginners, yet Dr. Dawson does not point out the ambiguity. Again, a beginner reading

[3] *The Cardiac Output of Man in Health and Disease*. By Arthur Grollman, Ph.D., M.D. London: Baillière, Tindall and Cox. 1932. (Pp. xiv + 315; 15 figures. 21s. net.)

[4] *An Introduction to the Computation of "Statistics"*. By Shepherd Dawson, M.A., D.Sc. London: University of London Press, Ltd. 1933. (Pp. 192; 42 diagrams. 10s. 6d. net.)

Dr. Dawson's page 80 might easily imagine that Professor Pearson's family of frequency curves could be deduced by making numerical substitutions in the formula of the ordinary binomial. The specification of the various types of Pearsonian curves is incomplete—indeed, many years out of date—and instead of referring the reader to the 1927 edition of Mr. Palin Elderton's well-known book, where correct information can be found, reference is made to the first edition, published in 1906. This misinformation is gratuitous, as, quite properly, Dr. Dawson makes no use of Professor Pearson's curves, which are not suitable for an elementary introduction. We cannot say that, in our opinion, this book is as suitable for beginners as others already well known.

INSPECTION OF FOODS

In a recent issue we commended the first volume of a work on food inspection, mainly concerned with meat. The second volume, which has now appeared,[5] covers the other foods. The edible fish are dealt with first. The signs of their unsoundness are noted, and their diseases, parasitic infections, and methods of preservation are described. Next in order come poultry, rabbits, and game. A wide range of fruits, from the apple to the cranberry, is passed in review, and helpful information is duly given regarding the vegetables, mushrooms, and cereals. The important group of the canned foods is surveyed, and valuable guidance offered as to the methods of examining cans and the correct conclusions to draw from the observations made.

The section on milk is instructive and judicious. The Gerber and freezing-point tests are explained. While the essentials of proper cow-house construction are stated, regard is had to the case of the small producer, hints being given on the reconditioning of old cow-houses and on the steam sterilization of milk vessels in small dairies. The graded milks are faithfully discussed, and a table is quoted to show the extent to which ungraded milks fall short of graded milk standards. The author's view that the pasteurization of milk, if generally practised, would reduce the risk of bovine tuberculosis to a minimum is in agreement with current opinion.

The extent to which confectionery nowadays is not what it seems is shown in a number of instances. In the section on food poisoning the distinction between bacterial food poisoning and botulism is correctly drawn, but the case against the canned foods as sources of food poisoning is, we think, put too high. We have found few errors in the work. It is a storehouse of practical knowledge, and the author, Mr. MARTIN, has done well by his colleagues in the sanitary service in making the result of his own wide experience so freely available for their guidance.

Notes on Books

A very interesting little book is the late ALBERT KRECKE'S Doctor and Patient,[6] wherein the gleanings of some forty-five years of active professional life are collected. A man who could be called "Vater Krecke" by his patients is surely one from whom much may be learned. There is a pathetic interest about the book, inasmuch as the author had planned a dedication to his wife; he died, however, before its publication, and instead of the intended dedication are introductory and biographical notes by two of his colleagues.

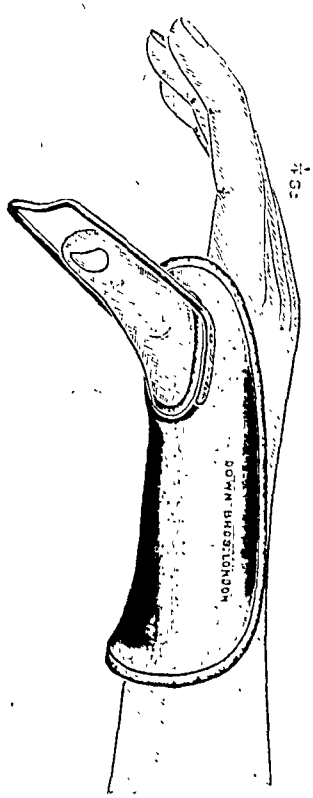
The University of London Animal Welfare Society exists for the purpose of educating educated opinion on the subject of the humane treatment of animals. It is not an antivivisection society, and it recognizes that disease and lack of knowledge cause more suffering to animals than does man's conscious effort; it recognizes, however, that "trade" often causes unnecessary suffering. With the purpose of presenting data on this subject it issues an annual yearbook—volume ii of which has just appeared under the title of *Animals, Consider Your Verdict!*[7] It is an important and accurate work of reference to all those who are interested in animals. It avoids sensationalism and harrowing pictures of distress, and concentrates its attention on the responsibilities of man towards his fellow creatures on different branches of the zoological tree.

The third volume of the Reports of the Hospital for Infectious Diseases, Madrid,[8] edited by Dr. M. TAPIA, consists of twenty-five papers, most of which have been published elsewhere. Ten of these deal with various aspects of tuberculosis, three each with typhoid and undulant fever, and the rest with pneumonia, malaria, and measles. The statistics of the hospital for 1932 are appended.

Preparations and Appliances

SPLINT FOR BENNETT'S FRACTURE OF THUMB

Sir W. I. DE C. WHEELER writes: In the absence of efficient treatment poor functional results often follow an oblique fracture through the base of the first metacarpal bone. In a typical case extension is, as a rule, required for about three weeks. It is difficult to obtain the uninterrupted extension and fixation required by the splint recommended by Bennett, or with any of those in common use. The splint illustrated here has proved effective, and is easily extemporized from one of the common Jones's grooved aluminium arm splints.



The splint is applied to the radial aspect of the forearm. At its distal extremity there is an aperture through which the thumb passes. An extension copper wire (10 s.w.g.) gallows is riveted to the aperture, and projects in an abducted direction beyond the tip of the thumb. Extension is maintained by tapes attached to adhesive plaster strips on the thumb and tied tightly to the end of the gallows. Throughout the treatment the tapes must be kept tight. A small felt or sponge pad is put under the splint at the site of fracture. In this way continuous pressure is combined with continuous extension to prevent slipping of the metacarpal shaft. As in all cases of fracture, reduction under local or general anaesthesia is necessary before or during the application of the splint.

A full description of the use of this and other splints in the treatment of Bennett's fracture is published in the *Medical Press and Circular*, July 26th (p. 90).

[5] *Practical Food Inspection.* Vol. ii. *Fish, Poultry, and Other Foods.* By C. R. A. Martin, M.R.S.I., A.N.I.S.E. London: H. K. Lewis and Co., Ltd. 1933. (Pp. viii + 250; 57 figures. 10s. 6d. net.)

[6] *Vom Arzte und Seinen Kranken.* Von A. Krecke. Munich: J. F. Lehmanns Verlag. 1932. (Pp. 378; 1 figure. Geh. M.4.80, Geb. M.6.)

[7] *Animals, Consider Your Verdict!* Vol. ii of the Animal Year Book. Hon. editors: C. M. Knight, D.Litt., Captain C. W. Hume, M.C., B.Sc. London: The University of London Animal Welfare Society. 1933. (Pp. viii + 145. 2s. 6d.)

[8] *Trabajos del Hospital Nacional de Enfermedades Infecciocas.* Vol. iii, 1932. Madrid: Revista Española de Tuberculosis. 1933. (Pp. xiv + 396; illustrated. 16 pesetas.)

British Medical Journal

SATURDAY, AUGUST 26th, 1933

PLEASANT POISONS

The Germans have a useful term, "Genussgifte," which covers the wide variety of drugs wherewith mankind relieves the tedium of life. The English phrase "drugs of addiction" would mean much the same were it not that this has acquired a sinister significance on account of its definite association with the more deleterious drugs such as heroin and cocaine. Public attention has been focused on these latter both on account of the havoc they can work and also on account of the sensational disclosures regarding the international drug traffic that appear from time to time. Nevertheless it is obvious that heroin and cocaine have far less effect on the social life of the community than have the less sensational habit-forming drugs such as alcohol, tobacco, and tea. The magnitude of the part that these latter products play in our lives can best be estimated by considering how we should feel if suddenly deprived of them all. The extraordinary social reactions set up by the introduction of prohibition into the United States give an indication of the extent to which the use of these drugs is woven into the social fabric of modern countries. The failure of prohibition is often adduced as a proof that it is impossible to change the habits of a nation, but actually these habits do change slowly but persistently. It is true that the use of alcohol dates back to the dawn of history, but tobacco and tea are comparatively recent introductions in Europe, since they only appeared in the sixteenth and seventeenth centuries. The trade statistics show, moreover, that their use has only become universal during the last century, and that it is still increasing steadily. The following figures show the curious changes that have occurred in the national drug habits during the past century.

Consumption per Head (U.K.) per Annum

	1830	1875	1900	1930
Tobacco (lb.)	0.7	1.3	1.8	3.3
Tea (lb.)	1.2	4.5	6.0	9.9
Alcohol (gallons of proof spirit)	—	4 8	4.5	2.0

The figures show a steady increase in consumption of tobacco and tea throughout the century and a remarkable fall in alcohol consumption since 1900. These changes cannot reasonably be attributed to taxation, for although this may have helped the decline in alcohol consumption, yet a parallel increase in taxation did not check the increase in the consumption of tea and tobacco. Popular taste is in fact extremely capricious. A hundred years ago the consumption of tea and coffee was approximately equal at just over a pound a head, but since then tea consumption has increased to nearly ten pounds whereas coffee consumption has fallen to about three-quarters of a pound per head.

It seems evident that the desires of the population for drugs are changing slowly but surely. The calculations of consumption per head are unsatisfactory in that children are reckoned in with adults, and the consumption per consumer must be at least one and a half times that given in the case of tea and about twice that given in the case of tobacco and alcohol. If this correction be made, it appears that the average adult takes daily an ounce of pure alcohol (which is equivalent to about one pint of beer) and about two-thirds of an ounce of tea, while he or she smokes about 2 ounces of tobacco a week. Since the consumption of alcohol per head is only half what it was in 1900 we need not now discuss its effects on the population, for presumably these must be decreasing rather than increasing, but it is of interest to consider whether the steady growth of the use of tea and tobacco is likely to produce any unpleasant consequences in the future. It cannot be stated offhand that the effects of the amounts consumed will be negligible. As regards tobacco it has been found that the average consumption in cases of tobacco amblyopia is only 3 ounces a week, which is not so very much greater than the average national consumption. In the case of tea the usual calculation is that a pound of tea provides 200 cups, and hence the daily consumption of two-thirds of an ounce is equal to about eight cups of tea, and this quantity contains about 6 grains of caffein, which represents a full pharmacopoeial dose. When tea and coffee were first introduced they were received with a storm of abuse, and were said to inflict every imaginable evil on the human body and soul. It is interesting to note that in recent years, when tea drinking suddenly became popular in Tunis, there was a press campaign against the custom, in which the accusations of the seventeenth century were repeated almost word for word. This campaign brought to light in a curious way the sharp limitations of the human imagination. In "The Women's Petition Against Coffee," 1674, they complained that "it made men as unfruitful as the deserts whence that unhappy berry is said to be brought," while the Tunisian press a few years ago bewailed the fact that the immoderate consumption of tea by the Arabs would certainly make them impotent. There is no doubt that immoderate use of tea or tobacco can produce a wide variety of injurious effects on the body, but the more interesting and important fact is that the great majority of civilized people take these drugs regularly throughout their adult life without becoming immoderate addicts and without suffering any demonstrable injury.

On the whole, Western Europe seems to be distinctly fortunate in its present choice of "Genussgifte." A short comparative study of the drugs of addiction reveals the fact that there are so many possible choices very much worse than tea and tobacco. Every now and then articles appear in the medical press pointing out the evils that may follow the gross overuse of these drugs, and deploring their increased popularity. The

authors do not, however, always realize that tea and tobacco are replacing alcohol (a substitution of undoubted benefit to the community), that civilized man is certain to use drugs of some kind or another, and that it is extremely lucky he is concentrating at present on such harmless creature comforts as tea and tobacco.

LONDON WATER

Sir Alexander Houston, in his reports of recent years, has from time to time conducted his readers in thought beyond the confines of his laboratories to view the spacious fields made green with the running of that great river whence London draws most of its water supply. Now, in his report for 1932,[1] he puts to himself the question whether he may perchance have erred in trying thus to give light and colour to what might seem to many a severely practical matter. He is inclined to think that on the whole he has done right, for he says that if people learn to love the Thames, including the Lea and other tributaries, they will not fail to strive unceasingly to preserve their amenities and protect them from undesirable pollution.

No one indeed has been more tireless than Sir Alexander Houston himself to secure the purity of London water. His laboratory control, maintained for more than a quarter of a century, has been continued in 1932 with his usual vigilance. Of routine chemical samples of water there were examined during the year 4,677, of bacteriological samples 12,934, making 17,611 in all. The use of chlorine is now restricted to the filtered waters, the dose ranging between 0.2 and 0.3 parts per million. The only Thames waters not now chlorinated are those of Chelsea and Lambeth. The New River water was also subjected to chlorine treatment: a high proportion of samples showed *Bacillus coli* absent from 100 c.cm. of water as delivered to consumers. The various waters which feed the filters were submitted to a careful scrutiny, which demonstrated that as a result of storage, aided in some cases by chlorination, the waters prior to entering the filters had improved 100 to 1,000 times. The view is expressed that if these pre-filtration waters can be pronounced epidemiologically safe the perfect working of the filtration process becomes almost of secondary importance. At the Walton works and the Kempton Park works the order of procedure is storage, primary filtration, secondary filtration, and, finally, chlorination. Both works are producing a high-grade water. A special feature at Kempton Park is the remarkable efficiency of the filters, in which a very fine sand is being employed.

Further reference is made to the combined test for *Bacillus coli* and streptococcus described in the report for 1931. Further comment is added on the paratyphoid outbreak at Epping, [illegible] paratyphoid and so [illegible], which infected Cobbin's Brook, came to threaten the water security of part of London. The original protective measures, adopted with complete success, are still being carried out, since paratyphoid bacilli continued to be recovered from the land-treated Epping sewage effluent up to December, 1932. The experimental plant at Barn Elms has again yielded good results, its bacterial efficiency being equivalent to the effect of heating the water at 80° C. for ten minutes. The closing article of the report deals with an inspection of the Rivers Thames and Lea, and prompts the author's question, already referred to, as to whether he has done well to set off his pages with descriptive paragraphs. We feel sure that all will acclaim his action. *Omne tulit punctum qui miscuit utile dulci*. For our own part we have always welcomed his charming topographical commentaries, which enrich his subject with a fuller sense of its place in nature and the lives of men.

[1] Metropolitan Water Board. Twenty-seventh Annual Report. By Sir Alexander Houston. London: P. S. King and Son, Ltd. 1933. (10s. 6d.)

MONILIA INFECTIONS

Yeast-like organisms have long been recognized as responsible for a variety of minor chronic infections in the mouth, skin, and elsewhere, and as the occasional causes of graver infections, either pulmonary or systemic. An almost unparalleled degree of confusion in nomenclature and classification among these organisms has been reached, largely owing to lack of co-ordination between the work of systematic botanists, whose interest is chiefly in their morphology, and of medical bacteriologists, whose chief criteria of identity have been fermentative capacity and pathogenicity. That too much emphasis may be laid on minor variations in capacity to ferment sugars is, by many, believed to be exemplified in the work of Castellani, who defined on this basis no fewer than forty-two distinct types of monilia. Some of these types have been re-examined by other workers, who do not accept them as distinct. Thus Stone and Garrod,[1] who applied the complement-fixation test and the precipitin reaction to the study of monilias, found that strains obtained from cases of thrush and from other lesions in the human subject were serologically homogeneous, and that seven of Castellani's differently named types, in addition to his *Monilia albicans* (the usually accepted name for the fungus of thrush), fell into the same group. The whole of these strains were distinguished from other serologically different types of monilia by the capacity to ferment maltose and by pathogenicity for the rabbit. This effort towards simpler classification was supplemented by the work of Benham,[2] who found that a series of monilias from thrush, sprue (the so-called *M. psilosis*), and various skin lesions were identical by the tests of agglutination and agglutinin absorption, and again distinguished from other types by rabbit pathogenicity. Stovall and Bubolz[3] were also able, on a basis of morphology and fermentative capacity, to reduce 150 strains of their own and ten of Castellani's named strains to only three really distinct types. There seems good reason, therefore, for regarding the monilia group as essentially much less complex than it has been made to appear. A second difficulty, of perhaps more practical importance, has been to decide the significance, if any, of the presence of monilia in clinical

[1] *Journ. Path. and Bact.*, 1931, xxxiv, 429.
[2] *Journ. Infect. Dis.*, 1931, xlix, 183.
[3] *Journ.* 1932, i, 73.
Ibid., 19[illegible]

material. Where this is clearly a more or less uncontaminated inflammatory exudate, as in frank thrush, in skin lesions such as paronychia, and in a certain type of cervicitis, the organism may reasonably be accepted as causing the condition, but its discovery in sputum cannot be regarded in the same light. Although occasional cases of apparently authentic pulmonary or bronchial moniliasis have been reported in the past, there are also records of long series of cases in which the presence of monilia in sputum has been credited with a hard-and-fast significance which many bacteriologists would call in question. Dr. P. J. Marett of Jersey is well known in this country as a strenuous advocate of the hypothesis that secondary infection by monilia is a frequent and important complication of pulmonary tuberculosis; his most recent report[1] gives 294 as the number of patients in whose sputum monilia was found out of a total of 568 in Jersey during the year 1932. Recent reports of alleged primary bronchial moniliasis are those of Stovall and Greeley[2] and of Gilbert and Groesbeck,[3] who found monilia in the sputa of eighteen and eleven cases respectively. To assess the significance of such findings calls for a more critical attitude and for the adoption of more stringent criteria in laboratory work than any of these communications betray. There is every reason for regarding yeast-like organisms, including true *Monilia albicans*, as common, if not almost universal, mouth saprophytes which assume pathogenic activity only, as a rule, in conditions of profoundly depressed resistance; and although invasion of the bronchi and lungs may undoubtedly occur, its true frequency must still be regarded as unsettled, while the mere cultivation of monilia from sputum, necessarily admixed with saliva, can be of no essential significance whatever. Where the fungus can repeatedly be demonstrated in abundance in direct films of fresh and otherwise satisfactory specimens the case is different, and it is very much to be hoped that the workers interested in this subject may pursue such cases by every possible means in order to define the morbid condition underlying them. In pulmonary tuberculosis evidence of the extent of invasion by monilia should at least sometimes be obtainable in the post-mortem room: no feature of this subject is more regrettable than the lack of morbid anatomical data to support and elucidate bacteriological findings.

THE BRITISH ASSOCIATION

Sir Frederick Gowland Hopkins will preside this year over the annual meeting of the British Association for the Advancement of Science, which is to be held at Leicester from September 6th to 13th. He will deliver his presidential address on the evening of September 6th, taking as his subject "Some Chemical Aspects of Life." Thirteen Sections have been organized for the transaction of the scientific business of the meeting. They are: mathematics and physics, chemistry, geology, zoology, geography, economics, engineering, anthropology, physiology, psychology, botany, education, and agriculture. Professor E. D. Adrian, president of the Section of Physiology, will deliver an address on the activity of nerve cells, and other topics to be discussed in this Section include Roaf's theory of colour vision, ossification, phases of leucocytic and erythrocytic activity, carbon dioxide transport in blood, the chemical control of the circulation, and various aspects of genetics—the last in conjunction with the Sections of Zoology and Psychology. Among the psychological subjects are the early development of language in the child, disorientation and vertigo (in conjunction with the Section of Physiology), vocational selection, the psychology of personal influence, narcosis and mental function, alterations in blood distribution during mental work, some clinical aspects of stuttering, the predictive value of school examinations and psychological tests, and the function of the psychologist in the administrative scheme. The president of this Section, Professor F. Aveling, will deliver his presidential address on the morning of Friday, September 8th, his subject being "The Status of Psychology as an Empirical Science." Evening discourses will be given to members by Sir Josiah Stamp on "Must Science Ruin Economic Progress?" and by Professor Jocelyn F. Thorpe on "The Work of the Safety in Mines Research Board." Sir Henry Fowler will deliver a public lecture on "Transport for a Century," and Professor Julian Huxley one on "Ants and Men." Delegates of the societies in correspondence with the British Association will meet on two days to receive a presidential address by Dr. R. E. Mortimer Wheeler on the centralization and control of research in its relation to learned societies, and to consider the effect of pollution on the fauna and flora of rivers and the responsibility of local societies therein; meteorological observations and records in remote localities; and zoological surveys. An annual report will be issued after the meeting, containing the presidential addresses in full, reports of the research committees of the Association, a summary of the transactions of the Sections and of the evening discourses, together with the report of the Council. The usual receptions, entertainments, and excursions of general and scientific interest have been arranged.

COLOUR VISION

The Medical Research Council has done a useful piece of work in publishing a bibliographical survey of recent experimental work in *Individual Differences in Normal Colour Vision*.[1] The survey has been carried out with great skill and judgement by Mr. W. O'D. Pierce of the National Institute of Industrial Psychology, and will be of real service to all Mr. Pierce's colleagues in this field of work. The existence of individual differences in colour discrimination has been known for a long period. The differences between the colour "normal" and the colour-blind have necessitated the construction of selection tests for the detection of certain differences in colour discrimination. Recent experimental work in vision, as well as in other sensory fields, has established the fact that among normal persons many individual colour differences occur. Visual responses are highly susceptible to changes in experimental conditions, so that a rigid control of these experimental factors is necessary to give consistent results even for the same observer. A consistent result

[1] *British Medical Journal*, 1933, i, 917.
[2] *Journ. Amer. Med. Assoc.*, 1928, xci, 1246.
[3] *Amer. Journ. Pub. Health*, 1930, xx, 1.

[1] Medical Research Council. Committee on the Physiology of Vision. No. XI. By W. O'D. Pierce. H.M. Stationery Office. (Pp. 96. 2s. net.)

does not necessarily mean an exact repetition of a previous reading; it may be a series of varying readings, the probable error of which indicates that they are significantly different from subsequent results. A difference of this type is called an *individual variation*. Thus if varying readings are given under the same experimental conditions by the same subject, then the change found is reported as an individual variation. When, under the same experimental conditions, different subjects give significantly different results, then an *individual difference* is reported. It will be obvious that differences of this order are of great importance in industry. They can only be dealt with by statistical procedure; therefore only those cases in which a number of subjects were used have been brought into account. In earlier papers there was less rigid experimental control, so that work done since 1910 up till 1930 has been reviewed. The aim of the author has been to give an account of recent experimental work from the specific viewpoint of individual differences, so that workers on colour vision or on the development of selection and other tests for colour discrimination, whether for the Government services, medical practice, or general industrial purposes, may have this information readily available. One hundred and one papers are summarized. Consideration is given to colour-brilliance, hue, and saturation, and also to differences in "after-excitation" phenomena, and colour fields. It is impossible to give any satisfactory impression of the wealth of material collected. Some parts are highly technical, while others are readily appreciable, as, for example, the work of Staples last year in studying the responses of infants to colour. Two hundred and sixty-two infants from 69 days to 2 years were observed and their responses noted, a number of school children and adults being employed as controls. The colours were presented on a grey background. In the case of infants too young to grasp, the time they looked at the colours was observed; when possible, grasping of the preferred colour was noted. The earliest age of distinction was 3 months. Probably by 12 months, and certainly at 15 months, saturated red, yellow, blue, and green are seen clearly. The findings in regard to the effectiveness of various colours as stimuli were notably consistent from child to child; therefore, it is held, this cannot be due to chance or training. A sex difference was found. Girls lost interest in yellow and gained it in blue, which was at its maximum effectiveness at 19 months; in all groups girls showed a higher positive response than boys, which, it is thought, may be due to earlier general physiological maturity.

ROYAL SOCIETY OF MEDICINE

The annual report of the council of the Royal Society of Medicine, presented to the recent annual general meeting of Fellows, states that the roll of the society now includes 4,967 names, the great majority being those of Fellows. The number of meetings of the society held last session was 166, comparing with 183 the year before. The number of readers in the library during the year was 44,391, and the number of books borrowed for home use was 28,679. The income of the society for the session was £22,473, an increase of £144 on the previous year, and it is explained that this relatively small increase in income is due to the fact that the financial crisis caused many more resignations than usual, though, fortunately, the accessions to the society outnumbered the resignations and deaths. The total expenditure was £506 less. The more important sectional and general discussions have been reported in these pages during the year. In an account of some other work it is stated that the Section of Otology has completed its investigation on hearing tests, the Section of Radiology has prepared a report on the scientific aspects of radium and *x*-ray therapy, and the Sections of Obstetrics and Gynaecology and of Anaesthetics are preparing a report on the administration of chloroform by midwives. At the request of the India Office the council of the society has considered the report of the Indian Drugs Inquiry Committee, and the Section of Therapeutics and Pharmacology has prepared a memorandum on the subject, which has been forwarded, through the India Office, to the Government of India.

THE CELLULAR REACTION IN ALLERGY

The relation between allergy and immunity is one of the most freely discussed problems in tuberculosis. There are facts, such as the behaviour of the probationer nurses at Oslo, that point very definitely to allergy as being a stage in the development of immunity. There are other facts, such as the behaviour of the native mine labourers on the Rand, that point to a diametrically opposite conclusion. Experimentally, workers are divided, and the data so far collected seem to bear either interpretation. It is possible that the relation is not simple but complex, depending on the particular circumstances operating in a given host at a given time. While a high degree of sensitivity might be beneficial in localizing an exogenous reinfection, it might lead, as Wingfield[1] has suggested, to such an intense reaction after an endogenous blood-stream reinfection as to prejudice the chances of the patient very seriously. Clearly, a great deal more work will have to be carried out before any definite conclusions can be reached. At present we shall be more usefully employed in trying to define the problem than to provide for it a premature solution. In a recent paper Dr. J. Caussimon[2] has endeavoured to ascertain the part played by the body cells in the allergic condition. Working both by *in vitro* and *in vivo* methods, he has observed a far greater cellular activity in the allergic than in the normal animal. The introduction of tubercle bacilli intraperitoneally into a healthy guinea-pig is followed by slight polymorphonuclear and mononuclear phagocytosis. In the tuberculous animal, on the other hand, the bacilli are agglutinated, there is more or less marked bacteriolysis, there is an early and intense phagocytosis by the polymorphonuclear cells, and a later phagocytosis by the mononuclear cells and by enormous macrophage cells of the clasmatocyte type. As a result of these reactions the tubercle bacilli are localized mainly to the site of inoculation. The part played by the blood serum and by the cells is not very clear, and experiments on the ability of the serum of an allergic animal to sensitize the leucocytes of a normal animal did not yield constant results. The cellular reaction varied considerably in different allergic animals; in some the polymorphonuclear reaction was so feeble as to be almost

[1] *British Medical Journal*, February 4th, 1933, p. 179.
[2] *Ann. de Méd.*, May, 1933, p. 499.

unobservable, while in others the afflux of macrophages was insufficient to deal with the organisms present. The author points out that the cellular reaction in the allergic animal does not always lead to the defence of the host. An insufficient activity of the mononuclear and macrophage cells is incapable of producing adequate localization, while a too abundant polymorphonuclear phagocytosis may result in the rapid diffusion of the tubercle bacilli throughout the viscera. The allergic reaction is of value to the host only if the polymorphonuclear phagocytic reaction is followed by a sufficient influx of mononuclear and macrophage cells to limit the infection to the local site. Depending on the balance of activity of these two groups of phagocytic cells, allergy may be regarded as a state of greater resistance or greater sensitivity. However favourable its manifestations, it cannot be regarded as identical with immunity.

THE OLD COAL MINER

A little book by Dr. Enid Williams, on the health of old and retired coal miners in South Wales,[1] sets forth the findings of a type of medical investigation which ought to become more frequent in the future. Instead of falling a victim to the lure of statistical interpretations of records based on the Registrar-General's figures, Dr. Williams has worked out her observations on living persons outside the populations of hospitals: old retired coal miners, living in humble but hospitable homes, or taking the air along with their fellows in the slow and laborious perambulations imposed by the dyspnoea of pneumonoconiosis. "In the public park at Aberdare," she writes, "there is a little lake surrounded by benches and shelters. Groups of old miners smoking quietly are always to be seen either sitting on these benches or walking slowly round the lake." It was among these old fellows that Dr. Williams found the material for her interesting and valuable report. Thanks to the kind co-operation of the panel practitioners, the colliery officials, and to the old miners themselves and their wives, it was possible to reconstruct with considerable success the industrial histories of a hundred ex-colliers, the work being carried out partly in the steam coal areas and partly in the anthracite villages. In the case of each man the physical signs, the weight, chest expansion, blood picture, and, in most cases, the sputum findings, were worked out and co-ordinated; and it was also found possible, with the help of the tuberculosis officers of the Welsh National Memorial Association, to obtain *x*-ray films of a certain number of the cases. Details of the individual findings are given in an appendix to the report. Dr. Williams concludes that, among the hundred examined, thirty-two were to be regarded as definitely pneumonoconiotic; another thirty-one as probably so. That this is not an over-estimate will be conceded when we read that "84.5 per cent. of the miners examined were dyspnoeic, 76 per cent. had cough, and 54 per cent. sputum." The liability of the collier to bronchitis has long been recognized, and Collis has rightly stressed the fact that this bronchitis is to be regarded as "the pneumonoconiosis of the collier." But it has been held also that this bronchitis is a relatively benign condition, thus affording a sharp contrast to the pneumonoconiosis of gold miners and other workers exposed to dust containing a high proportion of free silica, in which there is a well-recognized risk of phthisis. This contrast is rendered less striking by the observations now published; and, indeed, it will be necessary to examine with a new measuring rod many of the current theories about the role of free silica as such, now that we possess the recent findings of Dr. Jones of the Royal School of Mines as to the importance of sericite. Here it need only be said that Dr. Williams has established the fact that a rather large proportion of these old miners, though in good general health apart from their dyspnoea, are, in fact, tuberculous. Six out of the hundred were actually convicted as "sputum-positive" on a single examination of the sputum, and it may be assumed that the number would have been larger if repeated examinations had been possible; while the blood picture suggested that at least another twenty-six were more or less active cases. "Thirty-three of the miners examined had a history of definite tuberculosis in the immediate family. Forty-two per cent. of these had lost children of the disease." From this it would appear that there is much more tuberculosis among these colliers than had hitherto been supposed. It is not so much in the incidence of tuberculosis that they differ from the gold miners as in their tendency to a more benign and less fatal type of tuberculous disease. It is hard to avoid the conclusion that the coal dust inhaled along with the stone dust by workers in the coal mines has a detoxicating property of sufficient importance to save the collier, not from the tuberculosis which invariably goes with silicosis, but from its toxic effects. Much more work is needed as to the incidence and type of tuberculous disease, of a clinically disguised type, among the older age groups of our town populations; and, until some more evidence is available on these lines, it must remain impossible to apportion to the work of Dr. Williams its exact significance. Her subdivisions of 100 cases reduce her groups to minute proportions and suggest caution in regard to some tempting conclusions; but the main findings, as summarized above, are beyond dispute, and must be regarded as of great importance.

[1] *The Health of Old and Retired Coal Miners in South Wales.* By E. M. Williams, M.D. Investigation carried out while holding the Cecil Prosser Research Scholarship in the University of Wales. Cardiff: University of Wales Press Board. (6s. net.)

THE EDUCATIONAL NUMBER, 1933

Our next issue, dated September 2nd, will be the annual Educational Number of the *British Medical Journal*. Its contents, as in previous years, will include a full account of the requirements of the General Medical Council and of the universities and other licensing bodies in Great Britain and Ireland, as well as information about the opportunities offered by the various medical schools and other teaching institutions, and the fees charged by each. The details given have been revised and brought up to date by the authorities concerned. These sections, the object of which is to furnish a handy guide to intending students of medicine, are supplemented by articles intended for newly qualified practitioners on such matters as post-graduation study in Great Britain, the public medical services, tropical medicine, psychological medicine, and the various special diplomas. The opening article for this year's Educational Number is by Dr. E. Kaye Le Fleming; it is entitled "The Practitioner and the Public."

CHARACTER IN YOUNG DELINQUENTS

AN APPROACH FROM THE CRIMINAL GANG ASPECT *

BY

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In a recent publication[1] Professor McDougall has described character as "that part of the personality which is specially concerned in action, which manifests itself most clearly in the higher forms of volition, and which is gradually developed in and through social intercourse." Character, in this special sense, together with intelligence, temperament, disposition, and temper, constitutes the personality, in the opinion of this authority, and he is at pains to differentiate character from that which is represented by the "sum total of those features, properties, or qualities of an individual organism (or of a species or other natural group) which are peculiar to it and serve to distinguish it from other individuals, species, or groups." The first of these quotations forms the basis of the present study.

The great primary instincts, which may be regarded as forces causing prolonged states of psycho-physical tension, are the sources from which character, in common with other mental qualities, draws the energy upon which its activity depends. Among these instinctive forces are certain broad trends disposing the individual towards life within the community, and, in conjunction with the intelligence, determining the extent to which he is capable of adapting himself to it. Their object may be solely of a protective nature, or, as seems more probable, they may initiate and sustain a process by which the boundaries of the self-regarding sentiment are extended, and those ideals of conduct are acquired which are inaccessible to the individual but are essential to the evolution of the race.

It would appear, therefore, that in carrying out their functions, these trends act as a counterbalance to promptings of an asocial kind, which thus meet with obstructive influences both at instinctive levels and at higher ones. In these higher planes there is found a tendency to invent apparently logical reasons for the influences of instinct, and to attribute the ensuing impulse to those reasons, without always recognizing the fact that they are not the original motives. Conscious awareness of this process is, to some extent, inversely related to the strength of the emotional tone with which the fundamental urge was invested. In the case of motives of the herd type this mechanism appears to have been largely responsible for the development of codes of conduct which are acceptable to the community, and by means of which man satisfies himself that his attraction towards membership of the herd is the outcome of his reasoning and is subject to his volition. The prevalence of such codes, notwithstanding the wide dissimilarity to be found among them, suggests that their final cause is deep-seated, and that they are not merely conditions imposed on the individual in exchange for the privilege of living within the community to suit the requirements of the moment.

The presence of a fairly well-defined age-level at which the child's egocentric point of view is replaced by one in which social considerations predominate, and the advance from principles of a purely utilitarian nature to those based on ethical and moral sanctions, indicate a gradual process of identification with a progressively widening conception of community life. It is owing to the probability that small groupings are of an earlier evolutionary period than large ones that they are more closely knit and their presence within the larger herd is possible. Domestic allegiance, as the first to be acquired, is the most permanent, and the closer the identification with it the more difficult is its extension to the general community apt to be.

Experience shows that, provided the objective is sufficiently attractive and distinct, it is not a difficult matter to evoke a strong morale in adolescents, many of whom may have had little or no previous knowledge of the significance of group membership. Experience also shows, however, that, as a result of treatment, where the greater rigidity of the rules and conventions of a small group has been found to be particularly suited to the lad's attainments his subsequent adjustment to the community at large may be one of considerable difficulty. It is probable that, among youths of this type, gang delinquency, where a common risk is shared, provides an objective, and the reduction in the feeling of personal responsibility which accompanies adherence to a group supplies an incentive and helps to unite its members. The racing gang, which was much in evidence a few years ago, is an example of anti-social grouping of this kind, and in convicts serving terms of penal servitude, where the environmental factor is more prominent, a similar uniformity of emotion is attained.

Heredity, Environment, and the Delinquent

The relative importance of environment and heredity in the causation of crime has recently been tested by Professor Lange[2] in mono-zygotic and di-zygotic twins; the former, in the proportion of ten to three, were found to show a close resemblance in the nature of the offences committed by each twin, while in the latter, in the proportion of seventeen to two, the position was reversed. The limited effect of environment was also shown in a further comparison between these dissimilar twins and other siblings.

Whatever instinct is sufficiently dynamic to obtrude itself with abnormal force and frequency tends to provoke in the mind of its possessor, to a corresponding degree, a feeling of antagonism to his surroundings, which is apt to affect his attitude towards the community. On the other hand, where all instincts are relatively weak, the environment would appear confused and perplexing, not infrequently leading the subject to take a fatalistic view of his position.

The foregoing suggestions, even when full allowance is made for the selective action of the individual on his environment, do not afford an adequate explanation of the increase in adolescent crime which occurs during periods of economic difficulty. It is upon the feeling of uncertainty and apprehensiveness concerning the future, arising from the persistency of large-scale social problems such as those of industrialism, that responsibility for this appears to rest, for the necessity for social equilibrium and continuity of purpose is at no time more urgent than in the unstable period of adolescence. Adjustment, in the absence of certain standards by which to effect it, is thus rendered more difficult, and maladjustment, in these circstances, is conducive of crime, if it may not be said to be synonymous with it.

The effect of an adverse environment can only be measured in general terms, but with the object of ascertaining the local environmental influences which are detrimental to the adolescent, and the features which affect his susceptibility to them, a large number of young offenders have been systematically examined. One thousand of the records of these cases have been taken to form a background for the subject at present under review. Included in this number are thirty groups or gangs, in which three or more lads were concerned together, totalling one hundred cases. In every case the homes from which they came were visited by experienced field workers, and a detailed account of the family history was obtained from the parent or guardian. Observations on the condition of the home and its surroundings, and full particulars of the health, morbid conduct, companionships, employments, and amusements were recorded in the form of cross-sections at different age-levels. This, and the parent's opinion of the lad's reaction to these influences, were compared with the statements obtained from the lad himself, and the opinions formed in his medical examination.

As a result of this investigation no striking departure from the normal was found, except in connexion with physical and mental development. Standardized physical measurements disclosed a slight but definite inferiority

*Part of a paper read at a meeting of the Chelsea Clinical Society, January 17th, 1933. Published with the consent of H.M. Prison Commissioners, although not necessarily representing their views

in physique, which, although not accompanied by signs of disease or a history of past illness in excess of the normal, indicated a possible reason for concerted, as opposed to individual, actions To some extent, however, this reduction in the standard was discounted by the relatively high degree of vital capacity which Dreyer's method of estimation revealed The mental age, when compared with that of the prison control group, showed an average reduction of two years, the figures being 12 and 14 years respectively In this connexion it may be noted that in the investigation of Doctors Grierson and Rixon in 1926,[4] into the intelligence of the ordinary adult male remand prisoner of not more than 35, the average mental age was also found to be 14, this figure being equal to that ascertained in the general population by the authors of the *Report on Mental Deficiency* of the Boards of Education and Control in 1929 The incidence of mental or temperamental abnormalities in the family histories of the present cases amounted to 20 per cent

No remarkable difference was found between the adolescent offenders examined and the average lad in respect of home conditions and upbringing In the absence of figures relating to a control investigation on a comparable scale among law abiding persons of similar age and status, and bearing in mind that investigators elsewhere have found a bad environment in 58 per cent of their criminal cases,[6] this statement is made with reserve In so far, however, as it is possible to gauge correctly what constitutes favourable or unfavourable conditions in the home and upbringing of delinquents, and to make comparison with the home and upbringing of non delinquents, there are good grounds for supposing this statement to be true In almost every case in the present series the lad's reaction to these conditions was tolerant It cannot be said that other environmental influences, such as companionships, were as favourable, for in 37 per cent the associates were unsatisfactory, and many of the cases showed little sign of resistance to their influence

INSTINCTS AND DELINQUENCY

Physical, mental, and environmental conditions, however, are not individually accountable for more than a small percentage of the total crimes committed The majority of offences, as would be supposed, depend on the interaction between certain inherited traits and combinations of external influences which bring about situations favourable to the exhibition of those traits Among these inherited tendencies the self assertive instinct takes a prominent place, and the investigation showed that in about half the cases it was finding expression in an immature manner, while the fact that crimes against property accounted for 90 per cent of the offences indicated the channel through which it emerged Destitution, on the other hand, was only present in one of the cases, and clearly had little influence on the general result Acquisitive crime, however, is not the prerogative of the gang delinquent, for it occurred in 96 per cent of the prison control group The urge to compete with and rival others, the fear of risking taunts, and the desire for adventure, may find expression in games or club competitions, but, in the absence of adequate drainage through ordinary channels, they can also be satisfied by acts of delinquency with others A state of physical and mental inferiority, in association with a relatively high vital capacity, apart from other reasons, tends to create an increased demand for compensation of one kind or another That the acts were of a boyish or childish nature in approximately half of the total number of cases, although the average chronological age was 18·2, suggests, however, that those who committed them showed a considerable delay in the development of the normal adolescent outlook, so far as the self assertive instinct is concerned, and, incidentally, that personal rivalry was a frequent objective This in conjunction with the fact that in roughly one third of the cases acquisitiveness was estimated to be of low potential energy, supports the view that in a large percentage the crimes were not the direct result of persistent acquisitive urges

If it be admitted, then, that certain gang features in delinquency can be attributed to the self assertive instinct, the theory that all such formations arise from one instinctive source cannot be sustained, unless the fact be held that, because of its anti social nature it is therefore not a true type of grouping Such a view, however, does not take into account that appetite satisfaction, followed by personal and social rivalry, is believed to be the normal sequence in the evolution of instinctive trends towards socialization In throwing in his lot with a gang it is suggested that the lad is, in fact, activated by these trends, however immature his sense of social obligation may be, and that his association is neither fortuitous, as a rule, nor attributable to a purposive attempt to counteract his physical and mental inferiority, if indeed he appreciates it This conclusion is supported by the high incidence of gregariousness as a natural tendency of the personality The limited extent of the delinquents identification with the gangs was disclosed by their reaction after arrest, when sixty six showed that their sympathies were but loosely attached

RATIONALIZATION AND THE ATTITUDE OF THE CRIMINAL

In other circumstances, in order to relieve themselves of a position which is causing them uneasiness owing to a difference of views, individuals tend to gravitate towards an association where the system of opinions is more nearly in accord with their own, or, failing this to convince themselves that the retention of membership of the group is based on grounds of reason Reference has already been made to this mechanism by which an instinctive impulse may be invested with the qualities of an impulse which is based on rational grounds In the majority of young offenders the quality of the act is poor, but the necessity to justify their conduct is generally present An extreme instance of this search for justification occurs in older prisoners who have been convicted on a capital charge, and whose death sentences have subsequently been commuted to terms of penal servitude, where, given a suitable predisposition, a psychosis may be built up on an assumption of innocence which is the outcome of a rationalization This assumption is not infrequently reinforced by the defending counsel's argument, and also by the remission of the death sentence Prisoners of this type are very rarely recidivists

The treatment of the young delinquent may fall short of its object owing to the action of this process of involuntary self deception He may genuinely desire to overcome his anti social tendencies and to give his confidence to those who are guiding him, but the fact that in many cases his object is to secure the privileges which a place in society would afford him, without fully realizing their nature and the obligations they entail supplies the reason for his return to irregular conduct when the advantages he expects are not forthcoming In other words, he wants to be compensated for the abandonment of his anti social propensities and he is aggrieved when his imaginary contract is not honoured He generally fails to realize, however, that he has weighed in the balance of experience the advantages and disadvantages, in his present position of the more or less direct gratification of his self assertive urges, and has found that the latter preponderate The result is a temporary adaptation to circumstances which is incapable of withstanding the stresses which his liberty will impose on it

The tendency to bargain, both consciously and subconsciously, is unusually well marked in the recidivist, who often appears to believe that his adaptation to his prison surroundings is a concession on his part which should be reciprocated on the part of society, and, if the tendency is less often due to vanity in the young offender, and is less often consciously employed by him, its underlying influence is not infrequently observed Where, as is sometimes seen in the premature abandonment of resistance by the institutionalized adolescent, a repression of self assertive impulses occurs, this tendency to bargain disappears, leaving behind it a deep and permanent anti-social bias

RATIONALIZATION AND CHARACTER FORMATION

Rationalization is not a mechanism confined to the unintelligent It necessitates the presence of a thought process of a quality which is capable of checking the direct

emergence of crude instinctive forces, and so of modifying the demands of the individual. These rationalizations range from those which are designed to meet the exigencies of the moment to those which involve considerations of a high order. The recognition of the fact that a modification of conduct so obtained requires the submission of the motive to a tribunal over which the individual has no control, thereby recognizing its authority over him, is in the province of the intellect. It is also a function of the intellect to modify the rationalizations in the interests of the individual. The willingness to make the submission, and the refusal to acquiesce in a compromise, between the demand of a primitive instinct and the verdict of the tribunal, or, as a result of such compromise, to forfeit any part of personal responsibility for acts contemplated or committed, requires the presence of another faculty. This faculty, although closely connected with it, is not a part of the intellect in that it presupposes the active existence of a principle which is independent of experience. It is thought that this principle can be acquired as a result of the identification of the individual with the social and ethical standards of a composite body with which he is in sympathy. Roback[8] suggests that this principle is an abstract conception which he calls justice, interposing it between reason and act, a point of view which would appear to be incomplete in that, if rationalization be accepted as one of the criteria of character, it implies a recognition of the right of others to criticize the motives of the individual, and so of a desire on the part of the individual to conciliate what he regards as paramount in public opinion. Justice, furthermore, has not that closer relation to the prime purpose of the group which McDougall's "active sympathy" connotes.[9]

The tribunal itself is some part of the environment of the individual, but whether it be domestic, tribal, or not, his recognition of its authority identifies him as a member of a social organism composed of like-minded persons, and the structure of this organism determines the mode in which it must express itself, and therefore the quality of the character of its members.

The community is represented at the lowest end of the scale by the social problem class, as described in the report of the Boards of Education and Control. This class is distinguished by its mental inefficiency and its incapacity for social adjustment, and is estimated to form 10 per cent. of the population. While not in itself composed of mentally defective persons, it is believed to supply in its descendants a large proportion of actual defectives, recidivists, prostitutes, and unemployables. The prevalence of strong egocentric tendencies, such as is found among recidivists, would render adaptation of considerably greater difficulty, even in the lowest social environment, than would be the case in a member of a group where some recognition of the principle of common ownership obtained, whether or not this were limited by inferior intelligence or poorly adjusted self-assertive tendencies.

It was evident from the investigation into the records of the cases that gang delinquents, as a whole, do not spring from this class. It may therefore be inferred that they, as a type, exhibit an innate capacity for character development in advance of that of habitual offenders as a class and of members of the social problem group, although such capacity is usually of a low grade.

The present study shows that a complete examination of a case in all its aspects, together with full corroborative evidence from other sources, must be undertaken if an accurate estimate of the character of an individual is to be obtained.

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THE PUBLIC HEALTH YEAR

ANNUAL REPORT OF THE MINISTRY OF HEALTH

The period covered by the fourteenth Annual Report of the Ministry of Health* represents the first full year to have been affected throughout by the economy measures which followed the financial crisis of the autumn of 1931. In the part of the report which concerns the health services, however, there is not much reflection of any unusual stringency. The Ministry quite early made it clear that there was no intention that local authorities should embark on any wholesale and ill-considered cutting down of expenditure on essential health services. In the present report, in dealing with maternity and child welfare, pleasure is expressed that returns from local authorities show no sign of any reduction in these services on the ground of economy, and that they indicate a gradual development throughout the country.

"He [the Minister] would regard as ill-considered any contraction of existing services or any failure to pursue a policy of steady development for the essential needs of these services, and in particular he would regret any short-sighted reduction of the skilled services engaged in this work, such as those of medical officers or health visitors, which would lessen the advice and assistance available for the nursing and expectant mothers and children who come within the scope of the services."

Under the heading of "National Health Insurance" we have already dealt with the section of the report which concerns insurance practice (see *Supplement*, August 19th, p. 145); the other sections have to do with public health, housing and town planning, local government finance, and administration of the Poor Law. We learn that at the end of last year there were 21,275 beds available for the treatment of tuberculosis in institutions belonging to local authorities in England, and 8,151 in approved institutions belonging to voluntary bodies. The number of new cases of pulmonary tuberculosis given in the returns for England and Wales for 1932 was 51,836, and of non-pulmonary 17,956, the lowest figures since the present method of making returns was adopted ten years ago. The deaths also—27,627 from pulmonary and 6,031 from non-pulmonary tuberculosis—were the lowest ever recorded. The death rate is 687 and 150 respectively per million of population.

The attendance at the 177 approved treatment centres for venereal disease during the year reached a total of 2,984,270—somewhat in advance of the previous year. The number of new cases found to be suffering from venereal disease was 50,824, a fall of some 1,600, equivalent to a decrease in the number of new cases of syphilis of 2.98 per cent., and of new cases of gonorrhoea of 2.67 per cent.

With regard to infectious diseases, there were increases in the number of notified cases of dysentery, enteric fever (including paratyphoid fevers), and scarlet fever. The deaths from scarlet fever, however, were fewer, though measles and German measles, as to which no case figures are given, showed a higher mortality. The noteworthy features of the year were the continued high incidence of, and mortality from, cerebro-spinal fever (2,136 cases and 1,213 deaths), the further reduction in the incidence of, and mortality from, diphtheria (43,399 cases and 2,340 deaths, as against 50,236 cases and 2,673 deaths in 1931), the large increase in the incidence of, and mortality from, acute poliomyelitis and acute polio-encephalitis, and the continued decline in the incidence of small-pox, of which there were only 2,039 cases in 1932, with three deaths. The number of deaths from small-pox was the lowest recorded since 1918. The vaccination figures relate to 1931, the latest year for which complete information is available. Only 39 per cent. of the children born during that year were vaccinated, and the declarations of conscientious objection equalled 46.7 per cent. of the total births. Several cases of leprosy came to the notice of the Ministry during the year, the disease having in each case been contracted

* Fourteenth Annual Report of the Ministry of Health, 1932-3. H.M. Stationery Office. (5s. net.)

abroad. There were two serious outbreaks of typhoid fever, both in Yorkshire, and both due to infection of the water supplies.

The number of local authorities carrying out schemes of maternity and child welfare is 388. The rate of maternal mortality per 1,000 live births was 4.06, being 1.54 for deaths from puerperal sepsis and 2.52 for deaths from other causes. This figure for 1932 represents an increase of 0.12 over the figure for 1931. While it is recognized that no special significance can be attached to this and to other small variations in the last few years, the maintenance of the high mortality rate at approximately the same level over a period of years should serve to remind local authorities of the importance of developing and completing their maternity services. The number of ante-natal clinics provided and maintained by local authorities is now 1,060, to which should be added 217 clinics provided and maintained by voluntary associations. The total number of women who attended these clinics during 1932 was 222,077, as compared with 197,269 the previous year. In thirty-five large towns and metropolitan boroughs the number of women attending the clinics during 1932 represented over 50 per cent. of the number of births notified during the year, and in only seven towns in the country was the attendance less than 20 per cent. of the number of notified births. The total maternity bed accommodation in institutions belonging to local authorities and to voluntary associations is 7,119. The rate of infantile mortality in England and Wales was 64.6 per 1,000 births. It is pointed out that, after the steady progress of reduction in the rate during the last few decades, the variations now tend to reflect less the direct influence of maternity and child welfare work than the influence of climatic and related factors.

During the year under review sixty-five new appointments of medical officers of health were approved by the Minister, and at the end of the year 396 out of 1,165 medical officers of health in England held whole-time positions. It is emphasized in the report that when a vacancy occurs in one of these posts the field of selection open to the local authority should be as wide as possible, and that the vacancy should not necessarily be filled by the appointment of an officer who is already on the staff of the authority.

"The Minister is glad to note that many authorities advertise for candidates for these appointments in the medical press and otherwise, and if this is not done doubts will inevitably arise as to whether the best appointment has been made."

The tragedy of unemployment is reflected in the figures for Poor Law relief. The number of persons in receipt of institutional or domiciliary relief in 1932 averaged 1,263,624, or 316 per 10,000 of the population, as against 1,046,079, or 262 per 10,000 of the population, the previous year. The total expenditure on public health of all local authorities in England and Wales during the last year for which complete returns are available was £42,438,336. This includes hospitals, sanatoriums, dispensaries, salaries of medical officers of health, sanitary inspectors, health visitors, maternity and child welfare, baths and washhouses, parks and pleasure grounds, public conveniences, sewage disposal, collection of house refuse, port sanitary services, and welfare of the blind. It does not include expenditure on mental hospitals and mental deficiency, for which a further £10,756,451 has to be added, nor does it include housing and relief of the poor. Roughly, we spend as much on health and mental services as we spend on roads and bridges.

The clinical report of the East End Maternity Hospital for 1932 contains the usual statistics, including details of the six maternal deaths—four in the institution and two in the district. During the year under review 1,466 in-patients and 472 out-patients were delivered. There were twenty-six cases of puerperal pyrexia, twenty-one of accidental haemorrhage, and three of placenta praevia. The attendances at the ante-natal clinic totalled 11,515.

Nova et Vetera

THE FRENCH CAMPAIGN IN ALGERIA, 1830-48

When the French expeditionary force landed in Africa in 1830 no one thought the campaign was to last eighteen years, as it did, nor that it would cost France the lives of 100,000 men, some of them, of course, by enemy action, but by far the majority from disease. In fact, the deaths from disease were so serious, especially in the early years, and were so disabling to the army, that some even of the generals feared the enterprise would have to be abandoned. These remarks are prompted by the reading of a recent paper on the medical history of the campaign[1] by Médecin-en-chef Hamet, which shows, as a warning, the disasters which may arise from unsound pathology and consequently inadequate therapeutics.

When the expedition landed there were soon wounded to be treated, and many cass of diarrhoea and dysentery quickly appeared, ascribed to the cold nights following the scorching days. Then, as the summer advanced, cases of fever became numerous, and after the capture of Algiers a third of the army was in hospital. This terrible morbidity increased, and when Bona was taken next year (1832), there was one regiment of 2,400 men which had 1,600 of them sick.

To explain the situation Dr. Hamet discusses the conception of fevers which then obtained in France. In the seventeenth century, he says, quinine became known to the profession, and fevers were divided into those amenable and those non-amenable to quinine. In the early eighteenth century an Italian, Torti, observed that of the fevers curable by quinine some were intermittent, and some were, as he said, subcontinued; of the latter some were apt to be fatal, and these he called "malignant subcontinued." By the end of the century Lind and Pringle had separated the seasonal (autumnal) fever of camps ("the slow nervous fever") now named typhoid, from the pestilential, non-seasonal fever of overcrowded prisons and hospitals now called typhus. He adds that Cullen, whose ideas were widely accepted in France, thought that fevers were caused by two vapours—the first a vapour of marshes, the second a vapour of men; the first, said Baumes in 1821, intermittent or remittent, due to marshes and curable by quinine, the other, continued, due to dirt or overcrowding, and called putrid or nervous fevers. "The confusion was on the point of being cleared up" (Kelsch and Kiener). In 1829 Louis differentiated typhoid exactly, but it was not he who in 1830 dominated French medicine, but Broussais, a most impressive lecturer and the professor of medicine at the Army Medical School at Val-de-Grâce. He asserted that there were no specific poisons of fevers, but that fevers were the outcome of the irritation of organs, and that the initial lesion was a gastro-enteritis, the other evidences noted in each depending on the "sympathies" of the organs involved. At this time Bailly went to Rome to study the post-mortem appearances of intermittent fevers, and reported that in every case he found a gastro-enteritis, with enlargement of spleen, etc., which strengthened the position of Broussais, whose treatment of all fevers was to reduce the patient by low diet and bleeding. So widely was this treatment adopted in France that in 1827 there were thirty-three millions of leeches imported at a cost of 2s. 6d. each. Confirmed by the report from Rome, Broussais added, Why administer irritating quinine to a patient with a gastro-enteritis so severe? In any case only give it in small doses (5 grains) and never in the acute stage. Treated on these lines, and all the junior medical officers had just come from Broussais's class, official medicine had little help for malarial cases, and the mortality in the hospital at Bona was 11 per cent. of cases received in 1831 and 22 per cent. of those received in 1832.

Luckily a new medical officer was appointed in charge of that hospital in 1833. His name was Maillot, an older man and already acquainted with malarial fevers.

[1] *Arch. de méd. Navales*, 1932, cxxii.

He recognized the cases in hospital as examples of Torti's malignant subcontinued, and saw they should have plenty of quinine from the first. He also reduced them, bleeding them 15 ounces at once, and applying thirty leeches wherever there was need, to the epigastrium, for example, or to the temples or along the jugular veins to relieve congestion of the brain. His treatment was far more successful than that previously employed, and the hospital mortality fell to 5 per cent. The General Officer Commanding, very pleased, recommended Maillot for the Cross of the Legion of Honour, which was given him four years later, but not till he had been first accused of seeing *malaria everywhere* (this was true, but better than not seeing it at all), of causing ulceration of the colon, and of killing the soldiers. But his treatment was soon adopted everywhere in Algeria. Dr. Hamet thinks it was Maillot's medical insight and therapeutic courage that made the conquest of Algeria possible and its subsequent colonization a success, and desires that he shall be remembered at this time of celebration of the centenary of the occupation.

Dr. Hamet adds a short note that has even greater interest to us, explaining how A. Laveran, a medical officer in Algeria, came to discover the parasite of malaria. The search for some pathognomonic evidence that a fever was malarial was attracting the attention of all observers. The characteristic formation was the malarial pigment—small masses of melanin—and it was when studying its appearance in fresh blood that Laveran in 1880 first saw the malarial parasite, so delicate he could not believe that it could live alone in the world, but must have another host outside the human body.

W. E. H.

Ireland

Down Mental Hospital

In the course of his annual report the resident medical superintendent of the Down Mental Hospital, Dr. M. J. Nolan, states that of the fifty-two certified patients discharged forty-four were recovered and eight relieved. Of the certified patients thirty-six males and twenty-six females died during the year, which represented a rate per cent. (on the daily average number of patients resident) of 8.6 for males and 5.2 for females—total, 6.9. Cases under care during the year numbered 490 males and 464 females. It was satisfactory to note, states the report, that the provisions of the new Mental Treatment Act with regard to voluntary and temporary patients had been availed of sufficiently by both male and female patients to test its working in practice. Both voluntary and temporary patients, who would, before the passing of the Act, have been certifiable, had submitted themselves to treatment; and in the case of voluntary patients, although well aware that they could leave after seventy-two hours' notice, they were anxious—even in their acutely disturbed mental condition—to try out the treatment provided for them. The new occupation therapy department on the female side provided much-needed elasticity in the dormitory arrangements, and also permitted of specialized treatment of such paying patients as might apply for admission. The new addition meant that 435 males and 440 females would be provided for, and this provision would be made at a fraction of the usual cost. The treatment of the patients had been on the usual lines, and had been greatly facilitated by the new electrotherapy and physiotherapy apparatus. The aim of the hospital was to provide some kind of useful work for all patients not acutely ill or confined to bed, and the interesting of the patients in such work required much patience and time. Tastes differed in choice of work amongst the patients, as elsewhere; hence the necessity of introducing variety in the occupations provided. On the male side the farm absorbed a large number of patients, but there was also scope in the gardens, in the special therapy department, and in the workshops, and all these activities were conducive not only to the well-being of the patients and a high recovery rate, but also to the reduction of maintenance charges in the hospital. Physiotherapy and electrotherapy treatment was being given, as prescribed by the medical officers and administered by the matron, in suitable selected cases, with much benefit not only to the physical well-being of the patients, but also to their mental improvement and the stimulation of their outlook. The average cost of each patient for the year, calculated on the gross expenditure, was £49 9s. 10d., a reduction on the cost for last year of 12s. 6d., while the net average cost per patient was £36 2s. 10d., a reduction of 14s. 11d. on the cost for the previous year, and representing an average weekly cost of 13s. 11d. per patient.

Sanitary Conditions in the Antrim Area District

The Home Ministry, Northern Ireland, has forwarded the report of its medical inspector on the administration of the Public Health Acts in the Antrim Rural Council district. The report stated that it was surprising to find in the Connor district that the keeping of calves and goats in the cowsheds was quite the rule. The lighting and ventilating of the cowsheds was very poor, windows in some cases having been converted into entrances for hens or pigeons, whose roosts were situated above the cows. Action was required to remedy matters. Dwelling-houses in the village of Connor were being neglected, and it was a common thing to find houses without spouting and with damp walls. House refuse was dumped in any convenient corner. One house which the inspector entered was found to consist of a kitchen and one bedroom. This place was occupied by seven persons—father, mother, and five children, the eldest being a lad of 19 and the next a girl of 17 years. All seven were occupying the one bedroom. These conditions, the report adds, should not be allowed to exist. Great improvements had resulted from the covering of the old mill race in the village of Doagh. Houses in the vicinity were now in very good condition, and scavenging was methodically carried out by the landlord, which showed a good example of what could be done when there was a will to do something. Doagh had a very good primary education school, but the sanitary arrangements were poor. It was decided to refer the condition of the housing in Connor village to the medical officer of health.

Uncertified Deaths in County Cork

Dr. J. C. Saunders, medical officer of health, County Borough of Cork, in his report for 1932, urges that there are far too many uncertified deaths in the country. It was actually on record that in one county over 50 per cent. of the deaths were uncertified. This implied that the bodies were interred without any form of medical certificate as to the cause of death being forthcoming. This system was open to the gravest abuse. Literally, it meant that persons were liable to come by their deaths by unnatural means, and to be interred without any inquiry into the matter. Such a state of affairs should not be permitted to exist. Dr. Saunders mentions the case of a youth of 16 years in whom the cause of death was stated to be probably gastric, and cardiac failure—"inquest unnecessary." While it was very unlikely that death in this case came about unnaturally, it was, on the face of it, obvious that there should have been further inquiry into the case, and that a certificate for burial should not have been issued in the absence of a post-mortem examination. The case would certainly

appear to be a strong argument in favour of the institution of post-mortem examination in every instance in which there was the slightest doubt as to the cause of death. Dr. Saunders adds that in his opinion it cannot be too strongly emphasized that there should be no burial in the absence of a medical certificate as to the cause of death. This is a common practice in this county, and should be made illegal. It may, however, be pointed out that the absence of a medical certificate does not go to show there was no medical attendance. The practice is that medical practitioners certify only when they have seen the patient within a few days of death. A big proportion of the cases which are uncertified are people who have died from old age, and generally do not require medical attendance. In the case of the deaths of people other than the very aged, it is most desirable that the cause of death should be certified by the medical practitioner, or in the absence of such certificate that the Coroners Acts should be complied with. The birth rate in Cork City during 1932 was 23.0 per 1,000 of the population (estimated at 78,490) and the death rate was 15.8. The corresponding figures in the preceding year were 24.4 and 16.2 respectively.

England and Wales

Recovery of Maintenance Costs from Council Hospital Patients

The London County Council intends to promote legislation next session in order to place on a uniform basis the recovery of costs of maintenance and treatment from patients in council hospitals and institutions. When municipal patients are maintained in hospitals which have been appropriated by the local authority to public health purposes the recovery of the expenses incurred, to the extent to which the patient is able to pay, is governed by Section 16 of the Local Government Act, 1929, whereby the expenses are "deemed to be a sum representing the average daily cost per patient of the maintenance of the institution and the staff thereof and the maintenance and treatment of the patients therein." In the case of Poor Law patients, however, recovery is governed by the Poor Law Act, 1930, in which there is no provision corresponding to Section 16 of the Local Government Act, but the Poor Law Act empowers a council to reimburse itself out of property of persons relieved for the whole or part of the amount expended in such relief and to obtain orders upon relatives of persons relieved for the purpose of recouping the Council the whole or part of the expenditure incurred. The maximum amount which can be recovered rests upon a certain legal judgement, and is limited to the expenses appertaining to the institution in which the patient is maintained. At present, so far as Poor Law patients are concerned, if a flat rate were charged the action of the Council might be challenged on the ground that the amount charged was in excess of the amount actually expended on the maintenance of the poor person in the particular institution of which he or she was an inmate. Any proposal to charge such a flat rate in the Council's hospitals and institutions, therefore, can only be carried into effect after legislation. The same considerations are held to apply to the maintenance of road accident patients. The London County Council accordingly proposes to ask for parliamentary powers to group together its establishments and treat them as one establishment for the purpose of recovering the cost of maintenance or of maintenance and treatment of patients in hospitals and institutions maintained by it under the Poor Law Act, or to which the requirements of the appropriate sections of the Local Government Act and the Road Traffic Act apply.

The Finance of "Pay Beds"

An analysis of the weekly fees charged to "paying" or "private" patients in voluntary provincial hospitals in Great Britain is furnished in a memorandum (No. 62), published by the Central Bureau of Hospital Information (12, Grosvenor Crescent, S.W.1). Particulars have been furnished by just upon 400 hospitals, with 2,135 "pay beds," representing 11 per cent. of their total accommodation. The most general fee for single rooms is between four and five guineas a week, and for beds in wards, between three and four guineas. In more than forty hospitals, however, the fee for single rooms exceeds seven guineas a week. On the other hand, there are about fifty hospitals where private beds in wards can be obtained at a fee not exceeding three guineas. At 120 of the hospitals no extra charges are made. The principal extra charges, when made, are for the use of the operating theatre, *x*-ray examination, and massage treatment. The fee for the use of the operating theatre ranges from five shillings to two guineas, but is most commonly one guinea, and for *x*-ray examination it is again commonly one guinea, though it may vary from half a crown to five guineas. The cost of massage treatment ranges up to half a guinea, though it is most commonly five shillings per treatment. Special nurses are charged for at thirteen hospitals at the rate of three guineas a week. In only four instances are the costs to the hospital of the "pay beds" given. In one hospital having twenty-two beds at fees of from five to seven guineas a week the cost in a year to the hospital was £2,829, and the income from fees £4,682, leaving a credit balance of £1,853. In the other three cases the income more nearly approached the expenditure, but in each there was a good credit balance. In the three hundred hospitals with 1,799 "pay beds" which furnish the particulars the number of paying patients admitted in the year was 20,900, and the fees paid by paying patients £188,000. The average number of patients per "pay bed" per year is from ten to fourteen, and the average fees received per "pay bed" per year appear to vary with the size of the hospital, being £120 in hospitals which have a total accommodation of from thirty beds upwards, and £72 in the smaller or cottage hospitals. It is suggested, though not supported, so far as we can see, by the figures given, that in general little or no profit is to be derived from "pay-bed" accommodation, but it would be interesting to know how far the experience of the four hospitals which give full particulars under this heading, and in each of which the accounts show a substantial credit balance, extends among the rest.

Medical Treatment of L.C.C. Staff

Certain district medical officers have hitherto been employed to afford medical attendance to such employees of the London County Council—namely, the members of the fire brigade and certain of the staff engaged on main drainage work—as are entitled to it, and to furnish any necessary certificates and returns; also to furnish certificates to certain other employees not entitled to medical attendance. The Council is now of opinion that the time has come when, as regards its staff other than those normally resident in institutions, hospitals, and schools, both medical treatment and the supply of certificates should be discontinued. It is proposed, however, to continue this facility to the existing personnel of the services who have been enjoying it until such time as they are

SIR,—Professor Major Greenwood's letter, in the *Journal* of August 19th (p. 357), gathers its impetus from the belief that there exists a body of competent persons with sufficient knowledge of the mind to present to "raw youths" an intelligible account of the mind and its functions.

Unfortunately no such body exists. Psychological theories are almost as numerous as psychological practitioners. This fact is not in itself deplorable, because it is eloquent of the intensity of interest which psychological problems evoke. But it does surely mean that the time is not yet ripe for any authoritative verdict on the fundamental principles upon which the science of psychology shall be grounded. Experimental psychology enters the field from the direction of physiology, and has made substantial gains in the study of the special senses. Many schools, including Freudian psycho-analysis, have attacked the problem of the biological causation of certain psychic mechanisms. These researches into the nature of the instinctive mechanisms of the unconscious have been undeniably fruitful in giving us a new kind of insight into the history of human behaviour. But no one but a scientific scholastic could suppose that a whole view of the mind can be won by borrowing basic conceptions from other specialized fields of natural science, in which the main problem of psychology—namely, the moral problem—does not appear.

Psychology, to become a true science, will eventually take the field of the psyche—that is, the whole range of psychic products and phenomena—as an independent field of study, and will form its concepts empirically from actual psychic material instead of, as at present, elucidating this material in terms of biological or physiological preconceptions. The attempt to teach psychology to medical students while it is still in an embryonic transitional phase seems to me a mistake, first, because the inculcation of a number of mutually incompatible theories into the callow mind of youth must produce a sense of impotent confusion, and, secondly, because only those who have a real vocation for psychology will be able to persevere through the endless windings of the psycho-analytic labyrinth into the decent light of day. Those who have this vocation will find their way from their own inner necessity, and they will absorb their psychological knowledge far more readily and permanently in the practical clinical field than in lecture rooms, where rival theorists voice their partial views. The optional seminar method is, to my mind, the most suitable for practical psychological demonstrations.

Professor Greenwood's assumption as to the motives of my letter may have been due to the difficulty I had in expressing within the compass of a letter a conviction based on many years' experience, but I can assure him that my grounds for questioning the wisdom of this new extension of the curriculum come from a deep desire that psychology in this country should be allowed to grow in its own right. If we hurriedly and unwittingly accept a kind of biological changeling in its place irreparable damage to our science may be done.—I am, etc.,

London, N.W., Aug. 21st. H. GODWIN BAYNES.

Treatment of Rodent Ulcer

SIR,—I agree with Drs. Donovan and Ash (*Journal*, August 12th, p. 314) that Dr. Finzi has been not quite just to the surgical treatment of rodent ulcer. During the past forty years I have excised a large number of rodent ulcers of the face and have never had a recurrence; no doubt I have been fortunate in the fact that all these cases were comparatively early. The cosmetic results have surprised me. I also think Dr. Finzi wrong in describing the action of CO_2 snow as caustic. It causes a severe local inflammation, but should not destroy healthy tissue. Two applications are generally necessary. I have had one recurrence after CO_2 snow, which responded readily to further similar treatment, and the patient has been well for years. I agree that radium treatment, as carried out by Dr. Finzi, is the ideal method, but it is not always and everywhere easily available. And in certain cases it is the only treatment advisable.—I am, etc.,

Bolton, Aug. 21st. R. D. MOTHERSOLE.

Arthritis and Allied Conditions

SIR,—Warm thanks are due to the British Medical Association Committee for its work and report on arthritis and allied conditions in your issue of June 17th. Of the manifold points of profound interest perhaps one of the most outstanding is the aetiological importance accorded to focal sepsis, particularly in secondary rheumatoid arthritis, which, we are told, is "usually associated with discoverable septic foci," and it is stated that many patients, especially if treated in the early stages, recover after dealing with the affected part. Further, we are told that the teeth, tonsils, nasal sinuses, pharynx, intestines, and genito-urinary tract demand careful attention; but in stating that "of the nasal sinuses the maxillary antra is the commonest site of infection," and explaining how they should be tested, the committee seems to convey the false impression that the other sinuses that it altogether omits to specify are of less importance. This is unfortunate, for, on the contrary, the source of infection may be confined to the sphenoidal and ethmoidal sinuses, even where the antra are proved sterile.

Perhaps one reason why the maxillary antra are the most frequently discovered nasal source of focal sepsis is that the sphenoids and ethmoids are usually ignored—as was done by several eminent colleagues in my own case—and also missed in radiograms. As one who has suffered, I know to my cost that the only certain test is the bacteriological examination of the uncontaminated samples obtained by sucking out the contents of the suspected sinuses. I recall the article in the *Journal* of June 21st, 1922 (p. 88), by Dr. P. Watson-Williams of Bristol, on rheumatoid arthritis due to infection of the nasal sinuses. Now in each of the cases of antral sinusitis that he cites there was *also either ethmoidal cell or sphenoidal sinus infection*. Probably the most striking of his examples was that of a case of polyarticular rheumatoid arthritis of many years' duration, progressing despite courses of treatment at Bath, which was ultimately completely arrested by drainage of the infected sphenoidal sinuses, the maxillary antra and all other sinuses being sterile. This infection was diagnosed by means of his suction-exploration method, and was proved to be due to a mixed streptococcus and a *Staphylococcus aureus*. Although, as your footnote informs us, this very early contribution on sinusitis as a cause of rheumatism was the presidential address to the Bath and Bristol Branch of the British Medical Association, it appears to have escaped notice, being omitted from the list of memoranda before the committee.

May I add that my own case would have been far different had the sphenoidal and ethmoidal cells been examined by the method first demonstrated by Dr. P. Watson-Williams many years ago, and I am writing this letter partly owing to my profound personal interest in his method, but chiefly because it is of the utmost importance for successful treatment that the source of nasal sinus infection other than the maxillary antra should be stressed.—I am, etc.,

Ampleforth, Yorkshire, Aug. 5th. ALAN C. VIDAL.

Hernia and Appendicectomy

SIR,—A belated contribution to this correspondence might be considered excusable, since at a distance I am able to advance, perhaps, an acceptable explanation of the incidence of inguinal hernia consecutive on the muscle-splitting incision at McBurney's point in appendicectomy.

When, in 1908, I was house-surgeon to Chelsea Hospital for Women, I was favoured, when assisting Sir John Bland-Sutton at operations, in being the recipient of many of his original observations as points arose for consideration as his work proceeded. I took it as a truism, not as a speculation, when he drew my attention to the potential causation of right inguinal herniation when abdominal content, such as a loop of bowel, became anchored by adhesion behind a McBurney abdominal scar, so proximate to the internal ring.

It would appear that it is only by the slithering mobility of the abdominal contents that inguinal herniation does not more frequently occur, and that with two predisposing causes ever present—a congenitally weak place in the abdominal parietes and the intra-abdominal pressure—it requires but the additional factor of gut held in position behind the internal ring by an anchoring adhesion above for the consummation of protusion to occur.

I have acted on this comprehension ever since. In the male, in simple appendicectomies, the muscle-splitting incision is invariably my route of choice, and I have always been particularly careful when suturing the peritoneum to ensure that no anchorage of abdominal content occurs. In a large series of cases I have never had a hernia sequela, but I have come across and operated upon three, in each of which bowel anchorage behind the McBurney scar existed. Inevitably, drainage cases result in adhesive peritonitis, but I expect it will be found—if curiosity is satisfied in the experience of others—that it is not in these types of cases that post-appendicectomy inguinal hernia characteristically occurs.—I am, etc.,

Taumarunui, New Zealand, July 24th. WELEY FISHER.

Appendicectomy

SIR,—Mr. A. R. C. Higham, in the *Journal* of July 8th (p. 56), in a memorandum on a small improvement in appendicectomy, says nothing about burying the stump. I presume that he either does not, or does so with the ligature round the vessels of the mesoappendix, using it as a purse-string suture. More convenient than an aneurysm needle is a Cleek Childe's ligature forceps, as this saves time threading.—I am, etc.,

C. A. VAN ROOYEN, M.R.C.S., L.R.C.P.

Haputale, Ceylon, July 31st.

Intestino-vesical Fistula

SIR,—I was very interested in Mr. Willan's article (*Journal*, July 22nd, p. 140), on intestino-vesical fistula. I have met one such case, and in view of the rarity of the condition it might be worth while giving a few details of it.

The patient was—and still is—an inspector of police, and for three years he had suffered from periodic attacks of severe pain in the lumbar region; these attacks were relieved by the passage per urethram of air and what the patient suspected were faeces. On cystoscopic examination the fistulous opening was seen, and on radiological examination of the colon numerous diverticula. The barium was observed, during the latter investigation, passing through the fistula from the colon into the bladder. Later a colostomy was performed. The patient made a speedy recovery and was clear of symptoms. He was, however, dismissed from the police force, being considered, because of his colostomy, unfit for further service, but on appeal he was reinstated. At present he enjoys good health, and is carrying out without any difficulty the duties of his position. The colostomy is under perfect control. Although a short time after the operation he was anxious to know if the colostomy could be undone with safety, now he has no thoughts in that direction, because he feels very fit and, as he himself says, it (the colostomy) has become so attached to him that he would miss it very much were it to desert him!

—I am, etc.,

Glasgow, Aug. 16th. P. J. MOLLOY.

Respiratory Disease in Miners

SIR,—Could the British Medical Association inaugurate an investigation to show how far respiratory diseases may be controlled among miners and other workmen who are exposed to infected atmosphere by the use of a non-toxic but effective nasal spray? Much time and money has been spent on their possible control by catarrhal vaccines, and many devices are favoured among miners, such as tobacco, native snuff, and antiseptic nasal ointment. The value of mercury in both aural and nasal catarrh cannot be ignored, but the hypothesis that "to keep the nasal cavity relatively free from micro-organisms by the occasional use of a potent lotion as a spray would not only prevent the onset of many a common cold but assist in the cure of chronic respiratory infection" is a reasonable one, and deserves a more thorough trial than has yet been given to it.

I cannot approve of an indiscriminate use of nasal lotions which tend to remove the mucus that renders the nose our first line of defence against atmospheric pollution, and an inquiry might show what preparation may best be employed to prevent early infection of the nasal passages by keeping them both clear and clean.—I am, etc.,

Durban, Natal, July 19th. F. G. CAWSTON, M.D.

High Eosinophilia

SIR,—Dr. Murphy (*Journal*, August 5th, p. 233) records a case of unusually high eosinophilia of obscure origin. The primary symptoms were an increasing languor and fatigue on slight exertion, and a feeling of nausea. On examination the patient was found to be suffering from anaemia, dyspepsia, wasting, and irregular fever. There were no localizing signs, but the foregoing surely point to a toxaemia. The presence of eosinophilia narrows down the possibilities, for eosinophilia is peculiar to the allergic state. O. C. Gruner, in *The Biology of Blood Cells*, says that eosinophilia means the presence of a definite protein substance the nature of which requires elucidation. Bezançon and Bernard[1] state that eosinophilia is a response to protein—either autogenous or foreign—and is a sign of toxaemia. The former authority refers, among other diseases, to (1) the latent type of Hodgkin's disease, where the internal glands and the liver are enlarged, and (2) subacute or chronic tuberculous lesions. These two diseases must be considered. Sahli[2] states that eosinophilia is present in the mycoses. The mycoses are far more common than is generally supposed. With this in view, we suggest that the stools and urine and any sputum be examined culturally for the presence of monilia or other fungus, and that the patient be dosed with an alkaline pot. iod. mixture (pot. iod. half a drachm thrice daily) over a long period, particular attention being paid to the weight and temperature. The clinical picture is that of a generalized monilia infection.—We are, etc.,

P. JANVRIN MARETT, M.R.C.S., L.R.C.P.
H. GORDON OLIVER, M.B., B.Ch.

Jersey, Aug. 12th.

[1] Bezançon and Bernard; *Ann. de Med.*, 1930, xxvii, 264.
[2] Sahli: *Diagnostic Methods*, Potter, 1918, p. 868.

I.M.S. Pensions

Sir,—In continuation of my letter in the *Journal* of July 22nd (p. 172) I venture to suggest that many Indian Medical Service officers, as well as most officers in the Indian Services, will be interested to read Sir Michael O'Dwyer's pamphlet entitled *Pensions, Pledges, Guarantees—A Word to all Interested in Indian Pensions.* Copies of the pamphlet may be obtained, post free, by writing to the Chief Organizer, India Defence League, 48, Broadway, Westminster, London, S.W.1.—I am, etc.,

C. C. Murison,
Knocke-Zoute, Belgium, Aug. 17th. Colonel I.M.S.(ret.).

Section of Surgery: Corrigendum

Sir,—In the summary of the proceedings of the combined meeting of the Sections of Surgery and Radiology at Dublin, in your issue of August 19th (p. 345), there is an unfortunate error in the paragraph summarizing my remarks. The sentence—"Of 11,000 cases of cancer . . . only 455 were suitable for radical surgery"—should read, "Of 1,100 . . ." As this latter figure shows, the proportion of inoperable cases of malignant disease seeking treatment at Middlesex Hospital is high enough, but fortunately not so large as the number printed would suggest.—I am, etc.,

London, W.1, Aug. 18th. Eric Pearce Gould.

Obituary

ARTHUR W. J. MacFADDEN, C.B., M.B., C.M., D.P.H.

Late Chief Inspector of Foods, Local Government Board, and Senior Medical Officer, Ministry of Health

We regret to announce that Dr. Arthur William James MacFadden died suddenly at his home at 20, Lymington Road, West Hampstead, on August 16th, at the age of 64. The son of Dr. James MacFadden of Portadown, he was educated at Lurgan College and at Edinburgh, where he qualified in 1893. He was in general practice in Leeds and Belfast until 1899, when he joined the South African Field Force as a civil surgeon and served until 1901, receiving the Queen's medal with four clasps. The lessons of preventive medicine which he then learned, together with his previous experience of enteric fever at Belfast, decided him on his return to take the D.P.H. and make public health his career; he studied accordingly at University College, and obtained appointments as assistant medical officer of health at Croydon and with Sir Arthur (then Dr.) Newsholme at Brighton, under whom he was to serve again later at the Local Government Board. In 1903 he became medical officer of health of the Edmonton urban district, a part-time post in which he quickly made his influence felt, particularly in connexion with local questions of hospital isolation and sewage disposal. He became a whole-time officer, and his administrative capacity and attractive personality were soon known and appreciated at the central health department.

Mr. John Burns, then President of the Local Government Board, had decided, after the final report of the Royal Commission on Arsenical Poisoning, 1903, to establish a special section of the medical department of that office to deal with the purity and wholesomeness of food, and Dr. MacFadden was, on the recommendation of Sir W. H. Power, appointed a member of this new staff in 1906. The "Inspectors of Foods," as they were then termed, who worked at an office at 50, Parliament Street, under the Principal Inspector, Dr. (now Sir George) Buchanan, began the work by giving special attention to securing definitions and standards for the purposes of the Sale of Foods and Drugs Acts, with the co-operation of public analysts and after full inquiries into trade practices. Dr. MacFadden's work at this time covered the use and quality of cream of tartar, baking powders, and other food ingredients, the definition of "vinegar," and many like matters, which were made the subject of special monographs published by the Board or dealt with in the annual reports of the work of the sub-department. Another line of work was soon added in consequence of what were termed the Chicago meat scandals, and the legislation of 1907 gave the Local Government Board wide powers to make regulations to prevent danger to the public health from the importation, preparation, storage, and distribution of foodstuffs generally. Dr. MacFadden took an important share in the different inquiries which followed—for example, the importation of butchers' "offal," boneless meat, tripe, canned meat, the reliability of slaughter-house inspection abroad, and the use of formalin and other preservatives. From these inquiries he came to possess an exceptional knowledge of trade processes in relation to food preparation, and acquired an authority and reputation for fairness and good judgement in dealing with trade questions affecting the public health which were not only of much service at the time to his department, but invaluable later when he was concerned with the quality of food supplied to the Army during the war.



After he had succeeded Buchanan as Principal Inspector of Foods in 1911, MacFadden continued work on these lines, and added to it reports on cases of food poisoning and on local methods of food inspection, as well as numerous studies and observations on the control of milk supplies. He took part in the technical inquiries which led to Sir Herbert Samuel's Milk and Dairies Act, 1914, and was largely responsible for the regulations and central administration relating to milk—including the system of designation and grading of milk—under this and subsequent Acts.

On the outbreak of war in 1914 the Local Government Board offered the assistance of the sub-department to the War Office. The acceptance of this offer involved MacFadden in the organization of measures of wide ramification. His assistance was sought on many questions affecting specifications, while a new and detailed system of supervision of the food supplied to the Army, both at home and abroad, was inaugurated. For this purpose the War Office furnished him with a list of all Army contractors, and information was supplied by commanding officers at home of the sources of food supplied to their units. Such information was passed on to local medical officers of health, who were thus enabled to exercise special supervision over the premises concerned. This was accompanied by frequent and continued inspection by the members of MacFadden's own staff, an inspection which extended from large contractors for wholesale supplies to small producers with insignificant premises. A systematic and often meticulous supervision thus became established, both for the quality of food materials and for the conditions of their preparation. As a measure for safeguarding the health of the troops it was invaluable; this was proved by the

absence during the war of the food poisoning historically associated with Army contracts. A further important activity was concerned with the supervision of meat contracts in North America, South America, and Australia, for which purpose MacFadden detailed two members of his staff. In addition to the control of this wide organization MacFadden served on the Food (War) Committee of the Royal Society appointed to advise the Food Controller on scientific questions relating to nutrition and other kindred matters; the committee appointed by the Food Controller and the President of the Board of Agriculture and Fisheries to advise on questions connected with the production and distribution of milk; and the Milk Control Board, appointed by the Food Controller to control and regulate the distribution of milk. In the discharge of this wide range of duties MacFadden exercised unfailing supervision, energy, and tact, and the decoration of C.B. which was bestowed on him on the termination of the war was a well-merited honour.

Dr. MacFadden's last report to the Local Government Board on the work of the sub-department for food inspection appeared in the annual report of that Department for 1918–19. On the creation of the Ministry of Health that sub-department ceased to exist as such. In the new Ministry Dr. MacFadden was appointed one of the senior medical officers and placed in charge of a section of the medical department, under Sir George Newman's direction. In this section he advised on various questions relating to nutrition, dietaries, and the like, and continued technical work in relation to many of the subjects mentioned above. This was particularly the case in regard to the use of preservatives and colouring matters in food, following the report of the committee on this subject which was set up in 1923, and its outcome, the Public Health (Preservatives, etc., in Food) Regulations, 1925. He did important service on many other committees of inquiry during this period. The Departmental Committee on Meat Inspection, 1920, and the Accessory Food Factory Committee of the Medical Research Council require special mention in this respect, while he was chairman of the Canned Food Committee of the Department of Scientific and Industrial Research, and took part in the investigations of that department into refrigeration and like matters.

MacFadden retired from the public service in 1929. He had married, in 1905, Alice Bristow, daughter of the late Ven. John Spence, D.D., Archdeacon of Connor, and had four sons and two daughters. A funeral service on August 19th at St. Paul's, Avenue Road, Hampstead, was attended by several of his former chiefs and colleagues, by all of whom, as well as by a much wider circle of those with whom his official work brought him into contact, the memory will abide of a strenuous and conscientious worker, a man of the highest character, and a personality of exceptional charm.

We regret to announce the death, on July 28th, of Dr. A. Z. C. CRESSY of Wallington, Surrey. Arthur Zell Clardon Cressy was born in 1861. Educated at Epsom, he commenced his medical studies at Guy's Hospital, where he qualified M.R.C.S.Eng. and L.S.A. in 1887. A correspondent writes: Dr. Cressy's death does more than terminate a period of forty-five years' active medical practice; it brings to an end a famous family tradition, for there were Cressys practising in the Wallington district at the time of the French Revolution. From the time he left school Dr. Cressy had constantly accompanied his father as an unqualified assistant. He was always quick to seize on any new instrument or line of treatment, and was at various times responsible for the design of several surgical instruments. It was, however, in the field of obstetrics that Dr. Cressy's chief skill lay. An intense individualist, he resented authority in any form, and was ever an aggressive champion of what he considered were the rights of the general practitioner. A very old member of the B.M.A., his criticism of its treatment of the general practitioner was at times apt to be violent. Dr. Cressy was one of the founders of the Carshalton Cottage Hospital, and was senior surgeon from its opening in 1899 until the date of his death. It was also largely due to his energy that the District War Memorial Hospital was erected in 1924. His chief hobbies were horticulture and photography. He was, however, never happy away from his work, and found holidays merely a source of irritation. He was an unforgettable figure in his grey whipcord coat and white hunting-stock, with his ruddy complexion and gold-rimmed monocle. Many of us disagreed with his views, but we miss him sorely.

The following well-known foreign medical men have recently died: Professor LINDEMANN of Warsaw, an authority on war gas; Professor ALEXANDER FERENCZI, a Hungarian psychologist and former collaborator of Professor Freud; Dr. RALPH LEAVITT MACFARLAND, a New York radiologist, aged 69; Dr. H. A. COTTON of New York, a specialist in dementia praecox and melancholia; Dr. EDWARD OSGOOD OTIS, emeritus professor of pulmonary diseases and climatology, Tufts College Medical School, Boston, and author of works on tuberculosis, aged 84; Dr. GÉRARD MOZER, of the Hôpital Maritime of Berck-sur-Mer, aged 41; Dr. ERICH LESCHKE, extraordinary professor of medicine at Berlin University, author of a work on metabolic diseases, aged 46; Dr. FRANZ SCHÖNENBERGER, extraordinary professor of general therapeutics and director of the Hydrotherapeutic Institute at Berlin University, aged 68; and Dr. PAUL SOLLIER, director and president of the Institut des Hautes Études of Belgium, professor and founder of the School of Ergology at Brussels, and Commander of the Legion of Honour.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation held on August 5th the following medical degrees were conferred:

M.D.—*W. N. Leak, *R. C. Priest, R. J. V. Pulvertaft, J. L. Franklin, R. W. Knowlton.

M.B., B.CHIR.—*J. S. M. Pringle, J. W. Campbell, B. P. Harris, L. W. A. Lankester, F. G. Maitland, C. P. Bailey, R. A. Sykes, G. R. Ellis.

M.B.—M. L. Rosenheim, A. N. McCrea, J. W. Bromley.

B.CHIR.—*J. G. M. Nisbett, *D. Kyle, *E. W. Price, *J. G. Jones, *G. L. Foss, *R. H. Dobbs, R. Cairns, O. A. Trowell, J. N. Groves, A. H. Charles, J. G. V. Smith, C. G. Batty-Smith, C. M. Carr, J. W. Maycock, E. W. Taylor.

* By proxy

The Services

DEATHS IN THE SERVICES

Colonel Frederick Smith, C.B., C.M.G., D.S.O., late R.A.M.C., died in a nursing home in London on July 26th, aged 75. He was born at Horncastle, Lincoln, on February 14th, 1858, was educated in the school of the Irish College of Surgeons and the Carmichael School, Dublin, and took the L.R.C.S.I. and L.R.C.P.I. in 1889, and subsequently the D.P.H. at Durham in 1897. Entering the R.A.M.C. as surgeon on March 30th, 1890, he became lieutenant-colonel on August 14th, 1912, and brevet colonel on September 4th, 1912. His services were retained on the active list, owing to the war, after he had attained the age limit; he retired on December 26th, 1917. He served in the Zulu war of 1879 (medal and clasp); in the first Boer war in 1881; in operations in Sierra Leone in 1898–9, in the Mendiland expedition (medal and clasp); in South Africa in 1900–1, in operations in the Transvaal, Orange River Colony, and Cape Colony, including the actions at Biddulphsberg, Bethlehem, and Wittebergen, was mentioned in dispatches in the *London Gazette* of September 10th, 1901, and got the Queen's medal with four clasps, and the D.S.O.; on the North-West Frontier of India in the Mohmand campaign of 1908 (medal with clasp); and in the war of 1914–18, when he was mentioned in dispatches

in the *London Gazette* of October 19th, 1914, January 1st, 1916, December 6th, 1916, and November 28th, 1917, and received the C.M.G. in 1917 and the C.B. in 1918. The Royal Warrant of November 27th, 1879, laid down that half of the vacancies in the R.A.M.C. might be filled by candidates recommended by the governing bodies of the medical schools in Great Britain. Colonel Smith was, we believe, the only officer ever appointed under these conditions. He was also the only officer in the R.A.M.C. who had served in the ranks. He enlisted in the Medical Corps while a medical student, and served in the ranks for twelve and a half years. While stationed in Dublin he attended the classes he still required to complete his medical curriculum, and got the licences of the Irish Colleges in 1889. These Colleges then recommended him for a commission in the Army Medical Department, now the R.A.M.C., and he was appointed surgeon on probation. At the Army Medical School at Netley he took the Herbert prize for the best man of his year, and the second Montefiore prize in surgery; subsequently he gained the Parkes memorial medal and prize twice, in 1897 and in 1907; the Alexander memorial gold medal twice, in 1903 and 1906; and the Enno-Sandes gold medal of the United States in 1903. Much of his service was spent on sanitary work; he was assistant in the bacteriological laboratory at Netley in 1896-8, sanitary officer of the forces in West Africa in 1903-4, and divisional sanitary officer at Rawal Pindi. He was the author of *Modern Bullet Wounds and Modern Treatment (1903)*, and contributed many scientific and professional papers to the *Journal of the Royal Army Medical Corps*.

Lieut.-Colonel George Waters, Bombay Medical Service (ret.), died at Beddington Lane, near Croydon, on July 25th, aged 87. He was born on April 23rd, 1846, the son of John Waters of Bomer, Caithness, and was educated at Thurso Academy and at Anderson's College, Glasgow. After taking the L.R.C.P. and S.Ed. in 1869 he entered the I.M.S. in the same year, and attained the rank of brigade surgeon lieutenant-colonel on March 31st, 1896, and retired on April 23rd, 1901. His first appointment was as assistant to J. H. Sylvester, the superintendent of the Bombay Ophthalmic Hospital. He was soon after appointed Residency surgeon at Bushire, in the Persian Gulf. In 1874 he took three months' leave, and rode from Bushire to Resht, on the Caspian Sea, publishing an account of the ride in *A Journey from Bushire to Kazeroon and Back, 1874*. Soon after, Sir Richard Temple, who was then Governor of Bombay, appointed Waters his personal surgeon, a post which he continued to hold under the next Governor, Sir James Ferguson. In 1881 he was appointed physician to the Jamsetjee Jeejeebhoy Hospital, Bombay, and professor of pathology in the Grant Medical College. In 1889 he was appointed Presidency surgeon of the third district, Bombay. After retirement he made a trip round the world, and also visited Kashmir, and wrote an account of his journeying, called *Travel Reminiscences*. He married Winifred, second daughter of General Hatch, R.A. She died at Bombay in 1887, leaving a daughter.

Lieut.-Colonel John Archbold Turnbull, D.S.O., R.A.M.C., died suddenly at Ranikhet on July 27th, aged 53. He was born on October 9th, 1879, was educated in the Edinburgh extramural school, and took the Scottish triple qualification in 1903. Entering the R.A.M.C. as lieutenant on January 30th, 1904, he attained the rank of lieutenant-colonel on October 4th, 1925. He served on the North-West Frontier of India, in the Zakka Khel and Mohmand campaigns of 1908, gaining the Frontier medal with a clasp. In the war of 1914-18 he was mentioned in dispatches in the *London Gazette* of January 1st, 1916, and May 20th, 1917, and received the D.S.O.

Major Herbert Fletcher Joynt, R.A.M.C. (ret.), died at Mandeville, Jamaica, on April 9th, aged 49. He was born on February 5th, 1884, and was educated at Guy's and at Durham University, where he graduated M.B., B.S. in 1907. After filling the post of obstetric resident at Guy's, he entered the R.A.M.C. as lieutenant on January 30th, 1909, became major after twelve years' service, and retired on November 2nd, 1929. He served in the war of 1914–18.

Major David Stiell, R.A.M.C. (ret.), died at Bournemouth on May 25th, aged 68. He was born at Lesmahagow on April 20th, 1865, and was educated at Glasgow, where he graduated M.B., C.M. in 1868, and M.D. in 1896. Entering the Army as surgeon on February 5th, 1887, he became major after twelve years' service, and retired on May 25th, 1907. He served in the South African war in 1900-2, taking part in operations in the Transvaal and Orange Free State, including the action at Zillkat's Nek, and received the Queen's medal with three clasps and the King's medal with two clasps. When the war of 1914–18 began he rejoined from the Reserve of Officers, and served throughout the war.

Medical News

The annual dinner of past and present students of St. Mary's Hospital will be held on Saturday, September 30th, at 7.30 p.m., at the Trocadero Restaurant. Dr. Reginald Miller will be in the chair. The honorary secretary is Dr. A. Hope Gosse.

The Fellowship of Medicine and Post-Graduate Medical Association has arranged for the following courses to take place during September: on diseases of infants, at the Infants Hospital, Vincent Square, September 4th to 16th, to take place every afternoon; on psychological medicine, at the Bethlem Royal Hospital, Beckenham, September 5th to 29th, on Tuesdays and Fridays at 11 a.m.; on medicine, surgery, and the specialties, at the Westminster Hospital, S.W.1, from September 18th to 30th, to occupy the whole of every day; on diseases of the chest, at the Hospital for Consumption, Brompton, from September 25th to 30th; on proctology, at the Gordon Hospital, Vauxhall Bridge Road, in the afternoons, from September 25th to 30th; on rheumatism, at the Royal Mineral Water Hospital, Bath, during the whole of Saturday, September 30th, and Sunday, October 1st. In addition to the above a special tutorial course (for men graduates only) in medicine, surgery, and midwifery has been arranged to take place from September 29th to October 3rd, inclusive, at the Connaught Hall of Residence, 16, Torrington Square, W.C.1. Intensive lectures and demonstrations will be given the whole of each day, and will deal with the clinical conditions in which recent developments have occurred. Post-graduates attending this course will reside at the Connaught Hall. Full details are now ready, and can be obtained from the secretary of the Fellowship of Medicine, 1, Wimpole Street, London, W.1.

The eighth congress of French-speaking gynaecologists and obstetricians will be held in Paris from September 28th to 30th, under the presidency of Dr. Couvelaire, when the following subjects will be discussed: (1) Surgical treatment of placenta praevia, introduced by Professors Paucot of Lille and Reeb of Strasbourg. (2) Tuberculosis of the uterus and adnexa, introduced by Drs. Brocq, Moulonquet, Claude, and Béclère of Paris and Professor Rochat of Lausanne. (3) Treatment of the sequels of the artificial menopause, introduced by Von Cauwenberghe of Ghent and Professors Brouha of Brussels and Masserbeau of Montpellier.

The French congress for doctors fond of French wines will be held at Bordeaux from September 7th to 9th, under the presidency of Professor Portmann, when visits will be paid to various wine depots, and addresses will be given on wine in medicine and its role in hygiene and diet.

The twenty-eighth congress of the German Orthopaedic Society will be held at Leipzig, under the presidency of Professor Schede, from September 11th to 13th, when the chief subject for discussion will be orthopaedics and rheumatism, and conservative treatment of foot-drop.

The International Association of Preventive Paediatrics will hold its third conference at Luxembourg on September 27th and 28th. The subjects for discussion are the prophylaxis of poliomyelitis, introduced by Professor Rohmer of Strasbourg and Dr. Wallgren of Göteborg (Sweden), and the acute specific infections of infancy, introduced by Professor Rott of Berlin and Dr. Frontali of Padua. Inquiries should be addressed to the secretary of the conference, Dr. D. Oltramare, 15, Rue Lévrier, Geneva.

The first congress of photography and cinematography in relation to the sciences of medicine and biology will be held in the State Museum of Pedagogy, Paris, from October 5th to 7th. There will be demonstrations of films and slides, and discussions. Information about the scientific side of this congress can be obtained from Dr. C. Claoue, 39, Rue Scheffer, Paris.

A Congress of Slav Medicine will be held at Poznan on September 15th, when the subjects for discussion will be goitre and blood groups in forensic medicine.

It is stated in the annual report of the Queen Alexandra Sanatorium Fund that during the twelve months preceding April 30th, 1933, more grants than in the previous year were made to enable persons of slender financial resources to obtain treatment in Switzerland. There were at Davos last winter forty patients, as compared with twenty-seven in 1931–2, but many stayed for much shorter periods, and a number of grants were made quite late in the season. Only four patients were in receipt of grants for the whole season of 197 days, from October 16th, 1932, to April 30th, 1933. In twelve cases the grant was extended until May 31st. It is announced in the current annual report of the fund that medical statistics seem to show that the clinical results were more successful than in any preceding year. This is attributed to the development, improved technique, and more extensive application of some form of collapse therapy, and particularly of artificial pneumothorax. The safe division of adhesions has greatly increased the sphere of usefulness of this procedure, and quite large adhesions are now dealt with without risk. Forms of application for grants for the coming winter are obtainable from the honorary secretary of the fund, Mr. A. Stanley Herbert, 25, Birchin Lane, London, E.C.3.

According to the annual report of the Benenden (Kent) Sanatorium, the number of beds available for use was increased to 148 during 1932. The average number of cases treated on each day rose from 139.45 to 140.36. Towards the end of the year it appeared that fewer county council cases were being admitted. The induction of artificial pneumothorax and gold therapy gave good results, and at the end of the year there were in residence thirty-two patients on whom pneumothorax had been performed and fourteen having crisalbine treatment. The arrangement and conducting of graded work in the sanatorium grounds has been reorganized. In the twelve months under review 238 patients were admitted and 256 were discharged; of these latter 199 were "much improved" and twenty-four "improved."

The issue of the *Gazette des Hôpitaux* for August 5th contains an account of the proceedings of the Seventh International Congress of Military Medicine and Pharmacy recently held at Madrid. The next congress will be held in Rumania.

The issue of the *Deutsche Medizinische Wochenschrift* for August 11th, 1933, is devoted to "The Doctor and Sport."

The issue of the *New English Journal of Medicine* for July 13th was a *Festschrift* in honour of Dr. Robert B. Osgood, who retired in 1931 from the chair of orthopaedic surgery at Harvard Medical School. It contains a foreword by the late Sir Robert Jones.

The late Mr. J. Priestley Smith, professor of ophthalmology in the University of Birmingham, 1897–1912, left £22,695.

A large new building to form the future home of the Prince Leopold National Institute of Tropical Medicine is approaching completion in Antwerp.

The Rev. L. C. Rowan-Robinson, M.B., Ch.B., has been appointed Vicar of Brinsley and Woodborough, Nottingham.

Dr. Wilhelm Karl, head of the clinic for skin and venereal diseases at Vienna, has been elected dean of the medical faculty.

Dr. Paul Mulzer, professor of dermatology at Hamburg, has been made an honorary member of the Dermatological Society of Athens, and Professor Rollier of Leysin and Dr. Axel Reyn of Copenhagen honorary members of the German Society for Light Investigation at Bremen.

Dr. Julio Bejarano y Lozano has been nominated the Director-General of Public Health in Spain.

The following appointments have recently been made in the French faculties of medicine: Dr. Robert Proust, professor of medico-surgical anatomy and operative technique in Paris, Dr. Paul Bonnet, professor of clinical ophthalmology at Lyons; and Dr. Morvillez, professor of pharmacy at Lille.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

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QUERIES AND ANSWERS

Transient Hemianopia after Bathing

Dr. R. E. M. TAUNTON (London, W.7) writes reporting the occurrence, whilst on holiday, of a transient left-sided hemianopia following bathing in a rough sea and being hit on the head with waves. On driving a car shortly afterwards it was found that only the half of each approaching car could be seen. The same applied to all objects. Normal sight returned within a few hours. He asks: Is this a frequent occurrence?

Income Tax

Locumtenent Work—Expenses

"R. R." has been engaged for a considerable time in locum work. He returned his "salary" in full and claimed the 5 per cent. commission as an "expense." The commission is paid to the local bureau. The deduction has been disallowed.

*** In our opinion the earnings of a locumtenent are properly assessed under Schedule D as professional profits and not under Schedule E as the reward of employment. It is "employment" in a sense, but the circumstances are peculiar, and it is a recognized mode of carrying on the profession. If such earnings are assessed under Schedule E then a separate assessment should be made for each appointment—which is a *reductio ad absurdum* in many cases. If the assessment is made under Schedule D the expense of the commission is allowable, as, of course, in equity it ought to be.

Purchase of Practice—First Year

"K. S. T." was employed as an indoor assistant for the year to April, 1932. He purchased a practice in August, 1932. On what basis should he be assessed for the year to April 1933?

*** The change from employment as an assistant to *practising on his own account* necessitates breaking away from the "previous year" basis so far as the latter earnings are concerned, and they must be regarded so far as "K. S. T." is concerned, as arising from a practice set up and commenced by him in August 1932.

Liability of Foreign Residents

"OVERTAXED" asks whether British securities are exempt from income tax when the income therefrom belongs to a foreign resident.

*** The answer is in the negative except as regards interest on the British Government 3 per cent. Loan which has now been converted into a 3½ per cent. security.

neck of the prolapse is very large, when the sphincter muscles are completely atonic, and when there is obvious perineal herniation, due to congenital or traumatic muscular or fascial weakness, this method of treatment is contraindicated. When such conditions do exist, however, the prolapse is seldom irreducible.

154 Treatment of Intussusception

H. THOMSEN (*Ugeskrift for Laeger*, June 1st, 1933, p. 639) has collected and published the end-results in thirty-three children treated for intussusception between 1917 and 1932 at the Aarhus communal hospital, Denmark. There were thirteen deaths among the twenty-three boys and ten girls. Seventeen children were operated on before the intussusception had lasted for twenty-four hours; all recovered. Among the remaining sixteen, in whom the condition had lasted for one and a half to five days, there were only three recoveries. As regards the age factor, *fifteen children* were less than a year old, and only five of them recovered. Among eighteen children between the ages of 1 and 11 years, there were only three deaths. The intussusception was an invaginatio colica in three cases, an invaginatio iliaca in four cases, an inyaginatio ileo-colica in one case, and an invaginatio ileo-caecalis in twenty-five cases. There were three deaths among the four cases in which a more or less extensive resection had to be performed because gangrene threatened. It is claimed for the operative treatment of intussusception that in this materal it saved not only all the children operated on within the first twenty-four hours, but also three whose intussusception had lasted from forty-eight to 120 hours. With regard to the absence of the most classical signs of intussusception, there were four cases in which no swelling could be detected on palpation of the abdomen, and eight cases in which there was no escape of blood per rectum. Dealing with the relative merits of conservative and operative treatment, the author concludes that the choice between the two in the case of children less than 2 years old, and ill for less than twenty-four hours, is not made on the strength of statistical evidence, but depends on the temperamental bias of the individual. He believes that a very great advance would be made in the results of treatment of intussusception if the public were made to recognize the condition promptly and so hasten admission to hospital.

155 Dilatation for Oesophageal Cancer

G. LOEWY (*Bull. et Mém. Soc. Nat. de Chir.*, May 27th, 1933, p. 801) reports a case of this disease in a man of 65 years where dilatation of the oesophagus was carried out as an alternative treatment to gastrostomy. At the time of the dilatation the patient was rapidly becoming starved owing to stenosis of the oesophagus. Radiography showed an obstruction in the oesophagus, the appearance of which was typical of carcinoma. Owing to the condition of the patient's heart an oesophagoscopy was considered to be too dangerous. By means of a swallowed guide thread, dilatation of the oesophagus was carried out until finally the stenosed area was dilated to a diameter of 15 mm. Pain was only slight, and the patient returned home shortly after the dilatation, and for five weeks was able to swallow normally. Four subsequent dilatations were carried out at intervals of two or three months, and were each time followed by relief of symptoms. At the present time, ten months after the first treatment, the patient is still able to swallow normally, although with each return of stenosis the subsequent dilatation is slightly less complete than the preceding one. In many other cases this method of treatment has been equally successful. As the mortality following gastrostomy is about 50 per cent., and the expectation of life only three months, it is urged that dilatation is a preferable method of treatment. In a series of cases so treated during the last six years there have been no untoward accidents. The ease with which the dilatation is carried out, the absence of hospitalization, and the return of normal swallowing all render dilatation a satisfactory palliative procedure.

Therapeutics

156 Alkali Treatment of Diabetic Coma

O. L. E. DE RAADT (*Wien. klin. Woch.*, May 19th, 1933, p. 618) finds that since the discovery of insulin, the treatment of diabetic coma by administration of alkalis has fallen almost into desuetude. At the Dortmund Clinic, where it is employed, there has not been a death from diabetic coma for many years. Alkali administration should be combined with insulin treatment. It has been found that in severe diabetes the sodium chloride concentration in the urine, as well as the total quantity of NaCl, may be greatly diminished. It has been proved, without exception, that in coma the NaCl excretion is reduced to a minimum (hypochloruria). De Raadt gives a very simple explanation. When the kidneys fail to excrete acids and ammonia (relative renal inefficiency), acidosis occurs, causing retention of NaCl in the tissues. If an alkali be given the NaCl is converted into $NaHCO_3$, thus relieving acidosis. If a 2.5 per cent. solution of sodium bicarbonate be given subcutaneously or intravenously to a comatose diabetic, the excretion of chlorides in the urine occurs immediately. He states that it is a common error to regard the hypochloruria of diabetic coma as evidence of a deficiency of NaCl in the tissues. De Raadt lays down the following principles: (1) Insulin acts by increasing the abnormal systemic production of acid, but it has no influence on the acidosis of diabetic coma. (2) An adequate quantity of alkali—that is, alkali given until the reaction of the urine is neutral or faintly alkaline—immediately neutralizes this acidosis and thereby prevents the further systemic intoxication by ammonia produced in the tissues. (3) The only correct aetiological treatment of diabetic coma is therefore a combined treatment by insulin and alkali.

157 Medical Treatment of Peritoneal Adhesions

H. GAEHLINGER (*Bruxelles-Médical*, May 14th, 1933, p. 762) states that peritoneal adhesions may be the result of repeated attacks of perivisceral inflammation which is due to a low-grade colitis. There is frequently a complicating visceroptosis. Treatment is thus indicated for the adhesions, the colitis, and the visceroptosis. Gaehlinger takes as an example the treatment of the "right iliac fossa syndrome." Diet must be appetizing and easily assimilated; it should contain little cellulose; if there is much putrefaction it should be low in protein, but if fermentation is excessive it must contain a minimum of starch. A daily evacuation is essential, and for this the most useful drug is heavy bismuth subnitrate, 20 to 30 grams daily being given about one hour before meals in divided doses. Colloidal kaolin and liquid paraffin are valuable, and, if there is much fermentation, minute doses of castor oil may be added to the paraffin. Rectal dyschesia must be sought for and treated. Colonic lavage, the author considers, is best avoided. For the colitis the bismuth subnitrate is beneficial; intestinal antiseptics have but an ephemeral action, but charcoal is of use in some cases. In the later stages stock vaccines are worth a trial. The visceroptosis, if severe, should be treated by rest in bed with the foot of the bed raised. Exercises to strengthen the abdominal and thoracic musculature should be prescribed twice a day. Every effort must be made to increase the patient's weight; this is frequently difficult, but the author has found that a high carbohydrate diet in conjunction with 10 to 15 units of insulin about twenty minutes before the two chief meals of the day is efficacious. Pain can usually be controlled by physical methods, especially diathermy. The mild analgesics may be employed, and subcutaneous injection of mesothorium 1 mg. daily is often useful. In some cases spa treatment is helpful, and Plombières, Néris, Bourbon-Lancy, and Châtel-Guyon are particularly recommended. The psychological side of these patients must not be neglected; the majority have tried many remedies and found them wanting. Little can be done without gaining the complete confidence of the patient.

158 Anaesthetic Periarticular Infiltrations in Arthritis

Schulmann has shown that anaesthetic and periarticular infiltrations are efficacious in certain rheumatic articular conditions. F. COSTE (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, May 15th, 1933, p. 627) states that this treatment is especially indicated in scapulo-humeral periarthritis (the medical or spontaneous form, as contrasted with the traumatic), in coxarthritis, and in the arthroses of the knees and other joints ; the benefits are transient, and the ultimate results negative. This is due to the fact that distinct articular lesions are rare in the shoulder, and synovial or capsular inflammation and osteo-cartilaginous changes absent ; articular attack is exceptional, periarticular involvement the rule. The shoulder is the only joint in which these conditions obtain. The exact nature of this condition is difficult to determine in most cases. That a subdeltoid bursitis is a factor can be eliminated owing to the absence of subacromial painful points and of deltoid atrophy. The intricacy of purely scapular signs and cervico-brachial neuralgia might indicate that the condition is simply a contracture secondary to the neuralgia, which is ultimately fixed by muscular fibrositis and neurotrophic retractions. The predominance of the neuralgic symptoms suggests the efficacy of regional anaesthetic blockage. The shoulder is supplied anteriorly and superiorly by the suprascapular nerve, and posteriorly and inferiorly by the circumflex. To reach the former nerve, the needle is introduced behind, under the posterior border of the acromion, along the external border of the spine of the scapula into the supraspinous fossa, and towards the coracoid notch, where the injection is made. For the latter nerve, the needle is entered into the posterior part of the arm near its root, then to the neck of the humerus near Velpeau's foramen, the injection being made in contact with the bone. Large injections of 10 c.cm. of a 1 per cent. solution of novocain (greater strengths may cause vertigo and nausea) should be given. The results are generally good ; after a few injections at intervals of three or four days the pain and contracture regress. Though occasionally this treatment fails and the pain is aggravated, Coste believes that it should be tried in all cases resistant to the usual measures.

Anaesthetics

159 Avoidance of Complications in Lumbar Anaesthesia

E. KOTTLORS (*Schmerz Narkose-Anaesthesie*, March, 1933, p. 97) attributes many sequelae of spinal anaesthesia, such as headache, and, less frequently, neuralgia, lumbago, ocular paralyses, and neuroses, to serious technical errors —injury to the spinal cord, or intradural haemorrhage, due to repeated or badly planned punctures or the employment of too thick needles. He thinks it probable that complications are due not to absorption of the anaesthetic, but rather to compression of the anterior roots of the spinal nerves and of their blood supply. The higher the extension of the anaesthesia, the greater the number of rami communicantes that are paralysed. Minor complications—for example, nausea—result from fall of blood pressure and consequent bulbar anaemia. Some elderly patients have exhibited a fall of 57 to 36 mm. Hg. Various writers recommend injections of caffeine, strychnine, adrenaline, ephedrine, hypophysin, etc. Adrenaline and ephedrine occasionally cause alarming symptoms. Kottlors rejects the theory that complications arise from leakage of cerebro-spinal fluid. He considers that the following factors (upon which the ascension of the anaesthetic in the cerebro-spinal fluid depends) are important: (1) specific gravity of the solution, (2) its quantity and concentration, (3) the quantity of cerebro-spinal fluid withdrawn, and (4) rapidity of injection. The last is responsible for the majority of failures. It is essential that pressure should not be exerted. Kottlors recommends the employment of two needles, the upper being introduced between the twelfth dorsal and first lumbar vertebrae, and the lower between the third and fourth lumbar vertebrae, the distance between the needles being over four inches. When five drops of a 5 per cent. novocain-adrenaline solution is injected through the lower needle, the percentage of novocain in a similar quantity of fluid withdrawn, after two minutes, through the lower needle is 0.4 per cent. and through the upper needle is 0.5 per cent. Kottlors insists that spinal anaesthetics should always be given with the patient seated and his head raised. He claims that his technique gives certain control over the upward diffusion of the anaesthetic. The rate of injection is most important. Three minutes is the minimum time.

160 Respiratory Sensitization to General and Local Anaesthetics

Many instances of sudden death during local and general anaesthesia, not attributable to the pharmacological and toxicological action of the drug administered, have been recorded. G. L. WALDBOTT (*Arch. of Otolaryngol.*, April, 1933, p. 549) has studied the pathological changes in twelve cases of so-called thymic death, four of which occurred during ether anaesthesia. Certain features in these indicated a similarity to, if not an identity with, anaphylactic death following injections of pollen and serum ; all the post-mortems revealed the typical thymico-suprarenal syndrome of hyperplasia of lymphoid tissue, capillary dilatation and oedema of the lungs, petechial haemorrhages, and changes in the epinephrine-producing part of the suprarenals. Landsteiner, Avery, and other workers have demonstrated that so-termed non-antigens, such as simple chemical substances, may act as antigens ; from a series of cases of human anaphylactic shock following the administration of substances other than protein, Waldbott has shown that any substance which produces allergic symptoms, whether containing protein or not, may produce anaphylactic shock under three conditions—namely, extreme sensitivity, a dose above the patient's tolerance, and a rapid absorption of the antigen. Notes are given of four cases of sensitivity—two to cocaine and two to ether. As preventive against anaphylactic shock when administering anaesthetics, Waldbott advises the following measures. All patients should be tested for the anaesthetic to be employed. Skin testing and passive transfer tests (Prausnitz-Küstner) being unreliable, tests by inhalation of the general or administration of the local anaesthetic, well diluted, should be made. A conjunctival test—applying the diluted anaesthetic into the conjunctival sac—may aid discovery of sensitization. With local anaesthesia caution should be exercised to prevent an accidental intravenous injection. Epinephrine and the synthetic ephedrines are the only known drug preventives of anaphylactic shock ; such should always be given in local anaesthesia. Epinephrine acts by retarding absorption of the anaesthetic through its vaso-constrictive action, and by counteracting capillary dilatation, the basic lesion of anaphylaxis.

Obstetrics and Gynaecology

161 Protracted Gestation

S. ZOCCHI (*Ann. di Ostet. e Ginecol.*, May, 1933, p. 617) from an analysis of some 7,500 cases has satisfied himself that pregnancy, as reckoned from the last day of the last menstruation, goes on for 300 days or longer in as many as 4.7 per cent. of cases, and for 306 days or longer in 2 per cent. His 300 cases included one of 340 days' and twenty-four of 321 to 335 days' gestation. Aetiologically, hereditary and individual peculiarity are connected with prolonged pregnancies, but the chief favouring factor is cessation of active life towards term. Of a thousand mothers who had rested in hospital some days before labour the gestation period was from 280 days upwards in 660, from 270 to 280 in 214, and below 270 in 126: the corresponding figures in a thousand women who had carried on their work to the commencement of labour were 482, 279, and 270. The sex of the foetus

and its mode of presentation had no effect on the duration of labour; this was somewhat longer and more difficult after the longer pregnancies. Foetal mortality did not appear in this series to be higher after long pregnancy; so that, it is concluded, in the absence of disproportion "overcarrying" does not in itself justify intervention, although it indicates the need for careful supervision of the patient.

162 Radiation in Cancer of the Female Pelvis

CONSTANCE E. D'ARCY and LEILA KEATINGE (*Med. Journ. of Australia*, May 6th, 1933, p. 553) give their experiences of radiation in cancer of the female pelvis. For carcinoma of the vulva the authors advocate *x*-radiation of the whole vulval area and gland drainage. After an interval of three or four months, according to the type of reaction produced, a radical operation is performed for the removal in one mass of the whole of the vulva and gland drainage area. Cancer of the body of the uterus is treated by hysterectomy, followed by a course of post-operative radiation. The authors believe that post-operative radiation offers a better chance of recovery. In ovarian cancer they recommend the removal of as much as possible of the primary growth by surgery: subsequent radiation not only prolongs life to optimistic limits, but in some cases accomplishes a cure. The treatment of cancer of the cervix is discussed at length. Radium applications are made use of first, tubes being placed in the uterus and in each lateral fornix. These are left in for six days, making a total dose of 5,760 milligram-element-hours. A course of deep *x*-ray therapy is commenced within one to two weeks after the removal of the radium. The following technique is used: 200 kilovolts, 15 milliamperes, 50 cm. focal skin distance, through four oblique ports of entry, using 2 mm. of copper filtration. Patients are treated daily, or every second day, according to the reaction produced, until 1,600 r have been delivered to the skin of each of the four areas. Two months' rest is then taken, at the end of which time they report for examination: monthly to three-monthly intervals are given. At the end of four to six months a similar course is delivered. The authors feel strongly that increased filtration is necessary in dealing with these cases, both for the radium and also for the *x* rays. In the latter case an attempt is made to deliver the shorter waves by increasing the voltage, and all but the desirable ones are cut out by filtration up to 3 mm. of copper.

Pathology

163 The Virus of Influenza

A. R. DOCHEZ, K. C. MILLS, and Y. KNEELAND (*Proc. Soc. Exp. Biol. and Med.*, May, 1933, p. 1017) bring evidence that influenza is due to a filterable agent transmissible in tissue culture. In February, 1932, a culture was made in chick embryo medium of the filtered nasopharyngeal washings of an acute case of influenza. Subcultures were made every three to four days. The nineteenth generation was inoculated intranasally into two volunteers; both developed symptoms of an acute common cold. The same two volunteers were reinoculated three weeks later with the twenty-fifth generation, and again responded with symptoms of the common cold, though of less severity than before. With a later generation five more volunteers were inoculated; four of these developed symptoms of a mild common cold. In the summer of 1932 the strain was transferred to London, where it was used by Dr. C. H. Andrewes for the inoculation of seventeen volunteers, but without much success. Only two of his subjects responded, and, since colds were prevalent at the time and isolation had not been practised, no definite conclusions could be drawn from the experiment. The strain was returned to the United States, and the fifty-seventh, sixty-fifth, eightieth, and eighty-third generations were used for the inoculation of a total of ten volunteers, all of whom developed inflammatory disturbance of the upper respiratory tract. A fresh strain was obtained from an acute case of influenza in January, 1933. The eighteenth generation of this was inoculated into two volunteers, both of whom developed a severe reaction. So far it has not proved possible to distinguish this filterable agent from the virus of the common cold; but the experiments, particularly those carried on for eleven months with the first strain, lead the authors to conclude that a filterable agent has been cultivated from influenza patients.

164 Smoking and the Carbon Monoxide Content of the Blood

H. B. HANSON and A. B. HASTINGS (*Journ. Amer. Med. Assoc.*, May 13th, 1933, p. 1481) have confirmed by independent investigations the suggestion of Gettler and Mattice that smoking is apt to be the most conspicuous factor in determining the carboxyhaemoglobin of a person under normal conditions when he is not exposed to obviously high percentages of carbon monoxide. In a small series of non-smokers the haemoglobin was found to have a 1.5 per cent. carbon monoxide saturation. In a series of smokers the percentage was found to range from 3 to 4, but no symptoms attributable to this fact were detected. One pipe smoker had a saturation between 3.8 and 4.1 per cent. after ten pipe-loads. A sample of his blood, tested in the morning twelve hours after his last smoke, showed a decrease in saturation to 2 per cent. This was not significantly changed six hours later without smoking in the intervening period. Analyses of the carbon monoxide content of venous blood were made by means of the van Slyke manometric blood gas apparatus, according to the technique of Sendroy and Liu. Gasometric determinations of the oxygen capacity of the blood were also made in order that the relative percentage of carbon monoxide could be ascertained.

165 Disease Associated with B. proteus

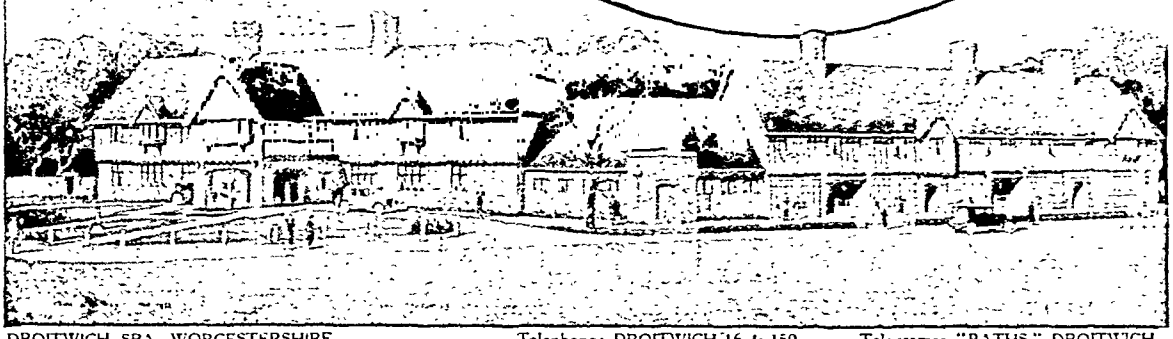
J. VAN HOEDEN (*Nederl. Tijdschr. v. Geneesk.*, May 27th, 1933, p. 2407) states that among eleven patients with *B. proteus* agglutinins in their serum the organism was cultivated from the blood in four, the cerebro-spinal fluid in two, the pus of empyema in one, the middle ear in one, and the urine in four. Although it was impossible to decide whether *B. proteus* actually caused the disease in every case or merely played a secondary part, the presence of antibodies in any case was strongly in favour of its pathogenicity. One patient, in whom the organism was present in the blood stream, made a complete recovery. Although the serum of most of the patients caused agglutination of the Weil-Felix X 19 strain, they could easily be distinguished from typhus cases by the coarse type of flocculation and by the presence of heat-stable agglutinins. Most of the strains belonged to the species *proteus vulgaris*, and produced indol contrary to the experience of previous observers.

166 The Ovaries in Pregnancy

H. BENAZZI (*Arch. di Sci. Biol.*, May, 1933, p. 409) carried out experiments showing that total ovariotomy in the guinea-pig performed from twenty-six to twenty-seven days after mating did not prevent the normal development of pregnancy, parturition, and lactation. These results, however, were not applicable to all mammals, as numerous observers have found that in other species, such as the rabbit and mouse, the presence of the ovaries is indispensable up to the end of pregnancy. Benazzi also made some observations on the corpus luteum of pregnant guinea-pigs and found that about the twenty-eighth to thirtieth day of pregnancy there was a considerable increase in their lipoid content. This agrees with the results obtained by other observers, who found that the largest accumulation of lipoids in the cells of the corpus luteum coincided with the decline of their functional activity.

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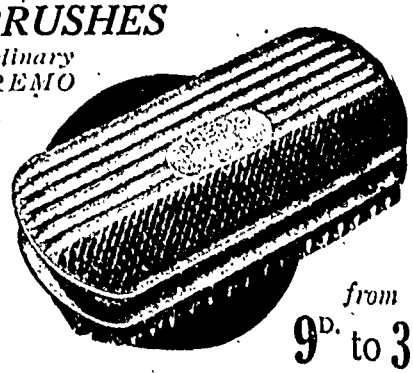
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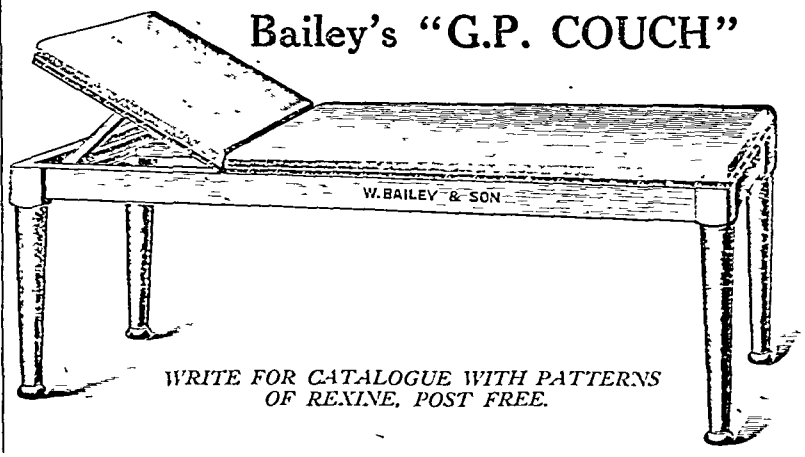
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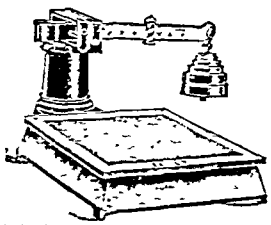
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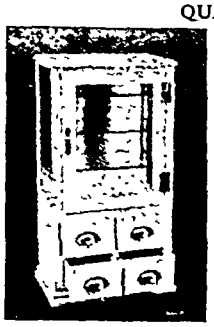
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Station: Eden Park (Southern Railway).

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Detached Villas standing in 12 acres of ornamental grounds, with tennis courts, etc., which Voluntary, Temporary or Certified Patients may visit, by arrangement, for long or short periods.

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PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." **Telephone: Rodney 4741-4742.**

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Certified voluntary and temporary patients are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis Courts. Entertainments, dances, and indoor amusements held throughout the year. Terms from £3 3s. per week.
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This REGISTERED HOSPITAL, with a SEASIDE BRANCH at Colwyn Bay, N. Wales, is for the treatment and care of those of the Upper and Middle Classes suffering from MENTAL and NERVOUS DISEASES.
The Hospital is governed by a COMMITTEE, appointed by the TRUSTEES of the Manchester Royal Infirmary.
In addition to the Main Building there are separate villas. Extensive grounds. Hard and grass tennis courts, cricket and croquet grounds, and a court for badminton. There are also wireless installations. Golf may be had within easy distance. Occupational Therapy.
VOLUNTARY, TEMPORARY, AND CERTIFIED PATIENTS received.
The Hospital is nine miles from Manchester, 50 minutes by rail from Liverpool, and 3¼ hours from London.
For terms and further particulars apply to the Medical Superintendent, J. A. C. ROY, M.B., who may be seen in Manchester by APPOINTMENT.
Telephone: GATLEY 2231 (3 lines).

NORTHUMBERLAND HOUSE,

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Telegrams: "SUBSIDIARY, LONDON." *Telephone*: NORTH 0939.

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Conveniently situated four miles from Charing Cross. Easy access from all parts. Six acres of ground highly situated, facing Finsbury Park. Private Suites. Voluntary Patients and Temporary Patients received without certification.

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An illustrated Prospectus, giving fees which are strictly moderate, may be obtained upon application to the Secretary.
The Convalescent Branch is HOVE VILLA, BRIGHTON, and is 200 feet above sea-level.

DARTMOOR CONVALESCENT HOME. 750 FEET ABOVE SEA-LEVEL

Established 1905 for Treatment of Pulmonary and other forms of Tuberculosis. Sheltered Situation on the slopes of the bracing moorland. Radiographic Installation. Electric Light. Central Heating. Separate Bedrooms. Efficient Treatment combined with individual comfort and minimum restrictions. Illustrated Prospectus on request to the Resident Physician: C. H. BERRY, M.R.C.S., L.R.C.P., Torr House, Chagford, Devonshire *Telephone*: 11 CHAGFORD. *Telegrams*: TORR, CHAGFORD.

HARROGATE

for the Treatment of GOUT, RHEUMATISM, ARTHRITIS, FIBROSITIS, NEURITIS, ARTERIO-SCLEROSIS and HYPERPIESIS, Diseases of the LIVER and GALL BLADDER, GASTRIC CATARRH and COLITIS, SKIN DISEASES, ANAEMIA, and Convalescence from Acute Illness.

SULPHUR, Saline Iron and Pure Chalybeate waters, together with the presence of large deposits of Volcanic Mud, enable Harrogate to offer every facility for the cure of an unusually wide range of the diseases amenable to Spa Treatment.

The Harrogate Royal Baths, housed in one of the finest Spa buildings in Europe, are equipped with the most modern apparatus for all forms of Physiotherapy.

THE "CURE" is taken in a holiday environment: three golf courses, putting greens, hard tennis court, swimming baths, beautiful gardens and moorlands encourage sport and exercise. First-class hotels, hydros, boarding houses and private apartments meet all requirements for accommodation.

Harrogate is an ideal holiday centre and is surrounded by some of the most beautiful scenery in England.

Members of the Medical Profession are asked to write for particulars of Complimentary Facilities to :—

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General Manager, 3, The Royal Baths, Harrogate.

TOR-NA-DEE SANATORIUM

MURTLE DEESIDE ABERDEENSHIRE

FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS

Managing Director DAVID LAWSON, M.D., F.R.S.E.

Southern aspect Low rainfall Pure bracing air. Sheltered grounds Beautiful surroundings All modern equipment for diagnosis and treatment, including operating theatre No extra charge for X Rays, Artificial Pneumothorax, Ultra-Violet Light, or other special treatment.

Day and night Nursing Staff All bedrooms have central heating, electric light, hot and cold running water, and wireless (headphones) Comfortable and airy public rooms

Medical Superintendent, J. M. JOHNSTON, M.B., M.R.C.S., D.P.H. For full particulars and prospectus apply to the Secretary

Inclusive Terms: SEVEN GUINEAS A WEEK.

PENDYFFRYN HALL SANATORIUM

PENMAENMAWR.

Established 1900 for the treatment of Tuberculosis Miles of carefully graduated walks through pine clad hills, with sea and mountain views Modern treatment, including ARTIFICIAL PNEUMOTHORAX, SANOCRYSIN, etc X ray plant, electric light, central heating, wireless Special milk supply from tuberculin tested herd Full day and night nursing staff. On L.M.S. Main Line to Holyhead 4½ hours from London Resident Physicians DENNISON PICKERING, M.D. (Cantab), J. A. HENNESEY, M.B., Ch.B., Matron Miss S. A. EDDY, S.R.N., Late Sister in Charge, Royal Hospital Annexe, Sheffield

For particulars apply to the SECRETARY, Pendyffryn Hall, Penmaenmawr, N. Wales ('Phone, 20)

THE COTSWOLD SANATORIUM

First opened in 1898 and rebuilt in 1925. On the Cotswold Hills, seven miles from Cheltenham, for the treatment of Pulmonary and all other forms of Tuberculosis Aspect S.S.W., sheltered from North and East, elevation 800 feet. Pure bracing air. Special Treatment by artificial Pneumothorax (X-ray controlled), Tuberculins and Ultra-violet Rays is available, when necessary, without extra charge. X-ray plant. Electric light. Radiators, hot and cold basins, and Wireless in all rooms

Full day and night Nursing Staff

Medical Superintendent: GEOFFREY A. HOFFMAN, B.A., M.B., T.C.Dub. *Assistant Physician*: MARGARET A. HARRISON, M.B., B.S. Lond.
Consulting Tuberculosis Physician: SIDNEY BERNSTEIN, M.R.C.S. Eng., L.R.C.P. Lond. (Attends Regularly).

Apply, The Secretary, The Cotswold Sanatorium, Cranham, Gloucester *Telephone*: 41 WITCOMBE. *Telegrams*: HOFFMAN, BIRDLIP.



KINGUSSIE, N.B.

THE GRAMPIAN SANATORIUM.

Situated in the upper Speyside district of Inverness-shire. One of the highest inhabited districts in Britain—"The Switzerland of the British Isles." Bracing and dry mountain climate. Well sheltered Sanatorium specially built for the Open-air Treatment of Tuberculosis. Opened in 1901. Elevation 860 ft. above sea-level. Electric light throughout buildings and in tent shelters. Central heating. Fully equipped X-ray Plant. All forms of treatment available, including Artificial Pneumothorax and Ultra-Violet Rays for surgical cases of Tuberculosis. Terms: £4 7s. 6d. to £6 6s. per week inclusive. No extras.

MEDICAL SUPT.: FELIX SAVY, M.D. For particulars apply to the Secretary.

HOSPITAL FOR CONSUMPTION
AND DISEASES OF THE CHEST, BROMPTON, and FRIMLEY SANATORIUM.

PAYING PATIENTS RECEIVED.

BOTH MEDICAL and SURGICAL CASES.

4 to 8 guineas per week at the Hospital. 3 to 4 guineas per week at the Sanatorium.

APPLY TO THE SECRETARY:—BROMPTON HOSPITAL, S.W.3.

THE VICTORIA, BRITISH SANATORIUM

DAVOS, SWITZERLAND. Altitude 5,200 feet.

For the treatment of all forms of Tuberculosis, and for reconvalescents.

Reduced Terms.

Details from the Medical Superintendent,

B. HUDSON, M.A., M.D., M.R.C.P., Swiss Federal Diploma, or the Manager, A. KUHN.

A comfortable London Hotel, convenient for Harley Street and Nursing Homes.

THE CLIFTON HOTEL,

WELBECK STREET, LONDON, W.1,

gives comfort, service, and cuisine equal to larger hotels at less cost. Bedrooms with hot and cold water and telephones. Centrally situated, close to Harley Street and Nursing Homes.

Grams: Cliflinton, London. *Tel.*: Welbeck 6881

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For LADIES and GENTLEMEN of Unsound Mind, with or without certificates. Terms moderate. Apply Resident Physician.

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Telephone: No. 2 Malling.

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A private Home [illegible] treatment of a limited numb [illegible] afflicted. Voluntary and [illegible] received under the New [illegible] ...t, 1930. —Medical Superintendent, Dr. MCCLINTOCK.

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Ladies and Gentlemen received for treatment under certificates, and without certification, as either VOLUNTARY or TEMPORARY PATIENTS, at a weekly fee of TWO GUINEAS and upwards.

Tel. and Telegrams: "Haynes, Brentwood, 45."

Littleton Hall, Brentwood, Essex.

Large grounds, 400 ft. above sea. HOME for ladies Mentally afflicted. Voluntary Boarders received. Station: Brentwood and Shenfield 1 mile. Liverp'l St. 26 min. Apply, Dr. HAYNES.

LANGHORNE NURSING HOME, POLWORTH ROAD, STREATHAM.

Maternity, Medical, Convalescent, and Aged. Inclusive terms. Every care, comfort, and consideration Inspection invited. Diet studied.—Apply, MATRON, Telephone: Streatham 3104.

F.R.C.S.(Edin.).

PREP COURSE with daily Lecture-Demonstrations of Museum Specimens of Surg., Path., for next Exam., will commence shortly. POSTAL TUITION at any time.—Further partics., H. C. ORRIN, F.R.C.S., Surgeons' Hall, Edinburgh.

GUY'S HOSPITAL MEDICAL SCHOOL, London Bridge, S.E.1.

A course of instruction in preparation for the FINAL EXAMINATION for the FELLOWSHIP OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND will commence on Monday, August 28th, 1933.

UNIVERSITY OF LONDON KING'S COLLEGE.

PRIMARY F.R.C.S.

A Course in ANATOMY and PHYSIOLOGY in preparation for the DECEMBER EXAMINATION, will commence on TUESDAY, OCTOBER 24th, 1933, and will continue until the date of the examination.

Fees for the Course: Twelve Guineas for both subjects, Eight Guineas for an individual subject.

Further particulars from the Dean of the Medical Faculty, King's College, Strand, W.C.2.

UNIVERSITY OF LONDON.

Applications are invited for the WILLIAM JULIUS MICKLE FELLOWSHIP, which is of the value of at least £200, and is awarded by the Senate to the man or woman who, being resident in London and a graduate of the University, has, in the opinion of the Senate, done most to advance Medical Art or Science within the preceding five years. Applications must be made before October 1st, 1933. Further particulars can be obtained from the Academic Registrar, University of London, South Kensington, S.W.7.

July 7th, 1933.

UNIVERSITY OF LONDON KING'S COLLEGE.

REVISION COURSES in ANATOMY and PHYSIOLOGY will be held during SEPTEMBER, commencing on Monday, September 4th, 1933.

Fee for each subject £3 3s.

Applications for admission should be addressed to the Dean of the Medical Faculty, King's College, Strand, W.C.2.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

The next ordinary PROFESSIONAL EXAMINATION for the MEMBERSHIP will commence on Friday, October 13th, 1933.

Candidates are required to give twenty-one days' notice, in writing, to the Registrar of the College, to whom all certificates and testimonials required by the By-laws must be sent at the same time.

Candidates who propose to submit published work under the regulations now in force are required to give twenty-eight days' notice, and should apply in writing to the Registrar, without delay, for detailed instructions as to the procedure they should follow.

RAYMOND CRAWFURD, M.D.,
Registrar.
Pall Mall East, S.W.1.

UNIVERSITY OF LONDON, UNIVERSITY COLLEGE.

(University Centre for Medical Sciences.)

FACULTY OF MEDICAL SCIENCES.

Anatomy.—G. ELLIOT SMITH, M.A., M.D., Litt.D., D.Sc., Ch.M., F.R.C.P., F.R.S., Professor; J. P. HILL, D.Sc., F.R.S., Professor of Embryology. (Vice-Dean.)

Biochemistry.—J. C. DRUMMOND, D.Sc., Professor.

Botany.—T. G. HILL, D.Sc., A.R.C.S., Professor of Plant Physiology, and E. J. SALISBURY, D.Sc., Quain Professor.

Chemistry.—F. G. DONNAN, C.B.E., M.A., LL.D., Ph.D., D.Sc., F.R.S., Professor; C. K. INGOLD, D.Sc., F.R.S., Professor.

History of Medicine.—C. SINGER, M.D., D.Litt., F.R.C.P., Professor.

Pharmacology.—E. B. VERNEY, M.A., M.B., B.Ch., F.R.C.P., M.R.C.S., Professor. (Dean.)

Physics.—E. N. DA C. ANDRADE, D.Sc., Ph.D., Quain Professor.

Physiology.—C. A. LOVATT EVANS, D.Sc., F.R.C.P., M.R.C.S., F.R.S., Jodrell Professor.

Zoology and Comparative Anatomy.—D. M. S. WATSON, D.Sc., F.R.S., Jodrell Professor.

The SESSION 1933-34 will begin on MONDAY, OCTOBER 2nd, 1933.

COURSES OF INSTRUCTION are arranged for the First Medical and the Second Medical Examinations of the University, as well as for the corresponding Examinations of the Examining Board of the Royal College of Physicians and Surgeons, and of other Licensing Bodies.

Facilities for POST-GRADUATE and RESEARCH WORK are provided in all Departments named above. The Department of Anatomy provides also for research in ANTHROPOLOGY, EMBRYOLOGY, HISTOLOGY, and NEUROLOGY.

The Department of Anatomy has cinematographic and radiological equipment for the study of animal movements.

COURSES FOR THE PRIMARY FELLOWSHIP EXAMINATION, R.C.S., begin in September, 1933, and March, 1934.

C. O. G. DOUIE, Secretary.
University College, London (Gower St., W.C.1.)

UNIVERSITY OF LONDON, KING'S COLLEGE.

FACULTY OF MEDICAL SCIENCE.

The Medical Faculty of this College of the University gives instruction in the subjects of Medical Science for all the usual Preliminary and Intermediate Examinations in Medicine and Surgery and Dentistry. Through the four associated hospitals, students of the College have clinical facility of over 1,000 beds, but they may also proceed to any other teaching Hospital in London for final studies for the degrees of the University of London.

The Medical Faculty of the College provides a general University education in touch with other Faculties, classes of which medical students are permitted to attend. There are many College societies, clubs, and functions in which students of all Faculties have opportunity of meeting each other. The College has a large athletic ground at Mitcham, upon which there has recently been erected a new pavilion.

The First Year subjects are taught in the large Departments of the Faculty of Science, and those for the Second and Third Years in the new Medical Department which was opened recently. This consists of the Hambleden Department of Anatomy and an extension to the Department of Physiology, at a cost of £70,000. These new buildings and those of recent years provide the College with a completely new and modern Medical Department which embodies the newest ideas in laboratory construction and equipment.

Valuable Scholarships and Prizes are awarded on the results of examinations held annually.

The hostel for men students (King's College Hall, Champion Hill, S.E.5) contains accommodation for 80 students. The hostel for women students is at 58, Queensborough Terrace, Bayswater.

For detailed prospectus of the Medical and Dental Courses and for further information apply to the Dean, Prof. R. J. S. McDowall, D.Sc., M.B., Ch.B., F.R.C.P.(Edin.), or to

S. T. SHOVELTON, M.A., Secretary.
Strand, W.C.2.

Westminster Medical Hospital School (University of London)

NEXT TERM COMMENCES OCTOBER 2nd.

Valuable Entrance Scholarships are awarded annually. Hospital Centrally Situated (opposite Westminster Abbey). Extensive Sports Ground. Entrance Fee £10 10s. Annual Composition Fee £42.

The Dean or Sub-Dean will be pleased to arrange for intending students and parents to inspect the Hospital and Medical School at any time. Only male students are admitted.

A Prospectus and full particulars may be obtained on application to the Dean: SIR STANLEY WOODWARK, M.D., F.R.C.P., Westminster Hospital Medical School, Caxton Street, S.W.1. Telephone: Victoria 0765.

LONDON HOSPITAL MEDICAL COLLEGE AND DENTAL SCHOOL.

THE WINTER SESSION will open on MONDAY, OCTOBER 2nd.

THE HOSPITAL is the largest in England. There are 843 beds in constant use. Last year, In patients, 14,634, Out patients, 101,242 (attendances 501,408); Dental patients, 6,113; Major operations, 7,708

THE MEDICAL COLLEGE AND DENTAL SCHOOL are essentially modern, with large laboratories equipped with the latest and most approved appliances.

VALUABLE SCHOLARSHIPS AND PRIZES are awarded annually, including four Open Entrance Scholarships and a Scholarship to Students of the Universities of Oxford and Cambridge.

RESEARCH FUNDS of approximately £113,000 give unrivalled facilities for medical research

APPOINTMENTS.—Over 160 appointments are made annually from Students of the College recently qualified

SPECIAL COURSES are held for all the University Examinations for the Primary and Final Fellowship Examinations of the Royal College of Surgeons, and for the Membership Examinations of the Royal College of Physicians.

HOSPITAL PRACTICE.—Exceptional opportunities are offered to qualified Practitioners wishing to attend the General Practice or the Practice of a Special Department of the Hospital.

Club's Union, Athletic Ground of 13 acres, Students' Hostel, etc.

For prospectus and particulars, apply to the Dean (Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S.), who will be pleased to make arrangements for anyone wishing to see the Medical College and Dental School Mile End, E.1

BRYN SCHOOL, DOLGELLEY, and PETTON HALL, BURLTON, SALOP,

Offers special care and tuition for BACKWARD OR NERVOUS BOYS of any age Fees moderate

For further particulars apply The Secretary.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE

(UNIVERSITY OF LIVERPOOL)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 2nd, 1933, and January 3rd, 1934, and for the Diploma in Tropical Hygiene on January 11th and April 26th, 1934 (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars, apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool

M.D. THESIS

(Camb., Edin., Glas., Durham, &c.)

SKILLED COACHING, GUIDANCE, and ADVICE from Special Tutors, in conformity with the Regulations of the various Universities.

Apply for particulars and free booklet, "Hints on Writing a Thesis for the M.D. Degree," to the SECRETARY, Medical Correspondence College, 19, Wedbeck Street, London, W.1.

MIDDLESEX HOSPITAL MEDICAL SCHOOL

LONDON, W.1.
(UNIVERSITY OF LONDON.)

PRIMARY F.R.C.S. EXAMINATION.

The next Course will begin on September 4th, under the direction of —
Professor T. YEATES.
Professor SAMSON WRIGHT.
Professor E. C. DODDS.
Dr. J. H. WOODGER.

FEE.—20 guineas.

Applications for admission should be made to the School Secretary, Middlesex Hospital, London, W.1.

LONDON HOSPITAL MEDICAL COLLEGE.

F.R.C.S.

A COURSE OF INSTRUCTION for the Final Fellowship Examination will begin on Monday, September 4th

Fees: (exclusive of Operative Surgery) 25 guineas. Operative Surgery 10 guineas

A separate entry can be made for all Classes other than those of a strictly Clinical character.

Further particulars may be obtained from Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., Dean, London Hospital Medical College, Mile End, E.1.

LONDON HOSPITAL MEDICAL COLLEGE.

Primary Fellowship Examination.

A COURSE OF INSTRUCTION for the above Examination will begin on Monday, Sept. 4th.

The Fee for the Course is 15 guineas.

Further particulars may be obtained from Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., Dean, Mile End, E.1.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The office of CONSERVATOR of the Museum and DIRECTOR OF RESEARCH of the College having become vacant by the resignation of Sir Arthur Keith, the Council INVITE APPLICATIONS for the appointment. Candidates should transmit to the Secretary, on or before October 7th, 1933, their applications, accompanied by a statement of their qualifications and the names of three persons to whom reference may be made.

Particulars relating to the appointment may be obtained on application to the Secretary.

NORTH-EAST LONDON POST-GRADUATE COLLEGE.

PRINCE OF WALES'S GENERAL HOSPITAL, N.15

The Practice of the Hospital is limited to Medical Practitioners. Particulars from J. BROWNING ALEXANDER, M.D., Dean.

UNIVERSITY EXAMINATION POSTAL INSTITUTION

17, RED LION SQ., LONDON, W.C.1.
(FOUNDED IN 1882.)

Principal: Mr E. S. WEYMOUTH, M.A. (Lond.).
POSTAL OR ORAL PREPARATION FOR ALL MEDICAL EXAMINATIONS.

SOME SUCCESSES:

M.D.(Lond.),	1901-32 (9 Gold Medallists during 1913-32)	368
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M.B., B.S.(Lond), *Final*	1918-32 (Completed Exam.)	206
F.R.C.S.(Eng.), *Primary*	1919-32	146
	Final	155
M.R.C.P.(Lond.),	1919-32	215
D.P.H.	(*Various*) 1906-32 (Completed Exam.)	316
F.R.C.S.(Edin.),	1918-32	53
M.R.C.S., L.R.C.P. *Final*	1919-32 (Completed Exam.)	456
M.D.	Various By Thesis.	Numerous successes

Preparation for the above, also for Medical Preliminary, and all examinations leading up to M.R.C.S., L.R.C.P., or M.B. of various Universities, also for M.R.C.P.(Edin.), D.P.M., D.O.M.S., D.T.M. & H., D.L.O., D.G.O., D.M.R.E., M.M.S.A., L.M.S.S.A., etc. Many successes.

ORAL CLASSES.

M.R.C.P., M.D., Primary and Final F.R.C.S., F.R.C.S.(Edin.), also Final M.B., B.S., and M.R.C.S., L.R.C.P. Museum and Microscope Work. Also Private Tuition.

MEDICAL PROSPECTUS (48pp.)

CONTENTS.—The method and the cost of entering the Medical Profession. *Particulars of all Medical Examinations*, Postal Courses, and Oral Classes. Suggestions for the Higher Medical Examinations. Suggestions for the Higher Surgical Examinations. Suggestions for the Special Diploma Examinations. Refresher Courses. Openings for Women. Hints for writing theses.

Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, Mr. E. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6313.)

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1882. Cases, non-resident, treated at 39, Earl's Court Square, S.W.5, and in residence, in the Summer holidays, at Miss BEHNKE'S house on the Chilterns

"Pre-eminent success in the education and treatment [illegible] "—"Times." "—"Lancet." and perfectly [illegible]

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POST GRADUATE STUDY

The Medical Correspondence College provides ample facilities, under *highly* qualified tutors, for oral, practical, and clinical instruction in preparation for the various higher qualifications, and for Post-Graduate Study irrespective of any examination.

Diploma in Psychological Medicine.
Diploma in Ophthalmology.
Diploma in Radiology.
Diploma in Laryngology, Otology, and Rhinology.
Diploma in Public Health.
Diploma in Tropical Medicine.
F.R.C.S.Eng., and all higher Surgical Examinations.
M.R.C.P.Lond., and all higher Medical Examinations.
M.D. Thesis of all Universities.

You can qualify for any of the above by our Courses of Combined Postal and Practical Courses.

Write at once stating your requirements to the Secretary, MEDICAL CORRESPONDENCE COLLEGE, 19, Welbeck Street, W.1.

WE SPECIALIZE IN POST-GRADUATE COACHING FOR ALL EXAMINATIONS.

THE POLYTECHNIC,
REGENT STREET, W.1,
DEPARTMENT OF CHEMISTRY.

Head of Department: H. LAMBOURNE, M.A., M.Sc., F.I.C.

DAY COURSE in CHEMISTRY, PHYSICS, and BIOLOGY, and EVENING COURSE in CHEMISTRY and PHYSICS.

For the PRE-MEDICAL EXAMINATION of the CONJOINT BOARD.

New term commences:
Day - - September 19th, 1933.
Evening - - September 25th, 1933.

Fee to London Students:
Day - - £8 8s. per term.
Evening - £2 2s. per term.

Early application should be made to the Director of Education.

DERBYSHIRE COUNTY COUNCIL.

LOCUM FOR ORTHOPAEDIC HOSPITAL.

Applications are invited for the post of LOCUM RESIDENT ASSISTANT MEDICAL OFFICER at BRETBY HALL ORTHOPAEDIC HOSPITAL, near Burton-on-Trent (132 beds—32 adult and 100 children) commencing September 2nd. Salary at the rate of £350 per annum, with board, lodging, etc. Experience in Orthopaedic work essential.

Applications, together with copies of two recent testimonials, to be received by the undersigned on or before Wednesday, Aug. 30th.

New County Offices, W. M. ASH,
St. Mary's Gate, County Medical Officer
Derby. Aug. 21st, 1933. of Health.

EXPERIENCED COACHING IN PHYSIOLOGY, PATHOLOGY, MEDICINE, by M.B., B.S. (Lond.), M.R.C.P. (Lond.), B.Sc. honours Physiology (Lond.). All examinations. Classes commencing in London.—Address, No. 6220, B.M.A. House, Tavistock Square, W.C.1.

STROUD GENERAL HOSPITAL, STROUD, GLOS.

HOUSE SURGEON (male or female) required. Candidates must be fully qualified and duly registered. Salary £150 per annum, with board, residence, and laundry. Applications, stating nationality, with copies of testimonials, to be sent to the undersigned from whom further information may be obtained.

C. FORD SPENCER, Secretary.

UNIVERSITY OF DUBLIN.
TRINITY COLLEGE,
SCHOOL OF PHYSIC.

The usual Three Weeks' POST-GRADUATE COURSE for General Practitioners will be given this Autumn from Sept. 18th to October 7th. The Course will include clinical instruction in Surgery, Medicine, Obstetrics, Orthopaedics, Laryngology, Ophthalmology, and Diseases of the Skin. Laboratory instruction will be given each afternoon in the Medical School in Anatomy, Physiology, Pathology and Bacteriology. There will also be demonstrations on the use of the Electrocardiograph and the use of Radium, and lectures on Medicine and Therapeutics.

For further particulars apply to—

A. FRANCIS DIXON,
School of Physic, Trinity College, Dublin.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN
(UNIVERSITY OF LONDON),
Hunter Street, Brunswick Square, W.C.1.

Full Courses are arranged for the London M.B., B.S. Degrees, and the Examinations of other qualifying bodies. The Clinical Course is pursued at the Royal Free Hospital. Arrangements are also made for students to attend the practice of certain Special Hospitals.

Appointments at Hospital and Medical School are open to students after qualification.

Scholarships, Bursaries, and Prizes of the value of £1,950 are awarded annually.

Residence arrangements are made for students in the Students Chambers connected with the School.

The Session begins on October 1st each year.

Prospectus and full information can be obtained from the Warden & Secretary.

ELIZABETH BOLTON, M.D., B.S.,
Dean.

LANCASHIRE COUNTY COUNCIL.

PARK HOSPITAL, DAVYHULME, near MANCHESTER.

APPOINTMENT OF JUNIOR RESIDENT MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners for the appointment of Junior Resident Medical Officer at the above Hospital. Candidates must be unmarried.

Preference will be given to applicants having experience in Midwifery, Gynaecology, and Diseases of Children.

The appointment will, in the first instance, be for a period of six months, the successful applicant being eligible for re-appointment for a further period of six months at the end of that period.

The salary is at the rate of £200 per annum, subject to an emergency abatement, together with the usual residential allowances.

The Hospital comprises 500 beds.

Forms of application may be obtained from the County Medical Officer of Health, Public Assistance (Hospital and Medical) Department, County Offices, Preston, to whom all applications, accompanied by copies of not more than two recent testimonials, must be forwarded not later than Thursday, September 7th.

County Offices, GEORGE ETHERTON,
Preston. Clerk of the County Council.
August 21st, 1933.

COUNTY BOROUGH OF WALSALL.

MANOR HOSPITAL. (270 Beds.)

ASSISTANT MEDICAL OFFICER.

Applications are invited from duly qualified persons for the appointment of Junior Resident Assistant Medical Officer. The appointment, which is to commence on October 1st, will be for a period of twelve months, and the salary at the rate of £150 per annum, together with the usual residential emoluments.

The person appointed will be required to act under the general direction of the Medical Officer, from whom particulars of the appointment may be obtained.

Application, stating age, professional qualifications, and experience, accompanied by not more than three copies of recent testimonials, should be sent to the undersigned at once.

29, Leicester St., C. E. FOTHERGILL,
Walsall. Public Assistance Officer.
August 18th, 1933.

GOVERNMENT OF IRAQ.
ROYAL COLLEGE OF MEDICINE, BAGHDAD.

Six appointments will be made early in September next as follows:

PROFESSOR OF EPIDEMIOLOGY AND PUBLIC HEALTH.
PROFESSOR OF ANATOMY.
PROFESSOR OF BIOLOGY.
PROFESSOR OF MATERIA MEDICA.
PROFESSOR OF MENTAL DISEASES (INCLUDING NEUROLOGY).
PROFESSOR OF GYNAECOLOGY.

Duties in respect of the three last named appointments will include clinical work in Government Hospitals. Lectures are given in English. Terms of service, etc., may be obtained from the Iraqi Minister, 22, Queen's Gate, London, S.W.7, to whom all applications for appointment must be submitted not later than August 30th.

The Professors appointed will be required to take up their duties in Baghdad by the beginning of October next.

COUNTY BOROUGH OF WEST HAM.

PUBLIC ASSISTANCE COMMITTEE.

The Council invite applications for the appointment of ASSISTANT MEDICAL OFFICER at their CENTRAL HOME, Union Road, Leytonstone, at the salary of £350 per annum, rising by annual increments of £25 to a maximum of £450 per annum, with residential allowances, subject to the appropriate abatement in accordance with the resolutions of the Council for the time being in force, at present 2½ per cent. from the first £200, 3½ per cent. from the next £100, and 5 per cent. from the remainder.

Candidates must be fully qualified registered Medical Practitioners, and have had previous hospital experience, and the person appointed must give his whole time to the service of the Council, and will be required, should occasion arise, to act in any other Institution under the control of the Council.

The successful candidate will be required to pass a medical examination, and the appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the statutory contributions under the Act will be deducted from the salary; or to the Poor Law Officers Superannuation Act, 1896.

Forms upon which application must be made can be obtained from the Medical Officer of Health, Municipal Health Offices, No. 83, Romford Road, Stratford, E.15, and must be returned to the Town Clerk, Town Hall, West Ham, E.15, not later than September 2nd.

CHARLES E. CRANFIELD,
Public Assistance Offices, Town Clerk.
Union Road, Leytonstone, E.11.
August 15th, 1933.

COUNTY BOROUGH OF NEWPORT.

RESIDENT MEDICAL OFFICERS (Male).

Applications are invited from registered Medical Practitioners for the appointments of a SENIOR and a JUNIOR MEDICAL OFFICER (unmarried) at the Public Assistance Institution, Newport, Mon.

Salary: Senior £350 by £25 annually to £450; Junior £150 (annual appointment) with the usual emoluments. No extra fees.

Appointments terminable at three months' and one month's notice respectively on either side.

The Infirmary has 230 beds, with every facility for gaining experience in medicine, surgery, etc. The Infirmary is a recognised Training School for Nurses, and the successful Senior candidate will be required to give the necessary lectures.

The Senior appointee will contribute to a superannuation fund, pass a medical examination, and act in accordance with the provisions of the Public Assistance Orders.

Applications, stating age, experience, and qualifications, with copies of recent testimonials, to be forwarded to the Public Assistance Officer, Town Hall, Newport, by Sept. 1st.

Town Hall, O. TREHARNE MORGAN,
Newport, Mon. Town Clerk.

SWANSEA COUNTY BOROUGH.

INFECTIOUS DISEASES HOSPITAL.

RESIDENT MEDICAL OFFICER.

The Council invite applications for the above appointment from duly qualified unmarried medical practitioners. The salary will be at the rate of £350 per annum, together with emoluments. Previous experience in an Infectious Disease Hospital and in simple bacteriological technique is desirable. The appointment is for one year and not renewable.

Applications (on special forms with particulars of duties, can be obtained from the Medical Officer of Health, Public Health Offices, Swansea), to be sent in not later than September 5th

BRACEBRIDGE MENTAL HOSPITAL, NEAR LINCOLN.

THIRD ASSISTANT MEDICAL OFFICER.

The Committee of Visitors invite applications for the above whole-time appointment from gentlemen under 35 years of age, who are duly qualified and registered Medical Practitioners.

The commencing salary will be £350 per annum, plus the usual residential emoluments of board, lodging, laundry, and attendance, valued for superannuation purposes at £125 per annum. Subject to twelve months service satisfactory to the Committee, an increase of £25 will be granted and thereafter increases of £25 per annum up to a maximum salary of £450 per annum. An additional £50 per annum will be paid on obtaining the D.P.M.

The successful candidate will be required to pass satisfactorily a medical examination, and to join the scheme under the Asylum Officers Superannuation Act, 1909. The appointment is subject to one month's notice on either side.

Applications, stating full particulars of qualifications, experience, and appointments held, accompanied by copies of three recent testimonials, must be addressed to the Medical Superintendent, Bracebridge Mental Hospital, near Lincoln, so as to be received not later than September 4th.

ROYAL SALOP INFIRMARY, SHREWSBURY. (150 Beds.)

APPOINTMENT OF CASUALTY OFFICER AND RESIDENT ANAESTHETIST.

Applications are invited from fully qualified men for the appointment of Casualty Officer and Resident Anaesthetist vacant immediately. Salary £160 per annum, with board, residence, etc. The appointment is for six months in the first instance, subject to re-appointment for a further period of six months. Resident Staff comprises Resident Surgical Officer, House Physician, and Casualty Officer and Resident Anaesthetist.

Applications, stating age, qualifications, experience, nationality, and accompanied by copies of three recent testimonials, to be sent to the undersigned forthwith.

Board Room. J. W. NOBLE,
August 11th, 1933. Secretary-Supt.

HOSPITAL CONVALESCENT HOME, PARKWOOD, SWANLEY, KENT.
(For the reception of patients (women and children) in an early stage of convalescence from the London Hospitals.—120 Beds.)

The Trustees of the Hospital Convalescent Home invite applications for the post of LADY RESIDENT MEDICAL OFFICER, which will become vacant during October. The appointment is for a period of six months. The salary is at the rate of £200 per annum, with quarters and full board. Candidates should have had recent Hospital experience.

Applications, stating age, qualifications, and full details of experience, should be accompanied by copies of three recent testimonials, and addressed to C. M. POWER, ESQ., Secretary, Hospital Convalescent Home, c/o Westminster Hospital, Broad Sanctuary, London, S.W.1, on or before Thursday, September 7th.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.11. (121 Beds.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male). The post is that of Senior Resident Officer, and the work being chiefly Surgical. Preference will be given to candidates holding the F.R.C.S. qualification.

The appointment is for twelve months commencing on October 1st.

Salary £200 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, with copies of not more than three testimonials, should be sent to the undersigned on or before September 13th.

W. S. RANDOLPH BISS, Secretary Supt.

CHELMSFORD AND ESSEX HOSPITAL AND DISPENSARY, London Road, CHELMSFORD.

RESIDENT MEDICAL OFFICER required. Salary at the rate of £150 per annum, with board, lodging, and laundry. Hospital contains 120 beds. Applications to be sent to the Secretary, Chelmsford and Essex Hospital, not later than Monday, September 11th.

LOWESTOFT & NORTH SUFFOLK HOSPITAL.

ASSISTANT HOUSE SURGEON (Woman) required. Commencing salary £120 per annum, with board, residence, and laundry.

Applications, together with copies of three recent testimonials, to be sent to the Honorary Medical Superintendent.

BRISTOL GENERAL HOSPITAL.

SENIOR RESIDENT MEDICAL OFFICER (male). The Committee invites applications for this appointment. Salary at the rate of £200 per annum, with board, residence, etc., provided in the Hospital. Candidates must be registered under the Medical Acts, and produce testimonials of good personal character and ability. The duties attaching to the post are chiefly Surgical, but being also in part administrative, experience in this direction is therefore essential.

Applications, accompanied by copies of testimonials, three of which must preferably be given in support of the application, to be forwarded to the undersigned on or before Monday, September 18th next, from whom forms of application and copies of the duties may be obtained.

The Hospital contains 274 beds, and is a School of Medicine attached to the University of Bristol.

THOMAS W. GREGG, Secretary.

ST. PETER'S HOSPITAL FOR STONE, ETC., Henrietta Street, Covent Garden, W.C.2.

The office of HOUSE SURGEON will fall vacant on October 1st, and applications are invited from male candidates with previous experience in a similar office at a General Hospital. The salary offered is at the rate of £75 per annum, with board, lodging, and laundry.

At the expiration of six months' term of office, and subject to the recommendation of the Medical Committee, the House Surgeon is appointed Resident Surgical Officer for a further similar period. Candidates should therefore be prepared, if successful, to remain at the Hospital for twelve months in all.

Applications, accompanied by copies of testimonials, will be received by the undersigned not later than the first post on Tuesday, September 5th.

BEECHEY ROGERS, Secretary.

OCHIL HILLS SANATORIUM.

MEDICAL SUPERINTENDENT.

The Stirling, Dunfermline and Clackmannan Joint Sanatorium Board invite applications for the post of Resident Medical Superintendent at the Ochil Hills Sanatorium, near Milnathort. Salary £700 per annum, with board, rooms in Sanatorium, and laundry.

Applications, giving particulars of qualifications and experience, and stating when candidate can take up duty to be lodged with the Subscriber along with twenty-five copies of testimonials, on or before September 11th next.

County Offices, Viewforth, Stirling. JAMES LEARMONTH, Clerk to Joint Sanatorium Board.
August 18th, 1933

LEICESTER ROYAL INFIRMARY. (472 Beds.)

HOUSE SURGEONS, HOUSE PHYSICIANS, AND CASUALTY OFFICERS.

Vacancies are expected on October 1st for House Surgeons, House Physicians, and Casualty Officers. Salaries at the rate of £125 per annum. Applicants must have held a Resident Hospital post or had similar experience of Hospital work.

Appointment will be for six months, and will be made on September 13th. Applications should be forwarded on or before September 1st to the undersigned, accompanied by copies of three testimonials. HENRY T. PLOWMAN,
August 14th, 1933. Assistant Secretary.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

Applications are invited for the post of HOUSE SURGEON, vacant on October 15th.

The appointment is for nine months (six months as House Surgeon and three months as Casualty Officer). Salary at the rate of £70 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, should be sent to the undersigned by September 8th, from whom forms of application and rules can be obtained.

GILBERT G. PANTER, Secretary.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL.

Applications are invited for the posts of HOUSE SURGEON (TWO) male, for a period of six months commencing October 1st, renewable for a further period of six months on the recommendation of the Medical Board. £150 per annum, with full board, quarters, and laundry. Applicants should be registered Medical Practitioners and unmarried. Applications to be addressed to the House Governor, 234, Great Portland Street W.1, not later than Sept. 12th.

ROYAL MANCHESTER CHILDREN'S HOSPITAL, Out-patients' Department, GARTSIDE STREET, MANCHESTER.

Wanted, for the Out-patients' Department TWO ASSISTANT MEDICAL OFFICERS, non-resident, salary £150 per annum, who will be appointed for six months; one to commence duties on October 1st and one on November 1st. Candidates must be on the *Medical Register*. Particulars of the duties can be obtained from the Secretary. The hours of duty are from 9 a.m. till 1 p.m., or until the work of the Dispensary is finished. Patients' attendances number 84,000 per annum.

Applications, stating age, and accompanied by copies of not more than three testimonials, to be sent to the undersigned not later than Thursday, September 7th.

Canvassing directly or indirectly, may disqualify. By Order,
W. M. HUMPHRY, Secretary.

NORTHAMPTON GENERAL HOSPITAL. (253 Beds.)

There will be vacancies on October 1st next, for a HOUSE PHYSICIAN, TWO HOUSE SURGEONS, and ONE HOUSE SURGEON to the Ear, Nose, and Throat Department. British nationality. Salary £150 per annum, with board, residence, and laundry.

The successful candidates will be appointed for a period of six months, and will be eligible for re-election for a further period.

Candidates must be duly qualified and registered.

Applications, stating age, sex, qualifications, etc., with copies of testimonials, to reach the undersigned not later than first post on Wednesday, September 6th.

H. ST. JOHN WOOD,
August 21st, 1933. Secretary-Supt.

THE ROYAL INFIRMARY, SHEFFIELD. (500 Beds.)

OPEN APPOINTMENT.

Applications are invited for the post of CLINICAL ASSISTANT to the Medical Department, attached to which are 122 beds and a large Out-patient Department open daily. Salary £300 per annum, with £30 emoluments. Applicants must have had previous Hospital and Laboratory experience.

Applications, stating age, and giving particulars of qualifications, etc., should be submitted to the undersigned forthwith.

Board Room, JNO. W. BARNES, F.C.I.S.,
August 16th, 1933. Gen. Supt. & Sec.

WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.1

Applications are invited for the post of HONORARY ANAESTHETIST to the Hospital. Candidates must be registered medical practitioners and engaged exclusively in the administration of anaesthetics. Each candidate is required to transmit a certificate of his age, 40 copies of his application, with 40 copies of each of three testimonials to the undersigned not later than Friday, September 8th, and to attend the House Committee on Tuesday, September 12th, at 4 p.m.

By Order of the House Committee,
CHARLES M. POWER, Secretary.

ALBERT DOCK HOSPITAL, Connaught Road, E.16. (SEAMEN'S HOSPITAL SOCIETY.)

RESIDENT MEDICAL OFFICER required for six months from October 1st. Salary £110 per annum, and a proportion of fees, with board, residence, and laundry. Candidates must be male. Applications, with copies of three testimonials, to be sent in by September 6th to the undersigned.

Greenwich. R. E. V. BAX,
August 14th, 1933. Secretary.

BUTE HOSPITAL, LUTON.

HOUSE SURGEON (male) wanted to commence duty on September 1st. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, nationality, and experience, together with copies of not more than three recent testimonials, should be sent to the Secretary of the Medical Advisory Committee at the Hospital.

THE WEIR HOSPITAL, Grove Road, Balham, S.W.12.

JUNIOR RESIDENT MEDICAL OFFICER (male, unmarried) required at once. Candidates must be fully qualified and duly registered. Salary £150 per annum, with board, residence, and laundry. Applications, with testimonials, to be sent to the Secretary from whom further information may be obtained.

British Medical Journal
BRITISH MEDICAL ASSOCIATION HOUSE,
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YOU ARE INVITED TO VISIT THE CENTRAL RESEARCH CLINIC, 20/22, Chenies Street, W.C.1. A private hospital where General Practitioners find £20,000 worth of Equipment which they can use for the benefit of their patients and themselves.

ASSISTANCIES.

WANTED.—LADY OUTDOOR ASSISTANT IN large General Practice (Lancashire). Salary £330 p.a.; commission on midwiferies and operations. £48 p.a. upkeep of her own car. Excellent self-contained house, furnished large essentials. Free. *Usual bond.* Photo and references.—Address, No. 6003, B.M.A. House, Tavistock Square, W.C.1.

WANTED AT ONCE, MALE ASSISTANT, single, aged about 30, for panel and private Practice in pleasant South-west seaside resort. Salary £425, and car allowance. Good prospects.—Address, with references and photo, No. 6022, B.M.A. House, Tavistock Sq., W.C.1.

WANTED, EARLY SEPTEMBER, A reliable married ASSISTANT, large panel and private practice. Motorist essential. Salary £400 per annum and good unfurnished house. Car provided for practice. Usual bond.—No. 6230, B.M.A. House, Tavistock Sq., W.C.1.

WANTED.—INDOOR MALE ASSISTANT FOR seaside Practice. Commence September 5th or thereabouts. Irish or Scotch preferred. Used to sole charge. Salary £250 p.a. Usual bond. *Further parties. to suitable applicants.* —No. 6227, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — OUTDOOR ASSISTANT, Country Town (Cheshire), male, single, British or Irish. Saloon car for use in Practice. Dispenser kept. Usual bond. Salary according to experience. — Address, No. 6226, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—WOMAN ASSISTANT TO TWO women, with view to Partnership after six months, middle-class Practice, established over 25 years, good residential suburb, large town Lancashire. Prem. for 1/3 share £600.—No 6229, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — YOUNG MARRIED ASSISTANT for Colliery Practice, Co. Durham. House available. Commencing salary £550. Car expenses by arrangement. Age, experience, photo, nationality, reference. — Address, No. 6237, B.M.A. House, Tavistock Square, W.C.1.

WANTED, AN INDOOR ASSISTANT IN South Wales. Dispenser kept. Terms £325 per annum. Usual bond.—Address, stating age, references, etc., No. 6201, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — INDOOR ASSISTANT, SOUTH Wales, mixed Practice. Usual bond. Car, dispenser kept. £300 all *found*.—Address, giving full particulars, No. 6211, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY.—INDOOR AND *Outdoor* ASSISTANTS for Town and Country Practices, with and without view; good salaries. State full *particulars*.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

WANTED. — INDOOR MALE ASSISTANT, single, for South London private and panel practice. Salary £250—£300. Experienced G.P. and *midwifery* essential.—Address, No. 6202, B.M.A. House, Tavistock Sq., W.C.1.

ASSISTANT REQUIRED (MALE), LIVE IN. Panel and private Practice, near London. Please state height and other essential particulars, and photo. if possible.—Address, No. 6235, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT, WITH SMALL AMOUNT OF capital required; North London suburb. Salary for first twelve months £350, followed by Partnership. — Address, No. 6210, B.M.A. House, Tavistock Square, W.C.1.

M.B., B.CH., REQUIRES ASSISTANTSHIP with early view. Ex H.S., aged 27 years, married, keen, reliable, energetic, teetotal. Excellent testimonials. Drive car. Free now.—Address, No. 6215, B.M.A. House, Tavistock Square, W.C.1.

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WANTED.—LOCUM, SEPTEMBER 14th TO October 2nd for woman doctor; Midlands panel and private practice. Anaesthetics essential. Able drive car.—Address, stating experience, and other essential particulars, No. 6219, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—LOCUM TENENCY BY EXPERIenced Doctor, who has recently sold his Practice, *country preferred; fishing (especially trout)* most acceptable. Own car if desired. Graduate of Oxford University. — Address, No. 6206, B.M.A. House, Tavistock Sq., W.C.1.

LOCUM TENENCY REQUIRED BY M.B., Ch.B., wide experience private and panel practice; ex H.S. and H.P. Recent references. —Address, No. 6221, B.M.A. House, Tavistock Square, W.C.1.

LOCUM WANTED FOR TWO WEEKS FROM September 6th. Own car preferred. Seven guineas per week, board, etc. — Address, No. 6233, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIPS.

WANTED. — SMALL SHARE IN SOUND mixed Practice, by able, active, and successful practitioner. Recently disposed of Practice. Desirous of working another 8 or 10 years in congenial surroundings. Capital available. Branch acceptable, as Assistant if necessary.—Address, No. 6011, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — PARTNERSHIP BRINGING IN £1,500 per annum, by experienced general Practitioner, ex R.M.O., etc., in sound industrial and mixed practice. Preliminary Assistantship entertained.—Address, No. 6239, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — PARTNERSHIP BY F.R.C.S. Eng., age 30, ex R.S.O., experienced major surgery and G.P. Share about £1,500, with scope for surgery and hospital. Capital available.—Address, No. 6228, B.M.A. House, Tavistock Square, W.C.1.

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WANTED. — PART-TIME POST (INSTITUtional or G.P.), London, with facilities for P.-G. Classes; early October; Scottish M.B.; 6 years' hospital and G.P. experience.—Address, No. 6205, B.M.A. House, Tavistock Sq., W.C.1.

WANTED.—TEMPORARY WORK, LOCUMS, or short ASSISTANTSHIP by Medical Woman, 5 years' experience private and panel practice. Dispensing. Able to drive car.—Address, No. 6224, B.M.A. House, Tavistock Square, W.C.1.

A LADY DISPENSER - BOOKKEEPER supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations. — Write, wire, or 'phone (Bayswater 0969), Secretary, 7, Westbourne Park Road, W.2.

DOCTOR'S DAUGHTER, QUALIFIED DISpenser (Hall) urgently needs post as DISPENSER-BOOKKEEPER or failing that companion-chauffeuse in doctor's family. Anywhere in British Isles. Excellent references.—No. 6208, B.M.A. House, Tavistock Sq., W.C.1.

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GROUP CLINIC. — REQUIRED FOR GROUP Clinic in course of formation: DENTAL SURGEON and CARDIOLOGIST. All participants of the Group must be on the staff of a hospital. For full details, Address, No. 6001, B.M.A. House, Tavistock Square, W.C.1.

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PHYSIOLOGIST.

Applications are invited from experimental physiologists with research experience for the above post. Salary will be according to qualifications, *but not less than £600 per annum.* It is desired that duties should commence on October 1st.

Applications and testimonials (six copies) may be sent to the Chief Medical Officer, Imperial Chemical Industries, Ltd., Millbank, London, S.W.1, or to Mr. R. M. WINTER, Research Manager, I.C.I. (General Chemicals), Ltd., Cunard Building, Liverpool, 3, from whom further particulars may be obtained.

LADY DISPENSER, BOOK-KEEPER, RECEPtionist requires POST. Apothecary Hall Diploma. 5 years' experience private and panel, good reference, now free. In or near *London* preferred.—Address, No. 6213, B.M.A. House, Tavistock Square, W.C.1.

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THE HEADMASTER OF WORTH PREPARAtory School, near CRAWLEY, SUSSEX (Preparatory School for Downside), invites applications from medical practitioners practising within reasonable distance from the School, for the post of (part-time) MEDICAL OFFICER. Salary £125 per annum. Particulars of the duties and forms of application may be obtained from the Headmaster. Applications on the official forms to be sent in before Aug. 31st.

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Greenwich, August 14th, 1933. R. E. V. RAX, Secretary.

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ELLA K. MATTHEWS, Secretary.

SOUTHEND-ON-SEA GENERAL HOSPITAL.

Applications are invited for the post of CASUALTY OFFICER (male) for a period of three or six months commencing September 1st or near date. Salary £100 per annum, with board, residence, and laundry.
Applicants should state age, nationality, qualifications, and experience, and enclose copies of three testimonials to the Joint Secretaries at the Hospital not later than Wednesday, August 30th.

MACCLESFIELD GENERAL INFIRMARY.
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Applications are invited for the appointment of SECOND HOUSE SURGEON for a period of six months. Salary £150 per annum with board and residence. Candidates must have had experience in the administration of anæsthetics.
Applications, with copies of three testimonials, should be sent to the undersigned at once.
A. E. HANRAHAN, Secretary.

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JUNIOR HOUSE SURGEON (male) required to take up duties on October 1st. Salary at the rate of £100 per annum, with board, furnished apartments, and laundry. Candidates must be fully qualified, registered, and single. The appointment will be for six months, after which the successful candidate will be eligible for the senior post. Applications, stating age, experience, and copies of three recent testimonials, must be forwarded to the undersigned immediately.
RICHARD ALLEN, Secretary.

THE LONDON LOCK HOSPITAL,
91, Dean Street, Soho, London, W.1.

Applications are invited for the post of RESIDENT MEDICAL OFFICER to the male Departments. Candidates must be doubly qualified and duly registered. The appointment is for six months commencing September 15th. Salary at the rate of £175 per annum, furnished rooms at the Harrow Road Hospital, full board, and laundry.
Applications, enclosing copies (only) of three recent testimonials, to be in the hands of the undersigned by 10 a.m. Monday, September 11th, from whom a copy of the Bye-laws and any further particulars can be obtained.
By Order of the Board,
J. F. MORTON, Secretary.

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Canvassing either directly or indirectly, is not permitted
THOS A GARNER, Secretary

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The County Council of the West Riding of Yorkshire invite applications for the appointment of a SCHOOL OCULIST (of either sex) who will be required to act under the direction of the County Medical Officer
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County Hall, Wakefield J CHARLES McGRATH, Clerk of the County Council
August 1933

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Twelve copies of application and testimonials are required
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CO. DURHAM.—PRACTICE in residential and colliery district—10 minutes from the sea. Average cash receipts last 2 years £540. *Panel 380. Good freehold house,* 2 reception, 3 bedrooms, two garages. For sale at £900 or would rent on lease at £52 p.a. Premium—Practice—£500.—No. 489.

LARGE LANCS TOWN. — Very old-established middle-class PRACTICE, averaging last 2 years £3,647 p.a. Panel 500. Appointments £300 p.a. Partnership with succession in 12/18 months, suggested. Good semi-detached house, 3 reception, 6 bedrooms, garage, and garden. For sale, or would rent on lease. Vendor retiring. Premium 1½ years' purchase.—No. 464.

MANCHESTER.—Middle-class PRACTICE in residential suburb. Cash receipts last year £1,300. Panel 625. Nice house, 3 reception, 6 bedrooms, billiard room, large garden, and garage.—Premium—Practice—1½ years' purchase.—No. 322.

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MANCHESTER.—Mixed PRACTICE, averaging £1,000 p.a. Appointments (transferable) £200—£250 p.a. Panel 850 Good corner house, 2 reception, 3 bedrooms, 3 professional rooms; garage and small garden. Premium—Practice—1½ years' purchase.—No. 492.

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LARGE LANCS TOWN. — Nr. Manchester. — Small PRACTICE, capable of great increase. Cash receipts last year £442. Panel 150. Good corner house, 3 reception, 5 bedrooms, garage. Net rent £30 p.a. Premium £400. Vendor retiring.—No. 482.

MANCHESTER. — MIDDLE-CLASS PRACTICE in residential suburb. Average cash receipts £780. Panel 700. District *developing. Scope for increase.* Good house, 2 reception, 5 bed., garage, and garden. Prem.—Prac. and house—£2,000.—No. 483.

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NORTH-WEST COAST. — Large residential and seaside town. — Old-established PRACTICE. Cash receipts about £1,200 p.a. Panel 1,500. Excellent detached corner house (freehold), 3 professional rooms, 5 bedrooms, and 2 reception rooms, garage, and good garden for sale. Premium—Practice—1½ years' purchase.—No. 417

MANCHESTER — Old-established panel and private PRACTICE. Cash receipts last year £660. Panel 788. *Scope. Good corner* house, 2 reception, 4 bedrooms; garage. Rent £60 p.a. Premium 1½ years' purchase or near offer.—No. 437.

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All communications to be addressed to the Branch Manager, BRITISH MEDICAL BUREAU, 33, CROSS ST., MANCHESTER, 2.

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3 LONDON, S.E.—MIXED PRACTICE IN SUBURBAN DISTRICT in neighbourhood of Crystal Palace. Receipts average £680 p.a. Panel about 450. House contains 9 rooms, bathroom, kitchen, etc. Rent £65 p.a. on lease. Scope for increase. Prem. £900.

4 S. COAST.—A WELL-ESTABLISHED PRACTICE OVER £1,000 p.a. in popular Resort. Panel 850. Excellent scope. Premium two years' purchase.

5 BERKS.—A RAPIDLY INCREASING PRACTICE OF £800 P.A. in Residential Town on the Thames. Panel 370. Detached corner house (4 bedrooms) to rent. Premium £1,250.

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7 E. ANGLIA.—AN OLD-ESTABLISHED PRACTICE OF OVER £1,250 p.a. in country district about 60 miles from London. Panel 1,509. Excellent house (7 bedrooms) for sale. Premium one and half years' purchase.

8 NORTHUMBERLAND.—VERY OLD-ESTABLISHED PRACTICE of £1,800 p.a. in small Town in Agricultural District—near a good town. Panel 980. Good house (5 bedrooms) for sale. Premium one and half years' purchase.

9 LONDON, S.E.—OLD-ESTABLISHED PRACTICE OF £480 P.A. close to Crystal Palace. Panel 150. Excellent corner house (5 bedrooms) for sale. Premium £600.

10 MIDDLESEX.—A PROMISING NUCLEUS OF £250 P.A. IN out-lying Suburban District. New corner house (3 bedrooms) for sale. Exceptionally good prospects. Premium £125.

11 LONDON, W.—PRACTICE OF ABOUT £300 P.A. IN N. KENsington. Panel 200. Corner house to rent. Premium £475.

12 DORSET.—A WELL-ESTABLISHED PRACTICE OF £1,200 P.A. in beautiful District. Panel 1,060. Good house to rent. Premium two years' purchase.

13 CO. DURHAM.—PRACTICE OF £540 P.A. IN RESIDENTIAL Colliery District near Newcastle. Panel 380. Well-situated house (7 rooms), with good Surgery and Dispensary, for sale or rent. Scope for substantial increase. Premium only £500.

14 N.W. OF ENGLAND.—PARTNERSHIP (AFTER PRELIMINARY Assistantship) in Industrial Practice of about £2,500 p.a. Panel 2,000. English or Scotch. Premium for two-fifths share 1½ years' purchase.

15 N. MIDLANDS.—SMALL PRACTICE OF ABOUT £255 P.A. IN first-rate City. Panel 200. Corner house (4 bedrooms). Rent £60 p.a. Premium £500.

16 SOMERSET COAST.—PARTNERSHIP IN OLD-ESTABLISHED Practice in picturesque Seaside Place in a most beautiful part. Small panel. Visiting fees 5/- to 30/-. Excellent house (6 bed and dressing rooms) with every modern convenience; exceptionally beautiful garden of about a third of an acre, to rent on lease. The district is residential, and has a large number of visitors. Excellent riding, hunting; very good yachting, trout fishing, etc. Premium for a share worth £500 p.a. 1½ years' purchase.

17 YORKSHIRE (W.R.).—PARTNERSHIP IN OLD-ESTABLISHED Practice about £3,700 p.a. in one of the smaller and pleasanter Manufacturing Towns within easy reach of a University City. Panel 3,366. House (5 bedrooms, etc.), garage, to rent. Hospital. Premium one-third share 2 years' purchase.

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Practices and Partnerships for Disposal (continued).

18 EASTERN COUNTIES.—COUNTY TOWN.—VERY OLD-ESTABlished middle and upper-class PRACTICE averaging £1,190 p.a. Panel 120. Visiting fees 7/6 to 15/6. Ten-roomed house in good residential part with garage and garden for sale. Scope. Premium £2,450.

19 LONDON, S.W.—WELL-ESTABLISHED EYE, EAR, NOSE, AND Throat Connection in Suburban District. Cash receipts last twelve months £432 (mostly from Eye work), including appointment worth about £120 p.a. Corner detached non-basement house (7 bedrooms) with garages and very nice garden. Price of freehold and Practice, £2,350.

20 WEST OF ENGLAND.—PARTNERSHIP IN VERY OLD-ESTABlished Practice of nearly £1,750 p.a. in small town in beautiful part of the country. Panel over 1,350. Fees average 7/6. Premium one-half share 2 years' purchase.

21 WITHIN 10 MILES (SOUTH) OF LONDON. — PRACTICE about £1,500 p.a. in well-populated suburban area. Panel 1,500. Surgery premises may be purchased or rented. Nice private residence (7 bed and dressing rooms, etc.) at reasonable rent. Premium £2,600.

22 DEVONSHIRE.—WELL-ESTABLISHED COUNTRY PRACTICE in beautiful district near the Coast. Cash receipts average £1,376 p.a. Panel over 725. Nice house (7 bed and dressing rooms, etc.), with central heating, electric light, main drainage, etc. Large garden and garage for sale. Sport of all kinds. Premium £2,100.

23 S. WALES.—IMPORTANT SEAPORT TOWN.—PARTNERSHIP in sound old-established Practice averaging £3,500 p.a. Panel 2,800. Incoming Partner should be a Scotsman aged about 30—35, and *preferably Edinburgh or London trained. There is* a nice house for sale. To a suitable man a one-half share would be sold at 1½ years' purchase.

24 S. AFRICA.—RADIOLOGICAL PRACTICE IN A MOST DElightful Town with excellent climate. Cash receipts last year £1,450. Scope.

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26 LONDON, E.—OLD-ESTABLISHED CASH AND PANEL PRACTICE of about £1,200 p.a. in residential part of populous district. Good appointments and panel 950. Small house (3 bedrooms, etc.) in pleasant road to rent on lease. Scope for increase. Premium £2,200 or offer.

27 SUFFOLK AND NORFOLK BORDERS.—SMALL PRACTICE IN Market Town. Earnings 1932, £285, including panel of 80. Nice house (6 bedrooms), garage, and good sized garden. Price of freehold £850. Excellent schools. Plenty of sport. Cottage Hospital. Premium £450.

28 LONDON, E.—CASH AND PANEL PRACTICE OF OVER £600 p.a. in populous district. Panel 590. Small house to rent on lease. Premium £800.

29 S. WALES.—PARTNERSHIP (AFTER PRELIMINARY ASSISTantship) in well-established Practice of nearly £5,000 p.a. in important Industrial Town. Good appointments and panel of nearly 3,000. After Preliminary Assistantship a one-third share would be sold at first to a suitable man who should have held Hospital Appointment and have some knowledge of Midwifery and Anæsthetics.

30 WEST OF ENGLAND.—PARTNERSHIP IN OLD-ESTABLISHED PRACTICE over £2,200 p.a. in County Town. Panel about 1,000. Premium one-half share 2 years' purchase. Good prospects for well-qualified physician (preferably M.R.C.P.), who would have opportunity of getting on Staff of Hospital in near future.

31 LONDON, N.—*PRACTICE CARRIED ON BY MEDICAL WOMAN* in populous area. Cash receipts average £480 p.a., including panel 527. Visits 2/6 to 3/6. Small house (6 rooms) to rent at £50 p.a. on lease. Practice capable of increase. Premium 1½ years' purchase.

32 LONDON, N.—PRACTICE CARRIED ON BY MEDICAL WOMAN in populous district. Cash receipts average £270 p.a., including panel 360. Scope for midwifery. Six-roomed house to rent at £70 p.a. on lease. Premium 1½ years' purchase.

33 BORDERS OF SHROPSHIRE AND CHESHIRE.—OLD-ESTABlished PRACTICE averaging £1,055 p.a. in Market Town. Panel 850. Nice detached house (5 bedrooms, attics, etc.) with garage and old world garden, etc., for sale. Educational facilities. Well-equipped Cottage Hospital offering scope for one keen on Surgery. Premium £1,580.

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37 LONDON, E.C.—PARTNERSHIP IN OLD-ESTABLISHED PRACtice in the City. Receipts average about £1,650 p.a., including appointments and panel worth over £500 p.a. Premium one-half share £1,000.

38 EAST COAST.—PRACTICE OF ABOUT £800 P.A. IN RESIdential Seaside District 40 miles from London. Small Panel. Detached house (5 bedrooms) for sale. Scope for increase. Premium 1½ years' purchase.

39 SURREY.—PRACTICE OF £1,000 P.A. IN RAPIDLY GROWing Residential District within 15 miles of London. Panel 400. Suitable house, with separate professional accommodation, for sale. Scope for considerable increase. Premium £1,600.

40 LONDON, W.—GOOD MIDDLE-CLASS PRACTICE £400 P.A. in suburb within easy access of the West End. Panel over 100. Attractive double-fronted house with nice garden for sale. Scope for increase. Premium 1½ years' purchase.

41 HOME COUNTIES. — OPHTHALMIC PRACTICE BETWEEN £300 and £400 p.a. in desirable Residential Town, under 15 miles from London. Good detached house (4 bedrooms) with large garden for sale. Good reasons for plenty of scope for increase. Premium £300.

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1. YORKS. — (WEST RIDING). — Old-established unopposed country PRACTICE, situated in very pretty country district within 12 miles of two attractive towns and averaging £1,340 p.a. for the past three financial years, including transferable appointments over £200 and panel of 646 (producing with mileage £377). Good house (2 reception rooms, 5 bedrooms, bathroom, etc.) with garden, tennis court, paddock, and garage. Water laid on and electric light. Price (freehold) £1,000, part on mortgage or might be rented. Premium 1½ years' purchase. Sport, etc.
2. KENT.—PARTNERSHIP.—A one-third share (with increase up to one-half later) is offered, after a preliminary assistantship, in very old-established good middle and working-class Practice producing approximately £2,400 p.a. Panel of 1,375. Fees 3/6 to 10/6. Appointments worth over £350 p.a. Premium for share 2 years' purchase. Purchaser should be preferably Scotch or English.
3. WORCS.—Attractive country district within 5 miles of favourite town.—Unopposed old-established PRACTICE, producing over £500 p.a., including panel of 300. Very easily worked and very little midwifery. Exceptionally nice house with petrol gas laid on. Beautiful garden with tennis court, paddock, etc. (about six acres in all). Rent £65 p.a. on lease. Premium £500. Ill-health sole reason for sale.
4. NORTH OF ENGLAND.—(Close to Scottish Border.)—Very old-established PRACTICE, situated in Market Town (pop. 6,500) and averaging about £1,900 p.a. including appts. worth £94 and panel with mileage producing £820 last year. Visits 4/- to 21/-, medicine extra. House contains 2 consulting rooms, waiting room and dispensary (side entrance), 2 reception, 5 bedrooms, etc. Small garden. Garage. Electric light. Price for freehold £1,800, or near offer. Premium £2,700. Hunting, fishing, golf, etc. Ill-health reason for sale.
5. BIRMINGHAM.—Rapidly increasing PRACTICE, situated in fast developing district, within easy reach of the centre of the town, offering large scope. Gross cash receipts for past twelve months £980, including panel of 1,220. Visits from 3/6. Midwifery from 3 gns. About 25 cases. Suitable house with dining room, lounge, 3 bedrooms, bathroom, etc. Surgery, waiting room and dispensary with separate entrance. Good garden and garage. Price for leasehold (with 97 years to run) £1,500. Premium £1,500. Sport of all kinds within easy reach.
6. SOUTH AFRICA.—Within eight hours of Durban.—Well-established PRACTICE, situated in very pretty Township, near sea coast and producing between £600 and £700 p.a. including appointments. The income was formerly much larger, but owing to world-wide depression it is now at its lowest ebb, but signs of improvement are already showing. Vendor is even now able to save money owing to the low cost of living. Opposition negligible. Bungalow residence with about an acre of garden. Rent £60 a year on lease. Premium only £500, to include furniture, drugs, instruments, etc., valued at about £200. Excellent climate and sport. Ill-health of Vendor's wife reason for sale.
7. PARTNERSHIP.—WITHIN TEN MILES OF LONDON.—In a pleasant and rapidly growing residential suburb, the half-share is offered, owing to the retirement of the senior partner in a well-established and increasing Practice, having good future prospects. Gross cash receipts for last 12 months about £1,600. Panel of 1,600. Detached modern house, with 2 reception, 4 bedrooms, bathroom, etc. Small garden. Garage. Rent on lease £80 a year. Prem. £1,500.
8. PARTNERSHIP.—CO. DURHAM.—A one-third share (with increase later as arranged) is for DISPOSAL in a well-established chiefly industrial class practice, offering very good scope. Average gross cash receipts for past three years nearly £2,400, including panel bringing in £850 p.a. Appointments are worth £870 p.a. Fees from 2/6. Moderate expenses. Suitable house available for ingoing partner, on rental. Good sporting and educational facilities within reach. Premium for share 2 years' purchase. Ingoing Partner should pref. be an R.C. as there is a large Catholic population in the district.
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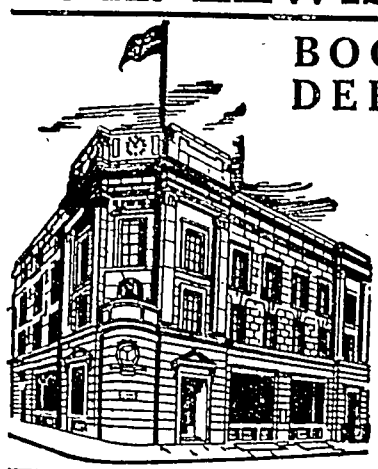
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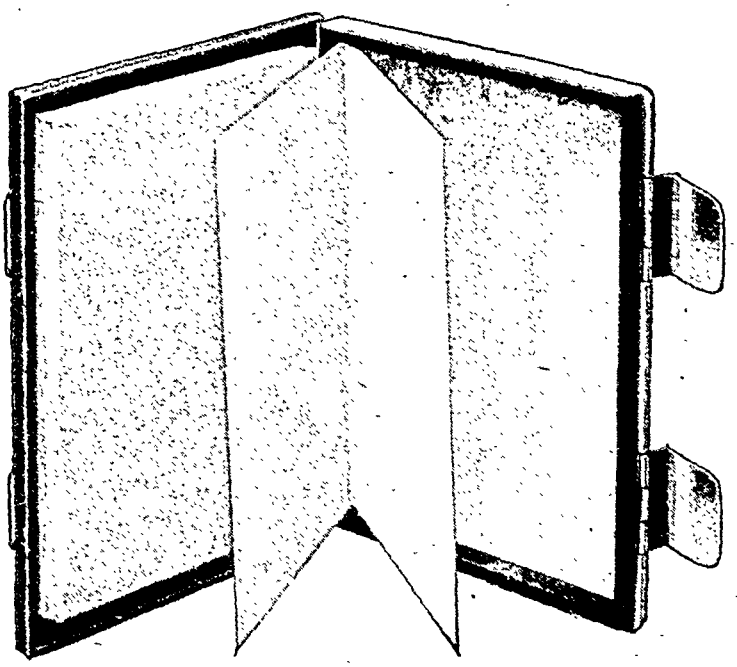
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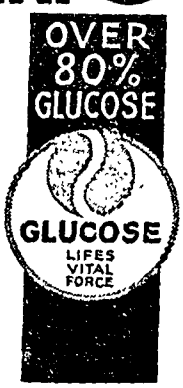
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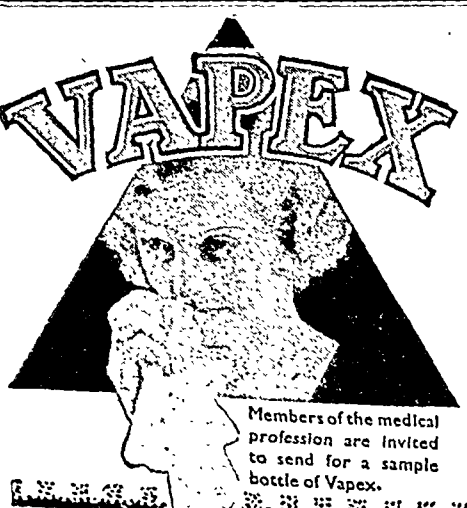
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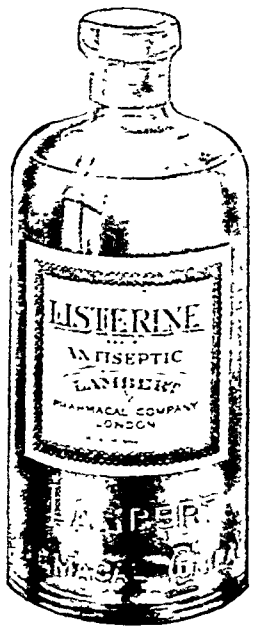
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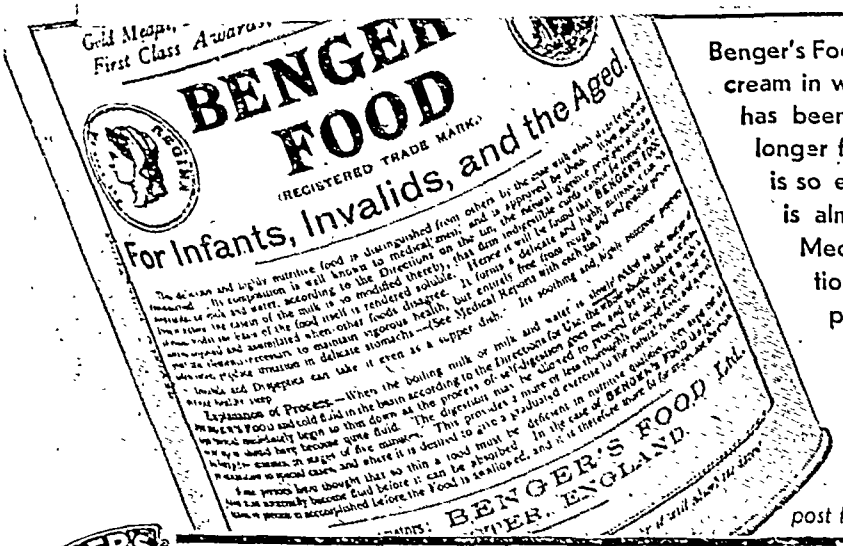
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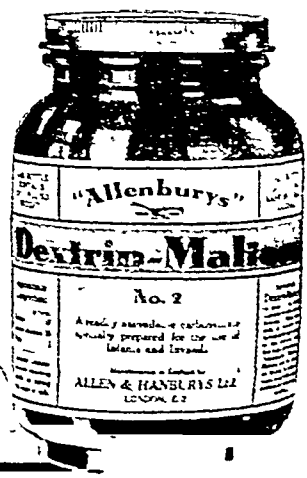
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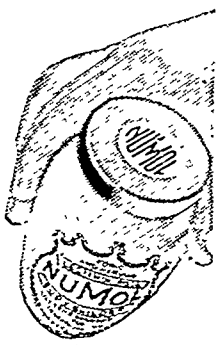


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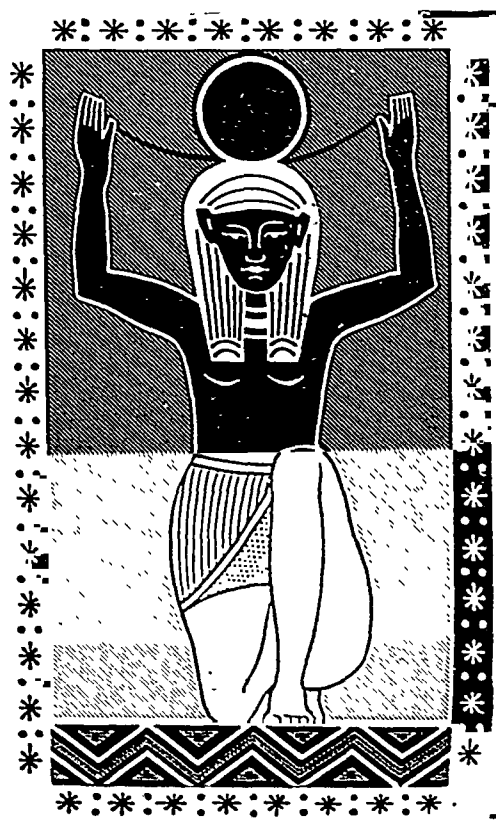
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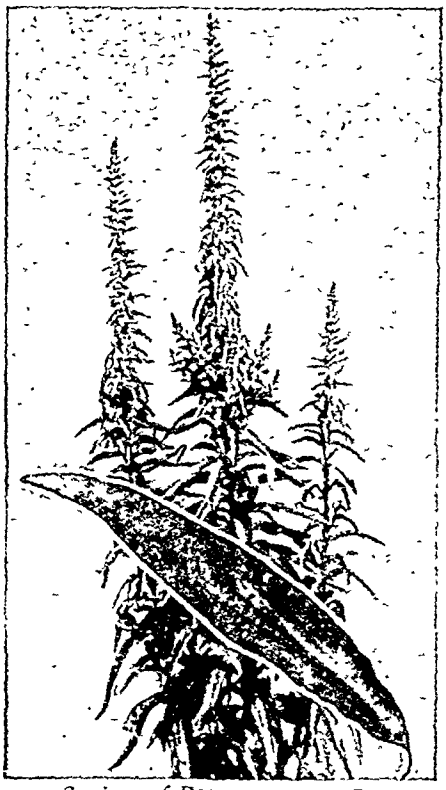
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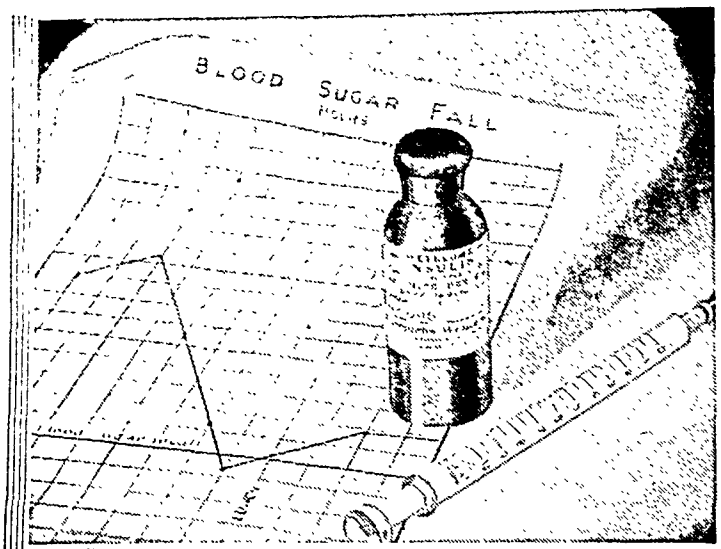
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THE PRACTITIONER AND THE PUBLIC

BY

E. KAYE LE FLEMING, M.D.(HON.), M.A., M.B., B.CH.

CHAIRMAN OF THE REPRESENTATIVE BODY, BRITISH MEDICAL ASSOCIATION

Time has brought many changes in the relationship between the practitioner and the public. In the earlier periods of the development of medical practice in this country these changes were the result of influences at work in the ranks of the profession itself, but of late years they have arisen as the outcome of an altered attitude of the public mind to questions of health.

In no period have these changes been so marked as in the years of the present century.

INTERVENTION OF THE STATE

Coincident with the rapid advance in surgery and medicine and the development of hospital and subsidiary medical services, there has been a great increase in the concern of the State for the national health and a quickening of public interest in the prevention of disease. These changes have not been without profound influence on the position of the general practitioner. Not only are the medical schools turning out men better equipped than ever in technical skill and knowledge, but in his sphere of practice the young practitioner will generally find means at hand in the form of hospitals and special clinics for the full exercise of his abilities. This is all to the good, alike for public and practitioner, but perhaps a passing note of regret may be allowed in one particular. Under the old conditions the isolation of the practitioner in many districts, the necessity for dealing with every situation single-handed or with the minimum help of neighbouring colleagues, created a type of man, self-reliant, skilful, observant, who must surely be ranked among the best that the profession of medicine has produced. Nowhere in the history of medicine have the praises of these men been sung. They have lived and worked and died, often in the remotest parts of this island, unhonoured save in the lasting esteem and memory of the community which they served so faithfully. To each, and not a few still living, we pay a tribute of honour before devoting our attention to the altered conditions of our time.

One of the most important factors in this respect was the passing of the National Health Insurance Act of 1912. It is only natural that the practitioner should at first sight consider the financial side of this change the most important. The settled reasonable remuneration for work that was previously grossly underpaid or not paid for at all, and the replacement of a discredited service that every practitioner avoided, if possible, by an honourable one that he could enter with satisfaction, gave him every inducement to work with his best efforts. There are, however, two underlying principles in the Act which more than any previous health legislation profoundly affect the relationship between the practitioner and the public. The first of these is the recognition by the State, after the most careful consideration, that the best form of medical attendance in the interest of the public is that supplied by *a general practitioner service*. Secondly, and arising directly out of this, the practitioner for the first time is brought into direct relationship with the State. The type of service he is required to render has to be envisaged and maintained, and here arises also for the first time some measure of definition of the range of a general practitioner's duties, a standard which must in future be recognized in a wider field in all matters of dispute.

Thus by virtue of the National Health Insurance Acts a new relationship between the practitioner and a large section of the public has arisen, and no great vision is required to foresee other and still more important changes likely to arise in the future. Obviously the work begun must be continued to a logical conclusion, as and when economic conditions make it possible the existing system must be extended to the dependants of the insured, and specialist services added to complete the scheme; nor will such extensions cease until in some way or another, involving the linking up of a multitude of independent schemes of domiciliary, institutional, and insurance character, every member of the public can command at a cost within his means a complete system of medical attendance. To this end the State, the hospitals, and the profession are steadily working, and the family practitioner must ever be the most important factor in its success.

With these general observations we turn to the more personal and individual side of the relationship under review.

it could safely be assumed (at any rate before the event) that the figure would err on the side of generosity, and the surgeons in particular would hardly object to such an arrangement.

The main issues in respect of the payments of medical charges remain very clear. The doctor has spent much time and money in acquiring the skill which enables him to supply something which is a necessity to the public. Some can pay him an adequate fee, others can pay him something, and again others nothing at all. To each and all he must give his best and get sufficient reward to provide him with a livelihood befitting his position, and a recompense for what he has spent in preparation for his profession. The altered economic conditions of the country are tending to increase the number of those who can pay something, with a corresponding decrease in the other two classes—with the inevitable result that the only solution of the problem for those of more limited means is by way of some form of insurance.

A little more than twenty years ago this fact was recognized by only a limited section of the more provident working classes. Friendly societies, slate clubs, and groups of individuals insured themselves for medical attendance and sick pay under a system which had many advantages for the worker, but which, to put it at its highest, had very few for the doctor.

The passing of the Insurance Act in 1912 was a revolution in the relationship between the profession and the public. Like most revolutions its full significance was but vaguely recognized, and only by those of long vision. For the first time the State, hitherto content with accepting a responsibility towards the destitute, enlarged its outlook and extended its concern to the health of the community as a whole.

The worker was compelled to insure, the employer made to accept a share of responsibility, and the State guaranteed not only to share the cost but to provide the necessary medical service. Twenty years have seen this scheme established as a permanent success. Looked at askance at first by the profession, with many imperfections, the general principles are now accepted by all as sound, and the necessary machinery for improving the system has steadily developed. It is now the duty of the whole profession to see that the service is improved continually to meet the growing demand for the fullest kind of medical attendance. Insurance on these lines must extend not only to the dependants of those already insured but to other classes of the community.

Such extension to be a success must be attractive to both parties, and will need the best brains of the profession and the public if it is to prove itself not only a system of medical treatment but the greatest example of preventive medicine yet evolved. Preventive medicine cannot develop as it should without the co-operation of the public, and this is much more likely to be fostered under an insurance system. Good health should be the right of every citizen, and the doctor's responsibility is not discharged by treatment alone. The patient has a right to know why he is ill as well as the steps he must take to get well. Not until he insists on this point as a matter of course will preventive medicine come into its own.

Individualism and Individuality

The rapid increase in public medical services and hospital contributory schemes indicate the lines on which medical attendance will surely develop. However slowly such changes come, and whatever form they take, in one respect there can be no doubt as to their influence on the general practitioner. Inevitably he is drifting away from the old isolation of his position in the health machinery of the country. His whole training and professional work make for strong individualism, which tends to make him difficult to fit in an organized service. He lives too often self-centred in the small ambit of his own practice, which absorbs both his time and his interest. In his training his whole time and attention is spent in a medical training which never touches on the broad issues of health in relation to the public as a whole.

But in one particular he must always remain the strong individualist—namely, in his relationship to the individual patient. This is a sacred bond which must never be weakened. No one must ever be allowed to come between himself and his patient in the matter of treatment, except with the consent of both parties. The profession will never tolerate any system which contravenes this principle. He is the one direct point of contact between the profession and the public, a contact that must always be intimate and personal. However much the attitude of the public to health matters may change, and education in this respect is advancing rapidly, there will always remain this last link unaltered and unbroken.

In this close relationship the life-work of the practitioner is carried out, and it is here that the individuality of the doctor has full play. Speaking generally, it might be supposed that infinite as are the attitudes of patients to doctors, that of the doctor to patient would be more or less uniform, for all doctors have had the same training on broad lines, and they all approach health questions from the same angle of view. As a matter of fact the reverse is the case. The individuality of the medical man is reflected in his contact with humanity, and probably no two doctors would approach the same patient in quite the same way. It is difficult to obtain the views in general of the public on the attitude of the doctors to their patients, but comments in the Press and elsewhere often indicate a common complaint. This is that doctors as a whole adopt an air of mystery about their art and, in giving advice, treat their patients as if they were little children.

This criticism is doubtless well founded. Whatever the reason, the habit appears to the patient unnecessary, irritating, and devised by the doctor to gratify the sense of his own importance. The patient feels that as *he* supplies the temperature, symptoms, and signs of disease, they are in a sense *his* property, and should not be withheld from him. From the doctor's point of view the explanation probably lies in the difficulty of bridging in words the wide gap between his own expert knowledge and the technical ignorance of his patient. Even if he appreciates the difficulty, not every doctor possesses the facility of expression required to meet it; and of course it would very often be far from the best interests of the patient to give him the information he desires. Perhaps this is one reason why doctors themselves generally make such bad patients.

Much can be done to meet this criticism of mystery-making. Every patient is more likely to accept advice and act upon it if he is told in simple language the reason of his malady and the method and purpose of his remedies. If there is any truth in this general criticism of the manner adopted by doctors to their patients the increasing education and interest of the public in health matters will soon bring about the desired change.

The Acts of Parliament which govern the practice of medicine in this country are framed to safeguard the interests of the public and not the profession. The register of the names of those who are qualified in the eyes of the law to treat sick people is for the benefit of those who wish for a guarantee of training and education designed to that end in the individual whose advice is sought. The public is free to take advice from the individual, qualified or unqualified, of its choice, but it is wisely given the opportunity of distinguishing between the two.

No other country is as generous in the liberty allowed to unqualified medical advisers. Those who possess medical degrees granted in other countries can practise here without serious disadvantage so long as they do not pretend that they are *registered* in this country. Even in the significance of the word *registered* there is now some danger of misapprehension in the public mind. The term is now used in a wider sense than formerly by reason of the maintenance of a register by groups of individuals engaged in occupations auxiliary to medical practice.

CONCLUSION

In conclusion, the doctor setting up in general practice will find the public well disposed towards him. Not only is he engaging in an occupation that by its very nature excites the sympathy and good will of all, but he inherits the great traditions which generations of medical men have established before him. It is unthinkable that he will not reverence these traditions and play his part in maintaining them.

In many ways he may count himself in these days a fortunate member of the community. With all its disadvantages and inconveniences he remains a man engaged in the work of his choice. Work of intense interest and great variation which can satisfy the desire to utilize his ability to the full. All his life he can feel that he is gaining experience, adding alike to his store of knowledge and to his knowledge of humanity. Using his great opportunities well, he can take rank among the best educated members of the community: educated in the true sense of the word from the cradle to the grave, in an honourable and honoured profession. To all those who at this time are embarking on some stage towards the career of general practice we offer our congratulations and good wishes for success.

THE PROFESSION OF MEDICINE

INTRODUCTORY

For long past it has been usual to preface the main contents of our annual Educational Number with some remarks by way of guidance to those who contemplate entering the profession of medicine. What we have to say here will follow the lines laid down in previous years; but it must be borne in mind by readers of each subsequent section that not only the methods of medical education but even its purpose are under close scrutiny in various responsible quarters. The medical curriculum is a subject of discussion to-day in nearly every country of the world. For over seven years it was deliberated upon by a Commission, working under the auspices of the Association of American Medical Colleges, which issued an exhaustive final report towards the close of 1932.[1] At about the same time, on the initiative of the University of London, a Medical Curriculum Conference was set up, with officially appointed representatives upon it of the Universities of Oxford, Cambridge, and London, and of the two English Royal Colleges and the Society of Apothecaries. Further, the Council of the British Medical Association, recognizing that, while the teachers and examiners are intimately concerned in this problem, the most important product of a medical training is the general practitioner, appointed a Committee on Medical Education to make a general survey of the present course of study from this as well as from other points of view, and the committee has already issued an interim report.[2] In Canada also, where medical education had long been under discussion in academic circles, the subject has lately had free ventilation among the profession generally through a series of signed articles written by teachers and practitioners for the *Canadian Medical Association Journal*. One of the chief criticisms directed against the medical courses of to-day, both in this country and in America, is that efforts are everywhere made to provide instruction in too many subjects in too great detail. As Sir Norman Walker wisely said in his Presidential Address at the last meeting of the General Medical Council:

> "We should not forget, when considering proposals for making new grafts on the curriculum, that one of the most useful of the gardener's implements is the pruning-knife."

The first object of the Educational Number, 1933, is to inform prospective students and their parents of the steps that must be taken in order to become a registered medical practitioner under the existing order of things. The second is to assist those wishing to know what a medical career has to offer, and others who, having already decided to study medicine, are uncertain about the line of work for which they are best suited. This introductory article is meant to serve as a clue to the great body of information contained elsewhere, but it also gives an opportunity of reviewing briefly some aspects and tendencies of medical study and practice, and of directing attention to a few points that might not occur to anyone without some experience of the medical life.

Intending students will find in the pages that follow an account of the course of training required of them at the present time, the places where it can be obtained, and the bodies which test the knowledge gained and confer degrees or diplomas entitling successful candidates to become legally qualified medical practitioners. Sections are included also on post-graduate study, on the higher qualifications, both general and special, and on most of the varied spheres of work open to registered medical men and women at home and abroad. The details given are founded on official information, and arranged along the customary lines.

PORTALS OF THE PROFESSION

The *Medical Register* is the official statutory list of legally qualified medical practitioners kept by the General Medical Council. There are many ways in which admission can be obtained to the *Register*. No fewer than twenty-seven bodies—eighteen universities and nine corporations—either separately or jointly, issue registrable qualifications, and the number of teaching institutions is even larger. Nevertheless, the medical courses of the various universities and schools in Great Britain and Ireland run on parallel lines, and the obligatory curriculum is much the same for all students. But the individual teaching and examining bodies have different standards and requirements and bestow different qualifications, and the choice should therefore be made early, so that a definite plan may be followed. The possession of a university degree is generally regarded as an advantage in practice, yet a considerable proportion

[1] Final Report of Commission on Medical Education. *Office of the Director of Study*, 630, West 168th Street, New York.
[2] Interim Report of Committee on Medical Education, *British Medical Journal Supplement*, June 24th, 1933 (p. 286).

admission of a name to the *Students Register*. In the applications of these two subjects to the professional courses—as in biophysics, biochemistry, and pharmacological chemistry—appropriate instruction is supposed to continue throughout the curriculum, and to be tested by examination. If he has had no facilities at school or otherwise for obtaining what is necessary for the preliminary or pre-registration examination in chemistry and physics, then he can come for it to the university or medical school, but study for this will not count as part of the curriculum. The examination in elementary biology is not "pre-curriculum," but the instruction may be so, and a licensing body can allow students who so desire to sit for the examination immediately after matriculation. Here again, however, it is the wish of the Council that the applications of biology to medicine, surgery, and midwifery shall continue to receive adequate attention throughout the courses.

The General Medical Council

The General Medical Council was established by the Medical Act, 1858, in order "that persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners." It consists of eighteen members appointed by the Universities in the United Kingdom having medical faculties; of nine members appointed by the Medical Corporations, such as the Royal Colleges of Physicians and Surgeons; of five members appointed by His Majesty in Council; and of six members directly elected by members of the profession as a whole—a total of thirty-eight. To these are added three dentists who are members of the Dental Board, and are appointed for dental business. Although the eighteen members appointed by the Universities and the five members appointed by His Majesty in Council may all be laymen, only two laymen have so far been appointed; the first of these was appointed by the Privy Council in 1926, and, on his resignation in 1931, another was appointed in his place. Both were members of His Majesty's Privy Council.

The Council's offices are at 44, Hallam Street, Portland Place, London, W.1, and it has Branch Offices at 12, Queen Street, Edinburgh 2, and 35, Dawson Street, Dublin.

The Council exists for the protection of the public and not of the profession. Its principal functions are three. First, to keep the *Medical Register*; second, to see that the name of no person is entered thereon as qualified unless he has had an adequate professional education, and to remove therefrom the names of qualified persons who are no longer entitled to public confidence; and third, to provide for the publication of the *British Pharmacopoeia*. It is the appearance of a name upon the *Medical Register*, and not the possession of a degree or diploma, that constitutes a person a "duly qualified" or "legally qualified" practitioner of medicine.

The Council has no power to make rules in regard to the medical curriculum or examinations, but it can pass resolutions and make recommendations relating thereto, and, if any of these were ignored by the licensing bodies, it would be open to the Council to make representations to the Privy Council, which, if it thought fit, might order that the qualifications obtained from such bodies should not be registrable.

The name of any medical practitioner who has been convicted of felony or misdemeanour, or who is proved before the Council itself to have been guilty of "infamous conduct in a professional respect," may be erased from the *Medical Register*.

The Medical Acts prohibit attempts being made to impose restriction [illegible] any theory of medicine or surgery, and, once a practitioner has been trained and tested in the knowledge essential for public safety, he may adopt any "theory" of medicine or surgery in which he honestly believes. The Medical Acts do not prohibit the practice of medicine by unregistered persons, but if they "wilfully and falsely" assume any title implying registration they are liable to prosecution. In this respect the Medical Acts differ from the Midwives and the Dentists Acts, which entirely preclude the practice of midwifery or dentistry by unregistered persons. Unregistered medical practitioners, however, are under certain disabilities, for they cannot recover charges for medical or surgical attendance, etc., in a court of law; they cannot hold an appointment as medical officer of health, in public (including mental) hospitals, or as a medical officer in the Military or Naval Services, or on ships; they cannot give any valid certificate which is required by any Act from a medical practitioner—for example, certificate of death; and they cannot obtain dangerous drugs or attend cases of venereal disease.

An account of the recommendations that the Council has drawn up in respect of the education of medical students here follows.

Registration of Medical Students

The Council recommends that every intending student of medicine should be registered as such at one of its three offices, whose addresses are given on page 416.

Candidates must produce evidence (*a*) that they have attained the age of 17 years; (*b*) that they have passed an examination in general education which is accepted for matriculation or entrance to the Faculties of Arts or Pure Science in a university in the United Kingdom; and in addition thereto that they have passed an examination in elementary chemistry and elementary physics conducted or recognized by one of the licensing bodies.

Application for registration should be addressed to the Registrar for the Division of the United Kingdom in which the applicant is residing—England and Wales, or Scotland, or Ireland. It must be made on a special form, which can be obtained from one of the offices of the General Medical Council itself or from one of the various licensing bodies or medical schools.

The regulations with regard to registration apply equally to medical and dental students, with the exception that, in the case of the latter, pupilage with a registered dental practitioner may be regarded as the commencement of professional study, and that applications for registration should be addressed to the London office only.

Professional Education

The rule is that it is only from the date which appears against his name in the *Students Register* that the medical student's career officially begins; thereafter five academic years at least must pass before he can present himself for the final examination for any diploma entitling its lawful possessor to registration as a qualified medical practitioner under the Medical Acts; but to meet the circumstances brought about by the dates at which sessions of the medical schools begin and end, the close of the fifth year may be reckoned as occurring at the expiration of fifty-seven months from the date of registration. In any case, the period of five years must be one of bona-fide study; and in every course the following subjects should be included:

(i) Elements of General Biology, including an introduction to Embryology. This course, if the licensing bodies permit, may be taken before registration, and the examination may be passed immediately after registration.

(ii) Chemistry, Physics, and Biology in their application to Medicine.

(iii) Human Anatomy and Physiology, including Histology, Elements of Embryology, Biochemistry, and Biophysics.

(iv) Elementary Bacteriology, prior to regular clinical appointments.

(v) Pathology, general, special, and clinical, and Morbid Anatomy.
(vi) *Pharmacology and Materia Medica, to be taken concurrently with clinical instruction.*
(vii) Forensic Medicine, Hygiene, and Public Health.
(viii) Medicine, including Applied Anatomy and Physiology, Clinical Pathology and Therapeutics, Children's Diseases, Acute Infectious Diseases, Tuberculosis, Mental Diseases, Skin Diseases, and Vaccination.
(ix) Surgery, including Applied Anatomy and Physiology and Clinical Pathology, Anaesthetics, Diseases of the Eye, Ear, Throat, and Nose, Radiology, Venereal Diseases, and Orthopaedics.
(x) Midwifery and Diseases of Women, including ante-natal conditions and infant hygiene.

The Council recommends that during the last three of the five academic years clinical subjects shall be studied.

The first two years must be passed at a university, or at a school of medicine recognized by any of the licensing bodies enumerated in the schedule to the Medical Act of 1858, and the remainder must be devoted to clinical work at any public hospital or dispensary at home or abroad which is recognized by a licensing body.

Special Considerations

The requirements of the General Medical Council in respect of the education of those who desire to enter the medical profession have now been given in outline, but before leaving this part of the subject the steps which the aspirant should take may be rehearsed in their due order:

(1) Pass an examination in arts;
(2) Pass an examination conducted or recognized by a licensing body in elementary physics and elementary chemistry;
(3) Having attained the age of 17, enter himself at a university or at a medical school recognized by one of the licensing bodies;
(4) Obtain registration as a medical student;
(5) Study for a minimum of five years certain prescribed subjects;
(6) Meanwhile pass sundry intermediate examinations; and at the end of the fifth year pass a "qualifying examination" which will entitle him to receive from a licensing body a qualification enabling him to obtain registration in the *Medical Register*, whereby he receives legal authority to practise.

The Minimum Period.—It must be remembered that the period of five years is a minimum; more is often required, even by the man of good abilities and reasonable industry, and some of the universities prescribe a longer period. Besides these qualities a student, to obtain a registrable qualification in the minimum period of five years, or fifty-seven months, must have a considerable amount of good luck; in other words, he must keep in good health through every term, and never fail at a single examination. Thus, for instance, before presenting himself for any examination he must be "signed up" for the subjects covered by that examination; this means that his teachers have to certify that he has diligently attended the required number of lectures or classes in the subjects in question. If, however, the student happens to be ill during the term when such lectures or classes are taking place he may miss enough of them to make it impossible for him to be signed up. Then again, should he fail to satisfy the examiners at some examination, he cannot present himself for re-examination for at least three months. This generally entails further consequences, because, apart from the student's success at the next stage in his career being imperilled by the need for restudying the subjects in which he has failed, the Examining Boards usually insist upon a definite interval elapsing between one examination and the next. Further, many Boards have refused to recognize lectures and classes which have been attended before the student has passed the requisite examination in earlier subjects, and the Council now recommends that the professional examinations in anatomy and physiology be passed before the minimum period of three years' subsequent study be entered on; in other words, no clinical study should count as such until these examinations have been successfully completed. Failure at an examination may thus not only mean deferment of the date of examinations, but deferment of the beginning of the student's study of certain subjects. It is thus exceedingly easy for a student to fail to qualify in five years, and, as a fact, the majority of students take longer.

In speaking of the minimum period, it is to be remembered also that that time is only sufficient to gain a registrable qualification, such as a Bachelorship of Medicine or Surgery or the diplomas of the Royal Colleges. Those who wish to take a higher qualification—for instance, the F.R.C.S.Eng.—must prolong their work for another year or more. So, too, in some cases, must those who desire to convert their Bachelorship into a Doctorate. This may entail further formal examination, but at some universities the M.D. is obtainable on presentation of a thesis when the Bachelor has attained a certain age and has practised for a certain number of years. However, a student's career proper may be considered, perhaps, to have ended when he obtains his first registrable qualification, for while preparing himself for any further tests he can, and usually does, hold some junior appointment which more or less covers his expenses.

Memorandum on Students' Registration

The following memorandum has been drawn up on behalf of the General Medical Council as to the procedure for those who desire to be registered as medical or dental students.

The requirements for the registration of medical and dental students are the same, and every intending student should, in his own interest, register as soon as he commences his professional curriculum.

A recognized examination in general education must first be passed. If the student intends to obtain a university degree, he should apply to the university he selects for information as to its matriculation requirements in arts or pure science, or as to any examinations which may be accepted in fulfilment thereof. If the student intends to obtain a qualification from one of the licensing corporations (these are the Conjoint Boards in England, Scotland, and Ireland, the Society of Apothecaries of London, and the Apothecaries' Hall of Dublin), any of the examinations indicated below will be accepted. The subjects required are: (1) English, (2) Mathematics (elementary), (3) a language other than English, and (4) a fourth subject as required by the regulations of the particular examination, to be chosen from the following—namely, History, Geography, Botany, Physical Science, Natural Science, Latin, Greek, Hebrew, French, German, or other language accepted by a university for matriculation. School certificates (other than "Higher") must show "Credits" in each of the prescribed subjects. When school certificates with four credits are presented, or certificates from the Educational Institute of Scotland and College of Preceptors, the passes in the four subjects must be shown to have been obtained at not more than two sittings.

The requirements of the preliminary examination in general education being satisfied, it is then necessary for the student to pass a further or pre-registration examination (theoretical and practical) in elementary chemistry and elementary physics, which is conducted or recognized by one of the licensing bodies—that is, a university or licensing corporation. These subjects must be passed *in addition* to those included in the preliminary examination—for example, chemistry taken as one of the four required subjects in the preliminary examination cannot also count as one of the subjects of the pre-registration examination. These subjects may be studied at a university or medical school, or at a secondary school or *other institution recognized* by the body whose pre-registration examination it is intended to take. The student should, in every case, write beforehand to the body whose qualification he desires to obtain (a list will be found below) for information in regard to its requirements for this examination, and, although it is not necessary to pass in biology before registration as a student, application should be made at the same time to the body selected to ascertain their requirements in regard to this subject.

These two examinations (in general education and in physics and chemistry) having been passed and the student having attained the age of 17 years, he should apply to one of the universities or one of the medical schools for admission to its course of medical study. When medical study has been begun, he should apply to the Dean of the School, or to the

Registrar of one of the branches of the General Medical Council, for a form of application for registration as a student, and should have it completed and sent in to one of the Branch Councils as soon as possible. There is no fee for this registration. The medical curriculum will extend for at least five years, and the dental curriculum for at least four years, from the date of registration as a student.

A dental student may commence his curriculum, if he so desires, as a pupil in dental mechanics of a registered dental practitioner; but study at a dental school is to be preferred. If, however, he is apprenticed to a dental practitioner, he will have to devote twice as much time to instruction in dental mechanics as he would if he had taken this subject in a school. This will have the effect of lengthening the curriculum. In any case a student can only obtain a concession of twelve months out of the four years' curriculum in respect of such apprenticeship.

The addresses of the Branch Registrars are:

General Medical Council, 44, Hallam Street, Portland Place, London, W.1.
Scottish Branch Council, 12, Queen Street, Edinburgh, 2.
Irish Branch Council, 35, Dawson Street, Dublin.

Examining Bodies in Preliminary Education

The following is a list of the officials of the examining bodies in preliminary education, with the names of the examinations in parentheses.

Secretary, Queen's University of Belfast. (Matriculation.) Assistant Secretary, Ministry of Education. (Senior Certificate.)
Registrar, The University, Bristol. (Matriculation, School Certificate, or Higher School Certificate.)
Registrary, The University, Cambridge. (Previous.)
Secretary, Cambridge Local Examinations, Syndicate Buildings, Cambridge. (School or Higher School Certificate.)
Medical Registrar, University of Dublin (Trinity College), Dublin. (Entrance examination to the School of Physic.)
Registrar, University of Durham College of Medicine, Newcastle-on-Tyne. (Matriculation, School or Higher School Certificate.)
Registrar, Irish Conjoint Board, Royal College of Surgeons, Dublin. (Preliminary Examination.)
Registrar, National University of Ireland, Dublin. (Matriculation.)
The Assistant Commissioner of the Department of Education, 1, Hume Street, Dublin. (Senior Grade Examination or Leaving Certificate.)
Assistant Secretary, Ministry of Education, Belfast. (Senior Grade or Leaving Certificate.)
Secretary of the Examinations Council, The University of London, South Kensington, London, S.W.7. (Matriculation, General, or Higher School Certificate.)
Secretary, Northern Universities Joint Matriculation Board, 315, Oxford Road, Manchester. (Matriculation, School, or Higher School Certificate.)
Registrar, University Registry, Oxford. (Responsions.)
Secretary, Oxford and Cambridge Schools Examination Board, Schools Examination Office, Balliol College, Oxford. (School or Higher School Certificate.)
Secretary, Oxford Local Examinations, University Press, Oxford. (School or Higher School Certificate.)
Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1. (Senior Certificate at Credit Standard.)
Secretary, Educational Institute of Scotland, 47, Moray Place, Edinburgh. (Preliminary Medical Certificate.)
Secretary, Scottish Education Department, 14, Queen Street, Edinburgh. (Leaving Certificate.)
Secretary, Scottish Universities Entrance Board, 81, North Street, St. Andrews. (Scottish Universities Preliminary Examination.)
Registrar, University of Wales, Cathays Park, Cardiff. (Matriculation.)
Clerk, Central Welsh Board, Cardiff. (School or Higher School Certificate.)

[*Note.*—Certificates of the College of Preceptors and School Certificates (other than "Higher") must show "Credits" in each of the prescribed subjects.]

Licensing Bodies

The following is a list of the officials of licensing bodies and their addresses:

ABERDEEN, The Secretary of the Medical Faculty, The University.
BELFAST, The Secretary, Queen's University.
BIRMINGHAM, The Registrar, The University.
BRISTOL, The Registrar, The University.
CAMBRIDGE, The Registrary, The University.
DUBLIN, The Medical Registrar, The University, Trinity College.
The Registrar, National University of Ireland.
DURHAM, The Registrar, University of Durham College of Medicine, Newcastle-upon-Tyne.
EDINBURGH, The Dean of the Faculty of Medicine, The University.
GLASGOW, The Registrar, The University, W.2.
LEEDS, The Registrar, The University.
LIVERPOOL, The Registrar, The University.
LONDON, The Academic Registrar, The University, South Kensington, S.W.7.
MANCHESTER, The Registrar, Victoria University.
OXFORD, The Dean, Department of Medicine, The University.
ST. ANDREWS, The Secretary, The University.
SHEFFIELD, The Registrar, The University.
WALES, The Registrar, The University Registry, Cathays Park, Cardiff.

Licensing Corporations

ENGLISH CONJOINT BOARD, The Secretary, 8, Queen Square, Bloomsbury, W.C.1.
SCOTTISH CONJOINT BOARD, The Secretary, 49, George Square, Edinburgh.
IRISH CONJOINT BOARD, The Secretary, Royal College of Surgeons in Ireland, Dublin.
APOTHECARIES' SOCIETY OF LONDON, The Secretary of the Court of Examiners, Blackfriars, London, E.C.4.
APOTHECARIES' HALL OF IRELAND, The Registrar, 95, Merrion Square, Dublin.

Medical Schools

The following is a list of medical schools (other than universities) and their officials.

ABERYSTWYTH, The Registrar, University College. (University of Wales. First year only.)
BANGOR, The Registrar, University College. (University of Wales. First year only.)
CARDIFF, The Dean of the Medical School, Welsh National School of Medicine.
The Registrar, University College of South Wales and Monmouthshire.
CORK, The Registrar, University College.
DURHAM, The Registrar, College of Medicine, Newcastle-upon-Tyne.
DUBLIN, The Medical Registrar, University of Dublin, Trinity College.
The Registrar, University College.
The Secretary, School of Medicine, Royal College of Surgeons.
EDINBURGH, The Dean, School of Medicine of the Royal Colleges, Surgeons' Hall.
GALWAY, The Registrar, University College.
GLASGOW, The Dean, St. Mungo's College.
The Dean, The Anderson College of Medicine.
The Mistress, Queen Margaret College, W.2 (for women students of the University of Glasgow).
LONDON, Charing Cross Hospital, The Dean of the Medical School, W.C.2.
Guy's Hospital, The Dean of the Medical School, S.E.1.
King's College, The Dean of the Medical Science Faculty, Strand, W.C.2.
King's College Hospital, The Dean of the Medical School, S.E.5.
London Hospital, The Dean of the Medical College, E.1.
London (Royal Free Hospital) School of Medicine for Women, The Dean, 8, Hunter Street, W.C.1.
Middlesex Hospital, The Dean of the Medical School, W.1.
St. Bartholomew's Hospital, The Dean of the Medical College, E.C.1.
St. George's Hospital, The Dean of the Medical School, S.W.1.
St. Mary's Hospital, The Dean of the Medical School, W.2.
St. Thomas's Hospital, The Dean of the Medical School, S.E.1.
University College Hospital, The Dean of the Medical School, W.C.1.
Westminster Hospital, The Dean of the Medical School, S.W.1.
SWANSEA, The Registrar, University College. (University of Wales. First year only.)

This section of the Educational Number would be incomplete without brief mention of the memorandum drawn up on behalf of the General Medical Council on the procedure to be adopted by those who desire to enter the profession of medicine, to which reference is made in the *introductory article at page* 410. This pamphlet (price 1s. post free) sets out in plain language the information for which the Council is often asked by prospective medical students or their guardians.

Universities in England and Wales

There are eleven universities in England and Wales, and some account of each of them follows. They all have now fully developed medical faculties.

UNIVERSITY OF OXFORD

The professional degrees conferred by this university are those of Bachelor of Medicine (B.M.) and Bachelor of Surgery (B.Ch.) (taken together), Doctor of Medicine (D.M.), and Master of Surgery (M.Ch.). It also grants a diploma in ophthalmology. On receiving the the B.M., B.Ch. the candidate is entitled to registration by the General Medical Council. In favourable circumstances these degrees may be obtained in six or seven years from matriculation. Before receiving either, the candidate must have taken a degree in arts (B.A.), for which three years' residence within the university is necessary. This, however, does not necessarily mean deferment of professional study for that period, for the subjects chosen for the arts course may be to a great extent the same as those in which examinations would in any case have to

be passed for the medical degree, and the courses are dovetailed together.

Women members of the university are admitted to medical degrees under the same conditions as those laid down for men in regard to examinations, courses of study, and fees, and under corresponding conditions as to residence at the university. Among the university diplomas open to women are those in anthropology and ophthalmology.

There are numerous avenues to the B.A. degree, but that which constitutes the *normal* course for medical students, as being the most closely related to their medical studies, is the following: By passing Responsions (or one of the examinations which are accepted as equivalent), some of the preliminary examinations in the Natural Science School,[1] in the first public examination; and one of the final honour examinations in the Final Honour School of Natural Science—physiology being that usually taken.

Responsions and the preliminary examinations in natural science may, provided the candidate's name is entered through a College, be passed before a candidate is a member of the university[2]; a Final Honour School may be taken at the end of the third or fourth academical year—that is, within nine or twelve terms respectively; the preliminary examinations of the Natural Science School may be taken as soon as Responsions has been passed or exemption obtained.

Professional Degrees

To obtain the B.M., B.Ch. degrees the candidate must first pass in four of the subjects of the preliminary examination of the Natural Science School—namely, physics, chemistry, zoology, and botany.

He then has two further examinations to pass—the First B.M. and the Second B.M. These take place twice a year, in June and in December. Every candidate at the first B.M. is examined in human anatomy, in physiology, and in organic chemistry, but is excused from physiology if he has obtained a first or second class in the Honour School of Physiology, and from organic chemistry if he has satisfied the examiners in Part I of the Honour School of Chemistry. Once he has passed this examination he can, on production of certain certificates, be examined as soon as he pleases in pathology, forensic medicine and hygiene, materia medica and pharmacology (subjects of the Second Examination), but cannot present himself for the remaining subjects—medicine, surgery, and midwifery—until the eighteenth term from the day of his matriculation *unless he be already a registered medical practitioner*, and not until a period of at least thirty-three months has elapsed from the date of his passing the First Examination, and he must pass in all these three subjects at one and the same time.

Before admission to the Second B.M. examination the student must produce certificates of instruction from a *medical school recognized by the university*, of having acted as clinical clerk and dresser, each for six months, and as post-mortem clerk for three months, of attendance on labours, of instruction in infectious and mental diseases and ophthalmology, etc., and of proficiency in vaccination and the administration of anaesthetics,[3] and of three academic years of hospital attendance. He must also produce certificates of attendance in laboratory courses in pathology, bacteriology, and pharmacology, either in Oxford or in a recognized medical school.

D.M. and M.Ch. Degrees

A Bachelor of Medicine who wishes to proceed to the D.M. must have entered his thirtieth term and must present, for approval by the appointed examiners, a dissertation on a subject previously approved by the Regius Professor of Medicine. If a candidate for the M.Ch. he must have entered his twenty-first term and must pass an examination, which is held in June.

The examination for the diploma in ophthalmology is held annually in June.

Teaching

The several colleges provide their undergraduate members with tutors for all examinations up to the B.A. degree. In addition, the university provides certain courses of instruction, including lectures, demonstrations, and practical work, which cover all the subjects of the Preliminary Examination and First B.M., and to some extent those of the Final Examination.

Scholarships

Entrance Scholarships (of the maximum value of £100 p.a.) and Exhibitions (usually of a maximum value of £80) are awarded by the various Colleges after competitive examination in Natural Science subjects, and are open to intending students of Medicine equally with other Natural Science candidates. These are usually tenable for four years and restricted to candidates under 19 years of age. Particulars can be obtained on application to the College tutors. At two Colleges (University and Pembroke) there are entrance scholarships restricted to intending students of medicine. Scholarships for women are also offered by various women's colleges, from the principals of which details of the examinations may be obtained. A Radcliffe Travelling Fellowship of £300 a year, tenable for two years, is conferred annually; candidates must have taken the B.M. degree. A Schorstein Research Fellowship of £200 a year for two years is awarded biennally. The Fellow must engage in research in one of the medical departments of the university. A George Herbert Hunt Travelling Scholarship of about £100 is awarded biennally to enable a young medical graduate to spend three months abroad in medical study. A Philip Walker studentship in Pathology of £200 a year, tenable for two years, is awarded biennially for the encouragement of research in pathology, as also are the Rolleston Memorial Prize and the Radcliffe Prize (£50), for research in natural science (including pathology), and the three Theodore Williams Scholarships in Anatomy, Physiology, and Pathology, of the value of £50 *each, tenable for two years.* A *Radcliffe Scholarship in* Pharmacology of £50 for one year, open to the university, is awarded annually by the Master and Fellows of University College.

FEES

An annual fee of £4 10s. is paid to the university for the first four years, being reduced to £1 when the B.A. has been taken. For the degrees the fees are: the B.A., £7 10s.; the B.M. and B.Ch., £14; the D.M., £20, the M.Ch., £12. College fees, varying in amount, are paid for the first four years of membership and in taking degrees. Tuition fees vary from £21 to £30. The minimum annual cost of living during the three university terms may be regarded as not less than £200, or for women not less than £140.

For further information application may be made to Dr. M. H. MacKeith, Dean of the Medical School, University of Oxford.

UNIVERSITY OF CAMBRIDGE

The professional degrees given by this university are those of Bachelor of Medicine (M.B.) and Bachelor of Surgery (B.Chir.), each of which entitles the possessor to admission to the *Register* by the General Medical Council, and the higher degrees of Doctor of Medicine and Master of Surgery. It also grants a diploma in medical radiology and electrology to medical practitioners, not necessarily graduates of the university. Information regarding this diploma will be found in a later section under the heading "Radiology." A candidate for the M.B., B.Chir. degrees need not possess a degree in arts; it is sufficient if he has passed *the Previous Examination or some other examination* accepted by the university as its equivalent. Most students, however, are advised to take the B.A. degree, preferably by obtaining honours in the Natural Sciences Tripos. The attainment of a sufficient standard in certain subjects in this Tripos will secure exemption from the corresponding tests in the First and Second M.B. examinations in the case of students who take up medical study late in their university career. Members of Girton College and Newnham College are admitted to the examinations.

[1] The four subjects of the *medical preliminary examinations* are four of the subjects in the natural science preliminary, and can be commenced directly after passing Responsions.

[2] Membership is constituted by Matriculation and by becoming a member of a College or a Hall or of St. Catherine's Society.

[3] For details of the required certificates see *Examination Statutes*, Clarendon Press, Oxford, 1932 edition.

diploma in dental surgery (L.D.S.), and diploma in veterinary State medicine. All candidates for degrees in medicine, surgery, and dentistry are required to reach matriculation standard in the school certificate examination, or to pass such examination as may be regarded as equivalent by the Senate. All courses, degrees, and diplomas are open to men and women alike.

Conjoined Degrees of Bachelor of Medicine and Bachelor of Surgery.—Candidates must be not less than 21 years of age and have pursued the courses prescribed by university regulations during not less than five years after passing the First Examination in chemistry and physics, of which three shall have been spent in the university, and two of these three subsequent to passing the Second Examination. All candidates for the degrees of M.B., Ch.B. are required to satisfy the examiners in the several subjects of three examinations.

The First Examination.—The subjects of examination are: chemistry (inorganic), physics, and biology, the courses pursued being those for the time being approved for the intermediate part of the B.Sc. curriculum. This part of the curriculum shall extend over one year. (Candidates who have passed the higher school certificate approved by the Board of Education in these subjects will not be required to sit for the First Examination and will be regarded as having completed one year of study.)

The Second Examination.—The subjects of examination are: organic chemistry (Part I) and anatomy and physiology (Part II).

The Final Examination.—The subjects of examination are: materia medica and pharmacy, pharmacology and therapeutics, general pathology, morbid anatomy, and bacteriology (Part I); special pathology, forensic medicine, toxicology, and public health, obstetrics (including diseases of women), surgery (systematic, clinical, practical, and operative, including ophthalmology and oto-rhino-laryngology), medicine (systematic, clinical, and practical, including mental diseases) (Part II). The subjects included in Part II may be taken in two groups—namely, Group I: surgery and obstetrics; Group II: medicine, public health, special pathology, forensic medicine, and toxicology. Candidates may pass Parts I and II together or separately, and the two groups of Part II may likewise be taken together or separately, but no student can obtain honours who elects to take the two groups of Part II separately. Forensic medicine and toxicology may be taken either with Part I or with Group II of Part II.

Degree of Doctor of Medicine.—Candidates must be Bachelors of the university of not less than two years' standing as such, and may elect either (1) to pass an examination in general medicine, or (2) to pass an examination in State medicine, or (3) to present a dissertation. The candidate who elects to pass the examination in State medicine must hold a diploma in public health of some university or college, and the candidate who elects to present a dissertation may be examined in the subject thereof.

Degree of Master of Surgery.—The degree may be taken in general surgery or in special subjects. Candidates shall be Bachelors of not less than two years' standing as such. For general surgery, they shall pass an examination in surgical anatomy, pathology, and bacteriology, and in operative, clinical, and general surgery, and shall present a dissertation. For special subjects—that is, ophthalmology or oto-rhino-laryngology or gynaecology—they shall, in addition to having studied and practised for two years the subject concerned, have held an approved appointment in it for not less than six months; they shall pass a written, oral, and clinical examination in the branch of surgery concerned, as well as in the anatomy, physiology, and pathology of the region of the body concerned (including, in the case of ophthalmology, physiological optics), and also a written examination in the principles of general surgery.

Diploma in Public Health.—Candidates must be at least 23 years of age, be fully registered medical practitioners of not less than two years' standing as such, and have passed the examination prescribed by regulation. The examination is divided into two parts.

UNIVERSITY OF DURHAM

To its own undergraduates, who may be of either sex, this university grants the degrees of Bachelor of Medicine and Bachelor of Surgery (M.B., B.S.), and Doctor of Medicine (M.D.), Master of Surgery and Doctor of Surgery (M.S. and D.Ch.), Bachelor of Hygiene, Doctor of Hygiene, and Bachelor of Dental Surgery and Master of Dental Surgery (B.D.S. and M.D.S.); it also grants diplomas in public health, psychiatry, and dental surgery. The university accepts the Durham University school certificate examination (if a sufficient standard is obtained in certain specified subjects) for matriculation purposes, but also accepts the tests of a considerable number of other educational bodies as a full or partial equivalent. A list may be obtained on application. In addition to satisfying the matriculation requirements of the university, every student must (1) pass a pre-registration examination in physics and inorganic chemistry conducted or recognized by the university, and (2) be registered on the books of the General Medical Council. The university requires that at least one year be spent in residence in the University; in exceptional cases candidates may comply with this regulation by attending the College of Medicine for one year, but all the professional examinations must be passed in the university.

Professional Examinations

There are four professional examinations for the M.B., B.S. degrees. The First Examination is held in March, June, and December, the Second and Third Examinations in March and June, and the Final Examination in June and December. The first deals with biology and chemistry in relation to medicine; the second with anatomy and physiology; the third with pathology, bacteriology, materia medica, pharmacology and pharmacy, medical jurisprudence, and public health. At the Final M.B., B.S. the candidate is examined in medicine, including therapeutics, and clinical medicine; surgery and clinical surgery; midwifery and diseases of women and children; clinical and practical midwifery and gynaecology; and clinically in psychological medicine, diseases of the throat, nose and ear, diseases of the skin, diseases of the eye, and diseases of children.

M.D.—A Bachelor of Medicine who wishes to proceed to this higher degree must be of at least two years' standing, and must comply with the regulations printed in the Calendar of the College of Medicine.

M.S.—Candidates for this degree must have been engaged in practice for at least two years subsequent to becoming M.B., B.S.Durham. The subjects of the examination are surgery, systematic and clinical, surgical anatomy and pathology, and surgical operations.

D.Ch.—The university grants also the degree of Doctor of Surgery. Candidates for this degree must be registered medical practitioners, not less than 24 years of age. They must devote three years, subsequent to obtaining a registrable qualification, to the study of surgery and ancillary subjects; one at least of the three years must be spent in the university. The candidate must submit to the professor of surgery the course of study he proposes to follow, and this course must be approved by the Board of Faculty of Medicine.

One year must be devoted mainly to work in the departments of anatomy, physiology, pathology, and bacteriology, and the candidate must submit evidence of having so worked. Not less than six months of another year must be spent as a resident surgeon in a recognized teaching hospital, and the rest of the year in the study of surgery in a recognized medical centre. Not less than six months of one of the three years must be spent in surgical study abroad.

The Degree of Bachelor of Hygiene and the D.P.H.

A period of not less than two years must elapse between the attainment by a candidate of a registrable degree or qualification in medicine, surgery, and midwifery and his admission to the final examination for the degree of B.Hy. or for the D.P.H. of the University as the

case may be The curriculum extends over a period of not less than twelve calendar months (or an academic year of whole time study covering a period of not less than nine calendar months) subsequent to the attainment of a registrable degree or qualification Candidates for the B Hy must take out the curriculum for Part I of the examination at the University of Durham, but for the D P H. may do so either at the University or at any medical school or institution recognized by the University The examination is divided into two parts Part I is practical, written, and oral, and includes the subjects of bacteriology and parasitology (including immunology, serology medical entomology, etc) especially in their relation to diseases of man, and to those diseases of the lower animals which are transmissible to man , chemistry, physics radiology , and electrology in relation to public health , physiology and biochemistry in their application to nutrition and hygiene , and meteorology and climatology in relation to public health The subjects in Part II include the principles of public health and sanitation , epidemiology and infectious diseases , vital statistics , sanitary law and administration (including public medical services) , sanitary construction and planning , and public health administration This part of the examination is written and oral, and includes practical examinations in infectious diseases , food inspection , inspection of premises dwelling-houses, factories, workshops, schools, etc

Candidates are not admitted to examination in either part until after they have completed the prescribed courses of instruction in the required subjects

Doctor of Hygiene

Candidates for the degree of Doctor of Hygiene must be Bachelors of Hygiene of the university of two years' standing, and are required to satisfy the examiners that they have conducted original research in the subject of public health

Diploma in Psychiatry

Candidates must be registered medical practitioners, and, unless qualified before January 1st, 1911, must have attended, subsequent to passing their qualifying examinations, courses of instruction in (*a*) anatomy ; (*b*) physiology , (*c*) pathology , (*d*) bacteriology , (*e*) psychology and experimental psychology , (*f*) clinical neurology , (*g*) psychiatry , (*h*) clinical psychiatry The examination consists of two parts, namely (1) anatomy, physiology, pathology, and bacteriology , (2) psychology and experimental psychology, neurology, and psychiatry (systematic and clinical) , and candidates may present themselves for the whole examination or for either part separately.

Fees

The following fees are payable Matriculation, £2 , Examinations, Pre registration, £3 3s , First, Second, and Third M B , B S , each £5 , Final M B , B S , £15 , M D and M S each £5, B Hy and D P H , £12 12s , D Psy , £10 10s , and D Hy and D Ch , each £20 , First, Second, and Third L D S , each £3 10s , and Final L D S £5 , First, Second, and Third B D S , each £5 Final B D S £8 , and M D S £5 For degrees and diplomas M B , B S , B Hy and B D S , each £6 6s *plus* the sum of 10s if it is the initial degree taken in the university , M S and M D S , each £6 6s , M D , D Ch , and D Hy , each £10 , D P H , D Psy , and L D S , each £3.

Further information may be obtained from the Dean of the College, University of Durham College of Medicine, Newcastle-on Tyne

UNIVERSITY OF LEEDS

The degrees granted in the Medical Faculty of this university are Bachelor of Medicine, Bachelor of Surgery (M B and Ch B), and Bachelor of Dental Surgery (B Ch D), Doctor of Medicine (M.D), Master of Surgery (Ch M), and Master of Dental Surgery (M Ch D.) It also gives diplomas in public health, in psychological medicine, in dental surgery, and in nursing

Candidates for the M.B must have attended courses of instruction approved by the university for not less than five years, two at least of such years having been passed in the university, at least one year being subsequent to the date of passing the first examination They must also have matriculated by satisfying the examiners in :

I *Either* English Composition and English Literature, *or* English Composition and History.

II *Either* Mathematics *or* Latin.

III } *Three* other subjects not already taken under I and II

(1) English literature , (2) History , (3) Geography , (4) Greek , (5) Latin , (6) French , (7) German (8) Some other language approved by the Board (9) Mathematics (10) Mechanics (11) Physics , (12) Chemistry , (13) General experimental science , (14) Natural History , (15) Botany.

Provided that (*a*) candidates who take Mathematics under II above must include one of the subjects 4—8 , (*b*) candidates who take Latin under II above must include one of the subjects 9—15 In all cases Mathematics is a compulsory subject for admission to the Faculty of Medicine

Exemption from the examination may be granted to applicants holding certificates of having passed examinations of a standard deemed by the Matriculation Board to be at least equal to the Board's examination.

Professional Examinations

The examinations for the M B , Ch B number three. The first deals with (1) physics and inorganic chemistry, (2) organic and physical chemistry, (3) botany, (4) zoology. In each subject laboratory work is included, but the two parts can be taken separately For neither can the candidate present himself until after matriculation and a period of approved work in the respective subjects

The Second Examination —The Second Examination consists of . Part I, materia medica and practical pharmacy , Part II, anatomy and physiology Candidates will be allowed to pass any parts separately

The Final Examination —The Final Examination consists of . Part I, pharmacology and pathology and bacteriology , Part II, medicine, surgery, obstetrics and gynaecology , Part III, forensic medicine, public health, and therapeutics Part I may be taken at the end of the second clinical year, and must be passed before Parts II and III are taken Parts II and III may be taken at the end of the third clinical year but not before the completion of the fifth year of medical study If taken separately Part III may not be passed before Part II

M D —Candidates for this degree must be bachelors of medicine and bachelors of surgery of the university, and subsequently to having graduated must have completed two years of hospital practice or special study approved by the university , or four years in the practice of their profession in one or other of its various branches , six months' hospital practice or special study to count as the equivalent of one year's ordinary practice Any subject of the medical curriculum except surgery may be chosen for the examination, but a thesis, the title of which must previously receive the approval of the Board of the Faculty of Medicine, may be submitted, and if it is adjudged to be of exceptional merit the candidate may be exempted from further examination

Ch M —The candidate for this degree must have been admitted to the M B , Ch B of the university not less than a year previously, and during that time must have held for at least six months a surgical appointment in a public institution affording full opportunity for the study of practical surgery He must also have attended certain courses, including one on ophthalmology and one on pathology and bacteriology , he is then examined in surgery in all its branches and in ophthalmology and pathology and bacteriology

Fees

The Matriculation fee is £2, and on readmission £1 10s For each of the other examinations £6 and £6 on readmission , Ch M £10 and same on readmission , M D £10. On conferment of the degree of Ch M. £5 is payable, and £5 for the M D degree.

UNIVERSITY OF LIVERPOOL

This university, besides granting degrees in medicine (M.B. and M.D.) and in surgery (Ch.B , M.Ch Orth , and Ch M), gives degrees in dental surgery (B D S and M.D S), a degree in hygiene (M H.), and degrees in veterinary science (B.V.Sc., M V Sc , and D V Sc) Diplomas are awarded in dental surgery (L D S), tropical medicine (D.T M.), tropical hygiene (D T H), public health (D.P.H), veterinary hygiene (D V H), and medical radiology and electrology (D M R E) The degree of Doctor of Philosophy (Ph D) may also be taken in the

Matriculation

The matriculation examination is governed by the Joint Matriculation Board, 315, Oxford Road, Manchester, 13, which accepts, under certain conditions, the tests of several other bodies as its equivalent. Candidates will be required to have included mathematics among the subjects in which they have passed at such examination.

Professional Examinations

Candidates for the M.B., Ch.B. degrees have three examinations to pass, the first including (1) chemistry, (2) biology (zoology and botany), (3) physics.

Second M.B.—This test covers (1) anatomy, (2) physiology, including biochemistry and histology.

Final M.B.—The subjects of the Final Examination are: Part I—(*a*) pathology; (*b*) pharmacology and general therapeutics. Part II—(*a*) forensic medicine and toxicology; (*b*) public health. Part III—(*a*) obstetrics and diseases of women; (*b*) surgery, systematic, clinical, operative and practical, including ophthalmology; (*c*) medicine, systematic and clinical, including therapeutics, mental diseases, and diseases of children. Candidates may take Parts I, II, and III separately, provided that candidates may not present themselves for Part III until they have completed the sixth year of medical study.

M.D.—May be conferred on graduates (M.B., Ch.B. Liverpool): (*a*) on candidates of two years' standing who present a thesis acceptable to the Faculty, and certified to be the candidate's own work, together with, if candidate desires, copies of published original papers upon medical science—oral examination on subject of thesis; (*b*) on candidates of five years' standing by examination.

Ch.M.—May be conferred on graduates (M.B., Ch.B. Liverpool) after examination. Other information concerning the diplomas of this university and its medical school will be found on page 440.

Fellowships, Scholarships, and Exhibitions

The university awards Fellowships annually to students of distinguished merit, as follows:

(1) John Rankin Fellowships in Anatomy, two, each of the value of £120, tenable for two years. (2) Ethel Boyce Fellowship in Gynaecology, value £100 and tenable for one year, open to fully qualified medical students of either sex. (3) John W. Garrett International Fellowship in Bacteriology, value £100 and tenable for one year. (4) Robert Gee Fellowship in Human Anatomy, value £100 and tenable for one year. (5) Holt Fellowships in Physiology and Pathology, two in number, value £150 each and tenable for one year. (6) Johnston Colonial Fellowship in Biochemistry, value £100 and tenable for one year. (7) Thelwall Thomas Fellowship in Surgical Pathology, value £150 and tenable for one year. (8) Lady Jones Fellowship in Orthopaedic Surgery, one, value £200, offered every two years.

There are, in addition, scholarships and exhibitions open to medical students.

VICTORIA UNIVERSITY OF MANCHESTER

This university grants the four ordinary degrees in medicine and surgery—M.B. and Ch.B. and M.D. and Ch.M.; a degree and diploma in dental surgery; a diploma in public health; a diploma in psychological medicine; a diploma in bacteriology; and a diploma in pathology. Candidates for degrees must pass the special matriculation examination prescribed by the Faculty of Medicine (or some equivalent examination accepted in lieu thereof: see the prospectus of the Joint Matriculation Board), and study at the university itself for at least two years of the six years' curriculum, subsequent to the passing of the First M.B. Examination. The matriculation examination comprises (1) Latin, (2) mathematics, (3) the English language, its literature and history, (4) mechanics, (5) one subject at choice as approved by the Joint Board. It is held in July and September.

Professional Examinations

M.B., Ch.B.—There are four examinations for this degree. They must be passed in proper order, and before admission to them the candidate must be duly certified as having attended in the subjects involved. The First M.B. is divided into Part I, chemistry and physics; Part II, biology—(*a*) botany, (*b*) zoology. The parts may be taken separately or together. At the Second M.B. the candidate is examined in anatomy (including histology) and physiology; at the third in pathology, bacteriology, and pharmacology (including materia medica and practical pharmacy). The Final Examination is divided into two parts, which may be taken separately. Part I consists of (*a*) forensic medicine and toxicology, and (*b*) hygiene and preventive medicine. Part II consists of (*a*) medicine, including dermatology, diseases of children, and mental diseases; (*b*) surgery, surgical pathology, and diseases of the eye and of the ear, nose, and throat; (*c*) obstetrics and gynaecology.

M.D.—A candidate for this degree must be a Bachelor of Medicine of the university of at least one year's standing. He has a choice between presenting an original dissertation or undergoing a written (as well as a practical and clinical) examination in medicine, and a written and practical examination in pathology, and one other subject selected by himself.

Ch.M.—A candidate must have held, since becoming Ch.B., and for not less than twelve months, a post in a public institution affording opportunity for the study of the branch of surgery in which examination is desired. The examination in Branch I comprises the general field of surgery; Branch II, obstetrics and gynaecology; Branch III, ophthalmology; Branch IV, otology, laryngology, and rhinology.

B.Sc. and M.Sc.—The ordinary degree of B.Sc. in the Schools of Anatomy and Physiology may be obtained by students in medicine who in their third year of study for the degree of M.B., Ch.B. complete the additional courses in these subjects prescribed for this degree. Candidates for the Honours degree of B.Sc. in anatomy or physiology who are students in medicine are required to attend courses in advanced anatomy and physiology for four terms after passing the Second Examination for the degrees of M.B., Ch.B. Graduates in science of this university, of not less than one year's standing from the date of their graduation as Bachelors, may proceed to the degree of M.Sc. by the presentation of an approved thesis on some subject coming within the scope of the Faculty of Science.

FEES

The following examination fees are payable: Matriculation, £2; on readmission, £2. Each M.B. examination, £8 8s.; on readmission, £3 3s. M.D., including the conferring of the degree, £15 15s. Ch.M., £10 for the examination and £10 10s. for conferment of degree. Application for further information should be addressed to the Dean of the Medical School.

UNIVERSITY OF SHEFFIELD

The degrees of this university (M.B., Ch.B., M.D. and Ch.M., B.D.S., and M.D.S.), and the diploma of licentiate in dental surgery, are open to candidates of either sex. Candidates for a degree must have matriculated in the university or have passed such other examination as may be recognized for this purpose, and have passed the preliminary examination in chemistry and physics.

PROFESSIONAL EXAMINATIONS

A candidate for the degrees of M.B., Ch.B. must produce certificates that he will have attained the age of 22 years by the day of graduation; that he has pursued the courses of study required by the university regulations during not less than five and a half years subsequent to the date of his matriculation or exemption from matriculation, three of such years at least having been passed in the Faculty of Medicine of the university, one at least being subsequent to the passing of the Second Examination. The following examinations must be passed in due order.

First Examination.—The subjects are chemistry, physics, and biology. Candidates who have passed the Intermediate Examination of the Faculty of Pure Science in any or all of the subjects of the First M.B. Examination will, on payment of the fee for the latter examination, be deemed to have passed it when they have passed in such

subjects as they did not take for the Intermediate B.Sc. Examination. Candidates on presenting themselves for this examination are required to furnish certificates of having attended for not less than one year approved courses of instruction, after matriculation, in (i) chemistry, inorganic and organic ; (ii) physics ; (iii) biology ; and of having passed or obtained exemption from the preliminary examination in chemistry and physics.

Second Examination.—The subjects are anatomy and physiology (Part I). Candidates must have passed the First Examination, and must have attended (1) courses on anatomy, including lectures and practical anatomy, during five terms ; (2) courses on physiology, including lectures and practical physiology, during one year.

Third Examination.—The subjects are pathology and pharmacology, applied anatomy, and physiology (Part II). Candidates must have attended courses of instruction in pathology for five terms, in pharmacology for four terms (and one term in pharmacy), in applied anatomy for four terms, and in physiology (Part II) for six terms.

Final Examination.—The subjects are: Part I, forensic medicine and public health ; candidates must have attended courses for one term in each subject. Part II, medicine (including mental diseases and diseases of children and vaccination), special pathology (including morbid anatomy and clinical pathology), and therapeutics. Part III, surgery (including the administration of anaesthetics, diseases of the ear, nose, and throat, ophthalmology, and surgical pathology), and obstetrics and gynaecology (including ante-natal and post-natal practice and infant hygiene). Candidates for Parts II and III must have completed a minimum of five and a half years of study.

M.D.—Candidates for the degree of Doctor of Medicine must have passed the examination for the degrees of M.B., Ch.B. at least three years previously, must present a thesis embodying observations in some subject approved by the Professor of Medicine, and must pass an examination in the principles and practice of medicine.

Ch.M.—Candidates for the degree of Master of Surgery must have passed the examination for the degrees of M.B., Ch.B. at least three years previously, and must, since taking the degrees of M.B., Ch.B., have held for not less than twelve months a surgical appointment in a public hospital or other public institution affording full opportunity for the study of practical surgery. The subjects of examination are systematic, clinical, and operative surgery, surgical anatomy, surgical pathology, and bacteriology.

Other information concerning this university will be found in the section devoted to Provincial Medical Schools.

UNIVERSITY OF WALES

The Charter and statutes of the University of Wales provide *inter alia* for a School and a Faculty of Medicine and for the granting of the following degrees: Bachelor in Medicine (M.B.), Bachelor in Surgery (B.Ch.), Master in Surgery (M.Ch.), and Doctor in Medicine (M.D.).

A candidate for the M.B., B.Ch. is required to pursue a course of study of not less than six academic years subsequent to matriculation in the university, and of these years at least three must have been passed in one of the constituent colleges of the university. These are the University College of Wales, Aberystwyth ; University College of North Wales, Bangor ; University College of South Wales and Monmouthshire, Cardiff ; and University College of Swansea. He must also hold an arts or science degree of the University of Wales, or of some other university approved for this purpose. Certain of the courses of study pursued for a B.Sc. or a B.A. degree may be counted as courses required for the degrees in the Medical Faculty.

The courses for the M.B., B.Ch. are divided into two sections, of which the first includes the preliminary subjects—physics, chemistry, botany, zoology ; and the ancillary subjects—organic chemistry, human anatomy, and physiology. Study of the preliminary subjects and of organic chemistry must extend over at least one academic year ; study of physiology and anatomy must extend over at least two academic years ; the first section of the course must occupy not less than three years.

The second section includes courses in pathology, bacteriology, pharmacology, hygiene and forensic medicine, medicine, surgery, and obstetrics and gynaecology, and cannot be commenced, except in the case of pharmacology, until the examinations relating to the preliminary and ancillary courses have been passed. Examinations in all the subjects are held in June of each year, and in pathology, medicine, surgery, obstetrics and gynaecology, in December also.

The university also provides courses of study in public health and in tuberculosis. Candidates for the diploma in public health (D.P.H.) and for the tuberculous diseases diploma (T.D.D.) must possess a medical qualification registrable for practice in Great Britain and Ireland, and must have completed courses of study as prescribed by the regulations either at the Welsh National School of Medicine, Cardiff, or at another institution approved by the university.

Welsh National School of Medicine

This school was reconstituted under the provisions of a Royal Charter granted to the school in February, 1931. The school maintains departments of medicine, surgery, obstetrics and gynaecology, pathology and bacteriology, materia medica and pharmacology, tuberculosis, and preventive medicine.

Full particulars of the conditions of admission to the school and the courses of instruction provided may be obtained on application to the Secretary, Welsh National School of Medicine, The Parade, Cardiff.

English Medical Corporations

There are in England three medical corporations which grant licences to practise—the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Society of Apothecaries of London. The first two combine for certain purposes to form what is known as the Conjoint Board in England. Details concerning this body, its component Colleges, and the third licensing body here follow.

THE CONJOINT BOARD

This body—the Examining Board in England—deals with the qualifications of all candidates for the Licence of the Royal College of Physicians of London and for the Membership of the Royal College of Surgeons of England. It prescribes for them certain periods of study, and recommends those who pass the required examinations for the Licence and for the diploma of Member respectively. The successful candidate is then entitled to register as L.R.C.P.Lond., M.R.C.S.Eng. It performs the same task in connexion with diplomas in public health, tropical diseases, ophthalmic medicine and surgery, psychological medicine, laryngology and otology, gynaecology and obstetrics, and medical radiology, jointly issued by the two Colleges in question. Under the present regulations every candidate for the L.R.C.P. and M.R.C.S. must (1) complete five years of professional study after passing a recognized preliminary examination and a recognized pre-medical examination in chemistry and physics ; (2) comply with the regulations, which may be had from the Secretary, Examination Hall, Queen Square, London, W.C.1 ; and (3) pass the two professional examinations of which particulars appear below.

Regulations for the Conjoint Diplomas

The following is an outline of the present regulations for the L.R.C.P.Lond. and M.R.C.S.Eng. The full regulations and synopses and forms of certificate may be obtained from the Secretary.

Pre-Medical Examination

Students are required to pass a pre-medical examination in chemistry, physics, and elementary biology, conducted by the Conjoint Examining Board, before commencing the five years' curriculum of professional study, or some other examination recognized by the Board—namely, the examination in chemistry, physics, and biology for the degree in Medicine of any university recognized by the Board, the higher school certificates of Oxford and Cambridge Universities and the Oxford and Cambridge Schools Examination Board, the higher certificates of London, Bristol, Durham Universities, the Joint Matriculation Board of the Northern Universities, or the Central Welsh Board higher certificate.

A candidate must enter for chemistry and physics together, and he will not be allowed to pass in one without obtaining at the same time at least half the number of marks required to pass in the other subject. He will be admitted to the examination on producing evidence of having passed the required preliminary examination in general education.

The examination is partly written, partly oral, and partly practical. A candidate rejected in one or both subjects of the examination will not be admitted to re-examination until after the lapse of a period of not less than three months. Not more than two terms of professional study is recognized before the examination in elementary biology is passed.

Professional Examinations

There are two professional examinations, called the First and Final Examinations. The courses of study for the First Examination may be commenced before the pre-medical examination in biology or some equivalent examination has been passed provided three terms of study of anatomy and physiology are completed after passing such examination.

First Professional Examination.—The subjects of this are: Section I, (*a*) Anatomy, including histology and embryology; (*b*) physiology, including biochemistry. Section II, Pharmacology and materia medica. A candidate must have attended at a recognized Medical School courses of instruction in anatomy, including embryology, during five terms, in the course of which he must have dissected the whole body; courses of instruction in physiology, including biochemistry and biophysics, during five terms; courses of instruction in pharmacology and materia medica. A candidate may present himself for the two sections together or separately, but he must take parts (*a*) and (*b*) of Section I together until he has passed in one or both parts, but a candidate will not be allowed to pass in one part unless he obtains at the same time at least half the number of marks required to pass in the other part. Section II of the examination may be passed at any time before the candidate enters for the Final Professional Examination, provided that the courses for admission to Section I have been completed. A candidate who produces satisfactory evidence of having passed an examination in the subjects of Section I or of either part of Section I and of Section II in the examination for the degree in Medicine conducted at a university recognized by the Board will be exempted from further examination in such subject or subjects.

Final Professional Examination.—The subjects of this are: Section I, Pathology (including morbid anatomy, morbid histology, and clinical pathology) and Bacteriology. Section II, Part I, Medicine, including medical anatomy, forensic medicine, and public health; Part II, Surgery, including surgical anatomy and the use of surgical appliances; Part III, Midwifery and gynaecology. The examination is partly written, partly practical, partly clinical, and partly oral. A candidate may take Sections I and II and the three parts of Section II of the Final Examination separately, or may take the whole examination together. He will be required to produce the certificates prescribed by the regulations before being admitted to the respective parts of the examination. No exemption is granted from any subject in the Final Examination.

Fees

The fee for the *Pre-Medical Examination* is four guineas, for re-examination in Chemistry two guineas, for re-examination in Physics one guinea, and for Biology one guinea. The fee for the *First Professional Examination* is ten guineas, for re-examination after rejection in Section I six guineas, for re-examination after rejection in either part of Section I three guineas, for re-examination after rejection in Section II three guineas. The fee for admission to Section I of the *Final Professional Examination* is four guineas; for admission to Section II, Part I, ten guineas; Part II, ten guineas; Part III, six guineas; and the re-examination fees are respectively three guineas, six guineas, and five guineas.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

This College has three grades—its Licentiates, its Members, and its Fellows. The Licence is now only issued through the Conjoint Board. The Membership (examinations for which are held in January, April, July, and October) is only granted to those who have obtained the Licence or to those who are graduates of a recognized university; in any case they must be persons over 23 years of age. Candidates are examined in pathology and the practice of physic, partly in writing and partly viva voce; they are also examined in Latin, Greek, French, and German. The languages are not compulsory, but credit is given to those who show a knowledge of them. The fee for the Membership is £42, or in the case of a Licentiate £21. There is a fee of £10 10s., payable before entrance to the examination, which in the case of successful candidates is reckoned as part of the Membership fee. The body of Fellows is maintained by election from among the Members.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

This College has two grades—Members and Fellows. The Members are admitted as stated in the section dealing with the Conjoint Board. The Fellowship is granted after examination to persons at least 25 years of age who have been engaged in professional studies for six years. There are two examinations for the Fellowship—the first in anatomy and physiology, held in the months of June and December, which may be passed after the third winter session; the second held in the months of May and November, chiefly directed to surgery, which may be passed after six years of professional study. Candidates must pass the Final Examination of the Examining Board in England and be admitted Members of the College before admission to the Second Examination for the Fellowship, except in the case of graduates in medicine and surgery of not less than four years' standing of universities recognized by the College for the purpose, who are required to attend for one year the surgical practice of a general hospital recognized by the College after obtaining their degrees, which must be registrable in this country.

Fees.—At First Examination, £8 8s.; for re-examination, £5 5s. At Second Examination, £12 12s. Admission fee £10 10s. for members, £31 10s. for non-members.

THE SOCIETY OF APOTHECARIES OF LONDON

This Society confers a registrable diploma in medicine, surgery, and midwifery, now known as the L.M.S.S.A. (Licentiate in Medicine and Surgery of the Society of Apothecaries), on those successful at the following examinations:

Pre-medical Examination.—Chemistry and physics, and elementary biology.

Primary Examination.—This includes anatomy, physiology and histology, written, oral, and practical, and materia medica and pharmacy, written and oral. Candidates referred will be required to produce evidence of further study before being admitted to re-examination. Candidates will be excused any or all the subjects of the Pre-medical and Primary Examination on producing evidence that they have passed the equivalent examinations before an examining body recognized by the Society.

Final Examination.—This is divided into four sections: A, Principles and practice of surgery, including surgical pathology, surgical anatomy, operative manipulations, instruments and appliances; B, Principles and practice of medicine (including therapeutics, pharmacology, and prescriptions), general and medical pathology, bacteriology, and morbid histology; C, Midwifery, gynaecology, diseases of newborn children, obstetric instruments and appliances; D, Forensic medicine, hygiene, theory and

practice of vaccination, and mental diseases. A, B, and C are written, oral, and clinical. D is written and oral. A, B, C, and D may be taken at separate examinations, but there is no exemption from any subject of the Final Examination. Candidates referred in A, B, or C will be required to produce evidence of further study before re-examination.

The fee for the Pre-Medical Examination is £5 5s.; for the Primary and Final, £21. The regulations and synopses relating to the several examinations, and other information, may be obtained from the Registrar, the Society of Apothecaries, Water Lane, Queen Victoria Street, E.C.4.

Mastery of Midwifery

The Society has recently instituted a Mastery of Midwifery, and issues a diploma under this title denoting the possession of specialized knowledge of ante-natal care, midwifery, and child welfare. The examinations take place in May and November, and candidates are required to submit certificates, etc., twenty-one days before date of examination. A severe test has been imposed so as to ensure a high standard of professional knowledge, but the diploma is not registrable under the Medical Acts. Admission is open to all who have been for not less than three years in possession of a registrable medical qualification, and who have had certain prescribed experience at recognized institutions concerned with obstetrics, ante-natal work, and child welfare work. Medical officers employed by a public health authority, and having special duties connected with maternity and child welfare, are admitted to the examination on production of evidence to that effect. The entrance fee for the examination is £10 10s., and a further fee of £10 10s. is payable by successful candidates before admission to the Mastery. Copies of the regulations may be obtained from the Registrar at the address given in the preceding paragraph.

British College of Obstetricians and Gynaecologists

The British College of Obstetricians and Gynaecologists was founded and incorporated in September, 1929. The objects of the College are set forth in the memorandum of association. The first, a very important object, is "to encourage the study and practice of obstetrics and gynaecology, subjects which should be inseparably interwoven." The College consists of Fellows and Members, and has power to take part in the examination of candidates for admission to the British register of medical practitioners, in co-operation with teaching and/or examining bodies authorized to conduct medical examinations for the purpose of qualifying candidates for admission to the British register of medical practitioners, if invited by such bodies. It also has power to grant diplomas and certificates in obstetrics and gynaecology, either alone or in co-operation with teaching and/or examining bodies authorized to grant such diplomas. Candidates for the Membership of the College have to show evidence of having held resident appointments in general medicine or surgery, and also in obstetrics and gynaecology, before entering for the examination. The Fellowship of the College is granted to those Members who are judged by the College to have advanced the science and art of obstetrics and gynaecology. The Fellowship and Membership of the College include practically every teacher of obstetrics and gynaecology in Great Britain, and many distinguished exponents in the British Dominions. The Fellowship or Membership of the College is now a necessary qualification for election to the staff of several obstetric and gynaecological hospitals, and it is hoped that in time it will be essential for election to the staff of all such hospitals. Consequently, all intending to specialize in these subjects should endeavour to obtain as soon as possible the Membership, the conditions and regulations of which may be obtained from the honorary secretary. The president is Dr. J. S. Fairbairn, the treasurer Mr. Eardley L. Holland, and the honorary

Scotland

THE UNIVERSITIES

There are in Scotland four universities, each possessing a Faculty of Medicine, and having the right to confer degrees which admit the holder to the *Medical Register*. In essential points the regulations in their medical faculties for undergraduates are much alike, so that a general account can be given of all of them together.

The universities are those of Edinburgh, Glasgow, Aberdeen, and St. Andrews. The provision each of the cities in which these universities are situated makes for the education of medical students will be found in the section on Medical Schools in Scotland; here it need merely be said that degrees in medicine from Scotland as a whole have always enjoyed a high repute.

The degrees granted in medicine and surgery to candidates of either sex are four in number—Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.). The two former are not obtainable one apart from the other. Besides these degrees a diploma in tropical medicine and hygiene is obtainable from the University of Edinburgh, as also diplomas in psychiatry, public health, and radiology. As for public health, registrable degrees in this subject are granted by the University of Glasgow, while diplomas in public health may be obtained from the Universities of St. Andrews and Aberdeen.

The conditions for admission of graduating students of medicine are the same as those in the Faculties of Arts or Science (for degrees in pure science). Prospective medical students are also required to pass a pre-registration examination in chemistry and physics. This is not enforced at Aberdeen or St. Andrews.

Professional Education

The regulations comply in all respects with the requirements and recommendations of the General Medical Council, and, in addition, necessitate definite study for stated periods of diseases of children, of the larynx, ear, and nose, of the skin, of ophthalmology, and of mental diseases. In respect of the various courses certificates must be obtained showing that the student has not only attended regularly, but has duly performed the work of the class. Out of the necessary five years of medical study not less than three (or in certain circumstances two) must be spent at the university whose degrees the student hopes to obtain, and the balance at any place officially recognized for such purpose. In each academic year there are two sessions—one lasting from the beginning of October to the middle of March, and the other from the middle of April to the beginning of July.

Professional Examinations

The distinctive feature of the Scottish curriculum is that though nominally there are only four examinations, each of these may be, and habitually is, split up by the student into sections. Hence, a student may complete some stage of his career during the course of nearly every session. Thus, by the end of the first winter session the student may pass in zoology and chemistry.* At the end of the first summer session he can finish with botany and physics,* and with anatomy and physiology at the end of the second. Pathology and materia medica he may pass at the end of the third year, and so on, until the final examination in midwifery, surgery, and medicine, and the corresponding clinical subjects, at the end of the fifth year of study. At each examination the candidate may pass "with much distinction" or "with distinction," and a record is kept of the merit displayed, so that when the time comes for the candidate to graduate, one who has done well throughout can be declared as graduating with

* In the case of Glasgow these subjects—chemistry and physics—
d.

ground at Honor Oak Park is reached from the hospital in fifteen minutes. The Gordon Museum of Pathology, the Wills Library, the departments of chemistry, physics, pathology, and pharmacology, and the school buildings in general, afford opportunities for a liberal education and for research, and provide the full curriculum for all medical degrees and diplomas. New departments of anatomy, physics, and biology have recently been completed. They are equipped on the most modern lines, and provide ample accommodation for teaching and research. Special classes are held for the First and Second Examinations for medical degrees of the University of London, for the pre-medical examination, and for the First and Final F.R.C.S.Eng. Examinations. Special teaching is provided to meet the requirements of the Universities of London, Oxford, and Cambridge in general pathology and pharmacology.

Appointments.—All appointments are made according to the merits of the candidates, as determined by a committee of the medical staff. Sixteen out-patient officers, eight house-physicians, twenty assistant house-surgeons, eight house-surgeons, two ophthalmic house-surgeons, two genito-urinary house-surgeons, two house-physicians (children's department), two house-physicians (dermatological and neurological), and nine resident obstetric assistants are appointed annually. The house-physicians and house-surgeons, obstetric residents, ophthalmic house-surgeons, and genito-urinary house-surgeons hold office for six months each, and receive free board and lodging in the college. Every student is provided with rooms and commons in the hospital during the period of his "take in" as senior dresser. In addition to the clerkships and dresserships in the medical and surgical wards, students are appointed to the posts of clinical assistant dresser, or clerk in the special departments of ophthalmology, laryngology, gynaecology, diseases of children, diseases of the nervous system, dermatology, otology, actinotherapeutics, anaesthetics, dentistry, orthopaedics, vaccine, tuberculosis, fractures, and genito-urinary and venereal disease; clinical assistantships in the various special departments are open to post-graduates.

Scholarships, Prizes, etc.—The following scholarships in Arts and Science are awarded. A. Open Junior Scholarships: (1) An Arts Scholarship of the value of £100, (2) a Science Scholarship of the value of £100; these are awarded annually in April. (3) A War Memorial Scholarship of the value of £200, awarded alternately in Arts and Science. This scholarship is open every other year; the next award will be made in April, 1934 (in Science). B. Confined Scholarship in Science. A Junior Science Scholarship of the value of £100 is offered for competition annually in April to candidates who have attended the preliminary science classes at this school. Candidates for these scholarships (male students only) must be under 20 years of age on August 1st of the year of the competition. C. University Entrance Scholarships: (1) A War Memorial Scholarship of the value of £100, (2) an Exhibition of the value of £60; both of these are awarded annually in June or July. Candidates will be examined in two of the following subjects at their option: (1) anatomy and embryology; (2) physiology; (3) pathology, including bacteriology; (4) biochemistry. The examination is held in common with the Medical School of St. Thomas's Hospital and the Medical College of St. Bartholomew's Hospital. Full particulars as to the scholarships may be obtained from the Dean of the Medical School. Junior prizes for general proficiency, £20, £15, £10; Hilton Prize for dissection, £5; Michael Harris Prize for anatomy, £10; Sands-Cox Scholarship for physiology; £15 for three years; Wooldridge Memorial Prize for physiology, £10; Beaney Prize for pathology, £34; Treasurer's Medal and Prize in medicine, Treasurer's Medal and Prize in surgery, and the Golding-Bird Gold Medal and Scholarship for bacteriology (£20) are awarded annually after competitive examination. The Gull Studentship in pathology, of the value of £250 per annum, the Beaney Scholarship in materia medica, of the value of about £70, and the Anderson Demonstratorship in clinical chemistry, value £175 per annum, are awarded without examination to enable research to be carried on in these subjects. An Arthur Durham Travelling Scholarship of £100 is awarded triennially. The Griffiths Demonstratorship in Pathology, of the value of £320 per annum, and the Hilda and Ronald Poulton Fellowship, value £150 per annum, are awarded without examination.

An annual composition fee is paid by all students until a registrable qualification is obtained. Further information may be obtained from the Dean of the Medical School, Guy's Hospital, London Bridge, S.E.1.

King's College Hospital

The new buildings of the Medical School at Denmark Hill were opened by H.R.H. Prince George on July 4th, 1933. These include the museum, research laboratory, research rooms, common rooms, lecture rooms, refectory, and two squash rackets courts. The medical school deals with the Final Examination subjects of the medical curriculum. The hospital was opened in 1913, and is one of the most modern and best equipped in England. In the education at the hospital a special feature has always been the individual attention given to each student. The studies are co-ordinated under the direction of senior members of the honorary staff, assisted by medical, surgical, obstetric, and pathological tutors.

The Hall of Residence for members of the medical school is situated on Champion Hill. Both the Hall and the athletic ground are within ten minutes' walk of the school.

Appointments.—Sixteen resident medical and surgical officers are appointed half-yearly, as well as dressers and clerks in the wards, out-patient departments, post-mortem rooms, and special departments. Each of the special departments has several clinical assistants. There are five registrars and four tutors, all of whom receive salaries.

The Clubs and Societies Union combines athletics, music, and other societies connected with the school, and provides also a common room.

Scholarships, etc.—At entrance: Science Scholarship, £75. At commencement of Final Studies: Anatomy and Physiology Scholarship, £75; Pathology Scholarship, £75; two Raymond Gooch Scholarships, each £120; two Burney Yeo Scholarships, each £105 (for Oxford and Cambridge students); Seaman Scholarships, £50 a year up to five years; Epsom College Scholarship, £100; Senior Scholarship, £40; Todd Prize, Tanner Prize, Ferrier Prize in Neurology, Class Prizes and Medals.

Fees.—The composition fee is 93 guineas if paid in one sum. Entrance fee of 10 guineas includes membership of the Clubs and Societies Union.

Dental School.—This school was opened in October, 1923, and, in conjunction with King's College, provides complete courses for dental degrees and diplomas.

The calendar of the school can be obtained on application to the Dean, John A. Drake, M.D., F.R.C.P., D.P.H., or to the Secretary of the Medical School, S. C. Ranner, M.A., King's College Hospital, Denmark Hill, S.E.5.

The London Hospital

This hospital, with its medical college and dental school, is situated in the Mile End Road, E.1. The hospital contains 843 beds, which are in constant use. During 1932, 14,634 patients passed through the wards and 101,242 out-patients received treatment. There are special departments for the treatment of diseases of the ear, nose, throat, eye, skin, and teeth, and in addition there are departments devoted to gynaecology and obstetrics, paediatrics, orthopaedics, brain surgery, venereal diseases, radiology, electro- and physico-therapeutics, radium, and vaccine therapy. The number of major operations which were performed amounted to 7,708.

The hospital presents, therefore, a large field for clinical instruction, and in its wards and out-patient and special departments exceptional opportunities are afforded for acquiring an extensive and practical experience of all phases of disease.

A clinical unit in medicine, under the charge of a whole-time director, assisted by an assistant director, two assistants, and two house-physicians, provides for the use of elaborate methods of diagnosis and treatment, and takes a leading part in the initiation and co-ordination of medical research. To each medical and surgical firm throughout the hospital there is attached a first assistant, who is responsible for instructing the clerks or dressers of the firm in elementary medicine and surgery, and who assists the honorary members of the firm in the preparation of their demonstrations. In the department of obstetrics and gynaecology there is a first assistant and two resident accoucheurs. In the department for children's diseases there is a first assistant, one house-physician, and two clinical assistants. In the department of brain surgery there is a house-surgeon. Special courses of lectures

demonstrations are arranged in medicine and surgery and in their ancillary subjects Opportunities for research are provided under the supervision of the staff

All the departments are modern and adapted for the teaching of all subjects in the various curricula Special courses of instruction are held in preparation for the examinations of the University of London, for the Fellowship of the Royal College of Surgeons, and for the Membership of the Royal College of Physicians Special entries can be made for the medical and surgical practice of the hospital. Two resident hostels are provided for the convenience of students and the holders of house appointments The athletic ground, of over thirteen acres, is at Higham's Park, and is open to all members of the Club s Union.

Appointments —The salaried appointments, open to past students of the hospital, are those of assistants to the medical unit , first assistants to the medical and surgical firms and to the department of obstetrics and gynaecology , medical, surgical, and obstetric tutors , clinical assistants in the medical, surgical, ophthalmic, aural, light and skin, orthopaedic, and electrical departments, and in the Institute of Pathology There are appointed annually 4 resident accoucheurs, 14 resident house-physicians and 23 resident house surgeons, 14 resident receiving room officers, 8 resident emergency officers, 8 clinical assistants to the medical out-patient department, and 16 clinical assistants to the surgical out-patient department also paid and unpaid clinical assistants in the various special departments In addition, there are numerous assistantships, clerkships, and dresserships in the departments of medicine, surgery, gynaecology, and obstetrics

Scholarships and Prizes —The following is a list of scholarships and prizes —At entrance Price Scholarship in science, £100 Two open scholarships, each of the value of £100 A Scholarship open to students of Oxford and Cambridge Universities £100, anatomy and physiology , Entrance Scholarship in science, £50 , Epsom Scholarship "free medical education" After entrance Buxton Prize in anatomy and physiology, £40 , Letheby Prizes in organic chemistry and chemical pathology, £25 , Prize in clinical obstetrics and gynaecology £20 , Duckworth Nelson Prize in practical medicine and surgery, £10 , Hutchinson Prize in clinical surgery, £60 , Treves Prize in clinical surgery £20 Sutton Prize in pathology, £20 , Sir Andrew Clark Prize in clinical medicine and pathology, £14 , F A M Ross (proxime) Prize in clinical medicine and pathology £10 10s Anderson Prizes in elementary clinical medicine £20 Dressers' Prizes £20 Practical Anatomy Prizes, £10 , Arnold Thompson Prize in medical and surgical diseases of children £15 Liddle Prize £120 , Francis Farmer Entrance Scholarship in biology chemistry and physics £25 , Harold Fink Prize in dental surgery £8 8s The "London" Prize in dental prosthesis £6 6s Six class examination prizes of the value of £3 3s to £5 5s are offered for competition at the end of the courses of lectures in the dental curricula Funds to the value of over £11 000 permit of financial assistance being given to students and graduates engaged in medical research

Fees —Entrance fee 20 or 15 guineas, according to examinations passed , annual fee, 40 guineas

Full information may be obtained from the Dean at the London Hospital Medical College, Mile End, E 1

The Middlesex Hospital

The school and hospital are in Mortimer Street, W 1, close to Oxford Circus, Goodge Street, and Great Portland Street stations There are a gymnasium, squash rackets court, common rooms, and restaurant within the hospital precincts, and an athletic ground within easy reach The hospital contains 468 beds, including a wing containing 90 beds for patients suffering from cancer There are special wards for maternity and gynaecological cases, for neurological cases, for cases of venereal disease, and for diseases of children and of the skin and eye, and a newly built west wing and residents' house.

The medical school, which includes the Bland Sutton Institute of Pathology, the S A Courtauld Institute of Biochemistry, the Barnato Joel Laboratories, and the Ferens Institute of Otology, is completely equipped for teaching the entire medical curriculum, including the pre-medical subjects, chemistry, physics, and biology. The Bland Sutton Institute, under the direction of the Professor of Pathology, contains large pathological and public health laboratories, and smaller rooms for original investigation, as well as a pathological and anatomical museum Bacteriological and micro-scopical examinations of material from the wards, operating theatres, and out-patient departments are carried out in the laboratories, and senior students are eligible for clerkships in connexion with this work Junior assistants in the pathological and bacteriological laboratories are elected annually from recently qualified students Every facility is given for original research The Biochemical Institute is under the charge of the Professor of Biochemistry, and contains teaching and research laboratories in addition to those devoted to the routine chemical pathological work of the hospital The Barnato-Joel Laboratories offer unrivalled opportunities for the study of cancer in both its clinical and pathological aspects

Appointments —Thirty-three resident appointments are open annually for competition among students of the hospital The officers reside and board in the residential college free of expense Two casualty medical and two casualty surgical officers, and four resident officers to the special departments, are appointed annually Eight house surgeons are appointed every year at intervals, after examination , eight house-physicians are also appointed annually at similar intervals An obstetric and gynaecological house surgeon is appointed every six months One senior and two junior resident assistant anaesthetists are appointed annually. A dental house surgeon is appointed every six months. Nine registrars, each at a salary of £300 per annum, are appointed annually In the out-patient departments and wards the appointments are clerk and dresser to the physicians and surgeons to out-patients ; clerks in the departments for diseases of the skin and nervous diseases , dressers to the department for diseases of women, to the ophthalmic surgeon, to the throat and ear department, to the orthopaedic department, and to the dental surgeon Extern midwifery clerks and post-mortem clerks are also appointed , every student secures six months' experience in midwifery and gynaecology without leaving London The appointments are so arranged that every student may, during his course, hold all the out patient and in patient clerkships and dresserships Non resident qualified clinical assistants are appointed in the medical, surgical, skin, neurological, ophthalmic, throat and ear, odontological, children's, and electro therapeutic out patient departments

Scholarships —There are two Entrance Scholarships value £100 each Two annual Entrance Scholarships of the value of £90 and £60 respectively are open to students of the Universities of Oxford and Cambridge who have completed the curriculum for or passed the examinations in anatomy and physiology Students joining the school in the previous April are eligible The Freer Lucas Scholarship is annually awarded on the nomination of the Head Master to a pupil of Epsom College who has passed the first examination for medical degrees (Preliminary Scientific Examination) There is also a scholarship awarded annually to students from New Zealand which affords the holder the clinical advantages of the hospital for one year In addition to the Entrance Scholarships there are numerous other valuable scholarships prizes, and exhibitions open to students of the hospital, including the Broderip Scholarships value £60 and £40 , Lyell Gold Medal and Scholarship, value £55 5s , Freeman Scholarship, value £30 John Murray Gold Medal and Scholarship, value £25 , Hetley Clinical Prize, value £25 , Leopold Hudson Prize, value 11 guineas , and the Second Year's Exhibition, value 10 guineas

The rebuilding of the hospital is being completed without the loss of a single bed, or any disorganization of its clinics

Fees —(*a*) Entrance fee, 25 guineas, payable on joining the medical school , Pre medical students For one year or less £21 (*b*) Students who have completed the Preliminary Science course Five annual fees of £45 The annual fee for further attendance at the medical school, if a registrable qualification has not been obtained, is £23 (*c*) Oxford and Cambridge and other students who have completed the Intermediate course entrance fee, 15 guineas three annual fees of £45 , further annual fees as above These fees are inclusive and cover the cost of instruction in vaccination fevers etc , and also the subscription to the amalgamated clubs and hospital journal

Further information may be obtained from the Dean or the School Secretary

St. Bartholomew's Hospital

This institution fills one side of Smithfield and Giltspur Street, covering the greater part of a large island of ground separated practically from all other buildings; it is on the edge of the City, and easily reached from all parts of London. The hospital contains 762 beds. Extensive buildings, opened in July, 1907, occupy part of the ground acquired from the old Bluecoat School, and these materially enhance the attractions of the hospital as a place of medical study. The medical school buildings, including the library, the museum, and the chemical, biological, and anatomical departments, have now at their side a very large building, which includes club rooms for the Students' Union, a writing room, luncheon and dining halls, new quarters for the resident staff, and an out-patient department and accommodation for special departments of such large size as to be unsurpassed by any hospital in the kingdom. During the year 1909 a second block of new buildings was completed. These form the pathological department, and include, in addition to an extensive post-mortem room, large and well-equipped laboratories for clinical pathology, pathological histology, bacteriology, and chemical pathology, altogether forming the most complete pathological department in the country. A further large block in Giltspur Street was acquired in 1923, and has been equipped by the construction of new lecture theatres and extensive laboratories for physics, chemical physiology, experimental physiology, histology, and pharmacology. The new block of surgical wards and five operation theatres (one attached to each surgical unit), with accommodation for 250 patients, was opened in June, 1930. One of the old blocks previously used for surgical cases has been reconverted for the housing of an enlarged gynaecological and obstetrical unit, with separate operation theatres attached. The Students' Union owns grounds of some ten acres in extent for recreative purposes at Winchmore Hill, which is easily accessible from the hospital.

The Medical College has recently purchased the site and buildings in Charterhouse Square (five minutes' walk from the hospital), formerly occupied by the Merchant Taylors' School, and the whole of the pre-clinical departments will shortly be established there. Various athletic amenities are also available on this new site.

Special classes are held for students preparing for the Preliminary Scientific and other examinations, for the M.B., M.D. of the Universities of Oxford, Cambridge, and London, and for the higher surgical degrees at the same universities, including the M.Ch.Oxon., M.Chir.Cantab., M.S.Lond., and F.R.C.S.Eng.

Clinical Units.—Special clinical units have been established in medicine and surgery, each under the charge of a professor and director, who devotes the whole of his time to the purpose of hospital practice, teaching, and research. In each unit there are an assistant director and four assistants, for whom special laboratory accommodation has been provided by a gift from the Sir William Dunn Trustees. The appointments of clerks and dressers in these departments are open to all students, and arrangements are made for all students to study in these units during a part of their clinical course.

Appointments.—Clinical clerks to the physicians and to the physician-accoucheur, and dressers to the surgeons and in the casualty department, are chosen from the students; clerks and dressers are also selected from the students to attend in the out-patient rooms, in the special departments (ophthalmic, orthopaedic, gynaecological, children's, laryngological, aural, dermatological, venereal, electrical, and dental), and in the post-mortem room. Chief assistants and clinical assistants are selected from qualified men appointed yearly to help in the general medical, surgical, and in special departments. Ten house-physicians and ten house-surgeons are appointed annually. During their first six months of office they act as "junior" house-physicians and house-surgeons, and receive a salary of £80 a year. During their second six months they become "senior" house-physicians and house-surgeons, and are provided with rooms by the hospital authorities, and receive a salary of £80 a year. A resident midwifery assistant, an ophthalmic house-surgeon, a house-surgeon to the skin and venereal department, and a house-surgeon for diseases of the throat, nose, and ear are appointed every six months, and are provided with rooms and receive a salary of £80 a year. Three resident administrators of anaesthetics are appointed—the senior for one year at a salary of £150, and two juniors for six months with a salary at the rate of £80 per annum—and all are provided with board and rooms. An extern midwifery assistant is appointed every three months, and receives a salary of £80 a year.

Scholarships.—Five Entrance Scholarships and Exhibitions are annually awarded after examinations held in July, and one (the Shuter Scholarship) after examinations held in June. The subjects of examination and conditions of eligibility for these scholarships are: (1) and (2) One scholarship, value £100, and one exhibition, value £60, in any two of the following subjects: human anatomy and embryology, physiology, pathology (including bacteriology), biochemistry. Candidates must have completed their examinations in anatomy and physiology in a British school or university outside the London Metropolitan area. (3) One scholarship, value £100, in the three following subjects: chemistry, physics, biology; limited to students under 21 years of age who have not entered on the medical or surgical practice of any London medical school. (4) An entrance scholarship in arts, of the value of £100, in mathematics; Latin or Greek, or French or German; a second language or chemistry or physics. (5) The Jeaffreson Exhibition in the same subjects as No. 4, of the value of £50. Candidates for Nos. 4 and 5 must be under 19 years of age. (6) The Shuter Scholarship value £50, in anatomy and physiology, is confined to Cambridge graduates. The total value of the scholarships and prizes is over £1,500 annually.

Further information and a handbook can be obtained on application to the Dean of the Medical College, St. Bartholomew's Hospital, E.C.1.

St. George's Hospital

This school is at Hyde Park Corner, and is carried on in connexion with St. George's Hospital, an institution having a service of 436 beds, of which 100 are at the convalescent hospital at Wimbledon. It provides for the instruction of its students in the preliminary and intermediate subjects of the curriculum at the teaching centres of London University established at King's College and University College. The school at Hyde Park Corner is devoted entirely to the teaching of clinical subjects, great attention being paid by the members of the staff to individual teaching. A number of special courses are given, in which the requirements of university and all other examinations receive careful attention.

The St. George's Hospital Club consists of an amalgamation club, with smoking and luncheon rooms on the hospital premises, and other students' clubs, with an athletic ground at Wimbledon. Students have the advantage of a well-filled library of medical and scientific books. A register of accredited apartments and a list of medical men and others willing to receive St. George's men as boarders may be seen on application to the Dean.

Appointments.—Two house-physicians, two house-surgeons, and two casualty officers are appointed every three months. The house officers reside and board in the hospital free of expense. The casualty officers are non-resident, and receive salaries at the rate of £60 per annum. After the student has held a house appointment, the following are, among others, open to him: assistant resident physician at £250 per annum; assistant resident surgeon at £250 per annum; medical officer to the Atkinson Morley Convalescent Hospital at £300 per annum; medical registrarship at £200 per annum; surgical registrarship at £200 per annum; medical officer in the biochemical department at £100 per annum; assistant curatorship of the museum, £100 per annum; obstetric assistantship, resident, at £100 per annum; the post of resident anaesthetist at £100 per annum.

Scholarships.—The following Entrance Scholarships and Exhibitions in anatomy and physiology and in general biology are awarded in July to candidates who have passed the second M.B.London or corresponding examination: the William Brown Exhibition of the value of £120; the William Brown Exhibition of the value of £80; Anne

Fernee Scholarships (two) of the value of £80 each; Anne Selina Fernee Exhibitions (two) of the value of £60; Devitt-Pendlebury Scholarship of the value of £40; and Exhibitions, each of the value of £40 and up to four in number. Other prizes to the value of £200 are awarded annually to the students of the hospital.

Fees.—First year (First M.B. or pre-medical course), £36 15s.; second and third years, £42 each. For the course of clinical study, in the fourth and subsequent years, entrance fee, £10 10s.; annual composition fee, £42. No entrance fee is payable by St. George's students who have studied at King's College or University College.

Further information may be obtained from the Dean of the Medical School.

St. Mary's Hospital

This hospital and medical school are situated close to Paddington Station (G.W.R.), having on one side a poor district of 500,000 persons, and on the other side the residential districts of Kensington and Bayswater. The hospital contains 370 beds, and extensions recently completed have provided two new operating theatres. By a scheme of affiliation, for teaching purposes, of several neighbouring hospitals, the teaching facilities extend over 1,000 beds. By arrangement with the Lock Hospital, students take the courses of instruction in venereal diseases there. The athletic ground (ten acres) is situated at Wembley, and can be reached in twenty minutes by a constant service of trains.

Clinical Facilities.—Clinical units in medicine and surgery were established in 1920, and are formally recognized by the University Grants Committee, St. Mary's being one of the six medical schools in London which enjoy this privilege. Under this system professors of medicine and surgery, with competent assistants, give their whole time to teaching and research. This means a regularity of teaching and a degree of individual attention that are only possible where units exist. The system also provides additional salaried posts which are open to students after qualification.

Teaching of Midwifery.—The hospital has lying-in beds, to which considerable additions have been made during 1933, and in addition to the instruction thus obtained each student attends a short course at Queen Charlotte's Hospital as part of his training in midwifery, without additional fee.

Institute of Pathology and Research.—Students specially interested in pathology and bacteriology have singular advantages at St. Mary's. The Institute comprises seven special departments, the whole being under the personal direction of Sir Almroth Wright, F.R.S. Research scholarships of £200 each are awarded annually to students working in the departments of the Institute; and research beds are provided. Clerkships in pathology and bacteriology and chemical pathology, lasting for a period of three months, are open to students of the fifth year, and enable them to carry out the pathological and bacteriological investigations of the wards, and learn the necessary technique under supervision. Seventy-two of these posts are available annually. Numerous appointments are open to newly qualified members of the medical school, including ten salaried posts, with salaries varying from £200 to £750 per annum.

Rebuilding of the Medical School.—During the past three years the Medical School has been rebuilt on a site adjoining the hospital, and the buildings are now in use. The architect, Sir Edwin Cooper, A.R.A., has contrived to solve the difficulty of making a building, mainly devoted to laboratories, at once perfect for its purpose and attractive to the eye. The building consists of five floors with a basement, and provides for the teaching of the preliminary and intermediate subjects of the medical curriculum, with ample space for research work. The library and speech hall occupies a prominent position upon the ground floor, and has a balcony running round it upon the first floor level, making it 24 ft. high in all. It is panelled throughout in oak. The students' restaurant opens on to a courtyard, under which is a garage for fifty cars. The swimming bath also opens upon the courtyard. A squash racquets court and gymnasium with a boxing ring open out of the students' common room.

Complete Curriculum.—The medical school provides complete courses of instruction, and students can join at once on passing a preliminary examination in arts. Terms begin in October, January, and April.

Entrance Scholarships.—Two Entrance Scholarships of £210 each are awarded annually in July by nomination on the lines of the Rhodes Scholarships. The Palmer Scholarship of £25 per annum for two years is awarded in alternate years. The Geraldine Harmsworth Scholarship (£200) and one or more University Scholarships of £200 are awarded annually in July.

Fees.—Composition fees for entire curriculum (6 years), £205 in one sum, or £215 by five annual instalments. Composition fee for clinical curriculum (3 years), 95 guineas in one sum, or 100 guineas by two annual instalments. As an alternative, students may pay an annual fee of 40 guineas, with an entrance fee.

St. Thomas's Hospital

This school and hospital are situated in Lambeth, on the south bank of the Thames, facing the Houses of Parliament, and form one of the well-known architectural features of London.

The school buildings, which are separated from the hospital by a quadrangle, comprise lecture theatres, laboratories, and classrooms well adapted for the modern teaching of large bodies of students in the subjects of the medical curriculum. A splendid library and reading room and a complete museum are open to all students from 9 a.m. to 5 p.m., on Saturdays to 1 p.m. St. Thomas's House, the Students' Club, comprises spacious dining and club rooms, etc., and in addition provides accommodation for some sixty resident students. Two squash racquets courts adjoin St. Thomas's House, and there is a hard tennis court in the Medical School quadrangle. The sports ground, more than nine acres in extent, is at Chiswick. It can be reached in forty minutes from the hospital; it is admirably adapted for football, cricket, lawn tennis, and athletic sports.

The hospital proper contains 644 beds. In addition to the ordinary provisions of a great hospital there are connected with the out-patient department physicians' and surgeons' rooms provided with ample seating accommodation, so that students are enabled to follow closely the practice and teaching of the out-patient staff. There is a full complement of special departments, and connected with the hospital a special tuberculosis department gives opportunity for instruction of students. There is a clinical theatre, centrally situated, so as to facilitate the illustration of lectures by patients from the wards and out-patient room; it is arranged also for lantern demonstrations. Clinical units in medicine and surgery have been established. The maternity ward, containing 21 beds, gives students full facilities for maternity training, under supervision, within the precincts of the hospital. This obviates any necessity for supplementary instruction elsewhere, and fully prepares the student for the extern maternity practice of the hospital district. The revised regulations of the examining bodies are fully complied with.

Appointments.—All hospital appointments are open to students without charge. A resident assistant physician and a resident assistant surgeon at £225 each per annum, and a resident anaesthetist at £200 per annum, are appointed annually. Eight hospital registrars—three medical, one diseases of children, and four surgical—at an annual salary of £250 each, are appointed yearly. The tenure of these offices may be renewed for a term not exceeding four years. A pathological registrar to the department of obstetrics and gynaecology (at an annual salary of £250), an ophthalmic registrar (at an annual salary of £200), and an orthopaedic registrar (unpaid) are appointed yearly. Ten resident casualty officers and anaesthetists (including two senior) are appointed every six months. Seven house-physicians (including two obstetric house-physicians and one house-physician to the department of diseases of children) and nine house-surgeons (including two ophthalmic house-surgeons, one orthopaedic house-surgeon, and two house-surgeons to the ear, nose, and throat department) are appointed every six months. Thirty-six

or more clinical assistants in the special departments are appointed every three months, and hold office for six months if recommended for re-election. Clinical clerkships and dresserships to the in-patient and out-patient departments are available to the number of 400 each year.

Scholarships.—There are five Entrance Scholarships: one in arts, giving two years' free tuition; one of £150 and one of £60, in chemistry, physics, and biology, for students who have not received instruction in anatomy or physiology; one of £100, and an exhibition worth £60, in any two of the following subjects: anatomy, physiology, chemistry, or pathology, for students who have completed their examinations in anatomy and physiology for a medical degree in any of the universities of the United Kingdom or the Colonies, and have not entered as clinical students in any London medical school. The money value and subjects of examination of the remainder are as follows: (*a*) William Tite Scholarship for second-year students, £25; (*b*) and (*c*) Musgrove Scholarship or (alternately) Peacock Scholarship, each for third-year students and tenable for two years, £35 each; (*d*) Mead Medal, medicine, pathology, and hygiene; (*e*) Wainwright Prize, medicine; (*f*) Toller Prize, medicine; (*g*) Cheselden Medal, surgery and anatomy; (*h*) Clutton Memorial Medal in clinical surgery, biennial; (*i*) Beaney Scholarship, £50 biennially, surgery and clinical pathology; (*j*) Solly Medal and Prize, biennially, reports of cases; (*k*) Sutton Sams Prize, biennially, reports of cases; (*l*) Bristowe Medal, pathology and morbid anatomy; (*m*) Hadden Prize, pathology and morbid anatomy; (*n*) Grainger Testimonial Prize, £31 10s., anatomy and physiology; (*o*) Louis Jenner Research Scholarship, tenable for two years, £60 annually, pathology; Myers Exhibition in Psychology and Mental Philosophy, £25, annually.

Fees.—The annual fees are: For each year of study, £50. These fees cover all tutorial classes, but do not include instruction in infectious fevers.

Special courses of instruction are given for various examinations. Further information may be obtained from the Secretary to the Medical School, St. Thomas's Hospital, Albert Embankment, S.E.1.

University College Hospital

The school, which forms part of the corporation of University College Hospital, is in immediate proximity to the hospital in University Street, and opposite University College. It comprises departments of medicine, surgery, midwifery and gynaecology, pathology including morbid anatomy, chemical pathology, biochemistry and bacteriology, cardiography, forensic medicine, mental physiology and mental diseases, dental surgery, practical pharmacy, and other departments for the study of special diseases, such as those of the eye, skin, ear and throat, venereal diseases, and for instruction in anaesthetics, electro-therapeutics, and skiagraphy. The hospital and school have acquired the National Dental Hospital and College as their dental departments, thus providing every facility for the study of dental subjects. The Royal Ear Hospital has also been amalgamated as the Ear, Nose, and Throat Department, and a new hospital for in- and out-patients, close to University College Hospital, is completed.

The school thus provides the final course of study for the degrees of the Universities of Oxford, Cambridge, London, Durham, and other British universities, and for the diplomas of the Royal Colleges of Physicians and Surgeons in medicine and in dental surgery. Each department is also equipped for more advanced work, and provides facilities for research.

Clinical units in medicine, surgery, and obstetric medicine are now in operation. The whole-time directors of the units are concerned with the organization of the teaching generally, but the honorary staff is responsible for the largest share of the teaching in the wards and out-patient department of the hospital. The main hospital contains 530 beds.

The new buildings of the obstetric hospital of 85 beds (rendered possible by the Rockefeller benefaction), the new Residents' House (with accommodation for 33 residents and students), the extension of the Nurses' Home, and the new research laboratories for the Medical School, are now finished and in full occupation.

A Students' Hostel adjoins the Medical School. Large, airy, and handsomely furnished bed-sitting rooms, each fitted with hot and cold running water, are available.

Appointments.—The qualified appointments, in addition to a number of posts as house-physicians and house-surgeons and obstetric assistants, include the appointments of resident medical officer, medical registrars, surgical registrar, obstetric registrar, Harker Smith radium registrar, ophthalmic registrar, casualty medical officers, casualty surgical officers, assistants in ear, nose and throat, skin and venereal diseases departments, and house anaesthetists.

Scholarships.—The following scholarships and prizes are open to competition: Two Goldsmid Entrance Scholarships entitling the holder to the final course of medical study; one Goldsmid Entrance Exhibition entitling the holder to a reduction by £80 of the fees due for the full course of final medical study, open to candidates who are graduates in arts or science of a university of the British Empire; and a Filliter Entrance Scholarship in pathology, entitling the holder to a reduction by £52 10s. of the fees due for the full course of final medical study. The examination for these scholarships is in any two of the following subjects: anatomy, physiology, general pathology and biochemistry. The examination for 1934 will be held as follows: Monday, July 16th, 10 a.m. to 1 p.m., anatomy; 2 p.m. to 5 p.m., physiology. Tuesday, July 17th, 10 a.m. to 1 p.m., biochemistry; 2 p.m. to 5 p.m., general pathology. Candidates for the Filliter Exhibition need take pathology alone. Radcliffe Crocker Travelling Scholarship in dermatology for one year, value about £280; the Graham Scholarship in pathology of a sum not exceeding £400 per annum; Leslie Pearce Gould Research Scholarship in surgery for one year, value about £200; the Atkinson Morley Scholarship of £45 a year for three years, awarded after examination in the theory and practice of surgery; the Atchison Scholarship of £55 a year for two years for general proficiency in medical studies; the Magrath Clinical Scholarship, value about £150; Ferriere Scholarship, value £25; the Filliter Exhibition in pathology of £30; the Percival Alleyn Prize for the advancement of surgery by research, value about £75; the Graham Gold Medal for research work; four Fellows Medals in clinical medicine; Liston Medals in clinical surgery; the Bruce Medal in pathology and surgery; two Tuke Medals in pathology; the Erichsen Prize for practical surgery; and the Roberts Prize in obstetrics and gynaecology.

Fees.—Inclusive fee to cover complete clinical course: £45 per annum for three years. Oxford and Cambridge students who have completed their course in pathology: £40 per annum for three years. There are no extras as these fees include courses of instruction in pharmacy, vaccination, and fevers, and life subscription to the Medical Society or Women's Medical Club.

Particulars of general and special courses can be obtained on application to the Dean of the Medical School, University College Hospital, University Street, W.C.1.

Westminster Hospital

The school, with its hospital situate in Broad Sanctuary, opposite Westminster Abbey, provides for the education of its students in the preliminary and intermediate subjects of the University of London at King's College, Strand, and University College. The rest of the work is done in the school buildings near the hospital. The number of in-patients averages 4,500 and out-patients upwards of 26,000 annually, and the hospital and school afford ample facilities for instruction in all branches of medicine and surgery.

Appointments.—A medical and surgical registrar are appointed annually, each with a salary of £150, and an obstetric registrar with a salary of £50 plus £50 for tutorial fees. An assistant medical registrar and an assistant surgical registrar, salary £100 per annum each, are appointed for six months. A senior resident and casualty officer, salary £104 per annum and board, appointed for six months, may be extended for a further period of six months. A medical registrar to the children (Wander scholar), salary £250, is appointed for one year. Three house-physicians, three house-surgeons, three assistant house-physicians, three assistant house-surgeons, and a resident obstetric assistant are appointed after examination, and are provided with rooms, commons, and salary of £52 per annum, except the assistant house-physicians and the assistant house-surgeons, who are provided with commons only. The assistant house-physicians, after three months' service, become house-physicians for a further period of six months, and the assistant house-surgeons, after three months' service, become house-surgeons for a further period of six months. One house-anaesthetist is appointed for three months, non-resident, salary £100 per

annum. Clinical assistants to the assistant physicians and assistant surgeons, and to the officers in charge of special departments, are appointed from among the qualified students. Every student must perform the duties of out-patient dresser for three months, and afterwards hold the office of in-patient dresser for three months. He is also required to serve two terms of three months each as medical clinical clerk to the in-patient physician, and one term as gynaecological clinical clerk. Two pathological clerks are appointed every three months to assist in the post-mortem room. No student is eligible as an in-patient dresser or clinical clerk until he has passed the Second Examination of the Conjoint Board, or an equivalent examination. Clerks and dressers in the special departments of hospital practice are periodically appointed.

An annexe devoted to radium therapy and research, containing twenty-two beds, has recently been opened.

The athletic ground is situated at Tooting, and can be reached in twenty minutes from the hospital.

Scholarships.—The following open scholarships are offered for competition during the year 1933-4. In the winter session two scholarships in anatomy and physiology, £75 each. In the spring two scholarships in anatomy and physiology, £75 each. A certain number of scholarships are allotted to universities of England, Wales, and the Colonies, and to public schools. These scholarships are awarded entirely on the nomination of the Principal of the university or school.

Fees.—The annual composition fee is 40 guineas. An entrance fee is payable by all students—namely, primary and intermediate students, £10 10s.; students entering for the final subjects, £8 8s. These fees, which include subscriptions for membership of the Clubs Union, are subject to alteration from time to time as the School of Medicine may direct.

Further information and a prospectus can be obtained on application to the Dean at the Westminster Hospital, Westminster, S.W.1.

London (Royal Free Hospital) School of Medicine for Women

The school is situated at 8, Hunter Street, Brunswick Square, W.C.1, close to the Royal Free Hospital. It is, like all the other London schools which have so far been mentioned, one of the constituent schools of the University of London. The laboratories are extensive and well lighted, and are fully equipped for the examination courses of the University of London and the Royal Colleges of Physicians and Surgeons. Research laboratories are attached to all departments. A large, well-equipped library, common room, Union Room, and refectory are provided for the use of students. Resident accommodation for 80 students is provided in students' chambers attached to the school.

The Royal Free Hospital, Gray's Inn Road, W.C.1, has 280 beds, all of which are available for clinical instruction. The obstetrical and gynaecological unit controls 68 beds. A large maternity district is served from the unit with a separate maternity hostel in the Essex Road, Islington. There are separate departments for diseases of the eye, ear, and skin, children and infant welfare, venereal diseases, orthopaedic surgery, massage, light, electrical and *x*-ray work, dentistry, and casualty. Students attend the practice of one of the fever hospitals of the London County Council and receive special instruction in lunacy at Horton Mental Hospital, Epsom; they are also admitted to the practice of a number of special hospitals, and hold clerkships and dresserships at the Elizabeth Garrett Anderson Hospital, the Cancer Hospital, Hospital for Sick Children, Great Ormond Street, the National Hospital for Nervous Diseases, the South London Hospital, the Central London Ophthalmic Hospital, and the Royal Ophthalmic Hospital. The work of the school includes preparation for the Primary Fellowship examination.

Appointments.—Qualified students of the school can obtain appointments as house-physicians and house-surgeons, obstetric assistants, surgical, gynaecological, and medical registrars, assistant pathologists, assistant anaesthetists, medical electrician, skiagrapher, and clinical assistants and demonstrators in various subjects.

Scholarships.—The Isabel Thorne and A. M. Bird Entrance Scholarships, value £30 a year for six years, the St. Dunstan's Medical Exhibition, value £60 a year for three years, which may be extended to five years, the Alfred Langton Scholarship of £50 a year for two years, the Flora Murray Bursary of £50, and the Mabel Sharman-Crawford Scholarship, value £20 a year for four years, are offered for competition in each year. The Sir Owen Roberts Memorial Scholarship of the value of £75 a year for four years; the Mrs. George M. Smith Scholarship of the value of £50 a year for three years, which may be extended to five years; the Dr. Margaret Todd Scholarship of the value of £37 10s. a year for four years; and the Sarah Holborn Scholarship of the value of £20 a year for three years, which may be extended to five years, are awarded in alternate years. The School Jubilee Bursary of £50 a year for three years is offered every third year. The Bostock Scholarship, value £90 a year for two or four years, is awarded by the Reid Trustees on the result of an examination held in May by the University of London every fourth year. The holder of the scholarship must enter the London School of Medicine for Women. The Lieutenant Edmund Lewis and Lieutenant Alan Lewis Memorial Scholarship, of the value of £25 a year for four years, is awarded every fourth year. The A. M. Bird Clinical Scholarship of £30 a year for three years. The John Byron Bursary of £20 a year for two years, the Julia Ann Hornblower Cock Prize of £60, the Helen Prideaux Prize of £60, the Mabel Webb and A. M. Bird Research Scholarship of £200 for one year, the Fanny Butler Scholarship of £16 a year for four years, the A. M. Bird Post-graduate Scholarship of £200 for one year, together with many other scholarships and prizes, are offered on sundry conditions. The Dr. Edith Pechey-Phipson Post-Graduate Scholarship of £100 is awarded annually. Altogether the school offers annually £1,950 in scholarships. Various missionary societies also offer scholarships on certain conditions, and assist women who wish to go to India and other countries as medical missionaries.

Fees.—Courses for the University of London degrees and the diplomas of the Conjoint Board in England, and other qualifications: £50 per annum throughout the course.

The Students' Union exists to promote corporate action of the students on matters of common interest, to promote and maintain athletic and other clubs, and to issue a school magazine. All students are required to become members of the Union.

Further information can be obtained from the Warden and Secretary.

King's College

The Medical Faculty at this College of the University of London gives instruction in the subjects of medical science for all the usual preliminary and intermediate examinations in medicine, surgery, and dentistry. Through the four associated hospitals students of the college have clinical facilities of over 1,000 beds, but they may also proceed to any other teaching hospital in London for final studies for the degrees of the University of London

The Medical Faculty of the College provides a general university education in touch with other faculties, classes of which medical students are permitted to attend. There are many college societies, clubs, and functions in which students of all faculties have opportunity of meeting each other. The college has a large athletic ground at Mitcham, upon which there has recently been erected a new pavilion.

The first-year subjects are taught in the large departments of the Faculty of Science. Within the last few years there has been complete remodelling of the second and third year medical departments at a cost of £70,000. This has comprised a new Department of Anatomy and reorganization, with considerable extension, of the Department of Physiology.

Scholarships.—The entrance scholarships are: (1) Two Warneford Scholarships, each £30 for four years; subjects—selected from mathematics, classics, divinity, and science. (2) One Sambrook Scholarship of £30 for three years; subjects of examination selected from mathematics, classics, and science. The holders of the preceding awards must proceed to *King's College Hospital*. (3) Worsley, £100, paid in five annual instalments. (4) Rabbeth Scholarships, value £30 and £15, in July, for the best student of the first year (5) Daniell Scholarship, £40, awarded on the results of the University Honours Examination. (6) The Layton and Berridge Studentships, each £130 per annum, and (7) numerous prizes.

Full information as to admission, fees, and scholarships can be obtained from the Dean of the Faculty of Medical Science, King's College, Strand, W.C.2.

University College

This institution, one of the principal component parts of the University of London, possesses a Faculty of Medical Sciences whose work covers all the subjects included in the group commonly known as the preliminary medical sciences—namely, physics, chemistry, botany, and zoology; and also the intermediate medical sciences—namely, anatomy (including embryology and histology), physiology, biochemistry, and pharmacology. The anatomy building, provided by the munificent gift of the Rockefeller Foundation of New York, was opened on May 31st, 1923, by His Majesty the King. This building forms part of the block which includes physiology and pharmacology. A new building has recently been added for the department of zoology, for the endowment and equipment of which the Rockefeller Foundation has made another generous benefaction. Research work is undertaken in all the above-named departments. The College taken in all the above-named departments. The College undertakes the education of students in all the subjects mentioned, leaving them free to complete their education in the strictly professional subjects—medicine, surgery, and the like—at any one of the recognized schools of advanced medical studies. The work is somewhat differently arranged, according to whether the student has in view the degrees of the University of London or the diplomas of the Royal Colleges. In either case the whole work to be done is divided into courses devised to meet the requirements of different examinations, and students can join the College for any of them. Women students are admitted to all courses on the same terms as men. The general arrangements for the benefit of students include membership of the Union Society or the Women's Union Society, with use of the College gymnasium and the athletic grounds. There is also a collegiate residence for about eighty-six men students at Ealing and for one hundred and twelve women students in Malet Street.

Scholarships.—The scholarships and exhibitions obtainable include the Bucknill Scholarship, value 160 guineas, in chemistry, physics, botany, and zoology (the successful student must complete his work at University College Hospital Medical School); two Entrance Exhibitions in the same subjects, each of the value of 55 guineas; a Faculty of Medical Sciences Entrance Scholarship, value £30 a year, for three years; the Bayliss-Starling Memorial Scholarship (physiology and/or biochemistry), £120; and the Ferriere Scholarship, £25, tenable for three years at University College Hospital Medical School.

Fees.—The fees for the courses covering the work of the First Examination for medical degrees of the University of London, and in both parts of the Second Examination, amount to 115 guineas. The fees for the courses covering the corresponding examinations held by the Conjoint Board in England also amount to 115 guineas. These fees may be divided into payments for the different courses which it may be desired to take out, but do not cover tuition for more than a stated period.

A handbook specially relating to this faculty may be obtained on application to the Secretary of University College, London, Gower Street, W.C.1.

THE PROVINCES

There are in England and Wales, not counting London, ten medical schools, each supplying instruction in the full medical curriculum. Accounts of them here follow. In several cases information is appended about hospitals other than those directly connected with the school in question; such hospitals, officially and unofficially, play a part in the education which the students of the school receive, and in any case serve as places of additional or post-graduate study.

Oxford and Cambridge

At both Oxford and Cambridge there are medical schools which furnish unsurpassed opportunities for obtaining a good knowledge of the preliminary sciences and of [illegible]tomy, physiology, and pathology. The laboratories [illegible]xcellently furnished, and the teaching staffs most distinguished. Both schools provide a full medical curriculum, and there is no essential reason why the student should not complete his career at either of them; but this is not commonly done, and is never, in the ordinary way, advised by the university medical authorities. The local hospitals—the Radcliffe Infirmary at Oxford and Addenbrooke's Hospital at Cambridge—though well equipped, are comparatively small. Students are therefore encouraged, as soon as they have completed the earlier examinations and taken a degree in arts, to join one of the London medical schools, and thus spend the time of their preparation for the final examinations in a city where the opportunities for gaining clinical knowledge are greater and more varied. A considerable proportion of Oxford and Cambridge medical students take the London Conjoint diplomas before graduating in medicine and surgery at their own university. The experience gained by holding resident hospital appointments is naturally of much advantage when sitting for the Final M.B. examination and when engaged in composing a thesis.

Birmingham

The school in this city is carried on by the Medical Faculty of the University of Birmingham, its students having an adequate number of good laboratories, classrooms, and other necessaries devoted to their use by the university. The clinical work is done at the General and Queen's Hospitals, which are amalgamated for the purpose. Together they have upwards of 800 beds for medical, surgical, and special cases, with an array of special departments of all kinds, including one for lying-in women (about 13,000 in-patients and 90,000 out-patients). Clinical instruction is given in the wards and out-patient and special departments daily, and formal clinical lectures are delivered weekly throughout the session. Special tutorial classes are also held alike for the degrees of Birmingham and other universities, and for the diplomas of corporations.

Appointments.—The large number of appointments open to past or other students includes the following:—At the General Hospital: two surgical registrars, £100 (commencing) a year; one resident medical officer, salary £155 a year; one resident surgical officer, salary £180 a year; one assistant resident surgical officer, salary £100 a year; one resident pathologist, salary £70 a year; two visiting anaesthetists, salary £50 a year; two resident anaesthetists, salary £120 a year; four house-surgeons, office tenable for nine months, £70 a year; one house-surgeon to the gynaecological and one to the special departments, each tenable for six months, £70 a year; four house-physicians, post tenable for six months, £70 a year. At the Queen's Hospital: one resident medical registrar, salary £200 a year; two resident surgical officers, £100 a year, tenable for three years; three house-physicians, three house-surgeons, one obstetric and one ophthalmic house-surgeon, one ear, nose, and throat house-surgeon, and one house-physician for duty at the Nerve Hospital (associated with Queen's Hospital), tenable for six months, salary £70 a year, with board, lodging, and washing; one casualty house-surgeon, tenable for three months, salary £70 a year, with board, lodging, and washing. At the City Public Assistance Institutions: five resident medical officers. At the Birmingham General and Branch Dispensaries: twelve resident surgeons. At the Birmingham Mental Hospitals: five assistant medical officers. At the City Fever Hospitals: three assistant medical officers. At the Children's Hospital: one resident surgical officer, one resident medical officer. At the Birmingham and Midland Eye Hospital: four resident surgeons. At the Orthopaedic and Spinal Hospital: two clinical assistants (non-resident). At the Ear and Throat Hospital: one house-surgeon, £70 a year; four clinical assistants (non-residents). Four resident appointments are in the gift of the Public Assistance Committee.

Scholarships.—There are numerous money and other awards for students of sufficient merit, among them being the following: Frank Fletcher and Catherine Fletcher Scholarships (each £3

than two per annum), tenable for five years, each of the annual value of £100, awarded on higher school certificate examination of the Joint Matriculation Board, the Walter Myers Travelling Studentship of £300, offered each alternate year for research work and tenable abroad, the Sands Cox Scholarship of £42 (an entrance scholarship in the Faculty of Medicine, awarded on higher school certificate examination of the Joint Matriculation Board (July)), four Queen's Scholarships of £10 10s each, awarded annually at the second (Part II), third, fourth, and final university examinations respectively, one or more Sydenham Scholarships, allotted on entrance to students who are the sons of deceased medical men, the Ingleby Scholarships (two) of £10 for proficiency in midwifery and diseases of women, the Arthur Foxwell Memorial Gold Medal (clinical medicine), the Sampson Gamgee Memorial Medal for surgery (Final M B), the Russell Memorial Prize (for examination in nervous diseases, final year), the Priestley Smith Prize in ophthalmology value about £6 (awarded in the final examination), and the Peter Thompson Prize in anatomy (value about £6) for students in their third university year, and the John Barritt Melson Memorial Gold Medal in Physiology for students in their third university year. There is also a scholarship of £46 17s 6d for students proceeding to a degree in dental surgery University Clinical Board Prizes are awarded annually as follows Senior Medical Prize, gold medal Senior Surgical Prize, gold medal, Midwifery Prize, gold medal, Junior Medical Prize, silver medal, Junior Surgical Prize, silver medal

Fees.—The composition fee for university classes is £106 5s This covers all the work required for the degrees of Birmingham and some other universities, and for the ordinary qualifications of licensing corporations, but not the additional courses required for the Fellowship of the Royal College of Surgeons of England, the diploma and degrees of the university in State medicine, and some other special work The total cost for the six years' curriculum, including hospital and examination fees, is estimated at £242 17s 6d

Other information should be sought from the Registrar, or the Dean of the Faculty of Medicine, University, Edmund Street Birmingham.

Bristol

The school is carried on by the Faculty of Medicine of the university, and provides full instruction for all its degrees and for the diploma in dental surgery

Clinical Instruction.—The allied hospitals (Bristol Royal Infirmary and Bristol General Hospital) have between them more than 700 beds and extensive out-patient departments, special clinics for diseases of women and children, including ante-natal and post-natal work, also for eye, ear, nose and throat, and skin diseases, in addition to large and well equipped departments for dental work and large outdoor maternity departments The Bristol Royal Infirmary has now been selected by the National Radium Commission as a Radium Centre. At each of these institutions there are well-arranged pathological museums, post-mortem rooms, and laboratories for morbid anatomy There are also laboratories for work in clinical pathology, bacteriology, and biochemistry, in which special instruction is given in these subjects Departments are provided and well equipped for radiology, radio therapy, actinotherapy, electrotherapy, and massage, with all forms of physiotherapy The students of the school also attend the City and County Mental Hospital, the Ham Green Hospital for instruction in fevers and tuberculosis, the practice of the Royal Hospital for Sick Children and Women, containing 120 beds, and that of the Bristol Eye Hospital, with 40 beds In addition, by the kind permission of the Health Committee of the Bristol City Council, students may attend the clinical practice at Southmead Hospital, and may complete under certain conditions their practical work in obstetrics at that institution, which has 672 beds The Orthopaedic Hospital at Winford and Stoke Park Colony for Mental Defectives are also available

Appointments.—(1) *Undergraduate* Medical clerkships, surgical dresserships, also opnthalmic, obstetric, pathological, dermatological, ear, nose, and throat clerkships, are tenable at the Bristol Royal Infirmary and the Bristol General Hospital In these institutions the dressers reside in rotation free of charge (2) *Post graduate*: At the Bristol Royal Infirmary *four house-surgeons*, one casualty house surgeon, two house-physicians, one house-physician for cancer research wards, one resident obstetric officer, one gynaecological and dermatological house-surgeon, one ear, nose, and throat house surgeon, one assistant house surgeon and house physician to the ophthalmic department, one dental house surgeon, and one unpaid assistant (usually a resident student) to the senior resident medical officer All these appointments are for six months Salary in each case at the rate of £60 per annum, with board, apartments, and laundry, except the casualty house surgeon and the dental house-surgeon, who receive £80 per annum In each case the salary is increased by £40 per annum if the officer is re-elected for another six months From the resident medical officers a senior resident medical officer is appointed at a salary of £200 per annum Clinical assistantships in all departments are open to senior qualified practitioners. At the Bristol General Hospital senior resident medical officer, £200 per annum, casualty house-surgeon, £100 per annum, two house-physicians, £80 per annum, two house-surgeons, £80 per annum, resident obstetric officer, £80 per annum, house surgeon to special departments, £80 per annum All the £80 appointments carry a salary of £100 for residents who have previously held another of them, the dental house surgeon (non resident), £300 per annum All these appointments are for six months, except that of senior resident medical officer, which is for two years Clinical assistantships in the out-patient departments are also available.

Scholarships.—The following are among the scholarships and other awards open to students of the school The Miriam Badock of the value of £120, and the H H Wills Science Scholarships, open to boys proceeding from Clifton College, the Ashworth Hallett Scholarship, value £40, open to women only, two Martyn Memorial Pathological Scholarships of £10 each, the Tibbits Memorial Prize value 7 guineas, for proficiency in practical surgery, the Committees' Gold and Silver Medals for fifth year students, for general proficiency, the Augustin Prichard Prize, value about 6 guineas for proficiency in anatomy, the Henry Clark Prize, value 11 guineas, for proficiency in gynaecology, the Crosby Leonard Prize value 6 guineas, for proficiency in surgery, the Suple Surgical Prize, a gold medal and 7 guineas the Suple Medical Prize a gold medal and 7 guineas, the Henry Marshall Prize value £12 for dressers, the H M Clarke Scholarship value £15 for proficiency in surgery, the Sanders Scholarship value £22 10s, for general proficiency the Barrett Roue Scholarship for proficiency in diseases of the nose throat and ear, or skin, value £17, open to men only, Lady Haberfield Scholarship, value about 25 guineas, Bristol and Bath City Scholarships and the Scholarships offered by the counties of Gloucestershire Somerset, Wilts Dorset, etc are tenable in the university

One or more Fellowships of not less than £100 per annum are allocated by the Colston Research Society for medical research

A Beaverbrook Fellowship tenable for three years is open to all members of the university holding a medical qualification

The Michael Hiatt Baker Scholarship of the value of £200 per annum open to a graduate from New Zealand, may be held in the medical faculty

The Markham Skerritt Memorial Prize is awarded every three years to that member of the university, not a member of the medical board who in the opinion of that board, has published the best original work during the three years

The Paul Bush Gold Medal is awarded in alternate years to the best resident medical officer at the Bristol Royal Infirmary

Fees.—The fee for all the courses required for the medical curriculum, including hospital practice, is 205 guineas, paid by annual instalments

Further information as to scholarships, curricula, and fees can be obtained from the Dean of the Faculty of Medicine, or the Registrar of the University, Bristol

University of Durham College of Medicine

This, the Medical School of the Faculty of Medicine of the University of Durham, is in the neighbouring city, Newcastle-upon-Tyne Its classes and lectures are arranged to meet the requirements of the university in all the degrees which the latter grants, and also those of the other examining bodies Hospital practice is carried out at the Royal Victoria Infirmary, a general hospital certain

more than 600 beds, where there are facilities for the study of the various special subjects. Students do their practical midwifery at the Princess Mary Maternity Hospital, which contains 90 beds, and has an annual indoor and outdoor attendance on 3,000 cases. In the Heath wing of the school itself there is a gymnasium and a set of rooms for the separate use of the students. The bacteriological department is adjacent to Armstrong College.

The Newcastle-upon-Tyne Dental Hospital and Sutherland Dental School is a component part of, and constitutes the dental department in, the College. The dental hospital, erected within the grounds of the Royal Victoria Infirmary and equipped on the best modern lines, was opened in 1931, and it is possible to undertake the whole of the dental curriculum (that is, systemic lectures, dental and general hospital practice, together with mechanical pupilage) at the College. The Dental Board of the United Kingdom recognizes the school for the purpose of granting its bursaries to students who are able to comply with the conditions laid down by the Board.

Post-Graduate Instruction.—A comprehensive series of post-graduate courses are arranged to enable practitioners to take advantage of the facilities for laboratory work and clinical study afforded by the College, the Royal Victoria Infirmary, and other associated hospitals; and in order to meet the varied requirements of practitioners there are general and special courses in the winter and summer sessions, as well as an intensive course in the summer vacation. Courses of instruction are given for the B.Hy. and D.P.H.

Students' Union.—A Students' Union has been erected and furnished at a cost of over £54,000, and is in daily use. Separate accommodation (non-residential) is provided for men and women students.

Appointments.—Pathological assistants, and assistants in the eye department, throat and ear department, and department for skin diseases, are elected periodically. Clinical clerks and dressers are appointed every three months. Resident appointments at the Infirmary are made every six months, and each year medical and surgical registrars (who also act as tutors) are appointed from candidates who have previously held resident appointments at any recognized hospital. These latter posts afford an excellent opportunity for post-graduate study, not only at the Infirmary, but also in the departments of anatomy, physiology, pathology, and bacteriology of the College.

Scholarships.—University of Durham Entrance Scholarship, £25 a year for four years; Pears Entrance Scholarship, £40 a year for three years (awarded every third year); Heath Entrance Scholarship (from Kepier Grammar School), £60 (renewable); Province of Durham Masonic (Entrance) Scholarship, £60 (renewable); Heath Scholarship for surgery, £200, available every second year; Rutherford Morison Surgical Scholarship, £180, available every third year.

The following scholarships are tenable for one year—namely: Tulloch Scholarship for elementary biology and organic chemistry, £20; Dickinson Scholarship for medicine, surgery, midwifery, and pathology, £20; Charlton Scholarship for medicine, £25; Gibb Scholarship for pathology, £28; Luke Armstrong Scholarship for comparative pathology, £25; Stephen Scott Scholarships for anatomy and physiology, two of £50 each; Philipson Scholarships for highest marks in Final M.B., B.S. Examination, two of £45 each; Goyder Memorial Scholarship for clinical medicine and clinical surgery, interest on £325; Hamilton Drummond Memorial Scholarship, in aid of research in clinical surgery, about £50; Gibson Prize for midwifery and diseases of women and children, £10; Turnbull Prize and Silver Medal for surface anatomy; Outterson Wood Prize for psychological medicine, £10; and Sewell Memorial Prize and Silver Medal for clinical pathology. Approved applicants may obtain special grants for surgical research from the Stephen Scott Research Fund.

Fees.—The composition fee for lectures for medical students at the college is £132. Composition fee for hospital practice, £46, plus £2 2s. yearly for three years, payable to the Committee of the Royal Victoria Infirmary. For dental students the composition fees amount to £236 for the B.D.S. and to £221 for the L.D.S., covering all systematic lectures and laboratory work at the College, general and dental hospital practice, and mechanical pupilage. Other information should be sought from the Dean of the College, University of Durham College of Medicine, Newcastle-upon-Tyne.

Leeds

The School of Medicine—which is open to both male and female students—in this city forms the teaching centre of the Medical Faculty of the University of Leeds, and is situated in immediate proximity to the General Infirmary, where students sufficiently advanced receive their clinical instruction. The buildings were opened in 1894, and contain excellent dissecting rooms, well-arranged laboratories for physiology, pathology, and bacteriology, three lecture theatres, and several similar classrooms. In addition, there are a library and reading room and museums of pathology and anatomy. The comfort of the students is secured by means of common rooms and a refectory. Extensions of the medical school buildings were opened in October, 1930, and an Institute of Pathology is shortly to be opened on an immediately adjacent site. The General Infirmary has 632 beds, and includes gynaecological and ophthalmic wards, special children's wards, and a large out-patient department. The Ida and Robert Arthington Semi-convalescent Hospitals, Cookridge, attached to the Infirmary, have 88 beds. The West Riding Mental Hospital at Wakefield is available for the study of mental diseases. Students can, in addition, attend the practice of the Leeds Public Dispensary, the Hospital for Women and Children, and the Leeds Maternity Hospital.

Appointments.—Physicians' clerks and surgical dressers are appointed every six months; clerks in the children's department, orthopaedic dressers, ophthalmic and aural dressers, gynaecological ward clerks, maternity clerks, assistant physicians' clerk, dermatological clerks, assistant surgeons' dressers, dressers in the casualty rooms, junior and senior post-mortem clerks, laboratory assistants and dressers in the venereal clinic every three months. After graduation a considerable number of resident and other appointments become available in the Leeds General Infirmary, Leeds Public Dispensary, Hospital for Women and Children, West Riding Mental Hospital, etc., occupying periods of from six to twelve months at rates varying from £20 to £150 per annum.

Scholarships.—The university awards annually on the results of the first examination a scholarship in the form of free admission to the lectures and classes given in the School of Medicine. The university also awards a scholarship on the results of the second examination, of the value of £68, in the form of free admission to the clinical teaching of the Infirmary.

Fees.—It is estimated by the authorities that the approximate cost of medical education to a student in this university is £324, *plus*, of course, the expenses of living during the five and a half years covered by the curriculum. The composition fee for the course for the first, second, and third examinations, and for the clinical work at the Infirmary, is £242. The composition and clinical fee for those who have passed the second examination is £153.

Further information can be obtained from the Academic Subdean or Clinical Subdean, School of Medicine, Leeds.

Liverpool

The Medical School of this city is part of the university, and, owing to the enlightened liberality of several men of wealth, is exceptionally well provided with special laboratories, as well as with ordinary spacious and well-equipped classrooms and laboratories for the instruction of students proceeding to medical degrees and diplomas in special and ordinary subjects. All the laboratory and other rooms are situated close to one another and intercommunicate, together forming large blocks of buildings. The work of students throughout all stages of their career is arranged upon very satisfactory lines, and the teaching hospitals, of which a list is given below, have been amalgamated to form the clinical school of the university.

The nature of the appointments open to past and other students at this school will be gathered from the account which follows of the hospitals forming its clinical department.

Scholarships.—The awards made each year to successful students total over £1,500. They include the following: Two Holt Fellowships, one in pathology, the other in physiology; a Robert Gee Fellowship in anatomy; two John Rankin

Fellowships in anatomy, a John W Garrett International Fellowship in bacteriology, a Johnston Colonial Fellowship in biochemistry, an Ethel Boyce Fellowship in gynaecology, and a Thelwall Thomas Fellowship in surgical pathology, one Lady Jones Fellowship in orthopaedic surgery (value of Fellowships one at £200 three at £150 two at £120 four at £100), a University Scholarship of £50, awarded on the results of the Final M B Examinations, a Ridgway Research Scholarship (£94), a Scholarship in mechanical dentistry of £20, two Lyon Jones Scholarships of the annual value of £19 each for two years, one for the junior and the other for the senior students, the Derby Exhibition of £15 the Clinical School Exhibition of £15, the Owen T Williams Prize, the Torr Gold Medal in anatomy John Rankin Exhibition in practical anatomy £23, the George Holt Medal in physiology, the Kanthack Medal in pathology, Mitchell Banks Medal in anatomy, the Robert Gee Prize of £5 5s in children's diseases, Mary Birrell Davies Memorial Scholarship (women), £60 per annum for four years, Robert Gee Entrance Scholarship (men), value of £42 10s per annum for four years, Dental Operating Prizes (four), Orthodontia Prizes (two), Samuels Memorial Scholarships, three at £27 each, one Thomas H Bickerton Prize in anatomy, Dr N E Robert Prize in zymotic diseases, Ash's Prize in dental surgery, value £2 2s, Gilmour Medal, and other entrance scholarships In addition, a number of gold and silver medals have recently been instituted in the following subjects pharmacology, surgery, forensic medicine and toxicology, medicine, orthopaedic surgery, obstetrics and gynaecology, and laryngology and otology

Fees.—Information as to the fees for the courses of instruction provided by the schools should be sought from the Dean of the Medical Faculty.

The Clinical School

As many as nine hospitals have combined to form the clinical school of the university, these being The Royal Infirmary, the David Lewis Northern Hospital, the Royal Southern Hospital, the Stanley Hospital, the Royal Liverpool Children's Hospital, the Women's Hospital, Liverpool, the Liverpool Maternity Hospital, the Eye and Ear Infirmary, and St Paul's Eye Hospital Between them they provide over 1,500 beds

Manchester

The staff of the Medical School in this city constitutes the Medical Faculty of the Victoria University, all the arrangements for the instruction of students, both in their earlier and their later studies, being of an elaborate nature The clinical work of the undergraduates is done chiefly in connexion with the Royal Infirmary, an institution which itself contains 590 beds, and has associated with it a large convalescent home (132 beds) and a Central Branch Hospital (54 beds) The courses in mental diseases are partly taken in the County Mental Hospitals at Prestwich and Macclesfield. Instruction in practical gynaecology and midwifery is given at the Royal Infirmary and the St Mary's Hospitals

Appointments.—The following are among the appointments open to past and present students of this school in connexion with its arrangements for clinical tuition Two surgical registrars, at £150 per annum; two pathological registrars, at £100 and £50 per annum, one medical registrar, at £150 per annum, a cardiographic registrar, at £150 per annum, a medical tutor, at £30 per annum; a surgical tutor, at £30 per annum, a director of the clinical laboratory, at £400 per annum, and two assistants, at £350 and £300, three assistant medical officers and three assistant surgical officers, each at £35 per annum, assistant surgical officers, aural department, at £35 per annum; seven anæsthetists, from £75 to £125 per annum each; one resident medical officer, one year, £200 per annum; one resident surgical officer, one year, £200 per annum, three resident medical officers for Central Branch, one at £200 and two at £100 per annum; one assistant resident surgical officer, £150 per annum, one resident medical officer at the Convalescent Hospital at Cheadle, £250 per annum, two assistant medical officers to radiological department, £150 and £105 per annum; medical officer, physio-therapeutic department, £150 per annum; assistant surgical officer, gynaecological department, £35 per annum; assistant to the dermatologist, £20 per annum; and three assistant surgical officers for Central Branch, £75 per annum, ten house surgeons and eight house physicians, appointed during the year for periods of six months, at a salary of £50 per annum Resident officers are appointed to the gynaecological, the eye, and the ear and throat departments every three months Clinical clerks and surgical dressers are appointed to the various departments of the hospital every three months Non resident clinical assistantships for qualified medical men and women, tenable for six months, at an honorarium of £35

Clinical work.—The Royal Eye Hospital, the Hospital for Diseases of the Skin, the Manchester Northern Hospital for Women and Children, the well known Hospitals for Children at Pendlebury, and St. Mary's Hospitals for Women and Children, the Manchester Hospital for Diseases of the Ear, Monsall Fever Hospital, the Christie Cancer Hospital, the Hospital for Consumption and Diseases of the Throat and Chest, the Ancoats Hospital, and the Salford Royal Hospital, all make arrangements for the instruction of students

Entrance and other Scholarships.—The following are among the scholarships obtainable by students of the school Rogers and Seaton Scholarships in Arts (in alternate years) £40 per annum, tenable for two years Three Hulme Scholarships, tenable for three years, of £35 one being awarded annually for proficiency in subjects of general education Two James Gaskill Scholarships of £35 tenable for two years one being awarded annually for proficiency in the branches of mechanics and chemistry A Dora Muir Scholarship £50 per annum, tenable for three years and open to the competition of women students only This is awarded triennially Sir J P Kay-Shuttleworth Scholarship, £30 per annum, tenable for three years awarded triennially, open to the competition of scholars from Sedbergh School, Giggleswick School and Burnley Grammar School, subjects—mathematics, chemistry, and mechanics Dreschfeld Memorial Scholarship, value £20, tenable for two years and awarded triennially on the result of the Entrance Examination. John Russell Medical Entrance Scholarship, awarded annually value £45 Two Dauntesey Junior Medical Scholarships, value £50 each, tenable for one year, for candidates who have not commenced the second year of study leading to a medical qualification, subjects—chemistry, physics, botany, and zoology One Dauntesey Senior Medical Scholarship, £50 for one year, awarded on results of Second M B Examination Two Entrance Scholarships in medicine, value 160 guineas awarded annually for proficiency in arts or science respectively Tom Jones Exhibition in anatomy, £25 offered annually A Robert Platt Physiological Scholarship of £90, tenable for one year A Leech Fellowship of £100 for original research after graduation A Graduate Research Scholarship in medicine value £70, tenable for one year, awarded annually for proficiency shown at Final M B Examination Two Dumville Surgical Prizes, each value £15 awarded annually at graduation The Tom Jones Memorial Surgical Fellowship value £105, tenable for one year usually awarded annually The Turner Medical Prizes value 10 guineas each awarded annually for proficiency in certain subjects of the Final M B Ch B Examination The John Henry Agnew Prize of £30, awarded annually for proficiency in the diseases of children The Ashby Memorial Scholarship, tenable for one year (£100) for research in the diseases of children, offered triennially Sidney Renshaw Prizes in physiology, offered annually (£10 and £20) Wild prize in pharmacology (£10). The John Henry Agnew Fellowship in diseases of children, £120, offered triennially Eliza Marple Holt Post Graduate Medical Scholarship for Women, £60 for one year, offered biennially. The details and regulations of the Dickinson Scholarships—(1) for anatomy, (2) for pathology, (3) Research Scholarship in surgery, and (4) Travelling Scholarship in medicine—may be obtained from the Secretary to the Trustees The Morrison Watson Fellowship for research in anatomy is offered annually, value £150, also the Sheridan Delepine Fellowship in preventive medicine, value £300, is offered biennially The Sam Gamble Scholarships—the trustees are prepared to award four scholarships of not less than £40 per annum, tenable for not more than four years, to women students who have passed the First M B Examination, the conditions can be obtained from the Registrar The Knight Prize of £50 for original research in the psychological factors in the causation of mental disorder—open to holders of the Diploma in Psychological Medicine or medical practitioners who have been registered in the university as candidates for that diploma Amy Henrietta Worswick Fellowship £150 a year, Pilkington Fellowship in Cancer research £300 for one year

Fees.—The composition fee for the university course in medicine is 114 guineas for men 112 guineas for women payable in four instalments of 28 and 28 guineas respectively but this sum does not include the fee to cover the extra

required for the First M.B. Examination. This is £42, payable in one sum. Hospital fees are additional, and usually amount to about 90 guineas.

A prospectus and further information about the school and scholarships may be obtained from the Registrar.

Sheffield

In this city the Medical School is one of the departments of the university, being conducted and controlled by its Medical Faculty, and occupying practically the entire north wing of the quadrangle of the university buildings overlooking Weston Park. The laboratories and lecture rooms connected with the subjects of the first and second examinations—namely, chemistry, physics, biology, anatomy, and physiology—are, both as regards structural arrangement and scientific equipment, on the most modern and complete lines.

For students of pathology and bacteriology there are laboratories replete with everything necessary for the most advanced work, and a large pathological museum, which is open daily. In addition, there is a large library and reading room. There are a number of recreation, athletic, and other societies, all under the management of an annually elected students' representative council, and large and comfortable common rooms for both men and women students. There are also two student unions—one for men and one for women students. In the university buildings there is a refectory open to all students of the school, and a university journal is published each term. The ordinary clinical work of the school is done at the Royal Infirmary and Royal Hospital, which have amalgamated for the purpose of clinical instruction, and provide over 800 beds for medical, surgical, and special cases, including diseases of the eye.

In addition, the Royal Infirmary has special departments for the treatment of diseases of the skin and ear, with beds assigned to them; whilst at the Royal Hospital there are special out-patient departments for diseases of the throat, ear, skin, orthopaedics, and mental diseases. The medical and surgical staffs attend daily, and give clinical instruction in the wards and out-patient rooms. Clinical lectures in medicine and surgery are given weekly. Instruction in the practical administration of anaesthetics is given at either institution by the anaesthetists, and the post-mortem examinations at both institutions are in charge of the Professor of Pathology, and afford ample material for study of this subject. Students are able to attend the practice of the Jessop Hospital for Diseases of Women and the Hospital for Sick Children, while special courses on fever are given at the City Fever Hospital, and on mental diseases at the South Yorkshire Mental Hospital.

Appointments.—The following appointments are open to all students who have passed their examinations in anatomy and physiology: (1) casualty dresserships, (2) surgical dresserships, (3) medical clerkships, (4) pathological clerkships, (5) ophthalmic clerkships, (6) clerk to the skin department, etc. These appointments are made for three months, commencing on the first day of October, January, April, and July.

Scholarships.—Entrance Medical Scholarship, covering cost of tuition fees for a degree course in the Faculty of Medicine, open to both sexes. Six Edgar Allen Scholarships of £125 a year for three years may be held by students taking the degree course in medicine. Two Town Trustees' Scholarships, each of the value of £50 a year, tenable for three years, for boys or girls who have been educated in a Sheffield secondary school for a period not less than two years immediately preceding the examination. Four Town Trustees' Scholarships, value £50 a year, for boys or girls under 19 years of age educated in any school in Sheffield, secondary or otherwise. Town Trustees' Fellowship, value £75, tenable for one year. Mechanics' Institute Fellowship, value £50 (with remission of fees), tenable for one year, and renewable for a second year. The Frederick Clifford Scholarship, value about £50, tenable for two years. Kaye Scholarship, value £60, for proficiency in anatomy and physiology. Gold and bronze medals are also awarded for proficiency in various subjects.

Fees.—Students in the Faculty taking their complete medical course in the university pay an inclusive composition fee of £42 for each of the first five years and £28 for the sixth year. The composition fees for the dental courses are as follows: for B.D.S., first and third years, £80; second, fourth, and fifth years, £30; for L.D.S., first and second years, £80; third and fourth years, £30. The fees for special courses taken separately can be ascertained by inquiry of the Dean.

Note.—To non-British subjects—that is, students from outside the British Empire—an additional 20 per cent. will be charged on all fees.

Welsh National School of Medicine

The next session opens on October 1st. All classes are open to both men and women students. Particulars relating to the admission of students can be obtained on application to the Provost, or to the Secretary, Welsh National School of Medicine, The Parade, Cardiff.

The following is a list of heads of departments: materia medica and pharmacology, Dr. Reginald St. A. Heathcote; pathology and bacteriology, Professor J. B. Duguid; medicine, Professor A. M. Kennedy; surgery, Professor A. W. Sheen; obstetrics and gynaecology, Professor G. I. Strachan; preventive medicine, Professor R. M. F. Picken; tuberculosis, Professor S. Lyle Cummins.

During the first three years students complete the first part of their scheme of study for the degrees of M.B., B.Ch. by taking the following courses, which also qualify for the B.Sc. degree:

(*a*) In the first year the preliminary subjects of physics, chemistry, botany, and zoology are taken. (Courses in these subjects can be taken in any of the four constituent colleges of the University of Wales.)

(*b*) In the second year the subsidiary subject of organic chemistry is taken.

(*c*) In the second and third years the ancillary subjects of human anatomy and physiology are taken, and the course in pharmacology pursued. (Courses under (*b*) and (*c*) are taken at the University College of South Wales and Monmouthshire, except pharmacology, which is taken in the Welsh National School of Medicine.)

SCOTLAND

As will be gathered from the following paragraphs, the facilities for acquiring a medical education in Scotland are very ample, whether the student be proceeding to a university degree or to a diploma. To the descriptions of the different Scottish medical centres is in some cases added an account of hospitals which either play an official part in the education given to students as yet unqualified, or offer valuable opportunities for post-graduation work.

Aberdeen

The school is conducted by the Faculty of Medicine. This comprises thirteen chairs, from which instruction is given in all the main branches of medical science—namely, biology, physics, chemistry, anatomy, physiology, materia medica, pathology, bacteriology, forensic medicine, surgery, medicine, and midwifery. Courses of instruction in public health and infectious diseases, tropical medicine, medical ethics, tuberculosis, and clinical methods are conducted by lecturers appointed by the University Court. Special opportunities for practical instruction are afforded in the laboratories and museums attached to the departments.

Clinical instruction is obtained in the Royal Infirmary, the Royal Mental Hospital, the Sick Children's Hospital, the City Fever Hospital, the General Dispensary, Maternity, and Vaccine Institution, and the Ophthalmic Institution. Courses of practical instruction are given in diseases of children at the Sick Children's Hospital; in fevers at the City Fever Hospital; in mental diseases at the Royal Mental Hospital; in diseases of the ear, nose, and throat at the Infirmary and Dispensary; in diseases of the eye at the Infirmary and Eye Institution; in venereal diseases and diseases of the skin at the Royal Infirmary.

The degrees granted in medicine are: Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), Bachelor of Medicine

and Bachelor of Surgery (M.B., Ch.B.). A diploma in public health is conferred after examination on graduates in medicine of any university of the United Kingdom.

The degree of Ph.D. is also granted in this faculty.

Bursaries, scholarships, and fellowships, to the number of fifty, and of the annual value of £1,200, may be held by students of medicine in this university. The bursaries range in value from £10 to £50 per annum, and are tenable for periods from one to five years. The winter term of session 1933–4 begins on October 17th, 1933.

Fees.—An inclusive fee of 126 guineas is payable for instruction within the university, and the fee for the degrees of M.B., Ch.B. is 33 guineas. The total cost, including hospital fees, class and matriculation fees, and degree fees, is about £240.

Edinburgh

There are two Schools of Medicine: the School of the University, and the School of Medicine of the Royal Colleges of Physicians and Surgeons of Edinburgh.

THE UNIVERSITY SCHOOL.—This school, in addition to other resources of the university, has the following means of affording practical instruction: Royal Botanic Garden, Herbarium, and Museum; zoological laboratory and museum of science and art; physical laboratory; chemical laboratories; dissecting room, bone room, and anatomical museum; physiological laboratory; medical jurisprudence laboratories; John Usher Institute of Public Health; materia medica museum and laboratory; post-mortem department of the Royal Infirmary and University Pathological and Bacteriological Laboratory; tutorial classes of practice of physic, of clinical medicine, and clinical surgery, surgery and midwifery; and the practice of certain other hospitals.

Fees.—The sessional fee for chemistry, anatomy lectures, physiology, pathology, materia medica, surgery, medicine, and midwifery is £6 6s. each. Physics, botany, zoology, forensic medicine, and public health, £5 5s. Practical zoology, practical anatomy (summer), morbid anatomy, practical materia medica, mental diseases, practical pathology, clinical midwifery, and medical entomology and parasitology, £4 4s. Experimental physiology, diseases of tropical climates, practical botany, histology, child life and health, operative surgery, clinical surgery (per term), and clinical medicine (per term), £3 3s. Practical anatomy (winter), £6 16s. 6d. Practical chemistry, £4 14s. 6d. Regional anatomy, chemical physiology, surgical pathology, and infectious diseases, £1 11s. 6d. Tuberculosis, diseases of the eye, diseases of the larynx, ear, and nose, diseases of the skin, and venereal diseases, £2 12s. 6d. Advanced bacteriology, £7 17s. 6d. Clinical gynaecology and applied anatomy, £2 2s.

Scholarships.—There are many funds for the assistance of students by means of bursaries, scholarships, exhibitions, and money awards from the beginning to the end of their undergraduate career. In addition, there are funds which help those who have taken a first degree in medicine and surgery to continue at work as research students. The value of these awards, and the conditions attaching to them, are so varied that those interested should consult the prospectus of the school itself.

THE SCHOOL OF MEDICINE OF THE ROYAL COLLEGES.—This school is composed of Lecturers licensed by the Royal College of Physicians and the Royal College of Surgeons and in most cases also recognized by the University of Edinburgh through their *licentia docendi*; for the sake of convenience they lecture in separate buildings near to the Royal Infirmary, but form a single corporate body governed by a board elected by the Royal Colleges of Physicians and Surgeons and by the Lecturers. This board, with the assistance of the standing committees of the school, supervises the whole management and especially the maintenance of the efficiency and discipline of the school. The buildings at present utilized for the purposes of lecturing are the following: (1) Surgeon's Hall, Nicolson Street; (2) New School, Bristo Street. Clinical classes are held in the Royal Infirmary, Royal Maternity Hospital, and other institutions. The teaching is similar to that of the Scottish universities, and the students receive similar certificates at the close of each session. The courses on the special subjects are also conducted by teachers specially qualified in each branch. The fees payable for class and other instruction, and including the sums payable before admission to the examination of the Conjoint Board for the triple qualification, amount to about £180. The Calendar, giving full information regarding classes and fees, can be obtained (price 9d., post free) on application to the Dean of the School, Surgeon's Hall, Edinburgh.

WOMEN STUDENTS IN EDINBURGH.—Until the close of the summer session of 1916 women students intending to proceed to graduation in the University of Edinburgh, as well as those entering for the triple qualification of the Royal Colleges of Edinburgh and Glasgow, received their training in the Edinburgh School of Medicine for Women. Now women students study under the same conditions as men, and may obtain either the university degree or the diploma of the Royal Colleges. In the university systematic lectures are given to them by the professors in the ordinary classes, which are *therefore mixed*. In clinical surgery, however, the women students are restricted to the wards of one charge. The particular wards are changed periodically, each of the surgeons to the Infirmary taking the women students in rotation. With few exceptions, prizes, scholarships, bursaries, and similar distinctions are open to women under the same conditions as for men. The women students also have the same privileges as in the past have been given to the men of attending classes taught by the recognized lecturers of the School of Medicine of the Royal Colleges. Most of the students' societies are open to women, with the exception of the University Union and the Royal Medical Society. Their place is taken by the Women Students' Union and the Women's Medical Society. There is also a Women's Athletic Club, with playing fields gifted to it by the university. The membership of the Royal College of Physicians and Fellowships of the two Royal Colleges are also open to women. Information on matters connected with women's studies may be obtained from the Adviser of Women Students, The University, Edinburgh.

Glasgow

THE UNIVERSITY SCHOOL FOR MEN.—The whole course of study required for graduation (M.B., Ch.B.) at the University of Glasgow can be taken here. Besides ample provision for lectures there is practical and clinical work at the hospitals, and practical courses are conducted in the laboratories of the following departments: pathology, public health, pharmacology, physiology, surgery, anatomy, chemistry, zoology, physics, and botany; the Botanic Garden and the Hunterian Museum are also open to students. Well-equipped new buildings have been provided for botany, zoology, practical anatomy, and operative surgery, as well as for pathology; the very large additions made a number of years ago to the chemical laboratory render it one of the most extensive in Scotland. The classrooms and laboratories for the departments of physics, physiology, pharmacology, materia medica, medical jurisprudence, and public health are also of recent erection, and are elaborately equipped. In addition to the regius chairs and the chair of pathology at the university, there are chairs of medicine, surgery, obstetrics, and pathology at the Royal Infirmary; and a number of university lectureships in clinical medicine, clinical surgery, venereal diseases, laryngology, dermatology, otology, psychological medicine, tuberculosis, pathological biochemistry, and electrical diagnosis and treatment have been founded there. Other chairs have been founded at the university in bacteriology, organic chemistry, physiological chemistry, applied physics, public health, and paediatrics. There are also lectureships on the surgical and medical diseases of children and on electrical diagnosis and therapeutics. The university, in short, has made great and successful efforts to extend and improve the accommodation of the medical departments, to strengthen the teaching staff, and to encourage post-graduation and research work. A diploma in public health is now also granted. Three very extensive general hospitals in the city afford exceptional opportunities for clinical instruction—namely, the Western Infirmary (600

hopes are entertained that in the near future the principle of co-education will prevail in the capital.

At the present time it will be seen that the only co-education hospitals in London are University College and King's College. The number of women entrants is restricted, but they are given excellent opportunities whilst students, and also, in fair proportion, are given opportunities of post-graduate experience as residents, house-surgeons, house-physicians, and obstetrical assistants.

Number of Women Students

Returns made to the University Grants Committee show that the total number of full-time women medical and dental students attending university institutions in England, Scotland, and Wales during recent years were:

	1925–26	1927–28	1929–30	1931–32
England	1,059	852	842	910
Wales	30	30	19	40
Scotland	313	254	275	322
Total ...	1,402	1,146	1,136	1,272

The corresponding total number of full-time male students of medicine, including dentistry, was 9,107 in 1931–2.

The London (Royal Free Hospital) School of Medicine for Women

The London (Royal Free Hospital) School was started for the training of women in medicine in the days before there were any co-education facilities for them, and it still remains by far the largest school for women. In addition to the clinical work at the Royal Free Hospital, which at present has 280 beds, but will shortly have 360 when the extensions now in progress are completed, arrangements are made for students of the school to obtain clinical instruction at the National Hospital for Nervous Diseases, Queen Square; the Royal London Ophthalmic Hospital, Moorfields; the Great Ormond Street Hospital for Children; the Elizabeth Garrett Anderson Hospital; the South London Hospital for Women; and the Cancer Hospital. Its importance for women in medicine can hardly be overestimated, not merely because it was the pioneer which made the way possible, but also because it is still the only general hospital in Britain which offers all its post-graduate appointments, higher and lower, to open competition by women as well as men, thus giving unique opportunity of gaining experience. Not only are all the resident appointments at the Royal Free Hospital, of which there are twenty-seven yearly, eligible for women, but, in addition, higher posts may be obtained in all the various branches of a general hospital, from those of registrar and anaesthetist to those of visiting physician or surgeon and those in charge of special departments. There is a special unit in gynaecology under a woman professor, and entirely staffed by medical women. This policy has so far not been fully adopted in its entirety by any other hospital, and it may be of interest to note in this connexion that the Royal Free Hospital has many women on its general committee and weekly board of management.

Openings for Medical Women

There are at the present time the names of over five thousand medical women on the *Medical Register*. There is an increasing demand by the public for the services of women doctors in all branches of medicine, and statistics show that the number of those who make good is as high as, if not somewhat higher than, that of their men colleagues.

Openings at Home

Since the number of men and women qualifying has reached normal standards, medical women find no difficulty in obtaining house appointments in the recognized teaching hospitals and in non-teaching hospitals, hospitals for women and children, sanatoriums, etc. The reorganization of hospitals under local authorities, as an outcome of the new Local Government Act, has resulted in the creation of a number of new resident appointments, senior and junior, intended to be held by medical women. In fact, the supply at the present time does not meet the demand.

General Practice.—There are good openings as assistants or, better still, as assistants with a view to admission as partners in general practice. Medical women also do very well when starting in new districts; and there is considerable scope for them in midwifery work.

Specialist and Consulting Practice.—The number of women doing specialist and consultative practice grows rapidly. There is no branch of medicine in which it is not possible for a patient to consult a medical woman. Women so specializing equip themselves by obtaining the highest essential qualifications, and it is hoped that the time is not far distant when many more women will hold positions on the honorary staffs of all hospitals. Already medical women are on the honorary staff of the Royal Free Hospital, London, and of general hospitals in a number of provincial cities. In London, Edinburgh, Glasgow, Manchester, Bristol, and Brighton there are hospitals staffed entirely by medical women, doing very fine work and meeting a real need, the latest to be opened being the Marie Curie Hospital in London for the treatment of cancer by radium. Research work also provides interesting openings, as, for example, in dealing with the special problems concerning cancer, nutrition, puerperal morbidity and mortality, statistical work, etc., and for some of these research scholarships and grants are available.

Teaching Posts.—Women hold professorships and lectureships at various universities.

Industrial Medicine.—In this branch there is much interesting work available, and it is undergoing considerable development at the present time. Several women already hold such posts.

Administrative Work.—A certain number of these important posts are admirably filled by medical women. At the Ministry of Health the chief medical officer for maternity and child welfare is a medical woman, and she has a staff of medical women to assist her. Medical women also hold high administrative posts under the Home Office, Board of Education, Board of Control, etc.

The Public Health Service.—This service provides numerous openings for medical women. It has many departments, and its rapid growth in recent years has provided much interesting work in preventive medicine. Senior departmental posts are frequently held by medical women, and several occupy posts as medical officers of health. For maternity and child welfare work women have been found to be peculiarly suited; but, by a curious economic limitation, married women, who would appear to be the most suitable of all, are, by many public authorities, excluded from service. This exclusion not only prevents married women from taking part in this work, but also prevents many of the best women from specializing in this branch of medicine, as it is obviously uneconomic to specialize in a branch of public service from which one may be excluded in a few years.

Medical Inspection, etc.—Under the Board of Education there are women serving as medical advisers and school medical inspectors. The London County Council and other important councils in the country have medical women on their permanent medical staffs, in both the senior and junior grades. The London County Council has two of its senior medical women appointed to serve as district medical inspectors. In addition, they have a large number of women medical inspectors of school children, and also women are serving as experts in the departments dealing with mental deficiency, tuberculosis, and venereal disease. Some medical women also serve as examiners of the candidates entering the public services, as, for example, the civil service. The services of medical women are extensively enlisted by public authorities in dealing with employees of their own sex. In several instances women serve as assistant medical officers to prisons. The services of medical women are also enlisted as lecturers and examiners on first aid, home nursing, health, and infant care.

Pay and Status

It is interesting to note that medical women, backed by the powerful assistance of the British Medical Association, have been on the whole successful in resisting the attempt to accept a lower salary for the same work as their men colleagues, thereby not only greatly benefiting themselves, but also maintaining the standard for the whole profession. They realize that ever since the admission of women to the medical profession exactly the same sacrifices for principle have been made by their predecessors as are now demanded from them. With the inauguration of the School Medical Service in 1908, and later when maternity and child welfare posts were created, persistent efforts were made by local authorities to pay their assistant medical officers below the minimum arranged by the representatives of the public authorities and the British Medical Association, and to secure women at a lower rate than men. With rare exceptions these efforts were a failure. Women realize as clearly as men that lowered pay invariably implies a lowered status and prestige, and that the woman who stamps herself as belonging to an inferior grade of doctor cannot complain if she is taken at her own valuation, and that a minimum always tends to become a maximum. Attempts to evade the scale and split the ranks of the profession by offering a post to a man at the agreed rate and a similar post to a woman slightly below that rate are particularly to be deprecated. Where the rule of equal pay for equal work is violated there is no limit to the extent to which women may be exploited.

Openings Abroad

Colonial Office.—To those to whom oversea service appeals it offers the possibility of useful, interesting, and adequately paid work. At present there are posts for women in Malaya, and East and West Africa. The work is almost entirely hospital and maternity and child welfare work; there have been one or two specialist appointments, such as bacteriologists, and more may follow. Women have, so far, only been appointed to the lower-grade posts, but their pay is the same as that of the men in similar grades. When placed on the permanent staff they are eligible for pension.

Egypt.—Appointments in the Kitchener Memorial Hospital, Cairo, which forms part of the Clinical Faculty of the University of Cairo, are held by women. Appointments in certain dispensaries are open to medical women. There are also posts held under the education authority, chiefly school medical inspection.

India.—See note on the Women's Medical Service for India in the next column.

Mission Field.—Missionary societies offer employment to medical women, chiefly in India, China, and the Near East.

Public Activities

Medical women are frequently appointed to serve on Royal Commissions and Government Committees dealing with medical subjects, and are also requested by them to give evidence of an expert medical nature.

Medical women have always shown considerable interest in medico-political affairs, and take an active part in the work of the British Medical Association, and with the various other societies dealing with medicine as it affects the community in general. With this end in view they also have a Medical Women's Federation, which enables them to voice a collective expression of opinion. This might otherwise be difficult to ascertain, as women are so widely scattered, both as regards their geographical distribution and their varied activities. This collective opinion of medical women has been found of great assistance by the British Medical Association and other allied societies with which it works in cordial co-operation and by whom it is frequently approached, both for information and also as a convenient means of approaching medical women as a whole.

It may be added, with regard to contributions to medical literature, that this is a branch of work in which women are more and more taking their share, and scientific and other works are frequently published by them.

WOMEN'S MEDICAL SERVICE FOR INDIA

Among careers open to medical women abroad the Women's Medical Service for India deserves honourable mention. This Service is open to fully qualified medical women of British or Indian nationality, and with the present amount of Government subsidy the number of medical officers is limited to 44.

Medical women proceeding to India to join the Women's Medical Service receive a sufficient sum for a first-class passage to India. On landing they are posted to one of the larger women's hospitals to gain Indian experience and to learn the language. For a further period they are appointed to act temporarily for medical women on furlough. They are then definitely appointed to the charge of hospitals. Private practice is allowed, provided it does not interfere with official duties. The only exception is in administrative or educational posts, when an allowance in lieu of practice is given. The amount obtained from practice varies according to the station, but in most cases it forms a fair addition to the salary, varying from £150 to £1,000 a year.

Excellent opportunities for surgery—especially gynaecological—are found in the Women's Medical Service. To those who are not keen surgeons opportunities are likely to open in the future in connexion with maternity and child welfare. Rates of pay are as follows:

Years of Service	Oversea Allowance per Mensem	Salary per Mensem	English Equivalent* per Annum
1 to 3	Rs. 100	Rs. 450	£440
4 to 6	Rs. 100	Rs. 500	£480
7 to 9	Rs. 100	Rs. 550	£570
10 to 12	Rs. 100	Rs. 600	£560
13 to 15	Rs. 150	Rs. 650	£600
16 to 18	Rs. 150	Rs. 700	£640
19 to 21	Rs. 150	Rs. 750	£680
22 to 24	Rs. 150	Rs. 800	£720
Over 24	Rs. 150	Rs. 850	£760

* At rupee value 1s 4d.

Furnished quarters are provided, representing an additional Rs. 150 per mensem.

The cost of living in India is much higher than formerly, but it should be possible for a medical woman (with house provided) to meet actual household expenses for about Rs. 300 per mensem, leaving the remainder of her salary for dress and personal expenses. To this must be added the necessary saving to meet additional expenses for furlough and leave spent in the hills.

Leave on average pay is earned at the rate of two-elevenths of the period spent on duty.

Study leave is granted to the extent of twelve months in the total service, and will not be granted more than twice in the course of an officer's service. During study leave an officer draws half average pay, with a study allowance at the rate of 12s. a day during the course of study. Officers of European domicile are entitled to four free return first-class passages from a port in India to a port outside India in their whole service. The first passage is not granted until after the expiry of four years' approved service, and thereafter passages may be granted at intervals of not less than four years. There is a Provident Fund to which members of the Service contribute 10 per cent. of their pay. The Service contributes another 10 per cent., which accumulates at interest and is repaid on retirement.

Admission to the Service is made by selection in India and England, preference being given to those with Indian experience. Vacancies are few. Candidates in the United Kingdom should apply to the honorary secretary United Kingdom Branch of the Countess of Dufferin's Fund, *c.o. Major-General Sir Leonard Rogers*, India Office, Whitehall, London. Candidates in India should apply to the Chief Medical Officer, Women's Medical Service, Countess of Dufferin's Fund, Simla and Delhi.

Post-Graduate Study

Post-graduate students may be divided into general practitioners desirous of refresher courses, usually covering a wide field within a relatively short period of time, to bring their knowledge up to date; those who wish for instruction in special subjects with a view to obtaining one of the special diplomas or of preparing for some higher examination, perhaps with a view to promotion in one or other of the medical services, or, if already general practitioners, of adding some form of specialism to their work; and visitors, whether from the oversea Empire or from foreign countries, who wish to pursue intensive studies in special subjects or to familiarize themselves with the methods of practice in Great Britain.

It is clear that London, with the large and varied amount of material available, and with its wealth of professional skill and teaching power, offers ample opportunity for the supply of all these needs if suitable concentration and organization of effort can be brought about and established. So far, however, no definite post-graduate school of the general character and scope required has yet begun to function. Such teaching centres as exist are widely scattered, and their efforts are limited and largely unsystematized. There is still no satisfactory hostel or social centre for the students, though a small beginning was made in this direction about two years ago by the establishment of "London House," a small residential hostel available for thirty men students. Two hospitals—the West London Hospital at Hammersmith, and the Prince of Wales's General Hospital at Tottenham—have for many years had post-graduate colleges attached to them. Their efforts are valuable and praiseworthy, but they can cater only for a limited number of general practitioners, and these largely drawn from those whose practices are within a relatively short distance of the schools. The general practitioner may also perhaps find a refresher course at the hospital at which he was trained held during a vacation, and similar short courses are organized from time to time at one or other of the London hospitals. The Fellowship of Medicine, too, arranges definite courses of study at individual hospitals; and at its office—generously placed at its disposal by the Royal Society of Medicine at 1, Wimpole Street, W.1—a list of hospitals, special and general, to which medical graduates may resort, with or without fee, is kept; and the names of the teachers at each hospital are available. Occasional courses of a more special character may thus be discovered.

There has recently been a steady increase in the demand for post-graduate instruction in the psychological aspects of medicine, and this will probably continue owing to the passage of the Mental Treatment Act and other causes. Systematic attempts to provide this are being made by at least three bodies. There are courses for the diploma in psychological medicine held at the Maudsley Hospital. Courses in mental deficiency are held once or twice yearly, organized by the Central Association for Mental Welfare in conjunction with the University of London. The Institute of Medical Psychology (formerly the Tavistock Square Clinic), in addition to intensive courses of a fortnight's duration in November and June, and introductory courses of about a month's duration in October and March, has two main courses in psychotherapeutic theory and method covering one year's work: these are open to a limited number of practitioners only—one is arranged for those who can give only three hours twice a week for this purpose; the other is for those who wish to specialize and are prepared to give a minimum of twelve hours (on three days) in the week. The Institute now has admirable new premises at Torrington Place, and such systematic teaching as that indicated has been more fully and effectively developed there.

Over and above such specialized or occasional teaching, it is possible to obtain under one roof instruction in all branches of preventive and of tropical medicine at the London School of Hygiene and Tropical Medicine, at the corner of Keppel Street and Gower Street. This institution was opened in July, 1929, and has established itself as a most valuable school of the University of London in the faculties of medicine and science. Here are university chairs in public health, bacteriology, biochemistry, epidemiology, helminthology, medical protozoology, medical entomology, and medical industrial psychology.

The principal courses of study are for the university diploma in public health, the university diploma in bacteriology, and the diploma in tropical medicine and hygiene (Eng.) of the Conjoint Board of the Royal Colleges. Special courses of instruction are also arranged in other subjects. The course of study for the diploma in public health includes not only lectures and demonstrations on the theory and practice of public health administration and the principles of sanitary law, but also a large number of visits to places of public health interest, including centres of industrial welfare. The course of study includes also sanitary engineering, practical work under a medical officer of health, instruction in infectious disease and hospital management, and two important studies which have recently been established—namely, physiology as applied to hygiene and industry, and medical industrial psychology. The course of study for the diploma in tropical medicine and hygiene can be taken in two parts, Section A being a three months' course of laboratory and clinical instruction and Section B a two months' course in tropical hygiene, and there are special arrangements for short periods of instruction for students unable to attend the whole course. Facilities for clinical work are afforded at the Hospital for Tropical Diseases, close by. At the Seamen's Hospital, too, in co-operation with the London School of Hygiene and Tropical Medicine, post-graduate courses for ship surgeons are now held systematically.

The shortcomings of London as a post-graduate medical centre have been recognized for a long time, and it is gratifying to know that practical steps are now being taken to remedy the several disabilities that have been mentioned, and to establish in the near future under the auspices of the London County Council and the University of London, and with governmental financial aid, a real post-graduate hospital and medical college which will be worthy of the metropolis of the Empire. As long ago as 1921 a committee on post-graduate medical education was set up under the chairmanship of the Earl of Athlone. The establishment of "a school attached to a hospital centrally situated in London devoted solely to post-graduate medical education as a school of the University" was the chief recommendation that resulted. In 1925 a second committee was appointed "to draw up a practical scheme of post-graduate medical education centred in London." The scheme finally suggested was to use one of the Poor Law hospitals transferred to the London County Council under the Local Government Act, 1929, as a British Post-Graduate Hospital, and to establish a fully equipped medical school in connexion therewith. The hospital chosen for the purpose is the Hammersmith Hospital at Shepherd's Bush, which is a modern institution with, at present, 400 beds, on a site of sufficient acreage to allow of extension and of the creation of the necessary college buildings. A third committee, known as the Provisional Organization Committee, with Lord Chelmsford as chairman, reported in 1931 upon "(1) the action requisite to lead up to the planning and construction of the medical

school, and (2) the form of government appropriate to the hospital and medical school with special reference to the position of the London County Council as the local authority responsible for the hospital, and to the position of the University of London in relation to the medical school." This has resulted in the approval by the King in Council of a Royal Charter constituting the Governing Body of the school and defining the functions of the governors. The Governing Body consists of representatives of various Government Departments, of the London County Council, of the University of London, and of the Royal Colleges of Physicians and Surgeons, the Society of Apothecaries, the Royal Society of Medicine, and the British Medical Association. The late Lord Chelmsford was its first chairman, and he has now been succeeded by Sir Austen Chamberlain, K.G. The actual planning of the building and the detailed arrangements necessary in accordance with the main proposals of the Provisional Organization Committee have been taken in hand. Although the economic situation has delayed these developments both the Government and the London County Council are now providing sufficient, though reduced, financial assistance, and the foundation stone of the Medical School buildings was laid on July 17th last by Mr. Neville Chamberlain, the Chancellor of the Exchequer. Though it is not, at the moment, possible to say when the hospital and school will be open to post-graduate students, the practical inauguration of the scheme is now definitely in sight. London will, before long, become, as it should be, a world centre of post-graduate medical training.

In the provinces the Universities of *Oxford*, *Cambridge*, Birmingham, Bristol, Liverpool, Manchester, and Sheffield have organized courses of post-graduate work and instruction. Liverpool University has established a regular course for ship surgeons on similar lines to that already mentioned in London. Edinburgh receives graduates from many schools in the Dominions as well as in this country. In Glasgow and in Aberdeen courses are available, and, in relation with the University of St. Andrews, courses are given by the James Mackenzie Institute for Clinical Research. At many of these centres the teaching is provided by whole-time intensive courses, by part-time courses, and by means of clinical assistantships. The Joint Tuberculosis Council has provided nomadic courses in its own special subject, and a considerable number of the Divisions of the British Medical Association are now organizing post-graduate courses in their own locality.

Short particulars about the facilities for post-graduation study at present obtainable in Great Britain and Ireland are given in Section VII. of the *Handbook for Recently Qualified Practitioners*, published by the British Medical Association (price 3s. 6d.).

Fellowship of Medicine and Post-Graduate Medical Association

The Fellowship of Medicine arranges regular courses in general medicine and surgery, including special departments each lasting two weeks. Courses in diseases of the chest, children, ante-natal, heart, nervous system, throat, nose, and ear, dermatology, gynaecology and obstetrics, proctology, orthopaedics, fractures, psychological medicine, physical therapy, rheumatism, urology, practical anæsthetic tuition, and in venereal diseases are given from time to time at the special hospitals in association with the Fellowship of Medicine. Evening clinical and pathological courses for the M.R.C.P. (three times a year) and F.R.C.S. (Final) (twice a year) are arranged also. Week-end and evening courses are arranged in many subjects. A panel of teachers is always available for clinical teaching, by arrangement with the Fellowship. Lectures and demonstrations are arranged periodically. The office of the Fellowship is, by kind permission of the Royal Society of Medicine, at No. 1, Wimpole Street, W.1 (telephone, Langham 4266). The secretary is in attendance daily from 10 a.m. to 6 p.m. (Saturday 10 a.m. to 1 p.m.). The annual subscription for membership of the Fellowship of Medicine and Post-Graduate Medical Association is £1 1s., which includes the *Post-Graduate Medical Journal* published monthly. Courses, lectures, and demonstrations are open only to members.

Post-Graduate School of Radiotherapy

The working scheme announced in our issue of June 28th, 1930 (p. 1185), between the London Radium Institute in Riding House Street and the Mount Vernon Hospital at Northwood, for the establishment under joint control of a Post-Graduate School of Radiotherapy is in full operation. The next course of study in radiotherapy will commence on Monday, October 2nd, 1933. The Dean (Sir Cuthbert Wallace) will be pleased to see prospective students by appointment. Applications for copies of the syllabus and other information may be addressed to the Secretary (Mr. T. A. Garner) at the School, Riding House Street, London, W.1.

West London Post-Graduate College

The work of this institution is carried on at the West London Hospital, the first in London to devote its clinical material solely to the instruction of qualified medical men. The college started in 1895, it is provided with lecture, reading, writing, and class rooms, and accommodation of all sorts for the convenience of post-graduate students. The work of the college is eminently suitable for men in general practice and officers in the Service who wish to revive their general clinical knowledge.

As for ward work, the students accompany the senior staff on their visits to the wards. The out-patient department is large, and affords ample facilities for post-graduates to see and examine patients. There are the usual special departments. Post-graduates are appointed to act as clinical assistants for three or six months, no charge being made. Special practical classes are held in anæsthetics, *x* rays, and, when material is available, in operative surgery. The size of the classes is limited. A special clinic for the treatment of venereal diseases (male and female) is held all day. Graduates are admitted to the work of the clinic free, and certificates of satisfactory attendance and work are given.

Operations take place at 2 p.m. daily, the surgeons often availing themselves of the assistance of the graduates, and in any case making arrangements so that they can readily see what is going on. The pathological laboratory is in charge of a pathologist, who attends every day. Demonstrations are given in the morning by the assistant physicians and surgeons, and by the medical and surgical registrars.

The certificates of the school are recognized by the Admiralty, the War Office, the Colonial Office, the India Office, the University of London (for higher degrees), and the Conjoint Board. The general course is recognized as being suitable for practitioners taking a course of study under the Ministry of Health "grant-aided scheme for post-graduate study by insurance practitioners in rural areas." A prospectus can be obtained on application to the Dean.

Fees.—Hospital practice including all ordinary demonstrations and lectures £1 1s. for one week, £4 4s. for one month, £7 7s. for two months, £9 9s. for three months, £15 15s. for six months, £23 12s. 6d. for one year, and £45 for a life ticket. Instruction in the administration of anæsthetics is given at the rate of £3.3s. a month.

North-East London Post-Graduate College

The headquarters of this post-graduate school are situated at the Prince of Wales's General Hospital, Tottenham, N.15, in the midst of this densely populated North London district. It contains 238 beds, and is within a few minutes'

walk of South Tottenham Station on the London Midland and Scottish Railway, and Seven Sisters and Tottenham Hale Stations on the London and North-Eastern Railway. It is readily accessible by electric tram from Manor House and Hackney, and from Dalston, Edmonton, and other parts of North London. The North Middlesex Hospital, Edmonton, N.18, with upwards of 1,000 beds, has, under a recent arrangement, taken part in the clinical teaching.

The college is in association with the Fellowship of Medicine and Post-Graduate Medical Association, and is recognized by the Admiralty and India Office for the purpose of study leave, and by the University of London as a place for advanced study for the M.D. and M.S. degrees; the course of practical teaching of bacteriology is approved by the University of Cambridge for its Diploma in Public Health, and there are ample arrangements for the convenience of men who are thus working, or who, being in active practice, are desirous of getting themselves into touch with modern methods. The hospital as a whole affords excellent facilities for qualified medical practitioners who wish to take part for a time in active general hospital work, or to obtain special instruction in the several branches of medicine and surgery, since it is open to them to study diseases of the eye, ear, throat, nose, skin, fevers, children's diseases, psychological medicine, dental surgery, radiography, the application of electricity in disease, and the administration of anaesthetics. Throughout the sessions, into which the year's work is divided, clinics, lectures, and demonstrations are given by members of the teaching staff. Operations are performed every afternoon of the week except Saturday. Special vacation or intensive courses are held at intervals throughout the year, each lasting two weeks, clinical instruction being arranged for each hour of each day. The winter session will be opened about the middle of September as regards clinical teaching.

Fees.—For the hospital practice in general medicine or surgery the fee is 5 guineas for three months or 2 guineas for one month. Provided there is accommodation in the special departments, the fees are: eye department 3 guineas; gynaecological department 5 guineas; ear, nose, and throat department 5 guineas for three months. All departments—the fee is 3 guineas for one month, 6 guineas for three months, 10 guineas for a year, and 15 guineas for a perpetual ticket.

Additional information can be obtained from the Dean of the Post-Graduate College, at the Prince of Wales's Hospital.

West End Hospital for Nervous Diseases

The post-graduate facilities of this hospital include: (1) courses of one month's duration—one hour or so daily—in common diseases of the nervous system, a number of short concentrated courses on particular subjects, and week-end courses designed to meet the requirements of the general practitioner, as advertised by the Fellowship of Medicine; (2) courses of instruction in psychological medicine as applied to children, in connexion with the Hospital's Child Guidance Unit; (3) a comprehensive course of instruction in speech therapy (which is acceptable to the Board of Education).

The clinical and teaching facilities of the hospital fulfil the requirements of the Examining Bodies for the Diploma in Psychological Medicine, and for the London University M.D. degree, Part III. Appointments as honorary clinical assistants (six months) and honorary clinical psychologists (twelve months) are made as required, and are open to candidates desiring facilities for the study of neurological and psychological conditions. The annual out-patient attendance is between 38,000 to 40,000 at the out-patient department, Welbeck Street, W.1. The in-patient department, Outer Circle, Gloucester Gate, Regent's Park, provides seventy-six beds, including twenty-five cots for children, and is fully equipped with a pathological laboratory and other special departments.

Manchester Post-Graduate Courses

The Faculty of Medicine of the University of Manchester has arranged courses in preparation for the diplomas in psychological medicine, in public health, bacteriology, pathology, and veterinary State medicine. There are classes also for a certificate in venereal diseases. A limited number of clinical assistantships at the discretion of the hospitals are offered in the medical, surgical, and special departments of the Manchester Royal Infirmary, the Ancoats Hospital, and certain special hospitals for one, two, or three months, or longer. A clinical assistantship at the Radium Institute for three months is offered. Clinical teaching for post-graduates is given each Thursday during university terms by the honorary staff at Ancoats Hospital; no fee charged.

Post-Graduate Courses at Bristol

The University of Bristol provides courses of post-graduate study for practitioners. Details of set courses at the Royal Infirmary and General Hospital are announced locally. In addition, practitioners may become clinical assistants in medicine, surgery, or special subjects for periods of a month or more.

Daily Post-Graduate Study.—For those who are able to devote several hours each day to hospital practice the university offers special facilities for post-graduate work. Qualified medical practitioners may be appointed as clinical assistants for a period of one or more months. They may act as assistants, if times permit, in more than one department and in any of the hospitals during their period of study. They will be entitled to the use of the clinical laboratories and medical library, and have the right to attend in all departments, including operations, post-graduate and ordinary clinical demonstrations, and post-mortem examinations.

All inquiries and applications for admission should be addressed to the Director of Post-Graduate Studies (Clinical Section), Department of Medicine, University of Bristol.

Post-Graduate Courses at Newcastle

For the year 1933–4 the following post-graduate courses have been arranged by the College of Medicine, Newcastle-on-Tyne (University of Durham):

1. General courses in clinical medicine, surgery, and pathology at the Royal Victoria Infirmary, meeting once weekly for ten weeks. One course will be held from October to December, and one from April to June.
2. Special courses of clinical instruction meeting once weekly for ten weeks in the following subjects: gynaecology, diseases of the eye, diseases of the throat, nose, and ear, diseases of the skin, venereal diseases, neurology. Special courses in midwifery will be held at the Princess Mary Maternity Hospital.
3. An intensive course of fourteen days' duration in the summer vacation, 1934.
4. In addition to the regular post-graduate courses, practitioners may attend the ordinary medical and surgical practice of the Royal Victoria Infirmary, and also at the Princess Mary Maternity Hospital, for specified periods.
5. Classes are held at the Newcastle General Hospital for clinical instruction in medicine and surgery, or lecture-demonstrations, every Sunday morning during term: There is no fee, and all medical practitioners are invited to attend.

Edinburgh Post-Graduate Courses

In connexion with the University and Royal Colleges post-graduate courses are arranged every year, from about the middle of July to about the middle of September, comprising: (*a*) a course in obstetrics, gynaecology, and child life and health, held from July 17th to August 12th, (*b*) a general practitioner course; (*c*) a general surgical course. Courses (*b*) and (*c*) extend for four weeks from August 14th to September 9th. Similar courses are held each year.

The course in obstetrics, gynaecology, and child life and health includes instruction in clinical midwifery and clinical gynaecology, obstetrics and gynaecological pathology, child life and health, ante-natal and post-natal clinics, etc.

The general practitioners' course includes lecture-demonstrations, and, where possible, practical instruction on medical anatomy, medical sideroom work, examination of the blood, *x*-ray and electrical therapy, morbid anatomy, and post-mortem examination; clinical instruction in medicine, surgery, gynaecology, child life and health, diseases of the skin, and infectious diseases; and special instruction

in the diseases and methods of examination of the nervous, circulatory, respiratory, alimentary, and renal systems, and in diseases of the ductless glands The general surgical course includes lecture demonstrations on surgical anatomy, surgical pathology, and surgical x ray diagnosis, clinical instruction in surgery at the Royal Infirmary and Royal Hospital for Sick Children, clinical instruction in venereal diseases, surgical out patients, surgical and gynaecological operations, and special instruction in abdominal and genito-urinary and other branches of surgery

A series of clinical discussions, open to all graduates, is arranged on subjects of general interest Among the special courses also arranged at various times of the year are examination of the blood, diseases of the ear, nose, and throat, ophthalmoscopy, venereal diseases, x ray physics and electrotechnics, tuberculosis, ultra violet radiations and their uses, the interpretation and significance of modern diagnostic methods, surgical pathology, clinical surgery, clinical medicine, urological surgery and treatment of fractures, neurological surgery, disorders of speech and voice, orthopaedic surgery, child life and health

Particulars regarding the courses, dates of commencing, fees, etc, may be had on application to the Honorary Secretary Post Graduate Courses in Medicine, University New Buildings Edinburgh

Post-Graduate Medical Teaching in Glasgow

Organized post graduate medical teaching is available in Glasgow under the auspices of the Post Graduate Medical Association This association represents practically all the teaching institutions in Glasgow and the various teachers giving post graduate instruction, and its business is managed by a board elected periodically by them The chairman of the board is Professor Robert Muir During the winter months special courses in various subjects are conducted and a number of post graduate lectures given From November till May there is a series of weekly demonstrations specially designed for local practitioners Clinical courses are carried out during the summer months, and arrangements have also been made whereby a limited number of graduates may become attached to wards or out patient departments nominally as clinical assistants for definite periods throughout the year As such they work under the direct supervision of the physician or surgeon in charge, and carry out such detailed investigations as directed

A general medical and surgical course is held each year during the last two weeks of August and the first two weeks of September, which is arranged to include most of the subjects of interest to the general practitioner This year the course is being conducted from August 21st to September 15th The forenoons are occupied with general medicine and surgical diagnosis and minor surgery, in the Western Infirmary and in the Royal Infirmary In the afternoons special subjects are dealt with in the special hospitals and in the special departments of the general hospitals, two subjects being considered most afternoons

Further information may be had on application to Dr James Carslaw, Secretary, Post Graduate Medical Association 9, Woodside Terrace Glasgow, C 3

Australian and New Zealand Medical Association

The Australian and New Zealand Medical Association gives information and advice to medical visitors from the Commonwealth and Dominions with regard especially to attendance at special clinics, post graduate work, and facilities for preparing for examinations such as the M R C P, F R C S, etc, and also as to house appointments and clinical assistantships in London and the provinces Information will also be given about lodgings, sports, and social opportunities Two dinners are held annually All medical graduates or undergraduates born in Australia or New Zealand and resident in or visiting England are eligible to become members The fee is one payment of 5s Further information can be obtained from the joint honorary secretaries, Mr. E T C Milligan, F R C S, 10b, Harley Street, W, and Mr. Philip J Jory, F.R C S, 2b, Queen Anne Street, W.

Tropical Medicine

There are large and important Schools of Tropical Medicine in London and Liverpool, and the Colonial Office expects all nominees for the Colonial Medical Service to pass through one or other of the two schools mentioned before their appointments are confirmed, and commercial firms engaged in tropical enterprise commonly demand from medical applicants for employment corresponding evidence of special knowledge Information with regard to these schools and diplomas and degrees is given in the paragraphs printed below The University of London alone gives a degree (M D) in Tropical Medicine, and this, being an "internal degree," can only be taken by students who are medical graduates of that university Diplomas in Tropical Medicine or Hygiene are granted by the universities of Edinburgh and Liverpool, and by the Conjoint Board of the Royal College of Physicians of London and the Royal College of Surgeons of England

Diplomas and Degrees

LONDON UNIVERSITY.—Tropical medicine is one of the six branches in which the M D degree may be obtained The regulations relating to the curriculum and examination correspond to those applying to the other branches

THE CONJOINT BOARD OF ENGLAND.—This body grants a diploma in tropical medicine and hygiene to candidates after an examination held in the months of January, April, and July New regulations are in force, and twenty one days' notice in writing instead of fourteen days is now required of candidates for all examinations Section A comprises clinical tropical medicine and surgery, applied pathology, zoology, and elementary bacteriology Section B, tropical hygiene, including epidemiology, medical zoology, and bacteriology in relation to hygiene Candidates may enter for either or both sections provided that A is taken before B The examination fee is nine guineas Candidates must possess a qualification in medicine, surgery, and midwifery recognized by the Board, and produce evidence of attendance, subsequent to qualification, at courses of instruction as laid down in the regulations The hospitals and laboratories recognized for this diploma are the London School of Hygiene and Tropical Medicine, the Royal Army Medical College, the Liverpool School of Tropical Medicine, and the School of Tropical Medicine, Calcutta Particulars and conditions of admission to these examinations, fees, etc, may be obtained from the Secretary Examination Hall, Queen Square, London W C 1

UNIVERSITY OF LIVERPOOL.—A diploma in tropical medicine is given by this university to students who have attended the courses provided by the Liverpool School of Tropical Medicine and have passed the examination held twice yearly by the university examiners The subjects of examination are (*a*) parasitology, (*b*) entomology; (*c*) tropical medicine, including aetiology, symptoms, pathology diagnosis, and treatment of tropical diseases Fee for the course, £21 A diploma in tropical hygiene (D T H), open to the holders of the D T M, has also been established The subjects of examination are tropical hygiene (including sanitary engineering, vital statistics and epidemiology, and applied parasitology and entomology), practical sanitation, bacteriology, chemistry (including meteorology and climatology). Fee for the course, £12 16s Further information can be obtained from the Dean of the Faculty of Medicine, University of Liverpool

UNIVERSITY OF EDINBURGH.—Candidates for the diploma in tropical medicine and hygiene granted by the University of Edinburgh must be graduates in medicine and surgery of that university, or hold corresponding registrable degrees or qualifications of some other licensing body The course of instruction, which commences in October, extends over two terms The examinations (Part I and Part II) are written, oral, and practical and are held at the end of the courses Candidates, on the first occasion

of presenting themselves for examination in either part, are required to appear for all the subjects of that part. Those who fail to pass the entire examination in either part within a period of twelve months after first appearance are required to reappear for all the subjects. The university is included in the list of institutions whose courses of instruction in tropical medicine may be taken by officers on appointment to the Colonial Medical Services or during study leave. Full particulars can be obtained from the Dean of the Faculty of Medicine, Edinburgh.

SCHOOLS

London School of Hygiene and Tropical Medicine (University of London)

The courses of study in all branches of the work of the School will recommence in the autumn in the premises in Keppel Street (Gower Street), the gift of the Rockefeller Foundation, which has excellent laboratories and research rooms, a fine lecture theatre and class rooms, library, and museum.

The course of instruction in tropical medicine and hygiene is divided into two parts: Section A, a three-months' course of clinical and laboratory instruction, and Section B, a two-months' course in tropical hygiene. Each section has been so designed that it can be taken independently of the other, and the examinations by the Conjoint Board will follow closely upon the end of the corresponding course of study. This revised course is recognized by the University of London as a course for associate students.

The dates of the courses for the session 1933–4 are as follows:

Section A (Clinical and Laboratory Instruction).—A three-months' course, October 2nd to December 22nd, 1933; January 8th to March 29th, 1934; April 9th to June 28th, 1934.

Section B (Tropical Hygiene).—A two-months' course, January 22nd to March 23rd, 1934; April 23rd to June 22nd, 1934.

The course of instruction under Section A includes clinical tropical medicine, applied pathology, medical zoology, and elementary bacteriology. Section B comprises instruction in tropical hygiene, including, in relation to hygiene, bacteriology, medical zoology, anthropology, and vital and medical statistics.

There are special arrangements for short periods of instruction and also for students who are unable to attend at the beginning of a course.

The instruction in the division of clinical tropical medicine is given by the medical staff of the Hospital for Tropical Diseases and by visiting lecturers. In this way the splendid resources of the hospitals of the Seamen's Hospital Society at Endsleigh Gardens, at the Albert Docks, and elsewhere, become available for the clinical instruction of the students at the school.

The course of study for the diploma in public health will commence on October 2nd, and will extend over a period of nine months' whole-time study. It is arranged in compliance with the requirements of the General Medical Council, and students taking the course will be able, should they so desire, to proceed to the academic diploma in public health of London University. The curriculum has been planned on very practical lines, and includes, in addition to work with medical officers of health in two selected areas, a large number of visits to places of public health interest. A series of 5 o'clock lectures is given by eminent authorities on special subjects, and these lectures are open to members of the medical profession as well as to students of the school. The London County Council, the City of London, and various other bodies have placed their resources at the disposal of the School for teaching purposes.

In connexion with the Diploma in Public Health, the Fishmongers' Company Studentship, entitling the holder to free tuition for the whole course, is open for competition among European students who possess a medical qualification which is registrable with the General Medical Council. The subject of examination (which will be both written and oral) will be "Hygiene" within the scope of the syllabus for the Third Examination for Medical Degrees (or the M.B., B.S. examination) of the University of London. The examination will be held at the School on September 20th and 21st. Applications must be received by September 16th.

The special course of study for the diploma in bacteriology covers a period of one academic year beginning in October, and special three-monthly courses will be given in epidemiology and vital statistics.

Special courses of study are arranged for the Academic Diploma in Psychology (Industrial), University of London.

Inquiries with regard to all the above-mentioned courses should be addressed to the Secretary, London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W.C.1.

University of Edinburgh

A course of instruction for the diploma comprising a primary and a secondary course is given during the autumn and spring terms (October to March), and includes tropical hygiene, bacteriology, entomology, and parasitology, diseases of tropical climates (systematic and clinical), tuberculosis, and venereal diseases. The university is included in the list of institutions whose courses of instruction in tropical medicine may be taken by officers on appointment to the Colonial Medical Services or during study leave. Full particulars can be obtained from the Dean of the Faculty of Medicine.

Liverpool School of Tropical Medicine

This school is affiliated with the University of Liverpool. The university grants diplomas in tropical medicine (D.T.M.) and in tropical hygiene (D.T.H.).

Two full courses of instruction, each lasting about eleven weeks, are given every year for the D.T.M., commencing respectively October 2nd, 1933, and January 3rd, 1934; and two courses for the D.T.H., beginning on January 11th and April 26th, 1934. The D.T.H. can only be taken by those who have obtained the D.T.M. Students who do not desire to take the diploma examinations held by the university at the end of each term are given a certificate if attendance has been satisfactory.

Fees.—(1) For the D.T.M. course, 20 guineas; for the D.T.H. course, 10 guineas. (2) For the diploma examinations, 5 guineas. An extra charge of one guinea is made for the use of a microscope if required.

The laboratories of the school adjoin the university and the tropical ward of the Royal Infirmary. The dimensions of the building are 162 feet in maximum length by 84 feet in width. In addition to the basement, in which are accommodated the photographic department and large storage rooms, there are four floors. The ground floor has: (1) lecture theatre, with accommodation for about seventy students; (2) library; (3) a spacious museum with preparation room adjoining. The first floor has twelve rooms, in which are housed the departments of tropical medicine and entomology. The second floor has the main class laboratory, 69 feet by 58 feet, excellently lighted; and three other rooms, devoted to the department of parasitology. The third floor has a large research laboratory and two research rooms. On the roof is an insectorium, a mosquito-proof house, and other accommodation.

Since its foundation the school has dispatched to the Tropics thirty-two scientific expeditions, many of the workers having been taken from among its students. The work done by the staff has been published in twenty-four special memoirs; in the *Annals of Tropical Medicine and Parasitology*, issued by the school; and in numerous articles in the scientific press.

The school also has a laboratory in the Tropics: the Sir Alfred Lewis Jones Tropical Laboratory in Sierra Leone, which was opened on January 10th, 1922, and is staffed by the school. Further information may be obtained from the Honorary Dean, School of Tropical Medicine, Pembroke Place, Liverpool, 3.

Psychological Medicine

A knowledge of psychological medicine is an essential part of a doctor's equipment, and in recent years its importance has become increasingly recognized. Its main concern may be said to be with the psychoses—that is those mental affections which correspond more or less to what is termed insanity—but it embraces also the study of functional nervous disorders in all their varied manifestations and it includes in addition, the subject of mental deficiency which, it must not be forgotten, may form the basis of either a psychosis or a psychoneurosis.

The study of mental illness cannot safely be forgone. All too often there befalls a patient some calamity, with all its attendant distasteful publicity, which an acquaintance with the practical aspects of mental disease might well have obviated. The treatment of psychotics is the province of the psychiatrist, but their early recognition is of supreme importance and a working knowledge of such states will afford the practitioner with the means of their detection at a stage when curative measures are most likely to meet with success. Sufferers from one or other of the functional nervous disorders are innumerable, and all too often pass from doctor to doctor unassuaged. The intervention of the specialist may be necessary in the treatment of the severer forms of hysteria and neurosis, but many practitioners have now acquired a sufficient knowledge of such states to be able to carry out a thorough and effective system of treatment themselves.

Mental deficiency cannot escape detection in its extremer forms but numerous higher grade defectives, many of whom are a menace to the community by reason of their criminal propensities, all too often escape recognition and especially must the student who proposes to take up a career in the school medical service or in the prison service make sure that he is thoroughly grounded in this subject.

It is generally assumed that the mental expert is equally well acquainted with each of these departments of psychological medicine—the psychoses, the psychoneuroses and mental deficiency. This, however, is seldom the case. In the past there has been too rigid a specialization largely the outcome of administrative requirements. Recently, owing to the establishment of mental out patient clinics and the coming into being of the Mental Treatment Act, which gave sanction to the admission of voluntary patients into public mental hospitals the psychiatrist's experience has been considerably enlarged and his province has been still further widened where the authorities have elected to place the selfsame physician in charge of both the psychiatric and the mental deficiency units. It is to be hoped that this process of co-ordination will continue and that it will eventually embrace the systematic psychological examination of prisoners or, better still, of accused persons awaiting trial.

However that may be the medical student intending to take up psychiatry as a career will be well advised to neglect no opportunity of furthering his acquaintance with every branch of psychological medicine.

Mental Hospital Appointments

Those who take up psychiatry as a career work as medical officers of public or private mental hospitals or similar institutions. Except in the larger institutions, such as those under the control of the London County Council where a number of the medical officers are allowed to live out if married, the medical staff are resident officers, having board, lodging, etc., either in the hospital itself or a residence in the grounds. Junior assistant medical officers receive about £350 to £450 per annum, and senior assistant medical officers about £500 to £700, in both cases with board, lodging, laundry, etc., in addition if married, the board, etc. is commuted for cash. As the mental hospitals are under local control the salaries vary much in different mental hospitals. Medical superintendents who are paid commonly ranges between £800 and £1,500 per annum are provided with a house in the grounds of the hospital, and draw various allowances.

Since the passing of the Asylums Officers Superannuation Act of 1909 doctors on the established staff of a public (county or borough) mental hospital, by paying as contributions 3 per cent. of the value of their appointments may retire at the age of 55 (provided that they have completed twenty years' service), on a pension computed at the rate of one fiftieth of their salary and emoluments for each completed year of service, but inasmuch as the benefits of this Act are restricted to the public mental hospitals and are forgone on transfer to private or chartered mental hospitals and the provision for widows is inadequate and uncertain, less inducement is offered than might be to joining the service.

Appointments to the public mental hospitals are made by the visiting committees. Promotion tends to be slow and uncertain. The higher positions are not always advertised but in recent years there has been a general improvement in the conditions of service.

Mental hospitals are fast developing an atmosphere approximating more closely to that of the general hospitals. Whilst routine, administrative and clerical necessarily bulks largely in mental hospital duties there is ample material, time, and scope for purely medical work and research, and there is no branch of medicine in which research is more needed.

Instruction in Mental Disorder

Though at the present time the instruction given to the student is scarcely adequate to supply the knowledge of mental disorder requisite for the needs of the general practitioner, the facilities for the study of psychological medicine in the general hospitals are now much greater than in former years. Thus many of the teaching hospitals have out patient departments for the treatment of mental cases, and in some of these hospitals special lectures are given in psychopathology. These facilities need not be utilized by the student however and the compulsory part of the curriculum is generally confined to formal lectures and a few attendances at some mental hospital. Here the student is apt to see mainly the advanced states of mental disease and is likely to gain the impression that mental disorder is necessarily related to segregation and custody. We would therefore impress upon him the importance of attending the out patient department for mental disorders where he will be able to observe the mild and early cases such as he will hereafter meet with in general practice.

At the Middlesex Hospital a small number of mental cases are treated in the hospital as in patients. This is an important move from the teaching point of view, because the student will gain true insight into the relation between mental disorder and medicine as a whole, and he will realize that it is a form of illness to be studied with other diseases and to be treated along similar lines.

In London, post graduate courses of instruction of a comprehensive kind are given at the Maudsley Hospital and at Bethlem Hospital, and at the National Hospital, Queen Square, courses are arranged to meet the requirements for the diploma in psychological medicine in regard to nervous diseases. Besides its ordinary post graduate teaching in neurology the West End Hospital for Diseases of the Nervous System holds courses on common disturbances of the nervous system, and provides instruction in neurology for the D.P.M. Courses in mental deficiency are arranged by the University of London. There are also post graduate courses at the various universities which grant diplomas of psychological medicine or of psychiatry.

Diplomas

Those who are taking up psychiatry as a career will find it desirable to obtain a diploma in psychological medicine. Such a diploma is not at present compulsory for a permanent position on the staff of all mental hospitals, but it will probably become so in course of time, just as it is now essential to obtain the D.P.H. if a career in public health is contemplated. Psychiatry is one of the branches of medicine which candidates for the M.D. degree of the Universities of London and Edinburgh can take up, and, in addition, diplomas in psychological medicine (D.P.M.), to which reference has been made, can be obtained from the Universities of London, Edinburgh, Durham, Leeds, Manchester, Dublin, and the National University of Ireland, and from the Conjoint Board in England. The requirements for a diploma differ to some extent in the various universities and colleges.

University of London (D.P.M.)

The diploma awarded by the University of London certifies that the candidate has passed the examination in psychological medicine with special knowledge of one or other of the two branches, either psychiatry or mental deficiency, special provision being made for this in Part B of the examination. The examination is held twice in each year: Part A in March and October, and Part B in April and November. Part A consists of anatomy, histology, and physiology of the nervous system (one paper and a practical examination), and psychology (one paper and an oral examination). Part B consists of neurology (one paper, and a clinical and an oral examination), and psychological medicine (two papers and a clinical and an oral examination). Paper I tests the candidate's general knowledge of both mental diseases (psychiatry) and mental deficiency, and Paper II is a special one consisting of two separate alternative sections, the first section relating to mental diseases (psychiatry), and the second section to mental deficiency. A copy of the Regulations and of the Syllabus of Study will be sent on application to John Lea, M.A., University Extension Registrar, University of London, South Kensington, S.W.17.

Conjoint Board of England (D.P.M., R.C.P. and S.Eng.)

Both parts of the examination are held in June and December. The examination comprises the following subjects, with special regard to their relation to psychological and general medicine:—Part I: (*a*) anatomy (macroscopic and microscopic) and physiology of the nervous system; (*b*) psychology. Part II: (*a*) clinical neurology and neuropathology; (*b*) psychological medicine, including psychoneuroses and mental deficiency, and their legal relationships. The examination will be written and oral in Part I, and written, oral, and clinical in Part II. No special certificates of study are required for Part I, but before entering for Part II candidates must produce certificates of: (*a*) having attended clinical instruction for at least two months at a recognized hospital for nervous diseases, or in the department for nervous diseases of a recognized general hospital; (*b*) having held a resident or whole-time appointment at an institution for mental diseases where clinical instruction is given, recognized for the purpose, for a period of six months, or having attended clinical instruction in psychological medicine at a recognized institution during twelve months. Further particulars may be obtained from the Secretary, Examination Hall, 8-11, Queen Square, London, W.C.1.

University of Edinburgh (Dipl. Psych.)

Candidates for the diploma must have held subsequent to graduation: (*a*) a resident appointment for one year in a hospital for mental disorders approved by the Faculty; or (*b*) a six months' appointment as above, and six months' practical study of nervous diseases in a special or general hospital approved by the Faculty. The examination comprises.—Part I: (1) anatomy of the nervous system; (2) physiology of the nervous system; (3) psychology and experimental psychology. Part II: (1) neuropathology; (2) clinical psychiatry; (3) clinical neurology; (4) an additional subject selected by the candidate from a prescribed list. Further particulars may be obtained from the Dean of the Faculty of Medicine, the University of Edinburgh.

University of Leeds (D.P.M.)

The examination is in three parts, and is written, oral, and practical. Subjects of examination:—Part I: (1) the development, anatomy, and histology (human and comparative) of the nervous system; (2) the physiology of the nervous system, and of the organs of special sense; (3) general psychology. Part II: (4) the pathology of the nervous system. Part III: (5) clinical psychiatry; (6) experimental and morbid psychology; (7) (*a*) clinical neurology; (*b*) mental hospital administration, (*c*) medico-legal aspects of insanity. Candidates, in order to pass, must satisfy the examiners in the practical and clinical parts of the examination in Parts II and III respectively. They may present themselves for the three parts of the examination separately, or at the same time, provided that no candidate shall be allowed to pass in Part II unless he has already passed in Part I, or in Part III unless he has already passed in Parts I and II. Evidence must be produced by candidates as to attendance of approved courses of instruction before they submit themselves to Part I of the examination. Particulars may be obtained from the Academic Sub-Dean, School of Medicine, Leeds.

University of Manchester (D.P.M.)

The examination is in two parts. Before presenting themselves for either part of the examination candidates must produce evidence of having attended, subsequent to qualification, certain approved courses of instruction, particulars of which may be found in the prospectus of post-graduate courses. The course of study extends over a period of three university terms, two of which must be taken in the university; the remaining term may be taken at the university, or at some approved institution. The subjects of examination are:—Part I: (1) a written and practical examination on the development, anatomy (human and comparative), and physiology of the nervous system; (2) a written and practical examination in psychology (theoretical and experimental). Part II: (1) a written and practical examination in pathology in relation to the nervous system; (2) a written, clinical, and oral examination in psychological medicine; (3) a clinical and oral examination in clinical neurology. For further information application should be made to the Dean of the Medical School, the University, Manchester.

University of Durham (D.Psy.)

The examination for the Diploma in Psychiatry consists of two parts. Part I: anatomy, physiology, pathology, and bacteriology; Part II: psychology and experimental psychology, neurology and psychiatry (systematic and clinical); and candidates may present themselves for the whole examination or for either part separately. Particulars of the courses of instruction may be had on application to the Dean, College of Medicine, University of Durham, Newcastle-on-Tyne.

University of Dublin Diploma

A post-graduate diploma in psychological medicine is conferred upon registered medical practitioners who have held a resident medical appointment at a recognized institution for the treatment of mental diseases for twelve months, or who have held such an appointment for six months and have attended clinical instruction at an approved institution for six months. Particulars of special courses of instruction may be obtained from the Registrar of the School of Physic, Trinity College, Dublin.

National University of Ireland

The National University of Ireland grants a diploma in psychological medicine. Application should be made to the Registrars of the Constituent Colleges, University College, Dublin; University College Cork; and University College, Galway, for all information as to courses, etc.

Courses of Instruction

Maudsley Hospital, London

A course of instruction for the Diploma in Psychological Medicine is given annually at the Maudsley Hospital, Denmark Hill, from January to May inclusive, the details of the last course being as follows. The course consisted of two

parts. In the first part lectures on the anatomy of the nervous system were given by Professor Le Gros Clark, with practical instruction by Mr. C. Geary. A course of lectures on the physiology of the nervous system, with demonstrations in physiological psychology, was given by Dr. F. Golla; a series of lectures on biochemistry in relation to the nervous system by Dr. S. A. Mann; on theoretical and practical psychology by Dr. Henry Devine; on mental mechanisms by Dr. E. Mapother; on contemporary schools of psychology by Professor F. A. P. Aveling; and on the practical application of intelligence tests by Dr. F. C. Shrubsall. For the second part of the course lectures on the general principles of psychiatry with a series of clinical demonstrations on the same subject were given by Dr. Mapother; on psychopathology and the principles of psychotherapy by Dr. Bernard Hart; on general treatment by Dr. T. Tennent; on laboratory methods by Dr. Mann; and demonstrations on the pathology of the central nervous system by Mr. Geary. Dr. Shrubsall lectured on mental deficiency, Dr. W. Moodie on mental abnormalities of children, and Dr. East on criminal insanity. Dr. Golla and Dr. James-Collier gave instruction on clinical neurology, and Mr. Foster Moore on eye changes as applied to psychiatry. Dr. A. J. Lewis gave a series of demonstrations on the psychoneuroses and effective disorders. The fee for the whole course (Part I and Part II) was 15 guineas, or for either part separately 10 guineas; for one single series of lectures in Part I the fee was 4 guineas, and in Part II 2 guineas. Inquiries as to lectures, etc., should be addressed to the Director of the Central Pathological Laboratory, Maudsley Hospital, Denmark Hill, S.E.5, and as to clinical facilities to the Medical Superintendent of the Hospital.

Bethlem Royal Hospital

The Bethlem Hospital is situated at Monks Orchard, Eden Park, Beckenham, Kent, where every facility is available for the clinical study of nervous and mental disorder. The classification of patients is a prominent feature in the administration of the hospital, and treatment in all its modern and specialized aspects can be carried out at the Lord Wakefield of Hythe Treatment and Research Laboratories. Two courses of lectures and practical instruction for the Diploma in Psychological Medicine are given each year, in spring and autumn. These are of an intensive character, one commencing in September and completed in early December, and the other commencing in the middle of January and completed in the middle of April. Each course consists of two parts: Part A includes lectures and demonstrations on the anatomy, histology, and physiology of the nervous system, with lectures on psychology and demonstrations in experimental psychology. Part B comprises lectures and clinical demonstrations in psychology, including lectures and demonstrations in the morbid anatomy of the nervous system; a series of lectures, with clinical demonstrations, on different branches of psychological medicine; and lectures, with clinical demonstrations, on mental deficiency. Entrants for the course who pay a composition fee of 15 guineas may, if due notice is given, attend either Part A or Part B of one course and postpone the other part until the next session. An entrant who wishes to attend one part only pays a fee of 10 guineas. An entrant who takes the complete course can attend the general clinical practice of the hospital on payment of 5 guineas for six months, or 10 guineas for one year, but an entrant who does not take either part of the course and desires to attend the clinical practice of the hospital must pay a fee of 5 guineas for each three months of attendance. To enable post-graduates to obtain special experience in this branch of medicine clinical assistants are appointed from time to time. Further particulars may be obtained from the Physician-Superintendent, Monks Orchard, Eden Park, Beckenham, Kent.

National Hospital, Queen Square

Special courses for the Diploma in Psychological Medicine are not held at the National Hospital, Queen Square, London, W.C.1, but lectures are given which cover all the work necessary for the more organic side of the examination—namely, anatomy, physiology, and pathology of the nervous system and clinical neurology.

The Institute of Medical Psychology

The course of training arranged by the Institute of Medical Psychology, 6, Torrington Place, London, W.C.1 (formerly the Tavistock Square Clinic for Functional Nervous Disorders) is not intended to cover the whole field of study for the Diploma in Psychological Medicine. There are post-graduate courses in psychotherapeutic theory and method. The main course, covering one year's work, is arranged for two groups: (*a*) those who can only manage to devote three hours twice a week; (*b*) those who, with a view to specialization, are prepared to give as a minimum twelve hours a week (attending on three days). Each group is restricted to a membership of six practitioners. In addition, there is a five weeks' introductory course of lectures. This course forms part of a one-year course in psychotherapeutic theory and method, but may be attended by qualified medical practitioners who wish to take it as an isolated course of lectures. Further particulars may be obtained from the Hon. Lecture Secretary, at the Institute.

The Public Health Medical Services

The Ministry of Health is the central authority to secure the adoption and effective administration of measures conducive to the health of the people, and to promote research work and the proper training of persons for health services.

For the purpose of local public health administration the whole of England and Wales is divided into counties, county boroughs, boroughs, and urban and rural sanitary districts. The administrative County of London, exclusive of the City of London, is divided into twenty-eight metropolitan boroughs.

The public health medical services for Great Britain embrace between three and four thousand medical men and women who give whole-time services, and, in addition, a large number who give part-time services. But little more than one-third of the medical officers of health of England and Wales are whole-time officials; but it is certain that this proportion will be considerably increased in the future, for the Ministry of Health is favourable to whole-time services, and certain provisions of the Local Government Act of 1929 will assist in this connexion. The medical officers for these services are appointed by the Ministry of Health for England and by the corresponding Boards of Health for Scotland and Wales, or—and these form the large majority—by the many local public health authorities.

The Medical Services of the Central Authority

For England, the medical work of the Ministry of Health has been organized under the control of a Chief Medical Officer. It is subdivided into seven sections with a senior medical officer at the head of each. About a hundred and twenty medical officers are employed, of whom rather more than one-half are regional and deputy regional medical officers employed for certain duties under the Health Insurance Acts. Briefly, the sections deal with environmental hygiene, epidemiology, and international health; maternity and child welfare; tuberculosis and venereal diseases; the supervision of the food supplies; sanitary administration in relation to infectious diseases; national health insurance; and the school medical service. Vacancies in the staff are advertised from time to time in the medical journals, and appointments are made by the Minister on the recommendations of a Selection Committee. These are Civil Service appointments, subject to the usual conditions as to pension, holidays, etc. Medical officers are also employed for similar services by the Welsh Board of Health (Cardiff) and the Department of Health for Scotland (Edinburgh).

The Medical Services of the Local Authorities

These appointments include: medical officers of health, tuberculosis medical officers, maternity and child welfare medical officers, venereal diseases medical officers, and school medical officers—who work in the health interests of the school child. By the larger local public health authorities assistant medical officers of health are also appointed, and these posts often serve as stepping-stones to the higher offices as vacancies, which are required to be advertised, occur.

Medical Officers of Health

The duties of the medical officer of health are: To inform himself upon all influences affecting, or threatening to affect, injuriously the public health within his district; to advise his sanitary authority upon all matters relating to health; and to perform all the duties imposed upon him by statutes, by-laws, and regulations. He must prepare and submit to his local authority special and annual reports; give immediate information to the Ministry of Health of any serious outbreak of disease; and, subject to the instruction of his sanitary authority, direct or superintend the work of sanitary inspection.

By the Sanitary Officers Order, 1926, no person is qualified to be hereafter appointed or reappointed as a medical officer of health of any district or combination of districts unless, in addition to the qualifications prescribed by any statute, he is also either registered in the *Medical Register* as the holder of a Diploma in Public Health, Sanitary Science, or State Medicine, or has had not less than three years' previous experience of the duties of a medical officer of health.

The Public Health (Officers) Act, 1921, which was promoted by the British Medical Association, provides that a whole-time medical officer of health of a county borough or urban and rural district in England and Wales, a part of whose salary is contributed by the Exchequer, shall not be appointed for a limited period, and shall not be removed from his office except by or with the consent of the Minister of Health. This security of tenure now applies to the large majority of medical officers of health.

Under the Sanitary Officers Order, 1926, a medical officer of health who does *not* devote his whole time to the duties of his office, but a portion of whose salary is obtained from Exchequer grant, may be appointed without any limit of time; in which case he cannot be removed from office without the consent of the Minister. If he is appointed for a specified term, say one year, he continues to hold office from year to year unless the Minister consents to his removal. Where the electing body pays the whole of the salary of such a medical officer of health he may be dismissed from office without reference to the Minister of Health.

A considerable number of authorities have now adopted the Local Government and Other Officers Superannuation Act, 1922. Under this Act, if an officer is incapacitated by ill health after ten years of service, or if he has reached 65 years of age, he is entitled to superannuation. Such superannuation is to be on the following scale: after ten years' service, 10/60 of the average salary which he received during the last five years of employment; after eleven years, 11/60; and so on up to a maximum of 40/60 after forty years or more of service. This Act, however, remains permissive, and it fails to make due allowance, in computing service for purposes of superannuation, for the more advanced age, as compared with other officials, at which the medical officer of health can enter the public service. In these two respects the position reached falls short of that for which the British Medical Association has been working for some years.

In Scotland the position as regards examination com- [illegible] general. Under the Public Health (Scotland) Act, 1897, no one can be appointed [illegible] medical officer of health for any area unless he possesses the Diploma in Public Health. No medical officer can be removed from office except with the sanction of the Board of Health. A "proper" salary must be paid, and the local authority may not bring about the resignation of the officer by indirect means, such as reducing the salary or attaching new conditions to the appointment. The Act says nothing about superannuation or the age of retirement.

School Medical Officers

School medical officers are appointed by local education authorities. Primarily their duty is to detect among the children attending the public elementary schools any physical or mental defect which may retard education, and to inform the parents of its existence. Most approved schemes of medical inspection include arrangements which facilitate the task of parents in obtaining for their children the necessary treatment, check the results of this treatment, and keep each defective child under skilled observation both at home and at school until it has passed altogether out of the education authorities' hands. Indeed, it is now the practice for the education authorities themselves to provide for certain ameliorative work, notably the prescription of glasses where necessary, dental treatment, the removal of adenoids and tonsils, and treatment in connexion with certain diseases of the skin and some physical and mental defects. The general effect of all schemes alike is to make the inspection imposed by law of benefit, not merely to the individual child, but to the community at large, by preventing the development of conditions which lead to the existence of inefficient citizens among the adult population. The work is so related to that of medical officers of health that, generally, the senior school medical officer fills both appointments, his work, when necessary, being supplemented by that of whole- or part-time assistants. A diploma in public health is almost always required of those entering the school medical service.

In Scotland, while the statutory authority for the work of the school medical service is different, the scheme of work is broadly the same.

Tuberculosis Medical Officers

A tuberculosis medical officer is an officer with special training and experience in tuberculosis work, and of a suitable age and attainments to command general confidence. In England such officers are appointed by county councils and county borough councils, and their duties are to carry out the work of diagnosis of tuberculosis, to advise as to treatment, and to take charge of the work of tuberculosis dispensaries and sanatoriums where these are in operation. The work under tuberculosis schemes is co-ordinated with the general public health work of local authorities, and so the medical officer of health is often appointed as the chief tuberculosis officer when a special tuberculosis officer is on the staff of the local authority. The arrangements in Scotland are very similar. In Wales tuberculosis work is carried out under the aegis of the Welsh National Memorial Association, upon which the constituent local authorities are represented, and the powers of appointment of tuberculosis officers are vested in the Association.

Maternity and Child Welfare Medical Officers

Any local public health authority, however small, may make arrangements for maternity and child welfare work within its area, although very generally the smaller local authorities are provided for in county council schemes. For the schemes of the smaller local authorities the services of a part-time medical officer are obtained when the medical officer of health does not himself undertake the duties; but for the larger schemes special whole-time appointments are made. The maternity and child welfare medical officer is responsible for the work at the centres provided and for directing the home visitations; and these activities are closely co-ordinated with the other branches of public health work directed by the medical officer of health.

[illegible] of this work was commenced in different parts of the [illegible] by voluntary organizations; some of it still remains in their hands, but is now fairly closely linked up with the public health local authority; and the tendency is for the whole of the work to be undertaken by the local authorities. A large number of women medical officers have been appointed to these posts.

Venereal Diseases Officers

Schemes for the diagnosis and treatment of venereal diseases are provided and administered by county councils and county borough councils. In some cases the officer is on the whole-time public health staff, and in others he is a part-time official. Special knowledge and practical experience in the treatment of venereal diseases are essential. The officer appointed for either whole-time or part-time service works at one or more clinics, and also gives instruction and assistance in the treatment of venereal diseases to general practitioners, who, if they desire to obtain experience, are allowed to attend the clinics.

Remuneration in the Public Health Service

In order to ensure that public health authorities may obtain skilled and highly trained medical officers it is essential that such officers should receive salaries commensurate with their attainments, bearing a reasonable relationship to the time and money expended in fitting them for their important and responsible duties, and comparing well with the income which might be secured in other lines of medical work. With this end in view the British Medical Association and the Society of Medical Officers of Health prepared a scale of minimum commencing salaries for whole-time public health medical officers.

The scale, which was put into operation in 1925, was attended with a large measure of success. There were, however, certain aspects of it which were not entirely satisfactory. For instance, it was not retrospective, and did not, therefore, apply to medical officers who had been appointed prior to the date on which it came into force, and it contained no provision for specified increments in salary.

As the result of a series of conferences between representatives of the various Associations of Local Authorities and the British Medical Association and Society of Medical Officers of Health, under the chairmanship of Lord Askwith, a "Memorandum of Recommendations" in regard to salaries of public health medical officers was drawn up and came into force in June, 1930. This Memorandum was published in the *Supplement* to the *British Medical Journal* of July 27th, 1929 (p. 71). Copies of the Memorandum may be obtained from the Medical Secretary of the Association. It has been adopted by the Representative Body and has been accepted by the representatives of the following bodies representing local authorities:

The Association of Municipal Corporations.
The Urban District Councils Association.
The Rural District Councils Association.
The London County Council.
The Association of Education Committees.
The Mental Hospitals Association.
The Metropolitan Boroughs Standing Joint Committee.

It has not been accepted by the county councils as a whole, but a majority of these authorities have adopted, and are applying, the Memorandum. The advertisements of local authorities which are not prepared to put into effect the whole of the Recommendations will not be published by the *British Medical Journal*, which in this matter has the co-operation of the *Lancet* and the *Medical Officer*.

The great advantage of the Memorandum is that it embodies a general agreement as to salaries and conditions of service, and is not merely a scale of salaries. It is retrospective, and will therefore benefit officers appointed before it came into force. It provides stated increments for practically all medical officials except whole-time chief, deputy, and chief assistant medical officers of health, who, as chief medical officials, may, it is presumed, depend that the commencing salaries mentioned in the agreement will be increased for meritorious work and years of service, and it contains a very valuable provision by which questions of difficulty can be referred to an advisory committee.

The British Medical Association represents the profession on the advisory committee, putting the point of view of the public health officers in the discussion of the cases of those who are receiving remuneration less than that laid down in the scale.

For the right class of practitioner with leanings in the direction of public health work the service offers an attractive career, but it must always be remembered that there are comparatively few posts which carry high salaries.

The Curriculum for the Diploma in Public Health

New Regulations and Rules of the General Medical Council for Diplomas or Degrees in Public Health came into force on October 1st, 1931.

The curriculum must extend over a period of not less than twelve calendar months (or an academic year of whole-time study covering a period of not less than nine calendar months) subsequent to the attainment of a registrable qualification.

Every candidate for Part I of the examination for the D.P.H. must produce evidence of having attended, during not less than 280 hours, at an institution approved by the licensing body granting the diploma, practical instruction in:

(*a*) Bacteriology and parasitology (including immunology, serology, medical entomology, etc.), especially in their relation to diseases of man, and to those diseases of the lower animals which are transmissible to man;
(*b*) Chemistry, physics, radiology, and electrology in relation to public health;
(*c*) Physiology and biochemistry in their application to nutrition and hygiene;
(*d*) Meteorology and climatology in relation to public health.

Every candidate for Part II must produce evidence of having received, during not less than 120 hours, at an approved institution, instruction in the following subjects.

(*a*) The principles of public health and sanitation;
(*b*) Epidemiology and vital statistics;
(*c*) Sanitary law and administration (including public medical services);
(*d*) Sanitary construction and planning.

Every such candidate must also have attended for three months on the clinical practice of a recognized hospital for infectious diseases, and have received therein instruction in the methods of administration. At least twenty-four daily attendances of not less than two hours each are required.

Every candidate for Part II must also produce evidence that he has, during a period of not less than six months, been engaged in acquiring a practical knowledge of the duties of public health administration under the supervision of a medical officer of health, who must certify that the candidate has received, during not less than three hours on each of sixty working days, practical instruction in these duties, and also those relating to.

(*a*) Maternity and child welfare service;
(*b*) Health service for children of school age;
(*c*) Venereal diseases service;
(*d*) Tuberculosis service;
(*e*) Industrial hygiene;
(*f*) Inspection and control of food, including meat and milk.

(Instruction in (*a*) to (*f*) must include attendance at the centres, clinics, institutions, and premises concerned.)

Certificates of having received the prescribed instruction in public health administration must be given by a medical officer of health who devotes his whole time to public health work; or by the medical officer of health of a sanitary area having a population of not less than 50,000; or in Ireland by the medical superintendent officer of health of a county or county borough having a population of not less than 50,000.

Regulations for the Diploma in Public Health

The Examination

The examination for the D.P.H. is divided into two parts, and no candidate is allowed to sit for the final part until after an interval of two years from the date of his obtaining a registrable medical qualification, which must be registered in the *Medical Register* before admission to Part II of the examination. The object of this two years' interval is "to provide opportunity for candidates, while passing from the state of pupilage to that of responsible

practice, to give mature consideration to the obligations and duties involved in the work of the Public Health Service, and to acquire direct experience of medical work in a responsible capacity, in general medical practice, in hospital or laboratory appointments, or in any special branch of clinical work or study related to State Medicine."

The examination for Part I embraces practical, written, and oral tests in the subjects set out in the Regulations of the curriculum relating to that part; and the same is true of the examination for Part II.

A candidate must pass in all the subjects of Part I before being admitted to the examination for Part II.

Any candidate who possesses a qualification entitling him to registration on the British, Dominion, or Foreign List of the *Medical Register* can be admitted to examination, provided he has complied with the regulations of a licensing body in the United Kingdom based on the rules of the General Medical Council, and that before being admitted to Part II of the examination his qualification has been registered in the United Kingdom. Only diplomas in public health granted by approved bodies in the United Kingdom are registrable in the *Medical Register*.

Training and Examining Centres for Public Health Qualifications

Degrees in Sanitary Science are conferred, in England, by the Universities of London, Durham, Liverpool, and Birmingham; in Scotland, by the Universities of Glasgow and Edinburgh; and in the Irish Free State, by the National University of Ireland. In most cases these degrees are conferred only upon medical graduates of the universities granting them.

Whereas the requirements of the General Medical Council for the Diploma of Public Health are strictly conformed to, these requirements are extended, as a rule, as to both the period and the scope of special studies demanded, before Degrees in Sanitary Science are granted.

Most universities in Great Britain and Ireland grant a D.P.H. and provide for the necessary training.

The English and Scottish Conjoint Boards and the Irish Colleges also grant these diplomas. The School of Physic of Trinity College, Dublin, was the first body in the British Isles to arrange for courses of instruction and for a Diploma in Public Health.

At Cambridge the teaching and training courses for the D.P.H. were terminated at the end of 1931.

The post-graduate teaching and training in public health, in London, is provided mainly at one centre—the London School of Hygiene and Tropical Medicine (University of London); the only other training centre which offers such facilities is the Royal Institute of Public Health, Queen Square, Bloomsbury, W.C.1.

The course of study for the D.P.H., as provided by the London School of Hygiene and Tropical Medicine (Keppel Street, Gower Street, London, W.C.1), which is a School of the University of London, covers a period of nine calendar months in the case of whole-time students, and is so designed that students wishing to do so can proceed to the Academic Diploma instituted by the University of London. The School undertakes research work in preventive medicine, and members of the public health services have a common room placed at their disposal, and are privileged to attend staff and special lectures.

The University of Manchester has a well-equipped department of bacteriology and preventive medicine, where candidates preparing for the examinations of the various university and examining boards for the Diploma in Public Health can obtain instruction. It also prepares candidates for the Diploma in Bacteriology and in Veterinary State Medicine, granted by the university. Full particulars can be obtained from the Dean of the Medical School, the University, Manchester.

The University of Edinburgh grants a Diploma in Public Health. The course, which extends over an academical year of nine months' full-time study, can be commenced in October only, and provision is made by the university for instruction in all the subjects. Candidates for the diploma must be graduates in medicine and surgery of the University of Edinburgh, or must hold corresponding degrees or registrable medical qualifications, which must be registered before a candidate is admitted to examination. The course for the diploma is divided into two parts, for each of which examinations are held twice annually. In each part the candidate must pass in all the specified subjects at one examination. Admission to the examinations is contingent upon the candidate having complied with the following conditions:

PART I.—(*a*) Completion, subsequent to obtaining a registrable medical qualification, of the course of instruction prescribed for Part I.

PART II.—(*b*) Completion, subsequent to obtaining a registrable medical qualification, of the course of instruction prescribed for Part II. (*c*) A lapse of two years after obtaining a registrable medical qualification. (*d*) Previous passage of examination in all subjects of Part I.

Further particulars can be obtained from the Dean of the Faculty of Medicine, Edinburgh.

The Royal Naval Medical College and the Royal Army Medical College provide courses of training to the medical officers of these two services.

Degrees and Diplomas in Public Health are registrable qualifications, but not so those in Tropical Medicine and Hygiene.

Qualifications in Tropical Medicine and Hygiene

The University of London grants a degree (M.D. in Tropical Medicine) to its medical graduates, and the course of training required must extend over at least one academic year.

Diplomas in Tropical Medicine and Hygiene are granted, in England, by the University of Liverpool and by the English Conjoint Board; and, in Scotland, by the University of Edinburgh. Among the institutions which provide qualifying courses are the London School of Hygiene and Tropical Medicine, the Liverpool School of Tropical Medicine, and the Royal Army Medical College. In the last-mentioned institution the training provided is restricted to Army medical officers. The training period for these diplomas is about six months. Graduates of medicine and surgery of recognized universities whose degrees are not registrable in this country may enter for the examination of the English Conjoint Board, and the conditions of study may be modified on the grounds of previous work in the Tropics or of original investigations undertaken.

The Colonial Office has decreed recently that the holder of a D.T.M. and H., or of a D.T.H., is eligible for appointment as a medical officer of health in places and districts other than those with large populations. In the latter cases a D.P.H. is required.

Those wishing for the details of syllabus of study, fees, date of commencement of the training courses, and the dates of examinations, etc., should apply to any of the training schools mentioned.

The Services

The rates of pay and conditions of service of the Royal Naval Medical Services, the Army Medical Services, and the Royal Air Force Medical Service are given in the following pages. These terms were considered by a committee—of which Sir Warren Fisher was chairman—which was appointed by the Prime Minister to investigate the shortage of officers and nurses in the three Defence Services. The Warren Fisher Committee presented its report to Parliament on August 1st, 1933, and a summary of its proposals appeared in the *Journal* of August 5th, 1933 (p. 269). The present situation was discussed at the Annual Representative Meeting of the Association in July, 1933, and the following resolution was passed:

That it be an instruction to the Council to consider the report of the Warren Fisher Committee, when published, and the action of the Government arising thereout, and to

such action is considered to be unsatisfactory, the Council be given full authority to advise members of the profession seriously to consider the disadvantages to which they are liable if they accept service as officers in the Royal Naval Medical Service, the Royal Army Medical Corps the Royal Air Force Medical Service, the Royal Naval Volunteer Medical Reserve the Territorial Army Medical Service or the Auxiliary Air Force Medical Service

It will now be necessary for the Naval and Military Committee of the Association to examine, at the earliest possible moment, this report in all its aspects, from the point of view of the serving officer as well as from that of the potential recruit The Council will, in due course, receive and consider the report of this committee on this subject, and will then, in the light of its mandate from the Representative Body, determine what action is necessary to further the interests of those affected by the proposals contained in the report of the Warren Fisher Committee

ROYAL NAVAL MEDICAL SERVICE

Examinations for direct entry into the Royal Naval Medical Service are at present in abevance, and entry is made by means of the short service scheme

General Conditions of the Short service Scheme

A candidate must be registered, must be under 45 years of age, and must be recommended by the dean of his school, if however the candidate intends to apply for transfer to the permanent list he must have been under 28 years of age at the time of his entry He must be a British subject of pure European descent Unmarried candidates will be preferred A candidate will be interviewed by the Medical Director General R N and will undergo a physical examination If considered eligible by the Medical Director General his name will be submitted to the Board of Admiralty and he may be appointed "surgeon lieutenant for short service" A candidate must engage for three years with the option of continuing for a further period of twelve months if his services are still required The present rate of pay is £432 a year, with the same allowances as are payable to permanent officers of their rank Lodging money at the rate of £80 a year is usually allowed when employed on shore, without quarters in the United Kingdom and £50 a year in lieu of rations when not victualled in kind On joining an allowance of £50 for uniform is made

Transfer to Permanent Service

A short service surgeon lieutenant after six months' service may be considered on application to the Secretary of the Admiralty for transfer to the permanent service, and would be permitted to count his seniority from the date of entry for short service for purposes of promotion increment of full pay and for retired pay, but for purposes of retiring gratuity on the permanent officers' scale his services will reckon only from the date of transfer to the permanent list

Antedates of Seniority on Account of Civil Hospital Appointments held before Entry

Officers who have held appointments as medical or surgical officers in civil hospitals for any period prior to entry, after becoming qualified medical practitioners are eligible to have their seniorities antedated by not more than one year The eligibility of appointments in civil hospitals to count for time will be decided by the Medical Director General of the Navy

The increase of seniority will count for the purpose of increase of full and retired pay, etc as from date of transfer to the permanent list in the case of surgeon lieutenants for short service

Promotion

Promotion to surgeon commander is attained on completion of twelve years service and officers of that rank are selected for promotion to the twenty seven higher ranks (surgeon captain surgeon rear admiral and Medical Director General) as vacancies occur

Officers obtaining more than 75 per cent of marks at the examinations held at the termination of Parts I and II of the course for promotion to surgeon commander are eligible for advances of seniority as follows Over 75 per cent marks 12 months over 85 per cent marks, 18 months

Special promotions (limited in number) may be made to the ranks of surgeon commander and surgeon lieutenant commander in cases of distinguished service or conspicuous professional merit.

Medals and Prizes

The Gilbert Blane Medal, awarded annually to the surgeon lieutenant commander who obtains the highest aggregate marks at the examination for promotion to the rank of surgeon commander and the Chadwick Naval Prize the North Persian Forces Memorial Medal and the Parkes Memorial Prize are open to naval medical officers

Post Graduate Instruction in the Naval Medical Service

Course on Entry.—A course of three months' duration at the Royal Naval Hospital Haslar is given to each short service officer on entry

General Professional Courses.—These courses at the Royal Naval Hospital Haslar, of four months duration are normally arranged for officers lower than surgeon captains once in every four years The subjects of these courses of instruction are clinical medicine and surgery and allied subjects and on the completion of the courses officers are appointed to a large naval hospital unless and until they receive appointments elsewhere

Course for Promotion to Surgeon Commander.—This course of five months' duration, is normally taken by officers of six to eight years' service Three months of the course are spent at the London Hospital and two months at the Naval Medical School, Royal Naval College Greenwich

Specialist Courses.—These courses of three to six months duration are arranged at recognized civil teaching centres for officers selected for specialist posts, and officers will subsequently undergo courses of three months' duration in their special subjects every four years while employed as specialists

Post Graduate Courses (Old Scheme).—The existing three months post graduate courses at civil hospitals will to a large extent, be superseded by the general professional and specialist courses described above but they will not be discontinued until the new courses have been in operation for some years

Medical officers R N are given the opportunity to prepare for and take higher or specialist qualifications—for example, M D, M R C P, F R C S, D P H, D T M, etc

Rates of Pay

The current rates of full pay and retired pay are set out below They represent a deduction of approximately 11 per cent from the standard rates which were fixed in 1920 when the cost of living was high 20 per cent of the standard rate is regarded as variable as the cost of living rises or falls

Full Pay

	Per annum £	£
Surgeon Lieutenant (short service and permanent service)	432 to	471
Surgeon Lieutenant Commander (promoted after 6 years service)	548 to	602
Surgeon Commander (promoted after a further 6 years service)	730 to	803
Surgeon Captain (promoted by selection	1 095 to	1 205
Surgeon Rear Admiral (promoted by selection	1 460	
Medical Director General (Surgeon Vice Admiral)	2 070	

There are also in certain cases allowances which form a substantial addition to the rates of pay There are sixty specialist appointments open to medical officers The, comprise specialist posts in medicine surgery diseases of the eye, ear nose and throat radiology hygiene etc and a allowance at the rate of 5s a day is payable to holders of them

Medical officers in charge of naval hospitals and sick quarters receive charge pay on the following scale

Surgeon Rear Admirals and Surgeon Captains	10s a day
Surgeon Commanders	5s a day

Maximum Retired Pay

(Approximate current rates.)

	£	Age for compulsory retirement.
Surgeon Vice-Admiral	1 064	On vacating office
Surgeon Rear Admiral	869	60
Surgeon Captain	801	55
Surgeon Commander	534	50
Surgeon Lieutenant Commander and Surgeon Lieutenant	401	45

Gratuities on Retirement

The following gratuities are payable if an officer of the permanent list is permitted to retire voluntarily

	£
Short service officers after 3 years	300
" " " 4 "	400
Permanent officers after 4 years full pay service	500
" " " 5 " " "	1 000
" " " 12 " " "	1 500
" " " 16 " " "	2 250

Further Particulars

Full particulars and a form of declaration can be obtained from the Medical Director-General of the Navy, Admiralty, London, S.W.1.

ARMY MEDICAL SERVICES

Entrance to the Royal Army Medical Corps, which is at present by selection, will take place half-yearly, in January and July.

In addition to the grant of permanent commissions, the War Office offers a number of temporary commissions in the R.A.M.C., the holders of which may be invited at the end of twelve months' service (if suitable, and provided that vacancies exist) to accept permanent commissions in the Royal Army Medical Corps. If a permanent commission is accepted the temporary service is allowed to count as the equivalent of permanent service for promotion, increase of pay, and retired pay.

New entrants, who must be 22 and not over 28 years of age, are commissioned in the rank of lieutenant; the first six months of service are spent on probation, during which time, in addition to their military training at the Royal Army Medical Corps Depot at Aldershot, they undergo a probationary course at the Royal Army Medical College in London, in hygiene, pathology, tropical medicine, military surgery, recruiting, the prevention and treatment of venereal disease, and the elements of Army administration. At the end of this course, and after qualifying at the necessary examinations, their commissions are confirmed and they take their places in seniority according to the total marks obtained at all examinations up to that date. Officers Training Corps service, with possession of certificate "B" (medical), carries a definite value in marks in this total.

An entrant who is holding or about to hold at the time of the entrance examination an approved whole-time appointment at a recognized civil hospital may be seconded while holding such an appointment up to a maximum period of twelve months. A candidate who has held such an appointment within six months of entry may be granted an antedate up to twelve months in respect of the period the appointment was held. This secondment and antedate count in all respects as commissioned service, except that pay will not be issued for that period.

After a total period of one year's service at home, the young officer goes abroad, probably to India, for his first tour of foreign service. Here he gains his first practical experience of tropical disease and tropical hygiene, and possibly his first experience of active service on the frontiers of India. His tour abroad lasts five years, with probably six months' leave home during that time. On returning home the R.A.M.C. officer has the opportunity to decide whether he will remain in the Corps or accept the gratuity of £1,000 after seven years' service and try his fortune in civil life. If he elects to remain, he will, between his eighth and twelfth year of service, undergo a course of post-graduate study at the Royal Army Medical College and the London hospitals of five months' duration, followed by a course of study of a special subject selected by himself, provided he has shown special aptitude in the post-graduate course or during his previous service. During the period of study he remains on full pay and the fees of the course are paid by the State. When qualified in his special subject the officer is eligible for a specialist appointment. After this post-graduate course the officer probably proceeds abroad again, and promotion to the rank of major rapidly ensues; from that time onward he receives regular successive increases of pay and is eligible for additional and charge pay as well.

An important step has recently been taken in the reorganization of the Medical Services of the Army, the object of which is to consolidate and extend the teaching, research work, and the professional opportunities of officers of the R.A.M.C. throughout the Army, and to enhance the status of the Royal Army Medical College and the professional side of the Corps. In consequence also of the elaboration of motor transport in recent years many of the smaller hospitals in commands have been closed and the patients concentrated in central hospitals fully equipped with all the special departments made necessary by modern methods of diagnosis and treatment. This has resulted in specialization in all branches of medical, surgical, and pathological work becoming the rule rather than the exception.

Promotion

Promotion takes place automatically to captain after three and a half years', and to major after twelve years', service, provided the officer is qualified and recommended for promotion. Promotion to the higher ranks is by selection from those senior in the rank below, but special promotion by brevet or otherwise is open to officers of the Royal Army Medical Corps.

Pay and Allowances: Retired Pay

The rates of pay and allowances and retired pay are given in the following tables. The rates of pay are subject to revision on or before April 1st, 1934. In addition, an officer at home in charge of a hospital receives charge pay, the daily amounts being from 2s. 6d. to 10s., according to the number of beds. There are other appointments for which charge pay is given, from 5s. to 10s. daily. There are also available 108 specialist appointments which carry with them an additional rate of pay of 2s. 6d. a day.

Rank	Pay (per annum) approx.	* Allowances (Home Rates) approx.	
		Married	Single
	£	£	£
Lieutenant	356	190	117
Captain	438	228	117
Captain after 8 years' service	487	228	117
Captain after 10 years' service	529	228	117
Major	608	232	156
Major after 15 years' service	690	232	156
Major after 18 years' service	730	232	156
Major after 20 years' service	812	232	156
Lieutenant-Colonel	934	234	157
Lieutenant-Colonel after 3 years' service as such	1016	234	157
Colonel	1138	263	210
Major-General	1542	425	340

* Issuable when provision in kind is not made.

[Special rates of pay are operative for R.A.M.C. officers serving in India.]

Retired pay will consist of two parts: (*a*) a service element based on the officer's total service; (*b*) a rank element for the substantive rank from which the officer retires. An officer with less than twenty complete years' service will not be eligible for retired pay on voluntary retirement.

The following are the maximum current rates of retired pay:

Rank	Yearly Rate of Retired Pay	Compulsory Retiring Age
	£ s. d.	
Major	400 13 0	55
Lieutenant-Colonel	534 0 0	55
Colonel	712 0 0	57
Major-General	850 0 0	60
Lieutenant-General	1068 0 0	60 (or one year after completion of [illegible])

Gratuities

Officers with seven and less than twenty years' service as medical officers may be permitted to retire with gratuities in accordance with the following scale:

After 7 years' service as a medical officer ... £1,000
After 15 years' service as a medical officer ... £2,800
After 18 years' service as a medical officer ... £3,500

Seconded Service

An officer may be permitted to accept employment under the Foreign or Colonial Offices; when so seconded he is not eligible for pay or allowances from Army funds, but his service continues to reckon towards promotion and, subject to certain conditions, towards increase of pay, pension, or gratuity.

Further Information

The regulations for admission, giving full details, can be obtained from the Under Secretary of State (A M D.1), War Office, Whitehall, London, S W.1, and should be carefully studied A personal interview with a representative of the Director-General, Army Medical Services, is readily obtainable

The Army Dental Corps

The corps is administered by the Director-General, Army Medical Services The regulations for admission to the Army Dental Corps should be obtained from the Under Secretary of State, War Office, and carefully studied.

ROYAL AIR FORCE MEDICAL SERVICE

The establishment of the Royal Air Force Medical Service consists partly of permanent and partly of short-service officers, and candidates are appointed after interview by the Selection Board, without competitive examination. Candidates must be under 28 years of age, be British subjects, the sons of British subjects, and of pure European descent Before acceptance they will be required to pass a medical examination.

An officer will on first entry be granted a short-service commission for a period of three years on the active list (which may be extended to five years), followed by four years' service in the reserve, and those under 28 years of age at the time of entry will be eligible for subsequent selection for permanent commissions should they be desirous of remaining in the Service. The prospect of obtaining a permanent commission is approximately an even one

Hospital appointments held since qualifying will, under certain conditions, qualify candidates for antedate of commission, the maximum age limit for appointment to a permanent commission being, if necessary, extended by a period equal to the "antedate."

Pay and Allowances

The following table shows the current rates of pay per annum for the various ranks, these rates are subject to alteration in relation to the cost of living

In addition to pay, officers receive quarters (with fuel and light), rations and attendance, or, if these are not available in kind, they are given cash allowances in lieu as shown in the table The rates and general scheme of allowances are subject to review as circumstances may require

Married officers who have attained the age of 30 years receive either married quarters or allowances at the married rates

Rank	Pay (per annum)	Allowances (per annum) (Present Home Rates)	
		Married	Single
	£	£	£
Flying Officer	359	—	117
Flight Lieutenant	423	228	117
Ditto, after 2 years as such	456	228	117
Ditto, after 4 years as such	487	228	117
Squadron Leader	564	231	155
Ditto, after 2 years as such	617	231	155
Ditto, after 4 years as such	651	231	155
Ditto after 6 years as such	715	231	155
Ditto, after 8 years as such	779	231	155
Ditto after 10 years as such	812	231	155
Wing Commander	894	233	186
Ditto, after 2 years as such	925	233	186
Ditto, after 4 years as such	1022	233	186
Group Captain	1158	304	243
Air Commodore	1289	360	307
Air Vice-Marshal	1624	424	368

Special allowances are applicable at stations abroad.

The rates of pay of the Royal Air Force Medical Branch are fixed on an inclusive basis, and the fact that specialist pay and charge pay are not payable as separate emoluments was taken into account when the rates were fixed

Officers who have been granted permanent commissions may be permitted to attend, for a period not exceeding nine months, a post-graduate course in general medicine and surgery, tropical and preventive medicine, and other special subjects Such permission may be granted at any time when the exigencies of the service permit during the first sixteen years of service, and when attending these courses officers will receive full pay and allowances

New entrants into the R A F M S will be commissioned as Flying Officers (Medical), and will be eligible for promotion to the rank of Flight Lieutenant (Medical) after two years' service Officers selected for permanent commissions will normally be promoted to the rank of Squadron Leader after ten years' total service Accelerated promotion may be granted in a limited number of cases to officers who show exceptional ability after the completion of eight years' service Promotion within establishment to the rank of Wing Commander will be by selection at any period after sixteen years' total service, and to that of Group Captain by selection at any period after twenty two years' service

Outfit Allowance

An officer who has not previously held a commission in H M Forces will receive an outfit allowance of £50 on joining.

Gratuities

Short-service officers who complete their full period of service on the active list may be granted gratuity as follows on transfer to the reserve

After 3 completed years	£250
After 5 completed years	£700

Permanent officers who are allowed to retire voluntarily before qualifying for retired pay may be granted gratuity as follows.

After 10 but less than 15 years' commissioned service	£1 500
With 15 or more than 15 years' commissioned service	£2 500

Retired Pay

The minimum period of service qualifying for retirement on retired pay is twenty years The maximum current rates of retired pay and the compulsory retiring ages for the several ranks are

Rank	Yearly Rate of Retired Pay	Compulsory Retiring Age
	£ s	
Air Vice Marshal	899 0	60
Air Commodore	849 10	57
Group Captain	801 0	55
Wing Commander	534 0	51
Squadron Leader	445 0	43

The above rates are subject to alteration in relation to the cost of living

Further particulars may be obtained on application to the Secretary Air Ministry (R M S) Adastral House, Kingsway, W C 2

INDIAN MEDICAL SERVICE

Pending a decision on the main constitutional issues now under consideration, the future of the Indian Services necessarily remains in doubt, and the Indian Medical Service is no exception to the general rule. The conditions of service actually in force in the I M.S. at the present time are in the main those accepted by the Association in 1928. It was made clear at that time that, while the I.M S. would be retained primarily to meet the needs of the Indian Army, provincial Governments would be required to employ a stated number of officers from the Service, in order to maintain the necessary minimum war reserve and to provide European medical attendance for European officers of the higher civil services and their families. A certain number of civil posts under the Government of India and the provincial Governments were therefore retained and reserved for officers of the Service, some being open to Europeans and Indians.

others to Europeans only; these posts are actually so reserved under existing regulations. It is difficult to say to what extent Indian constitutional reform, which is now the subject of consideration by Parliament, may affect officers of the Indian Medical Service. The present position is that the recommendations of the Government as to the future conditions of recruitment of officers to the Indian Medical Service have not yet been made known, but the Government hopes to submit them to the Joint Select Committee.

Intending candidates should clearly bear this position in mind, and they should also recognize that while they will be liable, if appointed, for military or civil employment as required, they should confine their attention to the prospects afforded by the military side of the Service, which has medical charge of the Indian Army, and which at present offers wide opportunities of professional experience, including clinical, preventive, specialist, and research work.

It should be borne in mind also that the pensions of officers of the Indian Medical Service are charged not on British but on Indian revenues.

Conditions of Service

European candidates for admission to the I.M.S. must be British subjects under 32 years of age, and must be registered under the Medical Acts in Great Britain and Northern Ireland. A gratuity of £1,000 on retirement after six years' service, or £2,500 after twelve years' service, together with free return passages, is offered.

Promotion is on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major-General.

Owing to the state of financial emergency at present prevailing in India, the existing monthly rates of pay (for European officers in the Service who have a "non-Asiatic" domicile), which are as follows, are being subjected, under the authority of the Secretary of State in Council, to a temporary deduction not exceeding 5 per cent.:

Rank	Service in Rank	Basic Pay	Overseas Pay	Year of Total Service
1	2	3	4	5
		Rs.	Rs.	
			150	1st
Lieutenant		500	150	2nd
			150	3rd
Captain ...	(i) During first 3 years' service as Captain	650	150	4th
			£15	5th
			£15	6th
	(ii) With more than 3 and less than 6 years' service as Captain	750	£25	7th
			£25	8th
			£25	9th
	(iii) With more than 6 years' service as Captain	850	£25	10th
			£25	11th
			£30	12th
Major ...	(i) During first 3 years' service as Major	950		
	(ii) With more than 3 and less than 6 years' service as Major	1100		
	(iii) With more than 6 years' service as Major	1250		
Lieut.-Col.	(i) Until completion of 23 years' total service	1500	£30	13th and over
	(ii) During 24th and 25th years' total service	1500		
	(iii) After completion of 25 years' total service	1700		
	(iv) When selected for increased pay	1850		

Extras.—In addition to the above rates various allowances are admissible for a number of special appointments which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers.

Candidates possessing certain higher medical qualifications may be granted an antedate of one year in their commissions. Past service in certain hospital appointments may also render candidates eligible for an antedate of one year. Persons holding or about to hold resident posts at recognized hospitals may be seconded in those posts for a period not exceeding one year. The maximum period of antedate, secondment, or antedate and secondment combined, is limited to one year.

Officers on appointment will receive an outfit allowance of £50.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice so long as it does not interfere with their proper duties.

The rates of pension are as follows.

	Standard Rates per annum.	Current Rates per annum
	£	£ s.
After 17 years' service for pension ...	400	367 0
„ 18 „ „ „ ...	430	394 10
„ 19 „ „ „ ...	460	422 0
„ 20 „ „ „ ...	500	459 0
„ 21 „ „ „ ...	540	495 10
„ 22 „ „ „ ...	580	532 0
„ 23 „ „ „ ...	620	569 0
„ 24 „ „ „ ...	660	605 10
„ 25 „ „ „ ...	700	642 10
„ 26 „ „ „ ...	750	688 0
„ 27 „ „ „ ...	800	734 0

The standard rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent. in all. A reduction of 8½ per cent. has been made as and from October 31st, 1931, on this account from the amounts shown.

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

An officer on appointment is provided with a free passage to India. The wives and families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges.

Officers and their families are also eligible for passage concessions, under which they are granted a certain number of return passages home at Government expense during their service.

Officers are required to undergo courses of instruction at the Royal Army Medical College, and at Aldershot, lasting approximately six months, prior to their embarkation for India on first appointment.

Further particulars may be obtained from the Under Secretary of State for India, Military Department, India Office, London, S.W.1.

LOCAL GOVERNMENT HOSPITAL SERVICES

The effect of the vast pooling of hospital services which has taken place as a result of the Local Government Act, 1929, cannot yet be fully predicted. The Act has accomplished a large reorganization and development of the health services of the country by separating from the Poor Law those which can be discharged under other enactments, such as the Public Health Acts and the Maternity and Child Welfare Acts. A large number of local authorities have found it possible to appropriate for hospital uses much of the institutional provision which they have inherited from the now defunct boards of guardians. In London twenty-nine Poor Law hospitals, seventeen infectious diseases hospitals, nine children's hospitals and convalescent homes, and six tuberculosis hospitals and sanatoriums have been so appropriated. An appropriation of some eighty institutions in all has also taken place in the county boroughs of England.

Such an appropriation means, not merely the separation from the Poor Law of the medical services performed in the institution, but the better co-ordination of the public health services of local authorities in general. Indeed, the Local Government Act of four years ago seems likely to be the password opening the way to a full nation-wide institutional provision for sickness, and also to a uniformity of service which had not been possible before under the haphazard growth of public health administration.

The Growth of the Municipal Hospital

With this development there has come about a vast expansion of opportunities for medical service under local authorities. The institutions which, so long as they remained Poor Law infirmaries, were largely disregarded, have now, as municipal hospitals, come to fill a very large and important place in the hospital picture. The municipal and public assistance hospitals in London, general and special, have about 22,000 beds, to which must be added the infectious diseases hospitals, with 8,800 beds. The total whole-time medical staff numbers 268, and there is a part-time staff (assistant medical officers and specialists) of over 250. In the provinces about eighty municipal and public assistance hospitals have some 34,000 beds, and to these are attached about 230 whole-time and 280 part-time medical officers. In Scotland there are fifteen such hospitals, with 4,900 beds, and whole-time and part-time staffs of fifty-five and forty-two respectively.

A great amount and variety of clinical material is contained in these hospitals. Many of them are used for undergraduate and post-graduate teaching; in London the question of medical education in general and special hospitals under the London County Council has lately been the subject of discussion with the London Voluntary Hospitals Committee. At seven of the general hospitals under the old boards of guardians in London arrangements for such instruction had been made, and these have been extended since the hospitals came under county council control. Facilities for post-graduate teaching are also afforded at certain of the hospitals, periodical demonstrations being given by members of the whole-time medical staff. The post-graduate school at Hammersmith Hospital, the result of a partnership between the Government, the University of London, and the London County Council, is now in process of erection. In November last the Government found itself able to inform the London County Council that the national situation no longer demanded any further delay in commencing the work, which accordingly began in March, the stone-laying taking place in July. The school buildings will consist mainly of laboratories, lecture theatres, and other accommodation (non-residential), while the associated developments and adaptations of the Hammersmith Hospital will include two new blocks of buildings for the casualty, receiving, and out-patient departments, a new ward, a massage and light treatment section, and other facilities. In the fever hospitals instruction in fevers has been provided for medical students ever since the Poor Law Act, 1889. With local authorities having new powers and new ideals, and with the liaison developing with the voluntary hospitals (of which in London the local authority makes the widest use) municipal enterprise in respect of hospitals has to be freshly envisaged, and from the point of view of the young medical graduate planning his career it must not be ignored.

The London County Council Service

The London County Council is the largest of the local authorities in respect of the hospital accommodation it controls and the medical staff which it employs. It has set an example by the advantage which it has taken of the Local Government Act, 1929. Under that Act it took over a total of seventy-six hospitals and institutions. These include twenty-eight general hospitals, the largest of which is Lambeth, with accommodation for 1,500 patients. There are admitted to these hospitals a large number of acute cases, both medical and surgical, but there is, of course, this difference between them and the voluntary hospitals, that the latter can select their patients and reject whom they please, whereas the rate-supported institutions must be prepared to admit any sick poor person who applies, provided that, in the opinion of the medical superintendent, such a patient is suitable for admission. Some 25,000 operations were performed in these hospitals during the last year for which full records were available, and the number of out-patient attendances was a quarter of a million. The chronic sick poor are gradually being concentrated in twelve other institutions which, unlike the rest, are for the present, for administrative reasons, not under the Public Health Acts.

So far as maternity and child welfare services are concerned, the City Corporation and the Metropolitan Borough Councils are the responsible authorities, but the London County Council has maternity beds in its general hospitals, and in several hospitals a fully equipped maternity and gynaecological block. To the maternity wards of the Council's hospitals last year over 10,000 cases were admitted. The accessory medical services under the Council are also important; these include pathological laboratories, *x*-ray units, and a large ambulance organization. In addition to smaller units, the Council has five pathological laboratories, each of which serves a group of institutions attached to the municipal service. These five are at Lambeth, Highgate, Lewisham, Mile End, and Kensington. Recently arrangements have been mad whereby post-graduate students of the London School of Hygiene and Tropical Medicine may obtain experience of the technical and administrative methods adopted in these laboratories—experience of a kind very difficult to obtain in the ordinary way.

English and Scottish Cities

The same general provisions hold good, in smaller degree, of other progressive cities. Below are given particulars, gleaned from *The Hospitals Year Book, 1933*, of the municipal and public assistance hospitals in certain large centres:

	No.	Beds	Medical Superintendents	Whole-time Assistant Medical Officers	Part-time Medical Officers and Specialists
Birmingham ...	3	2,095	2	18	15
Liverpool ...	2	2,831	2	20	20
Manchester ...	5	4,525	5	21	43
Newcastle ...	1	657	1	7	10
Edinburgh ...	3	618	3	5	9
Glasgow... ...	5	3,368	5	35	22

At Birmingham the staff of the Public Health Department, in addition to the medical officer of health and two assistant medical officers, comprises sixty one whole-time officers. Under the Local Government Act two large general hospitals and one infirmary, as well as two convalescent homes, have been taken over, and the hospitals possess up-to-date equipment for dealing with acute medical and surgical cases, and contain special units for obstetrics and gynaecology, deep *x*-ray therapy, light treatment and massage, and pathological and biochemical departments.

Medical Staffing

The policy pursued by the London County Council and other authorities is to provide a whole-time medical service and to have a permanent staff at each general hospital. The grades of officers are: medical superintendents, deputy medical superintendents, senior assistant medical officers, assistant medical officers, and house-physicians and surgeons (resident), and part-time clinical assistants (non-resident). The medical superintendent is required to be a man of high qualifications in at least one branch of medicine, as well as a good administrator and first-class technician. In addition to the medical superintendent, one or more whole-time medical officers, with special qualifications in medicine, surgery, or obstetrics, are appointed. Preference is given to officers holding the higher medical qualifications, M.R.C.P. or M.D. in the case of physicians, F.R.C.S. or M.S. in the case of surgeons. These are graded as senior assistants, and at the larger hospitals one of them ranks as deputy medical superintendent. Deputy medical superintendents are employed as a rule only at hospitals with over 600

office of the General Medical Council, 44, Hallam Street, Portland Place, London, W.1, price 2s. 6d., or 2s. 9d. post free in the United Kingdom. Practitioners who think of going abroad to practise will find therein much useful information, including the name of the official in each country to whom requests for further particulars should be addressed. A new edition was published in 1931.

MEDICAL APPOINTMENTS IN THE COLONIES AND MANDATED TERRITORIES

Medical appointments in the self-governing Dominions and the territories under their control, and in Southern Rhodesia and Malta, are made by the Governments concerned, and are not in general open to candidates in the United Kingdom. In Ceylon, Mauritius, Jamaica, Barbados, the Bahamas, and Bermuda vacancies are practically always filled by the appointment of qualified local candidates or, in the case of some of the higher posts, by transfer from other colonies. Appointments to the medical services of the remaining colonies and other territories under the administrative direction of the Colonial Office are made by the Secretary of State for the Colonies in this country. Such appointments are to a given colony or group of colonies, for there is no unified service directly administered from the Colonial Office, though steps in the direction of unification have recently been taken.

It follows that conditions of service and superannuation are in the main determined by the economic resources and general public health policy of the individual colony and its local government, and vary almost as widely as do conditions of climate. Moreover, the extent of the control exercised by the Colonial Office varies according to the constitutional status of the particular colony, and the detailed information available centrally is not always complete. The intending candidate, therefore, should make comprehensive inquiries as to local conditions, and particularly as to facilities for private practice where this is included in the terms of appointment. He will also do well to supplement official information by reference to the Medical Secretary at the Central Office of the British Medical Association (Tavistock Square, London, W.C.1), where reports obtained from time to time from the local Branches are available. This is the more necessary because opportunities for transfer from the medical service of one colony to that of another are as yet rare, except in connexion with specialist and senior appointments.

To those physically and mentally suited to the climatic and social conditions peculiar to the various colonies the Colonial Medical Services should, and in some cases do, offer a field of professional activity rich in interest and in opportunity for pioneer work, with increasing facilities for specialization and research.

In view of the financial stringency from which Colonial Administrations are suffering, in common with Government and other authorities, it has been necessary, in some instances, to modify the terms and conditions of various services, and whilst the unreduced emoluments, allowances, etc., are stated in this article, the fact that temporary reductions are in operation in many of the Colonial Medical Services must be borne in mind, and intending applicants for appointment to any of these Services should satisfy themselves on this point before signing any agreement of service. In most colonies establishments have been reduced, and this entails a reduction in the number of possible vacancies and affects the prospect of promotion.

Apart from immediate economic stringency, the outlook for the Colonial Medical Service is in the main a hopeful one, and especially so in the larger and better organized branches. The necessity therefore remains for making careful and sufficient inquiry as to the position in any given service before accepting appointment.

The medical services recruited in this country by the Secretary of State for the Colonies include those of West Africa, East Africa, Malaya, Hong-Kong, the West Indies, Fiji and the Western Pacific territories, and Palestine, besides a number of smaller services offering individually one or two appointments.

In the Fiji Medical Service, although the basic salary of district medical officers (£500, by £25 to £725) is below the £600 minimum recommended as adequate by the British Medical Association, this fact is offset by the concession of allowances of from £175 to £275 in some of the districts, the value of private practice in the other districts being estimated at from £100 to £600 a year. (Temporary reductions are in operation.)

The services in the West Indies and some of the smaller colonies have not yet conceded the £600 minimum commencing salary, and whilst facilities for remunerative private practice, general conditions of service, and a relatively low cost of living must in some instances be taken into consideration, these compensations are by no means universal. The service in the Leeward Islands is in a condition which requires special notice by way of warning. The position in Grenada has been improved, though such improvements have not extended to St. Lucia and St. Vincent. (Temporary reductions are in operation in most of the West Indies Services.)

In general, candidates for these services must be between the ages of 23 and 35, although these limits are not absolute. Appointments are, subject to a varying period of probation, for the most part classed as permanent and pensionable, but there are some appointments by agreement for a specified limited term of service. There is no entrance examination, but practitioners selected for appointment must obtain a certificate of physical fitness from one of the consulting physicians to the Colonial Office. Post-graduate experience in hospital appointments is desirable, and in some cases special allowances are conceded to the holders of a D.P.H. Successful candidates are normally required to undergo an approved course of instruction in tropical medicine, the fees for their tuition being defrayed by the Government and an allowance being paid during their instruction.

Some forty medical women are employed in child welfare, maternity, and laboratory work, chiefly in the larger services—for example, those in East and West Africa and Malaya. Salaries are the same as for men.

The bulk of the appointments made by the Secretary of State in this country are to the West African Medical Staff, the East African Medical Service, and the Medical Services in Malaya. These are the strongest individual services numerically, and therefore offer more frequent vacancies, better prospects of promotion, and better chances of specialist appointments than the smaller services.

West African Medical Staff

This is amongst the best organized and best paid of the Colonial Services, and includes Nigeria, the Gold Coast, Sierra Leone, and the Gambia. Climatic conditions vary considerably over this area, but they are in general admittedly trying. This fact is at present recognized by the provision of more frequent leave periods than are usual elsewhere.

The service includes medical, public health, and laboratory divisions, and specialist posts are almost invariably filled by promotion from the staff. The rate of pay for a medical officer is £660 on appointment, rising by annual increments to £960, together with a seniority allowance of £72 a year after reaching £720, but temporary reductions are in operation. There are a considerable number of specialist and administrative posts carrying relatively high salaries, varying from £1,360 with duty allowance of £260, to £1,800, with duty allowance of £360. All appointments in the staff are pensionable. Officers may retire voluntarily on reaching 50 years of age, and may be called upon to retire at 55. Pensions are calculated at the rate of 1/480th of the officer's pensionable emoluments (salary and house allowance) in respect of each complete month of service. An officer of twenty-five years' service who has reached the maximum of the long scale receives a pension of approx-

mately £790 per annum. The pension may be converted into a reduced pension of three-quarters of the full pension, with a gratuity of ten times the amount of the reduction. Gratuities of £1,000 or £1,250 may be drawn on retirement after nine or twelve years' service. Members of the West African Medical Staff are not usually permitted to take their wives or young children with them until they have acquired experience of the conditions of life and have obtained the sanction of the Governor. In the case of young children this is only exceptionally given.

African Medical Officers

Membership of the West African Medical Staff is limited to British subjects of European parentage, but a number of Government appointments for African medical officers exist in the West African Colonies. These appointments carry salary on the scale £500-£25-£600, and there is a higher scale £600-£30-£720.

East African Medical Service

This service includes Kenya, Uganda, Tanganyika Territory, Nyasaland, Zanzibar, and British Somaliland. In East Africa there is a very wide scope for clinical work, both medical and surgical, as well as for research and for preventive medicine and sanitation. In most stations conditions allow a medical officer's wife to accompany him, but this is not generally desirable on first appointment. In some dependencies the consent of the Governor must be obtained. The service includes a medical and a sanitary division. The former is open to those holding ordinary medical and surgical qualifications, post-graduate experience in a hospital appointment being an advantage; posts in the sanitary division will as far as possible be filled by those holding a Diploma in Public Health or a Diploma in Tropical Medicine and Hygiene. Climatic conditions vary considerably. In a considerable part of Kenya they approximate more to the temperate than the tropical zone; but there are some areas in the East African Dependencies where conditions more closely resemble those in West Africa. The rate of pay for a medical officer is from £600 on appointment, rising by annual increments of £30 to £840, and thereafter, subject to an efficiency bar at this point, by £40 to £920. Holders of the D.P.H. receive a special concession of two increments on appointment, or from the date of obtaining the diploma. Private practice may be permitted in certain circumstances, but there is no right to it, even in stations where the opportunities may exist. (Temporary reductions are in operation.)

As in the case of the West African Medical Staff, a candidate can only apply for appointment to the East African Medical Service in general, and is liable to transfer between the several dependencies, but he may express his preference for any particular colony, and his wishes will, we are informed, be met as far as possible. As a rule, transfer only takes place on promotion or at an officer's own request. The gratuities available on retirement after nine or twelve years' service are similar to those for the West African Medical Staff. Officers may elect or may be required to retire on pension on reaching the age of 50 years. Pensions are calculated at the rate of 1/480th of emoluments (including value of free quarters) for each completed month of service. The officer of twenty-five years' service who has reached the maximum of the long scale receives a pension of approximately £650 per annum. Pensions are convertible, under certain conditions, into a reduced pension and a gratuity.

Medical Services in Malaya

These services cover the Straits Settlements, the Federated Malay States, the unfederated States, and the State of Brunei in Borneo. The salary of 500 dollars a month, rising by 25 to 800 dollars, is generally considered adequate. A non-pensionable allowance of 100 dollars a month is paid to officers holding the D.P.H. The officer of twenty-five years' service who has reached the maximum of the long scale receives a pension of approximately £560 per annum. Pensions are convertible, under certain conditions, into a reduced pension and a gratuity.

The climate of Malaya is, for the Tropics, very healthy. It varies little during the year. The average rainfall is about 100 inches a year, and vegetation is always green. People who lead regular, active lives have no difficulty in keeping in good health. European children do well in Malaya up to the age of about 6.

The professional duties of a medical officer may include medical, surgical, medico-legal, and public health work. His administrative work comprises hospital administration, diets, returns, and financial work, and includes the inspection of smaller hospitals and dispensaries. Clerical work is reduced to the smallest possible amount. An endeavour is made to consider an officer's own bent when posting him for duty. Districts vary in size, and a certain amount of travelling will be necessary. The white population in each district varies. The district hospitals hold from 50 to 300 beds. There is a staff of locally recruited medical men, mostly trained at the Singapore College of Medicine. Asiatic dressers and trained hospital assistants are employed in hospitals and dispensaries. In addition to European sisters, there is a large local nursing staff. All hospital equipment is supplied by Government, including instruments. At both the Institute for Medical Research in Kuala Lumpur, Federated Malay States, and the King Edward VII College of Medicine, Singapore, there are opportunities for research as well as for routine investigations. Promising officers may be stationed at the Institute for short periods if they can be spared from other duties. In addition to the full-time professional posts at the College of Medicine, several of the medical staff in Singapore hold part-time lectureships.

It may fairly be said that the Malayan Medical Services offer considerable scope for suitable candidates. There are relatively to other services a large number of special appointments available in surgery, radiology, public health, and pathology, and to those seeking a career in teaching the professorships at the College of Medicine, Singapore, offer an additional attraction.

Sudan Medical Service

This service is a department of the Sudan Government, and includes a number of Syrian medical officers and a number of assistant medical officers who are natives of the Sudan. The British medical inspectors are from the outset senior to all other medical officers. The service offers ample opportunities for specialization and for research, as well as for general medical and surgical work.

The climate varies, but is not in general unfavourable, though hot. In the northern desert the nights are cool, even in summer, and the winter is pleasant and often cold. In the central zone there is a rainy season of about four months, during which large areas become malarious. The south is more tropical in character, and mosquito-protected houses, nets, and protective quinine are essential during the greater part of the year, though even here the winter months are cool and pleasant. It is not considered desirable for medical inspectors to be accompanied by their wives until they have gained some knowledge of the language and the general conditions of life.

The commencing pay of a medical inspector is £E.720. On confirmation of appointment and success in the requisite examinations in Arabic the salary is increased by periodic increments to £E.1,200. Five senior administrative posts carry higher salaries. There is a compulsory contribution of 5 per cent. of pay towards pension, which, for a medical inspector, amounts, after twenty years' service, to £E.500 a year. All salaries are subject to an abatement of 7½ per cent. owing to the world depression. An officer who is compulsorily retired before completing fifteen years' service is not entitled to pension, but receives a gratuity.

Official Sources of Information

All inquiries in connexion with medical appointments in the self-governing Dominions and their dependencies should be addressed to the High Commissioners or Agents-General

for the Dominions. Intending applicants are also recommended to consult the Dominions Office and Colonial Office List, which may be seen at the Colonial Office Library or at the Library of the British Medical Association if not otherwise available, and the Professional Handbook, Part III (price 4d.), issued by the Oversea Settlement Department, Dominions Office, Caxton House, Tothill Street, London, S.W.1.

The position in Egypt is uncertain; questions as to the possibility of any medical appointments becoming available under the Egyptian Government should be addressed to the Director-General, Public Health Department, Cairo.

Enquiries as to vacancies and conditions in the Sudan Medical Service should be addressed in the first instance to Dr. Hodson, 24, Welbeck Street, London, W.1.

All inquiries in connexion with Colonial medical appointments made by the Secretary of State for the Colonies, or such vacancies as may occur in Palestine, should be addressed to the Director of Recruitment (Colonial Service), Colonial Office, 2, Richmond Terrace, Whitehall, London, S.W.1.

There remain a number of medical appointments made by mining companies and other commercial undertakings in various parts of the Tropics. Much caution should be exercised in accepting such posts, and the form of contract should be subjected to very careful scrutiny. Advice in this connexion should always be sought from the Medical Secretary of the British Medical Association, British Medical Association House, Tavistock Square, London, W.C.1.

SPECIAL DIPLOMAS

Information about the regulations for the various Diplomas in Tropical Medicine, in Psychological Medicine, and in Public Health is given in the appropriate sections of this Educational Number at pages 453-6 and 459. Further details in regard to the D.P.H. and the D.T.M. will be found in the late Sir Andrew Balfour's *Guide to the Regulations, Courses, and Examinations for Qualifications in Public Health and Tropical Medicine*, published by the British Medical Association, Tavistock Square, W.C.1, at the price of 3s.

It should perhaps be noted here that of the various diplomas in special subjects granted by licensing bodies only those in Public Health and Sanitary Science and State Medicine are at present admissible for entry in the official *Medical Register*, though other special diplomas may, of course, be included among the particulars of) lifications set out in the *Medical Directory*.

stated at page 423 a Diploma in Tuberculous Diseases anted by the University of Wales to qualified medical ctitioners; new regulations for this diploma are now in force.

Diplomas in Medical Radiology

Diplomas in Medical Radiology are granted by the Universities of Cambridge, Edinburgh, Liverpool, and London.

The Cambridge Diploma.—A Diploma in Medical Radiology and Electrology is granted by the University of Cambridge. The primary object is to provide adequate training in a branch of medical work which is becoming increasingly important and difficult, and which is outside the ordinary medical curriculum. New regulations for the diploma come into force in October, 1933. Before admission to any course for the diploma a candidate shall produce evidence that he holds a medical qualification approved by the committee and also satisfy the committee that he has had sufficient post-graduate clinical experience. The next course, which begins on October 4th, occupies nine months. The first four months, which can be spent either in Cambridge or in London, are occupied with (*a*) lectures and practical work in physics, in preparation for the examination for Part I in February, (*b*) an introductory course of clinical instruction in radiology and electrology, (*c*) a course of instruction in pathology in relation to radiology and electrology. The next three months must be spent in London, and are occupied with (*a*) lectures and demonstrations in radiology and electrology (including radium therapy) organized by the British Institute of Radiology, (*b*) clinical instruction in the radiological department of a hospital approved by the committee. During the final two months of the course a candidate must hold a clinical clerkship or similar appointment in the radiological department of a hospital approved by the committee. This part of the course may be done in London or elsewhere. The examination for Part II will be held in July.

Further particulars as to courses and examinations may be obtained from G. Stead, M.A., Secretary for the Diploma, Cavendish Laboratory, Cambridge, or the General Secretary, British Institute of Radiology, 32, Welbeck Street, W.1. Completed application forms must be sent to the Secretary for the Diploma at Cambridge.

The Edinburgh Diploma.—Candidates for the diploma must be graduates in medicine and surgery of the University of Edinburgh, or hold corresponding registrable degrees or qualification from some other licensing body. Candidates are not admitted to the examination for the diploma until after the lapse of not less than one year from obtaining a registrable qualification, which qualification must be registered before admission to the examination. The course of study begins in October and extends over a period of not less than three terms. The examination, which is written, oral, and practical, is in two parts: (*a*) physics, and (*b*) radiology. The examination is held twice yearly. Full particulars may be obtained from the Dean of the Faculty of Medicine. In this connexion it may be noted that radiology can now be taken as the special subject in the examination for Membership of the Royal College of Physicians of Edinburgh. Several candidates have already taken radiology as their special subject; it means that an honours standard has to be attained.

The Liverpool Diploma.—The University of Liverpool grants a Diploma in Medical Radiology and Electrology. Candidates before admission to the examination for the diploma must possess a registrable qualification approved by the university in medicine and surgery, and must have attended courses of instruction in (*a*) physics (two terms); (*b*) (i) radiology and (ii) electrology, during the nine months in the *x*-ray and electrotherapeutic departments of a hospital or hospitals. An examination is held in March and June in physics, in June radiology and electrology. Examination in either part may be taken separately. Fees: tuition, £31 10s.; examination and diploma, £6 5s. A registration deposit fee of £5 5s. is charged on application and credited to the fees, but is not returnable in the event of the candidate failing to register. These courses commence during the first week in October. Application should be made to the Dean, Faculty of Medicine, the University of Liverpool.

Conjoint Diploma in Medical Radiology.—Regulations have now been issued for the Diploma in Medical Radiology (D.M.R., R.C.P. and S.Eng.) which has recently been instituted by the Royal College of Physicians of London and the Royal College of Surgeons of England. The examination is divided into two parts, the first comprising physics as applied to radiology, the second medical radiology, with special reference to its clinical application, including radio-diagnosis, *x*-ray therapy, and radium therapy. Both parts will be held in June and December of each year. Candidates may enter for them either together or separately, subject to the production of the required certificates. The course for the diploma extends over one academic year (nine months) of full-time study subsequent to the attainment of a recognized medical qualification. At the discretion of the committee of management the conditions of admission may be modified in special cases, but exemption will not be granted from any part of the examination. A syllabus has been drawn

up for Part I of the examination, but not for Part II. The fee for admission or readmission to each part is six guineas. Copies of the regulations may be obtained from the secretary, at the Examination Hall, 8-11, Queen Square, W.C.1.

The London Diploma.—The University grants an Academic Diploma in Medical Radiology. The course is open to registered medical practitioners and graduates in medicine of this or another approved university. Students are required to attend a course of study approved by the University, and extending over not less than one academic year, at one or more of the Colleges or Schools of the University. The subjects of the course are as follows: Part I: physics and electro-technology. Part II: (*a*) radiography and radiodiagnosis; (*b*) radiotherapy. The examination for the Academic Diploma in Medical Radiology consists of two parts. Candidates may enter for Part I and Part II at the same examination, or may enter for Part I only. The examination will consist of a paper, a practical examination, and an oral examination in each of the subjects under Part I and Part II. Full particulars may be obtained from the Academic Registrar, University of London, South Kensington, S.W.7.

Diploma in Laryngology and Otology

The Conjoint Examining Board in England (Examination Hall, Queen Square, London, W.C.1) grants a Diploma in Laryngology and Otology (D.L.O.) after an examination held in June and December. The examination comprises two parts: Part I, on the anatomy, embryology, and physiology of the ear, nose, pharynx, larynx, trachea and bronchi, and oesophagus; Part II, on the recognition and use of special instruments and appliances, and the medicine, surgery, and pathology of these regions. Candidates may enter for Part I at any time after a recognized qualification in medicine, surgery, and midwifery has been obtained. Candidates may enter for Part II on completion of one year of special study of diseases of the ear, nose, pharynx, and larynx, after a recognized qualification has been obtained, provided that Part I has been previously passed, and on production of certain certificates. The conditions of study may be modified at the discretion of the Committee of Management in special cases. The fee for admission or re-admission to each part is six guineas.

Diplomas in Ophthalmic Medicine

A special Diploma in Ophthalmic Medicine and Surgery is granted by the University of Oxford and by the Conjoint Examining Board in England.

University of Oxford.—For the Diploma in Ophthalmology (D.O.) attendance on a twelve months' course of clinical ophthalmology in hospitals or institutions recognized for the purpose by the Board of the Faculty of Medicine, and on a course of instruction in Oxford lasting two months, is obligatory. Candidates must have their names on the *Medical Register* of the United Kingdom, unless, being Bachelors or Doctors of Medicine of universities outside the United Kingdom, they have obtained special permission from the Board of the Faculty of Medicine.

The Conjoint Board.—The Diploma in Ophthalmic Medicine and Surgery of the Conjoint Examining Board of the Royal College of Physicians of London and Royal College of Surgeons of England is issued after completion of an examination held in two parts—in January and July. The examination in each case is partly written, partly oral, partly clinical or practical. Part I comprises anatomy and embryology of the visual apparatus, physiology of vision, elementary optics; Part II comprises optical defects of the eye, ophthalmic medicine and surgery, pathology with special reference to medical and surgical ophthalmology. Candidates may enter for Part I at any time after a recognized qualification in medicine, surgery, and midwifery has been obtained. Candidates may enter for Part II on completion of one year of special study of ophthalmology after a recognized qualification has been obtained, provided that Part I has been previously passed, and on production of certain certificates. The conditions of study may be modified at the discretion of the Committee of Management in special cases. The fee for admission or readmission to each part is six guineas.

Diplomas in Obstetrics

The Society of Apothecaries of London, as stated on page 425, confers a Mastery of Midwifery, and issues a diploma under this title denoting the possession of specialized knowledge of ante-natal care, midwifery, and child welfare. This is a post-graduate diploma and is not registrable under the Medical Acts.

The Conjoint Examining Board in England, according to the new regulations for its Diploma in Gynaecology and Obstetrics (D.G.O., R.C.P. and S.Eng.), will hold examinations in April and October. Those eligible for admission to examination must have held a degree in medicine and surgery recognized by the Board, or a qualification registrable in this country, for not less than three years. The subjects of the examination are gynaecology and obstetrics (including pathology, histology, and bacteriology in relation to these subjects), and ante-natal, post-natal, and infant welfare work. The examination is written, oral, and clinical, but only those candidates are admitted to the clinical who satisfy the examiners in the written and oral. A form is issued on which particulars have to be given and certified as to resident appointments in the gynaecological and obstetrical department of a recognized general hospital, in a gynaecological hospital, or a maternity hospital, or as to registrarship or clinical assistantship held in such institutions, together with particulars as to regular attendance, with responsible care of patients, at recognized ante-natal, post-natal, and infant welfare clinics during twelve months. It is added that these conditions of study may be modified in the case of a candidate who has carried out original investigations or written a thesis on some subject in gynaecology or obstetrics, or whose studies have extended over a prolonged time without fulfilling the exact conditions set out; but exemption will not be granted from any part of the examination. The fee for admission to examination or re-examination is ten guineas. Copies of the regulations for this diploma may be obtained from the Secretary, Examination Hall, Queen Square, W.C.1.

University of Lausanne

M.D. Examination for Medical Practitioners

It has been possible for a long time to obtain the M.D. degree (not registrable in this country) from one of the State Universities in Switzerland—namely, Bern, Geneva, and Lausanne. The regulations of the Faculty of Medicine of the University of Lausanne have recently been drastically revised by the authorities, and in October, 1930, new regulations came into force, the main effect of which is to provide a special M.D. examination for medical practitioners from other countries. Particulars may be obtained from Dr. C. A. H. Franklyn, honorary secretary, Lausanne Medical Graduates, Kwato, 23, Liskeard Gardens, Blackheath, S.E.3 (booklet and copy of regulations, post free 2s. 1½d.).

MEDICAL MISSIONARIES

Missionary societies are in constant need of qualified men and women to fill vacancies as they occur in their hospitals, and also to enable them to take advantage of fresh openings. To those suitably endowed the mission field offers unique opportunities for interesting work, and the development of native medical schools, as training institutions in connexion with some of the larger mission hospitals, affords excellent scope for valuable work to medical men and women who are qualified to teach. It is not

usually expected that medical missionaries should take a position such as would otherwise be occupied by an ordained clergyman or minister, but it is essential that they should be prepared to exert their influence in any hospital to which they may be sent so that a Christian atmosphere may be maintained and the work of evangelization be carried on through the ministry of healing.

As for scientific and other qualifications for the work, medical missionaries, in addition to being physically capable of sustaining a life which makes a great demand upon their strength, should be thoroughly well-trained physicians and surgeons. It is very desirable that they should have held a resident appointment at a general hospital, and have a good knowledge of practical surgery, gynaecology, tropical medicine, and the treatment of eye diseases. Useful information can be obtained from the secretaries of the various Missionary Societies, or from Thomas B. Adam, Honorary Secretary, Medical Advisory Board on Medical Missions to the Conference of Missionary Societies in Great Britain and Ireland, The Crossways, 45, Kenton Road, Harrow, Middlesex, or 19, Furnival Street, E.C.4.

Dental Surgery

Until the passing of the Dentists Act, 1921, the profession of dentistry in this country was regulated by enactments corresponding very closely with those relating to the practice of medicine—that is to say, there was no direct prohibition of the act of practice ; and the Dentists Act of 1878 gave the same degree of protection to legally qualified and registered dentists as was accorded to registered medical practitioners—namely, the reservation of the use of certain titles. This Act provided also (1) that no person should take or use the name or title of " dentist " (either alone or in combination with any other word or words) or of " dental practitioner," or any other name, title, or description expressed in words or by letters implying that he was specially qualified to practise dentistry, unless he was registered, under a penalty of £20; and (2) that an unregistered person could not recover any fee or charge in respect of any dental operation, attendance, or advice. But, in the case of the practice of medicine by unqualified and unregistered persons, certain deterrent factors came into play—such as the inability to give a death certificate—and these did not operate to the same extent in the case of dentistry ; hence, unqualified practice was far more prevalent in dentistry than in medicine, and increased after a decision of the House of Lords placing a narrow interpretation upon the words " specially qualified to practise dentistry," by defining the word " qualified " as not referring to competence but to the possession of a recognized diploma.

Dentists Act, 1921

This unsatisfactory position was remedied by the passing into law of the Dentists Act, 1921 ; its provisions are based largely on the recommendations of a departmental committee appointed in 1917 by the Privy Council " to investigate the extent and gravity of the evils connected with the practice of dentistry and dental surgery by persons not qualified under the Dentists Act." Since November 30th, 1922, no person has been permitted by law to practise or hold himself out, whether directly or by implication, as practising or as being prepared to practise dentistry unless he is on the *Dentists Register* provided for by the Dentists Act, 1878. The practice of dentistry is defined as including " the performance of any such operation and the giving of any such treatment, advice, or attendance, as is usually performed or given by dentists," and the performing of any operation or the giving of any " treatment, advice, or attendance on or to any person as preparatory to or for the purpose of or in connexion with the fitting, insertion, or fixing of artificial teeth." The maximum penalty incurred by an unregistered practitioner is £100 for each offence. There are, however, certain important exceptions to the requirement of registration. A registered medical practitioner may practise dentistry without being on the *Dentists Register;* though he may not give dental treatment to insured persons under the National Health Insurance Acts unless he be so registered, and a registered pharmaceutical chemist or chemist and druggist may extract a tooth where the case is urgent and where no doctor or dentist is available, but the operation must be performed without any kind of anaesthetic ; further, any person may carry out minor dental work in a public dental service under the personal supervision of a registered dentist provided it is in accordance with conditions approved by the Minister of Health after consultation with the Dental Board.

Dentistry may be carried on by a corporate body provided that the majority of the directors and all the operating staff are registered dentists, and that no business other than dentistry or only some business ancillary to dentistry is carried on by the company. Companies carrying on the business of dentistry at the present time are permitted to continue to do so with certain restrictions, provided that the name of the company as well as the names of the directors have been entered in a list kept by the Registrar for that purpose. Every director or manager of a company convicted of an offence under the Act will be held to be guilty of the offence unless he proves that the offence was committed without his knowledge, and the court may, in addition to a fine, order that the name of any director convicted shall be removed from the list of directors aforesaid.

The Dental Board

On the establishment of the Dental Board in 1921 certain powers and duties of the General Medical Council were transferred to it, including the duty of erasing from the *Dentists Register* any entry which has been incorrectly or fraudulently made. An inquiry into the case of a person alleged to be liable to have his name erased from the *Register* is made by the Board, which reports its findings to the General Medical Council, the order directing the erasure being made by the Council. A name erased from the *Register* can only be restored by the Council upon a report made by the Board. An appeal to the High Court may be made by any person aggrieved either by refusal of the Board to register his name or by the removal of his name from the *Register*. The administrative expenses of the Board are defrayed from the registration fees and annual retention fees, but any surplus may be allocated to purposes connected with dental education and research or to any public purpose connected with dentistry. The office of the Dental Board is at 44, Hallam Street, London, W.1.

Dental Education and Examination

The preliminary examination in arts is the same for medical and dental students, and the early stages of their education embrace much the same subjects[1] ; and, as the dental student is required to obtain a knowledge of the broad principles of medicine and surgery, it is necessary for him to pursue some portion of his studies at a medical school as well as at a special dental school, the latter not undertaking the teaching of these subjects. Registration as a dental student is not in all cases compulsory, though it is to be advised as convenient as affording proof of the commencement of professional education, and it is required by most of the licensing bodies, all of whom insist upon a curriculum covering four academic years.

Degrees and diplomas in dentistry are granted by the Universities of Belfast, Birmingham, Bristol, Dublin, Durham, Leeds, Liverpool, London, Manchester, St. Andrews, Sheffield, and the National University of Ireland, as will be found stated in the articles on these universities. Licences in dentistry entitling the holder to be registered on the *Dentists Register* are granted by the Royal Colleges of Surgeons of England, of Edinburgh, and in Ireland, and by the Royal Faculty of Physicians and Surgeons of Glasgow.

Recognized dental schools are numerous. In London there are those connected with the Royal Dental Hospital, Leicester Square ; the National Dental Hospital (now the University College Hospital Dental School), Great Portland Street ; Guy's Hospital ; King's College Hospital ; and the London

[1] See the Registrar's Memorandum on Students' Registration printed in the article on the General Medical Council at page 415

Hospital. In the provinces there are the Birmingham Dental Hospital; the Royal Infirmary and the General Hospital, Bristol; the Dental Hospital and the Public Dispensary, Leeds; the Dental Hospital, Liverpool, the Dental Hospital, Manchester; the Sutherland School, Newcastle-on-Tyne; the Royal Hospital, Sheffield. In Scotland there are the Dental Hospital, Dundee; the Incorporated Dental Hospital and School, Edinburgh; and the Incorporated Dental Hospital, Glasgow; and in Ireland, the Belfast Dental School, the Incorporated Dental Hospital of Ireland, Dublin, and the Royal College of Surgeons in Ireland, Dublin.

All who think of becoming dentists may be advised to study a Memorandum drawn up for their guidance on behalf of the Dental Board, setting out in convenient form and in untechnical language information for which request is frequently made to the Board.[1] It will be seen from this pamphlet that in order to assist suitable students the Dental Board has instituted a system of bursaries to pay the fees of those who have not the financial means to qualify, and in exceptional cases maintenance may also be given as well.

General Medical Council's Recommendations

The Dentists Act still leaves to the General Medical Council the duty of controlling the course of study and examinations required for dental qualifications.

Recommendations as to the course of study and examinations to be required of candidates for degrees or licences in dentistry or dental surgery were adopted by the Council this year, and come into force on October 2nd, 1933. We print them below in a somewhat abridged form.

Preliminary Examination and Registration

Every dental student should, at the commencement of his studentship, be registered in the manner and under the conditions prescribed for medical students. Before registration in the *Dental Students' Register* every applicant should be required to have passed, in addition to the examination in general education, which shall be the same as that required for medical students, an examination in elementary physics and chemistry, conducted or recognized by one of the licensing bodies, which shall also be the same as that required for medical students. Before registration as a dental student every applicant should produce evidence that he has attained the age of 17 years.

Professional Study

Every candidate for a degree or licence in dentistry or dental surgery should be required before admission to the final or qualifying examination to produce certificates showing

(i) That he is at least 21 years of age.

(ii) That he has been registered as a dental student.

(iii) That he has, subsequently to registration as a dental student, been engaged in professional study for at least four years, of which three years at least shall have been spent at a school or schools recognized for professional study by one of the licensing bodies.

(iv) That, subsequently to registration as a dental student, he has attended at a recognized medical or dental school courses of instruction which should be the same as those for medical students, in (*a*) chemistry, and (*b*) physics, in their application to medicine and dentistry, (*c*) Elementary biology. (A student who has diligently attended an approved course of elementary biology in a teaching institution recognized by a licensing body may be admitted to a professional examination in elementary biology immediately after his registration as a dental student.) That he has attended at a recognized medical school courses of instruction, *specially adapted for students in dentistry*, in the following subjects: (*d*) human anatomy, including dissections for three academic terms of nine months. This should include not less than 40 lectures and/or demonstrations. The course of dissections shall include dissections of the head and neck. (*e*) Physiology (with laboratory instruction) extending over two academic terms of six months. This should include not less than 40 lectures and/or demonstrations; also a practical course in chemical and experimental physiology of not less than 40 hours. (*f*) Histology should consist of a practical course of not less than 30 hours. (*g*) General pathology for two academic terms (not less than 40 lectures and/or demonstrations). (*h*) Bacteriology for one term of not less than 10 lectures and 24 hours' practical work. (*i*) Medicine for two academic terms or six months (not less than 30 meetings of the class). (*j*) Surgery for two academic terms or six months (not less than 40 meetings). (*k*) Clinical instruction in a recognized general hospital on selected cases in medicine and in surgery over a period of at least nine calendar months, including instruction in venereal diseases with any bearing on dentistry. Each of these courses should consist of not less than 50 meetings. It is desirable that the systematic courses in medicine and surgery and the clinical instruction should, so far as possible, be co-ordinated. The course of instruction in medicine, surgery, and pathology should normally be taken after the student has passed the examinations in human anatomy and physiology.

(v) That he has attended at a recognized dental school courses of instruction in (*a*) Special anatomy, human and comparative. The course should comprise a minimum of 20 meetings of the class. (*b*) Practical normal and morbid histology (16 meetings). (*c*) Dental surgery (20 meetings). (*d*) Materia medica and therapeutics (10 meetings). (*e*) Metallurgy with practical work and demonstrations (16 meetings). (*f*) Dental mechanics and prosthetics (20 meetings). (*g*) Instruction in the use of anaesthetics employed in the practice of dentistry. (*h*) Instruction in radiology and its application to dentistry. (*i*) The principles of orthodontics (10 meetings).

(vi) That he has for at least two calendar years attended the practice of a recognized dental hospital or of the dental department of a general hospital recognized by a licensing body as forming part of a dental school.

(vii) That he has received for not less than 24 calendar months, or for 2,000 hours, practical instruction in dental mechanics. No portion of such practical instruction which is taken prior to registration shall be reckoned as a portion of the four years of professional study required, but in the event of hardship arising in a particular case, an application for exceptional treatment may be submitted to the Education Committee of the General Medical Council. It is recommended that practical instruction in dental mechanics shall be taken at a recognized dental hospital and school. If any part of such instruction be taken by the candidate as a pupil with a registered dentist the time devoted to it shall be at least twice the time required for the corresponding instruction taken at a dental school.

Professional Examinations

The examinations for a degree or licence in dentistry should be partly written, partly oral, and partly practical and should include the following subjects: (*a*) chemistry, physics, and biology in their bearing on medicine and dentistry. (*b*) Human anatomy, the oral examination in which should be conducted mainly on dissections, especially of the head and neck. (*c*) Physiology, the oral examination in which should include practical physiological tests. (*d*) Histology, which may be included in the examination in either anatomy or physiology. (*e*) General pathology, the oral examination in which should be conducted with the aid of specimens including those of diseases connected with dentistry. (*f*) Bacteriology, the oral examination in which should include simple practical tests. (*g*) Medicine and surgery, the oral examinations in which should include a clinical examination of patients. (*h*) Special anatomy, human and comparative. (*i*) Dental mechanics, prosthetics, and metallurgy, including practical tests. (*j*) Dental surgery, including special pathology and histology, materia medica and therapeutics, and the principles of orthodontics. (*k*) Practical dental surgery, which should include the usual dental operations—for example, filling and extraction of teeth and the giving of anaesthetics—and a clinical examination on the diagnosis and treatment of dental disease and abnormal conditions of the oral cavity.

A candidate should produce a certificate of having administered general anaesthetics on at least ten occasions.

[1] *Memorandum by the Registrar on the Procedure to be Adopted by Those who Desire to Enter the Profession of Dentistry, with Notes on Costs and Prospects.* 1933. Dental Board of the United Kingdom, 44, Hallam Street, W.1. Price 1s. post free.

ACKNOWLEDGEMENT

The detailed information published in this Educational Number of the *British Medical Journal* for the benefit of intending students of medicine and newly qualified practitioners has been revised throughout with the co-operation of the deans and secretaries of the medical schools and kindred institutions and of officials in the several public services, to all of whom we wish to acknowledge our indebtedness.



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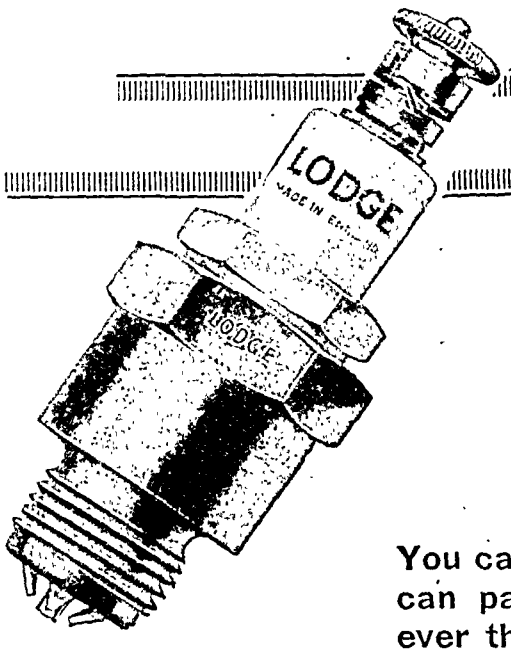
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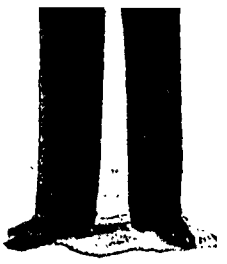
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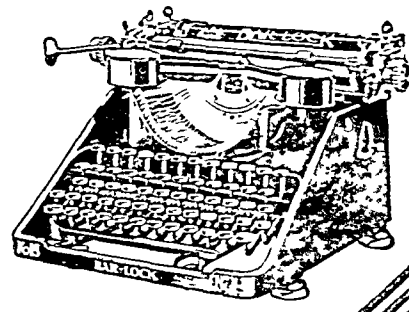
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THE GROVE HOUSE, CHURCH STRETTON, SHROPSHIRE.

A private Home for the care of and treatment of a limited number of Ladies, mentally afflicted. Voluntary and Temporary Patients received under the New Mental Treatment Act, 1930. —Medical Superintendent, Dr. McCLINTOCK.

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For Mental Defectives of either sex.
Under private management.
Apply to Dr. Langdon-Down.
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THE GRANGE,
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A HOUSE Licensed for the reception of a limited number of Ladies suffering from Nervous and Mental disorders. Both certified and voluntary patients received. Approved for temporary Patients. This is a large country house, with beautiful grounds and park, five miles from Sheffield. Tel.: No 40030 Ecclesfield. Resident Phys.: GILBERT E. MOULD, L.R.C.P., M.R.C.S. Sheffield Station: *Grange Lane*, L. & N.E. Rly.

FENSTANTON,
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STREATHAM HILL, S.W. 2.

A Private Home for the Care and Treatment of a limited number of Ladies with Mental and Nervous Disorders. Separate accommodation for Voluntary Patients. Large Mansion with 12 acres of ground. (See *Medical Directory*, p. 2294.) Apply, J. H. EARLS, M.D., Resident Physician. Telephone: Tulse Hill 7141.

STRETTON HOUSE,
Church Stretton, Shropshire

A PRIVATE HOME for the treatment of Gentlemen suffering from Mental or Nervous Illness, including the allied Disorders of Alcoholism and the Drug Habit. All types of early Mental and Nervous cases are received without certificates as Voluntary Patients under the provisions of the Mental Treatment Act, 1930. Bracing Hill country. See *Medical Directory*, p. 2314.—Apply to Medical Superintendent. 'Phone 10 P.O. Church Stretton.

THE MOAT HOUSE,
TAMWORTH, STAFFS.

Established 1816. For the TREATMENT of a few LADIES suffering from NERVOUS and MENTAL DISORDERS. Voluntary patients received. For terms apply to the Resident Medical Attendant. Telephone: Tamworth 108.

CLARENCE LODGE,
CLAPHAM PARK, LONDON.
Situated in 3½ acres of secluded gardens.
HOME FOR TWELVE MENTAL PATIENTS (LADIES).

Well appointed private house. Home comforts and Trained Nursing Staff. Eminent Mental Specialist Visiting Physician.
Station: *Telephone*: Tulse Hill 4913.
Clapham Common Tube. Apply, Miss THWAITES.

Tel. and Telegrams: "Haynes, Brentwood, 45."
Littleton Hall, Brentwood, Essex.

Large grounds, 400 ft. above sea. HOME for ladies Mentally afflicted. Voluntary Boarders received. Station: Brentwood and Shenfield 1 mile. Liverp'l St. 20 min. Apply, Dr. HAYNES.

ST. ANDREW'S HOSPITAL

FOR MENTAL DISORDERS,

NORTHAMPTON.

FOR THE UPPER AND MIDDLE CLASSES ONLY.

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary patients, who are suffering from incipient mental disorders or who wish to prevent recurrent attacks of mental trouble, temporary patients, and certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms, with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE.

This is a Reception Hospital in detached grounds, with a separate entrance, to which patients can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical bath, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray room, an Ultra-violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK.

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.

BRYN-Y-NEUADD HALL.

The seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (Telephone No. 2356 and 2357 Northampton), who can be seen in London by appointment.

HAYDOCK LODGE,

NEWTON-LE-WILLOWS, LANCASHIRE.

'Phone: 11 Ashton-in-Makerfield.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES suffering from mental and nervous diseases, either voluntarily or under Certificate. Patients are classified in separate buildings according to their mental condition. Situated in park and grounds of 400 acres. farm and gardens, in which patients are encouraged to occupy them indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

THE COPPICE, NOTTINGHAM.

HOSPITAL FOR MENTAL DISEASES.

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary and Temporary Patients received.

Tel. 64117. *For terms, etc., apply to the Medical Superintendent.*

COURT HALL, KENTON, EXETER,

SOUTH DEVON.

For the care and treatment of Ladies suffering from Mental Diseases. Limited to eight patients. Telephone: Starcross 59.

CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for early and convalescent cases. Clifden is a large well-appointed house, with lovely views of the South Devon Coast. It is beautifully situated in grounds of 24 acres. The gardens are very attractive, and there is a private road to the beach.

Resident Physicians: BERTHA M. MULES, M.D., B.S.; ANNIE S. MULES, M.R.C.S., L.R.C.P.
Telephone: Teignmouth 289.

TYKEFORD ABBEY, NEWPORT PAGNELL,

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FUNCTIONAL NERVOUS DISORDERS, MEDICAL & CONVALESCENT CASES.

An Approved Nursing Home for reception of Female Cases under the Mental Treatment Act.

The Home is a Mansion of Historical interest, standing in 9 acres of garden and grounds, and is situated 14 *miles* from Northampton, and 12 miles from Bedford on the main London to Northampton Road, fifty miles from London. Both sexes are accommodated. Psycho-therapeutic Treatment is used extensively in suitable cases. Radiant Heat, X-Ray, and Ultra-Violet Light. Diathermy and Foam Baths. Billiards, tennis, etc. Fees from five gns. per week. Apply, Dr. D. E. M. DOUGLAS-MORRIS. *Telephone*: Newport Pagnell 121.

CHISWICK HOUSE

A Private Mental Hospital for the Treatment and Care of Mental and Nervous Disorders in both Sexes.

Now removed to

CHISWICK HOUSE, PINNER, MIDDLESEX

Telephone: PINNER 234

A modern country house, 12 miles from Marble Arch, in beautiful secluded grounds. Fees from 10 guineas per week, inclusive. Cases under certificate and Voluntary Patients received for treatment. Special provision for "Temporary" patients under the new Mental Treatment Act.

Douglas Macaulay, M.D., D.P.M.

BARNWOOD HOUSE,

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A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L.M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary Boarders of both sexes are also received for treatment.

Special accommodation for Lady Voluntary Boarders is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the main Hospital.

terms, etc., apply to—
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Telephone No. 5207 Barnwood.

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Ladies suffering from all forms of MENTAL ILLNESS are received for treatment, on modern lines, as Voluntary, Temporary, or Certified Private Patients at the Hill End Mental Hospital. Convalescent and mild cases can be treated in a delightful country mansion, with extensive grounds, known as

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For further particulars apply to the Medical Supt., W. J. T. KIMBER, L.R.C.P., D.P.M.,

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A few vacancies in 1st and 2nd Class Houses.

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BAILBROOK HOUSE, BATH.

A PRIVATE HOSPITAL for the care and treatment of persons with mental and nervous disorders.

Voluntary Patients received in the Victorian Large Mansion on outskirts of Bath, with 20 acres of grounds (see *Medical Directory*, page 2306).

For terms apply S. J. GILMILLAN, O.B.E., M.B., C.M.Edin., Resident Physician.
Telephone No.: Batheaston 8189.

SPRINGFIELD HOUSE,

Near BEDFORD. (Phone 3417.)

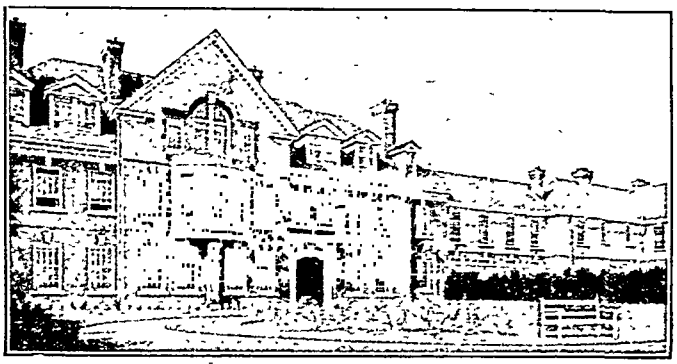
For Mental Disorders with or without Certificates.
Resident Physican: CEDRIC W. BOWLES.

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(Including Separate Bedrooms where available)
Interviews in London by appointment.

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For the treatment of Ladies and Gentlemen mentally afflicted. Voluntary Boarders received. Situated 1,200 ft. above sea level, facing S. 14 acres of grounds. — For terms apply to the Resident Medical Superintendent, Nat. Tel 152.
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FOR THE RECEPTION AND TREATMENT OF

NERVOUS AND MENTAL ILLNESS.

A Superior, Modern, and Attractive Building, situated in a charming and bracing locality, 400 ft. above sea-level.

Extensive pleasure grounds, with croquet, tennis, bowling, and putting greens.

Occupational, Light, and Hydro Therapy.

ONE HOUR RAIL JOURNEY FROM LONDON.

Ladies and Gentlemen can be received as private patients on a voluntary basis or with certificates; written application alone is required for the former

FEES, including all necessaries except clothing, from THREE to FIVE GUINEAS A WEEK.

Brochure and information may be obtained from the MEDICAL SUPERINTENDENT.

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REDUCTION OF FEES

In view of the present economic position, the inclusive fees at Ruthin Castle, formerly from 17 guineas a week, have been reduced to from 15 guineas a week.

The fees include medical attendance, all scientific investigations that may be needed, such as analyses, bacteriological cultures, the ordinary x-ray examinations, and electrocardiograph readings; all treatment that may be prescribed, such as special diets, insulin, artificial sunlight, electrical treatment, baths, massage, nursing; medicines or vaccines, board, and lodging.

The only extra charge is that for a complete alimentary x-ray examination, or for x-ray therapy.

All the usual forms of treatment are given at Ruthin Castle. The climate is mild. The annual rainfall is 30.5 inches, that is, less than the average for England. There is central heating throughout. Should the accommodation in the Castle not prove sufficient, comfortable rooms can be obtained near by for those undergoing treatment.

Address—THE SECRETARY, Ruthin Castle, North Wales. Telegrams: CASTLE, RUTHIN. Telephone: RUTHIN 60

BOWDEN HOUSE,

HARROW-ON-THE-HILL.

A NURSING HOME OPENED IN 1911 FOR THE INVESTIGATION AND TREATMENT OF FUNCTIONAL NERVOUS DISORDERS OF ALL TYPES.

No cases under certificate. Thorough clinical and pathological examinations. Psychotherapeutic treatment, occupation, and recreation as suited to the individual case.

PARTICULARS FROM THE MEDICAL SUPERINTENDENT. *Telephone and Telegrams* BYRON 1011

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WOODSIDE AVENUE, MUSWELL HILL, LONDON, N.10

President: THE RT. HON. THE EARL OF ATHLONE, K.G., P.C.

Fully equipped with every modern appliance for the diagnosis and treatment of

FUNCTIONAL NERVOUS DISORDERS

Private Rooms, Broad Verandahs, Physiotherapy and Psychotherapy, X-ray and Dental departments, Laboratories for investigation and research. For terms and particulars apply to the Physician in charge at the Hospital Telephone: Tudor 4211.

NORTHUMBERLAND HOUSE,

GREEN LANES, FINSBURY PARK, N.4.

Telegrams: "SUBSIDIARY, LONDON." *Telephone*: NORTH 0888.

A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses. Conveniently situated four miles from Charing Cross. Easy access from all parts. Six acres of ground highly situated, facing Finsbury Park. Private Suites. Voluntary Patients and Temporary Patients received without Certification.

Convalescent Home, **Kearsney Court, Dover.** For further particulars, apply to the **Medical Superintendent.**

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." **Telephone: Rodney 4741-4742.**

The above House, which was established in 1926, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Certified voluntary and temporary patients are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill Tennis Courts. Entertainments, dances, and indoor amusements held throughout the year. Terms from £3 3s. per week.

Illustrated prospectus and further particulars can be obtained from the **Medical Superintendent.**

THE GOLDEN SQUARE THROAT, NOSE, AND EAR HOSPITAL,

GOLDEN SQUARE, near PICCADILLY CIRCUS, LONDON, W.1.

HONORARY MEDICAL STAFF:

SURGEONS: Mr. T. Jefferson Faulder; Mr. Lionel Colledge; Mr. Gilbert Chubb; Mr. F. Cunliffe Ormerod; Mr. A. R. Dingley; Mr. Gilbert Howells.

ASSISTANT SURGEONS: Mr. S. A. Beards; Mr. J. F. Simpson; Mr. J. C. Hogg; Mr. J. Roydon Peacock.

The Hospital has recently been enlarged, and has 101 beds for In-Patients, and an annual Out-Patient attendance of over 50,000.

CLINICAL INSTRUCTION

Clinical Instruction in the Diagnosis and Treatment of Diseases of the Throat, Nose, and Ear is daily given in the Out-Patient Department from 2 to 5 p.m. On Tuesdays and Thursdays from 6.30 to 7.45 also. Major operations are performed daily, except Saturdays, in the In-Patient Operating Theatres. Minor operations are performed in the Out-Patient Department by the Assistant Surgeons on three mornings a week.

Practitioners and Medical Students are admitted to the practice of the hospital, and Clinical Assistants, whose duty it is to assist the staff, are appointed from time to time from among them.

For further information apply to the Dean, Mr. G. H. HOWELLS.

Twenty-four rooms are available for the reception of private patients paying a moderate fee.

Information regarding these rooms may be obtained from the SECRETARY-SUPERINTENDENT.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, W.2.

(University of London.)

The WINTER SESSION will begin on MONDAY, October 2nd, 1933.

The Annual Dinner of Past and Present Students will be held on Saturday, September 30th, at the Trocadero Restaurant, REGINALD MILLER, M.D., F.R.C.P., in the Chair.

EXCEPTIONAL SITUATION.	The Hospital is adjacent to a large poor district on the one side, and near to Kensington Gardens and one of the best residential districts in London on the other side, thus providing for the Student the unusual possibility of living in close touch with his work.
ATHLETIC GROUND.	The Athletic Ground (10 acres) is situated at Wembley, and can be reached in 20 minutes from the Hospital.
REBUILDING OF THE MEDICAL SCHOOL.	During the past three years the Medical School has been rebuilt upon a site adjoining the Hospital. Classes began in the new building during the Summer Session of 1933. The theatres and laboratories are flooded with light, special devices have been introduced to make the acoustics as perfect as possible, while everywhere ingenuity has been shown in grappling with the particular problems of a Medical School. The Building contains six floors. There are a Students' Refectory, a swimming bath, billiard room, and a garage for 50 cars. The great Library has a gallery, and is panelled with oak. The students' Common Room opens into a gymnasium and a squash rackets court.
COMPLETE CURRICULUM.	The entire Curriculum is provided for Medical Degrees and Diplomas, and Students may join the School at once on passing a Preliminary Examination in Arts.
SPECIAL CLINICAL FACILITIES.	The formation of Clinical Units and the affiliation of other hospitals for teaching purposes have largely extended the scope of the clinical teaching. 1,000 beds are now available for the clinical instruction of Students. Special arrangements have been made for the instruction of Students in Venereal Diseases at the London Lock Hospital, and all Students attend a short course at Queen Charlotte's Maternity Hospital. Recent structural alterations have provided 2 new Operating Theatres and 60 additional beds.
INSTITUTE OF PATHOLOGY.	The Institute of Pathology and Research is under the personal direction of Sir Almroth Wright, F.R.S., and includes seven departments. Students receive special training in Pathology, Bacteriology, and Chemical Pathology by means of clerkships in these subjects tenable for a period of 3 months, 72 of these posts being available in each year.
ENTRANCE SCHOLARSHIPS.	Two Entrance Scholarships of £210 each are awarded by nomination in July annually. The Geraldine Harmsworth Scholarship (£200) and other University Scholarships are awarded by nomination in July annually. The Palmer Scholarship (£25 per annum for two years) is awarded in alternate years.
RESEARCH SCHOLARSHIPS.	Research Scholarships of the value of £200 per annum each are awarded annually for the purpose of enabling newly qualified students to undertake research under the Director of one of the departments included in the Institute of Pathology.
APPOINTMENTS AFTER QUALIFICATION.	Numerous appointments are open to newly qualified members of the Medical School. Six House Physicians (8 months), Eight House Surgeons (8 months), and Four Resident Obstetric Officers (6 months), are appointed annually. Two Resident Anæsthetists (6 months), £150 per annum, Four Casualty House Surgeons (6 months), £100 per annum, with board and residence. Medical Registrar and Surgical Registrar £200 per annum, with partial board. In addition to the above, Five Assistants to the Medical and Surgical Units are appointed from time to time, with salaries ranging from £400 to £750 p.a.

C. M. WILSON (*M.C.*), M.D., F.R.C.P., Dean.

The Illustrated Prospectus of the Medical School may be obtained on application to the Secretary

QUEEN CHARLOTTE'S MATERNITY HOSPITAL,

MARYLEBONE ROAD, N.W.1.

MEDICAL and QUALIFIED PUPILS are admitted to the Practice of the Hospital. Unusual opportunities are afforded of seeing Obstetrical Complications and Operative Midwifery, about one half of the total admissions being primiparous cases, also the treatment of cases of puerperal sepsis at the Isolation Hospital.

Over 2,700 cases are admitted to the Wards annually, and in the Ante-natal Department there are 27,000 attendances per annum.

Clinical instruction is given daily by members of the honorary staff. Courses may be commenced on any Monday throughout the year.

CERTIFICATES AWARDED as required by the various Examining Bodies.

For rules, fees, etc., apply—

H. B. STOKES, Secretary-Supt.

POST-GRADUATE SCHOOL of RADIOTHERAPY

The Mount Vernon Hospital and Radium Institute, Riding House Street, London, W.1.

Dean - Sir Cuthbert Wallace, K.C.M.G., C.B., F.R.C.S.

A Course in RADIOTHERAPY

especially in its relation to Malignant Disease

will be held at the above School, commencing Monday, October 2nd, 1933.

Copy of the syllabus and full particulars may be obtained on application to:

THOS. A. GARNER, Secretary.

Preliminary Examinations.

The COLLEGE OF Preliminary Examination for Students in London and in March, June, September and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

LONDON HOMOEOPATHIC HOSPITAL

(Incorporated by Royal Charter)

GREAT ORMOND ST. & QUEEN SQUARE, W.C.1.

Education Facilities for Graduates and Senior Students of Medicine.

WINTER SESSION, 1933-34.

HONYMAN-GILLESPIE LECTURESHIP

25th Year.

A COURSE OF HOMŒOPATHIC MATERIA MEDICA, accompanied with CLINICAL DEMONSTRATIONS, are given by CHARLOTTE WILSON, M.D., B.Sc.Lond., Consulting Physician to the London Homœopathic Hospital, at the Hospital, on

Mondays and Thursdays, October, 1933, to March, 1934, commencing Monday, October 16th, at 5 o'clock.

On the first Thursday of the month the hour is 3.30 p.m.

The COMPTON-BURNETT LECTURES

A Course of Ten Lectures on HOMŒOPATHIC PHILOSOPHY AND PRESCRIBING, as illustrated from the writings of the Organon and Modern Developments therefrom, are given by Sir JOHN WEIR, K.C.V.O., M.B., Ch.B.Glasg., (Physician-in-Ordinary to H.R.H. the Prince of Wales), Physician to the London Homœopathic Hospital, are given at the Winter Session only on

Fridays, at 5 p.m., October to December—commencing Friday, October 13th.

AN INTRODUCTORY LECTURE TO THE WHOLE EDUCATION COURSE will be delivered at the Hospital on **Thursday, October 12th, 1933, at 5 p.m.**

By JOHN PATERSON, M.B., Ch.B.Glas., D.P.H.Camb.

Subject: "A Modern Conception of Homœopathy."

All Medical Men and Women are invited to attend this Lecture.

TUTORIAL CLASS.

A class for individual study of the Materia Medica by the Repertory and References to Patients are conducted by DOUGLAS M. BORLAND, M.B., Ch.B.Glasg., Physician to the London Homœopathic Hospital, on

Fridays, at 6.15 p.m., October to March—commencing October 13th.

CLINICAL TUTORIALS.

On Monday and Friday afternoons, at 2 o'clock throughout both the Winter and Summer Sessions, the Registrar Tutor to the Hospital, WILLIAM WILSON RORKE, M.B., Ch.B.Glasg., who is also Physician for Diseases of the Nervous System at the London Homœopathic Hospital, and conducts an Out-patient Clinic for the purpose of instruction in the application of Homœopathic principles.

THE SIR HENRY TYLER SCHOLARSHIP COMMITTEE

also offer SCHOLARSHIPS of £20 for Medical Men in the Provinces desirous of taking a Post-Graduate Course at the London Homœopathic Hospital during the Ten Compton-Burnett Lectures.—Apply to Secretary, London Homœopathic Hospital, Great Ormond St., Bloomsbury, W.C.1.

FEES AND SCHOLARSHIPS.

All information as to Fees and Scholarships may be obtained on application to the Dean of the Education Course, London Homœopathic Hospital, W.C.1.

UNIVERSITY OF LONDON

OPHTHALMIC HOSPITAL MEDICAL SCHOOL.

ROYAL LONDON OPHTHALMIC HOSPITAL

(Moorfields Eye Hospital), CITY ROAD, E.C.1.

Qualified Medical Practitioners and Registered Medical Students may enter on the Practice of the Royal London Ophthalmic Hospital (Moorfields) at any time, and are, on certain conditions, eligible for appointment as Chief Clinical Assistant, Clinical Assistant and Junior Assistant

Courses of Instruction, extending over a period of five months, begin in OCTOBER and MARCH.

1 Practical Refraction Classes
2 Methods of examination and use of the ophthalmoscope.
3 Lectures every afternoon on the following subjects (*a*) Anatomy, including Embryology and Normal Histology, (*b*) Physiology, (*c*) Optics, including Physiological Optics, (*d*) Pathology and Bacteriology, (*e*) Ophthalmic Medicine and Surgery, consisting of Medical Ophthalmology, External Diseases of the Eye, Motor Anomalies and Squint, Diseases of the Retina and Optic Nerve, Diseases of the Uveal Tract
4 Ophthalmoscopic Conditions a practical class with demonstrations each week at 5 p m
5 Occasional Lectures on subjects allied to Ophthalmology.
6 Operative Surgery. In these classes the usual operations are performed by the student upon pigs' eyes
7 Practical Pathology A course of demonstrations on the normal and morbid histology of the eye is given by the pathologist in the laboratory
8 Practical Bacteriology
9 Classes in Radiography
10 Physico therapy (Ultra violet Light, Diathermy, etc)
11 Slit-lamp Microscopy

FEES.—A composition fee of 35 guineas will admit Students once to all the lectures and classes (except the classes on Physico-Therapy, and Slit-lamp Microscopy, and the examination fee)

DIPLOMA IN OPHTHALMIC MEDICINE & SURGERY & OTHER DEGREES IN OPHTHALMOLOGY.

The above complete curriculum is specially designed to meet the requirements of candidates entering for these examinations.

Fees for the Practice of the Hospital

Perpetual	£5 5 0	Two months	£2 2 0
Three to six months	£3 3 0	One month	£1 1 0

Clinical work begins at 9 a m daily Operations are performed between 10 a m and 1 p m

For further particulars apply to the SECRETARY to the Medical School at the Royal London Ophthalmic Hospital, City Road, E C 1, or to the Dean, CHARLES GOULDEN, O B E, M D, M Ch, F R C S

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE

(UNIVERSITY OF LONDON)

WINTER SESSION BEGINS OCTOBER 2nd, 1933.

THE HOSPITAL has 762 Beds and the MEDICAL COLLEGE contains large Lecture Rooms and Laboratories, as well as a Museum and a Library

Every Special Branch of Medicine and Surgery has a Department

ENTRANCE SCHOLARSHIPS

Five Entrance Scholarships are awarded in July, of the aggregate value of £410.
Other Scholarships and Prizes amount to about £1,000 annually

PRELIMINARY SCIENCES

Chemistry, Physics, and Biology are fully taught in the Laboratories allotted to these subjects

HOSPITAL APPOINTMENTS

Eighty-five Hospital Appointments (35 resident) are available each year for Students who have passed their final qualifying examination

Five hundred and sixty Ward Clerkships and Dresserships are open annually to Students before qualification

STUDENTS' UNION.

The Union possesses a Club Ground of ten acres at Winchmore Hill and athletic amenities are available on the newly-purchased site in Charterhouse Square, five minutes' walk from the Hospital.

HIGHER EXAMINATIONS.

Special Classes are held for F.R.C.S., etc.

For further particulars apply personally or by letter, to—

THE DEAN OF THE MEDICAL COLLEGE, St. Bartholomew's Hospital, London, E.C.1.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL

(UNIVERSITY OF LONDON).

HYDE PARK CORNER, S.W.

THE HOSPITAL and MEDICAL SCHOOL occupy the finest site in London and are readily accessible from all parts of the Metropolis.

The entire teaching in the School is devoted to the subjects of the Final Examinations; in other words, is specially adapted to the interests of men from the Universities who have passed their Examination in Anatomy and Physiology.

By arrangement with the authorities of King's College and University College, St. George's Students attend at those Colleges for tuition in the Preliminary and Intermediate subjects.

SEVEN ENTRANCE SCHOLARSHIPS IN ANATOMY AND PHYSIOLOGY, AND GENERAL PATHOLOGY, of the value of £120, £80 (3), £60 (2), and £40 respectively, are offered for competition in June to candidates who have passed the 2nd M.B. or corresponding examination. In addition, EXHIBITIONS, each of the value of £40 and up to Four in number, will be awarded to candidates of approved merit in the Entrance Scholarship Examination.

MANY VALUABLE PRIZES ARE AWARDED EACH YEAR, including the following:—Allingham Scholarship of the value of £87, Laking Memorial Prize of the value of £45, the Brackenbury Prize in Medicine, the Brackenbury prize in Surgery, and the Webb Prize in Bacteriology, each of the value of £33.

HOUSE APPOINTMENTS. Fourteen appointments are made annually so that students have an excellent chance of holding such appointments at their own Hospital.

PAID APPOINTMENTS. Resident Assistant Physician, £250; Resident Assistant Surgeon, £250; Medical Registrar, £200; Surgical Registrar, £200; Assistant Curator of the Museum, £100; Resident Anaesthetist, £100; Resident Obstetric Assistant, £100.

The ST. GEORGE'S HOSPITAL CLUB incorporates the RUGBY FOOTBALL, CRICKET, LAWN TENNIS, BOXING, RIFLE and other Clubs, and possesses an ATHLETIC GROUND within easy reach of the Hospital, and Smoking and Luncheon Rooms on the School Premises.

Entrance Fee, £10 10s. 0d. Annual Composition Fee, which covers all courses, lectures, etc., in the Hospital and School, £42. Annual Club Subscription, £3 3s. 0d.

The Winter-Session will begin on October 1st, but students can enter at any time.

Further information may be obtained from the Dean of the Medical School.

A. FEILING, M.D., F.R.C.P.,
Dean.

Charing Cross Hospital Medical School

(University of London)

Sessions commence October and April.

SITUATED in the very centre of London, the School is the most easily accessible of all the Schools of the University.

COMPLETE FACILITIES are available for instruction in all the subjects of the medical curriculum, with special departments for every branch of clinical work.

THE INSTITUTE OF PATHOLOGY, with the abundance and variety of its material and fully equipped laboratories, offers exceptional advantages for Student, Post-Graduate, and Research work.

THE PATHOLOGICAL MUSEUM contains, as well as sections devoted to general Pathology, the famous Lockyer Collection of Obstetric and Gynaecological specimens, described by the University Inspectors as the finest in the country.

THE STUDENTS' UNION includes Common Rooms and Restaurant on the School premises and a Sports Ground of 8 acres within half an hour's journey of the School.

The large number of *RESIDENT APPOINTMENTS* (29 annually) in proportion to the number of students makes it probable that all students of average ability will be able to secure election to the House Staff. In addition the following paid annual appointments are open to students after qualification: Resident Medical Officer, Resident Casualty Officer, and 5 Registrarships.

SCHOLARSHIPS.—The following are awarded annually. Three "University" Scholarships, each of the value of £120. One "Open" Scholarship of the value of £75, and two "Entrance" Scholarships of £50 each. In addition numerous Exhibitions and Prizes are awarded each year.

Men Students only are admitted.

Fees 38 Guineas per annum.

For Prospectus and full information apply personally or by letter to the Dean:—

ERIC A. CROOK, M.A., M.Ch., F.R.C.S.,
Charing Cross Hospital Medical School, London, W.C.2.

Telephone Nos.: Temple Bar 3903 & 3904.

THE MIDDLESEX HOSPITAL MEDICAL SCHOOL

UNIVERSITY OF LONDON.

THE WINTER SESSION BEGINS ON OCTOBER 3rd.

The entire Medical Curriculum can be taken at this School. Annual value of Scholarships and Prizes £1,000. Large Research Funds.

ENTIRE CURRICULUM.—THE PROVISION WHEREBY ALL THE SUBJECTS OF THE CURRICULUM, INCLUDING CHEMISTRY, PHYSICS AND BIOLOGY, FOR THE PRE-MEDICAL EXAMINATION, ARE TAUGHT WITHIN THE PRECINCTS of the HOSPITAL and MEDICAL SCHOOL, and every effort made to encourage co-ordination, ensures that the student, instead of proceeding to the study of the various subjects as if they were isolated and having little or no relation to each other, is taught each subject by professors and lecturers who are instructing medical students only, and are in close touch with all the other departments of the School. The rebuilding of the Hospital and completion of new buildings in connection with the Medical School have now reached such a point that those working in the Institution have facilities equal to, or superior to those to be found in any other hospital in the United Kingdom, and the rapid progress which is being made with the remaining buildings promises even greater facilities in the immediate future. The new buildings are not confined to the wards, but include a magnificent Nurses' Home, a new Out-patients' Department, the Institute of Biochemistry, and new departments of Neurology, Dermatology, etc. The following description of the work in various departments is designed to show how co-ordination is carried out.

CHEMISTRY is taught by Professor W. B. Tuck, and the class-room and laboratories are in the immediate vicinity of those for anatomy, physiology, pharmacology, pathology, and bacteriology. This leads to a close association with these departments, and the student realises he is not learning just the chemistry which he requires for his first professional examination, but is acquiring knowledge which he will need and have to apply in later years.

THE PHYSICS DEPARTMENT is under the charge of Professor Sidney Russ, who is also Physicist to the Hospital and engaged in research work on the measurements and dosage of X ray and Radium emanations. He is therefore in close touch with the departments of physiology and pathology, and takes an active part in departments for clinical therapeutics. Under his direction the student will realise at once that he is not studying an isolated subject for the purpose of training his mind or simply to comply with regulations and pass an examination, but is in touch with a subject which will be of great and increasing importance in the proper understanding of his work in later years.

BIOLOGY.—The Lecturer on Biology is Dr. J. H. Woodger, who holds a University Readership in this subject. His teaching in biology is characterized by co-ordination with other departments, and the bearing of the subject on the later stages of the curriculum is emphasized. Not only is the subject taught as an introduction to the study of Anatomy and Physiology, but the increasing importance of a knowledge of the lower forms of vegetable life and of the protozoa in the causation of disease and the study of insect carriers of human diseases is emphasized by co-ordination with the Pathological Institute.

IN THE DEPARTMENT OF ANATOMY, under the direction of Professor Thomas Yeates, with the general scientific study of Anatomy and its wider Biological aspects, the relation of structure to function and pathology is not lost sight of. Facts of clinical medicine and surgery, of pathology, biology, and physiology, are included in the teaching in order to emphasize the significance of anatomical points. By classes in Applied Medical and Surgical Anatomy the study of this subject is continued in the later stages of the student's career.

THE TEACHING OF PHYSIOLOGY is in the hands of Professor Samson Wright, and the department is in close touch with those for the teaching of both the preliminary and final subjects of the curriculum. It is impressed upon the student in this department that he cannot be a good clinician unless he obtains a sound knowledge of Physiology. Later in his career the student has continuous opportunities of applying what he has learnt in the Physiological department, and his physiological knowledge is further extended, notably in the study of PHARMACOLOGY and in the CARDIOGRAPHIC Department, where he has opportunities of studying the electrical conditions of the heart both in health and disease.

IN THE BLAND-SUTTON INSTITUTE OF PATHOLOGY all the departments of the Medical School are brought in touch. Here the student learns the SCIENCE OF DISEASE. The teaching of Pathology is in the hands of Professor J. McIntosh, and under his tuition the student is made to realise that Pathology and Medicine are one and that a clear knowledge of Pathology and Bacteriology is essential for the prevention, diagnosis, and treatment of disease. The teaching of pathology is brought into the closest touch with clinical teaching, and the student sees the practical application of the sciences in which he has been instructed in the earlier years of the curriculum—chemistry, physics, biology, anatomy, and physiology.

THE COURTAULD INSTITUTE OF BIOCHEMISTRY is a new building fully equipped with laboratories for teaching and biochemical research. Professor E. C. Dodds, who is in charge of the Department, holds complete courses in Biochemistry for students, both in their early years and during their period of instruction in the wards. In addition to this the student here acquires constant practical experience of the important modern chemical investigations necessary for the detection of disease and the study of its evolution. Several valuable post-graduate appointments in this Institute become available to students showing special ability in this direction.

CLINICAL TEACHING is carried out in the general wards and out-patients' departments, and in the special departments, all of which are in close touch with the scientific departments in the School. The student has ample opportunities for carrying out the physical examination of patients, and with his training on the scientific side combines instruction in the Art of Medicine by constantly being brought in contact with patients and being made to realise the human side of his professional work. In order that the student may have ample bedside teaching and opportunities for carrying out the examination of patients himself, the number of students allowed at a Clinique is limited.

There are ample clinical appointments for all students, and 33 Residents appointments are open annually to students of the School who have obtained their degrees or diplomas. In addition, nine Registrars are appointed annually.

THE SOCIAL AND ATHLETIC side of the student's life is also studied, and these facilities include a Medical Society, a Common Room Society, and Athletic grounds. The Clubs include Rugby Football, Association Football, Golf, Cricket, Hockey, Sailing, etc. A Squash Rackets Court is also available.

Write for Prospectus to the DEAN, T. IZOD BENNETT, M.D., B.S., F.R.C.P., Middlesex Hospital Medical School, Berners Street, London, W.1.

THE
METROPOLITAN EAR, NOSE, & THROAT HOSPITAL
(1838) (INCORPORATED),
FITZROY SQUARE, LONDON, W.1.

FACILITIES FOR CLINICAL WORK are afforded to Medical Practitioners and Students. Fee for one month, 3 Guineas; for three months, 5 Guineas.

PRACTICAL DEMONSTRATIONS are given daily (Saturdays excepted) at 3 p.m., in the manipulation of instruments used in the Diagnosis and Treatment of Diseases of the Ear, Nose, and Throat.

CLINICAL ASSISTANTS are appointed as vacancies occur, and have responsible duties.

Further particulars may be obtained from the Secretary.

L. L. PHILLIPS.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART
WESTMORELAND STREET, W.1.

The Clinical Practice of the Hospital in the Out-patient Department and the Wards is open to Post-Graduates, Fees: One Month, £2 2s.; Three Months, £5 5s.

Under-Graduates who have completed their fourth year are admitted to the Practice of the Hospital at specially reduced fees.

Special Courses of two weeks' duration are held in January, July, and October. Fee £7 7s.

Further particulars may be obtained on application to the Dean or the Secretary at the Hospital.

POST-GRADUATION SCHOOL
CENTRAL LONDON THROAT, NOSE & EAR HOSPITAL
GRAY'S INN ROAD, W.C.1

CLINICAL TEACHING covering every aspect of the Specialty given daily in the Out-patient Department and the In-patient Theatres.

CLINICAL ASSISTANTSHIPS available for periods of 3, 6, or 12 months. Lectures each Friday 4 p.m.

COURSES IN METHODS OF EXAMINATION AND DIAGNOSIS at frequent intervals.

INTENSIVE COURSES (4 weeks), including lectures and demonstrations; Anatomy and Physiology; Operative Surgery; Peroral Endoscopy & Pathology and Bacteriology Classes given in May and October each year.

The teaching provided covers all the requirements of students intending to sit for the D.L.O. (R.C.P.&S.Eng.).

Full Syllabus obtainable from J. D. McLAGGAN, M.A., F.R.C.S., *DEAN.*

WEST END HOSPITAL FOR NERVOUS DISEASES.
OUT-PATIENT DEPARTMENT, WELBECK STREET, W.1.
IN-PATIENT DEPARTMENT, GLOUCESTER GATE, REGENT'S PARK, N.W.1.
Recognized by the University of London and the Conjoint Board.

Courses of **SPECIAL CLINICAL DEMONSTRATIONS** on selected cases, including week-end and short concentrated courses for general practitioners, will be given as advertised by the Fellowship of Medicine.

The general practice of the hospital is conducted daily (Saturdays excepted).

The Savill Prize (value £15) and medal is offered biennially for the best thesis on a neurological subject submitted by Post-Graduates who have attended the hospital practice on not less than 10 occasions.

A limited number of appointments as Hon. Clinical Assistants are open to Post-Graduates.

The Senior and Junior House Physicians are appointed every six months, with remuneration at the rate of £150 and £100 per annum respectively.

For particulars of the above apply to C. WORSTER-DROUGHT, M.D., M.R.C.P., Dean, or to the Secretary of the Hospital at 73, Welbeck Street, W.1.

LONDON SCHOOL of HYGIENE & TROPICAL MEDICINE

(University of London).

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE (Eng.)

THE COURSE OF STUDY IS DIVIDED INTO TWO PARTS Section A (Clinical and Laboratory Instruction) and Section B (Tropical Hygiene), which can be taken independently but not concurrently; Section A is a three months' course and Section B a two months' course. This Course of Study is recognised by the University of London as a Course for Associate Students

DATES OF THE COURSES, 1933-4.

SECTION A (CLINICAL AND LABORATORY INSTRUCTION).

1st COURSE: *2nd October*—*22nd December*, 1933. 2nd COURSE: *8th January*—*29th March*, 1934. 3rd COURSE. *9th April*—*28th June*, 1934.

SECTION B (TROPICAL HYGIENE).

1st COURSE: *22nd January*—*23rd March*, 1934. 2nd COURSE. *23rd April*—*22nd June*, 1934.

FEES (inclusive): Section A, £25; Section B, £15.

In Section A, Students may enter for the whole Section at recognised intervals (of 4 or 8 weeks) after the beginning of the Course. Short periods of Laboratory or Clinical Instruction can also be taken at proportionate fees

DIPLOMA IN PUBLIC HEALTH

The 1933-4 Course of Study, which qualifies students to sit for the UNIVERSITY OF LONDON DIPLOMA, covers a period of nine calendar months' whole-time work. *The Course will commence on October 2nd, 1933* Inclusive FEE, 54 guineas, to cover lectures, demonstrations, the necessary practical work in public health departments, and instruction in infectious diseases, etc.

One place will be allotted, without fees, after open competition in September, the successful candidate being awarded the Fishmongers' Company Studentship.

DIPLOMA IN BACTERIOLOGY

The Course of Study for the academic year 1933-4, qualifying for the UNIVERSITY OF LONDON DIPLOMA, commences on October 3rd, 1933. Inclusive FEE, £47 15s.

EPIDEMIOLOGY AND VITAL STATISTICS

Special Three-monthly Advanced Courses. Composition FEE, 7 guineas.

DIPLOMA IN PSYCHOLOGY (Industrial)

Special courses of study for the Academic Diploma in Psychology, (Industrial) (University of London) by arrangement.

For Prospectuses, Synopses of Lectures, etc., apply to the SECRETARY, LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, KEPPEL STREET (Gower Street), LONDON, W.C.1.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL

(UNIVERSITY OF LONDON).

Dean: JOHN A. DRAKE, M.D.(Lond.), F.R.C.P., D.P.H.

THE NEW MEDICAL SCHOOL (opened in July, 1933, by H.R.H. Prince George) contains Lecture Rooms, Lecture Hall, Museum, Research Rooms and Laboratories, Bio-Chemical Research Laboratory, Common Rooms, and Refectory. Two new Squash Rackets Courts adjoin the new buildings.

FOURTEEN ENTRANCE SCHOLARSHIPS, total value £1,530, are awarded annually.

RESIDENT HOSPITAL APPOINTMENTS, numbering thirty-one, are made during each year.

ATHLETIC GROUND. The Athletic Ground of the Medical School is within ten minutes' walk of the Hospital, and has accommodation for cricket, football, hockey, and lawn tennis.

SCHOOL HOSTEL. "The Platanes," standing in large grounds with three lawn tennis courts, provides residence for 80 students, and is within five minutes' walk of the Hospital.

DENTAL SCHOOL. The Dental School was opened in October, 1923. A full Course is given in co-operation with King's College, in preparation for Dental Degrees and Diplomas.

For Particulars, Calendar of the School, and Appointments to see the School and Hospital, application should be made to the Secretary, S. C. RANNER, M.A.Cantab, King's College Hospital Medical School, Denmark Hill, London, S.E.5.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL

530 Beds. *530 Beds.*

(UNIVERSITY OF LONDON), UNIVERSITY STREET, GOWER STREET, W.C.1.

TELEPHONE—MUSEUM 7026 and 7027.

The WINTER SESSION will commence on Monday, October 2nd, 1933.

THE SCHOOL IS FOR FINAL STUDIES only.

STUDENTS are prepared for the degrees of the Universities of: OXFORD, CAMBRIDGE, LONDON, and DURHAM, and for the Diplomas of other qualifying Bodies.

CLINICAL UNITS in MEDICINE, SURGERY, and OBSTETRIC MEDICINE are now in operation.—The whole-time Directors of the Units are concerned with the organisation of the teaching generally, but the honorary staff are responsible for the largest share of the teaching in the wards and out-patient Department of the Hospital. The new Obstetric Hospital is now finished and in full occupation.

Director of the Medical Unit—Prof. T. R. ELLIOTT. Director of the Surgical Unit—Prof. C. C. CHOYCE.

Director of the Obstetric Unit—Prof. F. J. BROWNE.

FEES.—Inclusive fee to cover complete Clinical Course: £45 per annum for three years. Oxford and Cambridge Students who have completed their course in Pathology: £40 per annum for three years. There are no extras, as these fees include: (i) Courses of Instruction in Pharmacy, Vaccination, and Fevers; (ii) Life Subscription to the Medical Society or Women's Medical Club.

APPOINTMENTS.—Forty-seven appointments are open during the year to students, in addition, salaried appointments to the annual value of over £2,000.

SCHOLARSHIPS, EXHIBITIONS, and PRIZES of the value of over £1,000 are awarded annually. Amongst the most important are:

I. GOLDSMID ENTRANCE SCHOLARSHIPS entitling the holder to the Final Course of Medical Study, are offered for competition annually in July, and are open to students who are preparing for the Degrees of the Universities of London, Oxford, Cambridge, Durham, or other British Universities, or for the Diplomas of the Royal Colleges of Physicians and Surgeons, or for the Licence of the Society of Apothecaries.

II. GOLDSMID ENTRANCE EXHIBITION (VALUE £80); entitling the holder to a reduction by £80 of the fees due for the Full Course of Final Medical Study.

III. FILLITER ENTRANCE SCHOLARSHIP IN PATHOLOGY (value £52 10s.) entitling the holder to a reduction by £52 10s. of the fees due for the Full Course of Final Medical Study.

FERRIERE SCHOLARSHIP, value £25 awarded annually in April or October.

GRAHAM SCHOLARSHIP in Pathology, £300 per annum.

LESLIE PEARCE GOULD SCHOLARSHIP, awarded every two years, about £250.

RADCLIFFE CROCKER TRAVELLING SCHOLARSHIP in Dermatology, awarded every five years, about £280.

MAGRATH SCHOLARSHIP in Clinical Medicine, about £150.

PERCIVAL ALLEYN PRIZE, about £110.

ATCHISON SCHOLARSHIP, about £55 per annum; tenable for two years.

ATKINSON MORLEY SCHOLARSHIP, £45 per annum; tenable for three years.

BUCKNILL SCHOLARSHIP entitles the holder to the Intermediate Medical Course at University College, and for the Final Course at the Medical School.

Further information and Prospectus can be obtained from the Secretary, and the Dean can be interviewed at any time by appointment.

Dean—A. M. H. GRAY, C.B.E., M.D., F.R.C.P., F.R.C.S. *Vice-Dean*—GWYNNE WILLIAMS, M.S., F.R.C.S.

Sub-Dean for Dental Students—J. L. DUDLEY BUXTON, L.M.S.S.A., L.D.S. *Secretary*—R. SLOLEY.

UNIVERSITY COLLEGE HOSPITAL DENTAL SCHOOL.

NATIONAL DENTAL HOSPITAL, GREAT PORTLAND ST., W.1.

LECTURERS.

Dental Surgery and Pathology.—J. L. DUDLEY BUXTON, L.M.S.S.A., L.D.S.Eng.
Mondays and Wednesdays at 5 p.m. October to March.

Special Anatomy.—ALAN SHEFFORD, O.B.E., L.D.S.
Tuesdays at 5 p.m.

Orthodontics.—A. C. McLEOD, L.D.S.
Tuesdays at 5 p.m. May to July.

Dental Mechanics.—B. MENDLESON, L.D.S.Eng.
Wednesdays at 5 p.m. January to March.

Dental Materia Medica.—H. DAVIS, B.Sc., A.I.C., Ph.C.
Tuesdays and Fridays at 2 p.m. May to July.

Bacteriology of the Mouth.—Sir KENNETH GOADBY, K.B.E., D.P.H.Camb., L.R.C.P., M.R.C.S., L.D.S.Eng. Wednesdays at 2 p.m. January to March.

General Pathology.—Prof. A. E. BOYCOTT, M.A., D.M., F.R.C.P., F.R.S.
Mondays, Wednesdays, Thursdays, and Fridays at 12 noon. May.

Bacteriology.—J. A. BOYCOTT, M.R.C.S., L.R.C.P.
Tuesdays at 2 p.m. January to July.

Dental Histology.—A. K. INCE-JONES, L.R.C.P., M.R.C.S., L.D.S.Eng.
Saturdays at 9.30 a.m. May to July.

Dental Metallurgy.—H. TERREY, B.Sc.
Tuesdays at 5 p.m. at University College. January to March.

Anaesthetics.—R. R. MACINTOSH, F.R.C.S.Ed.
Tuesdays at 5 p.m. October to December.

Radiology.—D. A. IMRIE, M.D.Laus., L.R.C.P., L.R.C.S.E., D.M.R.E., L.D.S.
Wednesdays at 5 p.m. July.

Special Medicine Lectures.—K. E. HARRIS, M.D., M.R.C.P.
Tuesdays at 5 p.m. January to July.

Surgery Lectures.—Prof. C. C. CHOYCE, C.M.G., C.B.E., B.S., F.R.C.S.
Mondays at 9 a.m.; October to December. Mondays at 4.15 p.m.; January to March.

Special Surgery Lectures.—R. S. PILCHER, M.S., F.R.C.S.
Wednesdays at 12 noon. January to July.

The WINTER SESSION Commences MONDAY, OCTOBER 2nd, 1933.

This Hospital and School, situated in the centre of a large population, and within a few minutes of University College Hospital, has recently been reorganised and equipped on the highest standard of modern requirements, and is admirably adapted for the teaching of students in every branch of the Science and Art of Dental Surgery. The mechanical laboratory, conservation room, and X-rays departments are replete with all the latest approved appliances.

Students (men and women) enter as students of University College Hospital, and attend classes in anatomy and physiology at University College, adjacent to University College Hospital.

Each student serves as a dresser in the extraction, anaesthetic, conservation, and X-rays departments, which provides him with the opportunity of observing and actually carrying out the methods of work in all branches.

Four House Surgeons are appointed half yearly.

The Calendar, containing full information as to lectures, fees, prizes, etc., may be had on application to the Sub-Dean of Dental Students, who attends the University College Hospital Medical School, University Street, Gower Street, W.C.1, on Wednesdays, at 9.30 a.m.

Westminster Hospital Medical School

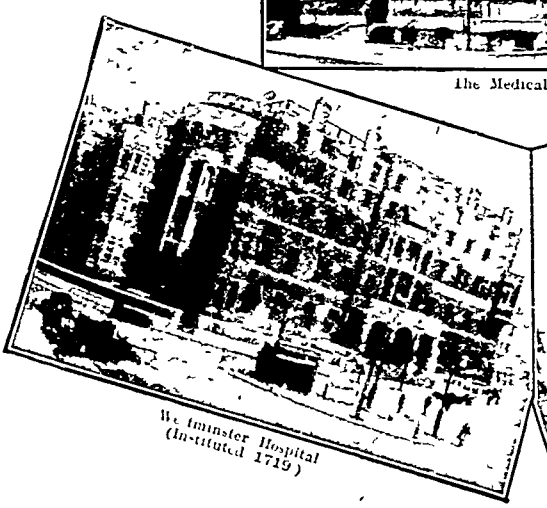
(University of London)

SESSIONS COMMENCE 1st WEEK IN JANUARY, APRIL, OCTOBER

CENTRALLY SITUATED (OPPOSITE WESTMINSTER ABBEY)



The Medical School



Westminster Hospital (Instituted 1719)



The Sports Ground

THE MEDICAL SCHOOL, with Library, Museum, Lecture Theatres, Epidiascope, &c., is only a few minutes' walk from the Hospital. The entire teaching of the Hospital and School is devoted to the subjects of the Final Examinations. Arrangements are made for the tuition required for preliminary and intermediate subjects.

SCHOLARSHIPS. The School Committee is prepared to grant a certain number of Scholarships, each of the value of £75, to men of outstanding merit, upon the nomination of the Dean of their College or the Principal of their School. Five competitive entrance Scholarships to the value of £375 and prizes to the value of £170, are awarded annually.

APPOINTMENTS. Paid appointments as Medical, Surgical, and Obstetric Registrars, Casualty Officers, House Physician, House Surgeon, Anæsthetist, and Clinical Assistant, are available for Students when they have passed their examinations. There are excellent opportunities for research work in the recently endowed Carlill Laboratories.

FEES. Entrance fee £10 10s. Annual Composition fee £42 which includes membership of the Sports Union Club, with its various branches—football, cricket, tennis, boxing, and Guthrie Society. The Sports ground is within 30 minutes of the Hospital.

The Dean or Sub-Dean will be pleased to arrange for intending students and parents to inspect the Hospital and Medical School at any time.

ONLY MALE STUDENTS ARE ADMITTED

A Prospectus and full particulars may be obtained on application to the Dean:

Sir STANLEY WOODWARK, M.D., F.R.C.P.,

Westminster Hospital Medical School, Caxton St., Westminster, S.W.1. Tel.: Victoria 0765.

THE UNIVERSITY OF SHEFFIELD.

Vice-Chancellor: A. W. PICKARD-CAMBRIDGE, M.A., D.Litt.

FACULTY OF MEDICINE.

Dean: Professor G. A. CLARK, M.D.

The University grants Degrees in Medicine (M.B., Ch.B., M.D., Ch.M.), and in Dental Surgery (B.D.S., M.D.S.). It also grants a Diploma in Dental Surgery (L.D.S.). These are all open to men and women on equal terms.

The session 1933-1934 begins on October 4th.

Lectures and laboratory courses are given in the University, whilst clinical instruction is provided in the general and special Hospitals in the City.

Although the teaching is primarily directed towards the requirements of the University the instruction amply covers those of other examining bodies.

A number of resident hospital appointments are open to qualified students of the school.

Halls of Residence.—There are Halls of Residence for students.

Scholarships.—A number of Entrance Scholarships are open to students wishing to enter the Faculty of Medicine. There are also post-graduate scholarships.

A prospectus containing all necessary details of the School, and one giving particulars of scholarships, may be obtained free from—

W. M. GIBBONS, Registrar

UNIVERSITY OF BIRMINGHAM.

FACULTY OF MEDICINE.

(Associated with the General, Queen's and Special Hospitals for Clinical Teaching.)

The next Session opens on October 2nd, 1933.

The University grants degrees in Medicine, Surgery, and Public Health, and a Diploma in Public Health; also Degrees and a Diploma in Dental Surgery.

The Courses of instruction are also adapted to meet the requirements of other Universities and Licensing Bodies.

HOSPITAL APPOINTMENTS.

A large number of Resident Hospital appointments in Birmingham and District are open to qualified students of the School.

SCHOLARSHIPS, EXHIBITIONS, AND PRIZES.

Entrance and other Scholarships and Exhibitions and various Prizes and Medals are awarded annually in the Faculty of Medicine, full details of which are in the Faculty syllabus.

SCHOOL OF DENTISTRY.

(University of Birmingham and Birmingham Dental Hospital.)

The School of Dentistry, in conjunction with the General and Queen's Hospitals, affords a complete curriculum for the Dental Diplomas and Dental Degrees of the University and all other Licensing Bodies. A Dental Scholarship of the value of £46 17s. 6d., tenable for one year, is offered annually.

PRE-REGISTRATION MEDICAL AND DENTAL EXAMINATIONS.

The necessary courses of Instruction in Chemistry and Physics and in Biology may be attended in the University.

For syllabus and further information apply to STANLEY BARNES, M.D., D.Sc., F.R.C.P., Dean.

UNIVERSITY OF OXFORD.

DIPLOMA IN OPHTHALMOLOGY.

The next Examination begins on June 18th, 1934. The two months' Course of Instruction starts on April 23rd, 1934.

For further information apply to—

6, Holywell, Oxford. P. H. ADAMS, Margaret Ogilvie Reader in Ophthalmology.

THE LONDON HOSPITAL MEDICAL COLLEGE.

(University of London.)

ADVANCED MEDICINE.

A Course in Advanced Medicine suitable for candidates preparing for the M.D. and M.R.C.P. Examinations will begin on Monday, October 16th. Early application for admission is advisable.

Further particulars may be obtained on application to the Dean, Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., London Hospital Medical College, Turner Street, London, E.1.

PRACTICING PSYCHO-THERAPIST OFFERS INSTRUCTION (Correspondence or personal) in TECHNIQUE and THEORY OF PSYCHOTHERAPY. Fees moderate.—Address, No. 6401, B.M.A. House, Tavistock Sq., W.C.1.

THE LONDON SCHOOL OF DERMATOLOGY.

St. John's Hospital for Diseases of the Skin,

49, Leicester Square, W.C.2.

Conducted by the Honorary Staff of the Hospital, together with the Physicians in charge of the Dermatological Departments of the London Teaching Hospitals. Lectures and Demonstrations every Tuesday and Thursday at 5 p.m., from October to March, and four times weekly during May. General Practitioners desiring to attend any particular lecture or lectures can do so without paying a fee. Clinics daily at 2 p.m. and 6 p.m., Saturdays 2 p.m. only. Pathological Laboratory for Instruction or Research Work.

For further particulars, fees, etc., apply to J. E. M. WIGLEY, M.B., Dean.

THE POLYTECHNIC,

REGENT STREET, W.1,

DEPARTMENT OF CHEMISTRY.

Head of Department:

H. LAMBOURNE, M.A., M.Sc., F.I.C.

DAY COURSE in CHEMISTRY, PHYSICS, and BIOLOGY, and EVENING COURSE in CHEMISTRY and PHYSICS.

For the PRE-MEDICAL EXAMINATION of the CONJOINT BOARD.

New term commences:

Day - - September 19th, 1933.
Evening - - September 25th, 1933.

Fee to London Students:

Day - - £8 8s. per term.
Evening - £2 2s. per term.

Early application should be made to the Director of Education.

CENTRAL LONDON OPHTHALMIC HOSPITAL,

JUDD STREET, ST. PANCRAS, W.C.1.

This Hospital makes a speciality of Clinical [illegible] and Lectures [illegible] various subjects [illegible] interest.

Clinical Demonstrations are held at 5 p.m. on the first Tuesday of every month and will recommence in October. Students of Medicine and Medical Practitioners are admitted without fee.

The post of Clinical Assistant is open to Men and Women Students.

For further particulars apply to the Dean of the School.

THE MILROY LECTURES ON STATE MEDICINE AND PUBLIC HEALTH.

The Council of the Royal College of Physicians are prepared to receive applications for the office of MILROY LECTURER for 1935.

Applications must be addressed to the Registrar, Royal College of Physicians, Pall Mall East, on or before September 23rd, 1933, and should contain a statement of the division of the subject selected by the candidate.

The Course consists of Two Lectures.

The Lectures are to be given on a Tuesday and Thursday in February or March, 1935.

A copy of Dr. MILROY'S "Suggestions" on the subject of his bequest, and information as to the emolument, may be obtained from the Registrar.

August, 1933.

EXPERIENCED COACHING IN PHYSIOLOGY, PATHOLOGY, MEDICINE, by M.B., B.S. (Lond.), M.R.C.P.(Lond.), B.Sc. honours Physiology (Lond.). All examinations. Classes commencing in London.—Address, No. 6220, B.M.A. House, Tavistock Square, W.C.1.

CITY OF LONDON MATERNITY HOSPITAL

(CITY ROAD)

MIDWIFERY TRAINING SCHOOL

Qualified Practitioners and Medical Students admitted to the practice of the Hospital where they have exceptional opportunities of seeing Obstetrical complications and Operative Midwifery.

From 1,700 to 1,800 patients admitted yearly. Ante-natal clinics three mornings weekly. Infant Welfare Clinics two afternoons weekly. 31 cases of Caesarean Section last year.

Residential courses, four weeks, 16 guineas; two weeks, 8 guineas.

Non-resident arrangements may be made by Practitioners with a limited time to spare.

Pupil Midwives trained for Central Midwives Board Examination—twelve months and six months' courses. Short course for Maternity Nurses.

Full particulars from RALPH B. CANNINGS, Secretary.

The ROYAL DENTAL HOSPITAL of LONDON

SCHOOL OF DENTAL SURGERY

(University of London).

Leicester Square, London, W.C.2.

Students are admitted for the Curriculum for the B.D.S. Degree and the L.D.S. Diploma in October, January and May.

HOSPITAL PRACTICE. The School is furnished with modern equipment, and the Clinical Work of the Hospital is unrivalled. Students [illegible] attend the operations in the In-patient Department, and chair-side instruction is given in Advanced Operative Technique and [illegible] dontics.

DENTAL PROSTHETICS. The Mechanical Laboratory is a spacious and fully equipped department, under the direction of the Lecturer in Prosthetics.

HOUSE APPOINTMENTS. Six Senior House Surgeons and eighteen ordinary House Surgeons are appointed every year.

POST-GRADUATE INSTRUCTION. Instruction can be arranged in all branches of Dental Surgery.

Write for further particulars and [illegible] Calendar to the Dean.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond St., London, W.C.1

This Hospital contains 252 beds with an average admission of over 7,000 in-patients per annum, whilst in the out-patient department about 30,000 new patients are seen each year. The Medical School is recognized by the Universities of Oxford, Cambridge, and London, and by the Conjoint Board of England as a teaching institution where students receive instruction in the treatment of Diseases of Children for such a period as is required by the Regulations of the Conjoint Board.

POST-GRADUATE INSTRUCTION, open to all qualified medical men and women, is given daily in the wards, out-patient department, operating theatre, and post-mortem room by members of the visiting staff. Clinical clerkships in the wards and clinical assistantships in the out-patient department are also available for post-graduate students. Fees: One month's ticket £2 2s. Three months' ticket £5 5s. Perpetual ticket £10 10s. Reduced fees for Clinical Clerks and Dressers for one month's attendance £1 1s. Clerks attend for about four hours daily.

POST-GRADUATE COURSES ON DISEASES OF CHILDREN are held twice yearly in spring and autumn. Each course lasts a fortnight and consists of 50 Clinical lectures and demonstrations and 6 Pathological demonstrations. Fees for each course £6 6s.

The next course will start on October 23rd and end on November 4th, 1933.

SPECIAL COURSES IN PRACTICAL PATHOLOGY, lasting one week and consisting of 6 demonstrations are also given at the Hospital. These courses demonstrate such methods as can be usefully carried out away from a laboratory, and which are of general application. Fees for each course £2 2s.

The next of these courses will commence on December 4th, 1933.

Further information may be obtained from the Secretary at the Hospital.

H. F. RUTHERFORD, Secretary. W. G. WYLLIE, M.D., F.R.C.P., Dean.

T. THOMAS'S HOSPITAL MEDICAL SCHOOL

(The University of London) Albert Embankment, S.E.

The finest situation in London

The WINTER SESSION begins on MONDAY, OCTOBER 3rd, 1932.

FULL CURRICULUM. Newly equipped Laboratories for Preliminary and Intermediate Subjects which are taught by Professors and Teachers recognized by the University of London. For Clinical work the fullest facilities are provided, including a special Maternity Ward.

UNIVERSITY MEN can join the School for any part of their M.B. Course, and for Clinical work can join in January, April, July, or October.

CLASSES for the **PRIMARY** and **FINAL F.R.C.S.** are held before each Examination.

RESIDENTIAL HOSTEL and Students' Club, with all amenities, is attached to the Hospital.

ENTRANCE SCHOLARSHIPS in **ARTS** and **SCIENCE** and special **UNIVERSITY SCHOLARSHIPS** are awarded after Examination in July of every year.

PROSPECTUS and full particulars may be obtained from the Secretary, The Medical School, St. Thomas's Hospital, London, S.E.1.

LONDON HOSPITAL MEDICAL COLLEGE & DENTAL SCHOOL.

THE WINTER SESSION will Open on Monday, October 2nd.

The Hospital is the largest in England. There are 843 beds in constant use. Last year number of in-patients 24,634, out-patients 101,242, casualties 501,408, dental patients 6,113, major operations 7,708.

The MEDICAL COLLEGE and DENTAL SCHOOL are essentially modern, with large laboratories equipped with the latest and the most approved appliances. The STAFF is so large as to permit of individual attention being paid to all students.

MEDICAL UNIT.—A Clinical Unit in Medicine under the charge of a whole-time Director provides for the more elaborate methods of diagnosis and treatment and takes a leading part in the initiation and co-ordination of medical research.

RESEARCH FUNDS of approximately £113,000 give unrivalled facilities for Medical Research.

SCHOLARSHIPS AND PRIZES to the value of £1,040 are awarded annually, including four Open Entrance Scholarships to the value of £350 (an Entrance Scholarship open to students of the Universities of Oxford and Cambridge of the value of £160).

APPOINTMENTS.—Over 100 Appointments are made annually from Students of the College recently qualified.

SPECIAL COURSES are held for all the University Examinations, for the Primary and Final Fellowship Examinations of the Royal College of Surgeons and for the Membership Examination of the Royal College of Physicians.

HOSPITAL PRACTICE.—Exceptional opportunities are offered to qualified Practitioners wishing to attend the General Practice or the Practice of a Special Department of the Hospital.

A *Club & Union*, an *Athletic Ground* of over 13 acres at Chingford, a *Students' Hostel* provide for the recreation, health, and comfort of the Students.

For Prospectus and Particulars apply to the Dean (Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S.), who will be pleased to make arrangements for anyone wishing to see the Medical College and Dental School.

MILE END, E.1.

Post-Graduate Teaching, West London Hospital.

Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave," and for those wishing to take a course under the "Grant-aided Scheme for Post-Graduate Study by Insurance Practitioners."—Anaesthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

Prospectus from the DEAN, West London Hospital, Hammersmith, W.6.

THE UNIVERSITY OF LIVERPOOL

FACULTY OF MEDICINE.

THE MEDICAL SCHOOL provides complete courses of instruction for the Examinations of the University of Liverpool, and also meets the requirements of other Universities and Examining Bodies in the United Kingdom.

Other Schools of the Faculty are:—The School of Dental Surgery, the School of Hygiene, the School of Tropical Medicine, and the School of Veterinary Science.

DEGREES AND DIPLOMAS IN THE FACULTY OF MEDICINE.

Bachelor of Medicine & Bachelor of Surgery	M.B., Ch.B.	Master of Veterinary Science	M.V.Sc.
Doctor of Medicine	M.D.	Doctor of Veterinary Science	D.V.Sc.
Master of Surgery	Ch.M.	Doctorate in Philosophy	Ph.D.
Master of Hygiene	M.H.	Licence in Dental Surgery	L.D.S.
Master of Orthopaedic Surgery	M.Ch.Orth.	Diploma in Public Health	D.P.H.
Bachelor of Dental Surgery	B.D.S.	Diploma in Tropical Medicine	D.T.M.
Master of Dental Surgery	M.D.S.	Diploma in Tropical Hygiene	D.T.H.
Bachelor of Veterinary Science	B.V.Sc.	Diploma in Veterinary Hygiene	D.V.H.
		Diploma in Medical Radiology & Electrology	D.M.R.E.

Valuable Fellowships, Scholarships, and Prizes are offered for competition each year.

THE CLINICAL SCHOOL.

THE CLINICAL SCHOOL consists of FOUR GENERAL HOSPITALS: The Royal Infirmary, the Royal Southern Hospital, the David Lewis Northern Hospital, and the Stanley Hospital; and of FIVE SPECIAL HOSPITALS: The Eye and Ear Infirmary, the Women's Hospital, Liverpool, the Royal Liverpool Children's Hospital, the Liverpool Maternity Hospital, and the St. Paul's Eye Hospital.

These Hospitals contain in all about 1,500 Beds.

The organization of these Hospitals to form one teaching Institution provides the Medical Student and Medical Practitioner with a field for clinical education and study which is unrivalled in extent in the United Kingdom.

Twenty-one house physicians and house surgeons are appointed every six months in the General Hospitals, and the majority of these receive salaries ranging from £60 to £100 per annum. Five resident medical officers are also appointed at intervals to the Special Hospitals.

Infectious Diseases are studied in the Local and District Hospitals, and Mental Diseases at the County Mental Hospital, Rainhill.

For information on all matters concerning the curriculum, application should be made to the Dean of the Faculty of Medicine, the University of Liverpool.

Information regarding the special regulations for Hospital Practice may be obtained from the Secretary of the School, Dr. N. B. CAPON, 49a, RODNEY STREET, LIVERPOOL, 1.

W. H. WOOD, DEAN.

THE CLINICAL SCHOOL,
UNIVERSITY OF LIVERPOOL.

The following Hospitals are associated for purposes of Clinical Instruction, and form the Clinical School of the University:

THE ROYAL INFIRMARY.	THE STANLEY HOSPITAL.	THE HOSPITAL FOR WOMEN (Including the SAMARITAN HOSPITAL).
THE ROYAL SOUTHERN HOSPITAL.	THE EYE AND EAR INFIRMARY.	LIVERPOOL MATERNITY HOSPITAL.
THE DAVID LEWIS NORTHERN HOSPITAL.	ROYAL LIVERPOOL CHILDREN'S HOSPITAL.	ST. PAUL'S EYE HOSPITAL.

The Staffs of these Hospitals form the Teaching Staff of the Clinical School. There are over 1,500 beds in the Associated Hospitals, affording a field for Clinical Instruction which is unrivalled in the United Kingdom.

Twenty-one house physicians and house surgeons are appointed every six months in the General Hospitals, and the majority of these receive salaries ranging from £60 to £100 per annum. A number of resident medical officers are also appointed at intervals to the Special Hospitals.

Information regarding the regulations for Hospital Practice may be obtained from the Secretary of the School, N. B. CAPON, M.D., F.R.C.P., 49A, RODNEY STREET.

UNIVERSITY OF BRISTOL

FACULTY OF MEDICINE.

The WINTER SESSION commences on 3rd October, 1933.

The University grants the Degrees of Bachelor of Medicine and Surgery (M.B., Ch.B.), Master of Surgery (Ch.M.), Doctor of Medicine (M.D.), Bachelor of Dental Surgery (B.D.S.), and Master of Dental Surgery (M.D.S.), as well as diplomas in Public Health (D.P.H.), and Dental Surgery (L.D.S.).

The lectures and laboratory courses which are given in the University, although primarily designed for the degrees and diplomas of the University, are equally adapted to those of other Universities and Examining Boards, and Students preparing for such external degrees and diplomas have equal attention paid to them.

Hospital Practice and Clinical Instruction are provided in the Hospitals and Asylum of the City, associated with the University for this purpose, and Students have exceptional opportunities of studying the practice of medicine from a large variety of cases.

Women are admitted to all Classes, Lectures, and Laboratory Practice, and attend them with men. The Halls of Residence for Men and for Women Students are situated in Clifton, near the University.

INCLUSIVE FEES—

For the M.B., Ch.B., curriculum ...	205 guineas.
For the B.D.S. curriculum, including Mechanical Laboratory	215 "
Do. excluding Mechanical Laboratory	155 "
For the L.D.S. curriculum, including Mechanical Laboratory	200 "
Do. excluding Mechanical Laboratory	140 "
For Mechanical Laboratory alone ...	60 "

For additional particulars apply to Professor EDWARD FRANCIS, M.D., F.R.S., Dean.

THE UNIVERSITY OF LEEDS

FACULTY OF MEDICINE

SCHOOL of MEDICINE and THE GENERAL INFIRMARY at LEEDS

The First Term begins on **October 2nd, 1933.**

The degrees of M.B., Ch.B., Ch.M. and M.D. are conferred, and diplomas in Public Health and Psychological Medicine are granted by the University.

The systematic Classes and Lectures are held in the School of Medicine of the University while the Clinical instruction is given in the General Infirmary. The combined courses of study are arranged to meet the University Regulations in the first instance, but they also afford every opportunity for students preparing for the examinations of any licensing body.

The instruction in the subjects for the First Examination is given in the Department of Science of the University.

The Composition Fee for the Academic Courses and Clinical instruction is £242.

For further particulars application should be made:—

Regarding instruction given at the University to The Academic Sub-Dean, School of Medicine, Leeds.

Regarding instruction given at the Infirmary to The Clinical Sub-Dean, General Infirmary, Leeds.

THE UNIVERSITY OF LEEDS

SCHOOL OF DENTISTRY

The First Term begins on **October 2nd, 1933.**

The degrees of B.Ch.D. and M.Ch.D., as well as a diploma, L.D.S., are conferred by the University.

The systematic Classes and Lectures are held in the School of Medicine and School of Dentistry of the University, while the clinical instruction is given in the Leeds General Infirmary and Dental School Hospital. The combined courses of study are arranged to meet the University Regulations in the first instance, but they also afford every opportunity for study to students preparing for the dental examinations of other Licensing Bodies.

Intending students can enter as pupils in the Dental School and can obtain instruction in the preliminary scientific subjects in the Department of Science of the University.

For further particulars application should be made to:—
The Warden, School of Dentistry, Leeds.

UNIVERSITY OF MANCHESTER

FACULTY OF MEDICINE.

The WINTER SESSION commences on OCTOBER 5th.

The Laboratories and Museums afford every facility to Students and Graduates for Practical Instruction, as well as for Original Research.

SCOPE OF INSTRUCTION.

Complete Courses of Instruction are offered for the Examinations of the University of Manchester, and also for the Examinations of other Examining Bodies in the United Kingdom. Post-Graduate Courses are held in preparation for the Diploma in Psychological Medicine (Manch.), and the Certificate in Venereal Diseases; Clinical Assistantships are also available at various hospitals. In the Dental Department Complete Courses are given preparing for the Degrees and Diploma in Dentistry granted by the University, as well as for the Diploma of the Royal College of Surgeons of England, and other Dental Diplomas. The Public Health Laboratories are situated at a short distance from the University. The fullest opportunities are offered to Graduates and others in preparation for the Diplomas in Bacteriology, in Pathology, in Public Health, and in Veterinary State Medicine. Particulars may be obtained from the Dean of the Medical School.

OPPORTUNITIES FOR CLINICAL STUDY.—ROYAL INFIRMARY AND OTHER HOSPITALS.

The Clinical Instruction is given in the new Royal Infirmary, opened in 1909 on a site near to the Medical School. It is provided with every modern requirement for the treatment of the sick and the investigation of disease. Instruction in Special Subjects is given in other Hospitals associated with the University. A large number of beds in the General and in the Special Hospitals are available, thus affording unrivalled opportunities for Clinical Study.

1. The Manchester Royal Infirmary ... ... 590 beds
2. The St. Mary's Hospitals for Women and Children ... 281 beds
3. Manchester Children's Hospital ... ... 190 beds
4. Manchester Royal Eye Hospital ... ... 150 beds
5. Manchester Northern Hospital for Women and Children ... ... 73 beds
6. Fever Hospital for Infectious Diseases ... ... 600 beds
7. Special Hospital for Diseases of the Ear, Throat and Chest, Skin, and the Christie Cancer Hospital ... 371 beds
8. Dental Hospital of Manchester
9. Ancoats Hospital ... ... 135 beds
10. Salford Royal Hospital ... ... 203 beds

HOSPITAL APPOINTMENTS.

In consequence of the large number of Hospitals associated with, or in the vicinity of, the University, exceptional opportunities are offered to Graduates to obtain Resident Hospital Appointments.

SCHOLARSHIPS, EXHIBITIONS, AND PRIZES.

Two Open Entrance Scholarships for Graduates, each of the value of 160 guineas, are offered yearly in July. In addition, the Dreschfeld Scholarship of £20 per annum, the John Russell Medical Entrance Scholarship of £15 per annum, and other Entrance Scholarships of the value of £30 to £40 a year for two or three years, are also tenable in the Medical Faculty.

Fellowships, Scholarships, etc., are also offered for competition to Students of the Faculty.

RESIDENCE FOR UNDERGRADUATES.

There are Halls of Residence both for Men and for Women Students, and lodgings can be recommended. Prospectuses will be forwarded on application to the Registrar.

UNIVERSITY OF DURHAM

COLLEGE OF MEDICINE,

NEWCASTLE-UPON-TYNE.

The degrees in Medicine, Surgery, Hygiene, and Dentistry, the Diploma in Public Health, the Diploma in Psychiatry, and the Licence in Dental Surgery of the University of Durham are open to men and women.

The WINTER SESSION, 1933-34, will be commenced on TUESDAY, OCTOBER 3rd.

Students can complete, at the University of Durham College of Medicine, Newcastle-upon-Tyne, the entire course of professional study required for the above degrees, diplomas, and licence; also for the Examinations of the Royal Colleges of Physicians and Surgeons and other Examining Bodies.

Hospital practice is carried out at the Royal Victoria Infirmary, a general hospital containing more than 600 beds, and there are facilities for the study of the various special subjects. General and Special Post-Graduate Courses are held.

Practical Midwifery can be studied at the Princess Mary Maternity Hospital, which contains 90 beds, with an annual indoor and outdoor attendance on 3,000 cases. Lectures are given on Psychological Medicine in the College of Medicine, and clinical instruction at the Mental Hospital, Newcastle. Clinical instruction in Infectious Diseases is given by the Medical Officer of Health in the City Hospital at Walkergate.

A Dental Department has been established, which includes a dental hospital, newly erected and equipped on the most modern lines, with abundant material for clinical teaching and facilities for training in practical dental mechanics.

Particulars may be obtained from the DEAN of the College.

UNIVERSITY OF ST. ANDREWS

(SCOTLAND)

Chancellor: The Rt. Hon. STANLEY BALDWIN, M.P., P.C., LL.D.
Rector: General The Right Hon. JAN CHRISTIAAN SMUTS, P.C., C.H., F.R.S., K.C.
Vice-Chancellor and Principal: Sir JAMES COLQUHOUN IRVINE, C.B.E., D.Sc., Sc.D., LL.D., D.C.L., F.R.S.

FACULTY OF MEDICINE.

Dean: FRANCIS JAMES CHARTERIS, M.D.

The University confers the following DEGREES AND DIPLOMAS: M.B., Ch.B., M.D., Ch.M., Ph.D., D.P.H., L.D.S., D.P.D. (all open to men or women).

SESSION 1933-34 opens October 3rd, 1933. The whole curriculum may be taken at Dundee, or the first two years may be taken in St. Andrews, the remaining three in Dundee.

CLINICAL INSTRUCTION at Dundee Royal Infirmary, Dundee Dental Hospital, and other Medical and Surgical Institutions in Dundee.

BURSARY (Scholarship) Competitions. June annually. Entries due May 7th.

BURSARIES FOR MEDICAL STUDENTS.—At St. Andrews: Taylour Thomson (for women), 1 of £40 and 2 of £30 for 5 years; Malcolm (for men and women), £40 for 5 years, vacant annually. At Dundee: Hepburn (for men or women), £25 for one year, vacant annually.

BURSARIES FOR WHICH MEDICAL STUDENTS ARE ELIGIBLE.—At St. Andrews: About 14 Bursaries ranging in value from £50 to £10, tenable for 3 or 4 years (6 for men or women, 7 for men only, 1 for women only), vacant annually. At Dundee: About 8 Bursaries from £50 to £40, for 4 years.

RESIDENTIAL ENTRANCE SCHOLARSHIPS FOR MEN.—At St. Andrews: Five or six of £100 competed for annually in June. Medical students are eligible.

FEES for complete M.B., Ch.B. Course, exclusive of Examination Fees, Hospital Fees, etc., £182.

PRELIMINARY EXAMINATION.—September and March. Entries due August 8th and February 6th.

RESIDENCE HALLS for Men and Women at St. Andrews; for Women at Dundee.

Provision made for POST-GRADUATE STUDY AND RESEARCH.

Full information may be got from the Secretary of the University, 71, North Street, St. Andrews, or the Dean of the Faculty of Medicine, Westlands, St. Andrews.

SCHOOL OF MEDICINE

OF

THE ROYAL COLLEGES, EDINBURGH.

(Founded 1505)

WINTER SESSION, 1933-34. Opens 3rd October.

The Lectures qualify for the English and Scottish Universities and other Medical Examining Boards.

One-half of the Qualifying Classes required for graduation in the University of Edinburgh may be attended in this School.

Early application to the Dean for admission to the School is essential.

The Calendar of the School, giving all necessary information regarding Classes, Fees, and Examinations, will be ready September 5th; a copy may be obtained (price 9d., post free) on application to the DEAN OF THE SCHOOL, Surgeons' Hall, Edinburgh.

ROYAL (DICK) VETERINARY COLLEGE, EDINBURGH.

PRINCIPAL: O. CHARNOCK BRADLEY, M.D., D.Sc., M.R.C.V.S.

111th SESSION commences on OCTOBER 3rd. COURSES OF INSTRUCTION QUALIFY FOR M.R.C.V.S. and B.Sc.Edin.

COLLEGE CALENDAR, WITH FULL PARTICULARS OF EXAMINATIONS, BURSARIES, etc., may be obtained from—

A. C. DOUGLAS, C.A., Secretary.

(Incorporated 1505.)

Royal College of Surgeons of Edinburgh.

COPIES OF REGULATIONS for the FELLOWSHIP, LICENCE, HIGHER DENTAL DIPLOMA, and LICENCE in DENTAL SURGERY, containing dates of Examinations, may be had on application to—

49, George Square, Edinburgh. DAVID THOMSON, Clerk of the College.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

The EXAMINATIONS for the LICENCE of the College (as a single qualification) for the ensuing year will be held on the *First Wednesday* and the following days of every month (except September and October).

Candidates for the LICENCE (as a single qualification) must send their names to the Secretary one week before the date of the Examination at which they propose to appear.

The EXAMINATIONS for the MEMBERSHIP of the College are held on the *Second Tuesday* and the following days of *January, April, July,* and *October*.

Candidates for the MEMBERSHIP must submit their applications and testimonials to the Secretary one month before the date at which they wish to appear for Examination.

For the Regulations in regard to the various qualifications granted by the College, and all other information, application may be made to the Secretary.

ROYAL COLLEGE of PHYSICIANS of EDINBURGH
ROYAL COLLEGE of SURGEONS of EDINBURGH
ROYAL FACULTY of PHYSICIANS and SURGEONS of GLASGOW.

COPIES OF REGULATIONS for the TRIPLE QUALIFICATION (L.R.C.P.E., L.R.C.S.E., and L.R.F.P. & S.G.), and the DIPLOMA IN PUBLIC HEALTH, containing Dates of Professional Examinations for the year 1933-34, Curriculum, etc., may be had on application to the REGISTRAR, 49, George Square, *Edinburgh, or to* the REGISTRAR, 242, St. Vincent St., Glasgow.

F.R.C.S.(Edin.).

PREP. COURSE with daily Lecture-Demonstrations of Museum Specimens of Surg. Path., for next Exam., will commence shortly. Postal TUITION at any time.—Further particulars, H. C. ORRIN, F.R.C.S., Surgeons' Hall, Edinburgh.

UNIVERSITY OF EDINBURGH.

Principal—Sir THOMAS H. HOLLAND, K.C.S.I., K.C.I.E.

The WINTER SESSION, 1933-4, opens on October 3rd and closes on March 16th.
The SUMMER SESSION, 1934, opens on April 17th and closes on June 29th.

FACULTY OF MEDICINE.

Dean—Professor SYDNEY SMITH, M.D., D.P.H.

The Faculty embraces 19 Professors and about 80 Lecturers, and attached to these there are about 40 Assistants and Demonstrators. Instruction is given in all the main branches of Medical Science, viz.:—

PROFESSORS.

Chemistry—George Barger, M.A., D.Sc., F.R.S.
Zoology—J. H. Ashworth, D.Sc., F.R.S.
Botany—Sir Wm. Wright Smith, M.A.
Anatomy—J. C. Brash, *M.C.*, M.A., B.Sc., M.D.
Physiology—Ivan de Burgh Daly, M.A., M.D.
Materia Medica—A. J. Clark, M.C., M.D., F.R.S.
Pathology—A. Murray Drennan, M.D.
Bacteriology—T. J. Mackie, M.D.
Forensic Medicine—Sydney A. Smith, M.D., D.P.H.
Public Health—P. S. Lelean, C.B., C.M.G., F.R.C.S.
Medicine—W. T. Ritchie, M.D.
Surgery—D. P. D. Wilkie, M.D., Ch.M.
Midwifery and Gynaecology—R. W. Johnstone, C.B.E., M.A., M.D.
Clinical Surgery—John Fraser, Ch.M., M.D.
Clinical Medicine—Edwin Bramwell, M.D., W. T. Ritchie, M.D., and D. Murray Lyon, M.D.
Tuberculosis—Sir Robert W. Philip, M.A., M.D., LL.D.
Therapeutics—D. Murray Lyon, M.D., D.Sc.
Psychiatry—D. K. Henderson, M.D.
Child Life and Health—Charles McNeil, M.A., M.D.

LECTURERS.

Anatomy—E. B. Jamieson, M.D., F. E. Jardine, M.B., W. Q. Wood, Ch.M.
Applied Anatomy—F. E. Jardine, M.B.
Histology—May L. Cameron, M.A., B.Sc., M.B.
Biochemistry—Philip Eggleton, M.Sc., D.Sc.
Biophysics—W. A. Bain, B.Sc.
Physiology of the Nervous System—A. Ninian Bruce, M.D., D.Sc.
Materia Medica—C. M. Scott, M.B.
Pathology—W. G. Millar, M.B.
Morbid Anatomy—J. Davidson, M.B.
Bacteriology—J. M. Alston, M.B., H. J. Gibson, M.B.
Physics—G. A. Carse, M.A., D.Sc., J. Paton, M.A., B.Sc.
Botany—J. L. S. Smith, M.A., R. J. D. Graham, D.Sc., A. Nelson, B.Sc., Ph.D.
Chemistry—Edgar Stedman, B.Sc., Ph.D., C. P. Stewart, M.Sc., Ph.D., Ellen Stedman, M.Sc.
Zoology—C. H. O'Donoghue, D.Sc., A. L. Craig-Bennett, M.A., Ph.D., R. A. R. Gresson, Ph.D., P. Gray, Ph.D., G. F. Friend, B.A., B.Sc.
Tropical Diseases—Lt.-Col. E. D. W. Greig, C.I.E., M.D.
Entomology and Parasitology—J. H. Ashworth, D.Sc., F.R.S., A. E. Cameron, M.A., D.Sc.
Public Health—John Guy, M.D.
Tropical Hygiene—J. du P. Langrishe, D.S.O., M.B., B.Ch. (conjointly with Professor).
Medicine—J. G. McCrie, M.B.
Surgery—J. J. M. Shaw, M.A., M.D.
Infectious Fevers—W. T. Benson, M.D.
History of Medicine—J. D. Comrie, M.A., B.Sc., M.D.
[illegible] Paterson Brown, M.B.
[illegible] N. M. Dott, M.B.
[illegible]vid Lees, D.S.O., M.B.
[illegible] J. Drever, M.A., B.Sc., D.Phil.
[illegible] White, M.B., D.M.R.E.
[illegible] Spence, M.D., R. D. Clarkson, B.Sc., M.D., R. G. McInnes, M.B., J. R. Bailey, M.B., A. Ninian Bruce, D.Sc., M.D.
Therapeutics—A. R. Gilchrist, M.B.
Orthopaedics—W. A. Cochrane, M.B.
Clinical Midwifery—R. W. Johnstone, M.D., James Young, M.B., Douglas Miller, M.D., W. F. T. Haultain, M.B., E. C. Fahmy, M.B., John Sturrock, M.B., Clifford Kennedy, M.B., E. M. Robertson, M.B.
Child Life and Health—N. S. Carmichael, M.B., Ch.B., L. H. F. Thatcher, M.D., Gertrude Herzfeld, M.B., Norman Dott, M.B., T. Y. Finlay, M.D.
Clinical Surgery—C. F. W. Illingworth, M.D., B. M. Dick, M.B., D. Band, M.B.
Clinical Medicine—J. G. M'Crie, M.B.
Obstetrics and Gynaecology—R. T. Thin, M.B.

CLINICAL TEACHING STAFF, ROYAL INFIRMARY.

Clinical Surgery—Geo. L. Chiene, M.B., W. J. Stuart, M.B., J. W. Struthers, M.B., D. P. D. Wilkie, M.D., Ch.M., Henry Wade, M.D., John Fraser, M.D., Ch.M., J. M. Graham, Ch.M., A. Pirie Watson, Ch.M., F. E. Jardine, M.B., W. Q. Wood, M.D., Ch.M., J. J. M. Shaw, M.D., Walter Mercer, M.B., K. Paterson Brown, M.B., R. Leslie Stewart, M.B., T. McW. Millar, M.B., D. S. Middleton, M.B.

Clinical Medicine—D. Chalmers Watson, M.D., Edwin Bramwell, M.D., Edwin Matthew, M.D., W. T. Ritchie, M.D., John Eason, M.D., D. Murray Lyon, M.D., J. D. Comrie, M.D., Alex. Goodall, M.D., G. D. Mathewson, M.B., A. Fergus Hewat, M.D., W. D. D. Small, M.D., W. A. Alexander, M.B., T. R. R. Todd, M.D., A. R. Gilchrist, M.B., J. K. Slater, M.B., J. D. S. Cameron, M.D.

Clinical Gynaecology—R. W. Johnstone, M.D., James Young, M.D., W. F. T. Haultain, M.B., Douglas Miller, M.D., E. C. Fahmy, M.B., John Sturrock, M.B.

Diseases of the Larynx, Ear, and Nose—John S. Fraser, M.B., J. D. Lithgow, M.B., G. Ewart Martin, M.B.

Diseases of the Skin—Fredk. Gardiner, M.D., R. Cranston Low, M.B., Robert Aitken, M.D., G. H. Percival, M.B., Ph.D.

Diseases of the Eye—H. M. Traquair, M.D., E. H. Cameron, M.B., C. W. Graham, M.B., J. R. Paterson, M.B.

Practical Instruction is afforded, under the superintendence of the Professors, in Laboratories with the necessary appliances, and in Tutorial and Practical Classes connected with the above Chairs, and opportunities are afforded to Students to extend their practical knowledge and engage in original research.

Opportunities for Hospital Practice are afforded at the Royal Infirmary, the Royal Hospital for Sick Children, Royal Maternity Hospital, the City Fever Hospital, Edinburgh Municipal Hospitals, and the Royal Edinburgh Hospital for Mental Disorders. Upwards of 3,800 beds are available for the Clinical Instruction of Students of the University.

Four Degrees in Medicine and [illegible]e University of Edinburgh, viz., Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicin[illegible] Surgery (Ch.M.).

The Class Fees for M.B., and C[illegible] : (£12), amount to about £215, and the Matriculation and Examination Fees to £47 15s. 6d. An additional Fee [illegible] who proceed to M.D., and £21 by those who proceed to Ch.M.

POST-GRADUATE INSTRUCTION [illegible]re given for the University Diplomas in Public Health, Tropical Medicine and Hygiene, Psychiatry, and Radiology. These Diplomas are open to approved registered practitioners as well as to graduates in Medicine and Surgery of the University. Courses of instruction for the Diploma in Tropical Veterinary Medicine are also given. This Diploma is open to those holding an approved Veterinary qualification registrable by the Royal College of Veterinary Surgeons. The University also takes part in the Courses given under the auspices of the Edinburgh Post-Graduate Courses in Medicine. In the departments of the Faculty of Medicine, provision is made for research by students of graduate standing. In the University laboratories facilities will be provided for candidates for the Degree of Ph.D. whose applications to engage in research have been accepted by the Senatus.

A Syllabus and further information as to Matriculation, the Curricula of Study for Degrees, etc., may be obtained from the Dean of the Faculty of Medicine; and for Degrees in the Faculties of Arts, Science, Divinity, Law, and Music, from the Deans of these Faculties, or from the Secretary; and full details are given in the University Calendar, published by James Thin, 55, South Bridge, Edinburgh. Price, by post, 6s.

June, 1933. By authority of the Senatus, W. A. FLEMING, Secretary.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN

(UNIVERSITY OF LONDON),
Hunter Street, Brunswick Square, W.C.1.

Full Courses are arranged for the London M.B., B.S. Degrees, and the Examinations of other qualifying bodies. The Clinical Course is pursued at the Royal Free Hospital. Arrangements are also made for students to attend the practice of certain Special Hospitals.

Appointments at Hospital and Medical School are open to students after qualification.

Scholarships, Bursaries, and Prizes of the value of £1,950 are awarded annually.

Residence arrangements are made for students in the Students' Chambers connected with the School.

The Session begins on October 1st each year.

Prospectus and full information can be obtained from the Warden & Secretary.

ELIZABETH BOLTON, M.D., B.S., Dean.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC.

TRINITY COLLEGE.

THE WINTER SESSION will begin on 2nd October, 1933.

All information regarding Courses for the Medical and Dental Degrees, for the Diploma in Public Health, for the Diploma in Gynaecology and Obstetrics, and for the Diploma in Psychological Medicine may be obtained on application to the Registrar of the School of Physic, Trinity College, Dublin.

QUEEN'S UNIVERSITY OF BELFAST.

FACULTY OF MEDICINE—SESSION 1933-4.

Vice-Chancellor: Sir R. W. LIVINGSTONE, M.A., D.Lit.

Anatomy.—T. Walmsley, M.D., C. J. A. Woodside, M.B., F.R.C.S.L., and R. H. Hunter, M.D.
Operative Surgery and Applied Anatomy.—H. P. Malcolm, M.Ch.
Dunville Chair of Physiology.—Thomas H. Milroy, M.D., B.Sc., F.R.S.E.
Practice of Medicine.—W. W. D. Thomson, M.D., B.Sc., D.P.H.
Practice of Surgery.—P. T. Cramble, M.B., F.R.C.S.
Materia Medica and Therapeutics.—J. T. Lewis, M.D.
Midwifery.—C. G. Lowry, M.D., F.R.C.S.I.
Gynæcology.—R. J. Johnstone, M.B., F.R.C.S.Eng.
Musgrave Chair of Pathology.—J. S. Young, M.A., M.D., B.Sc.
Medical Jurisprudence.—J. S. Young, M.A., M.D., B.Sc., and Sir Thos. Houston, B.A., M.D.
Ophthalmology and Otology.—James A. Craig, M.B., F.R.C.S.Eng.
Sanitary Science.—W. J. Wilson, B.A., D.Sc., M.D., D.P.H.
Physics.—A. G. Emslie, M.A., Ph.D.
Zoology.—T. Flynn, D.Sc.
Botany.—James Small, D.Sc.
Chemistry.—A. W. Stewart, D.Sc.
Organic Chemistry.—H. Graham, D.Sc.
Biochemistry.—J. A. Milroy, M.A., M.D., S. Andrews, M.D.
Vaccination.—S. R. Armstrong, M.D.
Pharmacology.—E. B. C. Mayrs, M.D., D.P.H.
Bacteriology.—N. C. Graham, M.B.
Psychological Medicine.—N. B. Graham, M.B.

The Lectures of the WINTER SESSION of 1933-4 will commence on Tuesday, October 3rd. The Summer Medical Classes will commence on April 17th, 1934.

The Anatomical rooms are open during the entire day, and Students are aided in their dissections by the Professors of Anatomy and the Demonstrators.

The Examinations for Medical Scholarships at entrance are held in June.

Scholarships will be open for competition at the Professional Examinations in Spring and Summer, 1934.

The Fees for a complete Medical Course (including Hospital Fees) amount to about £230.

HOSPITALS IN BELFAST (recognized by the University of Clinical Instruction).

ROYAL VICTORIA HOSPITAL.—Clinical Fees: Winter Session of six months, £7 7s., Summer Session of three months, £4 4s.; Winter and Summer, nine months, £9 9s.; Perpetual Fees, payable in two instalments, £21. Hospital Fee, half a guinea for each Winter or Summer Session.

MATER INFIRMORUM HOSPITAL.—The Clinical Fees are the same as those of the Royal Victoria Hospital.
BELFAST UNION INFIRMARY and CHILDREN'S HOSPITAL.
BELFAST FEVER HOSPITALS (CITY FEVER HOSPITAL, Purdysburn, and UNION FEVER HOSPITAL).
BELFAST MATERNITY HOSPITALS. BELFAST HOSPITAL FOR SICK CHILDREN
ULSTER HOSPITAL FOR DISEASES OF WOMEN AND CHILDREN, and MIDWIFERY DISPENSARY.
BELFAST OPHTHALMIC HOSPITAL AND EYE AND EAR DISPENSARY.
BENN ULSTER EYE, EAR, AND THROAT HOSPITAL.
SAMARITAN HOSPITAL. FORSTER GREEN HOSPITAL FOR DISEASES OF THE CHEST.
BELFAST HOSPITAL FOR DISEASES OF SKIN. BELFAST DIST. LUNATIC ASYLUM.

The Calendar, containing full information regarding the new Regulations for Courses, Fees, Scholarships, &c., can be had on application to the Bursar, Queen's University, Belfast, price 2s.

By Order of the Vice-Chancellor. ANDREW PICKEN, Secretary

UNIVERSITY COLLEGE, DUBLIN,

MEDICAL SCHOOL.

SESSION 1933-4.

WINTER SESSION—Lectures commence on October 10th; Introductory Course on October 4th.

PROFESSORS AND LECTURERS.

Anatomy.
Professor—EDWARD PATRICK McLOUGHLIN, B.A., M.B., B.Ch., B.A.O.

Physiology.
Professor—JAMES M. O'CONNOR, B.A., M.D.

Zoology.
Professor—J. BAYLEY BUTLER, M.A., M.B., B.Ch., B.A.O.

Botany.
Professor—JOSEPH DOYLE, B.A., D.Sc.

Chemistry.
Professor—THOMAS J. NOLAN, B.A., D.Sc., F.I.C.
Lecturers—JOSEPH ALGAR, B.A., D.Sc., JOHN KEANE, M.Sc., Ph.D.

Physics.
Professor—JOHN J. NOLAN, M.A., D.Sc.
Lecturers—JOHN J. DOWLING, M.A., F.INST.P., PATRICK J. NOLAN, D.Sc.

Pathology and Bacteriology.
Professor—THOMAS T. O'FARRELL, F.R.C.S.I., D.P.H.
Lecturer in Special Pathology—W. M. CROFTON, B.A., M.D.

Public Health and Bacteriology.
Professor—WILLIAM D. O'KELLY, B.A., M.D., D.P.H.

Medicine.
Professor of Medicine—HENRY F. MOORE, M.D., D.Sc.
Professor of Systemic Medicine—JAMES N. MEENAN, M.B., B.Ch., B.A.O., D.P.H.

Surgery.
Professor of Surgery—HENRY L. BARNIVILLE, B.A., M.D., M.Ch.
Professor of Systemic Surgery—HENRY S. MEADE, F.R.C.S.I.

Midwifery and Gynæcology.
Professor—ROBERT P. FARNAN, M.B., B.Ch., B.A.O.
Lecturer (Obstetrics)—JAMES J. O'KELLY, B.A., M.B., B.Ch., M.A.O.
Lecturer (Gynæcology)—REGINALD WHITE, F.R.C.S.I.

Materia Medica and Therapeutics.
Professor—THEOBALD W. T. DILLON, M.B.

Ophthalmology.
Professor—LOUIS WERNER, B.A., M.B., F.R.C.S.I.

Medical Jurisprudence.
Lecturer—JOHN McGRATH, M.Sc., M.B.

Dental Surgery.
Professor—E. SHERIDAN, M.D.S., F.R.C.S.I., L.D.S.

Dental Mechanics.
Professor—J. I. POTTER, M.D.S., L.D.S.

Orthodontia.
Lecturer—LAURENCE FLANAGAN, B.D.S., M.B., B.Ch.

All Scholarship Examinations in Medicine will be held on October 3rd.

Introductory Course.—Particular attention is paid to beginners, for whom a special Introductory Course is delivered at the commencement of the Winter Session, beginning on October 4th.

Regulations for Courses of Study for Degrees, and General Regulations containing information as to Scholarships, etc., may be obtained from the REGISTRAR, University College, Dublin.

ROTUNDA HOSPITAL, DUBLIN.

THE HOSPITAL contains 127 beds. Upwards of 2,000 maternity cases and 1,000 gynæcological patients are treated during the year. Besides the Hospital there is an extern Maternity Department with over 2,000 cases. The routine for Students consists of attendance at the Morning Lectures on Midwifery and Gynæcology, examination of patients in the Gynæcological Department, attendance at operations and all abnormal labours in the Hospital Wards and conduction of labour cases in the intern and extern departments; the Ante-Natal Clinic, the Infants' Ward and Dispensary, and Pathological Laboratory are available also. An X-Ray department is attached to the Hospital.

Qualified Students are allowed to assist at the major and perform some minor gynæcological operations.

The Hospital Courses are always going on during the year, and Students can join at any time. The Class is limited, therefore it is advisable to register in advance. Board and lodging can be obtained in the Hospital.

Extra classes in gynæcological diagnosis and operative midwifery are conducted by the Assistants to the Master.

Fees, one month, £6 6s.; months other than the first, £4 4s.; three months, £12 12s.; L.M. Course, £21.

The L.M. certificate is given to qualified practitioners on examination after six months' attendance at the Hospital.

Full particulars from Bethel Solomons, M.D., Master, Rotunda Hospital.

ST. MUNGO'S COLLEGE,
GLASGOW.

THE MEDICAL SCHOOL OF THE GLASGOW ROYAL INFIRMARY.

SESSION 1933-34.

The WINTER SESSION will be opened on MONDAY, OCTOBER 9th, 1933.

LECTURES AND DEMONSTRATIONS.

Physics, 8 a.m.—Prof. G. Russell, M.A., B.Sc.
*Chemistry, 9 a.m.—Prof. Alex B. Steven, B.Sc., F.I.C.
Practical Chemistry, as arranged.—Prof. Alex B. Steven, B.Sc., F.I.C.
Biology (including practical).—Prof. A. J. Allison.
*Anatomy, Lectures, daily 11 a.m.; Practical, daily 9 a.m. till 5 p.m.; Surgical, during 2nd term, days and hours to be arranged.—Prof. James Battersby, F.R.C.S.(Eng.), F.R.C.P.S.
*Surgery, 11 a.m., Operative Surgery, at periods and hours to be arranged.—Prof. John A. C. Macewen, M.B., C.M., B.Sc., F.R.C.P.S.
Physiology, 12—1, Practical Physiology, twice weekly at hour to be arranged.—Prof. Eric G. Oastler, B.A., M.B., Ch.B., M.R.C.P., F.R.F.P.S.
Clinical Surgery.—The Surgeons of the Glasgow Royal Infirmary.
*Midwifery, daily at 2 p.m.—Prof. W. C. Armstrong, M.B., Ch.B.
*Practice of Medicine, 12 noon.—Prof. John Henderson, M.D., Ch.B., F.R.F.S.
*Clinical Medicine.—The Physicians of the Glasgow Royal Infirmary.
Materia Medica and Therapeutics, as arranged, usually 12 noon.—Prof. Crawford, M.D., F.R.F.P.S.
*Pathology, 3 p.m.—Pathologist to Royal Infirmary.
*Ophthalmology, Tuesdays and Fridays, at 4 p.m. — Professor Barrie, M.B., Ch.B., F.R.F.P.S.
*Diseases of the Throat, Nose, and Ear, 11 a.m. —Prof. James Harper, M.A., M.B., Ch.B., F.R.F.P.S.
Diseases of the Skin, twice weekly as may be arranged.—Prof. George Harvey, M.B., Ch.B.
*Gynæcology, 3 p.m. or hour to be arranged.—Prof. W. C. Armstrong, M.B., Ch.B.
*Psychological Medicine, 3 p.m. Fridays, Clinique at Hawkhead Asylum, 10.15 a.m. on Saturdays.—Prof. James H. Macdonald, M.B., Ch.B., F.R.F.P.S.
*Medical Jurisprudence, 11 a.m., during 1st term; Public Health, 11 am., during 2nd term.—Prof. Andrew Allison, M.B., Ch.B., B.Sc., D.P.H., F.R.F.P.S.
Tuberculosis.—Prof. James Crocket, M.D., D.P.H., F.R.C.P.Ed.
Hospital and Dispensary, daily, 2 p.m.

The fees for all the Lectures, including Hospital attendance necessary for candidates for the diplomas of the English or Scottish Colleges of Physicians and Surgeons, amount to about £120.

Students who have fulfilled the conditions of the Carnegie Trust as regards Scottish birth or extraction and Preliminary Examination are eligible for the benefits of this Trust during the whole course of their studies at St. Mungo's College.

The Syllabus of the Medical Curriculum, giving particulars of the classes, fees, etc., may be had gratis on application to the Secretary of the Medical Faculty, 86, Castle Street, Glasgow, or from

THOMAS B. FERGUSON, Secretary.
97, West Regent Street, Glasgow.

*These classes qualify for graduation in Medicine in the University of Glasgow.

Royal Infirmary, Edinburgh.

In this Hospital (with 1,011 beds) Clinical Instruction is given by the Honorary Staff of Physicians and Surgeons to Male and Female Students. Special Instruction is given in the Medical Department on the Diseases of Women, Physical Diagnosis, Diseases of the Skin, and Radiology; and in the Surgical Department on Diseases of the Eye, the Ear, and the Larynx, and in Dental Surgery. Separate Departments and Wards are devoted to Venereal Diseases, Diseases of Women, and Diseases of the Eye, the Ear and Throat, and the Skin, and Radiology; also to cases of Incidental Delirium or Insanity. Post-mortem Examinations are conducted in the Anatomical Theatre by the Pathologist, who also gives Practical Instruction in Pathological Anatomy and Histology.

APPOINTMENTS.

No fees are charged for any Medical or Surgical Appointments in this Hospital, which are as follows:

1. Resident Physicians and Surgeons, who must be registered as legally qualified Practitioners, are from time to time appointed by the Managers on the recommendation of the Physicians and Surgeons. The holders of these offices live in the house free of charge. The appointment is for six months, but may be renewed at the end of that period by special recommendation.

2. Non-resident House Physicians and Surgeons and Clinical Assistants, who must be registered as legally qualified Practitioners, are appointed by the Managers on the recommendation of the Physicians and Surgeons. The appointment is on the same terms as that of the Resident Physicians and Surgeons.

3. Clerks and Dressers are appointed by the Physicians and Surgeons. These appointments are open to all Students and Junior Practitioners holding Hospital Tickets.

Assistants in the Pathological Department are appointed on the recommendation of the Pathologist.

HENRY MAW,
Secretary & Treasurer.

THE WELSH NATIONAL SCHOOL OF MEDICINE.

UNIVERSITY OF WALES.

The next Session will open on October 3rd, 1933.

The courses of instruction are held for the Degrees in Medicine and Surgery (M.B., B.Ch.), of the University of Wales, and are open to both sexes. These courses also comprise the instruction necessary for the Degrees and Diplomas of other Licensing Bodies.

Entrance Scholarships, etc., are available, and a special prospectus relating to these is issued.

Hospital instruction is given at the Cardiff Royal Infirmary, at the City Lodge Hospital, Cardiff, at the Cardiff City Mental Hospital, Whitchurch, at the Cardiff City Sanatorium, at the Cefn Mably and Glan Ely Hospitals (Tuberculosis), and at the Prince of Wales' Hospital (Orthopaedic), Cardiff.

Full facilities are available for every branch of study.

Complete post-graduate courses of instruction are also held for the Diploma in Public Health and for the Tuberculous Diseases Diploma of the University of Wales.

The buildings of the School are equipped with modern facilities for research in every branch of Medicine and Surgery. Post-graduate Scholarships are available ranging in value from £150 to £250 per annum.

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Royal College of Surgeons in Ireland,
St. Stephen's Green, Dublin.

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(UNIVERSITY OF LIVERPOOL.)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 2nd, 1933, and January 3rd, 1934, and for the Diploma in Tropical Hygiene on January 11th and April 26th, 1934. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars, apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

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Name ...
Address ...

Examination in which interested ...

UNIVERSITY OF LONDON, KING'S COLLEGE.

FACULTY OF MEDICAL SCIENCE.

The Medical Faculty of this College of the University gives instruction in the subjects of Medical Science for all the usual Preliminary and Intermediate Examinations in Medicine and Surgery and Dentistry. Through the four associated hospitals, students of the College have clinical facility of over 1,000 beds, but they may also proceed to any other teaching Hospital in London for final studies for the degrees of the University of London.

The Medical Faculty of the College provides a general University education in touch with other Faculties, classes of which medical students are permitted to attend. There are many College societies, clubs, and functions in which students of all Faculties have opportunity of meeting each other. The College has a large athletic ground at Mitcham, upon which there has recently been erected a new pavilion.

The First Year subjects are taught in the large Departments of the Faculty of Science, and those for the Second and Third Years in the new Medical Department which was opened recently. This consists of the Hambleden Department of Anatomy and an extension to the Department of Physiology, at a cost of £70,000. These new buildings and those of recent years provide the College with a completely new and modern Medical Department which embodies the newest ideas in laboratory construction and equipment.

Valuable Scholarships and Prizes are awarded on the results of examinations held annually.

The hostel for men students (King's College Hall, Champion Hill, S.E.5) contains accommodation for 80 students. The hostel for women students is at 58, Queensborough Terrace, Bayswater.

For detailed prospectus of the Medical and Dental Courses and for further information apply to the Dean, Prof. R. J. S. McDOWALL, D.Sc., M.B., Ch.B., F.R.C.P. (Edin.), or to

S. T. SHOVELTON, M.A.,
Strand, W.C.2. Secretary

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RESEARCH SCHOLARSHIPS

The Trustees invite applications for vacant RESEARCH SCHOLARSHIPS of £100 each at the Laboratories of the various Glasgow Infirmaries and Hospitals.

These Scholarships are open to all women on the *Medical Register*.

Applications to be lodged not later than September 30th.

For further particulars and conditions apply to the Clerk, THOS. B. FERGUSON, 9, West Regent Street, Glasgow.

BARRY URBAN DISTRICT COUNCIL.

SURGICAL HOSPITAL

HOUSE SURGEON (Male)

Applications are invited for the above appointment.

Candidates must be duly qualified and registered. Salary £200 per annum, with board, and lodging.

Preference will be given to a candidate with previous experience especially in the administration of Anæsthetics.

The successful candidate must devote the whole of his time to the duties of his office and to assist the Medical Staff, and act under the supervision of the Medical Superintendent who is also Medical Officer of Health and School Medical Officer.

The appointment will be for a period of six months, to be renewed, if thought fit, for another period of six months, but not for any subsequent period.

The successful candidate will be required to commence duties as soon as possible.

Applications stating age, qualifications, positions held, with copies of three recent testimonials, to be sent to Dr. P. W. KENT, Medical Superintendent, Public Health Office, Barry, by first post on July 25th.

(Signed) T. D. HOWELLS, Clerk.

August 25th, 1933.

COUNTY BOROUGH OF NEWPORT

RESIDENT MEDICAL OFFICERS (Male)

Applications are invited from registered Medical Practitioners for the appointment of a SENIOR and a JUNIOR MEDICAL OFFICER, *(unmarried)* at the Public Assistance Institution, Newport, Mon.

Salary: Senior £300 by £25 annual increments to £450. Junior £150 (annual appointment) with the usual emoluments.

Appointments terminable at the end of one month's notice on either side.

The Infirmary has 250 beds with every facility for gaining experience in medicine, surgery, etc. The Infirmary is a recognised Training School for Nurses, and also has a Senior candidate will be required to give the necessary lectures.

The Senior appointed will be required to pass a superannuation medical examination, and act in accordance with the provisions of the Public Assistance Orders.

Applications, stating age, experience, and qualifications, with copies of three testimonials to be forwarded to the Public Assistance Officer, Town Hall, Newport, Mon., by Sept. 10th.

Town Hall, O. TREHARNE MORGAN,
Newport, Mon. Town Clerk.

THE RADIUM INSTITUTE

Riding House Street, London, W.1.

Applications are invited for the post of Whole-time RESIDENT SURGICAL REGISTRAR (male). Candidates must be unmarried.

The salary will be at the rate of £200 per annum, board, residence, and laundry being provided, and the appointment is for six months, commencing October 1st next, and renewable if desirable for a maximum period of two years.

Applications stating age, and particulars of qualifications, and experience with copies of three recent testimonials, must be received at the Institute on or before September 9th next.

Canvassing either directly or indirectly is not permitted.

THOS. A. GARNER, Secretary.

GREAT WESTERN RAILWAY MEDICAL FUND SOCIETY HOSPITAL, SWINDON

Applications are invited for the post of non-resident HOUSE SURGEON, 42 Surgical beds and out-patients). Salary £200 per annum and board-residence (equal to £1 0s. per annum). The appointment is for a man under the age of 30 years. Applications stating age, nationality, qualifications, with special reference to experience in Anæsthetics, together with copies of three testimonials, to be sent to the undersigned not later than Tuesday, September 12th.

S. E. WAITES, Secretary.

WARNEFORD GENERAL HOSPITAL, LEAMINGTON SPA

RESIDENT HOUSE SURGEON required September 25th, and RESIDENT CASUALTY HOUSE SURGEON AND HOUSE SURGEON TO SPECIAL DEPARTMENTS (single post) required on October 1st. Special Department to include Ear, Nose, and Throat Department, Maternity Department, and V.D. Department. Six months' appointments. Salary £150 per annum for each post, with board and laundry. Applications from qualified and registered Medical Practitioners with copies of three testimonials should be sent to the undersigned by September 12th.

EDWARD L. WILLIAMAN, Hon. Gen. Sec.

FORSTER GREEN HOSPITAL FOR CONSUMPTION & CHEST DISEASES, BELFAST

A vacancy for a HOUSE PHYSICIAN will occur on October 1st. The appointment will be for a period of six months, renewable for a further six months.

Salary £150 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, to be sent to the Secretary, 99, Scottish Provident Buildings, Belfast, on or before Sept. 15th.

LEIGH INFIRMARY, LANCASHIRE.

Wanted, a RESIDENT HOUSE SURGEON, male, single, for Hospital for 85 beds. Salary £175, with rooms, fire, attendance, and board.

The position is vacant on September 30th.

The appointment is for six months, with eligibility for re-election. Must be good anæsthetist. Knowledge of Ear and Throat work desirable.

Applications to be addressed to Mr. J. S. SMITH, Secretary, 3, Silk Street, Leigh.

METROPOLITAN BOROUGH OF STEPNEY.

APPOINTMENT OF DEPUTY MEDICAL OFFICER OF HEALTH.

The Council of the Metropolitan Borough of Stepney invite applications for the appointment of a male Deputy Medical Officer of Health.

The commencing salary will be at the rate of £720 per annum, rising by four annual increments of £25 and one final increment of £20 to a maximum salary at the rate of £840 per annum.

Candidates must possess the qualifications prescribed for a Medical Officer of Health by the Public Health (London) Act, 1891, and the Sanitary Officers Order, 1926, as well as those prescribed in Article 3 of the Local Government (Qualifications of Medical Officers and Health Visitors) Regulations, 1930.

The person to be appointed must (preferably in a tuberculosis dispensary) have had special experience in Tuberculosis work and in Maternity and Child Welfare work, including Ante-natal work. Preference will be given to candidates who have also had actual experience in public health work, including the diagnosis of infectious diseases. He will be required to devote the whole of his time to the duties of the office, act under the supervision of the Medical Officer of Health, and pass an examination by the Council's medical referee as to constitutional fitness. The appointment will be subject to the provisions of the Stepney Borough Council (Superannuation) Acts, 1905 to 1931, and to the Council's bye-laws.

Forms of application may be obtained from the undersigned to whom they must be returned in envelopes endorsed "Appointment of Deputy Medical Officer of Health," so as to reach him not later than 12 noon on Wednesday, September 20th

Canvassing members or officers of the Council in any manner whatsoever is strictly prohibited and will disqualify candidates.

The Council do not bind themselves to appoint any of the candidates, and the appointment will be subject to the obtaining of any necessary consents.

Municipal Offices, Raine Street, Old Gravel Lane, E.1. August 28th, 1933.

By Order, W. L. McCARTY, Town Clerk.

ROYAL EAST SUSSEX HOSPITAL, HASTINGS. (125 Beds.)

Applications are invited for the post of HONORARY ANAESTHETIST to the Hospital. Applicants must be Fellows or Members by Examination of the Royal College of Physicians of London, Edinburgh, or Ireland, or be a Graduate in Medicine of one of the Universities of the United Kingdom or Ireland, and also be duly registered under the Medical Acts.

Information as to duties may be obtained from the Secretary.

Applications, with three copies of recent testimonials, should reach the Secretary not later than September 23rd.

WILFRED G. KEMSLEY, Secretary.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL.

Applications are invited for the posts of HOUSE SURGEON (TWO) male, for a period of six months commencing October 1st, renewable for a further period of six months on the recommendation of the Medical Board. £150 per annum, with full board, quarters, and laundry. Applicants should be registered Medical Practitioners and unmarried. Applications to be addressed to the House Governor, 234, Great Portland Street W.1, not later than Sept. 12th.

THE MIDDLESEX HOSPITAL, W.1.

Applications are invited from fully qualified Medical Men with experience in X-ray Diagnostic work for the post of ASSISTANT RADIOLOGIST (Diagnostic).

The appointment is for one year from October, and the successful candidate will be required to attend three mornings per week, salary £150 per annum.

Applications, together with copies of three testimonials, should be sent to the Secretary-Superintendent before Saturday, Sept 23rd.

DREADNOUGHT HOSPITAL, Greenwich, S.E.10. (Seamen's Hospital Society.)

HOUSE PHYSICIAN and HOUSE SURGEON required for six months from October 1st. Salary £110 per annum, and a proportion of fees, with board, residence, and laundry. Candidates must be male. Applications, with copies of three testimonials, to be sent in by September 12th to the undersigned

Greenwich, August 14th, 1933.

R. E. V. BAX, Secretary.

THE ROYAL INFIRMARY, SHEFFIELD. (500 Beds.)

OPEN APPOINTMENT.

Applications are invited for the post of CLINICAL ASSISTANT to the Dermatological Department. Salary £300 per annum.

Letters, stating age and giving particulars of qualifications and any previous experience, should be submitted to the undersigned forthwith.

JNO. W. BARNES, F.C.I.S., Gen. Supt. & Sec.

Board Room, August 26th, 1933.

THE BABIES' HOSPITAL, NEWCASTLE-ON-TYNE

NON-RESIDENT MEDICAL OFFICER required in October.

The duties are those of a House Physician with time and opportunities for research work. The appointment is for six months subject to re-appointment. Salary £175 per annum.

Applications, with two testimonials and particulars of previous appointments held, must be lodged by September 8th, with the Secretary, from whom further particulars may be obtained, West Parade, Westmorland Road, Newcastle-on-Tyne.

WILLESDEN GENERAL HOSPITAL, Harlesden Road, N.W.10.

(AMENDED ADVERTISEMENT.)

Applications are invited from fully qualified and registered candidates (unmarried) for the appointment of a RESIDENT OFFICER, to hold the appointment of CASUALTY OFFICER for a period of three months from October 1st, followed by a six months' appointment as HOUSE PHYSICIAN. (Total nine months.)

Salary at the rate of £100 per annum.

Applications to be received by the Secretary not later than first post on Monday, Sept. 18th. August 5th, 1933.

THE PRINCESS BEATRICE HOSPITAL, Richmond Road, Earl's Court, S.W.5. (General Hospital—80 Beds.)

RESIDENT MEDICAL OFFICER (male) required to act as House Surgeon and Casualty Officer for six months as from October 1st. Salary at the rate of £110 per annum, with board, residence, and laundry. Previous resident experience essential.

Applications to be sent to the House Governor not later than September 19th, stating age, accompanied by copies of three recent testimonials.

MACCLESFIELD GENERAL INFIRMARY. (General Hospital 100 Beds.)

Applications are invited for the appointment of SECOND HOUSE SURGEON for a period of six months. Salary £150 per annum with board and residence. Candidates must have had experience in the administration of anaesthetics.

Applications, with copies of three testimonials, should be sent to the undersigned at once.

A. E. HANRAHAN, Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

HOUSE PHYSICIAN required October 7th.

CASUALTY OFFICER required October 7th. Some ophthalmic work additional. Six months' appointments. Salary at the rate of £100 per year, with board, lodging, and laundry.

Applications must be made on forms to be obtained from the undersigned, and must be sent in with copies of not more than four testimonials, on or before September 19th.

CHARLES H. BESSELL, Secretary.

August 10th, 1933.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN. (80 Beds.)

Wanted at once, a RESIDENT HOUSE PHYSICIAN (lady). Salary £130 p.a. The appointment is for six months, but may be extended by mutual arrangement. Applicants must be fully qualified. Applications, with three testimonials, one relating to anaesthetics, to be sent to the undersigned.

ARTHUR N. WHISTON, Secretary.

25, St. Mary's Gate, Derby.

BRADFORD CHILDREN'S HOSPITAL.

Applications are invited for the position of HONORARY ASSISTANT PHYSICIAN at the Hospital. Duties to commence on October 1st. Applications to be in my hands on or before September 14th

J. W. LONGLEY, Secretary-Supt.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

Applications are invited for the post of HOUSE SURGEON, vacant on October 15th. The appointment is for nine months (six months as House Surgeon and three months as Casualty Officer). Salary at the rate of £70 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, should be sent to the undersigned by September 8th, from whom forms of application and rules can be obtained.

GILBERT G. PANTER, Secretary.

NORFOLK AND NORWICH HOSPITAL, NORWICH. (392 Beds.)

Applications are invited for the post of HOUSE SURGEON. Salary £120 per annum, with board, residence, and laundry. Preference will be given to candidates who have had previous hospital appointments. Candidates (male), who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of testimonials, to the undersigned, not later than first post on Tuesday, September 12th.

FRANK INCH, House Gov. & Sec.

September 1st, 1933.

NORFOLK AND NORWICH HOSPITAL, NORWICH. (392 Beds.)

Applications are invited for the post of CASUALTY OFFICER AND HOUSE SURGEON (with charge of 25 beds). Salary £120, with board, residence, and laundry. Candidates (male) who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of testimonials, to the undersigned not later than Tuesday, September 12th.

FRANK INCH, House Gov. & Sec.

August 25th, 1933.

ROYAL HAMPSHIRE COUNTY HOSPITAL, WINCHESTER. (158 Beds.)

HOUSE PHYSICIAN.

Applications are invited from fully qualified men for the above post to take up duties on October 1st. Six months' appointment. Salary £125 per annum, with board, residence, and laundry.

Candidates, who must be of British nationality, to make application at once to the undersigned enclosing copies of three testimonials.

HERBERT MASLEN, Secretary.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn Road, W.C.1.

ASSISTANT IN THE OUT-PATIENT DEPARTMENT.

There is a vacancy for a SECOND ASSISTANT to attend on Tuesdays at 5 p.m. The duties are to assist the Surgeons in seeing the patients, and the post is an honorary one.

Applications may be for periods of three, six, or twelve months, and should be sent to the undersigned immediately.

JOHN H. YOUNG, Secretary-Supt.

EAST HAM MEMORIAL HOSPITAL, Shrewsbury Road, E.7. (100 Beds.)

Applications are invited for the post of HOUSE SURGEON (male) to Special Departments, and CASUALTY OFFICER, for six months, commencing October 1st. Salary at the rate of £120 per annum, with board, residence, and laundry.

Applications, stating age, experience, and full particulars, together with copies of testimonials, should reach the undersigned by Sept. 15th.

REGINALD PERRY, Secretary.

EAST HAM MEMORIAL HOSPITAL, Shrewsbury Road, E.7. (100 Beds.)

Applications are invited for the post of HOUSE PHYSICIAN (male) for six months commencing October 1st. Salary at the rate of £150 per annum, with board, residence, and laundry.

Applications, stating age, experience, and full particulars, together with copies of testimonials, should reach the undersigned by Sept. 15th.

REGINALD PERRY, Secretary.

HUNTINGDON COUNTY HOSPITAL.

HOUSE SURGEON (male) required. Salary £125 and laundry allowance. Apply, Dr. W. H. GROVE, M.D.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh)

(a) British Islands.

Town or District	Town or District	Town or District
CONTRACT PRACTICE	**CONTRACT PRACTICE** *(contd.)*	**PUBLIC HEALTH**
EBBW VALE, MON *(Workmen's Medical Society)*	MARDY GLAMORGAN *(Workmen's Medical Scheme)*	DORSET COUNTY COUNCIL *(County Medical Officer of Health)*
GILFACH GOCH, GLAMORGAN *(Workmen's Medical Scheme)*	NEATH AND DISTRICT *(Medical Aid Association)*	HERTFORDSHIRE COUNTY COUNCIL WARE SANATORIUM *(Assistant Medical Officer)*
LLWYNPIA CLYDACH VALE PENYGRAIG GLAMORGAN *(Workmen's Medical Scheme)*	OAKDALE, MON *(Medical Officer for Medical Aid Association)*	COUNTY BOROUGH OF SOUTH SHIELDS *(Assistant School Medical Officer)* HARTON INSTITUTION AND CLEADON COTTAGE HOMES *(Medical Officer)*
LOWESTOFT MEDICAL INSTITUTE *(Medical Officer)*	OGMORE VALLEY, GLAMORGAN *(Wyndham Colliery Medical Aid Society)* *(Workmen's Medical Scheme)*	NORTH RIDING OF YORKSHIRE COUNTY COUNCIL *(Temporary Maternity and Child Welfare Medical Officer—Women)*

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1

Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch
NEW SOUTH WALES. *(All Friendly Societies' Appointments)*	Dr. J. G. HUNTER (Medical Secretary New South Wales Branch), 139 Macquarrie St., Sydney, N.S.W.	**QUEENSLAND.** *(Brisbane Associated Friendly Societies' Institute)* *(Toowoomba Associated Friendly Societies' Medical Institute, Toowoomba)*	The Hon. Sec. Queensland Branch British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	**WELLINGTON, NEW ZEALAND** *(Contract Practice Appointments)*	Dr. C. F. WILKINSON (Hon. Sec. New Zealand Branch) British Medical Association, P.O. Box 1556, Wellington, New Zealand.
VICTORIA. *(All Institute or Medical Dispensaries)*	Dr. J. P. MAJOR (Hon. Sec. Victorian Branch British Medical Association), Medical Society Hall, East Melbourne, Victoria.			**WESTERN AUSTRALIA** *(Contract and Lodge Practices)*	Hon. Sec. Western Australian Branch British Medical Association, No. 6 Bank of N.S.W. Chambers, St. George's Terrace, Perth, Western Australia.

August 30th, 1933. By Order of the Council. G. C. ANDERSON, Medical Secretary.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.11 (121 Beds.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male). The post is that of Senior Resident Officer and the work being chiefly Surgical. Preference will be given to candidates holding the F.R.C.S. qualification.

The appointment is for twelve months commencing on October 1st.

Salary £200 per annum, with board, residence and laundry.

Applications stating age, qualifications and experience, with copies of not more than three testimonials, should be sent to the undersigned not later than September 13th.

W. S. RANDOLPH BISS, Secretary's Suite.

CHELMSFORD AND ESSEX HOSPITAL AND DISPENSARY, London Road, CHELMSFORD.

RESIDENT MEDICAL OFFICER required. Salary at the rate of £150 per annum with board, lodging and laundry. Hospital contains 140 beds. Applications to be sent to the Secretary, Chelmsford and Essex Hospital not later than Monday, September 11th.

CITY MENTAL HOSPITAL, NOTTINGHAM.

SECOND ASSISTANT MEDICAL OFFICER (not Deputy) required for General and Mental Hospital. Salary £460 rising by £20 yearly to £500, with all found. In addition £50 per annum if holding D.P.M. Quarters available for married man until 1934. Apply at once with full particulars to Medical Superintendent.

WEST LONDON HOSPITAL, Hammersmith Road, W.6. (234 Beds.)

Required ONE HOUSE PHYSICIAN, ONE HOUSE SURGEON (General and some Deep X-Ray Therapy) ONE HOUSE SURGEON for Throat, Nose and Ear Department (with some Anæsthetic duties). These three appointments (males) are tenable for six months from October 1st next and to commence on either side. Salary at the rate of £160 per annum with board, lodging and laundry allowance.

Candidates must be registered under the Medical Act.

Applications (which must be on printed forms obtained from me) must reach me not later than first post on Thursday, September 14th. Selected candidates will be required to call upon such members of the Medical Staff as directed to be in attendance at the Medical Council Meeting on Friday, September 22nd at 4.30 p.m. and the House Committee Meeting at 5 p.m. the same day when the appointments will be made.

H. A. MADGE, Secretary.

MANCHESTER BABIES' HOSPITAL, BURNAGE LANE, DENSHULME, Manchester. (50 Beds.)

Applications are invited for the post of SENIOR RESIDENT MEDICAL OFFICER. Appointment is for six months from October 1st. Salary at the rate of £120 per annum with laundry. Only candidates with previous Hospital experience need apply.

Applications together with copies of testimonials to be sent to the undersigned marked "R.M.O.," by September 8th.

LOUISE BAILEY, Secretary.

THE LONDON LOCK HOSPITAL, 91 Dean Street, Soho, London, W.1.

Applications are invited for the post of RESIDENT MEDICAL OFFICER to the Out-Patient Department. Candidates must be fully qualified and registered. The appointment is for six months, commencing September 1st or as soon after as possible. Salary at the rate of £175 per annum, with free board and residence at the Harrow Road Hospital, full board and laundry.

Applications, together with copies (only) of three recent testimonials, to be in the hands of the undersigned not later than 10 a.m. on Monday, September 11th, from whom further particulars can be obtained.

By Order of the Board,

J. F. MORTON, Secretary.

COLBETT HOSPITAL, STOURBRIDGE. (65 Beds.)

HOUSE SURGEON.

Applications are invited for the above post, which will become vacant on October 7th next. The appointment will be for six months, if satisfactory, terminable by six weeks' notice, and carries a salary at the rate of £200 per annum with board, etc.

Applicants must be thoroughly competent anæsthetists, have had previous Hospital experience.

Applications giving full details of qualifications, age and experience, accompanied by three copies of testimonials, should be addressed to the undersigned forthwith.

W. C. H. WESTON, Secretary.

The Corbett Hospital, Stourbridge.

(Appointments continued on p. 732)

British Medical Journal
BRITISH MEDICAL ASSOCIATION HOUSE,
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YOU ARE INVITED TO VISIT THE CENTRAL RESEARCH CLINIC, 20/22, Chenies Street, W.C.1. A private hospital where General Practitioners find £20,000 worth of Equipment which they can use for the benefit of their patients and themselves.

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August 14th, 1933. Secretary.

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Station Road, Fleetwood. August 11th, 1933.
T. LONGWORTH, Secretary.

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By Order of the Committee of Management,
W. H. SIDNELL,
Secretary-Supt.

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CHARLES M. POWER, Secretary.

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MIDLANDS.—IMPORTANT BUSINESS AND Manufacturing Town. Assy. with view to one-third share in PRACTICE of £1,800 p.a. Salary as Assistant £300 indoor and all found. Applicants must be able to undertake refractions.—No. 9188.

S. W. OF ENGLAND.—BEAUTIFUL COUNTRY, within 6 miles of good-class resort. Share worth £500 or more with scope. Fees 5/- to 30/-. Not much midwifery. Panel and parish appt. Fine house on main road, 5 bed (fitted h. and c.), good surgery accom., etc., on long lease. Hunting, fishing, and all sport.—No. 9182.

BERKS. — OLD-ESTABLISHED. — COUNTRY PRACTICE, about £700 p.a. has been £1,100. Panel about 500. Visiting fees 2/6 to 7/6. Very little midwifery. Splendid house, specially built for Vendor, with two acres of grounds, 2 reception rooms, 6 bedrooms, surgery, and waiting rooms, etc. Consider £4,000 offer for practice and house freehold.—No. 9173.

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MANCHESTER. — ABOUT £950 P.A., INcreasing, old-established PRACTICE. Panel 1,120. Opposition less than usual. Visiting fees 4/6 and 5/-. Lowest surgery fee 2/6. House off main road, 4/5 beds., 2 recep., and sep. surgery. Rent £60 on lease, also Branch on main road. Premium £1,100.—No. 9144.

LONDON, N.W. — SUBURB. — RECEIPTS last three years £450. Panel 60. Visits 5/- up. Surg. 3/6 to 5/-. Mids 8 to 10 p.m., fees 3 to 6 gns. Prem. £400. Good house, with garden. 5 bed., 2 recep., sep. surg. and gar. Rent £100 p.a. on long lease or sell at £1,550.—No. 9142.

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WANTED IN SOUTH OF ENGLAND FOR preference, general practice of about £1,000 p.a. in or near County Town. Work not too heavy. Medium house, with some garden, desired. Ample capital available.—No. 1861.

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SOUTH COAST —OPHTHALMIC PRACTICE situate in fashionable seaside resort. Excellent freehold house available, large garden Receipts over £700 Fees 1 to 2 gns Scope for Surgery Premium 1 years purchase.

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4. BERKSHIRE — Country Town PRACTICE held by Lady Doctor Panel 90 Receipts £154 last year. Plenty of scope. Suitable [illegible] ase Prem £150.
5. [illegible] Seaside Resort — [illegible] ast year General Practice, including electrotherapy and eye examinations Fees 5/- to 1 gn. Receipts last nine months £383 Panel just started Good house Premium for Practice £350
6. LONDON, E.—Old-established, selling owing to ill health Receipts last year £330, previously much more Panel 300 Prem. £450 House to buy or rent
7. GLAMORGAN. — Industrial and Colliery PRACTICE. Panel 815 Receipts £845 p.a., accts. 6gns. Good house Golf and tennis. Premium one year's purchase

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2 ESSEX.—PARTNERSHIP IN WELL-ESTABLISHED PRACTICE of £5,600 p.a. in an industrial area within 15 miles of London. Good appointments and a panel of about 3,700. Visiting fees 3/6, few 5/-. House contains about 4 bedrooms, bathroom, etc., and can be either purchased or rented on lease. One-third share at first at two years' purchase.

3 SOUTH COAST.—A THIRD PARTNER REQUIRED IN OLD-established Practice of over £3,000 p.a. in favourite Seaside Resort. Panel about 2,000. Visiting fees 3/6 to 10/6 and some at £1 1s. Choice of houses. Applicants should have held Resident House Appointment and be keen on medicine. One-third share would be sold to suitable man after a Preliminary Assistantship. Premium 2 years' purchase. Considerable scope for increase.

4 SHROPSHIRE BORDER. — PARTNERSHIP IN WELL-ESTABlished Practice in large Industrial Village amidst beautiful country. Small convenient house for sale or rent. Cottage Hospital. Share worth about £700 p.a., increasing; would be sold to either a Medical Man or Medical Woman. Premium £750.

5 LONDON, S.E.—MIXED PRACTICE IN SUBURBAN DISTRICT in neighbourhood of Crystal Palace. Receipts average £680 p.a. Panel about 450. House contains 9 rooms, bathroom, kitchen, etc. Rent £65 p.a. on lease. Scope for increase. Prem. £900.

6 S. COAST.—A WELL-ESTABLISHED PRACTICE OVER £1,000 p.a. in popular Resort. Panel 850. Excellent scope. Premium two years' purchase.

7 BERKS.—A RAPIDLY INCREASING PRACTICE OF £800 P.A. in Residential Town on the Thames. Panel 370. Detached corner house (4 bedrooms) to rent. Premium £1,250.

8 NORTHUMBERLAND.—VERY OLD-ESTABLISHED PRACTICE of £1,800 p.a. in small Town in Agricultural District—near a good town. Panel 980. Good house (5 bedrooms) for sale. Premium one and half years' purchase.

9 MIDDLESEX.—A PROMISING NUCLEUS OF £250 P.A. IN out-lying Suburban District. New corner house (3 bedrooms) for sale. Exceptionally good prospects. Premium £125.

10 LONDON, W.—PRACTICE OF ABOUT £300 P.A. IN S. KENsington. Panel 200. Corner house to rent. Premium £475.

11 DORSET.—A WELL-ESTABLISHED PRACTICE OF £1,200 P.A. in beautiful District. Panel 1,000. Good house to rent. Premium two years' purchase.

12 CO. DURHAM.—PRACTICE OF £540 P.A. IN RESIDENTIAL Colliery District near Newcastle. Panel 380. Well-situated house (7 rooms), with good Surgery and Dispensary, for sale or rent. Scope for substantial increase. Premium only £500.

13 N. MIDLANDS.—SMALL PRACTICE OF ABOUT £255 P.A. IN first-rate City. Panel 200. Corner house (4 bedrooms). Rent £60 p.a. Premium £500.

14 SOMERSET COAST.—PARTNERSHIP IN OLD-ESTABLISHED Practice in picturesque Seaside Place in a most beautiful part. Small panel. Visiting fees 5/- to 30/-. Excellent house (6 bed and dressing rooms) with every modern convenience; exceptionally beautiful garden of about a third of an acre, to rent on lease. The district is residential, and has a large number of visitors. Excellent riding, hunting; very good yachting, trout fishing, etc. Premium for a share worth £500 p.a. 2 years' purchase.

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Practices and Partnerships for Disposal (continued).

15 EASTERN COUNTIES—COUNTY TOWN—VERY OLD ESTABlished middle and upper class PRACTICE averaging £1,190 p.a. Panel 120 Visiting fees 7/6 to 15/6 Ten roomed house in good residential part with garage and garden for sale. Scope. Premium £2,450.

16 LONDON, S.W.—WELL ESTABLISHED EYE, EAR, NOSE, AND Throat Connection in Suburban District Cash receipts last twelve months £432 (mostly from Eye work), including appointment worth about £120 p.a. Corner detached non-basement house (7 bedrooms) with garages and very nice garden Price of freehold and Practice, £2,350

17 WEST OF ENGLAND—PARTNERSHIP IN VERY OLD ESTABlished Practice of nearly £1,750 p.a. in small town in beautiful part of the country Panel over 1,350 Fees average 7/6 Premium one half share 2 years' purchase.

18 WITHIN 10 MILES (SOUTH) OF LONDON — PRACTICE about £1,500 p.a. in well populated suburban area Panel 1,500 Surgery premises may be purchased or rented Nice private residence (7 bed and dressing rooms, etc.) at reasonable rent Premium £2,600

19 S. WALES—IMPORTANT SEAPORT TOWN—PARTNERSHIP in sound old established Practice averaging £3,500 p.a. Panel 2,800 Incoming Partner should be a Scotsman aged about 30—35, and preferably Edinburgh or London trained There is a nice house for sale To a suitable man a one half share would be sold at 1½ years' purchase

20 FAMOUS INLAND WATERING PLACE AND HEALTH Resort—Well established non-dispensing PRACTICE. Receipts last three years averaged £986 p.a., including a select Panel of 280 Fees 5/- to £1 1s. Particularly attractive house with large garden, for sale Scope Premium £750

21 LONDON, E.—OLD ESTABLISHED CASH AND PANEL PRACTICE of about £1,200 p.a. in residential part of populous district Good appointments and panel 950 Small house (3 bedrooms, etc.) in pleasant road to rent on lease Scope for increase Premium £2,200 or offer

22 SUFFOLK AND NORFOLK BORDERS—SMALL PRACTICE IN Market Town Earnings 1932, £285, including panel of 80. Nice house (6 bedrooms), garage and good sized garden Price of freehold £850 Excellent schools. Plenty of sport. Cottage Hospital Premium £450

23 LONDON, E.—CASH AND PANEL PRACTICE OF OVER £600 p.a. in populous district Panel 590 Small house to rent on lease Premium £800

24 S. WALES—PARTNERSHIP (AFTER PRELIMINARY ASSISTantship) in well established Practice of nearly £5,000 p.a. in important Industrial Town Good appointments and panel of nearly 3,000 After Preliminary Assistantship a one third share would be sold at first to a suitable man who should have held Hospital Appointment and have some knowledge of Midwifery and Anæsthetics

25 WEST OF ENGLAND—PARTNERSHIP IN OLD ESTABLISHED PRACTICE over £2,200 p.a. in County Town Panel about 1,000 Premium one half share 2 years' purchase Good prospects for well qualified physician (preferably M.R.C.P.) who would have opportunity of getting on Staff of Hospital in near future

26 LONDON, N.—PRACTICE CARRIED ON BY MEDICAL WOMAN in populous area Cash receipts average £480 p.a., Panel 527 Visits 2/6 to 3/6 Small house (6 rooms) to rent at £50 p.a. on lease Practice capable of increase. Premium 1½ years' purchase

27 LONDON, N.—PRACTICE CARRIED ON BY MEDICAL WOMAN in populous district Cash receipts average £270 p.a., including Panel 360 Scope for midwifery Six roomed house to rent at £70 p.a. on lease. Premium 1½ years' purchase

28 BORDERS OF SHROPSHIRE AND CHESHIRE—OLD ESTABlished PRACTICE averaging £1,000 p.a. in Market Town Panel 850 Nice detached house (5 bedrooms, attics, etc.) with garage and old world garden, etc., for sale Educational facilities. Well-equipped Cottage Hospital offering scope for one keen on Surgery. Premium £1,580.

29 PRIVATE MENTAL HOME (FOR LADIES ONLY)—EXCEPtionally nice house and grounds A considerable sum required for the purchase Further particulars on application

30 S. WALES — PRACTICE BETWEEN £250—£300 P.A. IN beautifully situated village about 4 miles from important town. Small panel Nice house (6 bedrooms), electric light, gas and company's water for sale or rent. Premium £280

31 SURREY—PARTNERSHIP IN SOUND OLD ESTABLISHED good mixed class Practice about £3,000 p.a. in the Guildford Small panel Very little midwifery Excellent modern detached house for sale Scope for increase Premium one half share 2 years' purchase.

32 LONDON, E.C.—PARTNERSHIP IN OLD ESTABLISHED PRACtice in the City Receipts average about £1,600 p.a. [illegible] appointments and panel worth over £500 p.a. Premium one half share £1,000

33 EAST COAST—PRACTICE OF ABOUT £600 P.A. IN RESIdential Seaside District 40 miles from London Small list Detached house (5 bedrooms) for sale Scope for increase. Premium 1½ years' purchase

34 SURREY—PRACTICE OF £1,000 P.A. IN RAPIDLY GROWing Residential District within 15 miles of London. Panel 400 Suitable house, with separate professional accommodation, for sale Scope for considerable increase. Premium £1,600

35 LONDON, W.—GOOD MIDDLE CLASS PRACTICE £400 P.A. in suburb within easy access of the West End Panel over 100 Attractive double fronted house with nice garden for sale. Scope for increase. Premium 1½ years' purchase.

36 HOME COUNTIES — OPHTHALMIC PRACTICE BETWEEN £300 and £400 p.a. in desirable Residential Town under 20 miles from London Good detached house (4 bedrooms) with large garden for sale Good reasons for selling Plenty of scope for increase Premium £300

37 N. OF ENGLAND — OPHTHALMIC PRACTICE OF OVER £1,500 p.a. in an important town Excellent scope for one keen on clinical and operative Ophthalmology Large house in first-class position for sale Purchaser should be well qualified Premium £2,500

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Boy, aged 3 years. When about 11 months old he was taken away from home and for the first time was given ordinary cow's milk; previously he had had only Grade A (T.T.). Two months later he had suppurating cervical glands. He was admitted to St. Andrew's Home at the age of $3\frac{1}{2}$ years suffering from tuberculosis of the first and second dorsal vertebrae, with prevertebral abcess. Six months later he developed otitis media, which was followed by pneumonic consolidation, and eventually tuberculous empyema. A culture of bovine tubercle bacilli was obtained from the empyema pus. Large quantities of pus were aspirated periodically until within one month of his death at the age of $4\frac{9}{12}$ years.

Girl, aged 5 years, with advanced right hip-joint disease of $2\frac{8}{12}$ years standing. There was extensive bone destruction of acetabulum and of head of femur. She had had raw cow's milk from birth.

Boy, aged 11 years, with tuberculosis of the spine. He was fed from birth on raw milk. Two sisters died of meningitis, the nature of which was not ascertained.

★ *(Extracted from article "Human and Bovine Infections in Bone and Joint Tuberculosis," Griffiths and Summers, Lancet, April 22nd, 1933.)*

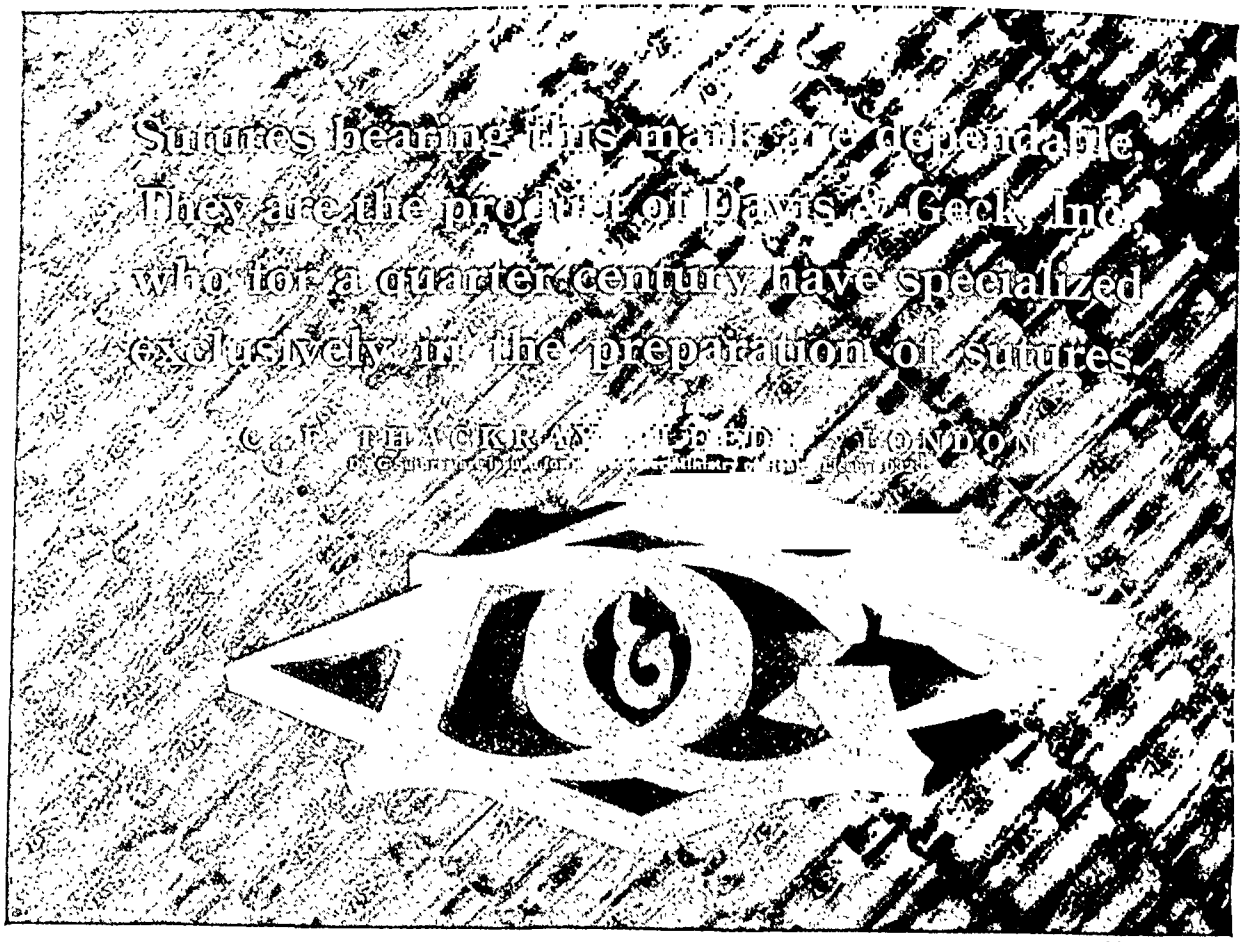
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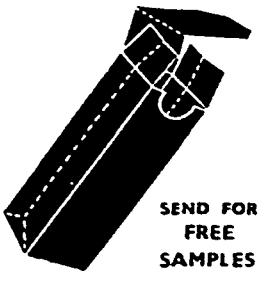
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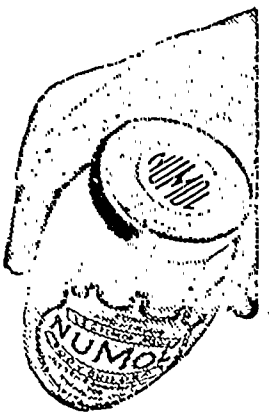
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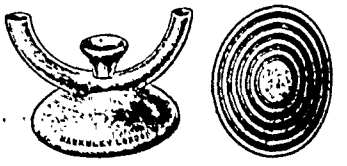
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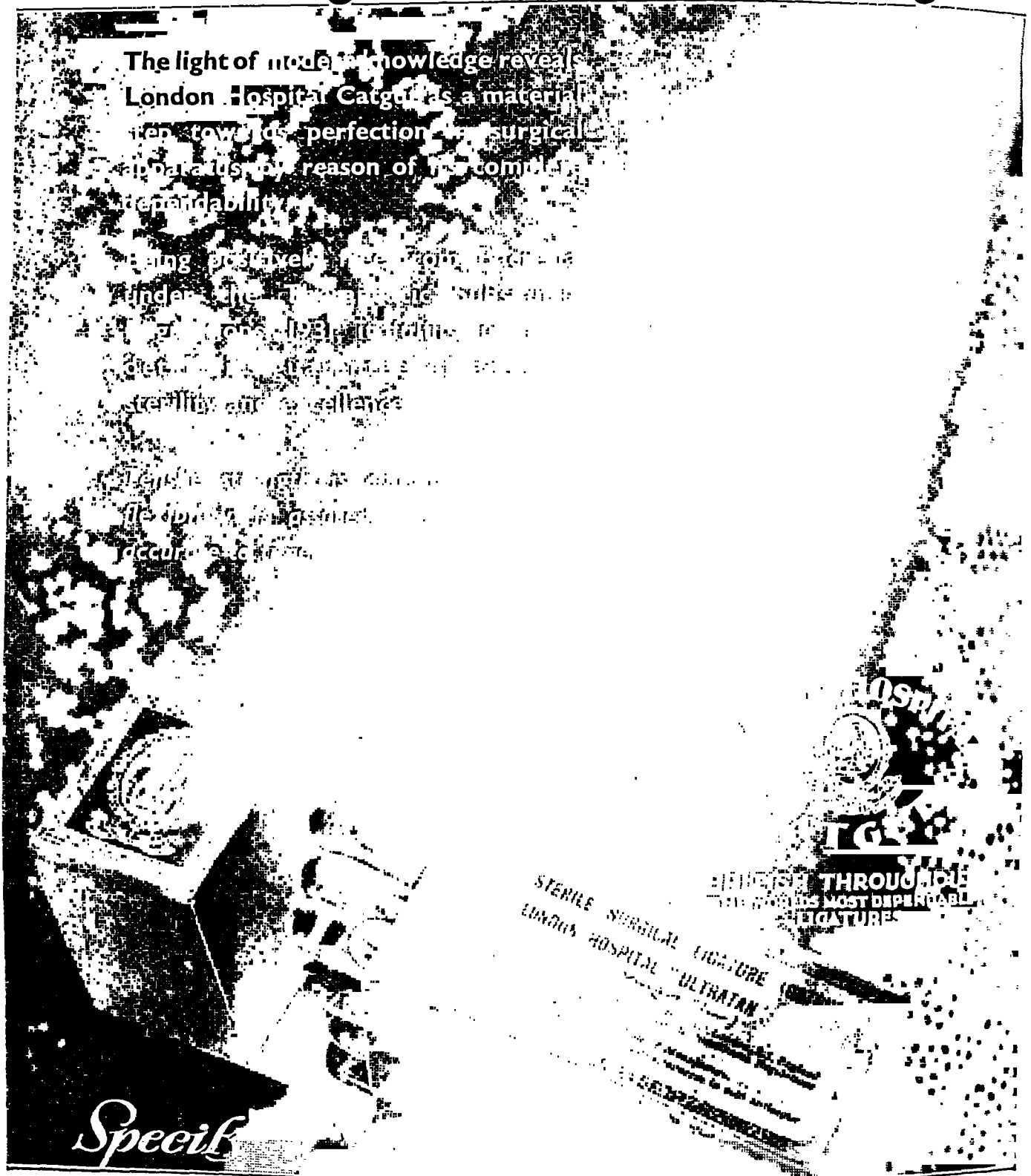
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YOUR home will probably be a model of all that is labour-saving and up-to-date.

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FRIGIDAIRE
AUTOMATIC REFRIGERATOR

CONTAINS THE ESSENTIAL MINERALS
SODIUM
POTASSIUM
PHOSPHORUS
CALCIUM
IRON
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DURING PREGNANCY AND THE POSTPARTUM PERIOD

supporting treatment is essential. Compound Syrup of Hypophosphites "Fellows" is the most logically prepared tonic at the disposal of the physician.

It contains all the required minerals in correct proportion and in an easily assimilable form. These are Manganese and Iron to renew the blood stream impoverished by continued loss; Calcium to replenish the constant calcium depletion; Potassium, Sodium, and Phosphorus to overcome the neural depression; Strychnine as a tonic to cell metabolism; and Quinine as a gastric stimulant.

There is no better tonic than Compound Syrup of Hypophosphites "Fellows" to the parturient and post-parturient patient. During these trying periods, the suggested dose is one teaspoonful three times daily well mixed with water.

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FELLOWS MEDICAL MFG. CO., LTD.

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COMPOUND SYRUP OF HYPOPHOSPHITES

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Enteritis, diarrhoeas and intestinal infections. Two ampoules per day to be administered by mouth.

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POLYVALENT INTESTINAL BACTERIOPHAGES

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Absolutely innocuous.

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Highly activated vegetable charcoal an adsorbent embracing simpler substances, e.g., alkaloids, putrefactive amines, organic acids, toxic alcohols and gases.

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A product combining the detoxicating action of Kaylene with the flatulence preventing properties of highly activated vegetable charcoal.

Specially indicated in cases of gastric flatulence and intestinal fermentation.

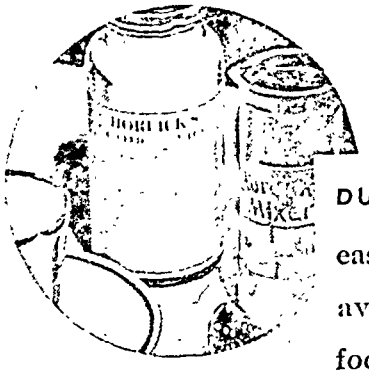
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Issued in 2-oz. pots, 2/6; 4-oz., 4/6; 8-oz., 7/6

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DURING PREGNANCY the diet must be simple, nutritive and easily digested. Digestive disturbances and constipation must be avoided as far as possible, since they hinder the assimilation of food and lead to anxiety and exhaustion.

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Largely prescribed in cases of Chronic Gastric Catarrh, Hyperaemia of the Liver, Gall-stones, Chronic Constipation, Diabetes, Renal Calculi, Gout, and Diseases of the Spleen, arising from residence in the Tropics or Malarious Districts.

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(DUNCAN)

PURE

PREPARED from ETHYL ALCOHOL.

METHYLATED

PREPARED from INDUSTRIAL ALCOHOL.

BLUE LABEL

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These three varieties are guaranteed to be absolutely pure according to the specifications of the British Pharmacopeia. They are the result of many years' experience in the manufacture of anaesthetics, and are recognized as the most reliable and perfect products offered to the medical profession.

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In Vitamin B Deficiency

Marmite is prescribed in all conditions associated with Vitamin B deficiency; it is ordered—often a teaspoonful three times a day and sometimes more—to prevent and correct constipation, to guard against infectious diseases, in malnutrition, in anorexia, and as a tonic in general debility and convalescence.

For all Infants the recommendation made in the Medical Research Council's Report is:—

"Marmite—for Vitamin B complex—a small quantity daily."

(*Vitamins: A Survey of Present Knowledge*, 1932, *p.*276)

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Marmite is stated to be of particular use in the treatment of certain anæmias. That Addisonian pernicious anæmia can respond to Marmite therapy is a matter of no little importance to all those who have cases of this disease under their care. It is claimed that primary and relapse cases respond to large doses of Marmite, whilst maintenance cases require only small quantities.

An investigator remarks:—

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(*The Lancet, October 8th*, 1932, *p.* 781)

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Special quotations for supplies in bulk to hospitals and institutions.

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CREAM OF MAGNESIA WITH LIQUID PARAFFIN

(CONTAINS 30% LIQUID PARAFFIN).

A STABLE well-balanced combination containing 30% Liquid Paraffin held in suspension in a finely divided state. Its consistency is such that the tendency to leak exhibited by Liquid Paraffin is eliminated. Regesan Cream of Magnesia with Liquid Paraffin provides suitable treatment for all digestive troubles with which constipation and hæmorrhoids are associated. It is certainly the ideal laxative during pregnancy and lactation, and is suitable for infants and children.

Per 1/3 bottle

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The world-wide supremacy of Insulin 'A.B.' is due to its unequivocal purity no less than to its well-known potency and stability under all conditions.

Insulin 'A.B.' contains the minute quantity of phenolic preservative originally recommended by the Medical Research Council and still considered necessary by bacteriologists (*Lancet* Sept. 12, 1931, pp. 582-584) as a complete safeguard against the development of bacteria that may be accidentally introduced during self-administration.

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20 units per c.c. Packed in bottles containing:
5 c.c. (100 units) - - 2/- each
10 c.c. (200 „) - - 4/- „
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80 units per c.c. Packed in bottles containing:
5 c.c. (400 units) - - 8/- each

Full particulars and the latest literature will be sent free to members of the Medical Profession.

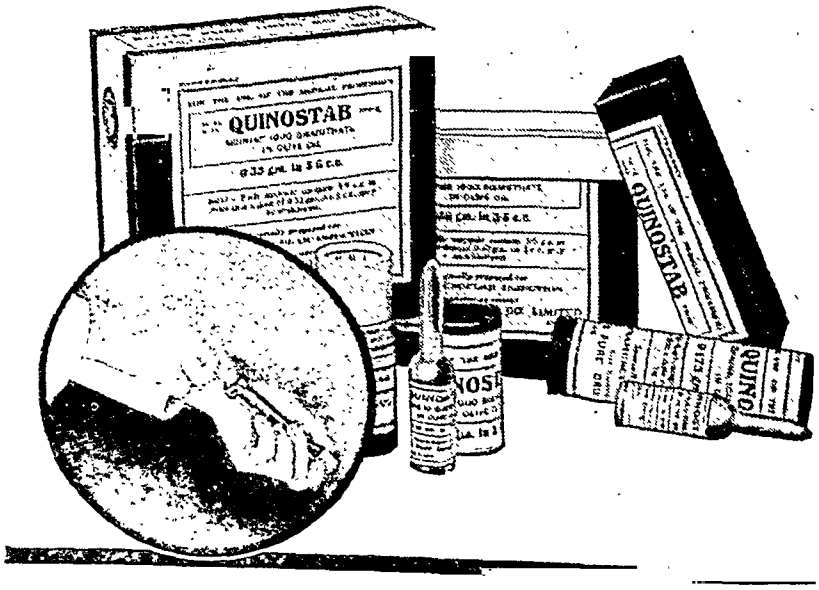
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IODO BISMUTHATE OF QUININE



QUINOSTAB is a 10% suspension of Iodo Bismuthate of Quinine in pure Olive Oil specially prepared for Intramuscular Injection.

QUINOSTAB may be used in all cases where Bismuth is indicated in the treatment of Syphilis and other Spirochætal Diseases.

Supplied in sterile hermetically-sealed neutral-glass ampoules in the following sizes:—

3·5 c.c. for a dose of 3 c.c.
1·75 c.c. for a dose of 1·5 c.c.

Also available in 1 fl. oz. glass stoppered bottles.

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WHOLESALE AND EXPORT DEPT
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"Alocol" (Colloidal Hydroxide of Aluminium) has proved remarkably successful in the treatment of hyperchlorhydria, gastric ulcer, fermentative dyspepsias with gastro-intestinal flatulence, acid eructation and other symptoms common to gastric disease.

The advantages of 'Alocol' are that it actually removes from the system the causative acid radicle (Cl) instead of merely neutralising it, and so permitting reabsorption, accumulation and consequent recurrence of the symptoms of the disease.

Furthermore, "Alocol" neither hinders proteolysis nor causes destruction of any food element or factor. 'Alocol' has a distinct healing and sedative effect, it promptly allays irritation by absorbing acid and other irritants.

Complete clinical history of the case with convincing clinical results and supply for trial, sent free to any address on request.

A. WANDER, LTD., Manufacturing Chemists, 184, Queen's Gate, London, S.W.7.

Works: KING'S LANGLEY, HERTFORDSHIRE.

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Colloidal Hydroxide of Aluminium

A Distinct Advance Over Preparations of Acetyl-Salicylic Acid

Acetyl salicylic acid possesses a notable disadvantage. Physicians have proved that it cannot be tolerated by patients suffering with a delicate stomach. Consequently, the value of this medicament in the wide field in which it is indicated is very seriously reduced.

Alasil completely overcomes this objection. By combining calcium acetyl salicylate with Alocol, unfavourable secondary action upon the stomach is prevented. This beneficial influence is undoubtedly due to the presence of 'Alocol' (Colloidal Hydroxide of Aluminium) which preparation has brilliantly stood the test of practice in the treatment of hyperacidity and other ill conditions of the gastric tract. 'Alasil' is therefore a triumph over acetyl salicylic acid. It enables higher doses to be administered and maintains the patient's system under its influence for a greater length of time. Analgesic, Antipyretic, and Sedative. Alasil is indicated in all cases where acetyl-salicylic acid has been used heretofore.

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INFANTS and CHILDREN

are best treated by the use of

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Thyminic Acid — Hexamethylene-Tetramine — Lysidin

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IN GRANULES

Clinical samples gladly sent on request

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"Taxolabs, Sowest, London." *Victoria 2041.*

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KEEN'S COMPLETE FOOD

When it is desired to omit milk from the diet, babies can safely be given Almata.

Almata is a complete food for babies and in summer-time particularly it provides an ideal diet.

Sold by all Chemists. Prices 2/1 and 4/- per tin.

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The Original Preparation
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The Safest and most Reliable Local Anaesthetic for all Surgical Cases

Does not contain Cocaine, and does not come under the Dangerous Drugs Act.

A New Vaccine for the Prevention of Colds, Catarrh, Influenza, etc.

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for the treatment of GLAUCOMA according to Dr. Carl Hamburger (Berlin).

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IN STERILIZED AMPOULES.

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FREE SAMPLE and literature to Medical Practitioners.

Antiseptic. Non-Corrosive. No injurious effect on healthy tissue cells. A powerful deodorant of special value for cleansing suppurative and malodorous wounds.

Tablets disintegrate in 30 seconds and dissolve to a clear solution.

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The Activated Pancreas-Hormone Tablets to reduce Hyperglycaemia.

1 Tablet corresponds to 15-20 Jesulin units

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Oestroform is the pure crystalline ovarian follicular hormone. Since its first issue Oestroform has been standardised in terms of a standard preparation of the pure ketohydroxy-oestrin, which pure substance has been adopted as the international standard for the oestrus-producing hormone, and its activity both in the form of a solution for injection and tablets for oral administration is expressed in terms of this international unitage; the solution is standardised to contain 1000 international units per c.c. and the tablets to contain 1000 international units per tablet.

The value of Oestroform in the various conditions associated with metabolic disturbances of ovarian origin has been demonstrated recently by exhaustive clinical tests.

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". . . I am entirely satisfied with Livogen which I have been prescribing now for upwards of a year . . . it relieves conditions that are not affected either by massive doses of iron or by liver extract alone."
— — —, L.M.S.S.A.

Physicians everywhere are finding in Livogen a valuable tonic for use in many vague conditions of general subnormal health which are marked by reduced vitality, lassitude, lowered resistance, and, in many cases, by anaemia. In such conditions Livogen produces renewed vitality and stimulates the appetite, with the result that a considerable impetus is given to the patient's progress towards a full recovery of normal health.

Livogen owes its remarkable power to its content of the blood-regenerating principles of fresh liver, and of measured amounts of Vitamin B_1, Vitamin B_2 and haemoglobin.

LIVOGEN

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"For the first two weeks these triplets were fed on Frailac — *the Cow & Gate special food for premature babies.* For the next two and a half weeks on Cow & Gate Half Cream and Brestol. Now they have advanced to Cow & Gate Full Cream Milk Food and are gaining every day."

	lbs.	ozs.
Weight at birth		
Ann	4	0
Marion	3	12
Margaret	3	8
Weight at 3 weeks		
Ann	5	0
Marion	4	0
Margaret	4	0
Weight at 4 weeks		
Ann	5	8
Marion	4	4
Margaret	4	4
Weight at 5 weeks		
Ann	6	0
Marion	4	12
Margaret	4	8
Weight at 6 weeks		
Ann	6	8
Marion	5	5
Margaret	5	0

Cow & Gate Milkfood

Cow & Gate MILK FOOD

"The Best Food for Babies when Natural Feeding Fails."

OF ALL CHEMISTS, 1/6, 2/9, 4/6 (Economy Size), 7/9 per tin.

COW & GATE LTD., GUILDFORD, Surrey.

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Experience teaches

that the physiological developments of the growing child call for the use of a graduated series of foods during the first twelve months of life.

This is the basis of the "Allenburys" Progressive System of Infant Feeding.

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Experience proves

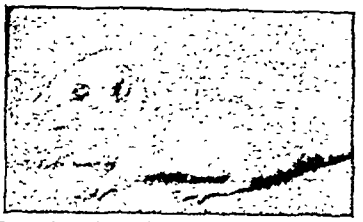
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This is the basis of the method of manufacture of the "Allenburys" Milk Foods.

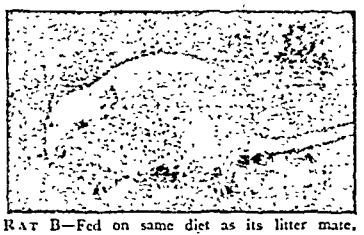
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RAT A—Fed on diet devoid of Vitamin A. Shows xerophthalmia, rough coat, and general lack of condition



RAT B—Fed on same diet as its litter mate, Rat A, but with the daily addition of 8·3 mgms. of 'Kepler' Cod Liver Oil with Malt Extract

Feeding Tests Prove Vitamin Content

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Tested for vitamin content by approved methods, and results confirmed from time to time by growth test on rats.

'KEPLER' COD LIVER OIL WITH MALT EXTRACT is pleasantly flavoured and easily assimilable.

Rich in Vitamins A, B and D

London Prices to the Medical Profession 2/1 and 3/8 per bottle

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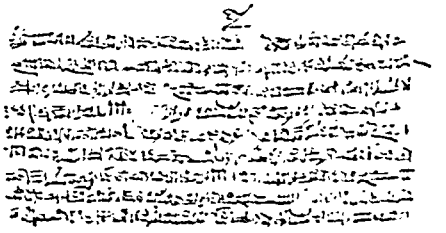
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ANCIENT EGYPTIAN MEDICAL THEORY THAT MANY RISKS TO HEALTH MIGHT BE ESCAPED BY OBSERVANCE OF THE CALENDAR.—The priest-physician, consulted by a patient, turned to his calendar, for the history of celestial events, there chronicled, enabled him to make a diagnosis and prognosis, since the domains of heaven and earth were believed subject to the same conditions. Imitation, in magic rites, of the legendary acts



of the gods in restoring health in the celestial sphere, would bring similar results on earth. Many risks to health might be neutralised by certain abstentions at specific times named in the calendar, e.g. not going out on a certain day, or part of a day, refraining from food, etc. The Egyptians wrote the signs for their "unlucky days" in red, so that their "red-letter days" were bad ones.

DATE: c. 1300 B.C., but similar calendars existed as far back as c. 2000 B.C.

VITAMINS A & D EMULSION

A pleasant emulsion of vitamins A and D of guaranteed content. Each fl. oz. contains the vitamins A and D equivalent of its own volume of high-grade cod-liver oil, and 71 grains of calcium lactate. It will appeal to the most debilitated and fastidious child or adult. Invaluable as a safeguard against infection and as a tonic for run-down or undernourished patients.

ADEXOLIN EMULSION GL

8-oz. bottles - 2/6
4-oz. bottles - 1/6

TABLETS OF VITAMIN D

A convenient form of vitamin D for older children and adults, especially for all cases of deficient calcium metabolism. Each sugar-coated Ostelin tablet contains 500 international units of vitamin D, together with two grains of soluble calcium glycerophosphate. Equivalent in vitamin D to 1½ drams of high-grade cod-liver oil.

Bottles of 250-12/6
Bottles of 45 - 2/6

OSTELIN TABLETS GL

MODERN GLUCOSE THERAPY

Powdered medicinal glucose (98 per cent.) with "Ostelin" Vitamin D and calcium glycerophosphate, for use in acidosis, debility, physical and mental strain, cardiac disease, febrile illnesses, malnutrition, dyspepsia, anorexia, and convalescence. The "D" compensates for the vitamin deficiency in low fat diets.

GLUCOSE-D GL

1-lb. tins - 1/9
7-lb. tins - 10/6

A SIMPLE ANTE-NATAL ROUTINE

Following the procedure in force in leading hospitals and ante-natal centres, the expectant mother takes one capsule of Adexolin a day during the last 100 days of pregnancy—a daily precisely-measured amount of vitamins A and D in natural proportions. Vitamin A protects her against puerperal fever and fortifies the resistance of the foetus to pre-natal and infantile infection. Vitamin D helps to preserve her teeth from decay and to promote normal skeletal development in the unborn infant.

Boxes of 100 - 8/6
Also in tins of 500 & 1,000

ADEXOLIN CAPSULES GL

REVISED RANGE OF ANTIVIRUSES

The full range of Antivirin Brand antiviruses is now as follows :—

LIQUID

Staphylococcus Antivirus. Streptococcus Antivirus
Staphylococcus and Streptococcus Mixed Antivirus.

Each in boxes of six 5 c.c. ampoules 5/ and in 30 c.c. rubber-capped bottles 4/-

JELLY

Staphylococcus and Streptococcus Mixed Antivirus. B. Acnes, Staphylococcus and Streptococcus Mixed Antivirus.
Each in long-nozzle collapsible tubes, 2/6

Antivirin BRAND ANTIVIRUSES GL

VITAMIN D FOR INJECTION

A sterile suspension for subcutaneous injection. Ensures intensive action of calcium and vitamin D. Held to be specific in the treatment of urticaria, chilblains, angio-neurotic oedema, and other capillary vasomotor disorders. Invaluable in skin diseases such as psoriasis and eczema, in capillary haemorrhage, and in delayed union of fractures.

Boxes of six 1 c.c. ampoules - 5/-
30 c.c. bottles 10/-

Colloida Calcium with Ostelin vitamin D GL

GL

HIGHLY POTENT ERGOT

Erbolin is standardised, powdered, defatted ergot in which ALL the active principles are completely retained. Each capsule contains the equivalent of 0·4 gm. (6 gr.) of Ergota Praeparata B.P., 1932. Erbolin retains its full potency for over 2 years.

ERBOLIN GL

Bottles of 25 - 3/1
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A NEW G.L. AMPOULE PRODUCT



For "always tired" and listless patients, for patients whose metabolic processes need prompt and decisive stimulation, and of course for anaemic patients, Iron-Arsenic-Strychnine Compound G.L., in which the components of the traditional remedy are reinforced by activating substances, is strongly recommended.

Boxes of six 1 c.c. ampoules 2/3
Boxes of 12 - 4/-

Iron-Arsenic-Strychnine Compound GL

GLAXO LABORATORIES 56, OSNABURGH ST. LONDON N.W.1.

Remarks
ON
RENAL FUNCTIONAL DISTURBANCE IN ACUTE AND SUBACUTE NEPHRITIS*

BY
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The efforts of the morbid anatomist to comprehend and classify derangements of structure in disease, in order to have practical value, must find their completion in attempts to correlate these changes with the disturbances of function with which they are associated. The attainment of such a desirable end by one individual from the fruits of his own observations is nowadays virtually impossible. In the investigation of renal problems in particular very many different methods of investigation must be employed—clinical, biochemical, pathological, and experimental. All have their separate and individual fields, each requires special training and opportunities and is pursued in time-consuming practice, while each differs somewhat from the others in immediate aim and outlook. It thus ceases to be possible for one worker in any sphere to attain the same intimate knowledge and balance of judgement on all aspects of a complex problem, and completion of knowledge must be sought in combined and closely correlated observations by experts in different fields, a form of association from which, indeed, much valuable information has proceeded in the past. Even so there may arise important matters for decision on which an agreed opinion cannot be readily achieved owing to the contradictory nature of facts resulting from the different methods of analysis. Questions may be asked whether antagonism of view is the result of non-recognition of facts, or of imperfect interpretation of them, or of improper correlation of correctly interpreted facts in the varying fields. Hence the desirability for an occasional "taking of soundings" in the form of an open discussion, giving each side an opportunity to put forward its case.

In acute and subacute nephritis, the subject that we have elected to discuss, several main phenomena of renal functional disturbance are presented at various times and with varying significance. There can be no question, however, that the most baffling problem, and the one on which uniformity of view is furthest from being achieved, is renal oedema. It is to this that I propose to devote my main attention, referring, however, to other phenomena as may be necessary in elucidation of the whole.

been a considerable recession from the conception of oedema as the direct effect of the renal disability, both in acute and in subacute nephritis. The reasons for this departure differ to some extent in the two stages, and it may be said as regards subacute nephritis that, while various authorities agree that there are extrarenal causes, they disagree as to the nature of these causes, and their reasons are not always compatible. This may be regarded as an encouragement to attempt to find some unifying principle which will unite all forms and stages of renal oedema in one comprehensive classification.

MECHANICAL ANURIA

There is, of course, one fundamental objection to the view that renal oedema can be of the nature of retention of fluid resulting from failure of a renal function—namely, the absence of oedema in complete anuria resulting from blockage of both ureters or extirpation of a solitary kidney. Many cases have been recorded in which life continued for ten days or more, yet no trace of oedema was noted, though food and water were consumed; in some instances there was no vomiting. A few such cases do present some oedema (Fromme,[1] Myers[2]), showing that the occurrence is not impossible; but these are rare. A very important point, however, which appears to have escaped the general observation of commentators, is that while oedema is usually absent there is also lack of evidence that the body weight undergoes any increase. Cahill and Gyle[3] describe one case showing emaciation in a twelve days' anuria. This would apparently signify that in the peculiar circumstances of total mechanical anuria the intake of fluid is, for some reason, nearly balanced by extrarenal loss through intestine, lungs, and skin, so that no extra fluid is disposable which might give oedema. In oedematous nephritis, on the other hand, the state of affairs is entirely different. It has been well known since the observation of Widal and Javal[4] that in subacute nephritis there is a rise of body weight—which in an adult may amount to 12½ lb above normal—before the clinical appearance of oedema, and that this continues increasingly as oedema sets in. In acute nephritis the existence of over-retention of fluid has been made apparent most usually by considerable loss of weight (20 lb. in ten days, H. MacLean[5]), with diuresis during the period of recovery. Some of this loss might be attributed to emaciation, but Kaheb's[6] charts of very early cases of war nephritis revealed a rise of body weight amounting to about 4 lb. in two days while oedema was increasing, thus proving a genuine retention of fluid. It appears possible to say, therefore, that the usual absence of oedema in mechanical anuria is not the complete argument against the retention origin of renal oedema that it has sometimes been represented to be.

McNee).[7] The rise of blood pressure, which continues through the oedema period, is confirmatory of the view, based on histology, that there is some obstruction to the circulation through the kidneys.

(*b*) In subacute glomerulo-tubular nephritis the above lesion of glomeruli persists more or less, and is probably often a more effective obstruction to blood flow, as some tufts may be entirely ablated. With this there are often hypertrophy of the left ventricle and continued high blood pressure, but the rate at which these appear varies widely in different instances. There are also here much fatty deposit and other degenerative appearances in tubule cells, while catarrh and atrophy of tubules may be prominent if the glomerular lesions are severe.

(*c*) In nephrosis, so far as that term is applicable to a disease characterized by high albuminuria and obstinate oedema without nitrogen retention or raised blood pressure, the glomeruli differ from those of typical subacute nephritis in that the capillaries appear mainly patent. I would, however, agree with Bell[8] and Gray[9] that minute stigmata which frequently occur have the significance of an earlier primary inflammatory lesion of the tufts, and are not, as Fahr[10] and Bennett[11] have suggested, secondary to tubular changes. The capillary walls, at any rate, are abnormally pervious to protein, as in nephritis. The absence of hypertonus is no doubt to be correlated with freedom of blood flow through the tufts. The tubules often, but, I believe, not invariably, show much appearance of degenerative change as in subacute nephritis, but usually no catarrh or atrophy.

(*d*) In amyloid kidney, where oedema sometimes occurs, the main changes are amyloid disease of the glomerular capillary walls associated with leakage of protein but with little occlusion of lumina. Here again the blood pressure is usually low. The tubular changes are as in subacute nephritis.

(*e*) The nephritis of pregnancy has frequently been described as a degenerative tubular lesion, though not on the basis of very critical examination. It is probable, however, that its morbid histology is that revealed in fatal eclampsias by the careful observations of Fahr[12] and Bell.[13] They find a lesion of the tufts which has some points of resemblance to glomerulo-nephritis but with less evidence of obstruction to capillaries. I have recently had the opportunity, with Dr. Dugald Baird, to confirm the occurrence of a diffuse lesion of glomeruli, and we definitely regard it as a variety of glomerulo-nephritis. We have observed that in cases which are known to have been oedematous the glomerular change is frequently unaccompanied by any definite degeneration of tubule cells.

It will be noted that the main features in which the above five conditions differ among themselves are: (1) the state of the tuft capillaries as regards blockage of their lumina, the latter being absent in nephrosis and amyloid disease, intermediate in nephritis of pregnancy, and marked in glomerulo-nephritis; and (2) the appearance of degenerative change in tubular epithelium, this being often absent in early acute nephritis and nephritis of pregnancy, but marked in the other three. The main features which all exhibit are diffuseness of lesion, all the nephrons being involved, the permeability of tufts to protein, and the persistence in bulk of tubular tissue, though degenerative changes are more or less in evidence: at the same time these degenerative appearances are often unassociated with death or desquamation of cells, and the frequently good concentrating power for urea suggests that the cellular alterations noted are of less lethal import than their extent might imply. The group differs on the one hand from non-oedematous acute nephritis in that the glomerular lesions are diffuse, not focal, and on the other from chronic glomerulo-nephritis or interstitial nephritis without oedema in that the latter show extensive atrophy of tubules and usually variable lesions in surviving tufts. The distinction that can be made of the oedematous group as a whole no doubt requires a broad basis, but the symptom of oedema has had to be supported on an even broader basis of functional disturbance.

OEDEMA OF ACUTE NEPHRITIS

An important question that must be dealt with is the question of whether oedema can have the same underlying cause in all the types of nephritis, or whether, as some suggest, entirely different forms of pathological function are represented. In regard to this, the occurrence of continuity between stages and the appearance of linking forms have some significance. The oedema of the acute stage may extend without interval into that of subacute nephritis. Again, the oedema and other clinical features of some cases which are ultimately proved to be subacute glomerulo-nephritis so closely resemble those of what is called nephrosis that no certain differentiation is possible during life. This might be interpreted to mean that, even if a group of genuine nephrosis can be identified by skilled histological examination after death, as Leiter[14] has concluded in his admirable review, the difference during life between them and some cases of subacute glomerulo-nephritis is so slight as to be immaterial.

A theory which has obtained wide currency is that the oedema of acute nephritis is of the nature of an inflammatory oedema due to injury of the tissue capillaries by the same agent as damages the renal glomeruli (Beckman[15]). This view is based mainly on the relatively high protein content of the oedema fluid. This may undoubtedly be high—1.12 to 2.15 per cent., as compared with that in nephrosis of 0.03 to 0.04 per cent. or that in cardiac oedema of 0.25 to 0.7 per cent. (Beckman[15])—but apparently it is not invariably so high, as the two cases of acute nephritis of Fischer and Fodor[16] gave only 0.4 to 0.6 per cent. On the other hand, in acute nephritis oedema is generally less in amount and the fluid is less easily collected without serum contamination than is the abundant transudate of nephrosis. Furthermore, Beckman has himself observed in the resolution of cardiac oedema that the protein content of the fluid may rise well above the mean of that observed in acute nephritis as the fluid diminishes. The same occurrence was noted also in his case of acute nephritis, where successive observations were made—that is to say, the high protein content, supposedly an indication of inflammatory injury to capillaries, became greater as the lesion improved. The protein content of oedematous fluids of known inflammatory origin is usually much higher than in the oedema of acute nephritis—4 per cent. or more (Hoffman[17]). Also it is noteworthy that in subjects with large local inflammatory exudates, as in poisoning from war gas or in acute pleural effusion, the blood is concentrated owing to loss of fluid. In acute nephritis, on the contrary, as will be shown, the blood contains an excess of water. The evidence for the inflammatory character of the dropsy in acute nephritis therefore appears less significant than other features, which point to its origin from retention of fluid by the kidneys. In further discussion it will accordingly be considered along with the other forms as part of a general problem.

THEORIES OF RENAL OEDEMA

Widal's[18] view was one of retention by the diseased kidneys, not of fluid, but of common salt; the water was judged to be held secondarily in order to preserve the isotonicity of the tissues. It is proper to say that while this view, as it stood, is not now generally accepted, it contains a large element of truth that has never been completely contradicted. It does make some attempt to account for the well-known influence of salt intake in many cases of nephritic oedema, and it seems possible that if Widal had maintained a retention by the kidneys of physiological saline solution rather than of the salt itself his argument would have been less open to criticism. The main grounds for objection to Widal's theory are,

first, that very marked salt retention, up to 1 per cent., may occur in the blood without oedema resulting, as in chronic interstitial nephritis; although here there is no tendency to fluid retention by the kidney. The second objection is that which was first put forward by Volhard[19]—namely, that in some nephritic oedemas, and especially in nephrosis, the blood shows no increase of water or salt but may actually be concentrated. Volhard attributed this fact to damage, by toxic substances absorbed from degenerate renal epithelium, of the capillary walls throughout the body. Owing to this toxic injury these became unduly permeable, and the consequent escape of fluid in large amount from the vessels produced the oedema and at the same time rendered the blood unduly concentrated.

Volhard thus initiated the theory of extrarenal causation of the oedema, and he considered that in such cases also the appearance of impaired water and salt excretion by the kidneys was due rather to this organ receiving these substances at too low a level in the blood than to an essential inability of the renal tissues to excrete them. The fact of low blood water and low blood chloride in nephrosis has been repeatedly confirmed (Veil,[19] de Wesselow[20]), but variously interpreted as due to injury of vessels or of the tissues (Beckman,[13] and Fischer and Fodor[16]). Nonnenbruch[21] has observed its occurrence even in acute nephritis, though only exceptionally. In acute and in subacute glomerulo-nephritis hydraemia appears to be the general rule (Veil,[22] Fischer and Fodor[16]), and this, so far as it goes, is in keeping with the idea of retention of water by the kidney so that the blood becomes diluted and subsequently the excess escapes to the tissues.

The facts regarding salt and water distribution in oedematous nephritis are, however, somewhat complex. In the early stages of acute war-nephritis with oedema the blood almost invariably contained an excess of water and salt (H. MacLean,[3] Thannhäuser[23]). As this was associated with marked oliguria and a known acute renal lesion it was interpreted as significant of retention of fluid by the kidney. But in protracted cases of the same type MacLean observed concentration of the blood, not hydraemia, though oedema was still present. He attributed this to loss of fluid from blood to tissues, partly dependent on damage of vessels and partly on low colloid osmotic pressure of the blood from loss of plasma protein. These cases, which might be considered early subacute glomerulo-nephritis, are very important as linking the oedema phenomena of this condition to those noted in nephrosis. De Wesselow's[20] observations in cases of nephritis tested by salt dosage are also of much interest. He concluded that in a mixed group of oedematous nephritis, including acute, subacute, and nephritis of pregnancy, where the plasma chloride rose after a dose of salt, there was evidence of renal retention. On the other hand, in typical parenchymatous nephritis with ascites (nephrosis type), the absence of rise of blood chloride and the probable existence of blood concentration pointed to abnormal permeability of capillaries which would permit of escape of salt and water into the tissues. As F. C. McLean[24] has pointed out, however, in controversion of the latter view—Volhard's, which is shared by de Wesselow—the capillaries cannot well be more permeable to water and salt than they are normally, while the extremely low protein content of the oedema fluid in nephrosis would suggest a less degree of permeability of the vessel walls than normal.

EXCRETION FROM ARTERIAL BLOOD

An important series of facts which do not appear to have received sufficient attention in relation to this vexed question of blood and tissue exchange, and of renal participation in retention, refer to the general arrangement of the circulation and the opportunities for addition to, or removal of, fluid from the blood at various points. Samples of blood which are clinically available for examination are almost invariably venous blood returning from the tissues, where, in an oedematous case, more or less water and salt may have been given up, thus causing some degree of concentration. But the blood which goes to the kidney, and from which any deduction of fluid and salts is made for the purpose of elimination, is arterial. Now arterial blood is of uniform composition, like that in the right ventricle, which mingles, in addition to blood from the periphery, with hepatic vein blood bringing absorbed fluid from the intestine and also lymph from the thoracic duct. In oedema there is no reason to suppose that the tissue fluid is absolutely static, and the lymph may well be more abundant than normally. Therefore we may assume that frequently, especially in oedema, the arterial blood will contain definitely more water and salt than a peripheral venous sample. This will be the case even when the venous blood is hydraemic so long as oedema is on the increase: it seems even more certain to be the case when the venous blood is definitely concentrated as in nephrosis.

On the other hand, when oedema is undergoing resolution the venous blood accessible to examination will contain more water than the arterial, as it is helping to remove fluid from the tissues. Veil[22] has noted a further dilution of venous blood during resolution of oedema in subacute nephritis. Kylin[25] also, who has actually examined arterial and venous samples taken at the same time from oedematous cases, has found that, while oedema is increasing, the colloid osmotic pressure of arterial blood is lower than that of the venous blood, but during resolution of oedema the reverse is the case, owing to dilution of the latter by absorption of fluid from the tissues. On these grounds it is possible to suggest that the low salt and water values in the venous blood of nephrotic cases are no fair indication of the arterial blood content, yet it was largely on this assumption that the theory of extrarenal genesis of nephrotic oedema was originally based.

SALT DOSAGE IN NORMAL SUBJECTS

In attempting to appreciate how readily salt and water retention by the diseased kidney may occur and how this may lead to subcutaneous oedema, it is useful to refer to the results of test doses of salt in normal subjects. Thus Veil[19] has found that if 20 grams of common salt are ingested in a moderate amount of water there is an immediate diuresis, but only half the salt is excreted. By the following day the blood chloride and water are tending normal, but the extra salt continues to be excreted till the third day, the evidence being that salt has been temporarily deposited in the tissues. In such experiments there may be a rise of body weight owing to retention of fluid with the salt; but in Veil's experience this was a variable occurrence, depending not only on the amount of fluid ingested but on the state of salt and water plethora of the body at the start of the experiment. Baird and Haldane,[26] ingesting larger doses (38 grams), also observed much retention in spite of diuresis, and they found that the deposition in the tissues was accompanied at times by oedema.

An abnormal accumulation of fluid in the tissues of a normal subject is apparently more difficult than that of salt. It is of interest to note that after a large dose of plain water, or after the ingestion of a diuresis, the ingestion of the same amount of fluid as saline solution often has no such effect. Moore and Ford[27]). This suggests that the kidneys deal with the two substances less readily if they are

near the proportions in which they occur in normal blood. What apparently must happen in test dosage experiments is that as extra salt is absorbed through the portal system it brings the content of the arterial blood above normal concentration. As this is distributed over the body the amount that can be excreted from that passing through the renal arteries is, in spite of the diuresis produced, too small to keep pace with the intake from the intestine. As the salt content of the arterial blood still rises some is deposited in the tissues, probably because, as McLean[24] points out in connexion with water, the maintenance of a fairly constant volume and constitution of the blood appears to be a paramount physiological desideratum. In the meantime diuresis depletes the blood of water, thus interfering with the removal of salt from the tissues until fresh supplies of fluid have been taken in.

These facts might be said to indicate that the retention of excess salt in the normal subject is due to extrarenal factors; but this is so only in a sense, for the accumulation in the body is due to the inability of the normal kidney to excrete more than a certain amount of salt per day with the aid of any known amount of fluid intake. In nephritis, however, oedema begins on the ingestion of amounts of water and salt determined by natural choice, and such amounts are dealt with easily by the normal kidney so that no retention occurs. The difference appears to be that in nephritis the kidneys cannot excrete the proper amount of salt and water, so that these accumulate first of all in the blood, but, in accordance with the above-mentioned law, they are soon transferred to the tissues. A fundamental problem of oedema is that of regulation of volume, including that of the blood and the tissue fluids (F. C. McLean[24]).

Low Colloid Osmotic Pressure of Plasma and Oedema

A still different theory of nephrotic oedema is that developed mainly by Epstein[29] on the basis of Starling's observations on the osmotic pressure of plasma proteins. In these chronic oedemas the plasma proteins are much diminished owing to loss by albuminuria, and the colloid osmotic pressure of the plasma may be even lower than the low total protein would indicate, owing to the greater diminution of albumin than of globulin. The power of the blood proteins to hold fluid in the capillaries, against the hydrostatic pressure which tends to drive it out, is much lessened: accordingly, we have a basis for a greater passage of fluid into the tissues than normally, and for less being drawn back at the venous ends of the capillaries, where hydrostatic pressure is lower. This view has been accepted by some as a complete explanation of nephrotic oedema, and, as will be seen, it is only indirectly the result of the renal disability. The theory has not, however, escaped important criticism. Some have observed that the degree of oedema does not always correspond with the amount of decrease of plasma protein (Linder, Lundsgaard, and Van Slyke[30]); while Leiter,[14] in the main adhering to Epstein's view, does not apparently entirely discount this claim. Kylin[23] also has noted resolution of oedema occurring in a nephrosis without the antecedent rise of colloid osmotic pressure in the blood that one would expect. Another difficulty is that the low colloid osmotic pressure of the blood does not apparently interfere with absorption of water from the intestine as might be anticipated; nor does it render more effective the separation of fluid from the blood by the kidneys. This important blood change must no doubt be a significant contributory factor in allowing escape of fluid from the vessels into the tissues, thus giving oedema and also concentration of the venous blood. There is as yet, however, no evidence that it can account for the large retentions of fluid in the body which characterize nephrotic oedema.

Fluid Retention as a Result of Disordered Reabsorption in the Kidney

A consideration of much of the literature dealing with this subject would suggest that one reason why extrarenal explanations of renal oedema have been sought out and adhered to is that the kidney has been regarded as a secreting organ after Heidenhain's theory. According to this view the water and salt appearing in the urine represent all of these substances which have been filtered from the glomeruli, while most other constituents, like urea, have been secreted into this current by the tubule cells, thus attaining a high concentration. On this view oliguria would be explained simply by lessened filtration. Very few workers, apparently, have attempted to apply Ludwig's theory of large filtration and reabsorption, in its modern form as expressed by Cushny[31], to the problem of renal oedema, though Mayrs[32] has developed its application to the explanation of oliguria. Obviously these two theories of physiological mechanism would provide very different interpretations of the phenomena observed in disease as in the normal. The application of the secretion theory to the interpretation of the known facts in acute glomerulo-nephritis and in nephrosis shows great difficulties in the way of securing reasonable and concordant explanations in the two cases. In acute nephritis the suggestion would be that, owing to blockage of capillaries in the tufts, the amount of filtration was insufficient to secure adequate disposal of water and salt, while the tubules, intact at first, would still secrete sufficient urea to keep the blood urea down, as it is in the early period when oedema is already well marked. But if the glomerular blood flow were so much reduced by capillary blockage as to cause retention of water and chloride we would expect to find urea retained even more markedly. As Huber's[33] analysis has finally shown, all the blood which reaches the renal tubules has first to pass through the glomeruli, so will be correspondingly diminished. Here the low concentration, 30 mg. per cent. of urea, as compared with sodium chloride, 600 mg. per cent. in the blood, gives much less opportunity for getting rid of the former than the latter at a low rate of flow. In the case of nephrosis the blood flow through the tufts and to the tubules is probably not diminished, and the capillary walls are sufficiently permeable as they leak albumin, yet here it is salt and water which are retained while urea is concentrated and often excreted efficiently though some of the main morbid appearances are in the tubule cells.

The filtration-reabsorption hypothesis is not without its difficulties also, but it appears on the whole to offer more chance of an explanation in all cases of retention of an undue amount of fluid and salt while urea is dealt with efficiently. On this view, in the normal working of the kidney, a moiety of protein-free plasma with all soluble constituents is filtered by pressure from the blood passing through the tufts. In passage down the tubules water, chloride, and sugar are reabsorbed to an extent which leaves urea and other purely excretory substances highly concentrated. By this theory the amount of filtrate is very large in proportion to the amount of urine formed, but it is not large in proportion to the amount of blood passing through the kidney—probably round about 10 per cent. (Dunn, Kay, and Sheehan[34]). The amount of fluid reabsorbed by the tubules is almost equally large—say 59/60 or 90/100 of the filtrate, so that the kidney acts in respect of water and salt as an organ of conservation rather than of excretion. In this process, going on continuously, it will obviously require very exact

adjustment to secure that neither too much nor too little water is reabsorbed, and a small error by way of excess in reabsorption throughout the day will result in a real retention of water and salt in the body so long as sufficient quantities of these are taken in

The effects of this view of functional activity may be matched in a general way with the anatomical features which the hydropigenous nephritides possess in common—namely, diffuseness of lesion and the persistence in bulk of tubular or reabsorbing tissue Considered more in detail, it fits in very well with the three conditions showing some degree of blockage of glomerular capillaries, especially for the stage most difficult to explain—namely, where there is already oedema and water and salt retention, but sufficient excretion of urea Here we may suppose that, owing to partial blockage of capillaries, the tufts can no longer produce a sufficient amount of filtrate by working in relays as normally, but all have to be perfused continuously, possibly with the aid of increased blood pressure A normal total amount of filtrate with a sufficient total amount of urea is thus being produced, but it is distributed to all the tubules instead of to the smaller number, a third or a fourth, corresponding to the number of tufts normally functioning at a time The opportunity for reabsorption is thereby increased With a worsening lesion of the tufts this system would still carry on with a rise of blood urea, for a greater percentage of urea in the original filtrate would mean an equal total elimination from a less amount of fluid Ultimately, however, definite urea retention would show, as it often does, in later periods of acute and subacute glomerulonephritis This may be regarded only as a type of explanation, and is by no means necessarily the correct one it would not apparently apply to the elucidation of conditions in nephrosis On the other hand, in nephrosis the anatomical fact of apparent freedom of circulation seems to demand excessive reabsorption as the likeliest explanation for the oliguria, especially with urea excreted normally The imbalance of reabsorption and filtration may well be produced on some less obvious principle

The account which has been given in opening this discussion is doubtless open to the charge of bias in favour of a renal retention origin of renal oedema It would, however, have been difficult in the time available to do justice to all the more important theories, and at the same time convey an idea of the need for reconsideration of certain important dicta It is hoped that some of the arguments brought forward will be accepted as justifying the view that some reconsideration is possible As a minor form of excuse for attacking the purely extrarenal theories, it may be urged that while these have been highly developed and made to assume great probability, they are diverse and probably cannot all be correct, while none of them produces a principle applicable to all stages of the oedema In the end, when it is desired to remove the pathological accumulations of fluid, it is to the kidney that appeal has to be made, and if diuresis cannot be established the condition remains essentially unchanged

[32] Ball *Amer Journ Path*, 1932, [illegible]
[33] Leiter *Medicine*, 1931, x, 135
[34] Beckmann *Deut Arch f klin Med*, 1931, clxxx, 29
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[37] Widal and Lemierre *Bull et Mém Soc Méd des Hôp de Paris*, third series, 1908, xx, 678, 785
[38] Veil *Berlin Zeit*, 1918, xcv, 37
[39] de Wesselow *Quart Journ Med*, 1925-6, xix, 51
[40] Nonnenbruch *Deut Arch f klin Med*, 1931, clxxvi, 179
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AUTOLYSED YEAST PRODUCTS IN THE TREATMENT OF ANAEMIA

BY

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F R C P ED

The number of publications which have appeared within the past two years regarding the value of vitamin B preparations, especially those derived from yeast, in the treatment of anaemia is evidence of the interest which the problem has aroused in the minds of clinical haematologists and laboratory workers alike In view of the scientific and practical importance of the subject, and the fact that considerable divergence of opinion exists regarding the therapeutic efficiency of such products, the time appears ripe for a review of the whole problem

YEAST PRODUCTS IN THE ANAEMIAS

I HYPOCHROMIC ANAEMIA

(*a*) The milk anaemia of rats Parsons[1] has shown that when yeast is added to the milk diet the anaemia is cured, growth proceeds satisfactorily, and reproduction may occur The progeny, however develop anaemia This can be prevented by supplying iron as well as yeast to the pregnant mother rat

(*b*) Nutritional anaemia of infants Although the hypochromic anaemia of milk-fed rats and infants appears to be similar, since iron deficiency is the essential feature, Parsons found that yeast products generally failed to influence the nutritional anaemia of infants, which, however, responded to adequate doses of iron In a few resistant cases the supplemental effect of adding yeast or copper, or both, to the iron ration appeared to produce beneficial results

(*c*) Iron deficiency anaemias of adults In 1931 I published the results of my investigations[2] into the therapeutic value of yeast preparations in the treatment of hypochromic anaemia in adults, particularly of the type associated with achlorhydria Marmite was found to be as useless as liver extract in the treatment of hypochromic anaemia, a point on which all workers in this field agreed.

II. HYPERCHROMIC MACROCYTIC ANAEMIA

Wills[3] showed that the tropical macrocytic anaemia of Indian women responded to small doses (12 to 30 grammes) of autolysed yeast product (marmite), by showing a

reticulocyte crisis and a rise in the blood level as prompt and as satisfactory as that obtained by liver extract. Similar results have been reported by Vaughan and Hunter[4] in the macrocytic anaemia which is found occasionally in coeliac disease; and by Castle and Rhoads[5] in cases of sprue. Mudaliar and Rao,[6] however, found in eleven cases of pernicious anaemia of pregnancy that marmite in doses of one drachm three times a day was ineffective, although only one of them failed to respond to subsequent liver treatment. Parsons[1] treated two infants suffering from a macrocytic hyperchromic anaemia with a yeast product, for one and four months respectively, with negative results.

For the purpose of the discussion which follows, Castle's[7] hypothesis regarding the aetiology of pernicious anaemia is accepted—namely, that megaloblastic blood formation is due to a lack of some specific anti-anaemic factor which is formed by the interaction of a ferment secreted by the stomach (intrinsic factor) upon some constituent of the proteins of foodstuffs (extrinsic factor). In the above types of anaemia the gastric secretion appears to be normal, and the deficiency of the specific anti-anaemic factor is the result of a lack of extrinsic factor consequent upon dietary deficiency or imperfect assimilation from the gastro-intestinal tract. In Addisonian pernicious anaemia the essential fault lies in defective gastric secretion, while failure in absorption plays a minor part in the pathogenesis of the disease.

Contradictory results regarding the therapeutic value of yeast products have been published. Thus Goodall[8] and Ungley[9] report some successes when large amounts of marmite were administered daily, while Castle[10] and Groen,[11] using smaller amounts, have only recorded failures, although the same quantity of marmite incubated with normal gastric juice was found to produce positive results. Having previously reported two successes and several failures,[2 12] I came to the conclusion that autolysed yeast products could not be considered in their present form to be substitutes for liver extract. In addition—for reasons which need not be recapitulated here—the conclusion was reached that "it is highly improbable that vitamin B and the anti-anaemic factor are in any way related," a view which has been substantiated by the recent work of Lucy Wills and of Groen.

Sixteen cases of pernicious anaemia treated with autolysed yeast products or alcoholic extracts made therefrom form the basis of this communication. The diagnosis was based on a full clinical and haematological examination, including red and white cell counts, haemoglobin estimation, colour index, cell volume index, iron index, estimations of cell diameter, van den Burgh reaction, and gastric analysis. Blood counts and reticulocyte counts were made every second day throughout the test periods.

To those who were present at the meeting of the Association of Physicians of Great Britain in 1933 it is clear that considerable misunderstanding exists among different workers regarding the dosage of yeast products employed. This confusion is also apparent in the literature on the subject. Thus Ungley stated that the amount of marmite administered by him daily was four ounces, while Goodall stated that the amount given to his cases was one and a half ounces. It now transpires that Ungley refers to weighed quantities (four ounces equals 120 grams), while Goodall was referring to tablespoonfuls. An average tablespoonful of marmite weighs about 50 grams. I used the term "drachm," meaning a teaspoonful, while the "drachm" referred to by Wills[13] in her latest communication is a weighed measure equalling 4 grams. One average teaspoonful of marmite has been found by me to weigh approximately 15 grams. Castle and Groen of Amsterdam report their dosages in grams. For purposes of comparison I have estimated all the amounts published by the different workers in terms of grams.

SURVEY OF CASES

Below are given case records showing the therapeutic effects of autolysed yeast products (marmite) and extracts made therefrom. For the final proof regarding the potency of any agent it is necessary to show in cases where no response is elicited that an effect can be produced when a known active preparation is subsequently used. A short note on each case is accordingly necessary.

Case 1.—A. G., aged 62, was admitted to hospital with a red cell count of 1,000,000 and a haemoglobin of 28 per cent. Liver extract was given for eight days; a 20 per cent. reticulocyte crisis resulted, and a gain of 1,800,000 red cells occurred in twenty-four days. After a control period of twelve days, treatment with marmite (45 grams daily) was begun, and as no change occurred in ten days the patient was given liver and liver extract, iron being added later, with the result that his blood count rose to: red cells, 5,000,000; haemoglobin, 100 per cent. The patient was still at this level one year later.

Case 2.—G. G., aged 65. Blood count on admission to hospital: red cells, 2,120,000; haemoglobin, 48 per cent.; colour index, 1.15; white cells, 3,750; reticulocytes less than 1 per cent. After three weeks' treatment with marmite (45 grams daily) the count was: red cells, 1,790,000; haemoglobin, 53 per cent.; colour index, 1.51; reticulocytes less than 1 per cent. The patient was then given a series of injections of campolon, which produced an increase of 2,500,000 red cells in three weeks.

Case 3.—W. T., aged 70. Blood count on admission to hospital: red cells, 1,840,000; haemoglobin, 43 per cent.; colour index, 1.19; white cells, 3,430; reticulocytes, 1 per cent. Fourteen days' treatment with marmite (45 to 90 grams daily) produced no change in the blood level. Accordingly, the patient received seventeen daily injections of campolon, which resulted in a reticulocyte crisis on the seventh day and a gain of 1,800,000 red cells in four weeks. The patient has been taking two pounds of liver weekly for the past nineteen months. Blood count on July 17th, 1932, was: red blood cells, 4,400,000; haemoglobin, 92 per cent.

Case 4.—W. S., aged 55. Blood count on admission to hospital: red cells, 2,210,000; haemoglobin, 66 per cent.; colour index, 1.5; reticulocytes less than 1 per cent. No response having been obtained as a result of giving large doses of marmite (120 to 180 grams daily) for fourteen days, the patient was given half a pound of liver daily. A gain of 1,000,000 red cells was observed in sixteen days. As the patient was a bad case of subacute combined degeneration, injections of liver extract were then started, and a further gain of 1,000,000 red cells occurred in nine days.

Case 5.—Miss C. S., aged 36, has been under my charge in three severe relapses. In the first one she responded to ventriculin with a 50 per cent. reticulocyte crisis, but failed to continue treatment after she left hospital, to which she returned some months later with a blood count of 700,000 red cells. She responded with a 36 per cent. reticulocyte crisis to treatment for ten days with a dogfish-liver extract made in Aberdeen, gaining 1,800,000 red cells in three weeks. When the blood count was stationary at 2,500,000 red cells large doses of marmite (180 grams daily) were given for fourteen days with no effect. On discharge, treatment with a new preparation of desiccated hog's stomach was begun, and in fourteen days she gained 750,000 red cells. She was then given "pepsac," one tablespoonful twice daily, and as the blood level began to fall this was increased to three tablespoonfuls daily. Some of this was lost by vomiting, and the patient was readmitted to hospital on June 15th, 1933, with a red cell count of 1,400,000; haemoglobin 30 per cent. Hepatex was given intravenously and intramuscularly on alternate days, and a 25 per cent. reticulocyte crisis occurred on the eighth day, with a gain of 2,200,000 red cells in twenty-five days.

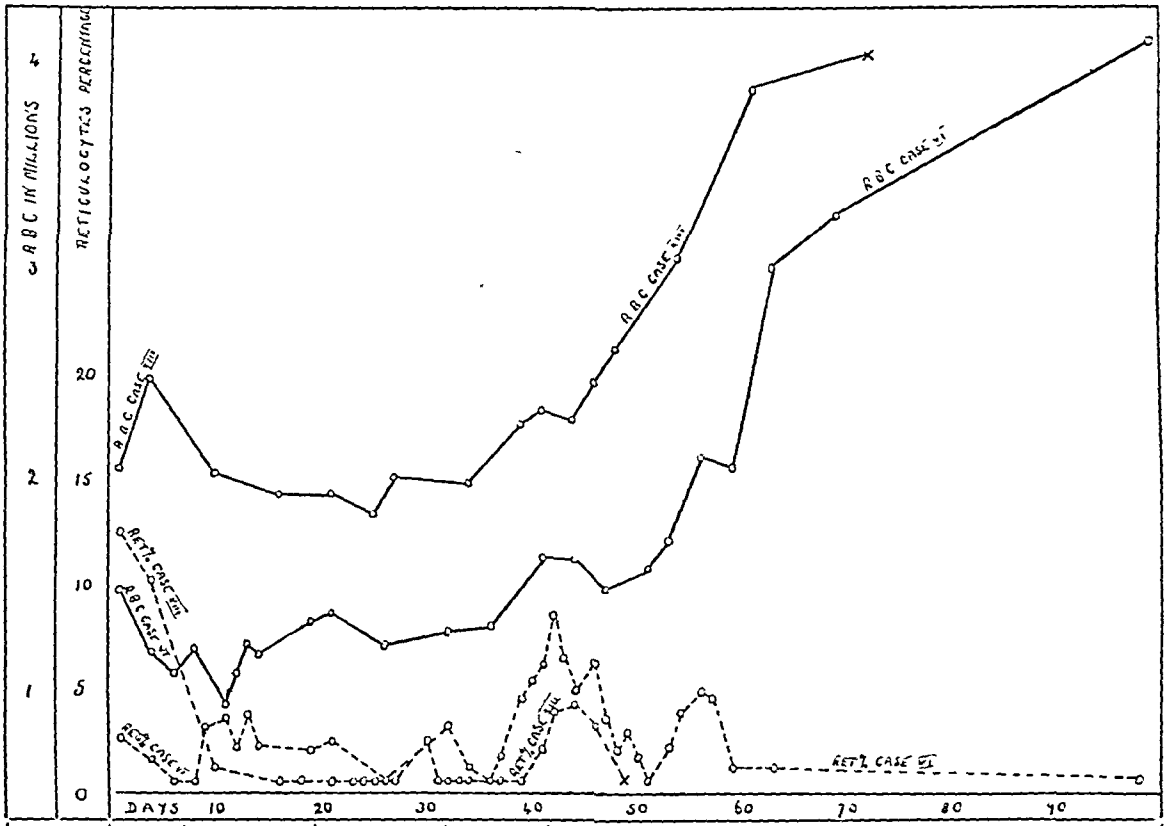
Case 6.—J. S., aged 45, was admitted to hospital with a blood count of 1,100,000 red cells, haemoglobin 30 per cent. Large doses of marmite (90 grams daily for ten days, and 180 grams daily for eight days) were administered, with no result. The patient was then treated with an autolysed yeast product, which had been activated with hog's stomach tissue. The result was negative, and Dr. Groen of Profess

Snapper's clinic, Amsterdam, also found this batch inactive, although a previous preparation, made by N. V. Organon, had been effective. The patient was next treated for ten days with 60 grams of marmite which had been incubated with gastric juice withdrawn from a case of pernicious anaemia that had recovered the power of secreting hydrochloric acid. Details of this case have already appeared separately in a previous issue of this *Journal*.[14] Reticulocytes increased to approximately 10 per cent. on the fifth day, and a gain of half a million red cells was made within a week. This clearly proved that the donor of the gastric juice had recovered the power of secreting some intrinsic factor as well as hydrochloric acid. The patient was then given a series of injections of hepatex intravenously and intramuscularly, and a gain of 1,500,000 red cells and 20 per cent. haemoglobin occurred in fourteen days. Liver, half a pound four times weekly, and pepsac on alternate days, rapidly caused the blood level to exceed 4,000,000 red cells (see Graph).

Case 7.—G. McC., aged 61, was admitted to hospital with a blood count of: red cells, 1,890,000; haemoglobin, 50 per cent.; colour index, 1.32; white cells, 3,750; reticulocytes, less than 1 per cent. Twenty days' treatment with marmite in small doses (45 grams daily) failed to produce any alteration in the blood level. The patient was given liver extract for one week, which caused his blood count to rise to: red cells 2,520,000; haemoglobin, 80 per cent. Treatment with marmite (90 grams daily for fourteen days) was again totally ineffective. He was subsequently treated with liver, liver extract, and iron, and the blood count rose slowly to 4,100,000 red cells, 90 per cent. haemoglobin, when the patient left hospital.

Case 8.—Mrs. I. T., aged 54, was a very bad case of subacute combined degeneration of the cord. Her blood count on admission was: red cells, 4,050,000; haemoglobin, 88 per cent.; colour index, 1.1. Treatment with marmite (90 grams daily) for thirty-three days, failed either to raise the blood level materially or to improve the neurological manifestations. Since leaving hospital she has continued marmite in smaller doses (45 grams daily), and also iron, liver, and pepsac, with little real improvement in her clinical condition.

Case 9.—Mrs. E. A., aged 47, a severe case of subacute combined degeneration, was admitted to hospital with a



Case 10.—Miss A. D., aged 57, was transferred to my ward, having failed to improve on liver extract in another department of the hospital. A history of diarrhoea during childhood, increase of fat in the stools, and osteoporosis of the bones suggested that the macrocytic anaemia might be due to Gee's disease. Achylia gastrica was present. Blood count on admission was: red cells, 2,990,000; haemoglobin 68 per cent.; colour index, 1.15. Treatment with marmite for seventeen days (45 grams daily for fourteen days, and 135 grams daily for three days) was ineffective. The blood

count being lower than when treatment started. Intensive treatment was then given with liver, liver extract by mouth and injection, and iron, and this resulted in a gain of 1,800,000 red cells in about six weeks. Blood count on July 17th, 1933: red cells, 4,630,000; haemoglobin, 80 per cent.

Case 11.—D. S., aged 42, was an example of very severe subacute combined degeneration of the cord. On July 6th, 1932, the patient was admitted to hospital with a blood count under 1,000,000 and slight neurological changes. Treatment for five days with a fish-liver extract made in Aberdeen was followed by a gain of 1,600,000 red cells and 40 per cent. haemoglobin in seventeen days. After leaving hospital the patient failed to carry out the treatment recommended to him, and returned in a paralysed condition six months later. The blood count was: red cells, 3,210,000; haemoglobin, 79 per cent.; colour index, 1.23. He was treated with large doses of marmite (45 grams daily for ten days, 60 grams daily for five days, and 180 grams daily for eight days), but this failed to produce any haematological or neurological improvement. Diarrhoea and vomiting started. He was then given an alcoholic fraction of marmite (referred to below) for twenty-two days, with no effect. He subsequently responded slowly to liver, liver extract, and iron, gaining 1,600,000 red cells and 25 per cent. haemoglobin in two months, with some improvement of the central nervous system manifestations.

Case 12.—N. D., aged 56, was admitted to hospital with a blood count of: red cells 1,810,000; haemoglobin 49 per cent.; colour index, 1.36; reticulocytes less than 1 per cent. He failed to react to seven days' treatment with marmite (45 to 90 grams daily), and also to a further week's treatment with fractioned marmite (referred to below). He was then treated with a preparation of marmite activated with hog's gastric tissue (made by N. V. Organon), with some slight degree of response. He was finally treated with pepsac and liver extract, on which he gained 1,500,000 red cells and 25 per cent. haemoglobin in forty days. He reported at the blood clinic on July 15th, 1933, when his blood count showed 4,220,000 red cells and 98 per cent. haemoglobin.

Case 13.—Mrs. M. S., aged 50, was admitted to hospital with a blood count of: red cells, 2,400,000; haemoglobin, 54 per cent.; white cells, 2,600; reticulocytes, 12 per cent. Patient had been taking liver for five days before admission. After a control period of fifteen days the blood count was stationary at: red cells, 1,930,000; haemoglobin, 56 per cent.; reticulocytes 1 per cent. Treatment for ten days with a 65 per cent. alcoholic extract from 100 grams of marmite daily produced no change in the blood level. Since Case 15 (see below) had responded excellently and remained well for 435 days on 45 grams of marmite daily, it was decided to test his gastric juice for intrinsic factor. Accordingly gastric lavage was carried out at night, and every morning for eight days injection of three-quarters of a milligram of histamine was given subcutaneously and the stomach contents removed. Owing to a rapid emptying rate, or to a failure in secretion, only 30 to 40 c.cm. of gastric juice were obtained daily, which had no free hydrochloric acid or pepsin. The alcoholic extract from 100 grams of marmite was mixed with the gastric juice, incubated for two hours at 37° C., and the mixture transferred into the stomach of Mrs. M. S. through a duodenal tube every morning for eight days. No change in the red cell or reticulocyte count occurred. The experiment, therefore, failed to demonstrate the presence of intrinsic factor in the gastric juice of Case 15. (Whether this failure was really due to a complete absence of intrinsic factor, or whether the small quantities of gastric juice obtained contained insufficient intrinsic factor to activate the marmite, is a problem which unfortunately cannot be answered.) Mrs. M. S. was next treated with a liver extract made by hydrolysing liver with N 50 hydrochloric acid for ten days, according to the method described by Herron and McElroy.[15] The filtrate from 9 lb. of hydrolysed fish liver was given during a period of six days, with an insignificant effect, although the originators of this method claim that by its use markedly increased potency results. The patient was then given liver and liver extract, which resulted in an increase of 1,600,000 red cells and 17 per cent. haemoglobin in seventeen days* (see Graph).

Case 14.—Miss J. F., aged 60, was admitted to hospital with a blood count of: red cells, 720,000; haemoglobin, 18 per cent. She was treated with a fish-liver extract for seven days. This resulted in a 25 per cent. reticulocyte crisis and a gain of 2,500,000 red blood cells in three weeks. After a control period in which the blood count was stationary, marmite therapy (45 to 90 grams daily) was instituted, and the patient gained 500,000 red cells and 20 per cent. haemoglobin in three weeks. The patient returned home with instructions to take marmite, and she remained well for some months. Six months later she died, the cause of death, according to a relative, being kidney disease.

Case 15.—J. C., aged 62, was admitted to hospital with a blood count of 1,000,000 red cells and 26 per cent. haemoglobin. He was placed on small doses of marmite (45 grams daily). The reticulocytes rose to 16 per cent. on the eighth day, and he gained 3,200,000 red cells and 64 per cent. haemoglobin in forty-five days. He left hospital, and for the past eighteen months has taken no liver or liver extract. Two hundred and thirty days after discharge his blood count was 3,500,000 red cells, 90 per cent. haemoglobin, and it transpired that he was taking only one and a half teaspoonfuls of marmite daily. This was increased to three teaspoonfuls daily, and 435 days after discharge (on July 12th, 1933) his blood count was 4,500,000 red cells, 98 per cent. haemoglobin. He was in perfect health, and showed no signs of subacute combined degeneration of the cord.

Case 16.—W. G., aged 51, was admitted to hospital with a blood count of: red cells, 1,760,000; haemoglobin, 48 per cent.; colour index, 1.37; white cells, 2,800; reticulocytes less than 1 per cent. He was treated with fractioned marmite (referred to below) for nineteen days, with a gain of 1,000,000 red cells. He was then unsuccessfully treated with marmite (90 grams daily) for thirteen days. A further nineteen days' treatment with fractioned marmite resulted in a further gain of 1,000,000 red cells. Twenty-eight days' treatment with 35 grams of marmite daily resulted in an insignificant rise in the red cell level and a gain of 12 per cent. haemoglobin. The patient was placed on two tablespoonfuls of pepsac four times weekly and half a pound of liver on two days, but his blood count remained stationary at 4,000,000 red cells, 99 per cent. haemoglobin. He was then given two pounds of liver and two ounces of pepsac weekly, and fourteen days later (on July 17th, 1933) the blood count was: red cells, 4,560,000; haemoglobin, 100 per cent.

SUMMARY OF RESULTS

Group I.—Cases 1, 2, 3, 4, 5, 6, and 13 failed to respond to marmite or an extract made therefrom, but responded rapidly and well to the anti-anaemic factor contained in liver, liver extract, or hog's stomach tissue.

Group II.—Cases 7, 10, 11, and 12 failed to respond to marmite, but did so satisfactorily to the administration of anti-anaemic factor. The response was, however, slower, and the effective dosage required was greater than in the cases in Group I.

Group III.—Cases 8 and 9 failed to respond to marmite, either haematologically or neurologically, but other forms of treatment were also unsatisfactory.

Group IV.—Case 14 responded moderately well to marmite, while Case 15 gave an excellent response, and remained well for 435 days on a small maintenance dose. Case 16 responded to fractioned marmite (see below).

Fractioned Marmite.—Since the active principle in liver is water-soluble and precipitable in 95 per cent. alcohol, it was decided to extract marmite by the same method as was used for making liver extract. By this means marmite was concentrated to half its bulk. Cases 11 and 12 failed to respond to a daily dose of this fraction, made from 70 grams of marmite, which, however, was effective in Case 16. Case 13 was treated with the filtrate obtained from extracting marmite with 65 per cent. alcohol for twenty-four hours. The alcohol was evaporated and the patient received the filtrate from 100 grams of marmite daily for nineteen days. No improvement in the blood level resulted.

* On "Day 72" (see Graph) the actual count was: haemoglobin, 90 per cent.; red cells, 4,010,000.

Cases of Pernicious Anaemia Treated with Yeast + Wheat Embryo (Dr Ungley)

Case	Treatment	Duration	R B C	Hb %	Reticulocytes
		Days			
Atypical P A	Bemax, 160 grams	1	1 4	38	0 6 per cent
Pernicious		7			13 0 per cent
		11	1 7	42	
1 P A	Bemax, 270 grams	1	1 02	36	Started to rise before treatment
		11			11 8 per cent
		20	1 4	43	
		32	?	?	
2 P A	Bemax, 125 grams	1	1 9	50	(1 8)
		10	No change	No change	4 3 per cent. on 6th day negligible rise
3 P A	Bemax, 240 grams	1	0 87	18	—
		10	No change	No change	No rise
Atypical P A Pernicious	Marmite 120 grams	1	1 6	43	3 0 per cent
		31	2 83	75	27 2 per cent on 9th day
		84	4 43	81	
14 P A	Marmite 60 grams	1	1 42	38	0 8 per cent
		18	2 0	53	13 1 per cent on 10th day
15 P A	Marmite, 120 grams	1	1 16	30	1 8 per cent
		44	2 5	68	18 6 per cent on 10th day
16 P A	Marmite, 120 grams	1	2 3	64	2 4 per cent
		21	3 4	90	12 0 per cent. on 9th day
17 P A	Marmite, 120 grams for 10 days, then 60 grams Marmite + iron further 28 days	1	2 69	70	Not observed
		10	2 89	80	
		25	3 27	84	
		63	3 41	84	
			4 53	90	
18 P A	Nestamin, 48 grams for 10 days	1 10	1.37	30	5 0 per cent on 4th day
	Marmite 120 grams for 9 days	11–19	No change	No change	No rise
Mrs H D, P A	Alcoholic extract of marmite from 120 grams for 42 days	1	1 65	45	(3 6)
		10	2 05	54	8.8 per cent. on 8.h day
		24	2 45	64	
		42	3.58	90	
Mrs H S, P A	Alcoholic extract of marmite from 120 grams for 53 days	1	1 34	40	(3 7)
		12	2 25	56	27 2 per cent on 10th day
		22	2 93	66	
		30	3 33	80	
		44	4 07	90	
		51	4 83	93	
		58	5 12	97	

Results Compared with those of Other Observers

Through the kindness of Dr Ungley[9] I am able to show the table an analysis of the blood examinations made him in twelve cases of pernicious anaemia treated with rious preparations rich in vitamin B complex The llowing conclusions appear to me to be justified treat ent with bemax in large quantities failed to produce ly material rise in the red cell count in Cases 9, 11, 12, id 13, or in the reticulocyte percentage count of Cases ' and 13 The reticulocyte crises which occurred in ses 9 and 11 were subnormal in degree, and must be scarded for the present purpose—in Case 9, since hydroloric acid was present in the gastric juice, and therefore ossibly intrinsic factor, and in Case 11, because the rise gan before treatment started Marmite was used in rge doses in Cases 10, 14, 15, 16, 17, and 18 The erapeutic effect was entirely negative in Case 18, but the others a rise in the blood level occurred For omparison it should be remembered that when adequate mounts of potent liver extract are given to a case with blood count below 2,000,000 cells an increase of at ast 2,000,000 cells should be obtained within thirty ays It will be seen from the Table that the therapeutic ffects of marmite were slow and poor, and in no way omparible to this, since the increase of red cells in Cases 14, 15, 16, and 17 was 0 5, 1 34, 1 1, and 0 72 million in 18, 44, 21, and 63 days respectively The extent of the rise in reticulocytes was most marked in Case 10, in which free hydrochloric acid, and therefore possibly intrinsic factor, was present In Cases 14 and 15 the reticulocyte crises were subnormal in extent and delayed in appearance Cases 19 and 20 were treated with a 65 per cent alcoholic extract of marmite By this means the proteins are precipitated and the active principle can be obtained in a more concentrated and, therefore, more potable form Case 19 showed a moderate response, while Case 20 responded excellently

Goodall[8] treated three cases of pernicious anaemia in the relapse stage with large doses of marmite (150 grams daily) and produced a definite rise in reticulocytes and red cells, which was, however, subnormal in quantity and delayed in time compared to what can be obtained from efficient liver therapy Thus Case 1, despite a satisfactory reticulocyte rise, gained only 0 8 million red cells after four months' treatment, Case 2 gained 1 4 million red cells in forty three days; and Case 3, after a satisfactory beginning in which a gain of 1 9 million red blood cells occurred in thirty days, progressed so slowly that the red cell count was only 3 7 million after 120 days' treatment *When Goodall combined intravenous* liver therapy with marmite by the mouth the speed of blood regeneration was enormously increased thus the fourth case in his series gained 3 8 million red cells in sixty days and the fifth case gained 2 5 million red cells in twenty six days

On the whole, Ungley and Goodall have had somewhat better results with marmite therapy than I have, although Case 15 of the present series shows, perhaps, the most dramatic effect so far published This difference can be explained on two grounds—namely, the dose of material administered and the initial blood level at which treatment started Castle and Groen's failures and a few of mine as well, may be ascribed to insufficient dosage This explanation cannot hold good for Cases 4, 5, 6, 7, 11, 12, and 13 in which doses as large as, or larger than, those used by Ungley were employed The more likely cause of the discrepancy lies in the initial blood level at which treatment started, since it is universally recognized that small amounts of liver extract, which may cause a moderate reticulocyte rise and a small increase in the red cell count when the blood level is around 1,000,000 are totally ineffective when the blood count approaches 3,000,000 Only seven of the sixteen cases reported by me started marmite therapy with a blood count below 2,000,000, two of which approached the 1,000,000 mark In Ungley's series of twelve cases ten started with a count below 2,000,000, seven of which approached the 1,000,000 mark Accordingly, the chances of Ungley's cases showing some therapeutic effect from the administration of marmite were greatly increased An examination of the case reports given above makes it certain that cases of pernicious anaemia in severe relapse *may fail to respond* to large doses of yeast products, and that others in the semi-remission stage, with blood counts between 2 and 3 million red cells, fail to improve, although subsequent treatment with active principle, in the form of liver, liver extract, or hog's stomach tissue, is entirely successful Nevertheless, sufficient positive evidence has now been accumulated to establish the fact that marmite contains a small amount of an active principle which can stimulate blood formation in some cases of pernicious anaemia Its concentration is poor, as judged by the large quantities of marmite which must be given, and in consequence its effectiveness is uncertain, and when an action is produced it is generally poor in quality and delayed in time.

DISCUSSION

NATURE OF HAEMOPOIETIC FACTOR IN MARMITE

If it is admitted that marmite has some therapeutic value in the treatment of pernicious anaemia it becomes necessary to identify the active principle. Yeast is known to be a rich source of the vitamin B complex, and it also contains iron, copper, and manganese, and the two proteins—zymocasein and cerevisine. Excluding the minerals, since they are definitely of no value in the treatment of the relapse stage of pernicious anaemia, the problem is narrowed down to vitamin B_2 and the yeast proteins or their katolytic products. It is unnecessary to recapitulate here the evidence which has accumulated during the past few years regarding the connexion which appears to exist between the active principle in liver and vitamin B_2. From his investigations into the characteristics and distribution of the extrinsic factor present in different substances, both animal and vegetable, Castle[10] concluded that they correspond to those of vitamin B_2. The recently published work of Lucy Wills,[13] however, is definitely against this hypothesis. She found the following vitamin B preparations therapeutically inactive in the tropical macrocytic anaemia of Indian women:

(*a*) Vitamin B_1 and B_{11}, made from rice polishings adsorbed on to china clay.

(*b*) Vitamin B_2, made from egg-white, in a concentration seven times greater than the vitamin content of 30 grams of marmite.

(*c*) Large doses of dried yeast or watery yeast extracts.

The cases subsequently responded adequately to 30 grams of marmite. Moreover, a case of pernicious anaemia treated with vitamin B_2 made from egg-white failed to react to the egg-white extract, either before or after incubation with 150 c.cm. of normal gastric juice, although a subsequent response was immediately obtained from liver extract.

Confirmation of these findings has been obtained by independent investigation by Dr. Groen[11] of Amsterdam, whose unpublished results I have the privilege to report. The results of treatment in ten cases of pernicious anaemia may be summarized as follows:

(*a*) Marmite (24 to 36 grams daily) was inactive, but when incubated with 150 c.cm. of gastric juice an immediate response resulted (four cases). Autoclaving did not destroy the active principle.

(*b*) Dried yeast in doses of 60 to 75 grams, either in the form of watery extracts or 50 per cent. alcoholic extract, was inactive even when incubated with 150 c.cm. gastric juice. The patients immediately responded to marmite and gastric juice or to liver extract (four cases).

(*c*) Egg-white from twelve to twenty eggs, plus 150 c.cm. gastric juice, was inactive; a satisfactory response to liver extract subsequently resulted (two cases).

Lastly, Chick and Copping[16] have shown that vitamin B_2 in watery yeast extracts is rapidly destroyed or inactivated by 70 per cent. alcohol, whereas the active principle of marmite is both alcohol stable and heat stable.

For the above reasons it may safely be concluded that the haemopoietic factor in liver, liver extract, and marmite is not vitamin B_2. A personal communication from Strauss and Castle, received on July 15th, 1933, indicates that these writers have also come to the same conclusion. Since dried yeast—or watery extract of yeast—is therapeutically inactive, but autolysed yeast products are active, it follows that the active principle is manufactured during the process of autolysis, in which case it must be a protein breakdown product of the nature of a polypeptide. Further researches into its character are required before any definite conclusions regarding its composition can be arrived at. If the active principle of marmite is the same substance as the anti-anaemic factor of liver extract, we must assume, on Castle's hypothesis, that it is produced by the action of yeast enzyme (intrinsic factor) on yeast protein (extrinsic factor) during autolysis, and the therapeutic failures, either absolute or relative, reported above, must be dependent on insufficient dosage of the active principle due to its poor concentration. If, on the other hand, the active principle is merely concentrated extrinsic factor, variation in response to treatment must depend on the absence or presence of intrinsic factor in the patient's stomach. That autolysed yeast is a rich source of intrinsic factor is certain, since its concentration in marmite is twenty times greater than in beef protein. Moreover, small quantities of marmite which are therapeutically ineffective become effective after incubation with normal gastric juice or hog's stomach mucous membrane. Again, the rapidity, as well as the degree of response, obtained in the treatment of tropical macrocytic anaemia and the macrocytic anaemia of coeliac disease is so much greater than that occurring in Addisonian pernicious anaemia, even when much larger quantities of marmite are given, as to suggest that the amount of intrinsic factor present in the stomach is the factor upon which the response depends. That the intrinsic factor may be absent at one time and present at another has been demonstrated by Castle, a fact which was also shown in the experiments performed on Case 6. A partial return of the secretion of intrinsic factor supplies the most likely explanation of the natural remission and the maintenance of a normal blood level without treatment for months or years. It is always difficult to draw conclusions regarding the effects of treatment during remissions, but Goodall was impressed with the value of marmite in maintaining this stage, and has two patients who have kept well for one and two years respectively on small doses of marmite.[16] Case 15 likewise maintained a satisfactory blood level for 435 days.

Finally, the fact that the best result recorded (Case 15) was obtained by administering marmite in amounts which were only from one-quarter to a half as great as those used by Ungley, suggests that some intrinsic factor was present in the patient's gastric juice which augmented the active principle of marmite. Unfortunately the experiment performed to prove this hypothesis failed (see Case 13). These observations suggest that the factor which decides whether a response to marmite therapy will occur and if so in what degree, depends essentially on the ability of the stomach to secrete intrinsic factor. Sufficient evidence is not at our disposal to settle the difficult problem of the nature of the haemopoietic principle in marmite. It may eventually emerge that autolysed yeast products contain not only a large amount of concentrated extrinsic factor, but also a small amount of the specific anti-anaemic factor as well.

OTHER EFFECTS PRODUCED BY AUTOLYSED YEAST PRODUCTS

(*a*) *Gastro-intestinal and Metabolic.*—In small doses (one teaspoonful three times a day—45 grams) marmite is pleasant to take, and the patients often feel improved in health even when the blood cell level remains stationary. Similarly, a gain in weight may occur, with or without haematological improvement. In large dosage (two to four teaspoonfuls three times a day, 100 to 180 grams) marmite is nauseating, and in some cases it causes gastro-intestinal irritation, as evidenced by vomiting and diarrhœa. Ungley also found similar effects. Accordingly, large doses are definitely contraindicated, except when for short periods observations are required for research purposes.

(*b*) *Neurological.*—Since vitamin B is the anti-neuritic vitamin, hope was entertained that such vitamin-rich substances as autolysed yeast products might be of benefit in the treatment of subacute combined degeneration of the cord. No improvement, however, was found to occur

in one case neurological symptoms became apparent the first time during treatment Similar results are orted by Ungley.

) *Haematological*—A tendency for the colour index ise under marmite therapy, due to the increase of noglobin in relation to red cells, is seen in cases orted by Goodall, Ungley, and myself No satisory explanation for this is available As previously d, yeast products are valueless in the treatment of deficiency anaemias in human beings

Conclusions

he therapeutic effects of yeast products in different s of anaemia are reviewed Records of sixteen cases Addisonian pernicious anaemia treated with autolysed t products or alcoholic extracts made therefrom are ribed and compared with the results of other workers his field The conclusion is reached that such pro- ts contain some haemopoietic principle, the value of ch is discussed, but its concentration is small, as ed by many therapeutic failures, relative or absolute this reason, autolysed yeast products in their present n should not be used as substitutes for liver, liver ct, or hog's stomach tissue in the treatment of ucious anaemia

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SOME NEW OBSERVATIONS ON THE DIAGNOSIS AND TREATMENT OF SYPHILIS*

BY

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ntrary to the general impression, primary syphilis can use symptoms before it has reached the stage when condary signs are apparent Anaemia, pains in the nts, persistent headache, nausea, and pyrexia occur in out 50 per cent of primary cases, and in women these di ations may justify the insertion of a vaginal speculum, which is essential if a chancre on the cervix is not be overlooked

It is commonly held that a primary lesion of the genitals is always accompanied by a satellite bubo, but the sence of an inguinal lymphadenitis does *not* enable us dismiss the possibility of syphilis. Internal chancres drain into the common iliac and meso-rectal lymphatics, and even an external inoculation will cause enlargement of the inguinal glands only in about 40 per cent of cases To dismiss a sore on the external genitalia as being non-syphilitic because it is unaccompanied by an inguinal adenitis is therefore to incur error in a possible 60 per cent of cases To prevent these mistakes and to secure an accurate diagnosis at the earliest moment the dark-ground microscope must be used Incidentally, many textbooks state that the enlarged glands which occur with a syphilitic chancre are small, hard, and shotty On the contrary, they are generally large and elastic, and have a distinctive "indiarubbery" feeling which is characteristic of syphilis

It is generally thought that the favourite site of inoculation is on the labia, but only 39 39 per cent occur there, while in at least 44 per cent of cases the primary lesion is on the cervix [1] Owing to position, the majority of cervical chancres are undiscovered, or only diagnosed when the patient has developed secondary signs and symptoms If the incidence of syphilis is to be reduced a larger number of these cases must be diagnosed during the first stage, so that the patient can be warned against infecting her consort *The cervical chancre, hidden and painless, is the greatest cause of the spread of syphilis It is the commonest source of infection because its presence is unsuspected by both sexes*

In a series of 584 cases given by the author[1] the sites of primary genital chancres in women were distributed as follows

	Number	Percentage
Cervix	257	44 00
Labia majora	183	31 33
Labia minora	47	8 05
Fourchette	33	5 65
Urethra	19	3 26
Clitoris	16	2 74
Vagina	8	1 37
Vestibule	6	1 03
Anus	5	0 86
Bartholin's orifice	4	0 68
Perineum	2	0 34
Thigh	2	0 34
Mons veneris	1	0 17
Buttock	1	0 17

Just as the varying gonococcal cervical discharge cannot be diagnosed by its clinical appearance so may cervical chancres range from an extensive *carcinomatous-like* ulceration to a small shallow abrasion Irrespective of appearance, these clinical pictures are all deadly in their infectivity However, certain characteristics of a cervical lesion—especially the edge and the colour—should rouse suspicion and urge us to 'dark ground' its serum The edge of a cervical chancre, even when it is implanted on a pre existing erosion, is generally well defined and regular. If the outline is carefully examined with magnifying spectacles, the defined regularity of the chancre's margin can be readily distinguished from the irregular raggedness of a non-syphilitic erosion The colour of the erosive chancre, which is the common type of cervical chancre (about 71 per cent),[2] is bluish red, and is covered with small haemorrhagic spots, or, if it is not too recent, it may be covered with a thin greyish membrane, which also has a bluish tinge The ulcerative type, which occurs in 24 per cent of cervical chancres,[2] may be covered with a yellowish grey slough, which only lasts for four or five days, and after that its base is covered by bluish grey granulations which ooze blood and serum when touched Although cervical chancres bleed easily those on the vulva do not The bluish tinge of most cervical chancres is similar to the bluish colour of the congested vulva or cervix of a pregnant woman, but it is confined to the area of the chancre instead of affecting the whole cervix This purplish or bluish hue, caused by the syphilitic infiltration of lymphatics and blood stasis, is a particularly

* Delivered to the Exeter Division of the British Medical Association, April 6th, 1933

... final diagnostic point in differentiating the common ... chancre from the most numerous of lesions on the cervix—the simple erosions.

How does the gonococcal erosion differ from the chancre? The most frequent gonorrhoeal erosion—the papillary type—has a bright brick-red colour, with haemorrhagic points on its surface, which cause it to bleed more readily than a chancre. The outline may be ill defined and fade away gradually into the surrounding normal epithelium or it may be sharply circumscribed. When carefully examined, however, the margin is always irregular. The surface is velvety and smooth, neither elevated nor depressed; it is soft, and its limits cannot be felt. The discharge, which may be green, yellow, white, or clear and transparent, is abundant. The secretion from a chancre is scanty and serous. The differential diagnosis between the two conditions may be easy or difficult. If the usual characteristics of the chancre are present there is no confusion; but a small erosive type of chancre may be clinically indistinguishable from a small gonorrhoeal erosion.

Tradition and many textbooks inform us that hardness or induration circumscribed in the base of a sore means syphilis and that its absence favours chancroid. This teaching has caused many tragic mistakes. It should be emphasized that this induration indicates that a lesion has begun to heal, and its absence does not enable us to say that syphilis is absent too. Early chancres do not possess this clinical sign—not until they are six to ten days old. Similarly, chancroids (the old term "soft chancre" is misleading), when they become chronic, can also be indurated. In a series of 183 chancres on the labia majora only 17 per cent., and of 257 cervical chancres only 17.2 per cent., had circumscribed induration.[1] A more important but less frequent sign, almost diagnostic of syphilis, is oedematous induration. The tissues round the chancre are enlarged, painless, indiarubbery, and brawny. The hair follicles stand out, and the skin is thickened, and does not pit on pressure.

In the same series, oedematous induration occurred in 12.1 per cent. of chancres on the labia majora and in 7.2 per cent. of cervical chancres.

Treatment of Syphilis

While watching *Spirochaeta pallida* for days on end by the dark-ground method, in the hope that I might obtain some clues about its morphology, its persistent behaviour in a certain way gave me a new conception concerning the treatment of syphilis. I found that *Sp. pallidae* bathed in salvarsanized serum gradually lose their normal appearance, become ghostlike, fragmented, and paralysed, and in about five days apparently die. Then, in the space of five or six hours, they recover their normal appearance, are revivified, regain their spirals and motility, and become as normal and as active as their control spirochaetes which have not been similarly "doped." This strongly suggests that arsphenamine should be injected at intervals of five days or less, instead of waiting the customary week, which gives the spirochaete three days in which to recover. It should be attacked with fresh drug when its vitality is lowest. In this way the largest number of spirochaetes are killed in minimum time, the survivors and resistant forms are destroyed sooner, and, what is equally important, they are prevented from multiplying, and are less likely to develop resistance to arsenic. With this scientific foundation I started a strong bi-weekly course of injections at the Whitechapel Clinic some three years ago. Some thought that the patients would not stand such doses, and that the percentages of fatalities and complications would be too high. This has not been our experience. My medical colleagues at the clinic are most enthusiastic about the course, and the results obtained justify this. The details are as follows.

Whitechapel Course

First to fifth week: intravenous neoarsphenamine 0.45 gram weekly; bismuth 0.2 gram. Deep subcutaneous neoarsphenamine 0.3 gram weekly; bismuth 0.2 gram.

Sixth to eighth week: mist. pot. iod. 5 to 15 gr. t.d.s., p.c.

Ninth to thirteenth week: repeat as during the first five weeks—namely, total arsphenamine, 7.5 grams, total bismuth, 4.0 grams, in thirteen weeks. Patient to report for blood test in seven days following last injection of course. To report again in twenty-eight days, and then to be given mist. pot. iod. until the next course begins. The weight of the patient, albuminuria test, and urobilinogen test are taken at each injection. A prophylactic draught containing liver extract conc. and glucose is swallowed before each injection. Each patient to receive three courses, with a rest interval between each course of eight weeks. At the discretion of the medical officer a course of intravenous injections once a week only, or deep subcutaneous injections once a week only, spaced as above, may be given to weakly patients—especially those over 45 years of age, or those with late syphilis.

This course was prepared primarily for those in the acute infectious stages, but it must be remembered that the patient's age is important. Those over 40 years eliminate drugs more slowly, and have more fibrous tissue in the liver, than do younger people. This strong course is therefore not so suitable for elderly patients.

Hitherto, practitioners have attempted to lessen the incidence of post-salvarsan jaundice and dermatitis by giving (1) smaller doses of the drug, (2) frequent intervals of rest between the doses, or (3) larger doses with correspondingly longer rest periods from treatment. These methods have had several serious disadvantages as a result of (*a*) lowering the therapeutic efficiency of the drug, (*b*) prolonging the course of treatment, (*c*) preventing many who would otherwise be cured from attaining that goal, because during the early and vital stages of treatment, when *Sp. pallidae* are most vulnerable, they have been irritated and not destroyed.

The excretion of arsenobenzene is rapid, especially when administered by the intravenous route. If it is too rapid the kidney and liver cells are liable to become damaged. This is more likely to occur if a single large dose of 0.75 gram or 0.9 gram is given. It is preferable to split this dose into two separate smaller doses of 0.45 gram and 0.3 gram, although these are given within the same period (generally one week) as the larger single dose. The aim of treatment is to kill *all* the infecting organisms with as little inconvenience and damage to the patient as possible.

In early syphilis, during the acute infectious stage, the dosage in the first week should be the strongest that the body can stand with safety. This same dosage should then be maintained—but not increased—each week throughout the course. Although arsenic is a cumulative poison, with time the body becomes habituated and more tolerant to it, and the tissues become accustomed to deal with it, *provided the dose is not raised.* The weekly dosage should be kept the same—that is, just below the threshold of intoxication—or damage to the liver cells, the most sensitive structures in the body to arsenic, will ensue. For the average patient this means 0.6 to 0.75 gram of neoarsphenamine per week. The deep subcutaneous method is therapeutically more efficient, safer, and causes fewer toxic complications than the intravenous route. In the Whitechapel course the methods alternate so that the tissues are subjected to continual treatment, absorption of the drug over a long period, with as concentrated a dose as is consistent with no damage to the tissues.

The effects of treatment on the Wassermann reaction in 241 consecutive cases which completed the full course are given in the following table:

lechapel Course: Results of Treatment on the Wassermann Reaction

Type of Case	No. of Cases	Wassermann Reaction within a Month of End of First Course		
		Positive	Doubtful	Negative
egative primary ...	65	—	—	65 (100%)
ositive primary ...	114	1 (0.87%)	1 (0.87%)	112 (93%)
ositive secondary	62	2 (3.22%)	1 (1.61%)	59 (95.1%)
otal	241	3 (1.24%)	2 (0.82%)	236 (97.9%)

e treatment is most accurately judged by its effect he secondary cases, as the whole body is in a state philitic septicaemia in these patients. A negative ermann reaction occurred in 95 per cent. at the of the first course. No "Wassermann relapses" been observed.

is now the fashion, for fear of arsenical complica-, to lessen the amount of arsenic, and to rely more ismuth, which is far below arsphenamine in efficiency. , and the lessened use of mercury, is, I think, a back-l step. A course of treatment cannot be estimated the results of the Wassermann reaction alone; the entage and severity of the complications must be ded.

Complications with the Whitechapel Course

Type of Case	No. of Cases	Arsenical Dermatitis	Jaundice	Purpura	Per cent.
negative primary...	65	4 (6.15%)	1 (1.53%)	—	7.69
positive primary ...	114	5 (4.38%)	1 (0.87%)	2 (1.75%)	7.01
positive secondary	62	—	1 (1.61%)	—	1.61
otal	241	9 (3.73%)	3 (1.24%)	2 (0.82%)	5.8

n uneventful recovery followed all these complications. y are not confined to the period of the first course, have occurred at any time after the beginning of tment, and cover a period extending over two years. h this Whitechapel course we have had comparatively complications; most of them have been mild cases ermatitis (3.73 per cent.). Jaundice (1.24 per cent.) given little trouble. Although 29,015 arsenical in-ions have been given during the past two years re have been only two fatalities. The percentage of nplications has, I believe, been few because the course only one rest of three weeks, and because the dosage nains the same each week. This decreases the bility of sudden shock to, and paralysis of, the liver. rests are given too frequently the tissues become less ustomed to the arsenic at each rest, and have to establish their equilibrium and become re-educated to drug. This, if it happens too frequently, lowers the neral resistance of the body. It is a mistake, I think, give a rest every two or three weeks, just as the body becoming acclimatized to the drug and the spirochaete being overcome. I should like to stress the need of a ficiency of treatment. Two or three random injections arsphenamine are inadequate, and destroy the patient's tural immunity.

At St Thomas's Hospital I analysed the pregnancies of 1 syphilitic mothers before and after treatment. The ures are significant in this respect. Before treatment ese 300 mothers had had 739 pregnancies, of which er 50 per cent. were unhealthy. After treatment their al number of pregnancies was 305, of which just over per cent. were unhealthy. The mothers who had had under e course of injections—that is, less than 5 grams of neo-arsphenamine—had 30 per cent. unhealthy pregnancies. Those who had received more than one course of injections had only 3.75 per cent. of unhealthy pregnancies. What a difference a few extra grams of organic arsenic made to these mothers, to their babies, and to their future!

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A SENSITIVE TEST FOR THE PURITY OF AVERTIN SOLUTION

BY

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It is well known that avertin solution must be freshly prepared before use, at a temperature not exceeding 40° C. The reason for this is that, if overheated, or prepared too long before use, decomposition occurs, with the formation of dibromvinyl alcohol and hydrobromic acid, together with a further decomposition of the former into dibromacetaldehyde, according to the following equations:

$$CBr_3CH_2OH = CBr_2CHOH + HBr.$$
$$CBr_2CHOH = CHBr_2CHO.$$

The dibromacetaldehyde so formed is highly injurious to the mucous membrane of the rectum and colon, and cases of such injury have occurred, varying in severity from a mild post-operative discomfort to necrosis and sloughing of the colon, resulting in death.[1] In their original introductory article, Shipway and Blomfield[2] stated that the hydrobromic acid formed in the process of decomposition of avertin solution is at once detected by the Congo-red test. The experiments to be described prove that "universal indicator" (B.D.H.) is a more sensitive and reliable agent than Congo red as a test for the purity of avertin solution. These experiments were planned and carried out by Mr. Butchers, chief pharmacist, Manchester Royal Infirmary, and his chief assistants, Dr. Bullock and Mr. Priddy. The entire credit for the interesting and important discoveries which have been made is due to them, my own part being limited to the clinical application of their valuable work.

TECHNIQUE OF NEW TEST

Universal indicator gives the following colorations:

In the presence of	alkaline solutions		(pH 8.0)—	green
"	"	neutral	" (pH 7.0-7.5)—	greenish-yellow
"	"	acid	" (pH 6.5)—	yellow
"	"	"	" (pH 6.0)—	orange-yellow
"	"	"	" (pH 5.5)—	orange
"	"	"	" (pH 4.0)—	red

Transfer 3 mg. of prepared avertin solution to a clean test tube, and cool. In a similar test tube place an equal volume of the distilled water used in the preparation of the avertin solution. Add two drops of universal indicator to the contents of each tube. The colour of the avertin solution should be greenish-yellow, and it should not be possible to detect any difference in the colour of the contents of the two tubes. It is essential that the two test tubes should be scrupulously clean and previously rinsed with distilled water. The pH of ordinary distilled water may vary, and the actual sample previously used for the preparation of the avertin solution should serve as the control in the test. The above test is simple and rapid: if carried out as described it does not contain any fallacies. A possible theoretical objection is that greenish-yellow is a colour liable to varying individual interpreta-

test. A little practical experience in the use of the universal indicator will, however, soon convince anybody who is not actually colour-blind that the shade is unmistakably greenish-yellow, and quite different from the yellow or green colour obtained in the presence of acid or alkaline solutions.

Estimation of Decomposition Rates

The use of universal indicator has facilitated the experiments which have been performed on the rate of decomposition of avertin solutions under varying conditions of preparation and storage. Full chemical details of these experiments have been published elsewhere,[3] and the simple examples given are those from which practical conclusions may be drawn.

The preliminary experiment tabulated below shows that universal indicator is a more delicate reagent than Congo red as a test for the purity of avertin solution; and that the higher the initial temperature at which avertin solution is prepared the greater is the acceleration in the rate of decomposition.

of fluid avertin prepared for injection is kept at a temperature of about 32°–38° C., and not exposed to light, it may be used even several days after preparation.

Experiment No. 3

One thousand mg. of avertin solution were prepared at 38° C., divided into three parts, and stored for eight hours. The three specimens were then tested, with the following results:

How Stored	Congo Red	Universal Indicator
1. In incubator at 32° C.	Purple	Red
2. In vacuum flask ...	Red (no change)	Red
3. At room temperature	Red (no change)	Orange

This experiment—and in particular the result of the tests on the unexposed sample stored in the vacuum flask—shows that the insensitivity of Congo red as a test reagent was responsible for fallacious results in the experiments of Gainsborough and Gardner.

Preliminary Experiment

Temperature	When Prepared		10 Minutes		20 Minutes		40 Minutes		60 Minutes		75 Minutes	
	U. I.	C. R.	U. I.	C. R.	U. I.	C. R.	U. I.	C. R.	U. I.	C. R.	U. I.	C. R.
38° C.	Green-yellow	Red	Green-yellow	Red	Green-yellow	Red	Green-yellow	Red	Green-yellow	Red	Green-yellow	Red
40° C.	"	"	"	"	"	"	"	"	"	"	"	"
42° C.	"	"	"	"	"	"	"	"	"	"	Yellow	"
48° C.	"	"	Orange-yellow	"	Orange-yellow	"	Orange-yellow	"	Orange-yellow	"	Orange-yellow	"

U. I. = Universal indicator. C. R. = Congo-red test solution.

Experiment No. 2

Bearing in mind the customary clinical practice of preparing an avertin solution, and then keeping it in a vacuum flask or bottle for a variable period of time before administration, a 2.5 per cent. solution of avertin was prepared at 38° C. One portion of this solution was placed in a vacuum flask and the other portion in a bottle at room temperature. Small samples were withdrawn at intervals and tested. The constant opening of the vacuum flask caused a more rapid fall in the temperature of its contents than that which occurs in clinical practice, when the flask remains closed between the time of preparation and the time of administration of the solution. The rate of decomposition of the contents of the vacuum flask was therefore probably retarded under the existing experimental conditions.

		When Prepared	30 Minutes	1 Hour	2 Hours	3 Hours
In bottle	Congo Red	Red	Red	Red	Red	Red
	Universal Indicator	Green-yellow	Green-yellow	Yellow	Yellow	Yellow
In vacuum flask	Congo Red	Red	Red	Red	Red	Red
	Universal Indicator	Green-yellow	Yellow	Yellow	Yellow	Orange-yellow

The above experiment demonstrates that storage of avertin solution in a vacuum flask—with a consequently slower loss of initial temperature—tends to accelerate its rate of decomposition; that the avertin solution in the vacuum flask was unfit for use thirty minutes after preparation, and that in the bottle was unfit for use sixty minutes after preparation. Further, it shows that no change was detected in either solution three hours after preparation by the use of the Congo-red test.

Shipway and Blomfield[2] deduced, from the experiments of H. Gainsborough and J. A. Gardner, that if a solution

Emphasis must be laid on the fact that the above experiments are simple examples taken from a large series. The accuracy of the entire series of experiments was further checked by estimation of the hydrobromic acid liberated during the process of decomposition of avertin solution: (1) by titration with N/50 caustic soda, and (2) by Volhard's method of estimating free bromide ions. A possible criticism of the new test is that, owing to its extreme sensitiveness, it may indicate the presence of decomposition of avertin solution in traces so minute that these could not possibly cause irritation of the intestinal mucous membrane. This criticism may be true, but in my own feeling is that if one of my patients were to develop signs of irritation of the lower bowel following the administration of avertin, I should not feel that I had taken every possible preventive precaution unless the avertin solution (having been properly prepared, placed in a bottle, and administered not more than one hour after preparation) had been satisfactorily tested with universal indicator rather than with Congo red. The new test is in routine use throughout the Manchester Royal Infirmary.

Clinical Applications

To summarize the practical application of these experiments to the work of the anaesthetist:

1. Universal indicator is a more sensitive and reliable reagent than Congo red as a test for the purity of avertin solution.
2. Avertin solution should never be prepared at a temperature exceeding 40° C.
3. Avertin solution should be kept in a bottle rather than in a vacuum flask during the interval between preparation and administration.
4. Avertin solution should be administered to the patient not later than one hour after preparation.

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INTENSIVE TREATMENT OF ACUTE TETANUS

BY

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e intensive treatment described below was followed by very gratifying and somewhat surprising recovery of atient who was suffering from acute tetanus It there e appears to be worthy of record

CASE RECORD

A mason's assistant aged 18 was admitted to the Surgical nt late at night on January 24th, complaining of pain and ffness of the jaw Nine days previously he slipped upon plank, and a rusty nail pierced his boot and entered the le of his foot The nail was removed by a doctor and the und healed rapidly On admission there was marked smus and slight rigidity of the neck The temperature is subnormal His general condition was good, although appeared somewhat pale and was perspiring freely, there is no risus sardonicus A small healed scar was seen under e ball of the big toe He was given 40,000 units of anti tanic serum intramuscularly that night By the following orning he was desperately ill—temperature 104° F, very ide, with risus sardonicus well marked, complete opistho nos, and the abdomen as rigid as a board

Vigorous antitetanic treatment was immediately inaugurated Phenol 2 per cent was injected deeply into and around e scar on the sole of the foot Antitetanic serum 20,000 nits, with 2 c cm 25 per cent sterile magnesium sulphate, ere introduced intrathecally after the appropriate amount cerebro spinal fluid had been withdrawn, and 20,000 units as given both intravenously and intramuscularly As the uscular contractions persisted this dosage of antitetanic rum was repeated daily for the first four days Hypodermic jections of 1 c cm of 1 per cent phenol were given three mes daily for the first week Three days after admission he eveloped pulmonary oedema, and became cyanosed It peared that death would not be long delayed He was eated with hypodermic injections of 1/100 grain of atropine ree times daily, and daily injections of 10 c cm of anti neumococcic serum for the next six days, when the pulonary oedema cleared up During this time the anti tanic serum was administered daily The muscular rigidity ersisted A consultation was held, and, in spite of the bsence of tenderness and local spasm on the sole of the foot, t was decided to open up widely the area of the healed scar mputation of the foot was considered, as the patient's ondition was desperate but the less drastic interferen e was ecided upon first

After the administration of intrathecal antitetanic serum nd magnesium sulphate, 0 05 gram of stovaine was introduced into the spinal theca, and, during the anaesthesia which followed, the small scar was cut into by an extensive rucial incision and the flaps turned out A swab from the epths of the scar failed to grow *B tetani* on an anaerobic ulture The wound was curetted packed with eusol gauze, nd dressed thrice daily Catheterization was necessary for few days in the second week The use of volatile anaesthetics for paroxysmal exacerbations (which, fortunately, were ew) was contraindicated on account of the pulmonary oedema hloral hydrate potassium bromide, and morphine were given to this end to promote sleep when necessary and for the elief of pain which was sometimes agonizing

The temperature varied from 100° to 106° F, until the end of the sixth week, when it became normal and remained so

The intrathecal administration of antitetanic serum, and its augmentation by the intravenous and intramuscular routes, was continued on alternative days until the end of the fourth week on account of the persistence of spasms and general rigidity At the end of this time the patient was terribly emaciated, but the disease had been eradicated, and his convalescence was slow but uneventful

COMMENT

The recovery, no doubt in large part due to careful, painstaking, and intelligent nursing, appeared to follow the use of very large doses of antitetanic serum administered subcutaneously, intrathecally, and intravenously Further, local excision of the wound was undertaken, and eusol (highly oxygenating) dressings were kept applied Magnesium sulphate was administered intrathecally and phenol subcutaneously Antipneumococcal serum also appeared to help when a bronchopneumonia threatened The case serves as a plea for the administration of antitetanic serum in heroic doses—especially by the intrathecal route—even when the condition appears hopeless It also illustrates the fact that "diminution or stoppage of the serum has brought on fresh spasms or increased the rigidity, which have promptly subsided on the administration of more serum"[1] Altogether, approximately 1,800,000 units of antitetanic serum were used in this case, at a cost of nearly £90

I am indebted to Professor A W Sheen (director of the Surgical Unit) for his kind permission to publish this case

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[1] Yoth *British Medical Journal* 1932, ii, 389

INTERNAL FAECAL FISTULA AND DEATH FOLLOWING APPENDICECTOMY

BY

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The study of modern textbooks and literature is somewhat confusing as regards the handling of the patient whose appendix has been removed, and who, within three or four days of the operation, begins to show those ominous signs known to all surgeons as likely to mean death in the near future Further, in the actual presence of such a case, the opinions of surgeons as to the exact diagnosis and treatment is often divided, whereas all dread the worst prognosis

It has been my lot to be called into consultation in two such cases lately, and I have also been allowed to perform a necropsy in each case

Case 1—H C aged 21 a well built man was admitted having had a previous attack of acute appendicitis This had been successfully weathered but he was about to begin another attack The appendix was removed through a McBurney's incision It was retrocaecal and subacutely inflamed There was no fluid in the abdomen Catgut was used for the stump, and a purse string suture made As on the third day after operation the patient had slight fever an enema was given with satisfactory results, and a purge was then ordered On the following day the patient was in a collapsed condition and soon after localized peritonitis in the neighbourhood of the wound was diagnosed In the afternoon an abscess with very fluid foul pus was found in the pelvis and drained Notwithstanding this the patient grew worse and died on the eighth day Post mortem the intestines were removed with great care and, under gentle pressure from a tap, water was allowed to flow into the bowel. In due course the water spurted through the hole at the site of removal of the appendix in the caecum In this case it seemed probable that the enema had burst the sutures inserted at the site of the amputation of the appendix The internal fistula in the caecum, lying up against the ilio-psoas muscle, did not allow of the passage of faeces—especially as the bowel had been previously emptied—but did permit the passage of the most virulent of all the bowel fluids into the iliac fossa and the pelvis The greenish track, leading from the internal fistula towards the pelvic abscess, provided ample evidence of this

Case 2—Admitted sixty hours after starting the attack this patient was kept under observation according to Ochsner

Scherren's delayed method of treatment. Within eight hours the pulse had risen twelve points, and accordingly the patient was operated upon and a gangrenous appendix removed. All went well until the fourth or fifth day, when symptoms of paralytic ileus and, later, obstruction, developed. A large pelvic abscess was emptied per rectum, but all to no purpose. Post mortem a condition similar to that of the first case was found, except that the edge of the internal fistula was much indurated, and there was a plastic peritonitis, with small abscesses here and there among the coils of the bowels. The greenish appearance of the bowel, and of the tissues in the neighbourhood of the internal fistula, was again apparent. Here again the following sequence of events seemed probable. A few days after the operation the caecum had opened at the site of the operation, and all the well-known clinical complications had developed—namely, paralytic ileus, obstruction, peritonitis, and death.

DISCUSSION

An examination of three modern textbooks is of interest at this point.

Hamilton Bailey, in *Emergency Surgery*, states that "a faecal fistula is generally to be regarded as a most unfortunate and disagreeable complication. There are occasions, however, though few and far between, when its manifestation is not so displeasing. 'If a patient with peritonitis develops a faecal fistula he does not die' is a 'bon mot' of a former colleague of mine. There is an element of truth in this aphorism when applied in cases of advanced peritonitis with meteorism, since the faecal fistula acts as an enterostomy."

Carson, in *Modern Operative Surgery*, referring to paralytic ileus and caecostomy, says: "There is no doubt that opening the caecum in these cases has a very beneficial action. In the simplest form it is seen when, following the spontaneous formation of a faecal fistula after an operation for gangrenous appendicitis, the case shows a rapid improvement. The mechanism of this action is not very clear, for it is certain that the poisonous accumulation is in the small intestine, not in the large, and often when the caecum is opened nothing escapes but gas. Perhaps the relief of tension in the caecum effects in some way the patency of the ileocaecal sphincter." But after mentioning various methods of treatment of this condition he considers it difficult to determine their comparative value, and states that it is of the greatest importance to differentiate paralytic ileus and general peritonitis. He favours caecostomy, but does not mention that an inspection of the site of the removal of the appendix should be made.

In their *Science and Practice of Surgery* Romanis and Mitchiner do not mention an internal faecal fistula as one of the causes of paralytic ileus and its consequences (p. 669, vol. ii), nor is this condition mentioned among post-operative complications (p. 691, vol. ii).

The explanation of the condition in these cases seems fairly clear. In the instances referred to, an internal fistula had formed, and was followed by death, but if the bowel secretions, faeces, etc., should have found their way out on to the surface of the body the patients' lives might have been saved, whereas the reverse process led to their death. That an early jejunostomy or ileostomy sometimes saves the patient's life is well known, and it is to be imagined that, if a blind ileostomy is performed soon enough, should an internal fistula be present, it prevents some of the secretions from the stomach, liver, pancreas, and intestine reaching the hole in the caecum, and thus soiling the peritoneum. But an ileocolostomy is a relative failure in these cases, for while making a short circuit, it returns the secretions to the colon, whence they can easily gain the caecum and be poured into the pelvic cavity.

Nowhere in the modern literature on this subject have I found it stated that the first step in the operative treatment of these difficult cases should be a thorough examination of the site of the removal of the appendix, and that if an internal faecal fistula of the caecum be found that it should be converted into an external one, and this, I suggest, is a procedure to be advocated in these cases at the earliest possible indication of trouble.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

MINERAL MATTER IN LUNGS

The importance of examining the mineral matter in lungs by transmitted light, dark-ground illumination, and polarized light is the apologia for publishing a method of preparation which has the merits, I think, of simplicity and completeness.

Thirty or forty grams of lung are cut into small pieces five or six millimetres square. If the lung has been fixed in formalin larger portions—one inch square, or larger—are washed in several changes of tap-water and then cut into smaller pieces. These are placed in a flask with 150 c.cm. of 20 per cent. liquor trypsin (Allen and Hanburys) in a 1 per cent. solution of potassium carbonate, and incubated at 37° C. In two or three days some of the turbid fluid is centrifuged, the deposit rendered slightly acid with a few drops of dilute sulphuric acid, washed in distilled water, and examined. If permanent specimens are required, films are made, dried over a Bunsen, and mounted in green euparal. The remaining fluid and lung in the flask are boiled for twenty minutes, cooled, 20 c.cm. of liquor trypsin added, and reincubated for twenty-four hours. The fluid is acidified, centrifuged, and the deposit washed as before, and examined. The deposit will contain the carbonaceous matter in addition to any other mineral present. Finally, the deposits in several centrifuge tubes are mixed together in a pyrex tube, 10 c.cm. of strong sulphuric acid and a crystal of potassium bichromate added and boiled until clear. The tube is centrifuged, the deposit washed with distilled water, recentrifuged, and mounted.

The deposit from the first incubation will contain some carbonaceous and other mineral particles, and in the various pneumonoconioses, particles associated with the respective diseases—asbestos bodies, and fragments of asbestos fibre in asbestosis, coal particles, and silico-anthracotic bodies in anthracosis, etc. The deposit from the second incubation will contain the carbonaceous and "coaly" matter from the hard fibrous portions of the lung in addition to the above. The final deposit—that is, the deposit after treatment with sulphuric acid—will contain the silica, insoluble silicates, diatoms, etc., free from organic and "coaly" matter.

Wigan Infirmary. W. E. COOKE, M.D., M.R.C.P.

A CASE OF PROSTATIC ABSCESS

The following case is worthy of interest in that a common cause of perianal suppuration of prostatic and vesicular origin is frequently overlooked and seldom recognized.

A male patient, aged 52, single, complained of dysuria and frequency of micturition for the previous four weeks. It was soon apparent that this was due to a posterior urethritis, not responding to the ordinary line of treatment. On admission to hospital his temperature was 98° F., pulse 65, respiration 20. The urine contained albumin, pus, and some threads. Rectal examination revealed an enlarged prostate with a soft boggy area high up on its right aspect. An operation was performed five days later, when the prostate was exposed by the perineal method. There was much perirectal thickening, and an abscess cavity, containing about three drachms of thick caseous pus, was found high up on the right side of the prostate, involving the right seminal vesicle. A rubber drainage tube was inserted and the patient returned to the ward. On examination the pus was sterile, but the microscopy of some granulomatous scrapings showed no giant cells. Urine analysis revealed no evidence of tubercle bacilli. The abscess cavity drained freely, and the patient made a good recovery, being discharged healed in three weeks. It is evident that without adequate drainage the abscess would have tracked downwards and caused one of the common types of perirectal infection.

I am indebted to Mr. Winsbury-White for permission to publish this case.

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Reviews

AN OUTLINE OF SCIENTIFIC PROGRESS

Professor PHILIPP LENARD has done good service by writing a short history of scientific progress[1] He is particularly well qualified to do so, because he was a student under Bunsen, and, after serving as professor of physics at Breslau, Aachen, Heidelberg, and Kiel, was appointed director of the radiological institute in the University of Heidelberg, where his work was judged worthy of the Nobel prize in physics, the Rumford medal of the Royal Society, and, more recently, the Franklin Medal for his radiological research Professor Lenard is therefore particularly well qualified to tell of those who have advanced knowledge in physics, mathematics, and astronomy Beginning with Pythagoras and Euclid, he traverses the ages, and ends his account with Hertz, who dealt with the existence or non existence of electric waves, and Hasenohrl, who continued the work of Faraday and Clerk Maxwell, dying in 1915

Although the bulk of the volume treats of the great experimenters in physics and the allied sciences, Professor Lenard has included Linnaeus and Darwin in his survey It appears that brains dealing with the problems of physics, like those concerned with mathematics and music, are *sui generis* Their owners in many cases have been men of lowly origin, often very poor, without educational advantages, and dying, only too frequently, in the pride of their youth, leaving their results to be made known and advanced by those who came after them A few, like Galileo, Gilbert, Boyle, Black, Mayer, and Young, had received some medical training, but for the most part they were wholly self-taught, and were so far in advance of their time as to be unrecognized by their own generation They lived their lives contentedly, for in spite of their poverty they spent it in experiment The method adopted by Professor Lenard has been to give an account of each man's work in chronological order, showing its relationship to his predecessors and its influence on those to come The summary in every case is clear and simple, so that it appeals to the ordinary unscientific reader, for only such a master as Professor Lenard could have avoided technicalities A short and accurate biography is added to each name, and wherever possible a portrait is given, and the portraits have been admirably reproduced

Modern physical science only dates back to the beginning of the sixteenth century It began in Italy with Copernicus and Leonardo da Vinci, was continued in France, and was codified in England The Royal Society was the clearing-house for physical science during the second half of the seventeenth century, and for a time the influence of Newton was supreme throughout the civilized world Every investigator knew that the publication of his results in the Royal Society's *Transactions* would ensure a wide publicity and an adequate recognition The problems of chemistry gave place to those of light, heat, electricity, and magnetism, and Faraday became an honoured name with every original worker Astrophysics received much attention, and they in turn have given place to still more recondite problems in connexion with space, time, and the ultimate structure of matter—results which are as interesting to us as were the proofs that the earth moved and was round to those of our predecessors four hundred years ago Germany has taken her full share in these advances, but science is cosmopolitan, and all nations have worked for the common good Professor E N Da Coste Andrade contributes an introduction, and Dr. H Stafford Hatfield has translated the book from the second German edition The translation is faithful, but when it is reissued many of the sentences should be recast in accordance with English usage

[1] *Great Men of Science* By Professor Philipp Lenard A History of Scientific Progress Translated from the second German edition by Dr H Stafford Hatfield London G Bell and Sons, Ltd 1933 (Pp xix + 389, 62 figures, 12s 6d net

ABORTION AND THE LAW

To terminate pregnancy without proper medical excuse is an illegal operation, but one that is constantly performed in nearly all countries A law that is persistently broken by otherwise good citizens is a grave source of danger to public morals, and there is a body of opinion in this country that the prohibition of abortion should be relaxed In America the situation seems to be even more acute Dr A J ROSSY[2] puts the figure of "illegal operations" performed in the United States every year as nearly two million, he argues that it is therefore pointless to debate whether abortion should or should not be performed, and that the problem is really whether it should not be brought under the control of the State in fact as well as in theory He points out that in many civilizations before Christianity abortion was a commonplace, but that *the prohibition sprang from the original necessity of the* Jewish tribes for a maximum population, and was reinforced by the Christian Church partly for the same reason and partly from its adherence to the doctrine of the sinfulness of the flesh, which resulted in a strongly negative attitude towards women in general He regards the ruthless intransigence of the Catholic Church and the smug morality of the Protestants as equally responsible for the present situation The laws are not, he says, effectively enforced, and abortion has assumed the status of a "racket" He advocates a sweeping change in the law and the judicious use of sterilization The contraceptive devices at present available are, he says, lamentably imperfect, but he hopes for the invention of a biological preventive

Some indication of current medical views on the law relating to abortion in this country may be gleaned from the report of a long debate in the Representative Body of the British Medical Association, published in the *Supplement* to our issue of July 29th (pp 52 4)

[2] *Abortion Legal or Illegal?* By A J Rossy M D [illegible] New York The Vanguard Press 1933 (Pp 212 2 dollars net)

OPERATIONS ON BONES AND JOINTS

The recent book[3] by Dr MASMONTEIL is in effect an atlas of operative surgery of bones and joints, consisting of 201 drawings from nature by R Moritz, and sixty radiographic plates, with descriptive letterpress The author, in his introduction, asserts that osteo articular surgery has followed the evolution of visceral surgery Although he does not say it in so many words it is evident that he is opposed to the gradual methods advocated and practised with so much success by orthopaedic surgeons, and that he belongs to that school, just now prominent in France, which relies more and more on elaborate and special instruments and less and less on the *vis medicatrix naturae* He traces the development of these methods to the surgery of the great war, after which the view was accepted by certain surgeons that the rules of visceral surgery were equally applicable to orthopaedic surgery, and for this a new surgical armamentarium became necessary *He holds that this surgery has a great future,* and that with more and more improvement of appliances it cannot fail daily to gain partisans.

There is something attractive in these uncompromising principles which leave so little room for doubt or hesitation as to the best course to pursue, but which remind

[3] *Chirurgie Osteo-Articulaire* Par I Masmonteil Paris [illegible] R Maloine 1933 (Pp 460 201 dessins d'après nature [illegible] 60 planches radiographiques)

one of the maxims of the strategists who in all circumstances advise attack. Nevertheless, we think that the operations described by Dr. Masmonteil on the bones and tendons and ligaments of infantile club-foot, and the cuneiform resection recommended by him for flat-foot, are not likely to yield as good results as the less radical methods now in vogue with orthopaedic surgeons in England and America. In the early days of antiseptic surgery such radical methods were advocated and practised by some first-rate surgeons, but they have since been generally abandoned in the case of infants, and we find nothing in the equipment of Dr. Masmonteil's operating theatre which promises to reverse the verdict. In adolescence and in adult life many of the methods known as osteosynthesis are of value, and their clear illustration in these drawings should be of use to surgical readers. Many of these procedures have already stood the test of time.

The letterpress consists of sixteen pages on general principles, followed by twenty-seven on instruments and appliances of all sorts, and on methods of suture and the various metallic plates and internal splints favoured by Dr. Masmonteil, after which the various regions of the body and various categories of injuries and disease are dealt with in turn. The reader cannot fail to admire the ingenuity and mechanical merits of many of these tools, but when all is said in favour of these methods we feel that this kind of surgery is not for the general practitioner or even the general surgeon, who finds himself confronted with all sorts of acute emergencies, but that the tools and the technique must be alike reserved to the clinic of the specialist, with few exceptions.

CLINICAL PHYSIOLOGY OF THE EYE

A few years ago the editor of the *American Journal of Ophthalmology* commented upon the inequality of the treatment of the several aspects of eye conditions. There had been published, he wrote, several first-rate works upon the anatomy of the eye and the pathology of ocular diseases, but there was no one book in English in which a detailed account of the physiology of the eye could be found. Yet the manner in which the various parts of the eye perform their exquisitely elaborate functions might well have been considered worthy of a separate detailed account. Dr. FRANCIS ADLER of the University of Pennsylvania has essayed the task of repairing the omission in his book entitled *Clinical Physiology of the Eye*.[4] He confesses that to do justice to the theme would require a work of three or four volumes, and as soon as the task of producing such a work was accomplished the accumulation of new facts and theories would demand an almost complete revision. He has therefore written a smaller textbook, designed to be of use to the student and to the practising ophthalmologist, as an introduction to current views and to the leading literature on the subject.

Dr. Adler deals first with the protective mechanisms of the eye as provided by the bones, the lids, the lachrymal apparatus, innervation, reflexes, and so forth. In the study of the phenomenon of blinking he makes the generalization: "Fishes and other animals living under water do not possess eyelids, and are therefore non-blinking animals." This is not true of some fish; many sharks are provided with well-formed upper and lower lids, and also a highly developed nictitating membrane with a complex musculature. This provision enables them to blink effectively, as recorded by Harman years ago. Next comes a study of the iris and pupil, with their innervation and reflexes. Sections are devoted to accommodation; the lens and vitreous; visual acuity; visual pathways and fields; the objective changes in the retina due to light; the subjective characteristics of vision; binocular vision; entoptic phenomena; the optic nerve; external ocular muscles; aqueous humour; and intraocular pressure. In the last of these subjects most work has been done of recent years, and Dr. Adler gives an excellent account of that work, clear, precise, and well documented. The same commendation can scarcely be given to the way in which he deals with colour vision and colour-blindness. His account is a thoroughly sound statement of the theories to be found in the textbooks of physiology, but there is no mention or discussion of the work of Edridge-Green, though the fact that some of his papers are noted in the bibliography would suggest that the author should have been familiar with this work. Attached to each section is a bibliography of the more important recent literature of the subject under review, and these appendices will form a useful pathfinder to the student.

[4] *Clinical Physiology of the Eye*. By Francis Heed Adler, M.A., M.D. New York: The Macmillan Company. 1933. (Pp. xvii + 466; 92 figures. 25s. net.)

COLDS AND HAY FEVER

Mr. FRANK COKE has written a readable little book on *Colds and Hay Fever*[5] to help the practitioner in coping with these common ailments. Mr. Coke writes with the understanding sympathy of one who has known general practice, and with the knowledge of one who has for years made a special study of allergy in its many forms. He does not accept the defeatist aphorism that a cold left to itself runs a fortnight, but if treated lasts fourteen days. He has definite plans both for prevention and for cure, and his suggestions, which are thoroughly practical, will be welcome. The baffling phenomena of paroxysmal sneezing, of which hay fever is a special form, receive a full description, and although some of the pathological explanations set forth may not obtain universal acceptance, the suggestions for the management of cases are based on the successful treatment of numerous patients, and here again are eminently practical. The author has read widely in his subject, but he is no slave either to authority or to the orthodox. He holds his way influenced only by his own observations and conclusions, and the book is thus endowed with the touch of his own personality.

CHEMOTHERAPY OF TUBERCULOSIS

In a study of this subject[6] Dr. S. ANSBACHER describes his experimental work on the treatment of tuberculous guinea-pigs by various organic compounds of copper. The part played by copper in metabolism is imperfectly understood, and the author has attempted, after working out a quantitative method for its estimation, to determine the amount present in different organs and at different ages in healthy and diseased persons and animals. The variations are found to be considerable. Two of the main points of interest are the high content of copper in the liver of healthy infants and of tuberculous guinea-pigs. In these animals the distribution of copper is altered during the progress of the disease—the amount in the liver increasing, while that in the spleen decreases. It is noteworthy that both these organs are associated with the elimination of the formed elements of the blood.

The author's therapeutic experiments were made on guinea-pigs infected by inoculation into the thigh with mammalian tubercle bacilli. Three compounds of copper were used—the benzoate, the cupric derivative of ethyl aceto-acetate, and the cupric derivative of di-iodosalicyl aldehyde—all suspended in olive oil. As controls,

[5] *Colds and Hay Fever*. By F. Coke, F.R.C.S. Minor Monograph Series. London: Baillière, Tindall and Cox. 1933. (Pp. x + 148. 5s.)

[6] *Une Etude de Chimiothérapie de la Tuberculose*. By S. Ansbacher. Genève: Imprimerie Kundig. 1933. (Pp. 88).

neutral olive oil and a saturated solution of citric acid olive oil were employed. Treatment was started in the experiment two days, and in another experiment six-teen days, after infection, and the compounds were inocu-lated subcutaneously twice weekly. The results were rather surprising. Without attempting to analyse them fully, it would appear that, judged by the survival time and main-tenance of weight, the groups of animals that responded most satisfactorily were those that received neutral olive oil, natural olive oil, and, best of all, those receiving a saturated solution of citric acid in olive oil. The groups receiving the copper compounds behaved very much like the control animals, some of them apparently being affected detrimentally by the treatment.

There is little to suggest that copper compounds, given in the way and in the dosage recorded in these experi-ments, is likely to be of much value in the treatment of tuberculosis, but the effect of olive oil itself seems well worth further investigation.

Notes on Books

Medical men are well aware of the danger to human life and health caused by insects. Many of these insects are quite domesticated, but it is doubtful if any cause so much general concern to the layman as do the clothes and house moths. It is true that their damage is purely material and of little importance to the hygienist, but experience has shown that the medical zoologist must take cognizance of insects which are not directly con-cerned with the transmission of disease. And no subject provokes more inquiries than that of "moths." It is the more surprising, therefore, that until now no short, concise, and authoritative account of these insects has been available in Britain. The remedy is to be found in the publication in the British Museum Economic Series of a little monograph by AUSTEN and HUGHES on *Clothes Moths and House Moths: their Life History, Habits and Control*,[1] at the modest price of sixpence. It is fully authoritative, well written, and clearly illustrated, and it should find a welcome in every home. It will surprise most readers to learn that there are no fewer than six common species of destructive moths in the British Isles. These are discussed in detail, their life histories described, and a complete account of control methods given. It is a booklet which can be fully recommended as reliable, easily understandable, and of immense practical value.

Two more numbers of *Tabulae Biologicae Periodicae*[2] have now appeared, one of which completes the second volume of this useful journal, while the other is the first number of the third volume. A large part of the former is occupied by an article by Th. A. Maass, which gives a tabular account of the poisonous vertebrates, including descriptions of some 300 species of poisonous snakes. The same author in the succeeding number gives details of the characteristics of harmless snakes, and also many data about the chemical and biological proper-ties of snake venom. This portion includes some inter-esting statistics regarding the effect of serum treatment of snake bite in America. Figures for rattlesnake bites in the United States show a mortality of 3·75 per cent. for persons treated with serum, as compared with 16.5 per cent. among cases not so treated. Figures from the Butantan Institute in San Paulo show even better results, for here the death rate of cases treated with serum was 2.5 per cent., whereas the general death rate of un-treated cases was 25. The other articles in these two numbers cover a wide variety of subjects. Two of these are of particular interest to biochemists at present—namely, some tables giving the physico-chemical properties of the carotinoids and also of the bile acids. Both these groups of substances are attracting much attention, because vitamin A is a derivative of carotene, and because oestrin, vitamin D, and certain carcinogenic substances have all been shown to be related in structure to cholesterol and the bile acids.

Volume XI of the *Guide to Current Official Statistics of the United Kingdom* is now available. It contains a list of the titles and prices of the statistical volumes issued during 1932 by the Governments of Great Britain and Northern Ireland, and an alphabetical index of their contents. Copies can be obtained from H.M. Stationery Office (1s. net, 1s. 5d. post free).

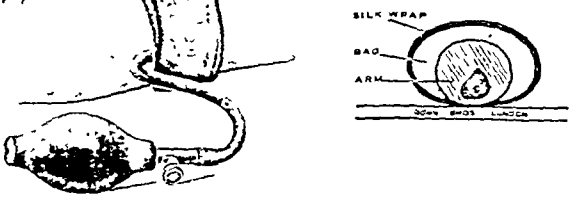
[1] *Clothes Moths and House Moths.* By Major E. E. Austen, D.S.O., and A. W. McKenny Hughes, D.I.C. British Museum (Natural History) Economic Series No. 14.

[2] *Tabulae Biologicae Periodicae.* Herausgegeben von C. Oppen-heimer und L. Pincussen. Band II, No. 4, und Band III, No. 1. Berlin: W. Junk. 1933. (Pp. 321–416, 1–144. Sub-cription price RM 48, vol. complete RM 55.)

Preparations and Appliances

A PNEUMATIC TOURNIQUET

Dr. H. C. SINDERSON, professor of medicine, Royal College of Medicine, Baghdad, has devised, after the style of a sphygmomanometer, a small pneumatic tourniquet for intra-venous injections. The tourniquet consists of a rubber inflation bag under five inches long and less than two inches wide. One inch from one end of it is attached a piece of rubber tubing, to which a small inflating ball with control valve is connected. The inflation bag, which lies flat when deflated, is contained in a washable cloth armlet, thirty-six inches in length and tapering to half an inch at the tail end. The bag is placed very loosely over the front of the upper arm just above the bend of the elbow (as in sketch) with the



inflation ball lying laterally on a pillow, on which the elbow rests. The arm band is wrapped over the bag as with a bandage, the last two or three inches being tucked into the final fold. The screw of the control valve is closed and the bag inflated. The needle is introduced into the vein and the valve then opened. Deflation is almost immediate and the injection is made with the appliance still in position, where it remains until the operation is completed. The appliance is extremely small, and is simple to use; injection can be made without any adjustment of the bag after application, and a further advantage claimed is that as the rubber bag is limited in position to the front of the arm no movement of the limb is associated with deflation. The tourniquet has been made by Messrs. Down Bros., and can be obtained complete, in leather case, for 15s. 6d.

NEW PANCREATIC HORMONE

"Vagotonine" (Messrs. the Anglo-French Drug Co., Ltd.) is a preparation of a new hormone which Professor Santenoise of Nancy claims to have isolated from the pancreas. Sante-noise found that commercial preparations of insulin contained two active principles—namely, insulin and a second substance, vagotonine, which stimulated the vagus and produced a fall in blood pressure together with hypoglycaemia. About fifty papers have been published on this subject during the last ten years in French medical journals. Vagotonine is recom-mended for the treatment of hyperpiesis, and as an adjuvant to insulin in the treatment of diabetes mellitus. Preparations containing break-down products of proteins, such as organ extracts and peptones, have been known for many years to produce a range of pharmacological actions, in-cluding spasmodic contraction of plain muscle, reduction of blood pressure, and hypoglycaemia. Many previous attempts have been made to utilize these in clinical practice, but hitherto the results have been disappointing. The pharmacological actions of vagotonine have, however, been analysed very fully, and the activity of the preparation is controlled by physiological tests. It therefore deserves a careful clinical trial in this country.

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MAXILLARY CANCER

The statistical report of the Mount Vernon Hospital, Northwood, Middlesex, for 1932, contains a very important contribution on the treatment of malignant growths of the upper jaw, by Messrs. Douglas Harmer and Stanford Cade. The authors indicate that owing to the deep situation of these growths diagnosis may be difficult, or even impossible; this, coupled with the frequently indefinite symptoms, may but too often cause a serious delay in seeking advice, with the result that many cases coming to hospital are either "borderline" or frankly inoperable. Relatively few only are seen in the early and operable stages. Of the types of growth carcinomata are by far the most frequent; they are usually of the squamous-celled variety, but are also sometimes undifferentiated, and when this is the case their diagnosis from mesoblastic forms is difficult. In general highly malignant, they are especially prone to occur in males over the age of 40. Sarcomata appear to have no special age or sex incidence, and exhibit varying grades of malignancy, from highly virulent to comparatively benign types. Endotheliomata, which are nearly as common as sarcomata in this region, are again without special age or sex incidence, slow of growth, late in disseminating, but very prone to local recurrence after removal, and generally encapsuled.

For diagnosis, biopsy is recommended in most cases, and in order to minimize the risk of dissemination removal of the fragment by diathermy is advised. The authors insist that too much reliance must not be placed upon a negative pathological report, and if the clinical symptoms appear to warrant it, the surgeon must act upon his own independent judgement—otherwise dangerous delay may be caused. It is strongly maintained that small and repeated operations must be avoided. In such conditions *x-ray examinations* are often of little value, because visible bone changes occur late, but in the case of the antrum lipiodol injections may give useful information. On transillumination most growths give a dense and sometimes local shadow on the affected side. Exploration, if indicated by the signs and symptoms, must be carried out at once. The difficulties of diagnosis are mentioned, and the point is made that many cases of doubtful malignancy must be treated, as in the event of true malignancy metastatic deposits in the liver, lungs, and other parts of the body may occur when operative measures are deferred.

There are three main lines of treatment—surgery, diathermy, and irradiation by *x* rays and radium—and it is the authors' object to maintain that all three methods should be at the surgeon's disposal. As a result of long experience of these growths it is concluded that surgery alone, and diathermy alone, are unsatisfactory owing to the tendency to local recurrence. The best method of treatment would appear to be (1) preliminary high-voltage *x* rays—not a full course; (2) biopsy; (3) fenestration of hard palate, thus providing good drainage and free exposure of the tumour (the cavity can be inspected at any time and no deformity is caused); (4) removal of the greater part of the growth and thorough irradiation of the cavity, followed by further external radiation if necessary; (5) remnants of growth can be destroyed by diathermy, or, if thought advisable, a second course of radiation can be given; (6) removal of sequestra. Complications are rare, and there should be no operative mortality, though occasionally the eye may be destroyed. Serious "burns" are not often met with, and, as a rule, no treatment of the glands of the neck is required. Prognosis depends upon early diagnosis and the type of disease.

This report is followed by a statistical summary of all the cases of malignant disease treated during the year. The tables are clearly compiled, and the methods of treatment indicated by a series of index letters. A summary of the work in the pathological department is contributed by Dr. Pullinger, who has, in addition to routine examinations of blood, urine, and other material, carried out a special research upon the histological appearances presented by all tissues which have been subjected to radiation during the previous two years. In the department of pathological research Dr. Mottram and his collaborators are continuing their investigations. Prominent among these is work upon the action of radiations upon the chorio-allantoic membrane of the chick embryo. It may be remembered that Moppett claimed to have demonstrated a differential action of radiations of different wave-lengths, some producing hypertrophy while others gave rise to atrophy. The work under review here tends to show, first, that if bacterial contamination should occur changes will be produced similar to those described by Moppett; and secondly, that the hypertrophic changes following bacterial infection or exposure to radiation are not primary reactions, but secondary to injury, and of the nature of repair. Other papers deal with the effects of anaemia on the reactions of the skin and of tumours to radiation; blood examinations of workers in *x*-ray departments; the action of radium on blood supply; and the life-history of the nucleus and nucleolus and the effects of beta radiation upon them. An account of the work done in the *x*-ray department closes the report. Careful synopses are given of the methods of treatment and the dosage employed in the treatment of malignant growths in different situations.

LEADING AND LEADERSHIP

In making a choice of those upon whom he would confer the honourable title of Leader a man will ask himself to-day in what direction this or that reputed leader has led, and his choice will not necessarily be that of the historian. None will deny the title of leader in medicine to those of Lord Moynihan's choice, Lister, Harvey, Hunter, in his recent lecture before the University of St. Andrews[1]; and for the reason that the results of their labours are being put to the test daily and found effective for undeniably good purposes. Lord Moynihan asked what it was in their work that had made their title secure, and answered that it was their devoted attention to the visible and the experienced. They were observers, biologists, experimenters, and clinicians; they dealt with the things that were in their hands and the events they could see and watch, and by comparing event with event they traced the sequence from one to another. Their labours were spurred by the needs of the humanity with which they were in intimate contact, and the productiveness of their work cannot be called in question whether we think of what they produced as knowledge or as power to influence event.

Reflections of this kind led Lord Moynihan to remark upon the truth of the saying that medicine had been the mother of sciences. Such a claim has sometimes been put too high, and the claim that logic owes the deductive method to Galen will not bear close examination: but there is historical warrant for the opinion that *the particular problems of medicine have had a* powerful influence not only upon science but upon the direction of human thought in general. Inclining continually to visionary indulgence, which is none the less this when it is called intuition, the trend of human thought has often felt the influence of medicine persuading it to turn again to the particular things, and some of the sciences, biology above all, have owed much to this persuasion. The history of the School of Cos, in which Hippocrates was the outstanding figure, affords a striking example of this influence. Before and during the time of its existence Greek thought was chiefly exercised in speculations about the ultimate nature of the universe and of the influences which controlled it, and each school produced a new dogma from which it proceeded to deduce the nature of reality. The influence of Cos cannot better be described than in these words of Gomperz, "The schools of the physicians corrected the tendency to arbitrary dogmatism, and their most precious fruits were the increased power of observation and the counterpoise offered to hasty generalizations, as well as the confidence which learnt to reject untenable fictions whether produced by luxuriant imagination or by *a priori* speculations, on the similar ground of self-reliant sense perception." But in fact their example, though undying, was but little effective during their own age, and was overshadowed by other influences for long afterwards. It is true that it is traceable in a part, and the noblest part, of the work in Aristotle; yet it is by the individual here and there rather than by the stream of thought in general that the fruitful study of things as they are was maintained. Archimedes was one of the last of these individuals before the Middle Ages came to arrest advance, for Galen cannot be acknowledged as belonging to the tradition. Superlatively active as he was, experimentalist and tireless publisher of observations, his interpretations sprang from preconceived notions, and his method was the deductive as employed by the rationalist—a method which cannot but be the ruin of any science which should adopt it. That his works have survived in so great mass is traceable to the fact that his preconceived notions and his teleological doctrines were acceptable to philosophers who were then building from Greek, Semitic, and Egyptian material the orthodox philosophy of the Catholic Church. The influence of the Hippocratic school and that of Galen should not be coupled, and Hippocrates should not be credited with a share in the damning dominion which enslaved men's minds from the early ages of the Christian era until the birth of the era of freedom.

As well as being rich in leaders of her own art and science, medicine of the Hippocratic tradition has shown, if not leadership, at least direction towards the sources of knowledge. The work of the three—Lister, Harvey, Hunter—points the way: the imagination of Lister, who saw side by side the revelations of Pasteur and the ferment of wound infection, and grasped their relation; the application of Harvey to observation that was "arduous and full of difficulties"; and the never-resting curiosity of John Hunter, seeking to relate one thing with another as cause and effect, not by argument but always by experiment. Their labours were fruitful as were those of the first of their line, Hippocrates, and for the same reason. The school of thought which is named Philosophy shakes its head even to-day over the validity of the inductive reason, and still searches for final causes or a final cause from which it may deduce propositions, not yet acknowledging that cause can only be discovered by comparing one "thing" with another, and that observation of "things" is the beginning from which all construction of law must start. The lesson which medicine, including Greek medicine, has to teach those who search for knowledge, is that the discovery of "values" springs from the apprehension of "things" in their relations.

[1] *Leadership in Medicine*. Oxford University Press. (2s. 6d. net)

CONTROL OF DANGEROUS DRUG TRAFFIC

In July the Convention of 1931 for the Limitation of the Manufacture of Dangerous Drugs, having received the required number of ratifications, came into force. It is true that several nations have not yet acceded, and that some which have ratified have done so with reservations. Great importance is attached not only to the universal application of the Convention, but also to legislative and administrative measures which are to be adopted by different Governments for effectuation of the provisions of the Convention. Reports received by the secretariat of the League of Nations indicate

that for the years 1931 and 1932 there has been a reduction in the world production of morphine, heroin, and cocaine. While the attention of the Opium Advisory Committee of the League has been drawn to the existence of clandestine factories in certain countries, it would appear that the world production of the drugs in question in 1931 approximated to the figures of legitimate annual world consumption, as estimated by the secretariat of the League—namely, morphine nine tons, heroin two tons, and cocaine five and a half tons. There is, however, still abundant evidence of much illicit traffic. Considerable seizures of contraband Persian opium have been made in Hong-Kong and the Straits Settlements. Illicit morphine of Japanese origin, and in large amount, has been seized in Hawaii and along the Pacific coast of the United States. The situation in Egypt is reported to be improving; convictions for illicit trafficking appear to have brought about a reduction in the number of addicts, though a good deal of heroin, of Turkish or Bulgarian origin, continues to find its way into the country. The Advisory Committee, in accordance with a direction by the Assembly in 1931, has prepared elaborate questionaries to be issued to countries cultivating the opium poppy and harvesting the coca leaf. The replies, when received, are to lead up to a conference to consider the limitation of production of these raw materials of dangerous drugs. From certain advice tendered to the Council of the League it would appear that the Advisory Committee is not very zealous in expediting this inquiry, to which the Assembly of the League attached so much importance.

ENTERIC CARRIERS IN GLASGOW

During the past fifty or sixty years there has been a great diminution in the prevalence of enteric fever in Great Britain. There can hardly be any question that this diminution is due very largely to certain sanitary improvements. But the disease has not been abolished: a considerable number of cases occur every year—sporadic, in small local groups, and even in epidemics. Most authorities on epidemiology hold that the chief sources of infection are the carriers which are scattered among the population, and the problem of dealing with them has come to the front. A useful piece of work in this connexion has been carried out systematically for some years past by the Public Health Department of Glasgow, and the results are briefly recorded by Dr. C. M. Smith in the July number of the *Glasgow Medical Journal*. During the period in question—eight years—there were 800 cases of verified enteric in Glasgow, and 1,608 persons—contacts, from whom the disease may presumably have been contracted—were examined bacteriologically in order to ascertain whether or not they were carriers. Of these, fifty-eight were found to be positive, and they fell into three groups: chronic carriers, fourteen in number; temporary carriers, ten; and recent "missed" cases, thirty-four. These "missed" cases were those in which the contacts had recently suffered from an illness which might have been a very mild and abortive attack of enteric. It is very interesting to note that these cases considerably outnumbered the carriers, and that "it would appear that such cases now play a larger part in the spread of enteric fever in Glasgow than carriers." The chronic carriers, whose number, however, is probably underestimated, were responsible for twenty cases only. Another interesting fact brought out in the inquiry is that during these eight years only one case could be attributed to the cases of enteric fever which had been treated in hospital. The 800 cases consisted of 271 which occurred in groups or epidemics, of which the largest was one of sixty-two cases of paratyphoid B in 1927, and 529 sporadic cases. The origin of sporadic cases is frequently untraceable, and doubtless their infection is acquired in a very round-about way. The administrative procedure in respect of carriers in Glasgow is to prohibit them from engaging in any occupation connected with milk or food, and to immunize by inoculation those persons who are brought into contact with them in their homes. The only efficient treatment of the carrier himself is excision of the gall-bladder, but this serious operation is almost always refused. The Glasgow evidence suggests that special bacteriological attention should be paid to mild and indefinite attacks of fever.

POST-OPERATIVE TREATMENT

The abolition of pain and restlessness without prejudicing the patient's chances of recovery constitutes one of the important problems of the post-operative period. Its solution requires a knowledge of the effects of the opiate drugs on such common post-operative symptoms as abdominal distension, nausea, and vomiting. The problem is complicated by the fact that the clinical significance of these symptoms is sometimes obscure; they may represent no more than a passing discomfort, or mark the onset of paralytic ileus. These and other questions are dealt with in a clinical study by Paine, Carlson, and Wangensteen.[1] The first section of their work is concerned with the effects of high and low morphine dosages, pantopon (total opium alkaloids), dilaudid (a morphine derivative), and saline cathartics in a series of post-operative abdominal cases. They found that the low morphine dosage (1/6 grain twice daily) was generally inadequate to control pain. The high dosage (1/4 grain at least three times a day) was often excessive; distension was slightly more frequent, and there was a definite increase of nausea and vomiting. The optimum dosage lies between these extremes. They conclude that morphine is not an important factor in the production of distension, and they see no contra-indication to its use in adequate amounts for the prevention of pain. Their experiences with pantopon and dilaudid did not reveal any superiority of these drugs over morphine. With saline cathartics the results were inconclusive. Owing to the nauseating effects of the magnesium citrate which was used the majority of the patients could not continue with the treatment; in those who could a troublesome diarrhoea resulted, but there was no diminution in the incidence of distension and vomiting. The second section of their work deals with the use of nasal catheter suction—siphonage by the Levin duodenal tube, a method previously described and used by one of the authors in the "decompression" of acute obstruction. Regarding as they do the accumulation of swallowed air and fluid stasis in the stomach and upper intestine to be the principal cause of post-operative distension and vomiting, they are

[1] *Journ. Amer. Med. Assoc.*, June 17th, 1933.

'e opinion that continuous suction should tend to inate these complications at their source Detailed ervations were made on a fairly representative collec- of major abdominal cases It was found that ension was almost completely prevented and that a and vomiting were much diminished , the gastric s appeared to benefit the most The discomfort ed by the nasal catheter was slight When neces- the difficulty of chloride deprivation would be met giving subcutaneous saline No new principle of tment emerges from this work, and the conclusions on the whole, in harmony with modern surgical ion But it stresses the paramount importance of the fact that this can best be secured by morphine, that any ill effects of the drug given for a few s are negligible in comparison with the benefits ch it confers Continuous suction is a definite ance in the application of the principle of gastric ge, but in the uncomplicated case it would seem unnecessary The early administration of purga- s is contrary to the principle of rest, and generally nothing to commend it , when paralytic ileus hreatened it may produce the very complication ch it is desired to prevent

DEVELOPMENTAL CYCLE OF TREPONEMA PALLIDUM

view that spirochaetes pass through a develop- ital cycle is not new Leishman, in a series of ers from 1909 onwards, produced evidence that in tick the spirochaete of African tick fever broke up a number of granules from which the spirochaete ld again develop Balfour described granule forma- in the case of *Treponema pallidum* some workers e gone further and elaborated quite complicated life- s for the virus of syphilis The work of Levaditi his colleagues[1] on this question began in 1927 nd as its starting point the well established observa- that the peripheral lymph glands of rabbits with otal syphilomata, although almost invariably viru- t, contain no demonstrable spirochaetes As a result their investigations, which approached the subject m both the biological and the histological point of w, they concluded that the spirochaete did not repre the whole story of the virus of syphilis Continuing studies Levaditi and his collaborators[2] have shown t the changes in and around portions of virulent mph gland, implanted under the scrotal skin of rabbits, ur in two distinct and definite phases During the of these, lasting some thirty to forty days, the fted tissue becomes necrotic, is invaded by poly phonuclear leucocytes, and is surrounded by a banal mmatory reaction , the most minute search reveals spirochaetes The second phase has quite a brusque et Spirochaetes appear in the inflammatory tissue rounding the implanted lymph gland, multiply rapidly, d invade the necrotic graft The histological aspect the lesion also undergoes a dramatic change, and now es on the specific appearance of a syphiloma, the ular polymorphs and large mononuclear phagocytes being replaced by lymphocytes and plasma cells arranged in dense formation around the newly formed vessels Levaditi considers two hypothetical explana- tions of these facts Either the spirochaete is present in very small numbers in the virulent lymph gland— the numbers being so small as to render its demonstra- tion difficult or impossible, and a long latent period being required to allow it to multiply sufficiently to be demonstrable microscopically—or it exists in an in- visible form which is capable, in a suitable environ- ment, of developing into the visible spirochaete He favours the latter hypothesis Profiting by an observa- tion of Schlossberger[1] that in mice inoculated under the skin of the back with syphilitic material the central nervous system becomes virulent but contains no demonstrable spirochaetes, Levaditi and his colleagues[2] have reinvestigated the question The findings of their latest investigation entirely support their earlier experi- ences The most minute search failed to reveal spiro- chaetes in the brains of mice previously inoculated sub- cutaneously with syphilitic material, yet an emulsion of such a brain introduced under the scrotal skin of rabbits produced typical chancres Here again a histological study of the lesions revealed the same two phases, the first a banal inflammatory one and the second that of a specific syphiloma Again the spiro- chaetes appeared first in the surrounding inflammatory zone, in close relation to the newly formed vessels, and invaded the necrotic brain tissue , the change in the histological structure of the lesion was subsequent to the appearance of spirochaetes The evidence which these workers have obtained lends strong support to the conception that the virus of syphilis passes through a developmental cycle of which the spirochaete is but one phase

METALLIC DUSTS IN TOWN AND COUNTRY

In the early part of last century it was not uncommon for cattle grazing in the remote vales and on the hillsides of the county of Durham to be seized with abdominal pain and die from plumbism, the result of consuming herbage grown in the immediate neighbour hood of chimneys connected with lead smelting furnaces Such incidents occasionally proved a source of litigation between farmers and the owners of lead-melting works The question has again been raised through the researches of Dr J T Dunn and Mr H C L Bloxam[3] of Newcastle on Tyne, whose services as analytical chemists had been sought by owners of stock, on account of several animals having died from un- explained causes Although the stocks had been grazing in different districts in Durham, the one feature common to all these localities was their proximity to coke ovens The herbage in the neighbourhood of the ovens was examined and found to contain lead In the stomach and intestines of one of four bullocks which had died rather unexpectedly lead, copper, and manganese were found It appeared that the owner of the farm, which was close to the coke ovens, had lost thirty animals, while others, which when ill had been removed to other pastures, recovered

Levaditi Schoen and Sanchis Bayarri *Bull de l Acad de d* 1927 xcviii, 149
Levaditi, Schoen, and Vaisman *C R Soc de Biol* 1932 cv,
Levaditi, Vaisman, Schoen, and Mezger *Ann de l'Inst Pasteur,* 1], 222

[1] Schlossberger *Arb aus d Staatsinst f exp Therap* Frankfurt 1928 No 21, 345
[2] Levaditi Schoen Vaisman, and Constantinesco *Bull de l Acad de Med* , 1933 cix 813
[3] *Journal of the Society of Chemical Industry* March 15th 1932 ibid , June 30th 1933

Nothing was found in the water to explain the death of the animals, but in the grass lead and copper were found—to the extent of 14 and 4.7 parts per million respectively. Examination of the internal organs of affected cattle revealed the presence of 0.6 lead parts per million in stomach tissue, 1.7 in the kidneys, and 2.6 in the liver, with 3.2, 2.1, and 3.5 parts of copper in these organs respectively. Since pyrites in coal may contain lead, varying in proportion from 20 to 54 parts per million, and grass grown close to coke ovens is found to contain lead, the inference is strong that it is from the smoke of the ovens that the metals are deposited. In their second paper the authors draw attention to the prevalence of lead, copper, zinc, and arsenic in atmospheric dusts. Since pyrites is the source of the lead and copper found on herbage close to where coal is subjected to combustion in comparatively airtight chambers, and since domestic smoke is not above suspicion, it appeared to Dunn and Bloxam that these metals would be found on the roadside grass close to the large towns, where soot and industrial dusts are prevalent. As might have been expected, the herbage in purely rural districts remote from habitations was found to be free from lead, but on roads along which there is a considerable amount of motor traffic this substance was discovered in the grass, and was attributed to the lead tetra-ethyl present in some petrols. Analyses of various kinds of coal, and also of domestic and industrial soots, revealed the presence of lead varying from 5 to 461 parts per million. Further examination of various kinds of dust deposited in different open areas in Newcastle, and of dusts removed from the shelves of occupied business offices, the porticos of houses, and the entrances to public buildings, revealed lead to the extent of 3,000 parts per million, copper 1,600, zinc 4,700, and arsenic —also a product of the combustion of coal—400 parts per million. The authors do not attempt to dogmatize upon the circumstances; they are simply content to state facts, which, although difficult of interpretation, cannot be disregarded from the point of view of the health of the public.

MENTAL HYGIENE

The ninth annual report of the National Council for Mental Hygiene announces that Prince George has accepted the first Presidency. During the year under review the Council and its committees have been extremely active. A publication started four years ago as a typewritten news bulletin has developed into a half-yearly journal, which has been accorded a most favourable welcome. The Council hopes to make it an increasingly important document and to publish it quarterly, including in it the papers read at the biennial conference. The cost of printing it is a serious drain on the inadequate funds available, and has more than once been met by personal friends. The usual spring and autumn series of lectures were well attended, that on "Mental Health and Everyday Life" attracting such large audiences that the hall was filled to overflowing. A course on sex education and the child was arranged in co-operation with the British Social Hygiene Council, and proved so successful that it was followed by an additional course entitled "Marriage and its Problems." A panel of lecturers has been drawn up, and the Council is always glad to consider applications from societies which would like lectures on mental hygiene. During 1932 the Council was able to carry out its long-cherished plan of extending its work to the provinces; a stand was organized in several health exhibitions and some health talks were arranged. The third biennial conference falls due in the late autumn of this year, and the second European Mental Hygiene Reunion is to be held in Rome in September. A small library has been got together, and is at present housed in the Institute of Medical Psychology; the use of the books is free to members, and gifts of books and money would be welcome. The Council has participated in a number of inquiries concerning such subjects as the care of delinquents, the cinema, remand homes as observation centres, sterilization of mental defectives, and sexual offences against young children. In view of the expansion of activities a publicity and publication committee has been formed, and has already carried out valuable propaganda work. Among the subjects studied by the committees are: school-life and nervous instability, cyclothymia, mental disease in municipal hospitals, and persistent offenders.

SCOTTISH DEPARTMENT OF HEALTH

Mr. John Jeffrey, Secretary to the Department of Health for Scotland, has been appointed Under Secretary of State for Scotland as from October 1st. The latter post has been rendered vacant by the retirement of Sir John Lamb. Mr. John Jeffrey has had a long connexion with the Department of Health for Scotland and the organizations which preceded it. In 1902 he became Secretary of the Departmental Committee on Poor Law Medical Relief in Scotland under the Local Government Board, and in 1909 he was made General Superintendent of Poor for the Northern Highland District at Inverness. In 1912, when the national health insurance scheme was set up, he became Secretary to the National Health Insurance Commission for Scotland, and played a great part in the strenuous work of bringing this scheme into operation. When the Insurance Commission was merged with the Scottish Board of Health in 1919 he became Secretary of the Board, and when the functions of the latter were taken over by the creation of the Department of Health for Scotland in 1929 he became its permanent head. Mr. Jeffrey is succeeded as Secretary to the Department of Health by Mr. J. E. Highton, at present Chief Insurance Inspector in the Department. Mr. Highton is a graduate in law of Glasgow University; he became one of the six district inspectors under the National Health Insurance Commission when it was set up in 1912. During the war he was employed in the Ministry of Shipping in London, and afterwards returned to the National Health Insurance Service.

We regret to announce the sudden death on September 4th, at Colinton, of Dr. John Playfair, a past-president of the Royal College of Physicians of Edinburgh, and consulting physician to the Royal Hospital for Sick Children.

Dr. J. O. Wakelin Barratt has been elected Master of the Society of Apothecaries of London in succession to Dr. Cecil Wall.

'HE BOARD OF CONTROL'S REPORT

MENTAL DISORDER IN 1932

' nineteenth annual report of the Board of Control[1] 32) shows that on January 1st, 1933, the number of sons suffering from mental disorder notified as under ' in England and Wales was 148,775 This number is increase of 2,079 during the preceding twelve months, ch increase may be compared with the average annual ease for the five years ended January 1st, 1933, of '1. It will be remembered that these quinquennial res include a period prior to the coming into operation he Mental Treatment Act of 1930, which gave power, *i alia*, to receive voluntary patients into public mental pitals, and also created an entirely new procedure reby " temporary patients " can be admitted into ital hospitals without certification and the intervention any judicial authority The numbers relating to voluny and temporary patients are now included, but for the poses of the comparison drawn above the numbers the years prior to 1930 have been corrected by the lusion of voluntary cases received into institutions for vate patients At first sight the low rate of rease might appear to be of favourable significance, but Board is careful to point out that there is no necessary nexion between the fluctuations in the number of ified cases and the incidence of mental disorders in the eral population, the numerical increase, for example, ng merely the increase shown by the excess of admissions r the combined deaths and discharges Thus, when ding with accommodation in county and borough menhospitals, where the increase of patients accommodated 314 as compared with the average of 1,970 for the nquennium) was the lowest net increase recorded since 9, the Board shows that this abnormally low figure s due partly to an increase of 569 in the total of deaths l partly to an increase in the number of mental patients public assistance institutions

The Board's comments on the matter are of real imtance, and reveal some degree of concern

' With the present shortage of beds in mental hospitals re is obvious advantage in transferring to public assistance tutions any cases which can be properly dealt with in m But there are indications that in some areas, notably in ncashire,' new cases, sometimes of an acute type, are being ot in these institutions without any effective treatment use beds cannot be found for them in mental hospitals " o " There is a natural tendency to retain in mental hosals chronic patients who are useful workers, and it is vious that no hospital could face the loss of any large portion of the working patients without risking a marked in the maintenance rate But the policy of retaining workers y be, and not infrequently is, carried too far, and there many patients (particularly so called ward workers) who uld be transferred, though at some inconvenience, without v appreciable effect on the maintenance rate In any ent the new cases must be regarded as having the first claim the bed accommodation , and to retain chronics, who could en be usefully employed in a public institution or boarded t at the expense of new and urgent cases is unfair to those eding the treatment which only a mental hospital can pro le, and in the long run is uneconomical "

The Board therefore urge local authorities to have a stematic review made of all chronic cases to see if more tients cannot be found whose transfer would release ental hospital beds for urgent new admissions

During the year under review the total accommodation county and borough mental hospitals was increased by 268 beds, which, after allowing for the increase in the mber of patients under care, reduces the long existing ficiency in beds to 1,717—that is, to a shortage of 7 beds for male and 1,110 for female patients Although e position has eased for the time being, the Board says at it must not be assumed that this improvement is kely to continue " It is an accident that a slower rate increase happens to have coincided with an unusually rge number of added beds The death rate has risen ring the last two years, but it has only to fall again, as it easily may, to the 1930 level to upset the balance " Moreover, deficiency of beds is never evenly distributed over the country, nor indeed over the wards of any individual hospital, but is always evil in its effects, impeding proper classification and imposing serious difficulties upon the staff

The continued shortage of accommodation in public mental hospitals, the increasing resort to public assistance institutions, and—a matter to which we refer later—the restricted development of the facilities afforded by the Mental Treatment Act are all largely attributable to present financial difficulties and the necessity of keeping fresh capital expenditure within the narrowest possible limits There can be no doubt that the systematic review of all chronic cases which is urged by the Board for action by local authorities could do much to relieve mental hospitals of certain cases, unimprovable perhaps, but sufficiently stabilized in conduct to be suitably cared for in public assistance institutions or to be boarded out with relatives or friends, especially if such action were to effect closer liaison and co operation between the mental hospital and the public assistance services

But in this connexion, and especially at a time of national adversity, uncertainty as to future public demands and possibly of the power to cope with these demands, it may be well to refer very briefly to the considerable extension of " boarding out, well known as the " family care system " (*l'assistance familiale*, *Familien pflege*, etc) which has been in beneficent operation in Belgium, its home of origin, for centuries, in Germany since 1764—though in its modern form only since the opening of the present century—in Scotland since 1862, in Holland since 1884, in France since 1892, and since then in several other States[2] It is a system of guardianship whose success depends in the main on the quality and character of the guardians selected, and it is a curious commentary on Sect 57 of the Lunacy Act of 1890, whereby boarding out is restricted to relatives and friends of the patients and in practice is limited to the former, that universal experience has shown that in general the relatives of patients make the least satisfactory guardians The system is eminently suited to rural districts The financial saving probably the only saving, effected is the capital and interest which would otherwise be required to provide and maintain institutional accommodation for the numbers so treated This however, might well be a substantial relief if the system were applied, as it might well be, to approximately 10 per cent of the rate aided patients in county and borough mental hospitals The real gain however is to be found in the increased happiness and well being of the patients so treated

MENTAL TREATMENT ACT

The number of temporary patients admitted to public mental hospitals, the Board says, continues to be disappointingly small To some extent it thinks this is due to the natural reluctance of public assistance officers to substitute a new and somewhat more complicated procedure for one with which they are thoroughly familiar But it fears it is also due in large measure to the unwillingness of general practitioners to avail themselves of the new facilities for obtaining treatment without certification for non-volitional cases The fact, however, that whilst only 2 per cent of the total direct admissions during 1932 were admitted as temporary patients, the percentages for registered hospitals, Metropolitan licensed houses, provincial licensed houses, and approved nursing homes were 7, 7, 6, and 17 respectively, and also the notable disparities shown by the percentages relating to temporary patients admitted to different county and borough hospitals, suggest that other factors are at work The county and borough mental hospitals receive over 90 per cent of the total direct admissions annually In forty of these hospitals this procedure was not used at all, and of the remainder the figures were as follows In forty three the temporary admissions formed less than 5 per cent , in thirteen from 5 to 9 per cent , at one (the City of London) 13 per cent , and at Derby Borough no less than 34 per

[1] Nineteenth Annual Report of the Board of Control for the year 32 Part I London H M Stationery Office 1933 (2s net)

[2] See a Report on the Insane Poor *British Medical Journal* January 7th, 1905, to March 18th, 1905

cent. As it is extremely unlikely that Derby Borough is exceptionally prolific in cases of non-volitional type, it may be hazarded that one and perhaps not unimportant cause of the disappointingly slow development of this provision is a fairly general unacquaintance with the working of the Mental Treatment Act, and possibly, also some uncertainty as to the kind of case which will be accepted as properly falling within the category "non-volitional," which time and experience will surely rectify.

Turning to the admission of patients on a voluntary footing, the report shows that of the total number of 22,271 direct admissions during the year, 2,295 were admitted as voluntary patients, or an increase of 800 in the voluntary class upon the figures of the previous year. There are still some areas, the Board says, in which, owing to pressure on bed-space or for other reasons, insufficient use has been made of this important provision of the Mental Treatment Act. There were seventeen county and borough hospitals which admitted no voluntary patient in 1931; last year the number of such hospitals was reduced to fourteen. As in the case of temporary treatment, the statistics of voluntary patient treatment show definite though narrower discrepancies between area and area, the percentages of such cases among the direct admissions ranging from 5 per cent. at twenty hospitals, through 10 to 14 per cent. at nineteen hospitals, to 24 to 29 per cent. at four hospitals, and from 37 to 49 per cent. at four more. Taking into consideration the pressure for and the cost of making new accommodation, the rate of development of the admission of voluntary patients to public hospitals is not unsatisfactory, and probably owes its measure of success, at any rate in part, to the fact that the admission of "voluntary boarders" to hospitals for private patients was already a well-known and accepted procedure for many years before the Mental Treatment Act came into being.

The co-operation of the general practitioner or family doctor and the psychiatrist at every stage in the treatment of the patient, in the clinic, the out-patient department, and the hospital, is an inestimable advantage. More especially is this so in the clinic, to whose success, the Board says, this co-operation is essential. In spite of financial and other difficulties the number of clinics has steadily increased to sixty at the end of 1932. No further statistics are published in the present report, but we are pleased to note that the Board hopes on a future occasion to give figures illustrative of the work done in this important sphere. When these are published we shall expect to find that they will not only demonstrate the great value of these new services to the community, but that the areas in which they are functioning most effectively will be found to be the same areas in which the advantages of the new provisions as to voluntary and temporary treatment are most fully appreciated.

OCCUPATION THERAPY

The scientific development of occupation as a remedial measure in mental hospitals in England has undoubtedly lagged far behind that of several other countries. It therefore affords some degree of satisfaction to read that during the past year increasing attention has been given to this matter.

For some years past the Commissioners at their visits to mental hospitals have taken the opportunity of discussing the subject with many superintendents, but their reports, the Board notes, indicate that there is still much misunderstanding of the objects in view. During the year a small office committee of the Board began a review of the whole question and has now presented a report.[1] Some of the Commissioners of the Board severally visited Gutersloh (Germany), described as the home of occupation therapy in Europe, Santpoort (Holland), and certain mental hospitals possessing well-organized occupation therapy departments in the States of New York and Massachusetts, and in Philadelphia; whilst, as our readers are aware, the Royal Medico-Psychological Association arranged last summer a short tour of Santpoort. Pithily commenting upon what occupation therapy really is and what objects it has in view, the Board remarks as follows:

"To teach a small group of quiet patients to make leather bags or other decorative objects to sell at the annual bazaar may be useful, but it is certainly not occupation therapy. The show-case which some hospitals display with pride is no proof of success, and it may be definitely harmful if it is allowed to concentrate interest on the sale value of the work produced. Success or failure in occupation therapy is to be tested by the effect on the patients, not by cash sales. The object of the system is therapeutic and is to re-educate by employment, to establish good habits, and, by interesting patients normally regarded as turbulent or unemployable, to stabilize them and to make them happier and more tractable. The lesson of Gutersloh and Santpoort once more confirms the view often expressed by the Board that turbulence and excitement are not inevitable, but point to an indication of failure to handle the patient rightly. An idle patient ought to be regarded as a reproach to the hospital. Experiment has shown that practically every ambulant patient can be employed and is infinitely better and more easily controlled when he is employed. . . .

"There is, unfortunately, a widespread impression that the system of occupation therapy as organized in the best Continental hospitals demands a largely increased nursing staff. This is not the case. It is true that the proportion of nursing staff to patients at Santpoort is much larger than is usual in any public mental hospital in England, but it was in fact just as large before Santpoort adopted the occupation therapy methods elaborated by Dr. Simon at Gutersloh. At Gutersloh itself, the home of occupation therapy in Europe, the nursing staff is actually less than that to be found in the more highly staffed of the English hospitals."

The report of the Board's Office Committee should be in the hands of everyone interested in the care and treatment of the mentally invalid, whether certifiably so or not. The Memorandum is obviously addressed to the development of occupation therapy in public mental hospitals, in some of which—notably, Barming Heath, Cardiff, Severalls, Exminster, Chester, and Clifton (N. Riding, Yorks)—this form of therapy is making steady progress.

But its application is wider than the whole range of psychiatry, as the many thousands of war-disabled who passed through the splendidly equipped occupation therapy departments of the Ministry of Pensions hospitals will well remember, and as the definition of occupation therapy adopted by the Board's committee itself indicates. "Occupation therapy is the treatment, under medical direction, of physical and mental disorders by the application of occupation and recreation with the object of promoting recovery, of creating new habits, and of preventing deterioration." In time, no doubt, an occupation therapy department will be recognized as an important adjunct to almost every hospital and clinic of whatever kind.

STATISTICAL

On pages 16 and 17 of the Report summaries are given of the persons [illegible]ental disorder on January 1st, 1933, arranged (a) according to class—that is, whether private, rate-aided, or criminal; and (b) according to status—that is, whether voluntary, temporary, or certified. As hereinbefore mentioned, the total number on that date was 148,775. Of these, 65,741 were males and 83,034 females, being an increase of 1,065 males and 1,044 females. There was a decrease during the year of sixty-one males and one female in the numbers in the private class, the rate-aided class increased by 1,137 males and 1,008 females, and in the criminal class there was a decrease of eleven males and an increase of seven females. The gross numbers in each class on January 1st, 1933, were: private patients 15,191, rate-aided patients 132,690, and criminal class 894.

Table (B) shows that on the same date 2,529 were resident as voluntary, 210 as temporary, and 146,036 as certified patients. Also a sub-table discloses a lamentable though not unexpected fact that—excluding the 894 criminal class, all of whom were certified patients—while 1,241 voluntary and 104 temporary patients were of the private class, the rate-aided class, numbering 132,690 persons, furnished only 1,288 voluntary and 106 temporary patients. During the year 1932 the direct admissions numbered 25,560 (males 11,304, females 14,256), of which 87.1 per cent. were admitted to county and borough

[1] *Board of Control Memorandum on Occupation Therapy for Mental Patients.* London: H.M. Stationery Office. 1933. (6d. net.)

ntal hospitals The proportion per cent of these ad-sions in each status was voluntary 17.1, temporary , and certified 81.

The Board remarks that the question has often been ed, what, generally speaking, should be the proportion-uses of the new procedures and of certification It s to the statistics of a single area (Swansea), which, ugh populous, is compact, and whose procedure, in-much as it has only recently possessed a hospital of its n, is comparatively untrammelled by a traditional neces-of certification as the one and only portal to in patient atment Swansea's admissions—after deducting a num-of chronic cases housed in a public assistance institu-in default of proper mental hospital accommodation admitted to Swansea on its opening—give the follow-proportions voluntary patients 51 per cent, tempo-patients 15 per cent, and certified patients 34 per t These proportions closely approximate to those the has thought likely to be expected when the Act fully utilized.

MENTAL DEFICIENCY

The need for beds in institutions has loomed so large the horizons of the Board, of local authorities, and of rs concerned that there is some danger, the Board rs, of overlooking the fundamental requirement imposed local authorities of ascertaining "what persons within ar area are defectives subject to be dealt with" Some l authorities, perhaps not unnaturally, feel that with present need for economy this is a duty which may perly be postponed, and that as there is often difficulty finding accommodation even for very well defined cases, is waste of time and energy to bestir themselves about rest Yet, bearing in mind the several methods of and care—whether in a well organized colony, a rtified institution, or other kind of custodial care, or ether under some form of "community care" such guardianship, licence, statutory supervision, etc, each propriate to the grade and kind and behaviour of the fective—it is clear that until a complete conspectus of area has been obtained no well-balanced scheme, or n just estimate of the number of beds to be required, possible

THE NATIONAL BURDEN OF MENTAL DEFECT

The Wood Committee's report gave a probable average l over the country of 4·52 per 1,000 (adults 3·79, becile children 0·6, idiots 0·13 = 4·52), excluding ldren of school age The annual returns furnished the local authorities show that on January 1st, 1933, e number of mental defectives reported to them, whether bject to be dealt with or not, was 102,345, or 5,035 re than the number on January 1st, 1932 The ratio us discovered per 1,000 of population of England and ales is now therefore 2·56, as compared with 3·44 a ar before The discrepancy between the local authori-s' figures and the estimate of the Wood Committee ggests that ascertainment all over the country is still r from complete, a suggestion which is fortified by the ct that in proportion as the knowledge of the defectives an area increases the more closely do its figures ap-oximate to the estimated average of 4·52 per 1,000 Economically this failure to recognize and treat defec-ves is unsound.

"In one way or another," the Board says, "the community ust contribute to the support of this defective class, and e believe that the transference of the expenditure to the ental deficiency service is in itself an economy Unrecognized fectives are still costing the country large sums spent in ating the symptoms whilst ignoring the disease Early cognition and treatment of the primary condition is the y way of preventing present waste and future liabilities hough mental defectives are seldom actively vicious, their clination to sink into and inability to struggle out of bad rroundings make them gravitate to the bottom of the social Where their surroundings are immoral and corrupt ey become themselves a source of corruption and of moral, l and economic danger to the State"

Now the principal provision for securing early ascer-inment and subsequent action is through Section 2 (2) of the Mental Deficiency Act, which empowers local education authorities to notify the local authorities under the Mental Deficiency Act of all defective children over the age of 7 *who are attending or leaving special schools* But only 15 per cent of the estimated number of feeble-minded children in England and Wales are at present attending special schools, and until the law is amended, the Board maintains, so as to allow the notification of feeble minded children leaving *any* school at *any* age, this serious defect in the whole machinery of the Act cannot, it thinks, be amended

It quotes a report of the Royal Western Counties Institution (Starcross), from which we take the following:

"It is a sorry fact that to-day the children in residence form only 20 per cent of the total number, compared with 60 per cent five years ago Whenever a vacancy occurs there is an appeal to admit an adult who has caused some social harm or is in moral danger, and in the interests of the community the case must be received But this enforced policy results in the neglect of the children, and for such neglect the price must sooner or later be paid In dealing with the problem of mental deficiency there must be adequate facilities for the care and training of children Seventy-five per cent of the patients on licence from the institution on March 31st received training in childhood *They are maintaining themselves Had they been deprived of that early* training and come to the institution during adolescence, possibly in consequence of some serious delinquency, they would probably have been a charge to the community for many years, and perhaps for life"

It is worthy of mention that in 1932 the number so notified by local education authorities was 3,777, or three less than in the previous year

ACCOMMODATION

The most important event of the year in the matter of accommodation was the completion of Hortham Colony (Bristol County Borough), opened by the Minister of Health on April 29th, 1932 It is the first complete colony to be constructed by a local authority The total number of beds available at present is 600, but the administrative unit is planned to permit expansion where necessary

In general, however, institutional provision has been delayed by financial stringency Plans have been curtailed and programmes for the completion of colonies slowed down During the year 2,146 new beds have been provided by local authorities in institutions under Section 36 of this Act, but the rate of increase of accommodation is far from overtaking the urgent need for beds

COMMUNITY CARE

Increasing use is being made by local authorities of licence, guardianship, and statutory supervision, assisted by the provision of occupation or training centres and facilities for home training, though in some areas these forms of community care are still practically undeveloped The number of defectives on licence from institutions on January 1st, 1933, was 1,592, rather more than half of whom were at home on licence and the remainder in wage-earning situations The number of cases under guardianship on the same date was 2,558, being an increase of 359 on the figures of the previous year For the success of either of these two forms of community care, as in the case of the boarding out of the subjects of mental disorder, the principal factor is the choice of the guardian When discussing licence the Board says it is frequently told that suitable guardians and foster parents are impossible to find The work done, however, by such bodies as the Brighton Guardianship Society, by the Guardianship Society of the Central Association of Mental Welfare, and by the Devon Voluntary Association, has shown conclusively that where a thorough investigation of a neighbourhood is made by experienced officers, employers and foster parents can be found who are well qualified to undertake the care of defectives

Again, as in the case of boarding out of the insane, the essential requisites so far as the patient is concerned are stability of behaviour and capacity for work, and, in the provision made for the patient, a good home, a carefully

selected guardian, an elastic system of tactful supervision, and proper after-care services. In one important particular, however, the community care of defectives differs from that of patients from mental hospitals—namely, that for re-establishing a defective in the community institutional training is a necessary prerequisite. For this reason the Board advises young colonies to proceed slowly with their schemes of licence. The training and socialization of defectives, it points out, is often a matter of years, and premature licence leads to waste of effort and expense; but there is every reason to plan from the beginning the method by which this contact with the community will be achieved in later years.

COMMITTEE ON STERILIZATION

The Departmental Committee appointed by the Board of Control, with the approval of the Minister of Health, in June of last year to examine and report on information available regarding hereditary transmission and other causes of mental disorder and deficiency, and to consider the value of sterilization as a preventive measure, etc., hopes to be able to report to the Minister of Health this autumn.

RETIREMENTS FROM BOARD

In July of this year the Board of Control suffered a great loss in the retirement of Mrs. E. F. Pinsent. Her interest in the welfare of the mentally afflicted extends over many years. She was the only woman member of the Royal Commission in 1904, and in 1914 became an honorary commissioner (and later commissioner) of the Board of Control. Mrs. Pinsent was appointed a senior commissioner in 1930, when the Board was reconstituted after the passing of the Mental Treatment Act: she has been succeeded by Miss Ruth Darwin.

At the end of 1932 the Board lost the services of Dr. R. Cunyngham Brown, who had been a temporary commissioner since 1926. Dr. Cunyngham Brown's association with psychological medicine dates back to his appointment in 1912 as a deputy commissioner of the General Board of Control for Scotland. For a good many years he was a valued contributor to the columns of the *Journal*.

South Africa

[FROM OUR CORRESPONDENT IN PRETORIA]

Scientific Distinction of Medical Men

The annual congress of the South African Association for the Advancement of Science, held in Barberton in July, was remarkable for the fact that the chief honours went to medical men. This is of interest because in South Africa, as in Great Britain, this association is concerned essentially with research in pure science. The congress was presided over by Dr. Robert Broom, F.R.S., a physician in active practice who has yet been able to utilize his spare time to the extent of becoming a leading palaeontologist; his brilliant researches on the fossil reptiles of the Karroo have received wide recognition. The recipient of the South African Medal of the association was Dr. A. Pijper of Pretoria, a past president of the Northern Transvaal Branch of the South African Medical Association. Dr. Pijper obtained the medical doctorate of Leyden University in 1912. He began practice as bacteriologist and pathologist in Pretoria in 1920, and in this capacity has served the Pretoria General Hospital, the Mental Hospital, and the Pretoria Municipal Council. He is medical assessor for vital statistics to the Union Census Office, correspondent of the Royal Academy at Amsterdam, and member of the Union's Leprosy Advisory Board. He was the first recipient of the Hamilton Medal of the *South African Medical Journal*, and in 1930 received the Senior Scott Medal of the South African Biological Society, of which he has twice been president. Dr. Pijper's researches since coming to the Union cover a variety of subjects, such as the distribution of the four blood groups among the South African races, the invention of the diffraction method of measuring microscopic objects—a method now widely used for the diagnosis of blood diseases—fungal infections of human beings, and the extension of the use of dark-field methods by the use of sunlight. Of direct medical interest are his researches into the typhus-like diseases occurring locally, and the establishment of tick-bite fever as a separate entity in this group, and into improved serological methods of diagnosing typhoid and allied fevers. He recognized at an early date that the Widal test was negative in many instances where it should have been positive, and he replaced it by a complement-fixation test which gave great satisfaction. This confirmed Felix's work on *H*- and *O*-agglutination, since he could show later on that complement-fixators and *O*-agglutinins were practically identical, and that early and certain serological diagnosis of the enterica is entirely dependent on the demonstration of *O*-agglutinins or complement-fixators, *H*-agglutinins being absent in many cases of enteric fever and often present in huge quantities in vaccinated persons. His finding that oral immunization against the enterica produced *O*-antibodies added another argument in favour of this method of immunization.

Malaria Control

The malaria season, which in the Transvaal and Zululand ends in June, has this year resulted in strikingly less morbidity and mortality than in the previous three seasons. This must be attributed to the drier conditions which obtained in most parts, but the active measures for controlling the disease which have been taken by the central, provincial, and local governments, and by private concerns and individuals, must be given at least some of the credit. This activity is the direct result of Professor Swellengrebel's visit two years ago. Until that time such preventive measures as were adopted were diffuse and largely ineffective owing to their being directed against all mosquitos, too often to the exclusion of the actual vectors of malaria. Only comparatively recently did entomologists show that of the twenty-five anopheline species in the Union only two were of importance as possible sources of human malaria—*A. costalis* and *A. funestus*. Professor Swellengrebel exploited this fact, and by a further detailed study of the habits of these two species was able to set out a practicable policy for malaria control. The work is being scientifically guided from the research station which has been established at Tzaneen in Northern Transvaal, where conditions are probably as malarious as anywhere in the world. Successful anti-larval work is now possible in many areas owing to the accurate knowledge of the nature of the breeding places of the incriminated mosquitos. In the case of the commoner vector, *A. costalis*, these breeding places are insignificant puddles and hoofmarks, which were almost inevitably neglected when general anti-mosquito or even anti-anopheles measures were adopted. But although much successful anti-larval work is being carried out, anti-adult work is under certain conditions proving even more valuable. The incriminated adult mosquitos nearly always bite human beings within buildings; the danger of contracting malaria outside a house is almost negligible. Propaganda with regard to protection against the adult mosquitos within homes is, therefore, being carried on extensively. This includes the well-known measures such as screening of houses, use of bed-nets, insecticides, and repellent smears. Where these measures have been systematically carried out remarkable immunity from infection has resulted, even in houses situated close to heavily infected native locations. Along the Natal coast the scattered population has been organized into malaria committees charged with preventive measures as

recommended by Professor Swellengrebel The law makes the owners of the land responsible for carrying out anti malaria measures, while local authorities, such as these malaria committees, are required to see that they do so, and also to assist and co ordinate their efforts The area brought under effective control by the establishment of these committees is approximately 250 miles in length and 1,000 square miles in extent Within it are situated over 600 European sugar farms and numerous smaller holdings, in and around it are extensive native reserves The inspecting staff of local authorities in malaria areas receive training in anti malaria work Classes for this purpose are conducted by the Government in Natal and at Tzaneen

Ireland

Tuberculosis and the Celt

Dr John A Musgrave, county medical officer of health for Louth (Irish Free State), states in the course of his annual report on tuberculosis that the question of varying tuberculosis rates in different countries in relation to race is periodically raised It has been pointed out, he says, that the "Celtic" races—Irish, Gaelic, Welsh, Breton, and Cornish—present higher rates than the "Germanic" races, but that while the western situation of Celtic races, together with other factors such as food, housing, and overcrowding are possible causes, the Celt may also be racially more vulnerable In Dr Musgrave's opinion this vulnerability is temporary, and is in no way a special race characteristic Custom, diet, and climate have an effect on the incidence of tuberculosis rates, but the main factor making for a low rate is, he suggests, a comparatively recently acquired resistance or immunity In considering international figures allowances may be made for the different facilities for accurate diagnosis obtaining in various countries, and for the fact that sanitation, the development of social services, and other factors are not constant It has recently been stated that while tuberculosis is a disease of civilization, it is receding in urban and advancing in rural communities This, Dr Musgrave says, can hardly be considered to be yet true of Ireland, the decrease has not been so proportionately great in urban areas for any years that he has examined In 1931 the urban rate for Saorstat Eireann was 1 81 and the rural rate 1 11 per 1,000 of the population, in 1930 these rates were 1 79 and 1 10 respectively If tuberculosis in other countries is ceasing to be a disease of towns, is not this possibly due, he asks, to the urban communities having now become thoroughly tuberculanized? Improvement in urban sanitation, Dr Musgrave continues, accounts for this decrease to a great extent, but it is also probable that the main stock of these urban districts is now acquiring a stronger resistance relatively than the main stock of the rural districts In Ireland this resistance has not yet been acquired by urban dwellers, and consequently the old rule of the greater the density of population, the greater the risk of infection and the greater the tuberculosis rates, still holds A possible explanation of the high rates among Cornish and Irish colonies in England, if the present higher incidence among the Celtic races is accepted, may be found in a younger communal immunity, not in an immutable racial susceptibility In the case of certain settlements in England, in which the people have been resident in the country of their adoption for two or three generations, a hereditary immunity alone would, at first sight, explain the continued high rates Children born and growing up in England would be subjected to the same vaccination doses of tubercle bacilli as their English neighbours, and should benefit from the same acquired immunity, if they were not supervulnerable Allowing a hereditary immunity to be also at work, however, the original stock being unprotected, their offspring would not react to infection in the same manner as the English residents whose ancestors had longer experience of the disease Many explanations have been put forward to account for the general decline in tuberculosis rates during the last fifty years, briefly summarized they are (*a*) the measures taken against tuberculosis, (*b*) a rise in the purchasing power of wages, (*c*) the working of inheritance and selection, (*d*) the periodic variation of tuberculosis—the decline statistically noted in the last fifty years being merely the down stroke of the beat To his mind, Dr Musgrave states, (*a*), (*b*), (*c*), and possibly (*d*) might all be accepted as contributory factors, the decline in tuberculosis rates, to quote a phrase of Sir George Newman's, being due to 'social betterment, and sanitary improvement, partly to special measures, and partly to biological forces' To summarize, Dr Musgrave submits that the Celtic races have not, as a whole, been able to afford the same intensive and extensive measures against tuberculosis as their more Germanic neighbours, and also that the diet of the Celtic races is probably, on the average, not so generous Other factors to be considered are climate, state of general sanitation, and state of social services Apart from these factors, however, he suggests that the higher Celtic rates are due in no small measure to the disease having been more recently distributed among them The preventive measures which may be specially recommended for their consideration are, in his opinion (1) to cease to believe in any special vulnerability of basic stock, and to further all social and sanitary reform, (2) to correct as far as possible diet deficiencies, (3) to correct as far as possible climatic deficiencies, (4) to carry out as much health propaganda as is possible, and to prevent massive and repeated infection, (5) to eliminate the danger of bovine infection

Clinical Teaching in Dublin

In our Educational Number published last week, three paragraphs were inadvertently omitted from the section headed 'Clinical Teaching in Dublin (p 445) which only referred to the Coombe Lying in Hospital and the National Maternity Hospital For the sake of completeness we print below the passages omitted

There are numerous well arranged hospitals in and around the city and almost all of these are recognized for teaching purposes by the Conjoint Board of Ireland the University of Dublin the National University of Ireland and by like bodies elsewhere in the British Isles Among them are the Mater Misericordiae Hospital with 345 beds, Dr Steevens's Hospital at Kingsbridge with 150 Meath Hospital and County Dublin Infirmary with 160 Mercer's Hospital, with 120, the Royal City of Dublin Hospital with 124, the Adelaide Hospital with 160 the Royal Victoria Eye and Ear Hospital, with 100 beds Sir Patrick Dun's Hospital which has a direct connexion with the School of Physic, and the combined institutions formed by the Hardwicke Fever Hospital, the Richmond Surgical Hospital and the Whitworth Medical Hospital with an aggregate of 330 beds

As for the famous Dublin medical institution known as the Rotunda Hospital, this practically consists of two distinct hospitals, and is believed to be the largest combined maternity and gynaecological hospital in the British Isles There are ante natal and paediatric departments as well as a thoroughly equipped pathological laboratory and x ray apparatus It possesses residential quarters for students, and taken as a whole, offers exceptional opportunities for study both to ordinary students and to medical graduates of any nationality During the year ending October 31st, 1932, there were 2 690 maternity admissions Including patients treated in their homes the Rotunda dealt with 4 469 maternity cases during the year of which 3 842 were delivered

At the National Maternity Hospital, Holles Street Dublin 1 631 patients were admitted to hospital during the year ending March 31st 1932 total deliveries in hospital were 1 141, gynaecological operations 400 dispensary attendances 7 843 and patients attended in their own homes 792

CORRESPONDENCE

Psychology and the Curriculum

SIR,—Dr. Godwin Baynes, in his letters (August 5th, p. 267, and August 26th, p. 398), assumes that psychology will be introduced into the medical curriculum in the near future, although there was little in the Interim Report of the Committee on Medical Education on which to base this assumption. There is a hint in paragraphs 15 (*e*) and 21 (*b*) (iii) of the report that fuller instruction is contemplated in mental processes and their abnormalities than has hitherto been given. No doubt when the committee presents its complete report this ticklish problem will receive the fullest consideration, and Dr. Baynes's point of view adequate attention.

Unfortunately for him he seems to overstate his case. It is ridiculous to speak of the "callow mind of youth" with reference to the mind of a medical student 23 or 24 years old; for it would be towards the end of the curriculum that psychology would be taught, not at the beginning. The seminar method of teaching which he approves savours of a foreign intrusion into medicine, unless of course it simply means a post-graduate course of study. It reminds one of a seminary for priests to receive instructions in doctrine rather than a method of imparting scientific principles and the data on which they are founded. In any case it would be a gathering of specialists, in which the ordinary practitioner would be like a fish out of water, and it is for the ordinary practitioner that the curriculum must be designed.

It is in the nature of psychology that it must ever be the prey of conflicting theories by reason of its intimate relation to the theory of knowledge, but that does not mean that it has not reached a stage whereby certain of its data cannot be used for insight and explanation of human behaviour. It is true that these data and principles have not yet been systematized into an agreed scheme, or a scheme gaining the assent of the majority of reliable and competent experts, but there is enough, if taught in conjunction with the physiology of the nervous system, to give medical students a fair grounding in the subject.

If, as suggested by Dr. Baynes, medical psychology must be taught apart from biological and physiological conceptions then Heaven help medicine! It would be led into a morass of mysticism, where it would flounder in confusion.—I am, etc.,

Warrington, Aug. 26th. J. S. MANSON.

SIR,—Dr. Baynes (*Journal*, August 26th, p. 398) tells us that:

"Psychology, to become a true science, will eventually take the field of the psyche—that is, the whole range of psychic products and phenomena—as an independent field of study, and will form its concepts empirically from actual psychic material instead of, as at present, elucidating this material in terms of biological or physiological preconceptions."

How true! The idea occurred to another psychologist more than two thousand years ago.

"The object of our inquiry is to observe and discover both the historical development (*φύσιν*) and the essential nature (*οὐσίαν*) of the soul (*τῆς ψυχῆς*), and further to find out the phenomena occurring in connexion with it—phenomena of which some are thought to be affections (*πάθη*) peculiar to the soul itself, others, while owing their existence to the soul are thought to belong to the animal nature taken as a whole" (Aristotle, *de Anima*, Bk. I, cap. I, Wallace's translation.)

Dr. Baynes is indeed well fitted to sit in judgement on the competence of our colleagues the university teachers of psychology and moral philosophy. One of the objects of bringing psychology into the curriculum is, I think, to cure a fault which Dr. Baynes illustrates, a fault which makes us the laughing-stock of educated laymen—namely, a naïve belief that until some medical man had written on the subject, preferably in the German language, nobody had ever thought "scientifically" about psychology at all. Perhaps this can be done—whether it can be done is for our academic colleagues to say—by the historical method. A dissertation on Hippocratic surgery, although interesting, would not, I imagine, be a very practical introduction to a course of surgical instruction, because there has been so vast a change in the technique of the subject. An account of Hippocratic and Galenical epidemiology is, as I know from experience, an important preliminary to critical examination of modern methods. Many of the problems which perplexed Hippocrates are still unsolved, and the old formulations of them still have educational value.

I suspect—and Professor Culpin seems to be of the same opinion—that the remark applies to general psychology. Let us be a trifle more modest in our requirements. If only our students had as much insight into the problems of general psychology as a humble-minded and attentive perusal of, say, two or three of Plato's dialogues competently annotated would give them, we could trust them to distinguish better than at present between jargon and philosophy.—I am, etc.,

Loughton, Aug. 28th. MAJOR GREENWOOD.

Prophylaxis of Malaria

SIR,—My copy of the *Journal* of July 15th has arrived to-day, and I read with interest the several letters with reference to the prophylaxis of malaria with quinine. It is an outstanding feature of this subject that the honest convictions of so many individuals should lack confirmation in controlled experiment, but my own experiences in Malaya have led me to the belief that there is a satisfactory explanation for this. In Malaya the prevention of malarial infection is attempted in large communities—and with a very high degree of success indeed—and the term "prophylaxis of malaria" is here understood in that light. This problem is very different from that of the prevention of clinical symptoms of the disease in a few individuals within a community.

Reference to three charts extracted from my article in the *Malayan Medical Journal* of September, 1932, will show the results of attempted chemo-prophylaxis without anti-mosquito measures in certain malarious areas in this country. It is seen that success was obtained by this practice only when the total population under control was no greater than about eighty persons. It has been observed that where mosquito control is incomplete there is, with a falling population, a proportional fall in the malaria incidence rate per centum of population. From a consideration of parasite rates, as well as from my general impressions, I am convinced that this result is not dependent merely upon the mathematical probability of the mosquito obtaining the gametocyte, but I believe that it is dependent upon some strengthening of the strain of the parasites by passage through a greater number of hosts, so that the prophylactic action—so called—does not operate in the larger communities. In thus speaking of the prophylactic action I refer here to the prevention of the clinical symptoms of malaria, and not to the invasion of the blood by the parasites, and there seems no reason to postulate that the taking of quinine, or other drug, regularly, does more than maintain the level of the anti-plasmodial products in the blood at such a height that they have an immediate therapeutic action when parasites do gain entry to the blood, and so prevent, not the infection, but merely the clinical manifestations of this infection.

Experience of malaria in Malaya and elsewhere leads me to emphasize that the results obtained by prophylactic chemotherapy for malaria in countries where there is a season within each year when malarial infection is naturally absent cannot properly be applied to conditions in Malaya, where malaria is potentially hyperendemic throughout all the twelve months of the year. The importance of this difference in conditions is clear if the action of the so-called prophylactic quinine is understood to be in fact therapeutic, and even in Dr. Lonie's reference to Malaya he is quoting success apparently only in cases of temporary exposure to infection by a strain not adapted to a series of quininized hosts.

Would the results of prophylactic quininization in Africa and elsewhere be so satisfactory if the entire population, native and European alike, were thus treated? I think the answer is, that if the method were adopted to the extent to which anti-malarial measures are applied as a public health policy in Malaya, they would not.—I am, etc.,

B. BARROWMAN.

Klang, Federated Malay States, Aug. 11th.

SIR,—Knowledge comes, but wisdom lingers. In recent years it has been proved beyond doubt by malaria investigators that quinine does not prevent infection with malaria. After mixing sporozoites from infected mosquitos with quinine before injection into experimental subjects malaria has been found to ensue, even though the sufferers were given full doses of quinine daily during the period of incubation. A fact proved scientifically is no less true for West Africa than for Malaya.

My own conclusive experience came in 1915, when a young planter, just arrived from home and newly exposed to infection, developed a severe attack of malaria eleven days later, though dosed by me with 30 grains of quinine in solution daily for the ten days previous. To quote from my paper published in your issue of June 10th:

> "It has been clearly proved that prophylactic quinine . . . is a delusion and a snare: no amount of quinine will prevent the development of malaria in a person who has been newly infected. . . . Quinine owes its past reputation as a prophylactic to the fact that many of those dosed with it were in fact actually infected with undiagnosed malaria: in such cases it was very useful."

If clearer thinking on this important matter results, the four correspondents under the above heading in your issues of July 1st and 15th are to be thanked for their criticisms, even if they are attempting to maintain a now untenable position.

Although the taking of prophylactic quinine has no scientific basis, one cannot but sympathize with those who have practised it in regions where the majority of inhabitants, and especially the children, constantly carry malarial parasites, and where the infection of newcomers may be only a matter of weeks. Once the disease develops quinine then has its place, and one must agree that the infected who neglect its use are more prone than others to fatal attacks, and to blackwater fever. Atebrin, though now the drug of choice with many, because it usually brings about a very rapid cure and has a much smaller relapse rate, is probably no more a real prophylactic than quinine. For true prophylaxis plasmoquine, which must be used with caution, is the only drug yet proved to be effective. One realizes from the work of James that there are different strains of malarial parasites, which vary in their reaction to standard treatment, but this does not affect the point at issue.

So-called prophylactic quinine (advocated for trial here by one of your correspondents who has done a tour both in West Africa and in Malaya) was in fact used, and to a great extent given up, in Malaya long before its ineffectiveness during the incubation period of malaria was discovered, because a more excellent way was found; species sanitation—that is, the inhibition of the larvae of malaria-carrying mosquitos—is our main line of defence where human beings congregate, and even in some sparsely populated regions. People so protected who persist in taking a daily dose of quinine are nothing but quinine addicts.

Any implication that the doctors and public in Malaya are not alive to the need for thoroughly treating malaria is unwarranted. Here plasmoquine has proved truly protective when used on coolies working temporarily in highly malarious spots which it would have been expensive to sanitate.

Although not of universal application, much of the malaria still occurring in the world is due to neglect of the principle laid down by our great master Ronald Ross —the prevention of malaria by the destruction of the insect carrier.—I am, etc.,

A. L. HOOPS.

Malacca, Aug. 27th.

Telling the Patient

SIR,—It is perfectly true, as Dr. E. K. Le Fleming remarks in your Educational Number (September 2nd), that doctors, in giving advice, often treat their patients as if they were little children. Hospitals often adopt the same attitude towards general practitioners who have sent cases up for treatment.

I am certain that Dr. Le Fleming does not mean all doctors, nor does he refer to those cases in which it is necessary for the patient's own good to conceal the truth; for the patient's relatives should be told the facts, and the object of the treatment should be explained. Yet the fact remains that Dr. Le Fleming's statement is true in far more instances than it ought to be. Very often the secretiveness of a doctor is due to self-consciousness of his own defective professional knowledge. He who is in actual possession of expert professional knowledge may be safely relied upon to "bridge in words the wide gap" between his own knowledge and the patient's ignorance. It is when the gap is too wide to be bridged, when no possible vocabulistic engineering can establish communication between the treacherous morass on the one side and the barren rocks on the other, that the secretive method is most likely to be employed.

The public of to-day are better educated and more enlightened on medical matters than ever they were before. Some of them exhibit a remarkable grasp of these things and discuss them very intelligently—so intelligently, in fact, that they are apt to ask questions which would require special knowledge, such as the general practitioner does not always possess, to answer them. It is quite understandable that a doctor should wish to conceal his ignorance from his patients, and he very naturally takes refuge in mystery and secretiveness. There are many members of our profession who are handicapped throughout their careers by an inferiority complex. I have seen such a complex originate in a very brilliant student and flourish to such an extent that it rendered him almost incapable of passing a public examination. Unfortunately, although mystery and secretiveness may provide a refuge for natural shyness and diffidence, both are also a heaven-sent cloak for the ignorant, and I venture to think they are much more frequently employed in this capacity. To a great extent the panel system is to blame. Under this system thousands of general practitioners have become little better than medical shop-walkers, who are reluctant to undertake responsibility for the treatment of serious disease, and content themselves with indicating to the patient the appropriate hospital or specialist to whom

they should apply for treatment. If they do treat a case of serious illness themselves it is only too often because they have failed to recognize the gravity of the disease.

The old-fashioned, thoughtful, cultured, and capable family doctor is dying out. In his stead is springing up a generation of pert, superficial tradesmen, largely actuated by a desire to extract as substantial a fee as possible from the patient with the minimum of trouble to themselves. That the practice of medicine has been undergoing a steady process of commercialization since the institution of the panel system can hardly be denied. The newly qualified doctor of to-day is only too often the victim of a grossly overloaded medical curriculum. He has a smattering of a large number of subjects, and is often compelled by circumstances to rush into practice without extending and deepening his knowledge by post-graduate study. The foundations of his knowledge are laid upon the sand, and the superstructure which he raises thereon is all too often flimsy, unstable, inaccurate, and even bizarre. After all, it is of more use to the public and to the nation that a doctor should be able to recognize a gangrenous appendix than that he should be able to do—even accurately—an Arneth count.

Provided that it be done judiciously, it will invariably be found helpful to give a brief outline of the nature of the illness and of the rationale of the treatment to the patient or relatives. The public will be fairly safe to assume, as many of them do assume, that the professional knowledge of the doctor varies inversely as the square of the mystery and secretiveness which he displays.—I am, etc.,

September 3rd. ESSE QUAM VIDERI.

Toxaemias of Pregnancy

SIR,—Dr. G. W. Theobald (*Journal*, August 26th, p. 376), in advancing the conception that the toxaemias of pregnancy are unassociated with and are not caused by a specific poison arising from the ovum or any other part, has done something—perhaps much—to further the view which for twenty years or more I have laboured to put before the profession. It would have been a graceful act had he referred to my pioneer work: the point that matters is that he gives reasons, long ago in my armoury, which must arrest all non-prejudiced persons interested in this matter. The observation that the hepatic and the nephritic toxaemias of pregnancy are so different—in aetiology, in course, and event—puts out of court the idea of a single specific toxin arising during or as the result of pregnancy. The occurrence of these toxaemias in the non-pregnant clinches the matter. Acute yellow atrophy, which occurs in the non-pregnant, cannot in pregnancy justly be ascribed to a specific toxaemia of pregnancy. The convulsions of eclampsia, which in verity are simply metabolic convulsions, differ in no whit from the metabolic convulsions of infants, caused by stomach upsets, or from the similarly caused convulsions which much more rarely affect the non-pregnant adult.

The first obstacle past, Dr. Theobald and I part company. I have given abundant argument that the visceral disability which explains eclampsia—that which explains the hepatic toxaemias is to come—is simply the *result* of a disturbed visceral circulation due to mechanical forces. Dr. Theobald regards the toxaemias of pregnancy as the result of dietetic deficiencies—of some sort or other. He will, of course, have to explain the aetiological differences in such deficiencies, leading on the one hand to the hepatic, on the other to the nephritic toxaemias. Apart from that, his argument is unsound—as regards eclampsia, it is unsound. The toxaemias of pregnancy, he says, can only be prevented if an adequate diet be given throughout the period of gestation. But during the war the women in Germany had anything but an adequate diet; yet eclampsia was so greatly reduced in incidence as to cause the remark of the world. As a matter of fact, we know too well that a generous diet is often the precipitating cause of eclampsia. Reduction of food, not abundant ingestion, is the safeguard against the pre-eclamptic toxaemia of pregnancy and eclampsia. The foetus, says Dr. Theobald, robs the mother of essential foodstuffs or necessary materials; but in pregnancy the weight of the woman increases, and the increase is not only due to the growth of the ovum, the uterus, and the breasts. The whole woman hypertrophies: if she is well developed to begin with, if during her pregnancy she works hard and eats well, such an individual is particularly prone to eclampsia. The histories of reported cases establish this beyond dispute; one does not have to go beyond one's own experience.

The view that I have put forward is that the pressure in the abdomen is increased in pregnancy, and that it is this which causes the visceral disabilities and eclampsia. It is not difficult to see that an increased compression, however slight, may interfere with the proper capillary blood flow through the viscera, especially if one realizes that during the hours of rest following activity, as during sleep at night, the pressure in the abdomen, instead of falling, is maintained, or perhaps is increased. My papers of 1913, 1921, 1929, and 1932 present progressively advancing stages of the argument. But in the same issue of the journal in which my last paper appeared, there was a paper by Dr. Theobald* in which he strove to show that the intra-abdominal pressure is not "significantly" increased in pregnancy. His conclusion was based on observation, experiment, and other evidence. I have not yet replied to his criticism, and do not intend to reply to it here. I have not, however, been unmindful of it, and hope to be permitted elsewhere to reply. It is, however, curious to note that in his present paper he refers to mechanical forces in the production of the toxaemias of pregnancy. The liver lesions, he says, are produced or augmented by the fits; he also attributes the liver lesion in certain cases to the strains of labour. It is but an easy step to see that carrying in the breakfast things, turning a mattress, and running the house during pregnancy may from moment to moment produce similar intra-abdominal changes in the blood flow.

To understand is to believe; but one cannot understand by a merely passive contemplation. One of the things to understand is that striated muscle, forcibly stretched, undergoes an increase in tonic contraction. In pregnancy the abdominal wall—both the transversely disposed fibres and those which run vertically—are thus affected. When I met this idea first it seemed on the face of it so absurd that I rejected it. In 1907 Professor Tandler had stated that when the pelvic floor is forcibly depressed during straining, as for defaecation, the muscle fibres as they are being elongated undergo an increase in contraction. In the spring of the following year I went all the way to Vienna to ask Professor Tandler what on earth he meant by such a statement. I put my question: he just smiled, and the argument was ended. Just as when looking at a picture in which one is invited to see the lion or the hunter or some other hidden object, one cannot at first see it however one turns the picture or looks at it askance, all at once, by some curious movement, the concealed object is revealed, and ever after, whichever way one turns the picture, the sought-for object is obviously there: so in this theatre is the reaction of striated muscle on extension plainly visible.—I am, etc.,

Rugby, Aug. 26th. R. H. PARAMORE, F.R.C.S.

* *Journ. Obstet. and Gynaecol. British Empire*, 1932, xxxix, 851.

SIR,—I notice in the *Journal* of August 26th that Dr. G. W. Theobald has treated eclamptic patients with intramuscular injections of calcium chloride. It would be interesting to know if this therapy proved of any benefit to these patients.

I have described two cases of eclampsia (*Lancet*, August 8th, 1931) in which calcium gluconate (10 c.cm. of 10 per cent. solution) was administered. Serum calcium estimations were taken before and after the treatment, and in one case a hypercalcaemia was induced. The fits persisted, and there was no amelioration of the symptoms. D. F. Anderson (*Brit. Journ. Exper. Path.*, April, 1932) published a series of eight cases of eclampsia in which he had employed calcium. The conclusion he reached was that, at the moment, it was impossible to assess the effect of injecting calcium gluconate, intravenously or otherwise, and that there was no abrupt influence on the frequency of fits. From observations and clinical experience H. J. Stander has arrived at the opinion that calcium therapy is not a rational measure in eclampsia.

It would appear that calcium is of some benefit for the protean manifestations of the minor grades of toxaemia. That this drug in the severest types is not a panacea is obvious, and, in the light of scientific investigation, its administration in these cases does not seem to be justified. —I am, etc.,

W. C. W. NIXON, M.D., F.R.C.S.

London, W.1, Aug. 28th.

SIR,—Dr. G. W. Theobald's article (*Journal*, August 26th, p. 376) has my sincere approval. He has taken the words out of my mouth. I am as firmly convinced as he is that toxaemia of pregnancy is a deficiency disease; and, moreover, there is accumulating evidence to show that most toxaemias are also deficiency diseases.

Let me first confirm Dr. Theobald's statement that in each and every case of vomiting of pregnancy the injection of calcium clears up the symptoms almost immediately. As a matter of fact, he uses calcium gluconate and I use colloidal calcium; both are given intramuscularly. I must add that if the patient is anaemic, with a haemoglobin reading below 60 per cent., the tendency to vomiting will remain till the haemoglobin is raised to well over 70 per cent. This is easily done by giving increasing doses of iron and ammonium citrate or Blaud's pill. I, too, have cured cramps and oedema of the extremities in pregnancy by a single injection of calcium, though at times one finds cases where more than one injection is requisite. I should like to have heard Dr. Theobald's experience of post-partum haemorrhage in cases treated with calcium. My own is this. Since giving calcium—and, where necessary, iron—as a routine in pregnancy, I have attended fifty-seven confinements. In one case only have I seen more than a small post-partum loss. That was in a confinement I attended for another medical man. The woman had not had calcium during pregnancy. She had had a lot of trouble with her teeth, and her finger-nails were ridged and brittle.

I wish to stress, too, the value of calcium in preventing the decay of teeth, in protecting the nails, and in keeping the hair in good condition. This does not only refer to the mother, for giving the child calcium—for example, in the form of ostelin—makes fine teeth for the infant. Here are two cases which have impressed me greatly.

Mrs. L., aged 22 years, primipara. This was a most unsatisfactory pregnancy. She vomited for the first five months, and was bilious for the next four months. She was anaemic, and yet unable to take iron, for in any form it made her sick. She spent half her pregnancy in bed, acutely miserable, really ill, and apparently untouched by any drug. The foetal movements ceased at full time. Two days later a macerated foetus was born, followed by a severe post-partum haemorrhage and a long convalescence. A year later she became pregnant again. By this time I had begun to use calcium. I gave her 1 c.cm. colloidal calcium (Crooke's) on alternate days for fourteen days, during which time the sickness which had heralded the pregnancy slowly stopped. I gave iron again, and was surprised to find she took it without difficulty. I added ostelin and adexolin to the diet, and prescribed artificial sunlight treatment. She enjoyed her pregnancy, produced a fine male child weighing 10 lb. in a four-hour confinement, and had practically no bleeding.

Mrs. P., aged 28 years, primipara. At the fifth month of pregnancy I first saw her with a threatened miscarriage. She had a slight haemorrhage and two slight labour pains. She was sent to bed and given colloidal calcium on alternate days for fourteen days. She was soon fit again. Ostelin tablets, three a day, were ordered for the rest of her confinement. Without my knowledge she stopped the calcium at the eighth month. A male child was born naturally in a twelve-hour confinement. There was a severe post-partum haemorrhage. The child required urgent circumcision. This was done on the third day, and was followed by frightening bleeding, which was stopped with difficulty. The mother and child were given ostelin and iron, and both made good recoveries. Two years later she became pregnant again, and was given calcium from the start. At the fifth month she went for a holiday and stopped the ostelin. A fortnight later she had another threatened miscarriage. After that she took calcium for the rest of the pregnancy and while feeding the male child, which was born in a three-hour confinement, without any haemorrhage of note. The child had to be circumcised, and there was no bleeding.

There is plenty of room for coincidence in the second case, but these instances are only two out of a large number of cases, which prove definitely to me the value of calcium in pregnancy.—I am, etc.,

Leeds, Aug. 31st. R. A. MURRAY SCOTT.

Practical Prevention of Tuberculosis

SIR,—Tuberculosis in this country is mainly disseminated through our milk supply. Tuberculous cows are responsible. Our cattle are herded in sheds or buildings with a certain allotted cubic space per head. In spite of this they still spread tuberculosis. The value of sanatoriums (run strictly *per se*) has been proved, and the public generally has come round to the value of ventilation. How far has the value of adequate ventilation for herds of cattle been recognized? Is the cubic space per head sufficient, or has it failed? When I was medical officer of health for Lahore (Punjab, India) I made an investigation into the prevalence of tuberculosis in that city. The disease was rampant, but I found that tuberculosis did not exist in cattle. Carcasses upon carcasses I examined showed no tuberculosis even in emaciated cases. Samples of milk showed no evidence. The people who supplied milk from the villages or in the city were too poor to have so-called sanitary buildings for their cattle. The cattle for the most part lived in the open and slept in the open air, and if they were protected at all it was only from rain. In the narrow lanes of the city of Lahore they were tethered all night. Cattle thus had nothing to do with the large amount of tuberculosis. The disease was there a house disease—due to dark, ill-ventilated rooms—and it affected most the Mohammedan purdah women, who saw little of the outdoor sun and light.

To my mind we have a great lesson here. We are spending too much money on bricks and mortar to protect our cattle but induce disease. If our cattle were adequately protected against rain only, and in winter—like horses—by a body covering as well, I believe tuberculosis would be more easily stamped out in this country. It would be a cheaper method than preventive inoculation, and much quicker. Surely it is not beyond the power of

the Agricultural Department of the Government to test this sanatorium idea for cattle! They could try it with known infected animals and by a mixed herd. The experiment, in my opinion, would show astonishing results, and would easily lead to the extinction of tuberculosis in cattle as the cause of infection in man in Britain.—I am, etc.,

Sydenham, Aug. 25th. A. G. NEWELL, M.D., D.P.H.

Intestino-Vesical Fistula

SIR,—I was much interested in Mr. Willan's paper on intestino-vesical fistula, published in the *British Medical Journal* of July 22nd (p. 140). During the last ten months I have had three such cases. Two of these were due to diverticulitis. In one I was able to resect the affected portion of the colon, but in the other the inflammatory mass was so large that a colostomy was performed, with the hope that when the inflammation settled this could be closed. Both of these patients are well, and free from symptoms.

The third case is perhaps the most interesting—a man who gave a history of cystitis of a year's duration. A month previous to my examination an abscess had formed in the perineum, and had been discharging ever since. He had marked frequency and a persistent diarrhoea. *X*-ray examination disclosed a large vesical calculus. At the operation the calculus was found to be firmly embedded in the base of the bladder, and a little difficulty was experienced in its removal. His convalescence was normal for a week. He then began passing faeces through both the urethra and the suprapubic wound. Rectal and vesical washouts were instituted, and in fourteen days the urine became free from faeces. At the time of writing the suprapubic wound is healing. The fistula in this case must, I think, have been caused by a pericystitis resulting from pressure of the calculus on the rectal wall.—I am, etc.,

Manchester, Sept. 1st. R. L. NEWELL.

Treatment of Leg Fractures

SIR,—I have read with interest Mr. Wardle's letter published on August 26th (p. 396) in support of his article on leg fractures, which appeared in the *Journal* of July 22nd.

When I criticized Mr. Wardle's article I said he had little experience with skeletal traction, and after reading his letter I am confirmed in my view. It is quite obvious that he has a "bee in his bonnet" concerning skeletal traction, and when he says that he condemns it one wonders by what authority he claims such pontifical power. Mr. Wardle still argues about apposition—in his original article he suggested that it was of little importance, and now he is anxious to show that he obtains it. He cannot have the argument both ways: if fractures unite better with poor apposition he must go the whole hog and say that they join best when the fragments lie side by side rather than end to end; or he must try to obtain 100 per cent. apposition. With regard to compound fractures of the tibia and fibula, I have treated about fifty such fractures each year for the last six years. I have tried the method of every enthusiast from Vienna to the Middle West, and I have no doubt that the following is the simplest and best method in every way.

A pin is put through the os calcis (using, of course, the strictest surgical antisepsis); the wound is excised thoroughly; the fragments are levered into position (I can assure Mr. Wardle that this is not only safe but essential for obtaining union in the shortest possible time); the wound is packed with vaseline gauze, a Thomas knee-splint is applied; and the traction cords fixed. We leave the vaseline in place as long as it does not smell (two to six weeks) and then remove it and dress on alternate days with saline. The pin is removed when angular play ceases at the site of fracture, and the patient walks with a calliper as soon as the fracture is firm.

If Mr. Wardle will treat his next dozen cases in the above manner I am sure he will change his opinions. Packing a wound with vaseline gauze and encasing the limb in plaster for ten to twelve weeks or longer, as suggested by Dr. Winnett Orr, is a filthy method, and it is one that I shall oppose with all the vituperation I possess on every proper occasion. To talk of perfecting such treatment is ludicrous.

I am sorry Mr. Wardle thinks I have missed the whole point of his argument. He is wrong. I see his viewpoint so clearly that I disagree with it almost entirely, although not when he says his methods are in danger of being relegated to obscurity.—I am, etc.,

Leeds, Sept. 4th. R. BROOMHEAD.

Obituary

H. J. EGERTON HUTCHINS WILLIAMS, M.D.

Medical Superintendent, City Hospitals for Infectious Diseases, Sheffield.

We regret to announce the death, on August 27th after a short illness, of Dr. Harry John Egerton Hutchins Williams, medical superintendent of the Sheffield City Infectious Diseases Hospitals. Born in 1870 at Aylesford, Kent, the only son of Dr. Williams of Blackheath, Egerton Williams received his medical training at Middlesex and King's College Hospitals and the University of Brussels. He qualified M.R.C.S., L.R.C.P. in 1892, taking his D.P.H.Camb. in 1896 and M.D.Brux. two years later. Dr. Williams soon devoted his attention to public health work, and held appointments at the Eastern Fever Hospital and the Northern Hospital (M.A.B.). In 1901 he took charge of Lodge Moor (the chief fever hospital in Sheffield) and later of four other city hospitals. He held this post for over thirty years, and did much during that time to bring Lodge Moor up to a high standard of efficiency. Amongst other things, he was a pioneer of the system of issuing hospital bulletins to the Press, an innovation which he introduced in 1905. Three years after his marriage to a native of Sheffield the war broke out, and Dr. Williams was placed in charge of Redmires Camp, carrying out this work in addition to his ordinary duties. He was responsible for the maturation and bringing into effect of many schemes in connexion with public health problems, and was for many years lecturer in infectious diseases at Sheffield University. He was a prominent freemason; his widow and two sons survive him.

Professor ARTHUR HALL writes:

By the death of Egerton Williams the citizens of Sheffield have lost a faithful and devoted servant, and the medical profession an honoured and trusted colleague. A large number of separate establishments have, from time to time, been under his control as medical superintendent of the city fever hospitals, and as such he has carried through many valuable developments during his long term of office. But it is the quality rather than the quantity of his work that calls for our special admiration. In all the institutions with which he was connected, by sheer force of character and personal example, he created and maintained an efficiency of service, together with an atmosphere of willing devotion, which has not only been a stimulus to all who have worked under him, but has raised the reputation of our city fever hospitals to their present very high level. He was an enthusiastic

and untiring worker, to whom his hospital and its patients were his whole life No trouble was too great when their welfare was concerned If, night or day, an emergency of any kind arose it was Williams who was usually first to reach the bedside Nor did this spirit slacken as the years went on It was the same to the last Although not primarily a bookman he kept himself fully up to date Advances in medicine were welcomed and, if real, adopted with enthusiasm As a teacher he was exceptionally good The formal lecture did not appeal to him, but in the wards he was a clinician of the best type, who, besides knowing thoroughly what he did know, had the invaluable asset of knowing, and the courage to admit, what he did not! Many generations of students owe much to the common sense, practical instruction which they received at his hands in the diagnosis and treatment of fevers In his early days he was, for two or three years, a ship surgeon, and the atmosphere of the sea seemed to cling to him ever after —the best of the sailor had entered into his soul His straightforward, breezy manner, his lively sense of order and discipline, his vigorous and fearless determination, all savoured of the sea rather than the study It is good to have known such a man.

JOHN PATRICK, M B , B Ch , B A O

Resident Medical Superintendent, Tyrone and Fermanagh Asylum

We regret to announce that Dr John Patrick died on August 5th Dr Patrick, who was born on August 11th, 1869, was the eldest son of the late Dr Jonas Patrick of Carrickfergus Educated at St John's College, Preston, and Queen's College, Belfast, he graduated M B , B Ch , B A O in the Royal University of Ireland in 1893, and in the same year was appointed resident medical officer in the lunatic department of Belfast Infirmary, and two years later became junior and subsequently senior assistant medical officer in Belfast Asylum In 1912, in the course of his duties in Belfast Asylum, he was attacked by a patient, receiving such severe head injuries that his life was despaired of, and he was for a long period incapacitated from duty These injuries were probably the original cause of the disease from which he died In 1913 he was appointed resident medical superintendent of the Tyrone and Fermanagh Asylum, and Lord Chancellor's Visitor in Lunacy for these counties

A capable administrator, an able clinician, and wholeheartedly devoted to his work, Dr Patrick instituted many improvements and reforms in every part of the Tyrone and Fermanagh Mental Hospital, and brought the institution up to a high standard of efficiency Socially Dr Patrick was universally popular, while he possessed in the highest degree the esteem and affection of all his colleagues and of his entire staff, by whom his untimely death is profoundly regretted He was a member of the Masonic Order, and, previous to the onset of his ill health, an active and valuable member of the Tyrone Division of the British Medical Association

ARTHUR HAWLEY, O B E , M B , B Ch

Consulting Surgeon, Coventry and Warwickshire Hospital

We regret to announce the sudden death, at the age of 70, of Dr A Hawley, after a life devoted to his fellow citizens of Coventry

Arthur Hawley came of a Coventry family, and was proud of his traditional connexion with that city After leaving the Coventry Grammar School he served his time as apprentice to a chemist He then became a medical student at Birmingham University, and obtained the diploma of L S A in 1890, the M R C S , L R C P in the following year, and graduated M B , B Ch in 1891 He held house appointments in Birmingham for a short time, and then commenced practice in Coventry For twenty seven years he was a member of the honorary staff of the Coventry and Warwickshire Hospital He retired towards the end of 1924, and in the following March was appointed consulting surgeon Since January, 1915, he had held the post of police surgeon He was awarded the O B E for distinguished work in Coventry on behalf of wounded soldiers

In addition to his professional work he devoted himself energetically to public life in his city He was elected in 1901 to the Coventry City Council, and in the next year was concerned with the bringing into operation of the Education Act, from which probably dated the keen interest he took subsequently in secondary education Since 1922 he had been a governor of Bablake School and a trustee of the General Charities He was chairman of the Coventry Panel and Local Medical Committee, and a co opted member of the Finance Subcommittee of the Coventry Insurance Committee, and of the Coventry and Warwickshire Joint Committee for Tuberculosis He was a member of the Drapers Club, and a vice president of the Old Coventrians' Association He leaves a widow and one son, Dr A T Hawley, F R C S , who has succeeded his father on the visiting surgical staff of the Coventry and Warwickshire Hospital

ERIC SLACK O B E , M B , B Ch

We regret to announce the death in Switzerland, on August 12th, of Dr Eric Slack medical officer of the Leper Asylum, Maseru, Basutoland The son of Dr Robert Slack of Derwent Hill Keswick, Eric Slack was educated at Fettes and Pembroke College Cambridge, and spent the final years of his medical training at the Middlesex Hospital Soon after qualification, in 1908, he joined the Government service in West Africa, where he spent most of his life

G G T writes Eric Slack went to West Africa in connexion with the sleeping sickness campaign After several years on the coast he was transferred to the hinterland to establish a segregation camp for sleeping sickness victims, and for many months on this lonely outpost of Empire he was completely divorced from the society of white men and his chief friends were four baboons who made themselves a home in his compound On the outbreak of war in 1914 he returned to England, and was subsequently sent to East Africa, where he served all through the German East Africa campaign until the cessation of hostilities He was subsequently employed in the transport of native African labourers from the East Coast to Dieppe After the war he went out in the Government service to the Basuto Leper Asylum at Maseru Here was a task after his own heart, and for over eleven years he did a great work there, beloved of the natives, who respected the firmness and consideration which characterized all his dealings with them He devoted himself wholeheartedly to the study of the disease with which his life was so concerned, and visited Honolulu and India, where he was able to exchange ideas with those working on the problem in these different countries , and he also did some work in Vienna Unexpected illness overtook him, however, and despite skilled surgical and medical attention he returned to Europe in a hopeless and helpless state

Slack was a man who looked twenty years younger than his real age, and it was with a feeling of something akin to resentment against the workings of Providence that one beheld the spectacle of this invalid dreadfully afflicted and crippled by disease He always had a passion

for exercise: he ran for his university in the cross-country race, and loved to run in "Marathon races" when well over 40 years of age. He frequently walked from London to Brighton; he loved his Cumberland fells and mountains, and was a keen member of the Alpine Club. It was characteristic of him that in Africa he would never allow himself to be carried by the natives, but would always walk, however hot the tropical sun. His was a deeply religious nature, but of an order which had the power of attraction by its joyousness, modesty, and courage. Fittingly he, who so loved the mountains, died in the midst of his beloved Alps.

SIR PHILIP MAGNUS

The death, at the age of 90, of Sir Philip Magnus, Bt., removes one of the outstanding figures in educational movements of the last sixty years. After graduating B.A., B.Sc. with first-class honours in the University of London, Magnus early devoted himself to teaching and to the writing of textbooks. He was the first organizing secretary and director of the City and Guilds of London Institute, a post to which he was appointed in 1880, soon after the Institute was established. He was actively associated during this time with the movements for the abolition of school fees, for the registration of teachers, for the higher education of women, and for the introduction of manual training and domestic subjects into the school curriculum. His most notable work, however, apart from his long and distinguished connexion with the University of London, was for technical education. He was a member of the Royal Commission appointed to inquire into "the instruction of the industrial classes of certain foreign countries in technical and other subjects," as a result of which technical classes were begun in this country. Later Sir Philip Magnus took an active part in the establishment of the Finsbury Technical College and the City and Guilds Central Technical College at South Kensington. His association with the University of London, to which we have already referred, began with his graduation in 1863, and continued until he retired from the Senate in 1931. He was appointed a Fellow in 1890, and represented the University in Parliament continuously from 1906 to 1922. In his busy political life, Sir Philip yet found time to take a prominent part in the affairs of the Jewish community. He was knighted for his educational services in 1896 and created a Baronet in 1917. In 1920 he was made an honorary member of the British Medical Association, when the following resolution at the Annual Representative Meeting of that year was passed:

> That Sir Philip Magnus, Bt., M.P., be recommended to the Representative Body for election as an honorary member of the Association under Art. 4 (1) and By-law 8, for the constant help he has given to the Association in medical parliamentary affairs, and more particularly for the great assistance he gave in the long fight for security of tenure for medical officers of health, which has just been brought to a successful conclusion.

Dr. ALFRED COX writes:

There will be ample material for dealing with the memorable and useful public career of our distinguished Honorary Member, but I should not like his death to pass without a few words of a more personal character. During the struggle over the National Health Insurance Bill I saw much of him. He took his duties to his constituents in the London University very seriously, and was most anxious to understand the medical case. When he did grasp it no one could have been more sympathetic or helpful. No trouble was too great for him to undertake, and only those of us who had a good deal to do with the politicians can realize all that this help and sympathy meant at that time. There were many other occasions during his term of office in which he was of great service to the Association, and he was unaffectedly proud and pleased when we made him an Honorary Member. He never missed one of our Autumn Dinners, and I think his last public appearance was at the Centenary Dinner, when I had the privilege of looking after him. He was very frail, and had to leave immediately the Prince had spoken, but he told me as I left him that his connexion with the Association had always been to him a source of great pleasure and pride. His was a kind and gentle nature, and it was associated with a determination to understand the details of anything submitted to him and a persistence in carrying out what he considered to be his duty, which made him a rare and delightful personality.

At the memorial service in the West End Synagogue the British Medical Association was represented by Dr. E. W. G. Masterman and Dr. Cox, and the University of London by Mr. McAdam Eccles.

The Services

MAJOR H. F. JOYNT: CORRECTION

We greatly regret that, through inadvertence, the name of Major Herbert Fletcher Joynt, R.A.M.C. (ret.), who lives at 50, Croydon Road, Beckenham, appeared in this column on August 26th under the heading "Deaths in the Services" together with brief particulars of his career. The announcement should have referred to the late Lieut.-Colonel H. W. Joynt, A.M.S. (retired), whose death, on April 9th in Jamaica, was reported in the *Army List* for July, 1933. We offer sincere apologies to Major Joynt for the inconvenience caused to him by this mistake, and take the earliest opportunity of correcting it.

DEATHS IN THE SERVICES

Brevet Colonel Thomas Broderick Albert Tuckey, late R.A.M.C., died on July 18th, aged 75. He was born on April 13th, 1858, was educated at Queen's College, Cork, and took the Edinburgh double qualification in 1880. Entering the R.A.M.C. as surgeon in 1881, he became lieutenant-colonel after twenty years' service, and retired in 1903. While on the retired list he was employed at York from 1903 to 1916. He served in the Egyptian war of 1882 (medal and Khedive's bronze star); in the Sudan campaign of 1884-5; on the Nile (clasp); in the Burmese war of 1886 (Indian Frontier medal with clasp); and in the South African war of 1900-1 in operations in Cape Colony, including the action at Colesberg, and in the Orange River Colony, being mentioned in dispatches (Queen's medal with three clasps). He also served in the war of 1914-18, and received a brevet colonelcy in January, 1918.

Major William Barnsley Allen, V.C., D.S.O., R.A.M.C. (retired), died at Brocklesham Bay, Sussex, aged 41, on August 27th, from the effects of an overdose of a narcotic, accidentally taken. He was born at Sheffield on June 8th, 1892, the only son of Percy Allen of Scarborough, and educated at St. Cuthbert's College, Worksop, and at Sheffield University, where he graduated M.B. and B.Ch. in 1914, taking a university gold medal, three bronze medals, and the Kaye scholarship. Almost immediately afterwards, when the war began, he joined up as a lieutenant in the R.A.M.C.(T.F.). On February 8th, 1918, he received a permanent commission as captain in the R.A.M.C., retiring in 1923, owing to wounds and ill-health, with the rank of major. In January, 1933, he was struck off the Reserve of Officers, owing to ill-health. He served throughout the war of 1914-18, was mentioned in dispatches in the *London Gazette* of September 24th and October 26th, 1916, and gained the V.C. in 1916, the M.C. with a bar in 1916 and 1917, and the D.S.O. in 1918. After the war he served for a time in India, and on his retirement went into practice at Hounslow. He got the V.C. for services at Mesnil on the Somme on September 3rd, 1916, attending wounded under a heavy fire, when he was three times wounded himself. He was twice married—in 1916 to Mary Young Mercer, by whom he had one daughter, and in 1925 to Gertrude Craggs, by whom he had one son.

Medico-Legal

PAYMENT OF MEDICAL WITNESSES

In the following notes a legal correspondent discusses some practical points bearing upon remuneration of medical practitioners called to give evidence in civil courts of law. A subsequent article will deal with the payment of medical witnesses in criminal proceedings and in coroners' courts.

The work of medical men often brings them into a position in which they are necessary witnesses to fact in legal proceedings. They are also often in demand to state their opinion as experts. Almost any medical man in active practice is apt to find himself served with a subpoena; the profession as a whole, however, is not familiar with the rights of the medical witness and how to claim them. A knowledge of the law on the matter may help to remove some of the dissatisfaction which has been expressed.

Medical witnesses are grouped in two broad classes: witnesses to facts and experts. There is a considerable difference between the positions of the two kinds of witness. The medical witness to fact owes a primary duty to the State to tell what he knows in the interests of justice, and although he has certain rights of remuneration, this duty is in the last resort paramount. The expert, on the other hand, is a free agent. Although, technically speaking, a litigant may claim that the evidence of a certain eminent specialist is necessary to his case and serve a subpoena on him, in actual practice no solicitor would be so foolish as to try to compel an unwilling expert to support his case. Such a witness would be a very dangerous one. An expert witness, therefore, when he is not giving his services gratuitously, as many leaders of the profession do, on behalf of another medical man, nearly always makes his own bargain with the party calling him on the fee which he is to be paid. The sum will include his expenses, his attendance in court, and the time and trouble he has spent in "qualifying" to give evidence. Qualification includes study of the facts of the case, interviews with solicitors and the litigant, perusal of documents, and also possibly a clinical examination of an injured person, or experiments to ascertain certain scientific facts. The agreement may be made either with the litigant or with his solicitors, and is an ordinary contract. If payment is withheld, the expert witness may bring an action for the breach of the agreement. He has then to prove the existence of the contract, and if the person with whom he made the agreement chooses to go back on it, the witness may find himself unable to produce evidence to support his claim. Therefore, unless a doctor knows either the party or his solicitors very well and can trust them to keep their word, he will insist on some written memorandum of the agreement. It is better to have the fee stated in writing in a signed letter from either the litigant or his solicitors, but if the doctor mentions the fee in a letter to the person with whom he has agreed it, and that person does not repudiate the statement, a copy of the letter will provide good evidence that the agreement was made.

The witness to fact only, on the other hand, is not in a position to make such a bargain. He is under a duty to give his evidence, provided that his expenses and the fee laid down by law have been paid, and although the party for whom he is appearing may promise him more than the law would allow him, yet it is possible that the witness may fail to enforce this promise in court. The law, as a rule, will only enforce a promise when the person who benefits by it gives something definite in return. The witness to fact does not give anything, in return for the extra remuneration promised, which he would not be bound to give in any case. The law expects him to tell what he knows, and in exchange allows him the remuneration laid down by the rules of the court in which he appears. In practice, however, if the remuneration promised is reasonable, the agreement will probably be enforced if the witness has to sue for his money.

ALLOWANCES IN THE HIGH COURT

The medical witness in a civil action before the High Court is entitled to expenses, or "conduct money," and also to a fee to compensate him for loss of time. The right of a witness to conduct money was laid down as long ago as the reign of Queen Elizabeth. The statute[1] defines a witness's expenses as:

"According to his or their countenance or calling, such reasonable sums of money for his or their costs or charges as, having regard to the distance of the place, is necessary to be allowed in that behalf."

This law was made perpetual by the Statute Law Revision Act, 1863, and it has been expanded by a series of decisions. "Necessary" expenses are the sums which a witness has to spend in coming to, remaining at, and returning from the place of trial. Their amount must not be calculated too nicely against him.

It has been laid down beyond question that a witness need not obey a subpoena—the writ which summons him to attend at the court—until he has been given his expenses. Even if he sees fit to attend, he may refuse to give evidence, even after he has been sworn, though the proper time to make his protest is when he is called. A medical witness may also claim his fee at the rate of one guinea a day. The fee, or allowance for loss of time, is not given to ordinary witnesses, but only to professional witnesses, and has a somewhat curious history. At law and equity, in very early times, a "gentleman" called as a witness was allowed one guinea a day for his board and lodging, and a series of decisions established, first, that physicians and attorneys, and later that auctioneers, accountants, engineers, and architects, are gentlemen for the purposes of giving evidence. They are entitled to the same allowances if the proceedings are merely before an examiner and not in court.

In Clark *v.* Gill (1854), a medical witness living in London refused to submit to oral examination in the Court of Chancery until compensation had been given to him for his loss of time. Sir William Page Wood, Vice-Chancellor, considered it would be very objectionable that payment should not be made beforehand. If it could be withheld, pressure might thus be put on the witness to give his evidence a certain way. He then consulted the highest available authority and one of the Masters of the Queen's Bench. The Master's opinion holds good to-day. It runs: "A medical witness, residing in London, is entitled to require for his expenses, for attending to give evidence in London, one guinea a day and no more. If the witness has come to London from a distance, then three guineas a day, and what is paid for travelling expenses." Neither the high legal authority consulted nor the Master had any doubt that a professional witness had a right, before being sworn, to demand compensation for his loss of time (that is, his fee).

The medical witness's right to disregard a subpoena until he receives his expenses and fee is apt in practice to be modified by other considerations. It is often unwise to rely too implicitly on a technical right, and a medical man has to consider the ethical as well as the legal aspects of any situation in which he finds himself. For instance, if the litigant is too poor to afford expenses, the doctor will not, of course, withhold evidence which is necessary to establish the case. In fact, it appears to be the general custom in the profession for the doctor to attend court in any case, and to make a protest to the judge if he has not received his proper fee. If the judge is sympathetic he may require the solicitor to give a personal undertaking to pay the sum due, but a common attitude of the judge is, while agreeing that the witness ought to have his proper remuneration, to require him to give his evidence. Although it is conceivable that the witness might be within his legal rights in still refusing, it is not a risk which many medical men would care to run.

TAXATION OF COSTS

The remuneration of witnesses in the High Court is based, not so much on the sum to which a witness is

[1] 1563. 5 Elizabeth c.9. s.6.

entitled, as on the sum which a successful litigant may claim from an unsuccessful litigant in respect of the witness's services. When the jury announces its verdict the judge, in giving judgement for the successful party, usually makes an order that the unsuccessful party shall pay the successful party's costs. These costs are assessed, or "taxed," by an official of the court known as the Taxing Master. The solicitors of the successful party file their bill for taxation, setting out each item of expense, and send a copy to the other side. On a given day the solicitors for both parties appear before the Taxing Master and argue points of dispute. Then or at a further appointment, the solicitors for the successful litigant produce vouchers for the various disbursements which the Master has allowed. Witnesses' expenses and fees are not allowed unless the witness has actually been paid and has given a receipt. This ensures that most witnesses receive the amount which the Taxing Master allows for them. Needless to say, unless a witness knows the solicitor and trusts him he will not be so foolish as to sign a receipt before he has received his money, even though the solicitor represents that it is necessary for him to do so in order that his expenses may be allowed.

The sums that may be allowed for the witnesses are largely within the discretion of the Taxing Master, and the figures given in the official scale are permissive only. These figures have remained practically unchanged for a very long time. A medical witness who lives where the cause is tried may be allowed one guinea per diem in addition to his travelling expenses, which will probably be inconsiderable. If he lives at a distance he may be allowed from two to three guineas. In practice the Taxing Master not infrequently allows three guineas a day even to medical witnesses who practise in London, besides their expenses, which may be allowed at half a guinea a day. If a witness feels that he has a complaint there is no reason why he should not approach the Taxing Master by letter. Expert witnesses, although they are free to make their own bargain, are sometimes content to let the Taxing Master decide their remuneration. For qualifying, an old decision lays down that seven guineas a day is not too high a fee, and some expert witnesses have been allowed as much as ten guineas a day over a period of several weeks. For attendance, as much as twenty-five guineas a day is sometimes allowed.

Assizes are a branch of the High Court, and so the payment of witnesses in *civil* proceedings in courts of assize is governed by the same rules. Costs are taxed not by a Taxing Master but by the Circuit Associate, and a doctor who desires information or has a complaint may properly write to this officer at the Royal Courts of Justice. Witnesses in criminal cases at Assizes are paid on a scale laid down by the Home Secretary (see subsequent article).

A witness to fact who does not receive the money to which he is entitled may bring an action against the party who calls him, but not against the solicitor, unless the latter has given a definite undertaking or the action is a speculative one—that is, where the solicitor gives the client credit for the amount of his fees in the hope of being paid out of the proceeds of the action. In that case the Court might infer a promise to make himself personally liable.[1] It sometimes happens that a litigant declines or is unable to pay the witnesses whom he has called. Sometimes the party winning the case, or his solicitor, says he will pay when he recovers his costs from the other side. Naturally, the witness's right to payment does not depend on the other side paying up, and he can bring an action for his remuneration. If he has made an agreement with the party or his solicitors he can sue to have it enforced; otherwise, the amount will be assessed by the judge trying the action at what he considers a reasonable figure. If the Taxing Master has fixed an amount the judge will probably accept this as reasonable; if the doctor has been called for the defence no one could have been surprised if the Master may not have taxed the trouble was too great for him will be in the discretion of the judge of us who had a good deal to do can realize all that this help and witness to fact only and not an expert, and is suing on an agreement, the judge may revise its terms on the ground that the witness has a duty to give evidence and cannot claim more than a reasonable sum for doing that duty. He is, however, not likely to do so unless in very exceptional circumstances; as, for instance, where the witness had obviously exacted an exorbitant fee, taking advantage of the importance of his evidence.

A doctor who finds difficulty in getting his remuneration should take the advice of a good solicitor before he brings an action for it. If the party who owes him the money is impecunious he may be unable to get anything, even if the court gives him a judgement. Moreover, actions, even in a county court, are expensive and troublesome. The doctor is certain to lose some time in attending the court, besides having to pay the fees of his own solicitor. Unless he is likely to get a sum large enough to make the action worth his while he had better cut his losses and write the amount off.

COUNTY COURT FEES

By the County Courts No. 1 Rules, 1929, experts and scientific witnesses and members of the medical profession may be allowed: (1) a sum to cover the reasonable costs of travelling to and from the court, and (2) an allowance for the time expended in travelling to and from the court and attending the court. The fee for attendance may be between one and two guineas if the value of the suit is not more than £50, and between one and three guineas if its value is over £50. The daily qualifying fee for experts, if it is allowed, is one to three guineas and one to five guineas according to the value of the suit. Experts can, of course, make their own bargain in county court proceedings as in the High Court. The Registrar, who corresponds to the Taxing Master in the High Court, has ample discretion to allow such amounts as will reasonably compensate witnesses for their loss of time.

In London it is an almost invariable practice for solicitors calling a medical witness in a county court case to tender one guinea, with the subpoena, and regard it as including both conduct money and fee. This does not seem a fair remuneration for a medical man who probably has to lose at least half a day's work and probably more. A doctor who receives a subpoena with the tender of a guinea in a county court case is probably not within his rights in refusing to attend, because one guinea is the minimum fee allowed on either scale. Nevertheless, if he considers himself aggrieved by the smallness of the amount he should at once protest to the solicitor calling him and indicate that he proposes to raise the matter in court. If this warning produces no effect he should attend court in good time and apply to the Registrar to be allowed a higher fee, explaining the full circumstances of his position and the exact loss of time and income which the subpoena has caused him. Registrars of county courts are a very reasonable class of officials, and the doctor may rely on a fair hearing. In any event, he is allowed his travelling expenses as well as his fee for loss of time.

[1] Halsbury

Universities and Colleges

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—J. P. Fitzgerald, T. R. Hornby, E. Pugh-Jones, B. D. Sachdeva, A. L. L. Silver, G. L. R. Tapsall, G. Wilson.

MEDICINE.—G. C. Canaval, R. F. Fleming, T. Gardner, A. E. Hassan, G. McArd, A. J. McGuire, P. J. Purcell, J. D. Taylor, A. W. Turner, J. C. Williams, K. G. Wrigley.

FORENSIC MEDICINE.—B. Anderson, A. C. E. Cole, S. A. de Souza, R. Fleming, G. W. Hardy, L. I. F. Kerridge, J. Lipschitz, J. A. McClintock, J. Richter, T. F. von Haebler.

MIDWIFERY.—W. H. Bayley, G. C. Canaval, G. R. Greene, G. McArd, D. Rocyn-Jones, T. F. von Haebler, J. E. S. Wright.

The diploma of the Society has been granted to Messrs. T. R. Hornby, L. I. F. Kerridge, G. McArd, E. Pugh-Jones, to Gertrude[illegible], A. W. Turner, and J. C. Williams.

Medical News

St Thomas's Hospital old students dinner will be held at the Dorchester Hotel, Park Lane at 7 15 for 7 45 p m , on Friday, September 29th, with Dr Charles Richard Fox in the chair

The annual dinner of past and present students of King's College Hospital Medical School will be held on Saturday, September 30th, at 8 p m , at the Connaught Rooms, Mr Arthur Edmunds presiding An intensive post graduate course will be held from 2 to 6 p m on the same day, to which members of the medical school and other practitioners are invited A series of post graduate lectures, free to all medical practitioners, will be delivered in the lecture theatre of the Medical School on Thursdays, at 9 p m , from October 12th, 1933, to March 29th, 1934 The opening lecture will be given by Mr Arthur Edmunds

. The University of Durham College of Medicine, Newcastle upon Tyne, has arranged a special post graduate course from September 11th to 22nd Full particulars may be obtained from the Dean

The Paddington Medical Society has arranged a symposium on "Medical Experience in the Tropics" for the next meeting, at the Great Western Royal Hotel, on Tuesday, September 12th, at 9 p m Speakers Dr Victoria E Bennett, Dr J Gossip, Dr Elsie Warren (Malaya and the Himalayas), Dr W M Hewetson ("The African Negro Constitutional Diseases and Cancer") A discussion will follow Visitors are cordially invited

A post graduate course of phthisiology will be held at the Hôpital Laennec, Paris, under the direction of Professor Leon Bernard, from September 18th to 30th The fee is 200 francs

The Fellowship of Medicine announces that from September 18th to 30th there will be a course in medicine and surgery at the Westminster Hospital , it is especially *suitable for general practitioners requiring a general* "refresher" course A week's course in chest diseases will be held at the Hospital for Consumption, Brompton, from September 25th to 30th, and will occupy the whole of each day During the same period an afternoon course in proctology will be given at the Gordon Hospital for Rectal Diseases There will be a week end course in rheumatism at the Royal Mineral Water Hospital, Bath, on Saturday and Sunday, September 30th and October 1st A special tutorial course in medicine, surgery, and midwifery, for men graduates, will be held at the Connaught Hall of Residence, September 29th to October 3rd, inclusive , it will consist of a brief survey of current problems, illustrated by films, slides, instruments, and patients, and occupy the whole of each day, the evenings being left free Forthcoming courses include medicine, surgery, and the specialties at the Metropolitan Hospital, October 2nd to 14th , dermatology at St John's Hospital, October 2nd to 28th , physical medicine at the London Clinic and Institute of Physical Medicine, October 2nd to 25th , cardiology at the National Hospital for Diseases of the Heart, October 9th to 21st

The Joint Tuberculosis Council has issued a provisional programme of a post graduate course on non pulmonary tuberculosis, to be given by the medical superintendents of Princess Mary s Hospital for Children, Margate, and of the Royal Sea Bathing Hospital, Margate, from October 9th to 14th The lectures and demonstrations will take place from 10 30 a m to 12 30 p m and from 2 30 to 4 30 p m The final programme will be sent later to members of the course, the fee for which is £3 3s Further information will be sent on application to Dr William Brand, honorary secretary for post graduate courses, 8, Highway Court, Beaconsfield, Bucks

The Minister of Health informed representatives of the Press on September 5th that the drought is sufficiently serious to need immediate attention on the part of all responsible local authorities, to conserve water supplies, protect health, and to secure distribution by emergency measures if necessary The Ministry of Health has issued a memorandum to the authorities where serious shortage has occurred, making suggestions by way of first aid for the conservation of supplies and indicating the precautions to be taken to prevent danger to public health, including chlorination when the purity of the water is threatened The authorities are urgently cautioned about this last matter, and are asked to warn the public to exercise strict economy in their consumption of water for domestic and garden purposes The engineering inspectors of the Ministry are ready to advise on the spot as to the steps to be taken According to the records the shortage in domestic water supplies to date is not so serious as in the droughts of the summers of 1921 and 1929 The most important periods of the year for water supply are spring and early summer, and the rainfall at that time was generally plentiful Generally, there is no present shortage in the large gathering grounds which supply the big towns or in those areas which rely on underground sources reached by deep wells Where the serious shortage exists is in some rural areas, which at present have to rely on shallow wells and small surface supplies—for example, in some parts of Lincolnshire and North Wales

A congress on renal insufficiency will be held at Evian from September 18th to 20th, under the presidency of *Professor Lemierre The subscription is 100 francs* Further information can be obtained from the secretary of the congress, 21, Rue de Londres, Paris

The September issue of the *Practitioner* contains a symposium on birth control In an excellent opening paper Lord Horder gives a comprehensive review of the subject, together with suitable comments on the papers of the contributors who follow These are Dr Haveloc k Ellis—'Birth Control', Dr E A Barton—"The Ethics of Birth Control', Mr Eardley Holland—"Is the Practice of Contraception Injurious to Health?"; Dr C P Blacker—"The Choice of a Contraceptive", Dr Cecil I B Voge—'Contraceptive Methods", Drs E F Griffith and Helena Wright—'Birth Control in Practice", and Dr Alice L L Robson—"Notes from a Small Birth Control Centre"

Messrs William Blackwood and Sons Ltd , published on August 28th a new and revised edition of *Practical Nursing*, by Dr W T Gordon Pugh This book will thus have reached its eighth edition, following a sale of over 50,000 copies

The President of the French Republic has recently signed a decree which endorses the plan put forward by the University of Paris, for an institute of industrial hygiene and occupational medicine, to be attached to the Faculty of Medicine This institute will be composed of three sections (1) a section of industrial hygiene which will be concerned with the prevention of industrial diseases and with public health , (2) a section of occupational medicine which will be concerned with the clinical study and treatment of occupational diseases , (3) a section of industrial chemical toxicology which will be concerned with industrial toxicology

Dr Félix d Herelle has resigned his chair of bacteriology at Yale University and proposes to study the clinical aspects of his phenomenon at the new institute for infectious diseases at Tiflis

Professor Henschen, director of the Surgical Clinic at Basel, has been nominated corresponding member of the Societe Française de Chirurgie , and Professor Adalbert Fuchs, the head of the General Policlinic of Vienna, has been nominated an Honorary Fellow of the Argentine Ophthalmological Society

Dr Pinard, the well known Paris obstetrician, has been made a Grand Officer of the Legion of Honour on the occasion of the inauguration by the President of the French Republic of the School of Puericulture, of which he is the director

The following appointments have recently been made in the French faculties of medicine Dr R Dupérie, as successor of Professor Cassaet in the chair of clinical medicine at Bordeaux , Professor Roussy, successor of *Professor Balthazard* as dean of the Paris faculty and Dr A Pelle, professor of clinical medicine at Rennes

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

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The address of the Irish Office of the British Medical Association is *19, Kildare Street, Dublin* (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

LETTERS, NOTES, ETC.

Artificial Menopause

"M. B." would welcome any suggestions for alleviating persistent flushings after artificial menopause. Various ovarian preparations have been tried without success. Hysterectomy nearly ten years ago. Has any reader experience of such long duration?

Pyrexia of Unknown Origin

"C. H. P." writes: I have a female patient, aged 24, apparently in good health, except tiring easily. For one year her temperature has been between 98.6 and 100°, rarely going below normal. Salicylates have no effect. Blood report disclosed no abnormality, only suggesting that there was "a low-grade infection." Can any colleague, having had a similar case, suggest the cause? Pulmonary tuberculosis has been considered certainly absent as there are no cough, sputum, and night sweats, and the blood count did not indicate it. This latter would also seem to the pathologist to exclude T.B. of any sort. The chest has been constantly examined with negative results.

Stammering

"W. J. B. S." writes in reply to "H. E.'s" inquiry about stammering in a young man (August 19th, p. 363): The case seems to be a conditioned reflex. Cameron, in *The Nervous Child at School*, dealing with stammering, tells of a surgeon who reacted similarly to his father. Presumably, the treatment would be by psychological explanation and deliberate assumption of superiority in the home, to counteract an earlier acceptance of inferiority possibly associated with a dominating person in the environment.

Income Tax

Change in Proprietorship—Cash Basis

"F. A." entered into partnership eight years ago with "O.," and subsequently purchased the whole of the practice. As from October 1st, 1931, "F. A." took "H." into partnership, and they elected to be treated as having set up a new practice as from that date. The practice throughout was assessed on the cash basis. The inspector of taxes now claims (*a*) to charge "F. A." with tax on the debts due to him as at October 1st, 1931 (less bad debts), and (*b*) to assess the new firm on the earnings basis.

*** The inspector is correct as regards (*b*), but, in our view, wrong as regards (*a*). The earnings basis is undoubtedly correct legally, and the cash basis is merely sanctioned by custom and adopted as a matter of convenience. But, taking one year with another, there is no reason in the normal case to suppose that over, say, six years a practice will pay less on the cash basis than on the earnings basis—in fact, the reverse will be the case where the gross receipts are falling. It follows that, unless they have been rising in this particular practice, "F. A." will have accounted for his full liability for the six years to 1931–2, and the collection of the outstanding debts carries no additional liability to income tax. The most he could be held liable for would be tax on the excess of the good book debts at October 1st, 1931, over the corresponding amount as at, say, April 5th, 1925. As regards the appeal, if it should be necessary, the local commissioners are entitled to hear it, as the notice of appeal was originally made to them, but they might agree to refer it to the Special Commissioners if a request to that effect were made.

QUERIES AND ANSWERS

Doctors' Hobbies

Arising out of our reference to the interesting exhibition of doctors' hobbies during the Annual Meeting at Dublin (*British Medical Journal*, August 12th, p. 301), Dr. Arthur B. Dalgetty of Liff, Angus, has been good enough to send us for the Association's Library a copy of his *History of the Church of Foulis Easter*, with charming reproductions of the late mediaeval paintings in their original colours, published by Harley and Cox of Dundee. This, he says, has been his hobby for several years past.

Touch Pieces

Dr. F. WILLIAM COCK (Appledore, Kent) writes: May I query a statement on page 302 of your issue of August 12th where a description appears of the medico-historical exhibition at Dublin? Was it not James II who put the gold touch piece (angel piece) round the necks of his afflicted scrofulous subjects and not they who gave it to the king? Miss Helen Farquhar has just finished her most interesting and complete history of the touch pieces, and in it it is always the king who touched the invalid and his other who tied the piece round the neck of the sick person. The touching for the "evil" was last done by the Young Pretender. Some years back you had an interesting discussion on this subject, to which I contributed a note. The Wellcome Medical Museum has an interesting series of the pieces and other matter connected with the ceremony.

Sailings to the West Indies

Dr. A. ROSE, surgeon to ss. *Camito*, whose letter advocating the West Indies for the alleviation of rheumatoid arthritis and fibrositis was printed in the *Journal* of July 29th (p. 216), writes from Avonmouth: I am afraid that some of the prospective sojourners in the West Indies and Spanish Main, who wrote asking me for further particulars bearing upon my letter in the *Journal*, may have taken umbrage at not having had replies to their queries. Would you kindly mention that Messrs. Elders and Fyffes Ltd., 31 and 32, Bow Street, Covent Garden, W.C.2, will give all information relative to the weekly sailings of their fleet to these parts?

The Suprarenal Cortex: Corrigendum

The fifth reference in our leading article on the suprarenal cortex, published on June 10th, 1933 (p. 1014), should have read *Journ. Amer. Med. Assoc.*, instead of *Amer. Journ. Physiol.*

A Word to the Wise

A correspondent writes: I have reason to know that various members of our profession have recently been approached by an enterprising firm that presents a beautiful encyclopaedia as a free gift on certain carefully worded conditions. May I remind those who have not yet been committed that it is unusual to get anything for *nothing* and that it is unwise to buy a pig in a poke.

Disclaimer

Dr. D. B. MUMBY (Parkend, nr. Lydney, Glos.) writes: Following an inquest last week, on a patient who had suffered from multiple osteitis fibrosa, I was prominently quoted in various newspapers as referring to this disease as "the rarest known disease." I need hardly say that I never made any such stupid statement, and the publicity has caused me much annoyance.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 36, 37, 38, 39, and 43 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 40 and 41.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 164.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

167 Toxic Action of Atophan

Within the last few years a number of fatal cases of acute yellow atrophy of the liver following atophan administration have been recorded. F. DEUTSCH (*Med. Klinik*, May 19th, 1933, p. 704) describes another case, following a short course of atophan treatment. Four weeks before admission the patient, a healthy woman aged 51, had had severe arthralgia, without swelling. Her doctor gave a course of ten atophan injections, which gave relief. For ten days she was free from pain; then she complained of weakness; anorexia, associated with bitter eructations, was followed by severe jaundice and frequent spasmodic pains in the right hypochondrium. Rapid prostration ensued, followed in a few days by oedema of the feet. Skin and conjunctivae were yellow, and there were complaints of unbearable itching. There was generalized subumbilical anasarca, pulse 72 to 88, blood pressure 130/80 mm. No evidence of cardiac dilatation. The abdomen was tympanitic, except for shifting dullness in the flanks, and the hepatic region was tender. The spleen was enlarged. The urine showed slight traces of albumin. Urobilin was increased. Wassermann reaction was negative. The oedema was evidently of hepatic origin. Insulin and glucose injections failed, and intravenous and intraperitoneal injections of salyrgan produced only transient diuresis. Injections of liver extract had no effect. The urobilinogen content of the urine decreased rapidly, with, however, occasional increases. At necropsy, six weeks after admission, the liver was very atrophic, weighing only 26½ oz. The appearances were typical—localized areas of necrosis, with islands of newly formed liver cells, blood vessels, and bile ducts. Deutsch observes that atophan has been prescribed for twenty years without producing more serious complications than transient dyspepsia. He suggests three possible explanations of its recent increased toxicity: (1) some change in chemical composition, (2) increased susceptibility of the present generation, and (3) accidental idiosyncrasy. The latter is indicated as the explanation of the undoubted increase in the number of cases of acute yellow atrophy in recent times.

168 Vasomotor Rhinitis and Asthma in Bakers

K. BAAGÖE (*Ugeskrift for Laeger*, May 4th, 1933, p. 513) finds in the literature only fourteen cases of asthma associated with flour. An epidemic of asthma in twenty-one millers has, however, been recorded by Ancona, who traced it neither to the flour itself nor to the weevils infesting it, but to a parasite of the weevil, the *Pediculoides ventricosus*. Storm van Leeuwen has published similar observations incriminating parasites in flour and not flour itself as the cause of asthma in persons handling oatmeal. Baagöe's own investigations suggest that (1) vasomotor rhinitis and asthma are so common among bakers and millers that these ailments must be regarded as a troublesome, if not serious, occupational hazard, and that (2) it is acquired idiosyncrasy to flour, particularly wheat flour, which is to blame, and not any idiosyncrasy to some parasite infesting flour. With the assistance of the local medical officer of health, he circularized the sixty-six bakers in twenty-two bakeries in the Danish town of Kolding. Of nine who replied that they suffered from sneezing or coughing while at work, eight were found to be suffering from a uniform and well-defined condition characterized by nasal obstruction, attacks of sneezing and a watery secretion from the nose, and redness of the conjunctivae and lachrymation. These attacks lasted for ten minutes or for longer intervals, but they ceased when the bakers left the bakery. Some of them also suffered from more or less definite attacks of asthma. In addition to these eight patients discovered by circular, Baagoe has observed nine similar cases, among which were seven bakers. The other two patients were also exposed to flour in the air. Skin tests carried out on these patients showed that the most numerous and violent reactions could be provoked by wheat. Rye came next in the order of frequency and violence of reaction, barley came third, while oats seldom provoked any reaction. In some cases Baagöe succeeded in conveying this idiosyncrasy to the skin of normal persons—an achievement which he believes would have been impossible had the idiosyncrasy depended on some parasitic constituent of the flour.

169 Encephalitis following Vaccination and Acute Infections

H. A. GINS (*Deut. med. Woch.*, May 5th, 1933, p. 677) shows that official statistics of deaths from diseases of the central nervous system, including those following epidemic and post-vaccinal encephalitis, are quite unreliable unless confirmed by necropsy. Histological findings in cases of post-vaccinal encephalitis have failed to differentiate this form from the encephalitis occurring in cases of measles and of influenza. This, he believes, shows that the vaccine virus cannot be the immediate cause of a specific encephalitis. The origin of this encephalitis remains problematical. He refers to the significant fact that "post-infectious" encephalitis was unknown until the epidemic of 1920. In all the exanthemata, "carriers" spread the disease, though they themselves appear to be immune. These latent infections may be "lit up" by any factor that reduces resistance and possibly increases the virulence of the latent infection. As an instance of the unreliability of statistics based only upon clinical diagnosis, Gins gives details of sixteen cases that occurred between 1929 and 1932. Necropsy confirmed the clinical diagnosis of encephalitis in less than one-half of these cases. The writer recommends that, during an epidemic, no children who have shown any tendency to convulsions should be vaccinated within one year of the occurrence of any suspicious symptoms.

Surgery

170 Section of Open Adhesions

When pneumothorax is incomplete, and the lung is fixed to the thoracic wall by adhesions, other methods must be employed to obtain pulmonary collapse. While section of these open adhesions is attended with grave dangers, M. O. MISTAL (*Presse Méd.*, May 27th, 1933, p. 857) states that this operation offers fewer risks when performed after endoscopy. Section of the adhesions requires very extensive, and often multiple, interventions, as the adhesions are frequently very numerous and far apart. When combined with endoscopy the operation permits of a much more extensive liberation, even of localized symphyses, with very little danger. The methods employed and results obtained by many authorities are briefly stated. Mistal advocates the technique of Noland Carter. This operation is performed under local anaesthesia. After incision of the periosteum and pleura, the ribs are separated and 10 to 12 cm removed in the interspace nearest to the most extensive adhesion. The parietal pleura is then incised around the adhesions and separated from them for at least 1 cm. Both the a hesions and the pleura to which they are attached decorticated with curved scissors. To avoid accide Carter insists on totally freeing the pleura around parietal attachment of the adhesions in a way anal

when the intestine is adherent to the parietal peritoneum. After enucleation, a continuous fine catgut suture is made of the pleura in the pleural portion of the stump, in such a way as to leave a smooth surface and to completely cover the lung with pleural tissue. The periosteum and costal pleura are then sutured with silk. Regular radiological controls and reinsufflations to obtain sufficient compression are indispensable to prevent re-expansion. Carter has obtained good results by this method in all his cases. Pleural thickening and a perfect local and general condition result, and expectoration disappears. The great dangers of the operation are haemorrhages and infection. A most rigid asepsis and avoidance of exudates by the usual means are therefore essential.

171 Choleperitonitis

H. OBERTHUR (*Bull. et Mém. Soc. Nat. de Chir.*, June 10th, 1933, p. 891) reports a case of encysted choleperitonitis following an injury, and discusses the general features of this condition. It usually follows violent abdominal or thoracico-abdominal contusion. The first symptoms are shock and vomiting, but these subside, and it is only after a few days that slight jaundice develops with distension of the abdomen and signs of free fluid. This fluid gradually increases, and unless the condition is detected and operative treatment is carried out the patient dies of emaciation at the end of two or three months, although in certain cases the period of development may be as long as two years. In those cases where the fluid becomes localized the clinical picture is even more obscure. Diagnosis is rarely made, and unless the condition develops so rapidly as to require immediate surgical intervention the nature of the lesion is generally unsuspected until a swelling appears in the epigastric region. An alternative diagnosis may often be made of localized peritonitis, perforated subphrenic abscess, or haematoma of the lesser sac of the peritoneum following injury of the pancreas. The author's case occurred in a boy of 13½ as a result of a fall from a bicycle. The pain was acute and the boy became unconscious. Vomiting followed, and pain was felt in the epigastric region during movement or deep breathing. The pain increased; the temperature was 38.9° C. and pulse 120. Examination showed rigidity of the abdominal muscles, pain on palpation, and fullness in the upper abdomen. Laparotomy revealed a localized bluish swelling similar to an ovarian cyst. This was tapped and bile-coloured fluid withdrawn. This swelling, which lay below the diaphragm, contained 2½ litres of fluid, and was completely shut off from the general peritoneal cavity. A careful examination showed no apparent injury of the liver or bile passages. The abdomen was closed, with drainage, and convalescence was uneventful. The drainage tube was removed on the fifth day, and the wound was healed at the end of three weeks.

172 Urinary Calculus Formation after Lithotomy

According to J. HELLSTRÖM (*Zentralbl. f. Chir.*, May 20th, 1933, p. 1160) it is possible for a loosely built urinary calculus to form within a few days in infected urine. Such a stone consists largely of organic matter, and contains micro-organisms—usually staphylococci: on account of its loose structure its *x*-ray shadows may be inconspicuous. A case is recorded of removal of a stone from the left renal pelvis in presence of a staphylococcal urinary infection. On the fourteenth day an attack of left renal colic followed, and a stone about 1 cm. in diameter was shown by radiogram in the left ureter, which had been free from concretions at the preoperative *x*-ray examination. Piecemeal elimination of sandy fragments containing organic matter, staphylococci, and phosphates and carbonates followed. Hellström believes that a similar train of events occurred in a case recently published by Mátyás, in which sixteen days after a uretero-lithotomy a second stone, not seen radiologically after an attack of colic with rigor on the fourteenth day, was expelled through the wound; *x*-radiation of the stones showed that that expelled secondly, consisting of calcium oxalate and triple phosphates, cast a much less dense shadow.

Therapeutics

173 Treatment of Gout

A. GORDON WATSON (*Prescriber*, June, 1933, p. 203) recalls the fact that the exciting cause of an attack of gout is cellular sensitization, the deposit of uric acid crystals in certain tissues being purely a symptom, and not bearing a necessary relationship to an increase of uric acid in the blood. He agrees with Llewellyn that the effects are originated by vascular poisoning, the muscle tonus of the arterioles being specially affected. Tophaceous gout is not to be considered as a separate variety. In acute gout the patient should be put to bed with the limb raised, and a blue pill should be given, followed by a dose of sodium sulphate. After this, a pill containing colchicine (1/60 grain), extract of nux vomica (1/4 grain), and extract of hyoscyamus (1/2 grain) should be administered every three hours until the pain is relieved or diarrhoea occurs. Copious draughts of water with lemon juice should be given from the onset. Acetylsalicylic acid is useful to relieve the acute pain, with local compresses of opium and belladonna. During convalescence spa treatment is commended, since it combines such procedures as massage and diathermy with a strict dietetic regime, efficient elimination, and freedom from worry. After such an education in how to live recurrence is rendered less likely. The treatment of chronic gout resolves itself into the avoidance of foods likely to cause dyspeptic symptoms, the choice of a suitable place of residence, and the adoption of a suitable mode of life, including exercise in moderation. Water is probably the best drink, but tea and coffee should be avoided. Beer, port, and burgundy are prohibited. In latent gout, spa treatment is advised, preferably with radio-active waters. The author condemns the use of the cinchophen compounds as being too risky when a history of intestinal intoxication is present. Iodine, in the form of potassium iodide, controls the gouty state quite as effectively and much more safely. Desensitization by specific antigens has proved very useful. Should a gouty patient react positively to most of the cutireaction tests, a graduated course of Witte's peptone (7.5 per cent.), continued for two months or more, will often desensitize the patient and relieve the gouty condition. As an alternative, a mixed gonococcus vaccine frequently yields remarkably good results in gouty conditions and in true rheumatoid arthritis.

174 Artificial Pneumothorax in Dry Pleurisy

E. REGENBOGEN (*Deut. med. Woch.*, June 2nd, 1933, p. 837) shortly reviews methods which have been used in the treatment of dry pleurisy on the principle of immobilization. He refers to the fact that as long ago as 1914 Moritz used the pneumothorax method in three cases and noted a sudden cessation of the pleuritic pain. The method has not, however, become generally adopted, and the number of cases reported is very small. In the present work results are reported of the pneumothorax treatment in six cases of dry pleuritis. Amounts of filtered air, varying from 300 to 500 c.cm., were introduced, and in all cases there occurred a complete separation of the layers of the pleura with disappearance of the "rub" and the pain. The author states that no method is so effective for the removal of pain, and that a single injection is usually sufficient to last till the inflammatory process has disappeared. In only one case was a second filling called for. Whilst this treatment should in theory make the formation of adhesions difficult, authorities differ as to its effectiveness in this connexion. In the six cases here reported the treatment appeared definitely to inhibit the formation of adhesions. The author points out that if relatively small volumes of gas be introduced the mechanical irritation is reduced to a degree which is insufficient to lead to exudate production. Whether this treatment can prevent the change from the dry to the exudation form of pleuritis is undecided, but it is reasonable to suppose that the interruption of the pleural rubbing will diminish the chances of such a change.

Dermatology

175 Nervous Complications of Erythema Multiforme

J PARIS (*These de Paris*, 1933, No 126), who records a case in a boy aged 8½ years, states that erythema multiforme in its severe and pyrexial form assumes the appearance of an infectious disease of which the causal organism is unknown Nervous complications are rare in the course of erythema multiforme They may consist of a simple meningeal reaction without any change in the cerebro spinal fluid, as in a case reported by Noel Fiessinger and François, or they may take the form of a true meningitis with excess of albumin and lymphocytosis with an alarming general condition which, nevertheless, ends in recovery The distinction from cerebro spinal meningitis in such cases is readily made by lumbar puncture In the writer's opinion the meningeal complications of erythema multiforme are not due to a tuberculous ultravirus, but are rather caused by a neurodermotropic virus which attacks the skin and mucous membranes simultaneously with the neural axis

176 Cancer of the Skin

J NIELSEN (*Ugeskrift for Laeger*, April 20th, 1933, p 464) gives an account of the experiences of the radium station in Copenhagen The cases treated in the period 1920-8 have been subjected to a special statistical analysis, which excludes cancer of the lips and external genitals, and melanomata There remained 277 cases (161 males and 116 females), 139 of which were symptom free at least five years after discharge An attempt was made to draw up in tabular form the results of various treatments by different authors, but the table Nielsen publishes shows how impossible it is, for lack of a common denominator, to make a satisfactory comparison Hence his appeal for a standardization of the criteria by which results are judged In spite of the present uncertainty, he has succeeded in extracting some definite information from his own material Of the 109 recurrences of the disease fifty nine occurred within six months, twenty one after six to twelve months, and fourteen after one to two years—that is, as many as ninety-four out of 109 recurrences were observed within the first two years It was also noticed that the chances of permanent freedom from symptoms were very much reduced if the carcinoma was not promptly destroyed by the first course of treatment, when a second, or more, courses of treatment had to be instituted the prospects of a permanent cure were comparatively small Among the 139 cures 106 (76 per cent) were effected by only one course of treatment There were twenty nine cures effected by two courses of treatment and only four cures by three or more courses The first course of treatment should, he believes, be as radical as possible, and it is most unwise to assume that islands of disease imperfectly controlled by a first course of radium treatment can be safely left to a subsequent course Having also had extensive experience of *x*-ray treatment, Nielsen expresses a definite preference for radium, provided the disease is not too extensive and the tissues not too much infiltrated

177 Phenolphthalein Eruptions

F WISE and M B SULZBERGER (*Arch Derm and Syph*, April, 1933, p 549) describe their investigations on the mechanism of drug eruptions of the fixed type, of which those due to phenolphthalein are an excellent example The first experimental study attempted to locate the exact seat of hypersensitiveness in fixed phenolphthalein eruptions, and to discover whether the epidermis or superficial cutis, or both, are the sensitive, or "shock," tissues Cutaneous tests performed on affected and unaffected sites in patients with fixed phenolphthalein lesions, and on normal controls, did not reveal any definite hypersensitiveness of the skin in those having lesions Patch tests and immediate wheal reactions were as in normal persons, whereas the later papular reaction of intradermal tests seemed slightly increased in the cases of drug eruption In the second experiment an affected area of skin was transplanted to a normal site, and normal skin was transplanted to an affected site Contrary to expectations, phenolphthalein given by mouth, after complete healing, produced a phenolphthalein lesion on the normal skin grafted on the previously affected area, while the previously affected skin grafted on a previously normal site remained unaffected The authors take this as evidence of regional hypersensitiveness dependent on the deeper structures (nerves, blood vessels) Attention is drawn to the possibility of phenolphthalein being ingested in many ways, besides in the well known laxative preparations It is often present in pink mouthwashes and tooth pastes, sodium perborate preparations, and even in icings on cakes In view of the uncertainty of *in vitro* methods, an attempt was made to demonstrate phenolphthalein *in vivo* This was not successful, however, as cataphoresis of acid and alkaline ions failed to produce any change in colour of the lesions which could be ascribed to an indicator action

Obstetrics and Gynaecology

178 Hypochloraemia and Azotaemia in Pregnancy Vomiting

From personal observations and the findings of other observers A SCHWAB and P WALTHER (*Presse Méd*, May 31st, 1933, p 874), believe that, if medical treatment does not very rapidly diminish the frequency and abundance of the vomitings of pregnancy, grave humoral changes—with or without concomitant organic lesions—ensue, these consist of acidosis and, probably more frequently, hypochloraemia and azotaemia, conditions which should be diagnosed early, as they maintain and aggravate the vomiting which they caused in the first place The chlorine of the gastric juice is of blood origin, and certain authors believe that two thirds of the blood chlorine passes daily into the gastric juice Persistent vomiting, therefore, causes a great elimination of chlorides, independent of any previous disturbance of the chloride metabolism due to renal lesions The chloropenia and vomiting interact on each other, and it has been found that the administration of chlorides ameliorates or cures the vomiting Lowering of the blood chlorides is rarely an isolated phenomenon, but it usually ends fatally in other disturbances, notably azotaemia A personal case is fully recorded in which pernicious vomiting, refractory to all measures, in a young pregnant neurotic rapidly yielded to saline treatment The present authors emphasize the necessity in pregnant cases of regular blood and urine examinations and of treatment on the first appearance of vomiting If the case is critical, 10 c cm of hypertonic (20 per cent) saline solution should be given intravenously once to thrice daily Then daily subcutaneous injections (1/2 litre) of physiological serum should be administered Salines (10 to 20 grams of sodium chloride) should also be given orally When the chloraemia returns to normal and the vomiting ceases, the salt present in normal foods suffices to completely equilibrate the blood chlorides

179 Quantitative Determination of the Amniotic Fluid

W J DIECKMANN and M E DAVIS (*Amer Journ Obst and Gynecol*, May, 1933, p 623) have applied the colorimetric dye method used in blood volume investigations to the problem of the quantitative determination of the liquor amnii in the uterus The maximum limit of error was found to be 5 per cent, and there was no disturbance of the pregnancy One c cm of an autoclaved 1 5 per cent solution of Congo red is injected into the uterus, and a specimen of the coloured amniotic fluid is withdrawn an hour later The colour is compared with standard dilutions, and simple mathematical calculations

enable the number of cubic centimetres of amniotic fluid to be ascertained. The vaginal route was employed at first, but this proved to be fraught with difficulty, and to give rise to haemorrhage. It was found that the uterine cavity could be best entered through a puncture 5 to 6 c.cm. above the symphysis pubis, the patient lying on her back and with the bladder completely emptied. The right or left of the mid-line was chosen, depending on which side the fluid was most easily palpable. After introducing a hypodermic needle, about 5 c.cm. of the fluid is withdrawn. The attached syringe is then removed, and 1 c.cm. of the Congo red solution is passed in through a tuberculin syringe. The needle is then withdrawn. A second puncture is made for the later withdrawal of the stained fluid. The authors state that the dye disappears slowly from the amniotic cavity, there being no appreciable loss in twenty-four hours. One hour's interval before withdrawal was found to be the most suitable in the average case. The patient may give a sudden jerk when the needle pierces the peritoneum. In some cases the existence of a low-lying placenta was revealed by the passage of pure blood into the needle during aspiration. No evidence of damage to the placenta, the uterus, or the foetus was obtained. It is suggested that this procedure should open up an entirely new field of possibilities of investigating the physiology and pathology of pregnancy, labour, and membrane permeability.

180 Pituitary Extract, Thyroxine, and Lactation

F. G. DIETEL (*Zentralbl. f. Gynäk.*, May 27th, 1931, p. 1202) has found that injections of small amounts of posterior pituitary extract, given daily or every other day, produce an increase of milk secretion in puerperal subjects which is greater than would be expected as a result of mere expression of milk by action of the hormone on involuntary muscle. Such treatment is contraindicated in eclamptic or nephropathic subjects, and is fruitless in asthenic patients or those with a constitutional anomaly such as dystrophia adiposo-genitalis. Thyroxine has a contrary effect, and was found to diminish secretion after delivery of a dead child at term or a premature foetus from the third to the sixth month.

Pathology

181 Widal Reaction in Typhoid Carriers

M. KRISTENSEN and K. A. POULSEN (*Zentralbl. f. Bakt.*, May 22nd, 1933, p. 450) have examined the blood serum of fifty-nine typhoid and eighteen paratyphoid B carriers. After several preliminary experiments it was found that the most satisfactory results were obtained by the use of formolized suspensions, the typhoid antigen being made up with several strains, and the paratyphoid B antigen being prepared from a single strain in the type phase. The highest proportion of positive results was obtained by incubating the tubes at 50° C. for eighteen hours. It was found that every serum agglutinated at a titre of 1 in 10 or higher. The numbers were five at 1 in 10, eighteen at 1 in 25, eighteen at 1 in 50, fourteen at 1 in 100, seven at 1 in 200, eight at 1 in 400, four at 1 in 800, and two at 1 in 1,600; in one serum the end-titre was not determined through lack of sufficient serum, but it was certainly over 1 in 25. All of the carriers were of more than two years' standing, some being over twenty. The average titre of urinary carriers was higher than that of faecal carriers. The type of agglutination suggested that the flagellar agglutinins were mainly involved. Examination of the serums of normal persons and of patients suffering from diseases other than enteric fever was undertaken to ascertain the titre that might be expected in non-carriers. Altogether 506 serums were examined; of these twenty (4 per cent.) agglutinated the typhoid and twenty-four (5 per cent.) the paratyphoid B bacillus at a titre of 1 in 5 or over. How many of these reactors were carriers is not known with certainty, but laboratory investigations, so far as they have gone, show that the number was very small. On the basis of these results the authors suggest that, when looking for enteric carriers in the community, the most practical method is to make a preliminary examination of the blood serum. Probably about 10 per cent. of serums will react in a titre of 1 in 5 or over. The patients from whom these serums come can then be examined for the presence of typhoid or paratyphoid bacilli in the urine and stools. The remaining 90 per cent. of the population can safely be excluded.

182 Microscopical Diagnosis of Whooping-cough

G. DENES (*Il Policlinico*, June 5th, 1933, p. 893) draws attention to the characteristic picture seen microscopically of sputum preparations made in the early stage of whooping-cough. The Bordet-Gengou bacillus is situated mainly intracellularly in the large flat epithelial cells lining the throat. Stained by Gram, using dilute carbol-fuchsin as the counterstain, the organism appears as a very short rod, Gram-negative, with a small uncoloured space in the middle. The bacilli are present within the cells in very large numbers at the beginning of the illness; as the sputum becomes more purulent they tend to be found more often in an extracellular position. Later in the disease they are obscured by other organisms. In practice the author recommends that a swab should be introduced into the mouth, with the tongue of the patient depressed. The swab should be pressed against the pharynx; the patient will cough, and the swab will come into contact with the posterior pharyngeal wall and will become coated with the epithelial cells that contain the *pertussis* bacillus. A thin streak can then be made on a slide and the film stained by Gram. This method is apparently very satisfactory for making a diagnosis during the first week of the disease and fairly satisfactory during the second week. The rapid diagnosis that it affords permits measures to be taken to protect other members of the family.

183 Differentiation of Human and Animal Strains of Streptococci

P. R. EDWARDS (*Journ. Bact.*, May, 1933, p. 527) has studied seventy-five strains of haemolytic streptococci of human and 173 strains of animal origin. The human strains came from a number of different infections, mainly from scarlet fever and septic sore throat. Of the animal strains 141 came from horses, mostly obtained from the os uteri; six were from cattle, eight from pigs, eleven from chickens, and the remainder from foxes, guinea-pigs, and a rabbit. It was found that the animal strains could be differentiated into four groups on the basis of a few tests. Type A, comprising 159 strains, produced acid in lactose and sorbitol, but not in trehalose, but mannitol. Type B1, comprising five strains, produced acid from trehalose, but not from lactose, sorbitol, or mannitol. Group B2, which was represented by only one strain, produced acid from lactose and trehalose, but not from sorbitol or mannitol. The fourth group consisted of eight strains of *Strep. equi*, and failed to ferment any of these four sugars. With a few exceptions the human strains fermented lactose and trehalose, but not mannitol or sorbitol. It was possible to distinguish 93 per cent. of the animal from the human strains by means of sorbitol and trehalose alone. The B1 and B2 groups of animal strains which fermented trehalose but not sorbitol could be distinguished from the human strains by their reducing action on methylene-blue when tested by a quantitative technique. The main group A of the animal strains and *Strep. equi* regularly produced capsules, as did some of the human strains; the A group possessed the characters usually attributed to *Strep. epidemicus*. From an examination of over 300 strains of haemolytic streptococci the author has formed the opinion that the sorbitol-fermenting animal strains rarely, if ever, infect man, but that the human strains occasionally infect animals, giving rise, for instance, in cows to a severe mastitis, resulting in the excretion of a milk containing organisms pathogenic for human beings.

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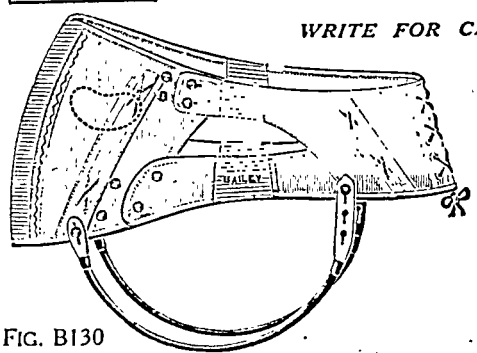


FIG. B130

BELT (Bailey's Patent) FOR FLOATING KIDNEY.

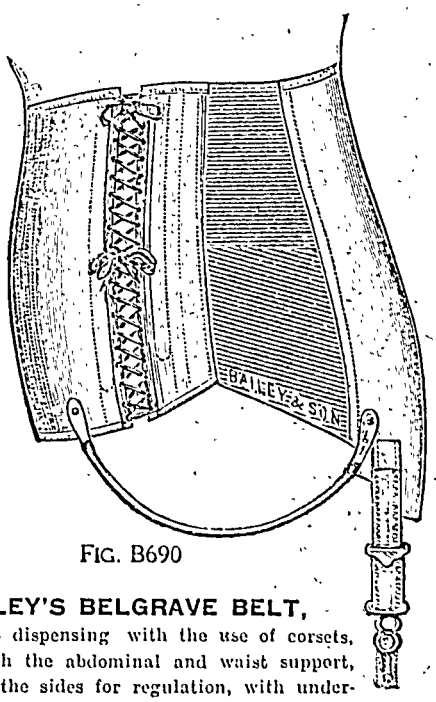


FIG. B690

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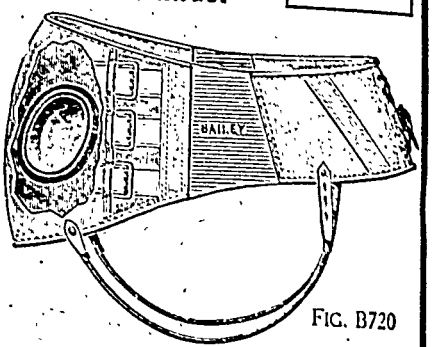


FIG. B720

(Showing Interior of Cup.)

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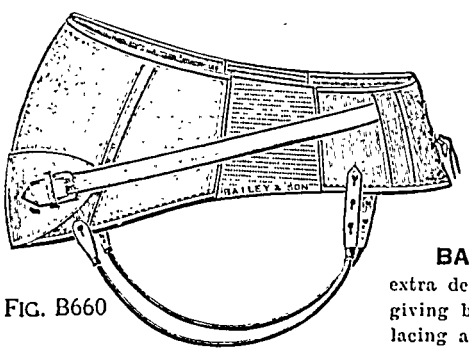


FIG. B660

BELT FOR ENTEROPTOSIS.

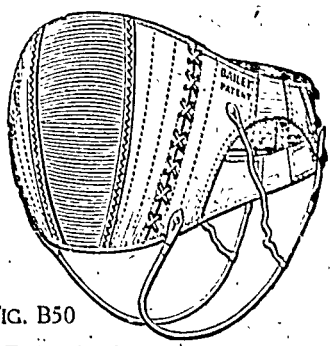


FIG. B50

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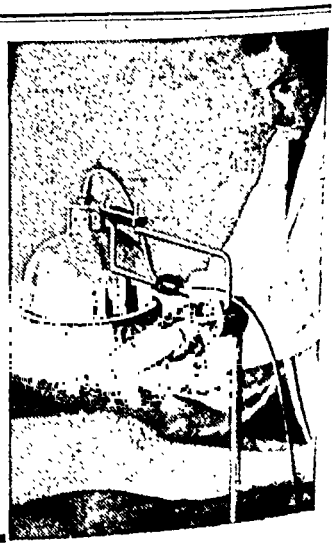
Quoting from the report of the B.M.A. Committee on "The Causation and Treatment of Arthritis and Allied Conditions," *British Medical Journal*, June 17th, 1933:—

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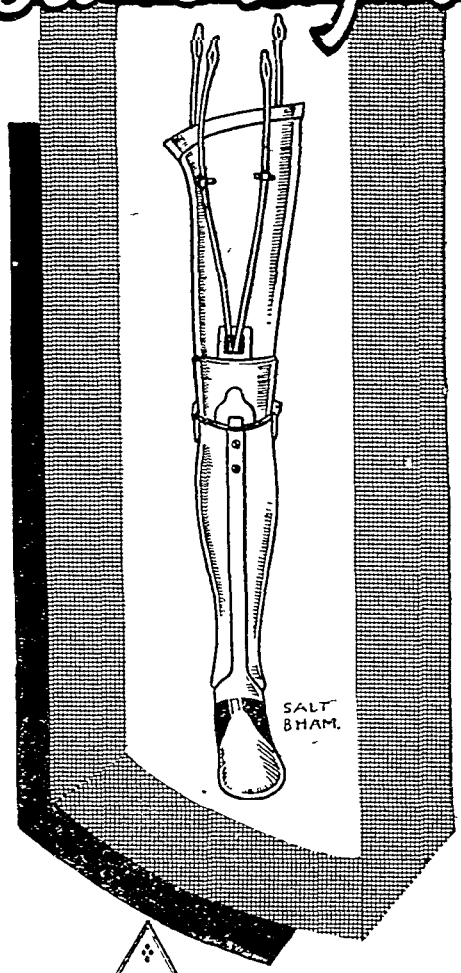
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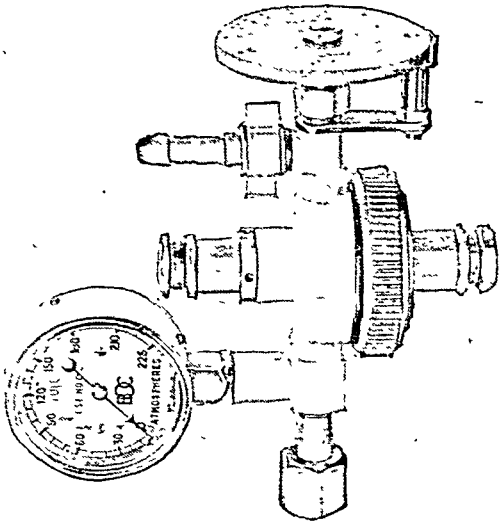
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FOR MENTAL DISORDERS,

NORTHAMPTON.

FOR THE UPPER AND MIDDLE CLASSES ONLY.

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary patients, who are suffering from incipient mental disorders or who wish to prevent recurrent attacks of mental trouble, temporary patients, and certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms, with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE.

[illegible] in detached grounds, with a separate entrance, to which patients can [illegible]ed with all the apparatus for the most modern treatment of Mental [illegible]. It contains special departments for hydrotherapy by various methods, including [illegible] baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical bath, [illegible] treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray room, an Ultra-violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK.

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.

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The seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

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For terms and further particulars apply to the Medical Superintendent (Telephone No. 2356 and 2357 Northampton), who can be seen in London by appointment.

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FUNCTIONAL NERVOUS DISORDERS, MEDICAL & CONVALESCENT CASES.

An Approved Nursing Home for reception of Female Cases under the Mental Treatment Act.

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Apply, Dr. D. E. M. [illegible] Telephone: Newport Pagnell 121.

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A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L.M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary Boarders of both sexes are also received for treatment.

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A PRIVATE HOSPITAL for the care and treatment of persons with mental and nervous disorders.

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Resident Physician: CEDRIC W. BOWLE.
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Reg. Tel. Address: Bethlem, Beckenham. *Telephone*: Springpark 1180-1181.
Station: Eden Park (Southern Railway).

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Telegrams: "Alleviated, London." Telephone: Rodney 4741-4742.

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July 7th, 1933.

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SPECIAL COURSES are held for all the University Examinations for the Primary and Final Fellowship Examinations of the Royal College of Surgeons, and for the Membership Examinations of the Royal College of Physicians.

HOSPITAL PRACTICE.—Exceptional opportunities are offered to qualified Practitioners wishing to attend the General Practice or the Practice of a Special Department of the Hospital.

Club's Union, Athletic Ground of 13 acres, Students' Hostel, etc.

For prospectus and particulars, apply to the Dean (Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S.), who will be pleased to make arrangements for anyone wishing to see the Medical College and Dental School. Mile End, E.1.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.

(UNIVERSITY OF LONDON.)

Denmark Hill, S.E.5.

OPENING OF THE WINTER SESSION on Saturday, September 30th.

INTENSIVE POST-GRADUATE COURSE from 2 to 6 p.m.

THE PAST AND PRESENT STUDENTS' DINNER, at which Mr. ARTHUR EDMUNDS will preside, will be held on Saturday, September 30th, at 7.30 for 8 p.m. at the Connaught Rooms, Great Queen St., Kingsway, W.C.2. (The Secretaries to the Dinner Committee are Dr. H. A. LUCAS and Dr. M. S. THOMSON.)

JOHN A. DRAKE, M.D., F.R.C.P., D.P.H., Dean.

BRYN SCHOOL, DOLGELLEY, and PETTON HALL, BURLTON, SALOP,

Offers special care and tuition for **BACKWARD OR NERVOUS BOYS** of any age. Fees moderate.

For further particulars apply The Secretary.

36th ANNUAL EDITION.

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LIVERPOOL SCHOOL OF TROPICAL MEDICINE

(UNIVERSITY OF LIVERPOOL.)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 2nd, 1933, and January 3rd, 1934, and for the Diploma in Tropical Hygiene on January 11th and April 26th, 1934. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars, apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

HERZL MOSER HOSPITAL, Leopold Street, LEEDS.

RESIDENT MEDICAL OFFICER required. Salary £200 per annum. Ample time for post-graduate study. Apply Secretary.

MEDICAL CORRESPONDENCE COLLEGE,

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M.D. THESIS

All Universities.

Skilled coaching, guidance, and advice, by specialist tutors.

Recent successes include Gold Medals at M.D. Edinburgh, and at M.D. Belfast, and many "High Commendations" and "Commendations" at these and other Universities.

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Courses by skilled tutors for each branch of the M.D. London.

Oral, clinical, and practical work arranged.

Special courses, postal, oral, and clinical, for all higher medical examinations, M.R.C.P. London, Edinburgh, F.R.F.P.S. Glasgow. Many successes.

Write for free booklet, "Guide to the M.D. London," to the Secretary, Medical Correspondence College, 19, Welbeck Street, London, W.1.

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SKILLED COACHING, GUIDANCE, and ADVICE from Special Tutors, in conformity with the Regulations of the various Universities.

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POST-GRADUATE SCHOOL of RADIOTHERAPY

The Mount Vernon Hospital and Radium Institute, Riding House Street, London, W.1

Dean - Sir Cuthbert Wallace, K.C.M.G., C.B., F.R.C.S.

A Course in RADIOTHERAPY

especially in its relation to Malignant Disease

will be held at the above School, commencing Monday, October 2nd, 1933.

Copy of the syllabus and full particulars may be obtained on application to:

THOS. A. GARNER, Secretary.

LIVERPOOL MATERNITY HOSPITAL, Oxford Street.

RESEARCH in the use of anaesthetics during Labour.

Applications are invited from fully qualified Medical Practitioners to assist in the above RESEARCH WORK, which will cover a period of four months.

The applicant's full time must be devoted to the work and residence in the Hospital is required.

An honorarium of £9 per month, with board, residence, and laundry is offered.

Applications to be sent to the Hon. Secretary of the Medical Board on or before September 16th.

CARSHALTON AND DISTRICT WAR MEMORIAL HOSPITAL.

A vacancy having been created, applications are invited by the Executive Committee for the post of HONORARY MEDICAL OFFICER.

Applications should be sent to Mr. H. F. GREEN, at the Hospital before September

COUNTY COUNCIL OF MIDDLESEX.

ASSISTANT MEDICAL OFFICER.

The County Council invites applications for the post of an Assistant Medical Officer in the Public Health and School Medical Department. Applicants must be duly qualified registered Medical Practitioners, and should have had special experience of practical midwifery and ante-natal work.

The duties of the post are the medical inspection of school children, the supervision of treatment of minor ailments, the carrying out of work under the maternity and child welfare scheme and such other duties as may be required by the Council. The officer appointed must devote his or her whole time to the duties of the post, will act under the supervision and control of the County Medical Officer of Health, and must reside in such district as may be required by the County Council.

Salary £600 per annum, rising after two years' service by yearly increments of £30 to £750. Reasonable travelling expenses are allowed.

The successful candidate will be required to contribute to the County Council's Superannuation Fund and to pass such medical examination as the County Council may direct.

The appointment will be during the pleasure of the Council and subject to one month's notice on either side.

Applications, stating (1) age, (2) qualifications, and (3) previous experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than September 18th. No special application forms are provided. Envelopes must be endorsed "Assistant Medical Officer."

Canvassing, directly or indirectly, will be a disqualification.

ERNEST S. W. HART,
Clerk of the County Council.

Middlesex Guildhall, Westminster, S.W.1.
August, 1933.

WILTS COUNTY COUNCIL.

APPOINTMENT OF ASSISTANT SCHOOL DENTIST.

The Wilts County Council invite applications for the appointment of an Assistant School Dentist, to work in the Department of the County School Medical Officer, at a salary of £450 per annum.

Travelling and subsistence allowance in accordance with the County scale will be paid. If own car used, a mileage allowance to be approved by the Council will be paid for certain journeys.

The officer appointed must be duly qualified and registered, and will be required to reside in or near Trowbridge. He will be required to devote his whole time to the service of the Council.

The post will be designated for the purposes of the Local Government and Other Officers Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

Applications, on forms to be obtained from the undersigned, and accompanied by copies of not more than three recent testimonials, must be delivered in envelopes marked "School Dentist" not later than the first post on Monday, September 18th.

Canvassing, either directly or indirectly, will disqualify.

W. L. BOWN,
Clerk of the Council.

County Offices, Trowbridge.
September 1st, 1933

BATH AND WESSEX CHILDREN'S ORTHOPAEDIC HOSPITAL, Combe Park, BATH.

HOUSE SURGEON required, to commence duty October 1st next.

The appointment will be for six months, with salary at the rate of £120 per annum, together with quarters, board, and laundry.

Candidates must have had special experience in administering anaesthetics.

Applications, with copies of three recent testimonials, should be forwarded at once to the undersigned.

HAROLD J. FRICKER.
Secretary.

Sept 2nd, 1933.

BIRKENHEAD GENERAL HOSPITAL. (150 Beds.)

Applications are invited for the following Resident (Male) posts for the six months commencing October 1st.

HOUSE PHYSICIAN. Salary £100 p.a.
CASUALTY OFFICER. Salary £100 p.a.
With board, residence, and laundry.

Applications, stating age, nationality, and qualifications, together with three recent testimonials, to reach the undersigned as early as possible

W. H. DANIELS, F.C.I.S.,
Secretary-Superintendent.

COUNTY COUNCIL OF MIDDLESEX.

WEST MIDDLESEX COUNTY HOSPITAL, ISLEWORTH.

VISITING PATHOLOGIST (Part-time).

The County Council invites applications for the above appointment. Candidates must be registered medical practitioners, with special knowledge and experience of pathology and biochemistry, who are engaged wholly or chiefly in the practice of this branch of medicine

The pathologist appointed will be required to attend the hospital on two half days per week at first, at times to be arranged, and the remuneration payable is three guineas per session of 2—3 hours.

The appointment will be held during the pleasure of the County Council, and subject to three months' notice on either side.

Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than September 28th.

No special application forms are provided. Envelopes must be endorsed "Visiting Pathologist, West Middlesex County Hospital"

Canvassing, directly or indirectly, will be a disqualification. (C.D.16.)

ERNEST S. W. HART,
Clerk of the County Council.

Middlesex Guildhall, Westminster, S.W.1.
September, 1933.

CITY OF LEEDS.

ASSISTANT MEDICAL OFFICER FOR MATERNITY AND CHILD WELFARE.

Applications are invited from qualified and registered medical practitioners for the post of Assistant Medical Officer for Maternity and Child Welfare. Applicants must have had not less than three years' post graduate experience, including experience in General Medicine and Surgery, and in the treatment of Children's Diseases and Diseases of Women. Preference will be given to candidates possessing the D.P.H. The salary offered is £500, rising by annual increments of £25 to £700, and is subject to a temporary percentage deduction.

The person appointed will be required to pass a medical examination, and to contribute to the Superannuation Fund established under the Local Government and Other Officers Superannuation Act, 1922. The appointment will be terminable by one month's notice on either side.

Form of application and particulars as to the duties of the appointment may be obtained from the Medical Officer of Health, 12, Market Buildings, Vicar Lane, Leeds, 1.

Applications, endorsed "Maternity and Child Welfare Officer," together with copies of three recent testimonials, must be delivered at my office, 26, Great George Street, Leeds, 1, not later than the first post on Wednesday, September 27th.

THOS. THORNTON,
Town Clerk.

September 4th, 1933.

CORNELIA & EAST DORSET HOSPITAL, POOLE, DORSET. (107 Beds)

HOUSE SURGEON—HOUSE PHYSICIAN

Applications are invited from single men for the post of House Surgeon, salary £150 per annum, with usual emoluments; and House Physician, salary £100 per annum, with usual emoluments

Duties to commence at the earliest possible moment. Period six months. Applications, stating age, experience, and qualifications, together with copies of three recent testimonials (which will not be returned), should reach the undersigned at the Hospital as soon as possible.

E. S. FOLEY, Secretary.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL.

Applications are invited for the posts of *HOUSE SURGEON* (TWO) male, for a period of six months commencing October 1st, renewable for a further period of six months on the recommendation of the Medical Board. £150 per annum, with full board, quarters, and laundry. Applicants should be registered Medical Practitioners and unmarried. Applications to be addressed to the House Governor, 234, Great Portland Street W.1, not later than Sept. 12th.

SCARBOROUGH HOSPITAL & DISPENSARY. (70 Beds)

Wanted, November 1st, TWO HOUSE SURGEONS (female). Duties include Home visiting. Salary £175 per annum, with board, residence, etc.

Appointment for six months.

Applications, stating age, with copies of testimonials and essential particulars, to be sent to the Hon. Secretaries not later than Sept 25rd

Further particulars may be obtained from the Hon. Secretaries.

BUCKS COUNTY COUNCIL.

DEPUTY COUNTY MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners, not over 40 years of age holding a registrable qualification in Public Health, Sanitary Science or State Medicine, with special experience in public health duties for the appointment of Deputy County Medical Officer of Health and School Medical Officer for the Administrative County of Buckingham

The salary offered is £720 per annum and will rise, subject to satisfactory service, by annual increments of £20 to £800 per annum, subject to any temporary abatement for the time being in force

The successful applicant will be required to pay contributions under the Local Government and Other Officers Superannuation Act 1922, and to pass a medical examination as to physical fitness, the final appointment being subject thereto

Particulars and conditions of the appointment are set out on the form of application which can be obtained from the undersigned

Applications, on the prescribed form, accompanied by copies of not more than three recent testimonials, which will not be returned, should be addressed to the Clerk of the Bucks County Council, and delivered at the County Hall, Aylesbury, not later than 11 a.m. on Saturday, September 30th, marked "Deputy Medical Officer."

GUY R. CROUCH,
Clerk of the Bucks County Council.

County Hall, Aylesbury.
August 29th, 1933.

CITY OF BIRMINGHAM

WEST HEATH SANATORIUM, NORTHFIELD, BIRMINGHAM. (120 Beds)

Applications are invited from fully qualified medical practitioners for whole-time appointment as *JUNIOR MEDICAL OFFICER (male)* at the West Heath Sanatorium.

The appointment will be for a period of six months, but may be extended for a further period of not exceeding six months.

Salary at the rate of £150 per annum, and full residential emoluments, subject to any "voluntary abatement" in force from time to time.

Further particulars may be obtained from the *Medical Superintendent at West Heath Sanatorium*, to whom applications, stating age, experience, and qualifications, with copies of three recent testimonials, should be forwarded not later than September 18th

F. H. C. WILTSHIRE, Town Clerk.

COUNTY MENTAL HOSPITAL, WINWICK, WARRINGTON.

Applications are invited for the post of ASSISTANT MEDICAL OFFICER Candidates must be male, single, and under 35 years of age. Commencing salary £500, rising by annual increments of £25 to £600, with further increase on promotion, subject to a deduction of 5 per cent. under the Asylum Officers Superannuation Act, 1909 There are no emoluments. The selected candidate will be required to live in the Hospital, and will be provided with board, lodging, etc., for which a charge of £150 a year is made. A temporary abatement from the gross salary will be made, the amount of the abatement on £500 being £18 15s. The possession of a Diploma in Psychological Medicine will entitle the officer to an additional £50 per annum. Applications, giving full particulars, with testimonials (copies only) should reach the Medical Superintendent not later than the first post on September 20th

COUNTY COUNCIL OF ROSS & CROMARTY

Applications are invited for the appointment of RESIDENT MEDICAL OFFICER for LEWIS SANATORIUM, STORNOWAY. Salary £2[illegible] per annum, with board, lodging, and [illegible] Duties: Resident Medical Officer at the Sanatorium under Medical Officer of Health and other outside Public Health duties [illegible] tions, accompanied by six copies [illegible] of testimonials, to be lodged with the under signed not later than September 23rd [illegible]

T. S. H. BURNS
County Clerk's Office County Clerk
Dingwall September 2nd 1933

GRIMSBY AND DISTRICT HOSPITAL (164 Beds)

Applications are invited for the post of JUNIOR HOUSE SURGEON Salary £150 per annum, with board and residence Applicants must be registered and hold a medical and surgical qualification Previous Hospital appointment experience desirable.

Applications, stating age, qualifications, and enclosing copies of not more than three recent testimonials, to be forwarded at once to the Secretary Superintendent.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.1.

A HOUSE PHYSICIAN and a HOUSE SURGEON are required on October 14th and 18th respectively.

Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock, on Thursday, September 28th, with copies of not more than three testimonials given specially for the purpose, and also evidence of their having held a responsible Hospital appointment.

The appointments are made for six months. Salaries at the rate of £100 per annum, laundry allowance £5, board and residence in the Hospital.

Candidates must be unmarried and possess a legal qualification to practice.

All candidates must be in attendance to appear before the Joint Committee, at their Meeting on Wednesday, October 4th, at 5 p.m. precisely.

Forms of application and copies of the rules may be obtained from the Secretary.

By Order of the Board of Management,
HERBERT F. RUTHERFORD,
Secretary.

September, 1933.

THE HOSPITAL FOR SICK CHILDREN, NEWCASTLE-UPON-TYNE. (94 Beds.)

Applications are invited for the following appointments:

HOUSE PHYSICIAN;
SENIOR HOUSE SURGEON;
JUNIOR HOUSE SURGEON;

(male or female) for six months as from October 1st. Salary at the rate of £100 per annum, together with board, residence, and laundry. Applications, stating age, and qualifications, with copies of testimonials, to be sent to the Secretary, Mr. NEIL BRODIE, 18, City Road, Newcastle-upon-Tyne, 1.

THE ROYAL PORTSMOUTH HOSPITAL, PORTSMOUTH.

(Five Resident Medical Officers.)

Applications are invited for the posts of HOUSE PHYSICIAN (male) qualified. Salary at the rate of £130 per annum, with board, etc., to commence October 1st.

House Surgeon (male) qualified. Salary at the rate of £130 per annum, with board, etc., to commence September 27th.

Six months' appointment. Eligible on completion of term, for appointment to other resident posts.

Applications, stating age, nationality, etc., and copies of three recent testimonials, to be sent to the undersigned not later than September 13th, from whom all particulars can be obtained.

B. WAGSTAFF, Secretary.

ROYAL EAST SUSSEX HOSPITAL, HASTINGS. (125 Beds.)

Applications are invited for the post of HONORARY ANAESTHETIST to the Hospital.

Applicants must be Fellows or Members by Examination of the Royal College of Physicians of London, Edinburgh, or Ireland, or be a Graduate in Medicine of one of the Universities of the United Kingdom or Ireland, and also be duly registered under the Medical Acts.

Information as to duties may be obtained from the Secretary.

Applications, with three copies of recent testimonials, should reach the Secretary not later than September 23rd.

WILFRED G. KEMSLEY, Secretary.

THE ROYAL HOSPITAL, WOLVERHAMPTON. (Incorporated under Charter.)

HOUSE PHYSICIAN required for October 8th. The Hospital contains 300 beds, the usual special departments, and is recognised by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice. Candidates must be registered under the Medical Acts, and unmarried.

The appointment is for six months, with a salary at the rate of £125 per annum, board, furnished rooms, and laundry provided. Application, with copies of testimonials, to the undersigned.

W. H. HARPER,
House Governor.

Wolverhampton.
Sept. 4th, 1933.

ROYAL CHEST HOSPITAL, City Road, E.C.1.
(Royal Northern Group of Hospitals.)

A vacancy occurs for a PHYSICIAN with charge of out-patients. Candidates must possess the degree of M.D. or M.B., obtained by examination at a British University, and be Fellows or Members of the Royal College of Physicians of London.

Full particulars of the appointment, and details with regard to the submission of testimonials, etc., may be obtained from the undersigned, to whom applications should be sent not later than September 23rd.

GILBERT G. PANTER, Secretary.

DERBY CITY HOSPITAL.

THIRD RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Third Resident Medical Officer (male), at the above Hospital of 300 beds. This Hospital provides treatment for acute medical and surgical cases, tuberculosis, obstetrics, and children's diseases, etc.

Candidates must be registered in Medicine and Surgery.

The appointment is for a period of twelve months; two months' notice of resignation to be given, and the successful candidate will be required to commence duty on or about November 1st.

Salary at the rate of £200 per annum for the first six months' then rising to £250, with board and residence, subject to temporary economy deduction in force.

Applications, stating age, experience, and accompanied by three recent testimonials, should be sent not later than Thursday, September 21st, to the undermentioned.

GORDON LILICO,
Medical Officer of Health.

Public Health Dept.,
Derwent St., Derby.

THE LONDON LOCK HOSPITAL, 91, Dean Street, W.1.

The Board of Management invite applications for an appointment of SURGICAL REGISTRAR (male), with honorarium at £100 per annum. Candidates must be Fellows (or Members) of the Royal College of Surgeons of England, or Surgical Graduates of a University of the United Kingdom. The appointment is for one year in the first instance, commencing October 6th. Candidates must submit their applications, with three copies (only) of testimonials, not later than 10 a.m. on September 21st, addressed to the undersigned, from whom copies of the Laws and By-laws relating to the appointment can be obtained.

By Order of the Board,
J. F. MORTON,
Secretary.

August, 1933.

THE LONDON LOCK HOSPITAL, 91, Dean Street, Soho, London, W.1.

Applications are invited for the post of RESIDENT MEDICAL OFFICER to the male Departments. Candidates must be doubly qualified and duly registered. The appointment is for six months commencing September 15th. Salary at the rate of £175 per annum, furnished rooms at the Harrow Road Hospital, full board, and laundry.

Applications, enclosing copies (only) of three recent testimonials, to be in the hands of the undersigned by 10 a.m. Monday, September 11th, from whom a copy of the Bye-laws and any further particulars can be obtained.

By Order of the Board,
J. F. MORTON, Secretary.

ROYAL CRIPPLES HOSPITAL, BIRMINGHAM.

Applications are invited for the post of HOUSE SURGEON, vacant September 25th. Salary £200 per annum, with board, laundry, and residence. The appointment, which is for a period of six months, is renewable on the discretion of the Medical Board, and is terminable by one month's notice on either side.

Preference will be given to candidates with previous experience in general and orthopaedic hospitals.

Applications, with copies of three recent testimonials, to be sent to the General Secretary, Royal Cripples Hospital, 80, Broad Street, Birmingham, not later than Sept. 14th.

THE ROYAL GWENT HOSPITAL, NEWPORT, MON. (160 Beds.)

Wanted, a JUNIOR RESIDENT MEDICAL OFFICER to act as HOUSE SURGEON to Out-patients and as HOUSE PHYSICIAN.

Salary £135, with board, lodging, and laundry. Resident Medical Staff 5. Eligible for promotion.

Large Out-patient Department.

Applications, stating age and qualifications, with copies of three recent testimonials, to be sent to the undersigned.

Applications from ladies not entertained.

J. K. MILLWARD,
Secretary-Supt.

Sept. 1st, 1933.

GREAT WESTERN RAILWAY MEDICAL FUND SOCIETY HOSPITAL, SWINDON.

Applications are invited for the post of non-resident HOUSE SURGEON (42 Surgical beds and out-patients). Salary £200 per annum and board-residence (equal to £150 per annum). The appointment is for six months, aged not above 30 years. Applications, stating age, nationality, qualifications, etc., with special reference to experience in Anaesthetics, together with copies of three testimonials, to be sent to the undersigned not later than Tuesday, September 12th.

S. E. WALTERS, Secretary.

WEST LONDON HOSPITAL, Hammersmith Road, W.6. (234 Beds.)

Required ONE HOUSE PHYSICIAN, ONE HOUSE SURGEON (General and some Deep X-Ray Therapy), ONE HOUSE SURGEON for Throat, Nose, and Ear Department (with some Anaesthetic duties). These three appointments (males) are tenable for six months from October 1st next, subject to one month's notice on either side. Salary at the rate of £100 per annum, with board, lodging, and laundry allowance.

Candidates must be registered under the Medical Act.

Applications (which must be on printed forms obtained from me) must reach me not later than first post on Thursday, September 14th. Selected candidates will be required to call upon such members of the Medical Staff as directed, to be in attendance at the Medical Council Meeting on Friday, September 22nd, at 4.30 p.m., and the House Committee Meeting at 5 p.m., the same day, when the appointments will be made.

H. A. MADGE, Secretary.

WARNEFORD GENERAL HOSPITAL, LEAMINGTON SPA.

RESIDENT HOUSE SURGEON required September 25th, also RESIDENT CASUALTY HOUSE SURGEON AND HOUSE SURGEON TO SPECIAL DEPARTMENTS (combined post) required on October 1st. Special Departments include Ear, Nose, and Throat Department; Maternity Department; and V.D. Department. Six months' appointments. Salary £150 per annum for each post, with board and laundry. Applications from qualified and registered Medical Practitioners, with copies of at least three testimonials, should be sent to the undersigned by September 12th.

EDWARD L. WIRGMAN, House Gov. & Sec.

PRESTON AND COUNTY OF LANCASTER QUEEN VICTORIA ROYAL INFIRMARY.

The Board of Management invite application from unmarried gentlemen, doubly qualified and registered, for the post of CASUALTY OFFICER.

Salary at the rate of £150 per annum, with board, residence, and laundering.

The Hospital is recognised for Post-Graduate Examinations of the Royal College of Physicians and Surgeons (England).

Applications, stating age, qualifications, and experience, together with copies of recent testimonials, to be forwarded to—

JOHN GIBSON,
Supt. & Secretary.

Sept. 1st, 1933.

(AMENDED ADVERTISEMENT.)

WILLESDEN GENERAL HOSPITAL, Harlesden Road, N.W.10.

Applications are invited from fully qualified and registered candidates (unmarried) for the appointment of a RESIDENT OFFICER to hold the appointment of CASUALTY OFFICER for a period of three months from October 1st, followed by a six months' appointment as HOUSE PHYSICIAN. (Total nine months.)

Salary at the rate of £100 per annum.

Applications to be received by the Secretary not later than first post on Monday, Sept. 18th.

August 5th, 1933.

SWINDON & NORTH WILTS VICTORIA HOSPITAL, SWINDON. (80 Beds.)

Required, a RESIDENT MEDICAL OFFICER (male) to begin duties October 1st. Salary £125 per annum, with board, residence, and laundry.

Candidates must be registered under the Medical Act. Appointment for the minimum of six months.

Applications, stating age, etc., and accompanied by copies of not more than three recent testimonials, should be sent to the undersigned.

KENNETH N. KNAPP, Secretary.

SOUTH-EASTERN HOSPITAL FOR CHILDREN, Sydenham, S.E.26.

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER (lady). The appointment will be for six months from October 1st. Honorarium £120 per annum, with board, residence, and laundry. Applications, by letter only, stating age and qualifications, with copies of three testimonials, should be sent to the Hon. Secretary, Mr. E. E. DENT, 182, Turney Road, Dulwich Village, S.E.21, to be received not later than Saturday, September 16th.

THE CHILDREN'S HOSPITAL, SUNDERLAND (70 Beds).

HOUSE PHYSICIAN (female) required on October 1st. Salary £140 per annum, with board, laundry, etc. Applications, stating age and qualifications, and accompanied by testimonials, to be sent to the undersigned immediately.

J. A. HEADSALL,
House Governor & Secretary.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B M A House, Tavistock Square, W C 1 (in the case of Scottish appointments, with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh)

(a) British Islands.

Town or District	Town or District	Town or District
CONTRACT PRACTICE	**CONTRACT PRACTICE** (contd)	**PUBLIC HEALTH**
EBBW VALE M O N (*Workmen's Medical Society*)	MARDY, GLAMORGAN (*Workmen's Medical Scheme*)	DORSET COUNTY COUNCIL (*County Medical Officer of Health*)
GILFACH GOCH, GLAMORGAN (*Workmen's Medical Scheme*)	NEATH AND DISTRICT (*Medical Aid Association*)	HERTFORDSHIRE COUNTY COUNCIL WARE SANATORIUM (*Assistant Medical Officer*)
LLWYNPIA CLYDACH VALE, PENYGRAIG GLAMORGAN (*Workmen's Medical Scheme*)	OAKDALE M O N (*Medical Officer for Medical Aid Association*)	COUNTY BOROUGH OF SOUTH SHIELDS (*Assistant School Medical Officer*) HALTON INSTITUTION AND CLEADON COTTAGE HOMES (*Medical Officer*)
LOWESTOFT MEDICAL INSTITUTE. (*Medical Officer*)	OGMORE VALLEY GLAMORGAN (*Friendly Collieries Medical Aid Society*) (*Workmen's Medical Scheme*)	NORTH RIDING OF YORKSHIRE COUNTY COUNCIL (*Temporary Maternity and Child Welfare Medical Officer—Woman*)

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B M A House, Tavistock Square, W C 1

Town or District.	Hon Sec of Division or Branch.	Town or District	Hon Sec of Division or Branch	Town or District.	Hon Sec. of Division or Branch.
NEW SOUTH WALES. (*All Friendly Society Appointments*)	Dr J G HUNTER (Medical Secretary, New South Wales Branch), 109 Macquarie St, Sydney, N S W	**QUEENSLAND.** (*Brisbane Associated Friendly Societies Institute*)	The Hon Sec, Queensland Branch British Medical Association B M A Building Adelaide St, Brisbane.	**WELLINGTON, NEW ZEALAND.** (*Contract Practice Appointments*)	Dr G F V ANSON (Hon Sec New Zealand Branch) British Medical Association P O Box 156 Wellington, New Zealand
VICTORIA. (*All Institute or Medical Dispensaries*)	Dr J P MAJOR (Hon Sec, Victorian Branch British Medical Association Medical Society Hall East Melbourne, Victoria	(*Toowoomba Associated Friendly Societies Medical Institute, Toowoomba*)		**WESTERN AUSTRALIA.** (*Contract and Lodge Practices*)	Hon Sec, Western Australian Branch British Medical Association No 6 Bank of N S W Chambers St Georges Terr Perth, Western Australia

September 6th, 1933 By Order of the Council C C ANDERSON, Medical Secretary

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THE STOCKPORT INFIRMARY
(140 Beds)

Applications are invited for the post of HOUSE SURGEON (Male) Salary £150 per annum together with board, residence and laundry The Resident Staff will consist of a Resident Surgical Officer two House Surgeons and a House Physician

Application with copies of three recent testimonials stating age, nationality and qualifications to be sent to the undersigned immediately

H G PRICE Secretary Supt

EAST HAM MEMORIAL HOSPITAL, Shrewsbury Road, E 7 (100 Beds)

Applications are invited for the post of HOUSE SURGEON (male) to Special Departments and CASUALTY OFFICER for six months commencing October 1st Salary at the rate of £120 per annum, with board, residence and laundry

Applications stating age experience and full particulars together with copies of testimonials, should reach the undersigned by Sept 16th

REGINALD PERRY Secretary

EAST HAM MEMORIAL HOSPITAL, Shrewsbury Road E.7 (100 Beds)

Applications are invited for the post of HOUSE PHYSICIAN (male) for six months commencing October 1st Salary at the rate of £150 per annum, with board, residence, and laundry

Application stating age experience and full particulars together with copies of testimonials, should reach the undersigned by Sept 16th

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THE GENERAL INFIRMARY AT LEEDS

HONORARY OPHTHALMIC SURGEON

Applications are invited for the above post Every candidate for the post should be a Fellow of the Royal College of Surgeons of England Information as to duties and necessary qualifications for the office will be supplied on reference to the House Governor There is no local candidate

Thirty two copies of application accompanied by copies of not less than three testimonials should be addressed to the Chairman at the Infirmary and marked Private Honorary Staff and should be sent in on or before September 22nd

By Order of the Board
S CLAYTON FRYER
House Governor & Secretary

NATIONAL HOSPITAL QUEEN SQUARE, W C

ASSISTANT PATHOLOGIST

Applications are invited for the post of Assistant Pathologist Candidates must be medically qualified, and have had training in Clinical Pathology and Biochemistry The appointed officer will be expected to undertake most of the biochemical work of the hospital, and will have opportunities for research, he will deputise for the Pathologist during his absence Attendance will be required for six half days a week and the salary will be £250 per annum The appointment is for one year and the holder is eligible for re-election

Applications should be sent to the under signed on or before Friday, October 6th

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HAMPSTEAD GENERAL AND NORTH WEST LONDON HOSPITAL
Haverstock Hill N W 3

APPOINTMENT OF CASUALTY MEDICAL OFFICER

Applications are invited from unmarried registered Medical Women for the position of Casualty Medical Officer at the Out patient Department of the Hospital Bayham Street Camden Town which will be vacant on October 1st next

The salary will be at the rate of £100 per annum together with board residence and the term will be for six months

Applications, to be made on a form which will be supplied by the Secretary together with copies of not more than three testimonials should reach the Secretary not later than noon on September 16th next

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THE SCHIFF HOME OF RECOVERY
COBHAM SURREY
(64 Surgical Beds)

Vacancy, October 7th RESIDENT SURGICAL OFFICER male three months appointment Salary rate £200 per year all found

Particularly suitable for reader

Applicants must be unmarried and have been Resident Surgical Officer or House Surgeon in General Hospital Preference to candidates Hospital Charing Cross Guys King's College Middlesex St Thomas University College, West London

Full particulars with testimonials should be received by the Secretary Superintendent not later than September 15th

British Medical Journal
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.
T/A: ARTICULATE, WESTCENT, LONDON.
Tel.: EUSTON 2111 (4 lines).

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Address must be paid for.

All advertisements should reach the above address by not later than first post TUESDAY preceding publication.

NOT CLASSIFIED.

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HOSPITALITY OFFERED BRITISH DOCTOR and wife in South Coast Resort near London, from September 19th for 14 days, in EXCHANGE for charge of practice. Work light. —Address, No. 6536, B.M.A. House, Tavistock Square, W.C.1.

YOU ARE INVITED TO VISIT THE CENTRAL RESEARCH CLINIC, 20/22, Chenies Street, W.C.1. A private hospital where General Practitioners find £20,000 worth of Equipment which they can use for the benefit of their patients and themselves.

9461 PADDINGTON IS THE 'PHONE NO. of 26, NORFOLK SQUARE, HYDE PARK, W.2.—ROOM, BATHS, AND BREAKFAST, 6/6 a night. Baths are not extras; h. and c. water all bedrooms. The Manager will be pleased to reserve rooms for any date, and to send further particulars if you write him.

ASSISTANCIES.

WANTED. — ASSISTANTSHIP BY M.B., B.Ch., D.P.H., ex H.S. and H.P., 2 years' experience practice, private and panel. Aged 28 years, married, keen, reliable. Excellent testimonials.—Address, No. 6508, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANT, WITH OR WITHOUT view, indoor, male, single, British. £300. Industrial Practice near Manchester. Full particulars, and photo. if available.—Address, No. 6531, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANTSHIP, WITH VIEW, by M.B., Ch.B.(Glas.), age 28, 3 years' experience; ex H.S., H.P., private and panel Practice. Own car. South preferred. Free end of September. — Address, No. 6524, B.M.A. House, Tavistock Square, W.C.1.

WANTED, END OF SEPT., INDOOR MALE ASSISTANT, Cornwall, own car, experienced in obstetrics and anaesthetics. No view. Good hospital. Good salary for exper. man. Car allowance. Dispenser kept. Usual bond.—No. 6409, B.M.A. House, Tavistock Sq., W.C.1.

WANTED IMMEDIATELY, INDOOR ASSISTANT, Scotch, single, for industrial Practice, N. London. With view to suitable man. Salary £300 per annum, with rooms, light, and attendance. — Address, No. 6521, B.M.A. House, Tavistock Square, W.C.1.

WANTED, IMMEDIATELY, INDOOR ASSISTANT, industrial practice, 10 miles Birmingham, some experience panel. Salary £300 with view. Full particulars and photo. —Address, No. 6436, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, OUTDOOR ASSISTANT, near Manchester, male, single. Some experience panel. Salary £400. Own small car (allowance). Abstainer. Dispenser kept.—Address, No. 6538, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — OUTDOOR ASSISTANT, Country Town (Cheshire), male, single, British or Irish. Saloon car for use in Practice. Dispenser kept. Usual bond. Salary according to experience. — Address, No. 6522, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT FOR MIXED PRACtice, S.W. England. Young, English, well qualified. Send copies testimonials and photo. —Address, No. 6528, B.M.A. House, Tavistock Square, W.C.1.

WANTED, UNMARRIED MALE ASSISTANT, early October, for mixed Practice in Lancashire. Rising salary to young keen man, with hospital experience, and able to drive car. — Address, No. 6507, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANTSHIP OR LOCUMS by Medical Woman. Well-experienced general practice. Free middle of September. —Address, No. 6535, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY.—INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view, good salaries. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

ASSISTANT, MALE, REQUIRED, OCTOBER, West London suburb. Live in Surgery, modern house. Full particulars, including age, nationality, religion. — Address, No. 6525, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT WANTED EARLY OCTOBER, North Wales Country Practice, £300, all found; ex H.S., H.P., good anaesthetist. Cottage Hospital. Further particulars.—Address, No. 6504, B.M.A. House, Tavistock Sq., W.C.1.

BIRMINGHAM.—WANTED, INDOOR ASSISTANT. Salary £300 p.a., preferably with own car, for which allowances made. Usual bond. *Irish or Scottish graduate preferred.* Experience private and panel practice. Photo.—No. 6529, B.M.A. House, Tavistock Sq., W.C.1.

M.B., CH.B.(EDIN.) (AET. 43), WITH Hospital and General Practice experience, desires ASSISTANTSHIP, any district, or Locum.—Write, No. 612, KEITH & CO., Advertising Agents, Edinburgh.

PART-TIME ASSISTANTSHIP WANTED BY experienced Medical Woman to do morning Surgeries, Barking, East Ham district. State particulars.—Address, No. 6506, B.M.A. House, Tavistock Square, W.C.1.

PATHOLOGICAL AND BACTERIOLOGICAL LABORATORY ASSSITANTS ASSOCIATION.—Pathologists and Bacteriologists requiring SKILLED CERTIFICATED LABORATORY ASSISTANTS are invited to communicate with H. GOODING, Hon. Sec., "Moelfre," 10, Holbeck Grove, Victoria Park, Manchester. No fees.

UNIVERSITY GRADUATE REQUIRES ASSISTANTSHIP, with view to Partnership or succession, in sound mixed Practice. *London, Manchester, or Glasgow preferred,* but anywhere considered. Experienced G.P., fevers, and Tuberculosis. Excellent references. Free early October.—Address, No. 6503, B.M.A. House, Tavistock Square, W.C.1.

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HOSPITALITY LOCUM.—Dr. ROSS, MEVAgissey, Cornwall, offers HOSPITALITY to medical man and wife for a FORTNIGHT, about October 10th. Charming seaside village, work light, must bring own car.—Apply, Dr. ROSS, as above.

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WANTED.—THIRD PARTNER FOR GROWing Practice in pleasant market and industrial town in Eastern Midlands. Visiting fees 5/- and upwards. One-sixth share of £5,400 at two years' purchase after preliminary assistantship. Scope for surgery in hospital and nursing home. Edinburgh or London Graduate preferred. — Address, stating particulars of education and experience, No. 6515, B.M.A. House, Tavistock Square, W.C.1.

PARTNER WANTED, OLD-ESTABLISHED Practice within 20 miles London. Growing district. Share about £1,100 at 2 years' purchase. Good house and garden, rent or sell. Suitable man between 30 and 40. Preliminary assistantship entertained.—Address, No. 6527, B.M.A. House, Tavistock Square, W.C.1.

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Preference will be given to candidates with City Hospital experience and special knowledge of septic conditions following slight injury. Surgical qualifications and experience are essential. Duties, particulars of which will be supplied on application to the undersigned, to commence December 1st.

Applications, stating age, which must not exceed 35, qualifications, present position and duties, particulars of past service and experience, and all other essential information, accompanied by not less than three recent testimonials, must be sent to the Association, endorsed "Medical Officer," and addressed to the Chairman not later than October 1st.

Canvassing, either directly or indirectly, will be a disqualification.

Station Road, Fleetwood. August 11th, 1933. T. LONGWORTH, Secretary.

SOUTH PERSIA. — MEDICAL OFFICER REquired by Company. Candidates must be of British parentage, single, and not over 35 years of age; must be well qualified, and have held House appointments. Agreement for 1 to 3 years.' Commencing salary £800 p.a., rising by annual increments of £50. Free furnished quarters and first-cass passages out and home.—Apply to the General Manager, BRITISH MEDICAL BUREAU, 12, Stratford Place, London, W.1.

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WANTED. — EXCHANGE COUNTRY PRACTICE, £1,800, 50 miles North London, for Practice Dorset, South Devon, East Cornwall, near coast. Income about £1,400. Balance 1½ years' purchase. — Address, No. 6512, B.M.A. House, Tavistock Square, W.C.1.

WANTED IN W. OR N.W. SUBURB, SOUND middle-class PRACTICE, £1,200—£1,500, including panel. Good house, garden, and garage. Replies treated in strict confidence.—Address, No. 6520, B.M.A. House, Tavistock Square, W.C.1.

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WANTED. — PRACTICE OR PARTNERSHIP in Liverpool or district. £1,000 minimum income. Would entertain preliminary Assistantship. Panel essential. Advertiser well qualified, exper. in G.P. Excellent testimonials. —No. 6513, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — PRACTICE, PREFERABLY PARTNERSHIP, £1,500—£2,000 per annum. Good panel appointments preferred. Applicant London qual., 35, recently sold prac. Pay 2 yrs.' pur. for genuine concern. Capital. —No. 6404, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — MIXED GENERAL PRACTICE, with panel, in or near London, or South of England. Income over £1,000. Partnership entertained. Much Hospital experience.—Add., No. 6518, B.M.A. House, Tavistock Sq., W.C.1.

WANTED.—PRACTICE IN OR NEAR LAKE district, country town or country. Income about £1,000—£1,400. Good house and garden essential. — Address, No. 6540, B.M.A. House, Tavistock Square, W.C.1.

WANTED, SOUTH OR SOUTH-WEST London, PRACTICE, preferably non-panel, over £1,000 p.a., with fair-sized house, garden, garage. — Address, No. 6403, B.M.A. House, Tavistock Square, W.C.1.

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APPOINTMENTS.—Contd.

WANTED AT SOUTHMEAD MUNICIPAL HOSPITAL, BRISTOL (572 beds), ASSISTANT RESIDENT MEDICAL OFFICER. Temporary appointment for 12 months. Salary at the rate of £200 per annum and emoluments. Salary subject to temporary reduction in accordance with scale adopted by Council. Applications to be addressed to the Medical Officer of Health, 40, Prince Street, Bristol, 1, by September 19th.

LOWESTOFT AND NORTH SUFFOLK HOSPITAL.

TWO HOUSE SURGEONS (men or women) required. Commencing salary £120 per annum, with board, residence, and laundry.
Applications, together with copies of three recent testimonials, to be sent to the Honorary Medical Superintendent.

LIVERPOOL AND DISTRICT HOSPITAL FOR DISEASES OF THE HEART.

HOUSE PHYSICIAN (male or female) required for period of six months from October 1st. Salary at the rate of £100 per annum, with board, residence, and laundry. Applications to Miss LEWIS, Secretary, 14, Cook St., Liverpool.

PRESTON HALL SANATORIUM, AYLESFORD, KENT.

JUNIOR ASSISTANT MEDICAL OFFICER (male) required at once; live in. Salary £200 per annum. Applications, with copies of three recent testimonials, to the Medical Director.

HUNTINGDON COUNTY HOSPITAL.

HOUSE SURGEON (male) required. Salary £125 and laundry allowance. Apply, Dr. W. R. GROVE, M.D.

CONNAUGHT HOSPITAL, E.17, for Walthamstow, Wanstead, Leyton, and Chingford.

Applications are invited for the post of HONORARY PHYSICIAN to the above hospital. Gentlemen desirous of applying must be Members or Fellows of the Royal College of Physicians, and preferably on the staff of a London Teaching Hospital; special experience of diseases of children an advantage. Applications should be received by September 15th next.
The Hospital is one of 115 beds, including Private Wards.
KENELM S. ELLISON, Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

The Committee invite applications for the post of ASSISTANT SURGEON with charge of beds. Two attendances required weekly. An honorarium to cover travelling expenses will be paid. Candidates must be Fellows by examination of the Royal College of Surgeons.
Applications, with copies of three recent testimonials, which may be printed or typewritten, should be sent on or before September 30th, to the undersigned, from whom further particulars may be obtained.
CHARLES H. BESSELL,
August 28th, 1933. Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

HOUSE PHYSICIAN required October 7th.
CASUALTY OFFICER required October 7th. Some ophthalmic work additional. Six months' appointments. Salary at the rate of £100 per year, with board, lodging, and laundry.
Applications must be made on forms to be obtained from the undersigned, and must be sent in with copies of not more than four testimonials, on or before September 19th.
CHARLES H. BESSELL,
August 10th, 1933. Secretary.

JEWISH MATERNITY HOSPITAL, Underwood Street, E.1.

Applications are invited for the post of RESIDENT HOUSE SURGEON. Duties commence October 1st for a period of four months with an option to extend for six months. Salary at the rate of £50 per annum. Applications, together with copies of three recent testimonials, to be sent to the undersigned not later than September 18th.
ALICE MODEL, Secretary.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN. (80 Beds.)

Wanted at once, a RESIDENT HOUSE PHYSICIAN (lady). Salary £130 p.a. The appointment is for six months, but may be extended by mutual arrangement. Applicants must be fully qualified. Applications, with three testimonials, one relating to anaesthetics, to be sent to the undersigned.
ARTHUR N. WHISTON, Secretary.
25, St. Mary's Gate, Derby.

BRISTOL ROYAL INFIRMARY.

WHOLE-TIME JUNIOR ASSISTANT required in the Cancer Research Laboratory. Salary £300 per annum. Previous experience desirable. Candidates, who must be qualified and registered, to send in their applications, together with copies of not more than three testimonials, to the undersigned on or before September 23rd.
ELLIS C. SMITH, F.C.I.S.,
Secretary and House Governor.

NORTH DEVON INFIRMARY, BARNSTAPLE. (70 Beds.)

Wanted for September 28th, duly qualified, sole, RESIDENT MEDICAL OFFICER. Salary £150 per annum, with board, apartments, and laundry. Appointment to be for not less than six months. Applications, stating age, qualifications, with copies of recent testimonials, to be sent forthwith to the Hon. Secretary as above.

THE ROYAL INFIRMARY, SUNDERLAND. (290 Beds.)

SENIOR HOUSE SURGEON (male) required on October 1st. Salary £200 per annum, with board, residence, and laundry. Applications, stating age, qualifications, and accompanied by copies of testimonials, to be sent to the undersigned immediately.
J. A. BEARDSALL,
House Governor & Secretary.

THE WARNEFORD, OXFORD.

JUNIOR MEDICAL OFFICER (male) required with Mental Hospital experience. Salary £300, with board, lodging, etc. Apply, with copies of three recent testimonials, to the Medical Superintendent.

GENERAL HOSPITAL, NOTTINGHAM. (386 Beds.)

A HOUSE SURGEON is required at the above Institution for the Ear, Nose, and Throat Department containing 40 beds, and a large Out-patient Department. The appointment is for six months. Salary at the rate of £150 a year, with board, residence, and laundry. Candidates are desired to send applications, giving particulars as to age, qualifications, and experience, together with copies of testimonials, to the undersigned. Duties to commence on Saturday, October 14th.
Preference will be given to candidates with previous experience.
PETER M. MACCOLL,
House Governor & Secretary.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.1.

Applications are invited from Medical Women who have had previous V.D. experience for the part-time appointments of ASSISTANT MEDICAL OFFICERS (Two) in the department for treatment of Venereal Diseases (female) vacant respectively on November 1st and January 1st. Tenable for 12 months. Salary £350 per annum.
Intending candidates should submit applications, stating age and experience, with copies of three recent testimonials, to the undersigned on or before September 30th.
REGINALD R. GARRATT, Secretary.

ST. JOHN'S HOSPITAL, LEWISHAM, S.E.13.

Applications are invited for the appointment of RESIDENT MEDICAL OFFICER (male), which will become vacant on or about October 21st. The appointment is for one year at a salary of £200 per annum, with board, lodging, etc. The Resident Medical Officer acts as panel practitioner to the resident female staff.
Applicants should have been qualified not less than two years, and should have surgical experience. Applications, with copies of not less than three testimonials, should reach the undersigned not later than October 1st.
J. C. GILBERT, Secretary-Supt.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Road, S.E.1.

There is a vacancy for the post of HONORARY SURGICAL REGISTRAR at the above Hospital. Candidates must be Fellows of the Royal College of Surgeons, and would be expected to call upon members of the Hon. Medical Staff, a list of whom would be furnished on request. Preference will be given to candidates having had experience of special departments. Particulars regarding the appointment can be obtained from the undersigned, to whom applications should be sent, not later than September 20th, with not more than three recent testimonials.
J. H. TEASDALE, Secretary.

STROUD GENERAL HOSPITAL, STROUD, GLOS.

HOUSE SURGEON (male or female) required. Candidates must be fully qualified and duly registered. Salary £150 per annum, with board, residence, and laundry. Applications, stating nationality, with copies of testimonials, to be sent to the undersigned from whom further information may be obtained.
C. FORD SPENCER, Secretary.

WATFORD AND DISTRICT PEACE MEMORIAL HOSPITAL.

RESIDENT SURGICAL OFFICER (Female) required. The appointment is for six months. Salary £150 per annum. Duties to commence October 1st or as soon as possible after that date. Applications, stating age and qualifications, with copies of three recent testimonials, to be forwarded to the undersigned forthwith.
T. H. FLETCHER, Secretary.

GOLDEN SQUARE THROAT, NOSE, AND EAR HOSPITAL, London, W.1.

HOUSE SURGEON required (male) for October 1st. Salary £100 per annum, with board, residence, and laundry.
Applications, stating age, qualifications, and experience, together with three testimonials, should reach the undersigned on or before September 15th.
F. P. CARROLL, Secretary-Supt.

OLDHAM ROYAL INFIRMARY.

HOUSE SURGEON required for a period of six months. Salary at the rate of £175 per annum, with board, residence, and laundry.
Applications, stating age, experience, and qualifications, together with copies of three recent testimonials, must be forwarded to the undersigned not later than September 15th.
H. J. CLOUT, General Supt.

COUNTY MENTAL HOSPITAL, LANCASTER

Applications are invited for the post of ASSISTANT MEDICAL OFFICER

Candidates must be single and under 35 years of age Commencing salary £500, rising by annual increments of £25 to £600, with further increase on promotion, subject to a deduction of 3 per cent under the Asylum Officers Superannuation Act. There are no emoluments

The selected candidate will be required to live in the Hospital, and will be provided with board, lodging, etc, for which a charge of £150 a year is made A temporary abatement from the gross salary will be made, the amount of the abatement on £500 being £18 15s

The possession of a Diploma in Psychological Medicine will entitle the officer to an additional £50 per annum

Applications, giving full particulars, with testimonials (copies only), should be forwarded to the Medical Superintendent before September 25th

WEST BROMWICH & DISTRICT GENERAL HOSPITAL (150 Beds)

Applications are invited for the post of CASUALTY HOUSE SURGEON (male)

Candidates must be doubly qualified and unmarried Salary at the rate of £200 per annum, with board, residence, and laundry

The appointment is for six months and the candidate appointed will be required to take up his duties on October 1st next

Applications, stating age and qualifications, with copies of recent testimonials, should be sent to the undersigned on or before Sept 25rd

By Order,
Edward St, West Bromwich — FRANK F HANCOCK, Secretary & Supt

JERSEY GENERAL HOSPITAL AND POOR LAW INFIRMARY

RESIDENT MEDICAL OFFICER

Application are invited for the above post (male) Applicants must be duly qualified practitioners in medicine and surgery Salary £200 per annum, with board, residence in the hospital, and laundry

The appointment is for one year and is renewable Applications, with testimonials must be sent in on or before September 26th, addressed to the undersigned, from whom further particulars may be obtained

P BEUZEVAL Secretary

NORFOLK AND NORWICH HOSPITAL, NORWICH (392 Beds)

Applications are invited for the post of HOUSE SURGEON Salary £120 per annum, with board, residence, and laundry Preference will be given to candidates who have held previous hospital appointments Candidates (male) who must possess registered qualifications should forward applications stating age, nationality, etc, together with copies of testimonials, to the undersigned, not later than first post on Tuesday, September 12th

FRANK INCH
September 1st, 1933 — House Gov & Sec.

ROYAL HAMPSHIRE COUNTY HOSPITAL, WINCHESTER (158 Beds)

HOUSE PHYSICIAN

Applications are invited from fully qualified men for the above post to take up duties on October 1st Six months appointment Salary £125 per annum, with board, residence, and laundry

Candidates, who must be of British nationality to make application at once to the undersigned enclosing copies of three testimonials

HERBERT MASLEN, Secretary

THE BURSLEM HAYWOOD AND TUNSTALL WAR MEMORIAL HOSPITAL

Wanted SENIOR MALE RESIDENT MEDICAL OFFICER Salary £175 per annum with board and residence Must be fully qualified and have had some experience in Hospital Surgical work Applications, stating age and experience together with copies of three recent testimonials to be sent to the undersigned

High Lane, Burslem, Stoke-on Trent — C E LOWNDES, Secretary

THE PRINCESS BEATRICE HOSPITAL, Richmond Road Earls Court S W 5 (General Hospital—80 Beds)

RESIDENT MEDICAL OFFICER (male) required to act as House Surgeon and Casualty Officer for six months as from October 1st Salary at the rate of £110 per annum, with board residence and laundry Previous resident experience essential

Applications to be sent to the House Governor not later than *September 19th*, stating age, accompanied by copies of three recent testimonials

WESTERN OPHTHALMIC HOSPITAL, Marylebone Road, N W 1

Applications are invited for the post of JUNIOR RESIDENT HOUSE SURGEON The salary is at the rate of £100 per annum, and the appointment is for about seven months

The selected candidate will be required to take up duties early in October

Applications accompanied by copies of three testimonials should reach me by Sept 23rd

H W BURLEIGH Hon Secretary

WESTERN OPHTHALMIC HOSPITAL, Marylebone Road, N W 1

HONORARY ASSISTANT SURGEON required Applications are invited for the post of Honorary Assistant Surgeon They should be accompanied by copies of three testimonials and should reach the undersigned by September 23rd

Candidates must possess the F R C S (Eng)

H W BURLEIGH Hon Secretary

VICTORIA HOSPITAL FOR SICK CHILDREN, Park Street, HULL

RESIDENT HOUSE PHYSICIAN (lady) required to commence duty about September 30th Salary £100 per annum with board residence and laundry Applications with copies of recent testimonials stating qualifications and other particulars to be sent to the Secretary as soon as possible, not later than Tuesday, September 12th

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WANTED IN SOUTH OF ENGLAND FOR preference, general practice of about £1,000 p a in or near County Town Work not too heavy Medium house, with garden, desired Ample capital available —No 1861

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LONDON, E.—Suburban middle-class G.P. Medium-sized house to rent on lease at the low rental of £30 p.a. Fees 2/- up. Average receipts £450 p.a. Panel 300. Excellent scope for young man. Premium for practice and lease £1,000, or open to offer.

WARWICKSHIRE. — Old-established unopposed Country PRACTICE in pleasant surroundings. Excellent modern freehold house (especially built for Doctor), with large garden and garage. Receipts approx. £500. Panel nearly 500. One appointment. Premium £500. Freehold house £1,500 (part may remain on mortgage).

DURHAM.—Middle-class and industrial PRACTICE. Average receipts £550 p.a. Panel 380. Medium-sized house to rent on lease at £52 p.a. Branch Surgery. Fees 2/6 up. Premium £450.

NORTH-WEST COAST (Large Town).—Mixed middle and working-class PRACTICE. Good house to rent on lease. Receipts approx. £1,000. Panel 500. Appointments. Premium 1½ years' purchase.

SOMERSET.—PARTNERSHIP in good-class rural district situate in delightful locality admirably suited to doctor keen on country life. Good social amenities. Excellent house to rent on lease at £125 p.a., large garden, garage. Receipts approx. £1,350. Panel yields over £800 p.a. Fees 3/6 up. Appointments. Premium 1¾ years' purchase for 5/12 share.

CUMBERLAND.—PARTNERSHIP (after short Preliminary Assistantship) in very old-established industrial Club and Panel G.P. Good house available to rent (garden, garage). Receipts average £5,263 p.a. Panel 2,488. Fees 3/6 up. Two appointments. Premium for one-fourth share 1½ years' purchase, with option of increase within 6/12 months.

BIRMINGHAM.—Good middle-class NUCLEUS. Receipts £500 p.a. Panel 250, increasing. Excellent all-round scope. House (specially built for doctor's use, with large garden and garage) £2,995, to include Practice, or may be rented at £100 p.a. with view to purchase.

SOUTH COAST.—OPHTHALMIC PRACTICE situate in fashionable seaside resort. Excellent freehold house available, large garden. Receipts over £700. Fees 1 to 2 gns. Scope for Surgery. Premium 1 year's purchase.

LINCOLNSHIRE.—Very old-established mixed G.P. situate in agricultural district. Suitable house with large garden and garage to rent at £50 p.a.; freehold may be purchased for £500. Receipts over £800. Panel over 700 (plus mileage and drugs). Fees 3/6 up. Appointments. Scope for increase. Premium £1,550.

BIRMINGHAM.—Old-established middle-class G.P. with excellent scope for increase. Receipts £500 p.a. Panel 75, increasing. Excellent good-class house to be rented at £75 p.a. Suitable for lady or gentleman. Premium £350, or near offer, to include drugs and certain furniture.

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LONDON, E.—Old-established mixed G.P. in thickly populated locality. Receipts over £900. Panel nearly 1,000. Fees 2/- up. Three appointments. Within easy access of City and West End. Suitable house to rent at £100 p.a. Good scope. Premium £1,800 or near offer.

WANTED.

SOUTH COAST.—Good mixed G.P. with panel. Receipts approx. £2,000. Medium-sized house to rent preferred.

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CLAPHAM or similar locality.—Good middle and working-class PRACTICE. Receipts not less than £1,200 p.a. Fair-sized panel. Medium-sized house with garden to rent.

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5. MIDLANDS. — Large town. — Old-established PRACTICE. Receipts average £950, including panel 1,240. Nice house, rent £60. Premium £1,100. Splendid opportunity.

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7. LONDON, N.W. (near Highgate). — Well-established PRACTICE, capable of good increase. Receipts £250 per annum. Surgery rent £1 weekly inclusive. Prem. £150.

8 CO. DURHAM.—Well-established PRACTICE. Receipts about £550 p.a., panel 380. House £52 p.a. Premium £450.

9. WANTED.—PRACTICES or PARTNERSHIPS. Incomes £600 to £1,000 p.a., early sale almost assured. We have a large number of applicants wanting to get settled for the winter, any part or district.

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BRITISH MEDICAL ASSOCIATION HOUSE, TAVISTOCK SQUARE, W.C.1.

WE CAN ALSO ARRANGE ADDITIONAL CAPITAL FOR THE PURCHASE OF A PRACTICE OR PARTNERSHIP.

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1. BIRMINGHAM (or within 50 miles thereof). —Mixed PRACTICE, with a panel of 1,000 and receipts of £1,500—£3,000. Urgently required. Capital available.
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3. SCARBOROUGH. — Mixed PRACTICE with receipts of £1,300-£2,000, and approximately 40 per cent. Panel. Capital available.

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1. BIRMINGHAM.—Panel and Private PRACTICE. Receipts about £500. Panel about 80, and both increasing. Good scope.
2. [illegible] Colliery and Co. [illegible] out £500. Panel [illegible] RESIDENTIAL [illegible]
3. [illegible] SEASIDE TOWN. — Good-class, non-dispensing panel and private PRACTICE. Receipts £874. Good house. Garage, etc.
4. SOUTH WALES. — Well-established mixed PRACTICE. Receipts about £300 p.a. Suitable house, with Garden and Garage.
5. LANCS. — Industrial PRACTICE. Receipts about £625 p.a. Panel about 500. Good house, 5 beds, garage, etc.

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BRITISH MEDICAL BUREAU

(THE SCHOLASTIC, CLERICAL & MEDICAL ASSOCIATION, LIMITED)

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Telephones: {MANCHESTER-BLACKFRIARS 3925. {MANCHESTER-RUSHOLME 2549 (Night calls).

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Recommended with every confidence to the profession by the BRITISH MEDICAL ASSOCIATION as a thoroughly trustworthy medium for the transaction of all Medical Agency business.

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DEATH VACANCY.—Large LANCS TOWN, near Manchester. Average cash receipts approx £1,700 p.a. Panel 1,650. Scope for great increase. Good house, 2 reception, 4 bedrooms, and garage. Rent £49 p.a. Premium—Best offer.—No. 494.

NORTH-WEST COAST.—PARTNERSHIP (after six months' Assistantship) in mixed panel and private Practice averaging £5,263 p.a. Panel 2,500 and appointments Good house, with garden and garage, to rent Salary £500. Premium—1/4 share—1½ years' purchase. Further share later.—No. 478.

MANCHESTER.—Mixed PRACTICE, averaging £1,000 p.a. Appointments (transferable) £200—£250 p.a. Panel 850. Good corner house, 2 reception, 3 bedrooms, 3 professional rooms; garage and small garden. Premium—Practice—1½-years' purchase.—No. 492.

LARGE LANCS TOWN.—Very old established middle-class PRACTICE, aver. last 2 years £3,047 p.a. Panel 500. Appointments £300 p.a. Partnership with succession in 12/18 months, suggested. Good semi-detached house, 3 reception, 6 bedrooms, garage and garden. For sale, or would rent on lease. Vendor retiring. Premium 1½ years' purchase.—No. 464.

MANCHESTER.—Middle-class PRACTICE in residential suburb. Cash receipts last year £1,300. Panel 625. Nice house, 3 reception, 6 bedrooms, billiard room, large garden, and garage.—Premium—Practice—1½ years' purchase.—No. 322.

LARGE LANCS TOWN, near Manchester. — Old-established mixed PRACTICE. Average cash receipts £1,080 p.a. Panel 1,060. Scope Good house, 2 reception, 4 bedrooms, garage, and garden, to rent. Prem. 1½ years' purchase.—No. 457.

LIVERPOOL.—*Old-established PRACTICE, offering great scope for* increase. Average cash receipts £500 p.a. Panel 495. No midwifery. Good house, 2 reception, 7 bedrooms, and 3 professional rooms; small garden. Rent £63 p.a. Premium 1½ years' purchase. Vendor retiring.—No. 475

NEAR NORTH-WEST COAST.—Country PRACTICE of over £800 p.a. in beautiful district. Panel 329. Scope. Good sport. Premium £1,100.—No. 477.

MANCHESTER.—Old established mixed PRACTICE Cash receipts last year £660. Panel 788. Scope. Good corner house, 2 reception, 4 bedrooms, garage Rent £60 p.a Premium 1½ years' purchase. Could be worked along with another small Practice for sale, quite near, doing £300 p.a., with a panel of 350.—No. 437.

NORTHUMBERLAND.—Country PRACTICE in beautiful district. Average cash receipts £1,935 p.a. Panel 980. Appointments £100 p.a Good house, 2 reception, 5 bedrooms Garage and garden. Electric light Sport of all kinds Premium £2,700. Reason for sale, ill health.—No. 487.

NORTH-WEST COAST.—Large residential and seaside town.—Old-established PRACTICE. Cash receipts about £1,200 p.a. Panel 1,500 Excellent detached corner house (freehold), 5 professional rooms, 5 bedrooms, and 2 reception rooms, garage, and good garden for sale. Prem.—Practice—1½ yrs.' pur.—No. 417.

LARGE LANCASHIRE TOWN.—Old established mixed panel and private PRACTICE, averging last 3 years £1,100. Panel 1,306. Good corner house, with ample accommodation, to rent on lease. Premium—best offer.—No. 495.

DERBY.—Small old established PRACTICE, capable of considerable increase. Average cash receipts £530 p.a. Panel 509 Excellent modern house, 3 reception, 5 bedrooms, and garden. For sale or to rent. Premium—Practice—£500 Vendor retiring.—No 486

WARWICKSHIRE. — Country PRACTICE in delightful district. Cash receipts approx. £500 p.a. Panel 479 Scope. Modern house (built for doctor), 3 reception, 5 bedrooms, garage, and large garden, with orchard, for sale. Sport of all kinds. Premium £500. Vendor retiring.—No. 480.

LARGE LANCS TOWN. — Old established PRACTICE averaging £809 p.a. Panel 1,265. Scope Excellent house, 2 reception, 5 bedrooms. Garage and garden. Premium—best offer.—No. 467.

MANCHESTER.—Mixed PRACTICE in residential suburb Average cash receipts £780 p.a Panel 700 District developing Scope for increase. Good house, 2 reception, 5 bedrooms, garage and garden Premium 1½ years' purchase.—No 483

LANCS TOWN, eight miles from Manchester. — Old established mixed PRACTICE, averaging £700 p.a Panel 639. Scope for increase. District rapidly developing Good house, 2 reception, 3 bedrooms, garage and garden (separate entrance to Surgery). Premium—Practice & house—£1,500.—No. 493.

NR. MANCHESTER.—Small PRACTICE of over £500 p.a. Panel 778 Scope for increase. House, 2 reception, 4 bedrooms, and professional rooms Rent £35 p.a. Premium, best offer.—No. 484.

LARGE LANCS TOWN.—Near Manchester.—Small PRACTICE, capable of great increase. Cash receipts last year £442. Panel 150. Good corner house, 3 reception, 5 bedrooms, garage Net rent £30 p.a. Premium £400. Vendor retiring.—No. 482.

NORTH OF ENGLAND.—OPHTHALMIC PRACTICE in important town. Cash receipts over £1,600 p.a. Large house in excellent condition for sale.—Premium £2,500.—No. 491.

SHEFFIELD.—Sound old-established middle and working-class PRACTICE. Average cash receipts £1,500. Panel 1,750 Scope Good house, 2 reception, 4 bedrooms, garage, etc. Rent £60 p.a. Premium, best offer (to include book debts and drugs).—No 479

CO. DURHAM.—PRACTICE in residential and colliery district—10 minutes from the sea. Average cash receipts last 2 years £540 Panel 380. Good freehold house, 2 reception, 3 bedrooms, 2 garages. For sale at £900 or would rent on lease at £52 p.a. Premium—Practice—£500.—No. 489.

WANTED IMMEDIATELY.—INDOOR AND OUTDOOR ASSISTANTS FOR TOWN AND COUNTRY PRACTICES, WITH OR WITHOUT VIEW. Good salaries offered. State full particulars

LOCUMTENENTS (male and female) SHOULD REGISTER AT ONCE FOR IMMEDIATE ENGAGEMENTS.

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Phoenix Chambers, South Parade, Leeds.
(Tel: 26771.)

NORTHERN IRELAND.
72, High Street, Belfast.
(Tel: 7636/7. 'Grams: "Vouch, Belfast.")

All communications to be addressed to the Branch Manager, BRITISH MEDICAL BUREAU, 33, CROSS ST., MANCHESTER, 2.

British Medical Bureau

(THE SCHOLASTIC, CLERICAL & MEDICAL ASSOCIATION LTD.)
(FOUNDED 1880.)

12, Stratford Place,
Oxford Street, W.1.

Tele. Address: Triform, Wesdo—London.

Telephone: Mayfair {1782 1783

The Association has long been favourably known to the members of the Medical Profession as a thoroughly trustworthy and successful Agency for the transaction of every description of Medical, Scholastic and Accountancy business, and the BRITISH MEDICAL ASSOCIATION has every confidence in recommending its members to consult Mr. A. V. STOREY, the General Manager, in all transactions requiring the services of a Medical Agent.

Members of the British Medical Association may take advantage of a reduced scale of charges applicable to them.

NORTHERN BRANCH.

The Manchester Medical Agency, lately under the control and Management of the Manchester Medical Committee, has now been taken over by the British Medical Bureau as their Northern Branch.

Medical Practitioners in the North requiring the services of the Bureau are recommended to consult the Branch Manager, at the Offices, 33, Cross Street, Manchester.

Telephones: BLACKFRIARS 3925; after Office Hours: RUSHOLME 2549.
Telegrams: "LOCUM, MANCHESTER."

Practices and Partnerships for Disposal. Full particulars sent free.

1 S. MIDLANDS.—VERY OLD-ESTABLISHED COUNTRY PRACTICE about £630 p.a. in beautiful part—about 25 miles from London. Panel 419. Excellent house (7 bedrooms) with central heating, electric light, main water, and new drainage. Garages and garden of over an acre, also orchard, and 13 acres of land to rent on lease. The property is admirably adapted for the reception of Resident Patients. Scope for increase. Premium one and a half years' purchase.

2 YORKS (W.R.).—OLD-ESTABLISHED PRACTICE AVERAGING £1,890 p.a. in manufacturing town. No panel but great scope. Fees vary from 5/- to £1. House contains 5 bed and dressing rooms and attics. Nice garden. The property would be either sold or let on lease. Premium £1,890.

3 EASTERN COUNTIES.—PARTNERSHIP IN OLD-ESTABLISHED unopposed country practice within easy reach of the county town. Cash receipts average £2,200 p.a. including an appointment and panel of 1,100. Visiting fees 3/6 to £1 1s. medicine extra. House contains 7 bedrooms, surgery premises with separate entrance. Electric light, new drainage, good water supply. Garage and very beautiful garden, also large paddock. Rent £75 p.a. Hunting, shooting, etc. Premium one-half share two years' purchase.

4 MIDDLESEX.—VERY OLD-ESTABLISHED, CHIEFLY MIDDLE-class, practice in pleasant residential riverside suburb, within 12 miles of London. Cash receipts past 3 years averaged £690 p.a. (1933, 8 months, £521.) Panel 450. Good house (6 bedrooms), garage and garden for sale. Practice is capable of increase. Premium £1,000.

5 S.E. COAST.—WELL-ESTABLISHED PRACTICE IN DEVELOPing district within few miles of a popular seaside resort. Cash receipts 1932, £1,256, including Public Medical Service and panel of 375, increasing steadily. Visiting fees 5/- to 8/6. Detached house (4 bedrooms, etc.), garage, and good garden, and Surgery premises to rent. Golf and yachting. Plenty of scope for increase. Premium £1,650, to include stock of drugs, dispensary fittings, and linoleum.

6 ESSEX.—PARTNERSHIP IN WELL-ESTABLISHED PRACTICE of £3,600 p.a. in an industrial area within 15 miles of London. Good appointments and a panel of about 3,700. Visiting fees 3/6, few 5/-. House contains about 4 bedrooms, bathroom, etc., and can be either purchased or rented on lease. One-third share at first at two years' purchase.

7 LONDON, S.E.—MIXED PRACTICE IN SUBURBAN DISTRICT in neighbourhood of Crystal Palace. Receipts average £680 p.a. Panel about 450. House contains 9 rooms, bathroom, kitchen, etc. Rent £65 p.a. on lease. Scope for increase. Prem. £900.

8 S. COAST.—A WELL-ESTABLISHED PRACTICE OVER £1,000 p.a. in popular Resort. Panel 850. Excellent scope. Premium two years' purchase.

9 BERKS.—A RAPIDLY INCREASING PRACTICE OF £800 P.A. in Residential Town on the Thames. Panel 370. Detached corner house (4 bedrooms) to rent. Premium £1,250.

10 NORTHUMBERLAND.—VERY OLD-ESTABLISHED PRACTICE of £1,800 p.a. in small Town in Agricultural District—near a good town. Panel 980. Good house (5 bedrooms) for sale. Premium one and half years' purchase.

11 MIDDLESEX.—A PROMISING NUCLEUS OF £250 P.A. IN out-lying Suburban District. New corner house (3 bedrooms) for sale. Exceptionally good prospects. Premium £125.

12 LONDON, W.—PRACTICE OF ABOUT £300 P.A. IN N. KENsington. Panel 200. Corner house to rent. Premium £475.

13 DORSET.—A WELL-ESTABLISHED PRACTICE OF £1,200 P.A. in beautiful District. Panel 1,060. Good house to rent. Premium two years' purchase.

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Practices and Partnerships for Disposal (continued).

14 CO DURHAM.—PRACTICE OF £540 P A IN RESIDENTIAL Colliery District near Newcastle Panel 380 Well situated house (7 rooms), with good Surgery and Dispensary, for sale or rent. Scope for substantial increase Premium only £500

15 N MIDLANDS.—SMALL PRACTICE OF ABOUT £255 P A IN first rate City Panel 200 Corner house (4 bedrooms) Rent £60 p a Premium £500

16 SOMERSET COAST.—PARTNERSHIP IN OLD ESTABLISHED Practice in picturesque Seaside Place in a most beautiful part. Small panel Visiting fees 5/ to 30/ Excellent house (6 bed and dressing rooms) with every modern convenience, exceptionally beautiful garden of about a third of an acre, to rent on lease. The district is residential, and has a large number of visitors Excellent riding, hunting, very good yachting, trout fishing, etc. Premium for a share worth £500 p a 1½ years purchase

17 EASTERN COUNTIES.—COUNTY TOWN.—VERY OLD ESTABlished middle and upper class PRACTICE averaging £1 190 p a Panel 120 Visiting fees 7/6 to 15/6 Ten roomed house in good residential part with garage and garden for sale. Scope. Premium £2,450

18 LONDON, S W.—WELL ESTABLISHED EYE, EAR, NOSE AND Throat Connection in Suburban District Cash receipts last twelve months £432 (mostly from Eye work), including appointment worth about £120 p a Corner detached non basement house (7 bedrooms) with garages and very nice garden. Price of freehold and Practice, £2,350

19 WEST OF ENGLAND.—PARTNERSHIP IN VERY OLD ESTABlished Practice of nearly £1,750 p a in small town in beautiful part of the country Panel over 1 350 Fees average 7/6 Premium one half share 2 years purchase.

20 S WALES.—IMPORTANT SEAPORT TOWN.—PARTNERSHIP in sound old established Practice averaging £3 500 p a Panel 2 800 Incoming Partner should be a Scotsman aged about 30—35, and preferably Edinburgh or London trained There is a nice house for sale To a suitable man a one half share would be sold at 1½ years purchase.

21 FAMOUS INLAND WATERING PLACE AND HEALTH Resort.—Well established non dispensing PRACTICE. Receipts last three years averaged £986 p a, including a select Panel of 280 fees 5/ to £1 1s Particularly attractive house with large garden, for sale Scope Premium £750

22 LONDON E.—OLD ESTABLISHED CASH AND PANEL PRACTICE of about £1,200 p a in residential part of populous district. Good appointments and panel 950 Small house (3 bedrooms, etc.) in pleasant road to rent on lease Scope for increase. Premium £2,200 or offer

23 SUFFOLK AND NORFOLK BORDERS.—SMALL PRACTICE IN Market Town Earnings 1932, £285, including panel of 80 Nice house (5 bedrooms), garage and good sized garden Price of freehold £850 Excellent schools Plenty of sport. Cottage Hospital. Premium £450

24 LONDON E.—CASH AND PANEL PRACTICE OF OVER £600 p a in populous district Panel 590 Small house to rent on lease Premium £800.

25 S WALES.—PARTNERSHIP (AFTER PRELIMINARY ASSISTantship) in well established Practice of nearly £5,000 p a in important Industrial Town Good appointments and panel of nearly 3,000 After Preliminary Assistantship a one third share would be sold at first to a suitable man who should have held Hospital Appointment and have some knowledge of Midwifery and Anaesthetics

26 WEST OF ENGLAND.—PARTNERSHIP IN OLD ESTABLISHED PRACTICE over £2 200 p a in County Town Panel about 1 000 Premium one half share 2 years purchase Good prospects for well qualified physician (preferably M R C P), who would have opportunity of getting on Staff of Hospital in near future.

27 BORDERS OF SHROPSHIRE AND CHESHIRE.—OLD ESTABlished PRACTICE averaging £1 055 p a in Market Town Panel 850 Nice detached house (5 bedrooms attics, etc) with garage and old world garden, etc, for sale. Educational facilities. Well equipped Cottage Hospital offering scope for one keen on Surgery. Premium £1,580

28 PRIVATE MENTAL HOME (FOR LADIES ONLY).—EXCEPtionally nice house and grounds A considerable sum required for the purchase Further particulars on application

29 S WALES — PRACTICE BETWEEN £250—£300 P A IN beautifully situated village about 4 miles from important town Small panel Nice house (6 bedrooms) electric light, gas and company's water for sale or rent. Premium £280

30 SURREY.—PARTNERSHIP IN SOUND OLD ESTABLISHED good mixed class Practice about £3 000 p a in the Croydon area. Small panel Very little midwifery Excellent modern detached house for sale Scope for increase Premium one half share 2 years purchase.

31 LONDON E C.—PARTNERSHIP IN OLD ESTABLISHED PRACtice in the City Receipts average about £1 650 p a, including appointments and panel worth over £500 p a Premium one half share £1 000

32 EAST COAST.—PRACTICE OF ABOUT £800 P A IN RESIdential Seaside District 40 miles from London Small panel. Detached house (5 bedrooms) for sale Scope for increase Premium 1½ years purchase.

33 SURREY.—PRACTICE OF £1 000 P A IN RAPIDLY GROWing Residential District within 15 miles of London Panel 400 Suitable house, with separate professional accommodation, for sale Scope for considerable increase. Premium £1,600

34 LONDON W.—GOOD MIDDLE CLASS PRACTICE £400 P A. in suburb within easy access of the West End Panel over 100 Attractive double fronted house with nice garden for sale. Scope for increase Premium 1½ years' purchase.

35 HOME COUNTIES.—OPHTHALMIC PRACTICE BETWEEN £300 and £400 p a in desirable Residential Town under 15 miles from London Good detached house (4 bedrooms) with large garden for sale Good reasons for plenty of scope for increase Premium £300

36 N OF ENGLAND.—OPHTHALMIC PRACTICE OF VER £1,600 p a in an important town Excellent scope keen on clinical and operative Ophthalmology Large i n first class condition for sale. Purchaser should be well q a fied. Premium £2 500

'MEDICAL PARTNERSHIPS, TRANSFER, AND ASSISTANTSHIPS' (BARNARD & STOCKER) Post free 1/2 6d

All communications to be addressed to Mr. A. V. STOREY, General Manager

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Telegrams: BOVMEDICAL, LESQUARE-LONDON. Telephone: TEMPLE BAR 1616 (3 Lines).

Under the personal directorship of Dr. J. FIELD HALL and J. C. NEEDES

who have both had many years' experience as Medical Transfer Agents.

The commission chargeable in respect of any practice or partnership in Great Britain placed exclusively in the hands of this Agency has been fixed on an exceptionally favourable scale, the maximum chargeable on any transfer being fifty pounds (£50). Full Schedule of Terms and Conditions will be forwarded on application.

Accountancy and legal services furnished by the Agency, where desired, at moderate inclusive charges. No charge is made to Principals for the introduction of Locum Tenens or Assistants.

1. EASTERN COUNTIES.—PARTNERSHIP.—Half share of very old established Practice situated in pleasant rich agricultural district within ten miles of country town. Cash receipts average £2,200 p.a. (Accountants' figures) including panel and appointments worth £800 to £900. Nearest opposition 7 miles. Very good house (7 bedrooms, bathroom, etc.) with tennis lawn, garden well stocked with flowers and fruit trees, paddock, etc. Main water supply. Electric light. Rent £75 a year. Premium £2,200.
2. WILTS.—Very old-established unopposed country PRACTICE, situated in very pretty agricultural district within 15 miles of large town. Average gross cash receipts for last three years £970. Panel of over 800 and appointments produce £249 p.a. Fees 2/6 to 7/6 with medicine extra. Very little midwifery from 2 to 5 guineas. House is an exceptionally nice one, very compact and in excellent repair, containing 4 professional rooms, 3 reception rooms, 6 bedrooms and dressing-room and maid's room. Bathroom etc., with h. and c. Walled-in garden, 2 large paddocks and fields, etc. Price freehold £2,500. Or smaller house available if preferred. Premium 1½ years' purchase. Sport of all kinds.
3. LONDON (NORTH).—In a pleasant residential suburb a very old-established good middle and working-class PRACTICE worth £1,286 for financial year ending April 7th last and for 5 months to August, £529, including panel of 260 (increasing). Corner house with good accommodation (4 bedrooms, etc.). Garden and garage. Price for leasehold (47 years to run at ground rent of £12 a year) about £1,100. Premium £1,350.
4. KENT.—PARTNERSHIP.—A one-third share (with increase up to one-half later) is offered, after a preliminary assistantship, in very old-established good middle and working-class Practice producing approximately £2,400 p.a. Panel of 1,373. Fees 3/6 to 10/6. Appointments worth over £350 p.a. Premium for share 2 years' purchase. Purchaser should be preferably Scotch or English and able to undertake major surgery.
5. BIRMINGHAM.—Rapidly increasing PRACTICE, situated in fast developing district, within easy reach of the centre of the town, offering large scope. Gross cash receipts for past twelve months £980, including panel of 1,220. Visits from 3/6. Midwifery from 3 gns. About 25 cases. Suitable house with dining room, lounge, 3 bedrooms, bathroom, etc. Surgery, waiting room and dispensary with separate entrance. Good garden and garage. Price for leasehold (with 97 years to run) £1,500. Premium £1,500. Sport of all kinds within easy reach.
6. SOUTH AFRICA.—Within eight hours of Durban.—Well-established PRACTICE, situated in very pretty Township, near sea coast and producing between £600 and £700 p.a. including appointments. The income was formerly much larger, but owing to world-wide depression it is now at its lowest ebb, but signs of improvement are already showing. Vendor is even now able to save money owing to the low cost of living. Opposition negligible. Bungalow residence with about an acre of garden. Rent £60 a year on lease. Premium only £500, to include furniture, drugs, instruments, etc., valued at about £200. Excellent climate and sport. Ill-health of Vendor's wife reason for sale.
7. PARTNERSHIP.—CO. DURHAM.—A one-third share (with increase later as arranged) is for DISPOSAL in a well-established chiefly industrial class practice, offering very good scope. Average gross cash receipts for past three years nearly £2,400, including panel bringing in £850 p.a. Appointments are worth £870 p.a. Fees from 2/6. Moderate expenses. Suitable house available for ingoing partner, on rental. Good sporting and educational facilities within reach. Premium for share 2 years' purchase. Ingoing Partner should pref. be an R.C. as there is a large Catholic population in the district.
8. YORKSHIRE UNIVERSITY TOWN. — Old-established middle and working-class PRACTICE, averaging for the past three years £1,132. Easily worked, and good scope for increase. Panel of over 1,000. Very light expenses. Good house with 2 reception, 5 bedrooms, etc., and separate surgery accommodation. Price for freehold £1,500. Premium, to include book debts, drugs, etc., £1,900.
9. EGYPT.—Well-established PRACTICE producing about £950 p.a., and offering scope for increase. Fees 10/6 to 2 gns. Excellent accommodation can be rented at £16 10s. monthly. Premium, to include all furniture, drugs, drug bottles, instruments, etc., £2,000.
10. WITHIN SIX MILES OF CHARING CROSS.—Good middle and working-class PRACTICE. Gross cash receipts for last twelve months about £950, including panel of 837. House contains 2 reception, 5 bedrooms, etc. Rent on lease £70 a year. Scope for increase. Premium only £1,000 for quick sale.
11. PARTNERSHIP.—WEST OF ENGLAND.—A share, representing about £600 to £700 p.a. is offered in an old-established good mixed-class Practice, situated in very favourite coast town, with beautiful surrounding country. Visits from 5/- to 30/-. Very nice house, with good garden, can be rented on lease. Premium for share 1½ years' purchase. There is good scope for increase, with the aid of a suitable partner, and a preliminary assistantship might be entertained.
12. WESTERN SUBURB.—Old-established better middle-class mixed PRACTICE, averaging for the last three years over £2,500 (exc. appt. worth £80 p.a. Visits from 3/6 to 10/6. Not much midwifery. Suitable house, with 3 reception, 6 bedrooms, etc. Price £1,400, part on mortgage. Premium £4,000. Good introduction given.
13. MIDDLESEX.—RIVERSIDE SUBURB.—Old-established good mixed-class PRACTICE, averaging for the last three years £1,050, including panel bringing in about £340 and appts. worth nearly £100. Fees from 3/6. Detached house with good garden, and containing 4 reception, 6 bedrooms, etc. Price for leasehold £1,200. Premium £1,900, or near offer.
14. PARTNERSHIP.—LONDON SUBURB.—A one-third share (with increase up to one-half later) is offered in a very old-established good mixed-class Practice, situated in well-populated district, and offering good scope for development. Gross cash receipts average between £4,000 and £4,500 p.a. Guaranteed income of £1,500 for the first year. Panel of 800. Suitable accommodation available. Premium for share £3,250. Ingoing partner must be experienced, and qualified about four years.
15. LONDON SUBURB (EAST).—In a clean and well-populated district an old-established PRACTICE worth about £1,200 p.a., including transferable appt. of £150 and panel of 950 is for immediate disposal, owing to ill-health of Vendor. Small house (3 bedrooms, etc.) with fair-sized garden. Rent on lease £78 a year, inclusive of rates and taxes. Premium £2,000.
16. SOUTH WALES.—Pleasant Coast Town (pop. 40,000).—Old-established PRACTICE, held ten years by present incumbent, and averaging over £1,000 p.a., including panel of 1,275. Visits 5/- to 10/6. Good house, having charming views of English Channel, and surrounding country. Contains professional rooms, 3 reception, 6 bedrooms, 2 bathrooms. Garden, with tennis court. Garage. Price for leasehold (60 years to run at ground rent of £20 a year) £1,800. Premium 1½ years' purchase.
17. EASTERN COUNTIES.—ASSISTANTSHIP with view to Partnership (after a preliminary period of six months at a salary of £440 p.a. with free house) is offered in an old-established good mixed-class Practice, situated in pleasant residential and agricultural district within about 15 miles of the coast. Gross cash receipts approximately £3,000. A third share is for disposal at a premium of 2 years' purch.
18. NORTH WALES.—ASSISTANTSHIP with view to Partnership (after a preliminary period of about six months at a salary of £360 p.a. all found) is offered in a better-class non-panel Practice, situated in attractive seaside resort. A one-third or three-sevenths share is for disposal (producing £800 to £900 p.a.) at a premium of 2 years' purch. Ingoing Partner should be English, and pref. London trained.
19. OPHTHALMIC PRACTICE.—Within eighty miles of London.—Practice is increasing, and offers good scope for further development. Average gross cash receipts for the past three years £554. Last year over £700. Fees 1 to 2 guineas. Opposition slight. Choice of hours. Premium £700.
20. LONDON, SOUTH-EAST.—Old-established better working-class PRACTICE, increasing, and situated in well-populated district. Gross cash receipts for last 12 months £1,265, including panel of 1,370. Suitable house, with 2 reception and 3 bedrooms. Garden. Price for freehold £1,000. Premium £2,500.

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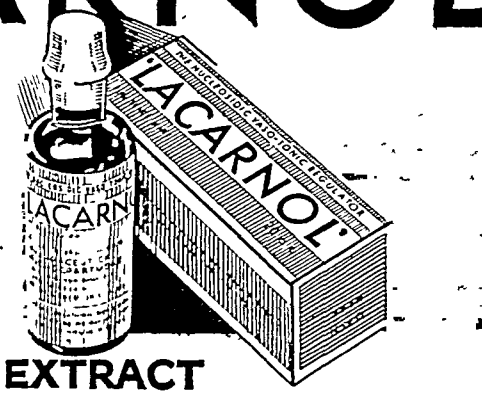
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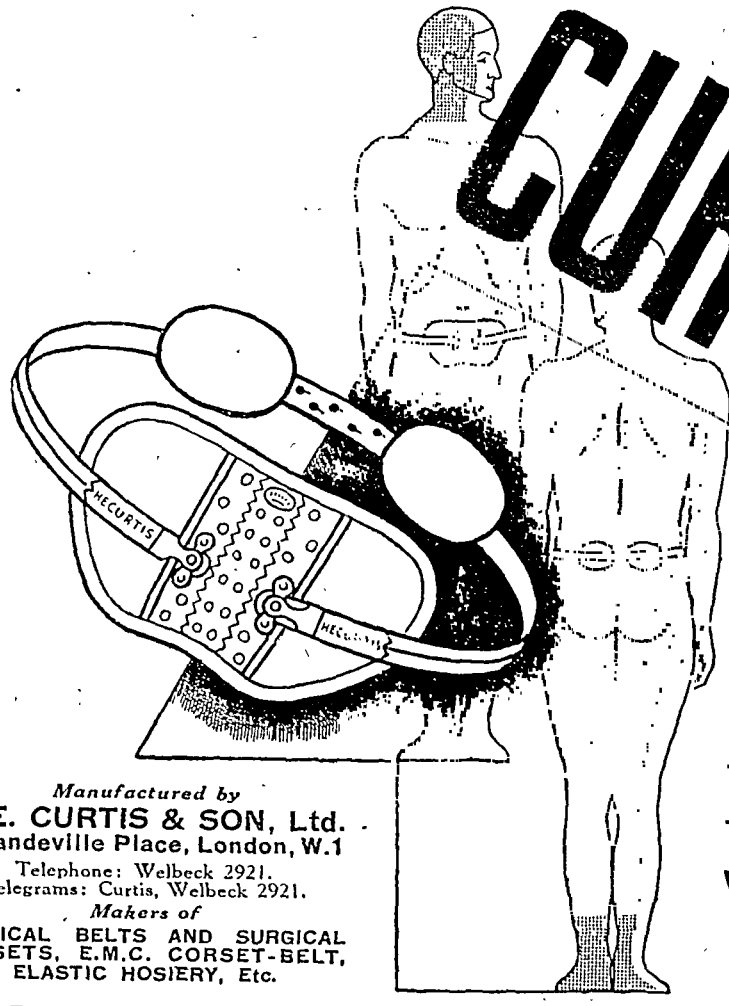
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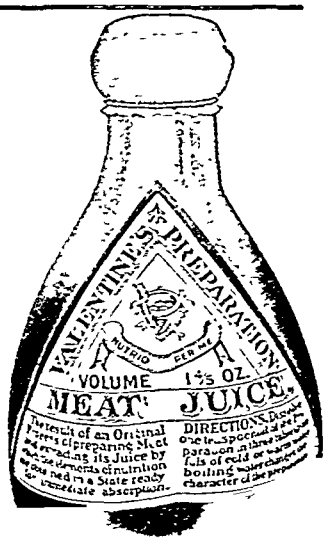
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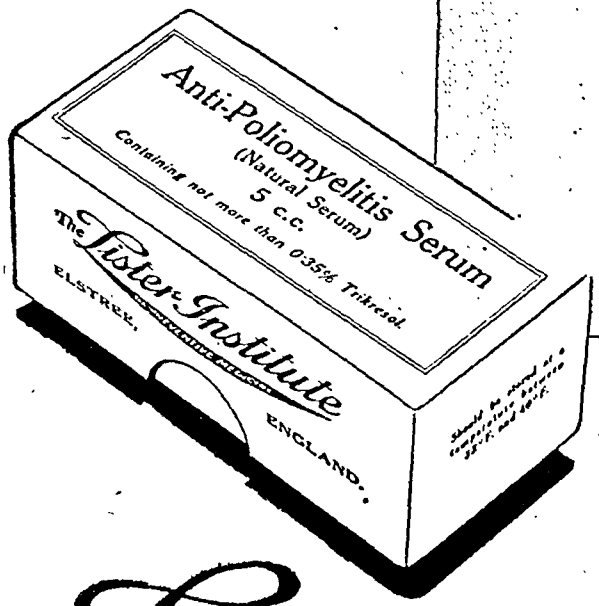
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Ministry of Health, 1932, Memorandum on Acute Poliomyelitis, London (H.M. Stationery Office), price 2d. net.

Flexner, S., 1933, *British Medical Journal*, I., 132.

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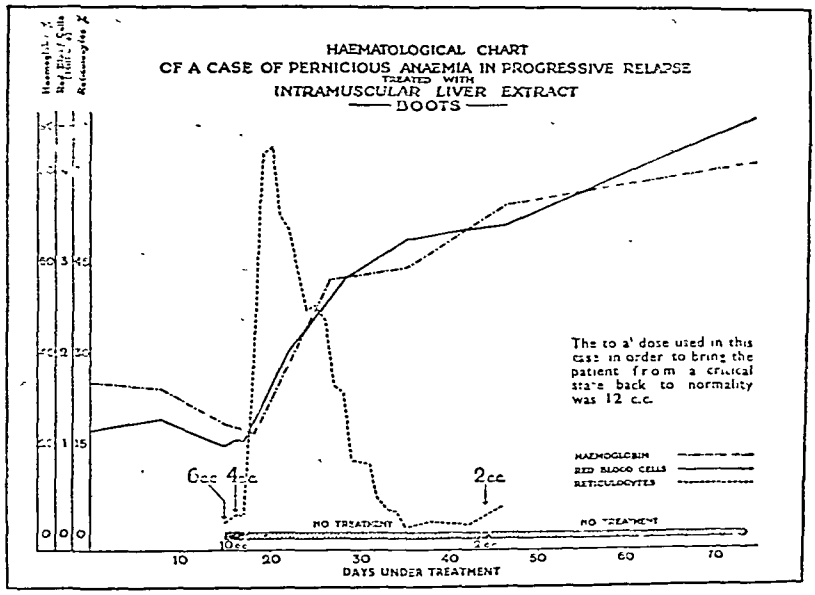
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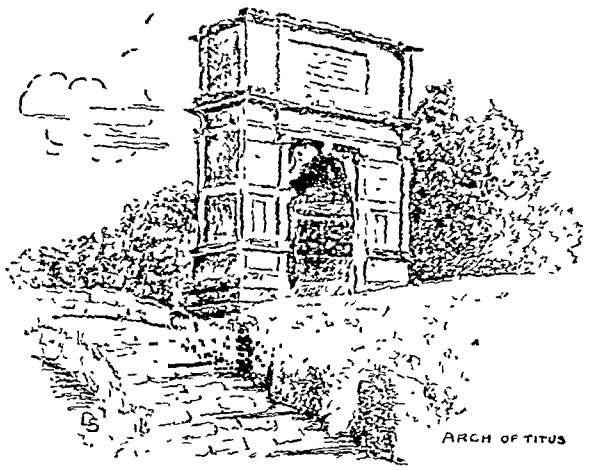
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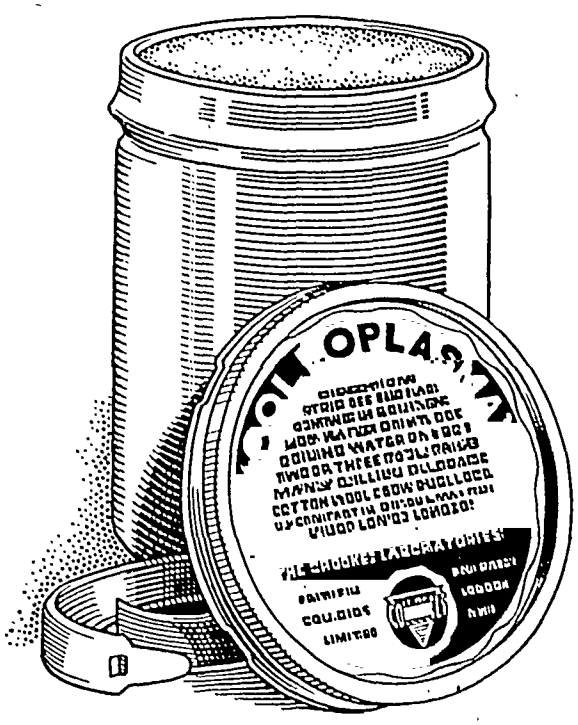
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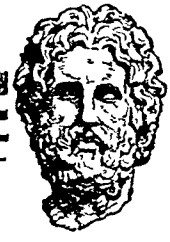
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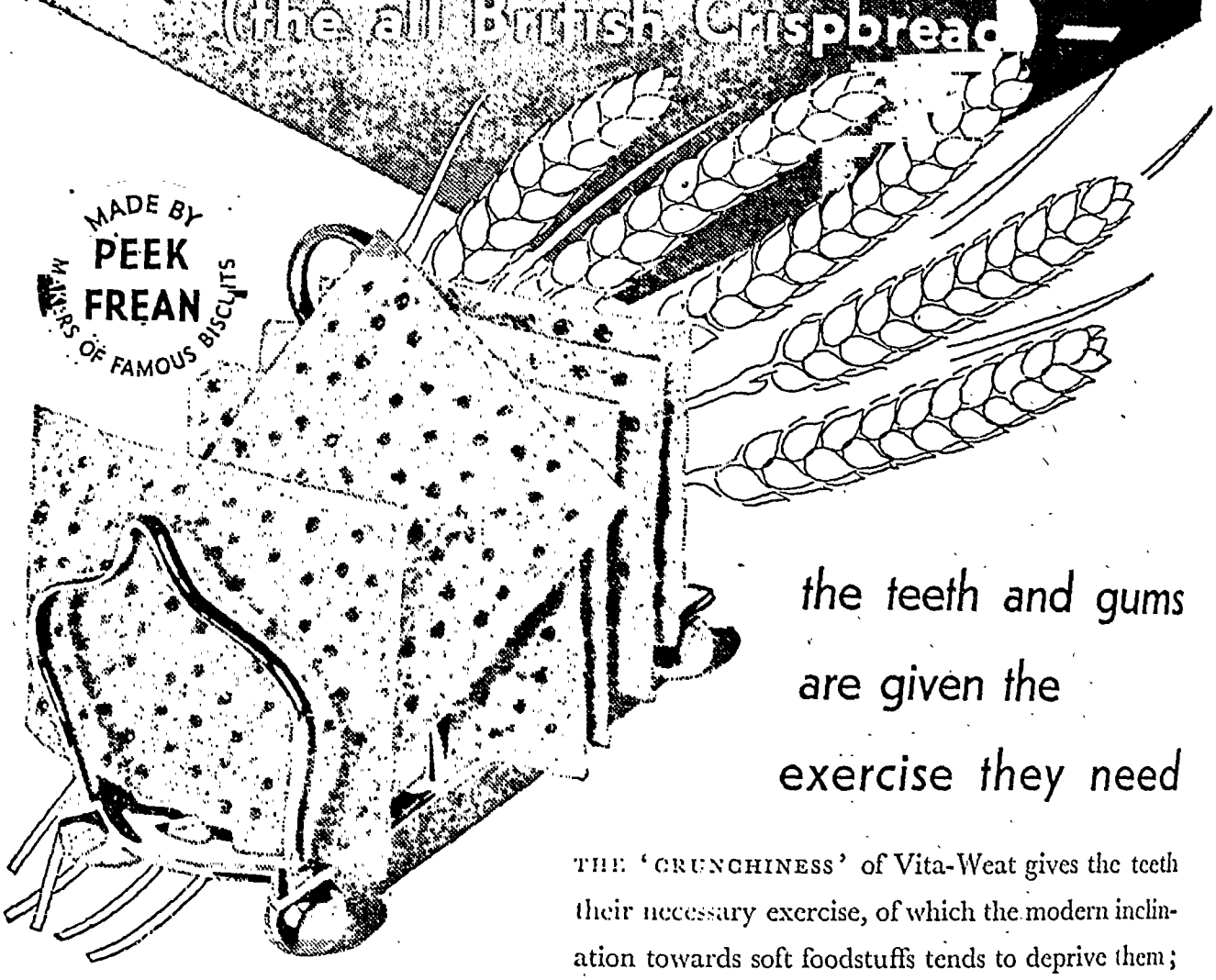
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ON

DIABETES: WITH SPECIAL REFERENCE TO HIGH CARBOHYDRATE DIETS*

BY

R. D. LAWRENCE, M.A., M.D.ABERD., F.R.C.P.

PHYSICIAN IN CHARGE, DIABETIC DEPARTMENT, KING'S COLLEGE HOSPITAL, LONDON

In 1923 a hundred units of insulin cost twenty-five shillings, and the scanty supplies and excessive price dominated the therapeutic possibilities. It was then customary to continue the previous low-carbohydrate low-calorie diets of the Allen period, and to add the minimum of insulin that would keep the diabetes under control. The idea that the disease might be greatly improved, or even cured, by keeping the blood sugar as continuously normal as possible also contributed to the continuation of pre-insulin diets, a hope which has not materialized.

In 1927, when diabetes was discussed at the British Medical Association meeting at Edinburgh, attention was chiefly focused on the power of insulin to keep severe diabetics in normal health and to rescue them from coma, and no radical changes in dietary were suggested. The openers, MacLean and Petrén, were still using very low carbohydrate diets (20–30 grams), and the latter, minimal carbohydrate and protein with very high fat—200 grams or more. A few workers in this country had raised the carbohydrate to from 50 to 100 grams, but seldom higher, and fat still predominated as the calorie producer in the diabetic diet. At this time, therefore, the abundant and cheap supply of insulin, 1s. 6d. to 2s. per 100 units, had not greatly affected the diets used.

Since then considerable changes in diabetic diets have been introduced in the direction of higher and more normal amounts of carbohydrate, and this forms the chief subject of our discussion. Before going into this in detail it may be useful to outline the present position of diabetes and insulin in their more theoretical aspects.

THEORETICAL POSITION OF DIABETES AND INSULIN TREATMENT

Whatever may be the undoubted advances in practical treatment it must be admitted that fundamental knowledge on the subject has not progressed much. Crystalline insulin, whose activity is 24 units per milligram of weight, has been prepared, but it is not certain that these crystals represent only the active principle. Insulin in this form is a protein molecule containing 3.2 per cent. of sulphur, and is stated to have glutamic acid and cystine as characteristic groupings. A formula has been tentatively suggested, and it may not be long before we actually know what insulin is. Unfortunately, in the meantime, no advance has been made in the administration of insulin by any method other than injection, an advance most urgently needed in diabetic therapy.

Nor, in spite of extensive research by many of the most famous investigators in physiology and biochemistry, has the intimate nature of insulin action become clear. It undoubtedly rectifies not only the disordered sugar but also fat metabolism in diabetes, but the details of these functions are still obscure.

Nor do we know more of the cause and essential nature of diabetes. Indeed, new facts have been observed which introduce new complexities. There is evidence to show that the secretion of insulin is, partially at least, under the control of nerve impulses transmitted by the vagi, as well as the humoral influence of hyperglycaemia acting direct on the islet cells of the pancreas.

The complicating influence of other endocrine organs on carbohydrate metabolism has been more clearly established. Most novel and important animal experiments by Houssay[1] have redirected attention to the influence of the pituitary gland. When the pituitary body is removed, subsequent pancreatectomy does not produce the classical severe and fatal diabetes in animals, but this severity is re-established by injections of anterior pituitary extracts. On the clinical side Cushing[2] has described a new type of pituitary disturbance producing diabetes (" pituitary basophilism "), and the amelioration of the pituitary syndrome by *x*-ray therapy has led to the complete disappearance of the associated diabetes. It seems probable that pancreatic (insular) failure is present in such cases, secondary to the other endocrine disturbance. At any rate, insulin rectifies this carbohydrate disturbance, as it does all forms in my experience, whether primarily produced by the more common acromegalic upset of the pituitary or the thyroid or possibly hepatic diabetes. The total regulation of blood sugar is certainly the most important nutritional factor in our bodies, and we need not be surprised that it is intricately dependent on many complex endocrine factors

Whatever the theoretical problems, the practical fact remains that insulin works, and works extraordinarily well. When properly used it restores normal health and activity to the severest diabetic if no complications are present. It has assured the normal development of thousands of children, and made severe operations safe for all diabetics.

But it must be admitted that this is not the happy state of every diabetic in this or any other civilized country. On the patient's side a certain degree of intelligence and self-control, and on the doctor's of skill and experience, is necessary for good results. Failures with insulin and neglect or refusal to use it at all are still quite common, but reflect not on the efficacy of insulin but on the inefficiency of the treatment. Sometimes the cost of the insulin seems a deterrent, but fortunately this can now always be met in this country through the agency of the national health insurance, public assistance, or voluntary hospitals. Money for insulin is well spent from the individual and national points of view as it restores nearly every case to normal working efficiency.

In considering the relative merits of different methods of treatment the chief question is not whether the patient can live (for all methods assure this) but how he can live best. How can we best insure not only healthy and efficient lives, but comfortable and happily normal ones and a normal expectation of life? The last question is the most difficult to answer, and the one I shall consider first.

EXPECTATION OF LIFE AND THE COMPLICATIONS OF DIABETES

Insulin has not been long enough in use to answer the first question fully. Ten years of healthy life has already been assured without any ill effects in thousands of cases. But whether this will continue twenty or thirty years, or in the case of a diabetic child fifty or sixty years, only time can show. There are no clear indications against such an optimistic view.

An inkling of the dangers and complications to which such cases are exposed may be gathered from experience of long-standing cases of diabetes. These are mostly the milder elderly cases, because in the past younger ones died too soon to develop complications. What percentage of elderly cases eventually became severe I do not know, because the specialist does not see the mild ones. But

* Read in opening a discussion in the Section of Medicine at the Annual Meeting of the British Medical Association, Dublin, 1933.

I see all too many who, after five to ten years, become really severe, and are threatened by wasting and ketosis requiring insulin. Many more—and these are greater tragedies—develop the following complications before their lives are actually threatened.

The most serious complications are cataract, retinitis, and gangrene, although patients may find neuritis equally trying. The first, which occurs also in the young, is most likely produced by osmotic changes in the lens due to varying hyperglycaemia. Retinitis and gangrene are always associated with *arterial degeneration* in both intimal and medial coats dependent on the diabetic condition. Further evidence of degenerative vascular changes is seen in the high incidence of coronary and cerebral arterial disease in long-standing and poorly controlled diabetes. Raised blood pressure is frequently absent, and hypertension does not seem to be an aetiological factor. I feel the most important problem to be solved for diabetic longevity is the cause of this vascular degeneration and how it can be prevented.

The most popular theory is its production by an excess of blood *cholesterol* from the disordered fat metabolism of the diabetic. This is supposed to lead to an atherosclerosis comparable, at first at least, to ordinary atheroma. Against this theory, I have always felt, is the fact that these mild long-standing cases which develop arterial changes have the most normal blood cholesterol concentrations and, indeed, for many years show little disturbance of lipoid metabolism as shown by the absence of ketosis. It is certainly true that blood cholesterol is a valuable indication of total fat metabolism in diabetes, and indicates, when high, a serious derangement of total fat metabolism parallel with a low carbohydrate tolerance. But I feel that more definite proof is necessary before we can accept a raised blood cholesterol *per se* as the cause of diabetic vascular degeneration.

The aetiology is to my mind quite unsolved. Malnutrition of the vessel wall, even when the patient's general nutrition remains good, is a possible factor. And the influence of years of hyperglycaemia, with varying mechanical stresses from a blood with increased sugar content, is another possible though unproven hypothesis. The fact that this diabetic sclerosis mainly affects the vessels of the lower extremity, that the pulses in the dorsalis pedis and the tibial arteries are often obliterated while the radial pulse never is, and that diabetic gangrene never affects the hands, is an interesting unsolved problem.

HYPERGLYCAEMIA

Another problem in the best way to treat diabetics is hyperglycaemia, not temporary, but continued over years. Does hyperglycaemia matter if adequate nutrition is insured in insulin cases? In milder cases it always leads to greater severity and the need for and dependence on more exogenous insulin. Apart from this, is it harmful when the patient has progressed to a nearly constant large dose of insulin and is presumably a total diabetic entirely dependent on injected insulin? It is easy enough with a liberal diet and two large doses of insulin to maintain weight and energy in spite of a blood sugar concentration always two to three times the normal and at certain times even higher. Such patients feel reasonably well in spite of some thirst and polyuria, and ketosis may be entirely absent. Does this condition damage their tissues and shorten their lives? Here again no dogmatic answer can be given until statistical studies of such patients can be compared with a group of better-controlled cases over perhaps twenty or thirty years. But my clinical impression is that, apart from the discomforts of glycosuria and thirst, they are more liable to complications. They certainly develop lens changes at an early age and, apart from liability to infections, do have retinitis and vascular degeneration more frequently than other cases. Such cases certainly progress to severe diabetes and large doses of insulin, but apart from this the strongest argument against hyperglycaemia is physiological, in that nature has perfected in the normal such a wonderful mechanism to prevent it.

THE GLUCOSE-INSULIN EQUIVALENT

Another important question is the glucose-insulin equivalent, the grams of glucose metabolized by 1 unit of insulin on different diets. It has been frequently claimed, and does appear superficially so, in many published papers that the higher the carbohydrate the higher the glucose-insulin equivalent becomes. For example, with a diet containing a fixed amount of protein and fat and 40 grams of carbohydrate, 30 units may be necessary, an equivalent of 1.3 grams per unit. When 150 grams carbohydrate are given only 50 units may be necessary, an equivalent of three. Such appearances are fallacious, because they neglect the work that insulin is doing in burning glucose derived from endogenous sources. In this respect it is worth mentioning some unpublished experiments I carried out in 1928, of which a typical example is shown in the following table.

Insulin	Carbohydrate grams	Carbohydrate-Insulin	Total Glucose	Glucose-Insulin
20	30	1.5	103	5
30	75	2.5	145	4.9
40	140	3.5	210	5.2
15	0	—	70	4.7

In this severe diabetic with a fasting blood sugar of about 0.25 per cent., the varying doses of insulin necessary to reduce this to normal and at the same time to metabolize different amounts of carbohydrate by mouth are recorded. The protein and fat were kept constant and the carbohydrate and glucose alone need be considered. The first three columns show that when ingested carbohydrate and insulin alone are considered the equivalent steadily rises. But it was found that 15 units were required, when no carbohydrate was given, to reduce the blood sugar to the same extent, by acting on endogenous glucose alone. It was calculated from considerations of the total body fluid and its sugar content that some 70 grams of endogenous glucose were metabolized by this 15 units, a glucose-insulin equivalent of nearly five. When this endogenous glucose is added to the ingested carbohydrate (column 4), the very constant glucose-insulin equivalent in the last column is obtained.

INCREASED CARBOHYDRATE DIETS

We can now pass from these theoretical considerations to the practical changes that have taken place of high and more normal carbohydrate diets. I shall confine myself to diets for adult diabetics, and shall class them into three groups, supplying low, moderate, and high amounts of carbohydrate. There can be no clear-cut agreement about this definition, but in the present state of diabetic therapy I should define the carbohydrate content of a diet as low when it contains below 80 grams and certainly below 50 grams; as moderate between 80 and 150; as high when much more than this is given. Naturally these three adjectives will mean different amounts to different workers, depending on what they themselves are accustomed to prescribe. I should like to emphasize that, as diabetics can be kept well on all three types of diet, a most important criterion of the success of their treatment is their personal comfort and happiness. We must satisfy the patient, and, if we can

minimize the troubles of dieting and weighing and calculating grams of carbohydrate, protein, and fat, and total calories We must try for the comfort of the patient to keep down the number of injections to two and for the sake of expense the total of units per day

As we have seen, it was some time before insulin greatly changed the low carbohydrate diets of pre insulin days In the last few years, however, diets of all descriptions—some containing even normal amounts of carbohydrate (300 grams or more)—have been advocated by numerous workers, all of which cannot be mentioned I must therefore choose a few investigations which are of special importance for their careful work and extensive nature

Beginning in 1924, Sansum[3, 4] in America was the first to use high carbohydrate diets in a systematic way, giving from 200 to 360 grams a day His prescriptions of protein and fat were also high, so that the total calories often reached 3,500 Very large doses of insulin are required—often over 100 units, and even 150 or more This alone kept me from trying such a method Sansum and his colleagues claimed that their patients felt much better and certainly were *more satisfied* with the high carbohydrate Most, however became fat—definitely overweight These workers also showed that carbohydrate could be substituted for fat, though not in equicaloric amounts, without raising the insulin requirements They state that 100 grams fat (930 calories) can be replaced by 130 grams carbohydrate (533 calories) in this way In their insulin cases they confirmed the fact established by Allen in pre insulin days that the pancreatic hormone was concerned not only with the metabolism of carbohydrate but also of *total calories and the amounts* of protein and fat We shall see that other work confirms this important fact, that calories from protein and fat increase insulin requirements There is no experimental proof that fat is converted into glucose before burning and for this reason demands insulin for its metabolism, but clinical experience points to something of the sort It is also certain that the diabetic, when overweight, requires more insulin than when he becomes thinner, when his own carbohydrate tolerance always rises

The work of Rabinowitch[5, 6] of Montreal deserves special mention from its thoroughness and clarity For some four years he has treated a large series of diabetics by high carbohydrate low calorie diets, containing on the average 250 grams carbohydrate, 70 grams protein, and 30 grams fat—about 1,700 calories He has shown that patients previously on *50 to 100 grams* carbohydrate and 50 grams fat (1,900 calories) require much the same insulin when changed to the high carbohydrate low fat and low-calorie diet He stresses the necessity of undernutrition (as Allen did) to obtain these results, and keeps the patients some 10 lb under their normal weight There is no evidence in his papers that diets are varied according to the calorific requirements of different individuals, and no patient's weights are given by which we can judge how many calories per kilogram of body weight they are living on But, certainly, a man of average weight is receiving with such a diet less than the 25 calories per kilogram usually said to meet only basal metabolic requirements As soon, Rabinowitch admits, as the patient adds more calories to his diet (perhaps unconsciously) in the form of fat, the high carbohydrate cannot be tolerated without very large doses of insulin, because the diet then becomes practically normal and comparable

Sansum's Rabinowitch states that to obtain good results his new diet must be followed more meticulously than any other The element of human frailty must therefore be ruled out, and where delinquency has occurred is likely to enter in Rabinowitch advocates older diets containing 50 to 150 grams carbohydrate He claims that these high carbohydrate low calorie diets are more satisfactory to the patients, maintain their energy though not their weight at a normal level, abolish all traces of ketosis, and keep the blood cholesterol entirely normal Such diets certainly give no temptation to exceed in carbohydrate and, as they are so exclusively carbohydrate, are very cheap But the fats of the land are excluded And, where money spent on food is an overwhelming consideration, it must be remembered that the price of calories hardly differs between carbohydrate and fat A pennyworth of bread provides 900 calories of margarine, 700 calories

From the patient's point of view such diets demand constant care in measuring all the food not only the carbohydrate, but also the protein and fat A rasher of bacon, an extra egg, or two pats of butter cannot be tolerated I have not had the pleasure of seeing Rabinowitch's clinic and talking to his patients (they may be very content), but I know such a fatless diet would be an intolerable hardship to diabetics previously accustomed to more fat, and this is what Joslin finds with his patients We shall return to further consideration of this regime after examining an important recent publication from Edinburgh

Eason and Lyon[8] have investigated the problem by putting twenty nine pedigree insulin cases for alternating periods on diets of fixed protein but varying carbohydrate and fat (carbohydrate 85 to 330 grams fat 230 to 50 grams) and observing their insulin requirements and clinical condition They confirmed Rabinowitch's finding that, if the total calories are reduced and kept low by fat restriction, the insulin may be reduced although the carbohydrate is doubled If however equicaloric diets are studied, they found that the higher the carbohydrate the more insulin is required Although their studies again show that extra fat requires insulin, it needs less than an equal number of calories provided by carbohydrate They state that it is seldom possible to replace 100 grams fat (930 calories) by more than 70 grams carbohydrate (280 calories) As regards their patients, these naturally liked the high carbohydrate, but missed (subconsciously, no doubt) the total calories For most of them the really low calorie Rabinowitch diet was unsuited for prolonged use as they lost weight and energy Eason and Lyon came to the conclusion that interm diate diets of 150 grams carbohydrate and 100 to 150 grams fat (2 000 to 2 500 calories) prove most successful and satisfactory They consider strict weighing of all the diet necessary for insulin cases

The conclusions which we can draw from the above work are clear and I believe true and ultimate, at any rate until further progress shows up our fallacies It appears that insulin is concerned not only with the metabolism of carbohydrate but with the total foodstuffs The lower the calories and total foodstuffs the less insulin is required, and with real undernutrition diets high carbohydrate may be tolerated with little or no insulin This accords with old experience of the oatmeal "cures" of von Noorden and later "potato" cures where high and exclusively carbohydrate diets (low in calories) were well tolerated for a time, but did not admit of the addition of fats and protein, demanded by most normal appetites I personally fail to see the advantage of jam and marmalade in the high carbohydrate diet if a rasher of bacon and an extra pat of butter are anathema Practically all the published work lays stress on the necessity of weighing or measuring all the food and watching the total calories But can we not get over this extreme preoccupation with diet and make its care less vigilant, even in the severest insulin case? I think we can, and would like to conclude with a method of doing so which observes the minimum of care with the maximum of ease and normality to the patient

MINIMUM ESSENTIALS OF INSULIN TREATMENT

I am no advocate of free diets in diabetes in which the patient eats what he pleases. I have purposely tried this and found enormous doses of insulin necessary. I have also watched the effect of uncontrolled diets in a few unrestrainable patients, and seen the difficulties. The following are the essential points that must be observed in an insulin case.

1. The most important is that a *regular amount of carbohydrate* is given, *balanced* by its *correct dose* of *insulin*. Without this regularity the patient's condition must vary between hyperglycaemia and unpleasant hypoglycaemia. Glucose derived from protein and fat does enter into the insulin requirements, but only slowly, and shows its effect over days or weeks; it is the carbohydrate eaten at a particular meal that immediately balances the dose of insulin. Whether the carbohydrate prescribed is low, moderate, or high it must always be regularized.

2. The minimum of carbohydrate is fixed by the fact that a certain amount must be burned to prevent ketosis. I believe 100 grams carbohydrate are sufficient for this purpose, however much protein and fat are eaten, and smaller amounts are frequently adequate. The minimum is also influenced by the tastes of the patient and the necessity of giving him satisfactory amounts of bread, potatoes, and fruit, etc.; 150 grams carbohydrate are almost always sufficient for this.

3. If high carbohydrate diets are given (over 200 grams carbohydrate) great care is necessary to restrict the total calories provided by protein and fat if very large doses of insulin are to be avoided.

The essential therefore appears to be to give an adequate regular amount of carbohydrate and at the same time to prevent an excessive calorific intake. How can this be done most easily, and yet safely and economically, for the commercial traveller, the daily labourer, and the poor mother with five children, who certainly have no time and opportunity to weigh or measure all their food at every meal and look after the total calories? The following plan has been adopted with most of my cases in recent years, and has worked well. It involves the minimum of trouble.

Several hundreds of insulin cases have been treated successfully without any regard to the total calories of the diet. In such cases I regularize the carbohydrate, most often between 100 and 150 grams carbohydrate, and work out the correct dose of insulin to balance it. The patients eat protein and fat to taste, and this varies with their natural appetites and activities and the stage of their treatment. For instance, it is usual to find that the wasted patient, when first treated with insulin, is ravenously hungry, and will eat enormous quantities of protein and fat as well as the fixed amount of carbohydrate. This excessive hunger seems physiological, and disappears in a few weeks when the nutrition becomes normal after a gain of perhaps 10 or 20 lb.; and later, when a constant weight (probably physiological for that individual) is reached, the appetite becomes entirely normal and no great excess of fat is eaten, seldom over 150 grams a day. It will be found that when more exercise is taken, during holidays for instance, the protein and fat are automatically increased by the dictates of the appetite, which, in my opinion, is usually beautifully attuned to the metabolic requirements.

This treatment is not so casual or unscientific as it may seem to those steeped in years of calories. True, neither the patients nor myself have any exact idea of the total calories. But, though no undernutrition is attempted, the method avoids the great excess of calories that result when high carbohydrate is unaccompanied by great restriction of fat. The carbohydrate is only a th[ir]d the normal individual's, and the calories from this s[ource] some 500 instead of 1,500. The protein eaten sel[dom] exceeds 100 grams and the fat 150 grams, a total calo[rie] content of about 2,300 at the maximum. Therefore method resembles very closely the moderate-carbohy[drate] rather high-fat treatment which Eason and Lyon [found] most suitable for the average patient.

The greatest advantage is the freedom of the pa[tient] and the minimum of preoccupation with the dis[ease] Only the carbohydrates have to be measured or weig[hed] and the adequate dose of insulin taken. As a rule at[ten]tion need be paid only to the more concentrated [carbo]hydrates like bread, cereals, potatoes, fruits, etc. [The] diet staff at my hospital assure me of the impr[ovement] outlook of patients treated in this way, their incre[ased] happiness, and the comparative absence of "food" [and] "diabetic" complexes.

It may be thought, as the protein and fat vary [from] day to day and do count in insulin requirements, it would be difficult to obtain a regular balance [of] insulin to avoid hyper- and hypo-glycaemia. This is so, and on second thoughts there is probably little v[aria]tion from day to day in most people's diet in the am[ount] of bacon and eggs, meat, and butter eaten. Again, cha[nges] in insulin requirements depending on protein and manifest themselves gradually, probably mainly as body weight changes. In any case, with the mos[t] mutable and completely weighed diet insulin require[ments] vary from time to time, and there is no such thing constant dosage in people leading normal, and c[onse]quently variable, lives.

There is nothing really new in this method. M[any] intelligent patients have discovered it for themselves, found that they could keep themselves comfortably with neglect of accuracy over protein and fat as lo[ng] carbohydrate and insulin are balanced.

This moderate carbohydrate, free protein, and fat is not advocated for all cases. The obese shoul[d be] reduced by insistence on low calorie and low fat diets. children, where total calories are more important, are much better treated by total regulation of diet. An parents, at any rate, feel much safer weighing everyth[ing]

The insulin requirements for such diets vary enorm[ously] in different patients, as with all diets, but mor[e is] certainly required than with low calorie undernut[rition] diets. I find that the usual severe case treated in way now tends to need 40 to 60 units a day inste[ad of] the 30 to 50 when I used the old line ration scheme lower carbohydrate and lower and exactly meas[ured] calories. The vast majority can be controlled by a m[orn]ing and evening injection, and I very rarely have to a third (midday) one. This is an enormous boon to patient.

In conclusion, I believe that many types and varia[tions] of diet work well so long as adequate insulin is g[iven]. To obtain the most satisfactory results the treatmen[t] and should be modified from case to case to suit comfort and habits of the patient. The theore[tical] problem of the treatment of the *disease* diabetes no l[onger] remains, but only the practical difficulties of making safe and easy for the *individual diabetic patient*. T[hese] will remain until a cure is found.

The latter may be looking a long way ahead, a[nd] do not know yet the aetiology or even the intimate n[ature] of the defect. What is obviously and urgently ne[eded] is an insulin effective by mouth, and I look forwa[rd] the day when "diabetic" bread will no longer co[nsist] of a mess of protein and fat, but will be baked the finest flour with the requisite amount of in[sulin] incorporated.

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UREA IN HEALTH AND DISEASE*

BY

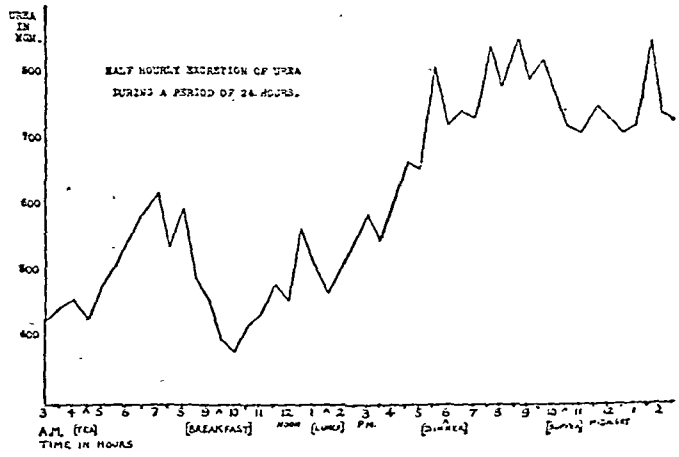
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In one of his alchemical writings, *The Economy of Minerals*, Paracelsus speaks of "the superfluous nutrimental salt not yet digested by the animal decoction when it is driven off into the urine." Such a description might well apply to urea, the chief nitrogenous waste product of the higher animal, and one of the simplest and most widely distributed biological forms of organic nitrogen.

THE FUNCTIONS OF UREA

1. *An End-Product of Protein Metabolism.*—The most obvious use of urea is the provision of a neutral, inert, and very soluble form in which nitrogen can be eliminated from the animal body. Within the organism urea is stable and unlikely to undergo further change; outside the organism it is readily resolved into ammonia and carbon dioxide by the various ureases of the environment, and the nitrogen is able to enter into the life-cycle of the plant. Indeed, from the vegetable point of view the animal's chief end might be said to be the manufacture of urea.



The graph shows: (*a*) a slight fall in urea excretion immediately after food ingestion, and (*b*) a steady rise beginning within half an hour after food. Similar variations have been seen in the other graphs. The output rises throughout the day, and is at a higher level at the end of the experimental period. This probably is due to metabolic stimulation accompanying enforced wakefulness. The subject of the experiment was in a condition of equilibrium, and the observations were made while on the normal diet. The urea estimations were made in duplicate by the nitro-metric method of E. A. Werner

2. *A Diuretic.*—Urea is easily excreted by the healthy kidney, and has been used therapeutically as a natural diuretic. Probably the effect is osmotic and due to the effort of the kidney to keep the urea concentration in the urine below 2 per cent., but there is some evidence that it has a specific action on the renal apparatus. After administration of 30 to 60 grams of urea the urinary volume has been more than doubled, and favourable results are reported in conditions of oedema of cardiac and nephritic origin.

3. *A Galactagogue.*—Addition of urea up to the effective maximum of 150 grams per diem to the diet of cows has raised the milk production over a period of 100 days, the increased yield in some animals being 6 to 8 per cent. Here again the action is osmotic and part of the general secretagogue effect of the easily eliminated solute.

4. *A Solvent.*—Urea has a solvent and peptizing action on proteins, and can bring about denaturation (Hopkins, 1930). While this effect must be almost negligible at the ordinary concentrations of urea found in health, it may become important in conditions of severe hyperuraemia.

5. *A Precursor of Urinary Ammonia.*—Ammonia formation by the kidney is an emergency factor in the regulation of the H-ion concentration of the blood, and it is suggested, on rather hesitating evidence, that this involves a decomposition of urea in the renal tissue.

Many other speculations have been made regarding possible functions of urea in metabolism, including its ability to replace, supplement, or spare protein in the dietary, but there is *no* direct evidence that this metabolic reversal can occur.

THE ORIGIN OF UREA

Urea is formed almost entirely by the hepatic deamination of surplus amino-acids. The location of this process has been accomplished experimentally by Bollman, Mann, and Magath (1924), who have been unable to detect any urea formation in dogs after complete removal of the liver.

That small quantities of urea may arise from other sources is shown by the work of Clark, Gaddie, and Stewart (1931) on the metabolism of the isolated frog heart, which oxidizes amino-acids and produces urea and ammonia in traces. Indeed, it seems reasonable to suppose that any tissue capable of metabolizing amino-nitrogen is also capable of degrading it into urea or some precursor of urea, but the general trend of recent work indicates either that this is not so, or that non-hepatic urea is relatively unimportant.

Ureagenesis is an effective and sustained physiological process, and is one of the last functions to fail in liver disease.

Its constancy is illustrated by the accompanying graph showing the half-hourly excretion of urea in the urine over a period of twenty-four hours. The experiment is one of an unpublished series carried out by Professor J. W. Jessop of Dublin.

THE SIGNIFICANCE OF UREA

Urea is derived chiefly from the surplus amino-acids of the diet. The organism is only able to store these units by building them up into tissue proteins, and as this is restricted by the capacity of the tissues, the unwanted amino-acids circulate in the blood stream and are removed by the liver. The important practical question arises as to the necessity for these surplus units. The adult daily output of urea ranges from 25 to 30 grams, dependent on the consumption of 80 to 90 grams of food protein, which may cost anything from a shilling upwards.

* Read in opening a discussion in the Section of Physiology and Biochemistry at the Annual Meeting of the British Medical Association, Dublin, 1933.

apparently extending to the apex of the space. Dilatation of the superficial veins was present in the brachial and pectoral regions and antero-lateral chest wall. At no period was there any pain or tenderness, and the brachial and radial pulses were normal. A full blood count, including an estimation of the platelets, revealed no abnormality. The Wassermann reaction was negative, and an *x*-ray of the chest and the root of the neck showed no unusual feature. He was treated by rest, elevation, and later by massage. During the weeks that followed, the dilatation of the superficial veins steadily increased as the swelling subsided. At the same time the thrombosed axillary vein became less defined and less indurated. At the time of writing—two months since the onset—the swelling has almost disappeared, but the skin still betrays a slightly cyanotic tint. There is marked dilatation of the superficial veins in the pectoral region, and the axillary vein can still just be defined. As far as possible, it would appear that trauma and strain can be excluded in this case. Although his occupation was that of a furniture remover, for five days prior to the onset of the swelling he had been enjoying his annual vacation. During these five days he had not indulged in sport or effort of any description.

Discussion

It is the causation of this condition which has excited so much interest, particularly on the Continent. Among the recorded cases there are extremely few in which trauma and strain can be excluded. So much is this so that the condition is frequently known as "Phlébite par effort" (Cadenat). Pellot[7] records a case without apparent injury, and two patients awoke in the morning to find their arms swollen (Ruge and Wilson). The present case appeared worth recording in view of the fact that in so few cases did the onset of swelling occur during sleep.

The various theories as to the causation may be summarized thus:

Cadenat.—A venous dilatation and stasis due to an expiratory effort, combined with single or repeated muscular strains, injuring the intima of the venous tributaries at their junction with the axillary vein.

Lowenstein.[8]—A venous dilatation and stasis due to an expiratory effort, combined with marked abduction of the arm. The latter movement produces indentation of the axillary vein by the costo-coracoid ligament. In Lowenstein's view this effect is increased by the action of the subclavius muscle.

Pearce Gould and Patey.[9]—A sudden contraction of the subclavius muscle tears the delicate subclavio-axillary valve in the long axis of the vein. This is more likely to occur during a marked expiratory effort causing venous dilatation and stasis, and with abduction of the arm.

Wilson—Some specific lesion of the venous intima. One of his cases was reputed to be syphilitic, while the other died of advanced phthisis. The former case, however, had repeated negative Wassermann reactions, while in the latter the brachial artery was also occluded.

Earlier theories are those of Willan, who suggested that the axillary vein suffered damage against the outer border of the first rib during vigorous exercise with the arm in the abducted position, and of Ruge, who considered that the thrombosis of the axillary vein might be the first symptom of latent heart disease. There appears to be little or no evidence to support these contentions.

What the causation may be in these isolated cases, in which traumatism can, as far as possible, be excluded, remains unsolved.

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ACUTE HAEMOLYTIC ANAEMIA IN ADOLESCENCE

BY

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The following case exemplifies a type of acute haemolytic anaemia, occurring in adolescence, which has been recorded from time to time of late years. Dr. L. J. Witts, in the Goulstonian Lectures of last year, focused attention upon this class of case in an illuminating way, and, by differentiation, clarified the diagnosis of various anaemias in a manner most helpful to the general practitioner. It seems probable that the type referred to is not so rare as was supposed, and that improved methods now in use of staining, recognizing, and interpreting embryonic forms of red cells will help to bring this type of acute haemolytic anaemia to identification at an early stage, and so reduce its present high mortality.

Case Record

D. B. S., a secondary school boy, aged 17, felt well and appeared to be in good health till July 24th, 1932. On that day, while in chapel, he felt slightly giddy and weak. Next day, in school, he felt shivery, with headache and lassitude. On the following day he went to bed with a temperature of 103° F. and a severe headache. He looked pale, vomited, and was thought to have influenza. Medical advice was sought on July 27th, when the following symptoms were pronounced: headache, pyrexia, restlessness, occasional vomiting, and faintness. There were no physical signs of illness in the throat, chest, or alimentary system. The urine and cerebro-spinal system were normal. There was an unusual pallor. Next day these symptoms were accentuated, and the patient was removed to a private hospital. The pallor was more noticeable, he felt faint on sitting up, and was unable to walk or stand unsupported. The maximum temperature was 104°, pulse 135, and respirations 26. During the same evening there was a copious normal movement of the bowels, and vomiting ceased from that time.

On the 29th the temperature remained normal and the patient felt better; but on the following day his condition relapsed, the temperature again rose, and remained between 100° and 102° for several subsequent days. The boy was now extremely pale and restless, and a blood count disclosed a high degree of anaemia, with 1,200,000 erythrocytes, 40 per cent. haemoglobin, and a colour index of 1.6. Next day the red cells were down to 1,040,000 and haemoglobin to 35 per cent., colour index 1.7. For the next two or three days he was incontinent of urine, delirious, and extremely restless. Vomiting had entirely ceased, however, and he was retaining milk-and-soda, orange juice and glucose, and liver both in the form of extract (four phials per day, each estimated as equivalent to three and a half ounces of raw liver) and also three ounces daily of fresh raw liver. On August 1st, while he was at his worst, transfusion of 350 c.cm. of blood was performed. Next day the restlessness was decidedly better and his mental condition had improved. On August 3rd continence returned, and there was an improvement in general condition. This improvement was more pronounced on the following day, when the temperature was down to normal, the pulse to 80, colour was returning, and appetite had reappeared. Red cells were now 1,280,000, haemoglobin 45 per cent., and colour index 1.7; megaloblasts had appeared in the film, and nucleated red cells were very numerous.

From this time on a flowing tide of recovery set in without remission. By August 9th his appetite was voracious, and he was eating freely of red meats, vegetables, puddings, and fruit juices, in addition to two phials of liver extract and three ounces of raw liver taken in hot soup. During the subsequent three weeks the improvement continued steadily in every respect, while the patient manifested the euphoria and *joie de vivre* so characteristic, especially in youth, of convalescence from severe illness.

The successive red count during the recovery was as follows:

Date	Red Cells	Haemoglobin	Colour Index
		Per cent.	
30 7.32	1,040,000	35	1.7
4.8.32	1,230,000	45	1.7
9.8.32	2,150,000	61	1.4
17.8.32	3,736,000	75	1.02
22.8.32	4,240,000	80	0.95
30.8.32	4,421,000	80	0.90
23.9.32	4,990,000	85	0.85

The regeneratory nature of the anaemia became very clear as time went on. In the first blood examinations on July 29th and 30th there was slight variation in the size of the red cells, and there were a few poikilocytes. Unusual activity of the haemopoietic system was manifest on August 4th—three days after the transfusion and six days after the administration of liver had begun. The laboratory report then was:

"Anisocytosis very marked, with a big percentage of macrocytes: Polychromatophilic cells dominate the picture, being of a deep colour. Much punctate basophilia, both fine and coarse granules. Nucleated red cells very numerous. Normoblasts, young, old and degenerated (Howell-Jolly bodies), are to be seen to the extent of two or three in every field. Two megalocytes."

On August 13th the report stated that the film showed a very large number of nucleated red cells and macronormoblasts—"megalocytes abundant and anisocytosis very marked. The whole picture is typical of acute pernicious anaemia." It was not till August 18th that vital staining was employed, and reticulocytosis was demonstrated.

From first to last in this case no septic focus could be discovered to explain the early symptoms, and no growth was obtained from the blood. The differential count from July 29th to August 30th showed an average of 9,600 whites, with a maximum of 16,550 on the seventh day. With the exception of the first count, when the proportion of polymorphs was 32 to 45 lymphocytes, the average proportion of polymorphs to lymphocytes was 64 to 25. A gastric analysis made during convalescence, after the administration of hydrochloric acid had been stopped for two days, showed a normal acidity. The medicinal treatment of the case, which was begun as soon as vomiting had ceased, and before the nature of the anaemia was diagnosed, consisted of a mixture containing ferri et ammon. citrat. xxx grains, ac. hydrochlor. dil., m xx, glycerin of pepsin one drachm, three times daily; in addition, liver treatment was persisted in as detailed above. When the physical and mental restlessness was at the worst sodium amytal, also morphine and atropine, proved helpful.

There seems good reason to regard the transfusion in this case as the most important factor in the remarkable recovery from what appeared to be a desperate condition. At the same time the persistent stimulus to activity of the bone marrow produced by the daily ingestion of liver in quantity must be regarded as a highly important contributing factor. In handling the case I was much indebted to Dr. Carmalt-Jones, professor of systematic medicine, Otago University, who gave me much helpful assistance in diagnosis and treatment, and drew my attention to Dr. Witts's Goulstonian Lectures of last year. It remains to emphasize, in the recognition of similar examples of this unusual type of acute anaemia, the youth of the patient, the sudden onset, and the presence of a normal gastric acidity; and, in the treatment, the great value of transfusion.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

SYPHILITIC NEPHRITIS

Syphilis can affect most—if not all—organs of the body, no part being immune; yet one rarely considers syphilis when dealing with kidney infection. The case described below is one of acute secondary syphilitic nephritis. This is a rare manifestation in the acute eruptive stage. Not many cases have been recorded—Fournier, in his *Traité de Syphilis*, collected 26—and only a few have been in the literature of late. The last account of this condition, by G. B. Dowling, appeared in the *Guy's Hospital Reports* of 1927 (July and October).

CASE RECORD

The patient, a man aged 44, gave a history of herpes of the penis during the first week in January, 1933. The primary chancre was no doubt associated with this condition. A secondary rash appeared on February 12th, and was confirmed by a positive Wassermann reaction in the blood. His medical attendant tested the urine before starting antisyphilitic treatment. No albumin or any other abnormality was detected. On February 16th 0.45 gram N.A.B. and 1 c.cm. bisglucol were given, followed by another 0.45 gram N.A.B. and 1 c.cm. bisglucol on February 23rd. The patient then complained that he was "not feeling quite the thing." There was a little oedema round the eyes, but no swelling of the ankles. On examination the urine was found to be "solid" with albumin. It was then decided to transfer the patient to hospital.

On February 25th he was admitted into the Royal South Hants Hospital. He then showed a typical secondary rash, with enlarged, hard glands—especially the inguinal group—and the remains of a hard chancre on the prepuce. Examination of the urine showed 30 parts of albumin per 1,000, with just a trace of blood. The blood pressure was 130 75, blood urea 65 mg. per cent.; urea concentration gave readings of 1.3, 1.4, and 1.5 per cent. The deposit in the urine showed red blood cells, leucocytes, and a number of finely granular casts.

For the first few days the patient was treated as a case of acute nephritis. No antisyphilitic treatment was given except hyd. c. cret. gr. ½ t.d.s. For some days the albumin remained at 20 to 30 parts per 1,000. It dropped a little but there were still 8 parts on March 6th. On March 9th 0.15 gram N.A.B. was given. By the 11th no albumin could be detected in the urine. N.A.B. 0.3 gram was given on March 14th. The urine was still absolutely normal.

The patient is now on a full course of N.A.B. and bismuth; no abnormality can be detected in the urine, and he himself feels perfectly fit.

DISCUSSION

This case in many respects is quite typical of a syphilitic nephritis in the secondary stage. All the cases described are characterized by the abundant albumin (up to 100 parts per 1,000), the presence of all kinds of casts, but blood in only a small quantity. Oedema is usually present, often in quite a marked degree. Renal efficiency tests, in spite of the massive albuminuria, are almost normal. The renal function in this case was somewhat impaired, the urea concentration test never reaching 2 per cent., whilst the blood urea was 65 mg. per cent. Pathologically, the condition is one of tubular degeneration—that is to say, a so-called nephrosis. The most constant feature of all the cases described is the dramatic effect of a single dose of an arsenic preparation. In this case two doses of N.A.B. had been given before the nephritis occurred. This fact at first made the diagnosis of a

syphilitic nephritis rather difficult, and the question of a nephritis with tubular degeneration due to N.A.B. immediately arose. However, the continued massive albuminuria, the absence of any appreciable amount of blood, and, finally, the reaction to more antisyphilitic treatment, made us certain that we were dealing with a syphilitic nephritis.

I have to thank Dr. Jeffreys, under whose care the patient was admitted, and Dr. L. Forman for his very useful assistance.

G. C. SAWYER, M.R.C.S., L.R.C.P.,
House-Physician, Royal South Hants and Southampton Hospital, Southampton.

STRANGULATED HERNIA IN ASSOCIATION WITH DRACONTIASIS AND HYDROCELE

The following case, recently under my care, is of interest as illustrating the precipitation of an acute abdominal crisis by a tropical complaint which, in itself, is rarely dangerous.

A male villager, aged 40, was admitted to the Mission Hospital, Medak, on the night of April 9th with vomiting, intestinal stasis, and a large, tense, and painful scrotum. The swelling had appeared three days previously and had subsequently increased in severity. No stool or flatus had been passed for two days. Vomiting of an offensive dark fluid had occurred several times in the previous twenty-four hours. On admission the pulse rate was 130, temperature 99·8° F., and the respirations 32. The patient, who belonged to the subcaste of fishermen, gave a history of right inguinal hernia, reducible, of three years' duration. A threatened strangulation had occurred one year previously, but had subsided spontaneously after a few hours. A diagnosis of strangulated inguinal hernia was made.

Under chloroform anaesthesia, on an open mask, an inguinal incision was made and the coverings of the hernial sac exposed. On cutting through the inflamed and oedematous external spermatic fascia, the white coils of an adult live Guinea-worm were exposed in the interfascial space below, in close relation to the proximal end of the inguinal canal. The worm was followed up into the roof and posterior wall of the canal and quickly dissected out without difficulty. The constricting band at the internal ring was divided with the aid of a director, and the hernial sac was opened. The omentum was found adherent to the tip of the sac; it was drawn out and a plum-coloured portion excised. A loop of intestine, after inspection, was returned to the peritoneal cavity as viable. The sac was amputated at the neck, the stump obliterated in the usual way, and the canal closed by Bassini's method. A simple hydrocele, which was also present on the same side, was treated by eversion of the serous sac. The wound was closed and a rubber drainage tube left in for twenty-four hours. Some distension on the day following operation was treated by turpentine enemata and by eserine, grain 1/1,000, hypodermically, repeated. A slight evening rise of temperature was observed for one week. The sutures were removed on the tenth day, the wound remaining clean. The worm was identified as a female specimen of *Dracunculus medinensis*, and was 52 cm. in length. The patient gave no history of having suffered from Guinea-worm infection of any part of his body before, although the disease is common in the neighbourhood from which he came.

The case demonstrates a very definite causal relation between a parasitic infection of the tissues and an acute abdominal emergency. It also leads to speculation as to whether the larval worm, after freeing itself in the alimentary canal from its intermediary host, Cyclops, passes down the small intestine before entering the skeletal tissues; and also whether, in this particular case, its selection of the scrotal region was due to the presence of a hydrocele, acting as an attraction to the female worm with its embryo-filled uterus. There was no hydrocele in the true vaginalis of the other testis.

W. E. THOMPSON, M.B., Ch.B.

Reviews

POST-WAR MEDICINE AND SURGERY

After fifteen years following the war Sir JOHN COLLIE, in his *Recent Progress in Medicine and Surgery*,[1] marks time for us by compiling from expert sources a volume on the subjects in which striking advance has been made. He has chosen his collaborators well, and the outcome is a series of readable and concise chapters summarizing recent developments in the branches of practice with which these authorities have identified themselves. Although in many cases a stimulus was afforded in both medicine and surgery by the concentration of the minds and skill of the profession throughout the world to combat disease and mutilation incurred, it is not to be expected that any outstanding progress could be recorded that is not the product of research and thought extending over a much longer interval of time. Here is no mere reference book, but one for the odd hour of study, in which can be found the results of progress pointing where and how additional help can be obtained in assisting accurate diagnosis and in the perfecting of treatment by alternative methods according to the type or stage of disease, at the same time showing clearly how much yet remains to be solved and improved.

The editor, as chairman of the Public Health Committee in Paddington, speaks with authority on diphtheria immunization, this being one of twenty boroughs where children have been treated. He considers that the family doctor should seek experience from his county M.O.H. in the use of prophylactic and Schick-testing solutions in order to advise and encourage immunization in the age period 2 to 5 years, when 80 per cent. of children are susceptible. The whole subject of radium and *x*-ray treatment is still in a transitional stage and requires much further research: the expectant public anticipate a cure for malignancy and are unreasonable in their demands, which cannot as yet be satisfied. Its value is no longer in dispute in exophthalmic goitre, in septic tonsil, and in the production of an artificial menopause. Diagnosis and treatment of diabetic glycosuria has entirely changed since 1920, and sufficient time has elapsed to put the discovery of insulin on a sound basis.

The war provided unprecedented opportunities for studies of brain, cord, and nerve injuries, and diverse emotional sources of neurosis leading to improved technique on the part of the neurologist and orthopaedic surgeon. In addition to the trauma of war strain, economic stress and unemployment have produced or predisposed to varied anxiety states. The remarkable results of malarial therapy in general paralysis must be seen to be appreciated: Wagner-Jauregg's discovery was a direct result of observation in the Near Eastern zone of war. In tropical medicine synthetic drugs have hastened the cure of malaria; a fourth type—the *Plasmodium ovale* Stephens, 1922—receives no mention. Among the advances in physical medicine therapeutic stimulation is worthy of more frequent use to maintain muscle nutrition where immobilization of a joint is involved or results from lower motor neuron palsy, and after fractures to prevent infiltration of tissues, as well as for assisting the absorption of inflammatory exudate. Direct current for the relief of nerve pain and diathermy in fibrositis have undisputed value. In spite of changing fashions of early and postponed movement of damaged limbs and joints, no doubt remains that the former is wise and desirable, whereas massage, like drug therapy, needs to be accurately prescribed and dispensed.

[1] *Recent Progress in Medicine and Surgery, 1919–1933*. By various authors. Edited by Sir John Collie, C.M.G., M.D. Foreword by Lord Horder of Ashford. London: H. K. Lewis and Co. Ltd. 1933. (Pp. xii + 368; 78 illustrations and 3 charts. 16s. net.)

In an inclusive range of twenty one headings overlapping has not been avoided The dietetic treatment of bacilluria is given in full in the urological article and in that dealing with vitamins, and much concerning diabetes recurs under biochemical methods An index could be dispensed with where it contains little more than an amplification of the chapter titles Where so much is concise and well done selection would be invidious, but we may end this short general notice by expressing the view that within the limits of a chapter the surveys of vitamins, pernicious anaemia, and joint manipulation (with illustrations) could not be improved upon

INJECTION OF VARICOSE VEINS

Dr STUART MCAUSLAND, in his book *The Cure of Haemorrhoids, Varicose Veins and Ulceration, and Allied Conditions By Modern Methods of Injection and Bandaging*[1] is writing from an exceptional experience of 1,000 cases of haemorrhoids and 3,000 cases of varicose veins which he has treated during the past eleven years The book can be confidently recommended to those seeking a simple and trustworthy guide to these methods of treatment Theoretical material has been largely eliminated, and the author has been at great pains to describe in detail the different steps in the technique of the various methods employed The section dealing with the injection treatment of haemorrhoids is well balanced, and it is recognized that not all cases are suitable for this procedure The importance of a careful preliminary examination is also stressed The section dealing with the inject on treatment of varicose veins contains little contentious material, but little that is new Quinine urethane and sodium salicylate are the drugs of choice, and it is admitted that sodium morrhuate does not possess all the virtues that were once claimed for it The author prefers to start injections proximally as opposed to the almost general employment of distal injections, but by so doing is he not making subsequent injections more difficult for himself, or rendering more certain the patient's subsequent return for the treatment of the lower uninjected varicose veins? The book is well written, there are some good illustrations, and the teaching is practical

The name of M DELATER is sufficiently well known in this country in connexion with diseases of the venous system as to require little introduction With several other colleagues he has recently contributed a work on this subject entitled, 'The Diseases of Veins and Their Treatment'[2] Unlike many writers of the present time M D later has not been carried away in his enthusiasm for modern methods of treatment to neglect either an adequate exposition of his subject or to ignore other forms of therapy His work covers the field of varicosity in general and the various complications incident to it, especially those of phlebitis and ulceration, and the subjects are dealt with from the anatomical pathological, and therapeutic aspects There are, however, certain sections which are treated very sketchily or not at all A fuller account of the mechanics of the varicose circulation is called for, particularly in connexion with the subject of varicose ulceration there is no adequate description of the clinical types of varicose veins met with in the lower limbs, and the account of varicose ulceration is far too meagre whilst the bearings of thrombophlebitis migrans and Buerger's disease upon the subject have been entirely ignored These are a few of the directions in which considerable improvement could be effected With regard to the use of the word "trophoneurosis" as applied to varicose ulceration most authorities will now disagree almost all the evidence suggests that the static and dynamic factors of the varicose circulation are the fundamental ones, and that any involvement of the nerves is a purely secondary process In connexion with the various forms of injection therapy M Delater prefers in general the use of sodium salicylate solutions with quinine urethane as a second line of defence Despite the criticism which has been offered the book is a well written and interesting account of the subject, and will well repay study by the medical or surgical specialist who is interested in this branch of therapeutics

Mr DAVID LEVI, in his book on *Injection Treatment in Medical Practice*,[3] has covered a vast field within a very slender compass On the diagnostic side cistern puncture and the use of intrathoracic lipiodol are discussed on the therapeutic side the injection treatment of prolapse varicose veins, varicocele, hydrocele, etc, is considered and the methods employed in blood transfusion and in the injection treatment of the neuralgias are also described and finally, a section is devoted to the use of local anaesthesia in dealing with fractures Obviously with such a variety of subjects to be considered the space devoted to each is extremely limited, and at times this is a grave disadvantage In consequence of this perspective is often lost and there is little attempt—especially in the therapeutic sections—to consider injection methods in relation to therapy as a whole This is a rather serious defect at a time when enthusiasm for injection methods is not a little tending to exaggerate their just appreciation For example, the injection treatment of varicose veins is regarded by most surgeons as the method of choice that of haemorrhoids is one of which the application is not nearly so generally accepted whilst a discussion of the injection treatment of hydrocele varicocele and ganglia enters on very debatable ground Mr Levi has not made these aspects sufficiently clear In the diagnostic sections the book suffers from the degree of compression of the material —cisternal puncture is covered in four pages and intrathoracic lipiodol in five Such cant treatment of these important sections detracts greatly from the value of a book which is designedly practical As an introduction to the employment of injection methods as a whole the book is useful but it is to be hoped that in any future editions these criticisms will be met

NATURAL CHILDBIRTH

In a thoughtful and readable little book under the above title[4] Dr GRANTLEY D READ makes a careful study of the emotions of parturition The author's thesis is that all natural processes in man are accompanied by their appropriate emotions Thus the act of defaecation, which is represented as the physiological analogue of parturition, 'satisfies and gives rise to an emotion almost akin to elation' Similar emotions accompany the process of parturition in the primitive woman, and are therefore to be regarded as essential to "natural childbirth" Further, the 'emotions of labour govern the type of labour,' hence the necessity for careful study of the emotions present in the case of the modern woman—the product of civilization and culture

Detailed study of these emotions is preceded by a clear account of the innervation of the birth canal, and especially of the part played by the sympathetic autonomic and the lumbo-sacral autonomic systems respectively

[1] *The Cure of Haemorrhoids Varicose Veins and Ulceration and Allied Conditions By Modern Methods of Injection and Bandaging* By S McAusland B A, M D London J Bale Sons and Danielsson Ltd 1933 (Pp 65, 20 figures 3s 6d)

[2] *Les Maladies des Veines et Leur Traitement* Par G Delater and Paris Masson et Cie (Pp 371 20 figures 45 fr)

[3] *Injection Treatment in Medical Practice* By David Levi M B, M S F R C S Eng London Cassell and Co, Ltd (Pp 150, 26 figures 6s net)

[4] *Natural Childbirth* By Grantley D Read M A, M D London W Heinemann, Ltd 1933 (Pp ix + 127 7s 6d net)

In this regard the author has set an example to the writers of standard textbooks of midwifery. "There is no phylogenetic association in labour which demands pain as an essential accompaniment. The state of agony that the cultured woman has accepted almost universally as essential to labour cannot be explained by any other phenomenon than intensified fear." The author distinguishes "physical pain" from pain arising from "unnatural" emotions, and devotes a good deal of space to an explanation of the nervous mechanism involved and of the untoward effects which may be manifested in the process of labour when the unnatural emotion is predominant. The difficulties of the modern mother all arise from terror, and the goal of the good obstetrician is to replace terror by calm and by confidence. This is to be accomplished in the main by the understanding, sympathy, and personal influence of the doctor and midwife, but the author's experience is that "fifteen grains of chloral will rapidly induce a state of profound calm" in the first stage.

There are many wise things said about the general supervision of the patient, and the use of anaesthetics under strict control. That the author carries his head high (all honour to him) is evident from this sentence, culled from the final chapter: "Let it be presumed that the obstetrician is a man or woman with a wide view, whose ideals are the perfection of motherhood in its fullest sense." Whether his readers agree with his main thesis or not, they cannot but pay tribute to Dr. Read's wide sympathies and high aims.

THE NORMAL CHILD

Work of great importance in paediatrics is being carried out in America by the White House Conference on Child Health and Protection, and it is no exaggeration to say that a recent publication on anatomy and physiology, being Part II of a work entitled *Growth and Development of the Child*,[6] is one of the most valuable books ever written for those concerned with the expert care of the sick and the healthy child. The committee on this subject is under the chairmanship of Dr. Kenneth D. Blackfan, who has written the introduction to the present volume, to which there are thirty-seven contributors, equally representative of the laboratory scientist and the practising physician. The committee has bravely faced the twofold difficulty of deciding what is meant by growth and development and what is meant by normal, and by a combined process of studying large numbers of individuals and single individuals over a long period it has largely found a solution, the results of which are partly, and excellently, represented in this work.

Briefly stated, the volume contains a survey of the known facts concerning the anatomy and physiology of the child from the ovum to maturity. After a section on the early stages of the human embryo, each system of the body is taken up in turn, and while the names of the authors of each section are not specified it is to be gathered from the list of contributors that nothing has been spared to secure the highest authority. The hand of Florence Sabin, for example, is to be traced in the section on the haematopoietic system, while the names of F. Helmholz, F. W. Schlutz, and F. B. Talbot indicate that the clinical aspects of paediatrics have been well considered. The section on the circulatory system may be cited as an example of the thoroughness of the methods used. Introductory remarks on the growth of the heart are followed by observations on the position and relations of this organ, th mbryological considerations, changes in the circulation at birth, congenital defects, heart rates at different ages, blood pressure at different ages, pulse form, and electrocardiograms, concluding with a survey of the clinical aspects of the information thus set out. Each main section has a large bibliography, and as a work of reference this book will prove invaluable.

[illegible] *Child* Part II *Anatomy and* [illegible] e on Child Health and Pro- [illegible] Co. 1933. (Pp. xxi + 629; [illegible] 21s. net.)

PULMONARY ABSCESS

The treatment of abscess of the lung, as given in Dr. KOURILSKY'S new book,[7] is clear and concise. The author, who deals quite briefly with the subject, considers that serotherapy, vaccinotherapy, and the intravenous administration of arsenic—all of which measures have been advocated as curative—rarely influence the outcome, as patients treated by these means alone do not appear to recover more rapidly than those who resolve spontaneously without such aid. Postural drainage is of value, and although great hopes were placed upon bronchoscopic aspiration, these have not been fully realized, the relative failure being due, in his opinion, to inability to aspirate the slough through the narrowed bronchus of communication. Artificial pneumothorax is considered to have definite dangers, whereas phrenicectomy, although technically without much risk, rarely improves the condition. If, by general medical measures (including postural drainage) or after bronchoscopy, resolution does not occur in two months, surgical drainage is advised: Kourilsky, supported by his results, states that after two months the mortality rate rises *pari passu* with the length of time between the formation of the abscess and the establishment of drainage. This account can be recommended as an eminently reasonable review of the treatment of pulmonary abscess.

Notes on Books

Speech—a Simple Guide to the Platform.[8] This little book is written by one whose long experience as a political speaker and head of the speakers' department of the Conservative General Office entitles his opinions to respect. It is elementary and thoroughly practical; its language is direct and simple; and the author, Mr. G. E. M. WALKER, has the gift of conveying the results of his own experience. "Orators are born," he says, "but speakers can be made," and anyone who is attracted by the fascination of the platform but nervous as to his own capacity for it, will find both help and comfort here. The book, though primarily intended for the political speaker, deals with the preparation and delivery of speeches in such a way as to be useful to all platform aspirants. The author analyses the elements of successful public speech as follows: 40 per cent. knowledge, 30 per cent. each of personality and applied common sense—an analysis which those who have made and endured speeches will endorse, as well as his repeated advice to the speaker to be sincere and honest with himself and with his audience if he wishes to be effective and of public service.

Every dentist who has the slightest regard for the aesthetic side of his work will thank Mrs. Dall for the posthumous publication of *Ground Porcelain Inlays*.[9] The late Mr. WILLIAM DALL'S ground porcelain inlays were unsurpassed in beauty and in utility, and this volume embodies his methods to the minutest detail. The work entailed is difficult and exacting in its *minuteness*, and is practically a specialty. We sincerely hope the outcome of this publication will be a widespread revival of practical interest in a most beautiful branch of reparative dentistry.

[7] *Le Traitement des Abcès du Poumon*. Par Dr. Kourilsky. Les Thérapeutiques nouvelles. Paris: J. B. Baillière et Fils. 1933. (Pp. 40. 6 fr.)

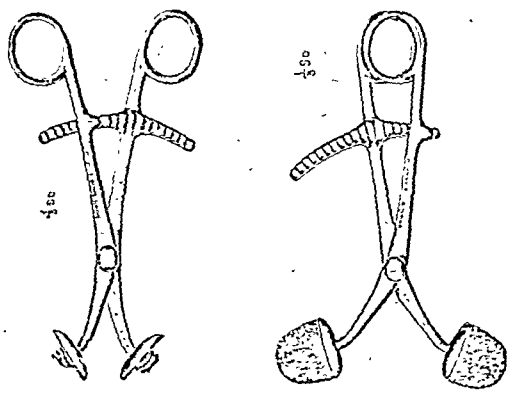
[8] London: Philip Allan. 1933. (Pp. 95. 2s. 6d. net.)

[9] *Ground Porcelain Inlays*. By William Dall, L.D.S. London: H. Kimpton. 1933. (Pp. xi + 196; 233 figures. 21s. net.)

Preparations and Appliances

SELF-RETAINING TONSIL HAEMOSTATIC FORCEPS

DR. W. T. MILTON (Eltham) writes: I should like to draw attention to the pair of self-retaining tonsil haemostatic forceps made for me by Messrs. Down Bros. and illustrated below. There are two separate blades, each carrying a swab-holder, which are introduced separately, the right first. When the swabs are nicely "home" in the tonsillar fossae the blades are easily locked, and firm, continuous pressure can be exerted upon the bleeding fossae by appropriation of the ring grips—the ratchet, of course, preventing any relaxation until this is desired. Disengagement is easy. It is not necessary to traverse the whole length of the ratchet—two or three notches only to reduce the counter-pressure of the



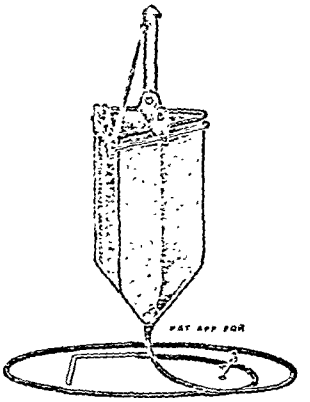
tonsillar fossae on the swabs, and then the upper member (the left) can be withdrawn directly outwards (from the mouth) by reason of the obliquity of its engaging slot. The swab-carrying mechanism consists of a twin cylindrical "corkscrew" rising from a saucer-shaped base, in which each swab is efficiently supported. It is necessary that the swabs should not only be of a size that is likely to fit the fossae, but should be tightly packed, with no hint of flabbiness, and the corkscrew points should be engaged at a little distance from the twisting and tying pole of the swab, so that there is little resistance to the penetration of the corkscrew points. I have had the ratchet arm carried across the shaft of the first blade to allow for exceptionally wide throats. I am indebted to Messrs. Down Bros. for at least one valuable modification of my design.

A PORTABLE IRRIGATOR

Mr. MORTON WHITBY (chief assistant to the genito-urinary department of the West London Hospital, W.) writes: The apparatus illustrated below has been designed for the purpose of washing out the large intestine, vagina, or bladder. Its chief advantage is portability, which should prove useful to urologist, gynaeco'ogist, surgeon, and general practitioner.

Intestinal lavage has for the past few years been recognized by all branches of the medical profession as the secret of success in many of their investigations and treatments. As a preliminary to *x*-ray examination of the kidneys it is undoubtedly the only certain means of excluding gas from the radiograms—a matter of considerable importance in pyelography, etc. In the treatment of diseases of the urinary system it is of great value in pyelitis, cystitis, and in the expulsion of small urinary calculi, owing to the profuse diuresis induced. Preparatory to any operation, it is the surest means of eliminating intestinal toxaemia, which is often the cause of disastrous results. The general practitioner has a long list of diseases for which he can use it as part of the treatment. Its future in the field of preventive medicine or surgery cannot be too greatly emphasized.

The apparatus described here can be used in the consulting room behind a screen upon the special irrigating chair made by the Surgical Manufacturing Company, or in the patient's house, upon a special rubber bed-pan, which drains over the side of the bed into a chamber, or upon any lavatory seat with a ring cushion. The whole apparatus can be boiled. The metal nozzle seen in the diagram can be used for colonic or vaginal irrigation. Bladder irrigation is carried out by a Janet nozzle. In using the apparatus for colonic irrigation the tube should first be lubricated with vaseline and passed gently into the rectum. The patient then sits upon a ring cushion placed on the irrigation chair or lavatory seat, or upon the rubber bed-pan. One arm of the tube is in the rectum and the other between the cushion and buttock, firm contact being obtained, which prevents the tube from being pushed out. When the bag is filled with fluid—either water or antiseptic fluid—at body temperature, and suspended two or three feet above the pelvis, the fluid is allowed to flow slowly into the rectum by means of the regulating clip. The desire to evacuate (which is done alongside the retained tube) is generally produced by the flow of one pint of fluid in the first instance and a half-pint thereafter. As soon as the patient feels the slightest discomfort the flow should be stopped, so as to prevent over-distension, and the patient allowed to evacuate before the flow is continued. Some patients will hold more than one pint in the first instance. After the first two or three evacuations the fluid passes round direct towards the caecum. A gallon of fluid will induce from ten to twenty evacuations. The fewer evacuations produced the more atonic is the intestinal muscle and the more benefit will the patient derive from a course of a dozen treatments at weekly intervals. Each treatment should be followed by at least fifteen minutes' rest or general diathermy, and abdominal exercises should be carried out for ten minutes each day.



The apparatus, with case, has been made by the Surgical Manufacturing Company, Ltd. (83-85, Mortimer Street, London, W.), to my own design.

A POST-OPERATIVE THROAT SPRAY

DR. L. T. CLARKE (anaesthetist, Queen's Hospital, Birmingham) writes: The first day or so after a surgical operation in the mouth, particularly when performed under ether anaesthesia, is characterized by a host of minor discomforts for the patient. The soreness of the operation area, the smell of stale ether and blood, together with the drying and glazing of the mucous membranes, combine to make his life most unpleasant. The practice of spraying aspirin or xeroform powder, or the application of tinct. benzoni co., or Mandl's paint, to the site of a tonsillectomy is no doubt surgically sound, but neither the after-taste nor the smell is appreciated by the patient.

For some time I have felt that if it were possible to devise a liquid spray which would destroy the smell of the ether, ease the pain of the wound, and alleviate the general dryness, it would be a step forward. We know that oil of bitter orange is the best mask for the smell of ether, and also that glycerin can be used for the relief of the dryness. For the other essential—a surface anaesthetic—I chose "scuroform," which I employed in varying solution strengths. By the courtesy of Mr. F. D. Marsh, honorary surgeon in charge of the ear and throat department of the Queen's Hospital, Birmingham, the spray was given clinical trial in his wards. It justified our hopes, and the patients liked it. In addition, we found that it was a local haemostatic, and we also noticed that wounds and ulcerated surfaces became cleaner under its influence. The final composition of the spray was: "scuroform" 7.5 per cent., terpeneless oil of bitter orange, and alcoholic glycerin.

I am pleased to acknowledge the help of Messrs. May and Baker, Ltd., Battersea, S.W.11, who succeeded in making me this attractive preparation.

THE BRITISH ASSOCIATION

ANNUAL MEETING IN LEICESTER

The 102nd annual meeting of the British Association for the Advancement of Science was held in Leicester from September 6th to 13th, under the presidency of Sir Frederick Gowland Hopkins, P.R.S., the Sir William Dunn Professor of Biochemistry at Cambridge, and a Nobel Prizeman in medicine. The British Association last met in Leicester twenty-six years ago, and in the intervening time the town has become a chartered city and the seat of a bishopric. Civic enterprise has provided it with a centre of learning and many fine buildings.

PRESIDENTIAL ADDRESS

Sir Frederick Hopkins opened his presidential address on "Some Chemical Aspects of Life" with a reference to this being the first occasion on which his presidential chair had been occupied by a biochemist. Since the inauguration of the Association in 1831 the pendulum had swung forwards and backwards between frank physico-chemical conceptions of life and various modifications of vitalism, but little was being heard at present of conflict between mechanists and vitalists, although it might be that the two parties were returning to the fight disguised respectively as determinists and indeterminists. Ability to recognize the progress of definitely ordered chemical reactions in relation to various aspects of living activity characterized the present position in biochemistry. The president took, therefore, as his special theme the importance of molecular structure in determining the properties of living systems. Even colloid structures displayed highly specialized molecular structure at their surface; without this there could be no equipment with catalysts, and every living unit would be a static system. Catalysis endowed living systems with their fundamental character as transformers of energy, the active agents being enzymes. Diverse enzymes might act in succession, and specific catalysis had directive as well as selective powers. Such organs and tissues as the heart responded only indirectly to non-specific physical changes reaching the nerve endings. Their direct response was to the influence of particular molecules with an essential structure intruding into their chemical machinery. The effect of a given nerve stimulus might not be confined to the tissue first reached. There might be humoral transmissions of its effect through the passage of liberated substances into the lymph and blood, assisting the co-ordination of events in the tissues. Many and diverse were the functions of these hormones, recent research having emphasized the fact that each one was a definite and relatively simple substance, with properties that were primarily chemical and in a derivate sense physiological. Illustrations were given of the way in which the thyroid gland acted in maintaining harmonious growth in the body and controlling metabolism; of the part played by oestrin; and of the subsequent functioning of lutein. Knowledge of the actual molecular structure of hormones and vitamins was growing fast, and it should soon become possible to take a wide view as regards the correlation between molecular structure and physiological activity. Vitamin A had been shown to have a chemical constitution known as the isoprene structure, which related it to other biological compounds, and notably to the vegetable pigment carotene. In vitamin D, with its more specialized activity, the isoprene structure was of a different kind, and related it to the sterols, from one of which it could be produced by ultra-violet radiation. To a certain extent the chemical nature of oestrin linked vitamin D to the cancer-producing substances, and it was possible to speculate cautiously that the metabolism of sterols, which when normal stimulated physiological growth, might be so perverted as to produce within living cells a substance stimulating pathological growth. This emphasized once again the significance of chemical structure in the field of biological events. Further progress would undoubtedly follow the application of the new methods of research which chemistry was inheriting from physics—for example, *x*-ray analysis, the current studies of unimolecular surface films and of chemical reactions at surfaces, modern spectroscopy, and quantitative photo-chemistry. While the attributes of living systems were not all necessarily based on chemical organization, this did account for the ability of every living cell to maintain a dynamic individuality in diverse environments. Even such cell attributes as growth, multiplication, and the inheritance and transmission of qualities might well be based upon organization at a level in some sense higher than the chemical one. Biochemistry had now become a true branch of progressive biology, and had an increasingly obvious bearing on human welfare. In view of this, the prevailing public ignorance of biology was very regrettable. With frank acceptance of the truth that his own nature was congruent with all the aspects of nature at large which biology studied, combined with intelligent understanding of its teaching, man would escape from innumerable inhibitions due to past history and present ignorance, and equip himself for higher levels of endeavour and success. Nutritional studies had already made it clear that nurture could assist nature to a hitherto unimagined extent, as regards both man and animals. Apart from war, the gifts of science and invention had done little to harm man, and there was no call for any slackening of ardour for research. The trained scientific mind must play its part in solving such modern problems as adjustment to social reconstruction. Even leisure, dreaded hitherto as a peril, might prove to be a great social benefit, the individual being liberated from the tyranny of herd instincts, which had always been the major danger to the world, and thus becoming free to develop further his own innate powers. For those who cultivated it in a right and humble spirit, science was one of the humanities.

THE ACTIVITY OF NERVE CELLS

Professor E. D. Adrian, president of the Section of Physiology, delivered an address in which he discussed the problem whether it was reasonable to aim at explaining the working of the nervous system in terms of its constituent cells. The function of nerve cells was to make the organism respond rapidly and effectively to changes in its environment, and to achieve this they had developed a specialized structure and a complex arrangement of pathways in the body. The question now was why the nerve cells were so arranged. The new embryological research work supported the older in showing that the nervous system was made up of neurones, all of which seemed to do their work in much the same way, and with a rhythmic activity, rapidly alternating between resting and active states. The impulses in a given nerve fibre were all alike in magnitude, rate of travel, etc., but the frequency with which they recurred depended on the intensity of the stimulus, rising sometimes as high as 300 a second in each fibre, or falling as low as ten. In the activities concerned in the rapid conduction and in the setting up of rhythmic trains of impulses it did not appear that the cells of the nervous system had properties not shared by other tissues. A recent line of investigation had been based on the fact that nervous activity in the central grey matter, as in the peripheral nerves, was accompanied by electrical changes, which seemed to be a measure of the underlying activity. In the cerebral cortex, for instance, very large electrical oscillations were occurring continually, except in the deepest anaesthesia, but they varied from moment to moment, and from place to place, coming under a fair degree of experimental control in the visual cortex only. The most significant feature of these records from the brain lay in the appearance of the waves, which were alike in general form whenever a group of nerve cells was in action, in the cerebral cortex, the brain stem, or the retina. It was often possible to make out both the abrupt nerve fibre impulses and the slower nerve cell waves, and to show that they occurred together. In the cerebral cortex of an anaesthetized animal there was much more variety and less orderly repetition; the waves usually occurred at irregular intervals, varied in size and duration, and some might last for half a second or even longer. Such

waves, probably due to the branching dendrites, undoubtedly represented a characteristic activity of the structures which made up the grey matter, showing that the same kind of rhythmic breakdown and repair of the surface took place in this part of the neurone as in the nerve fibre, with the important difference that the changes developed and subsided much less abruptly. It seemed probable that both chemical and electrical changes might be concerned in the spread of activity from one neurone to another. How this spread took place was admittedly the most important problem that had to be faced. It was clear that, while the nervous system was built up of cells with a specialized structure and reactions, the reactions were of a type found in many other cells—for example, in the heart. Although many reactions of the nervous system were relatively mechanical, and explainable in terms of the activity of groups of neurones, others could not be so dismissed from consideration. The difficulties of explanation were greatest when the reactions depended on the cerebral cortex, and involved learning and memory, or habit formation and conditioning. The revolt against what had been termed the resort to "anatomical models of the nervous system" had been growing apace; diagrams of nerve centres and pathways were valuable enough when they referred to known anatomical structure, but not when they referred, as they often did, to hypothetical centres and to pathways canalized by use. Undoubtedly there were well-defined nervous pathways, clear differences in cell structure, and localized activity in different parts of the brain, but it was true, nevertheless, that the localization was a matter of areas rather than of single neurones, as had been shown by the examination of habit formation and by the remarkable way in which the nervous system adapted itself to injury. Trauma of the central nervous system evoked more evidence of localized function, but this was no hard and fast affair, for the subsequent recovery of function was not associated with repair of the damaged cortical tissues. The ability of the brain to form new associations, and generally to control the behaviour of the animal, depended primarily on the total area covered by the nerve cells of the cortex and their interlacing dendrites. It was already possible to form some idea of the way in which the grey matter could act as a whole. The electrical oscillations in the cortex and grey matter generally were often due to a large number of units pulsating in unison. Sometimes there were several competing rhythms, and sometimes the collective action broke down altogether, to reappear subsequently, the neurones again acting as though they formed one unit. The patterns of activity in a system of this kind would be like the ripples on the surface of a pond, with the difference that some might occur spontaneously, while others were due to incoming signals. No one, concluded Professor Adrian, could observe these ceaseless electrical pulsations without realizing that they provided a fresh set of data, and might give a new outlook on the working of the brain. Facts were accumulating rapidly, and several lines of evidence appeared to lead in the same direction. The problem of the organization of neurones into the nervous system was still a physiological one.

THE MECHANICAL VIEW OF LIFE

Dr James Gray opened his presidential address in the Section of Zoology with a reference to the increasing extent of the borrowing by experimental zoologists of the weapons of physical chemistry. The time had now come, perhaps, to consider the general point of view which underlay this type of attack on zoological problems. Could the activity of living matter and its potentiality for change be expressed adequately in terms of physical units? Was there an inclination to the belief that living animals had been evolved from inanimate matter? In the battle between the mechanistic and vitalistic schools of thought it was a curious but pertinent fact that the most far-reaching mechanistic views had been and were being put forward by biologists, whereas the more cautious views or the vitalistic views were held by physicists and chemists. The mechanistic view of life seemed to imply that, if at any instant of time it was possible to know the precise distribution of the matter and energy present in an organism, there would result a complete understanding of all its properties. In other words the behaviour of living systems could be completely defined in terms of laws which were fundamentally similar to those which described the behaviour of inanimate systems. It was interesting to consider how far the conception was based on the results of observation and how far it rested on a rather indefinite foundation of intuitive belief. The spontaneous origin of living matter was possible but so improbable that, if considered as an observable phenomenon in any other sphere of human thought it would be discarded as a figment of a deranged brain. Why should biology accept a standard of probabilities incomparably less satisfying than that of other branches of knowledge? Biology itself provided not one shred of observational evidence to support the spontaneous origin of living matter in the world to-day, and yet not a few biologists were prepared to postulate the spontaneous origin of intermediate stages between the living and inanimate worlds. Within the physical world all systems appeared to move towards the state of greatest probability, and the events which took place within a dynamic system were those which tended to destroy structure, and not those which elaborated it. No evidence had yet been obtained that within the physical world a dynamic machine had spontaneously come into existence. Until such evidence had been found, the belief in the spontaneous origin of living matter seemed to be a negation of the principles of scientific thought. There was, then, no reason for hope that all the properties of an organism might be expressed in terms of physical laws; it would be just as reasonable to try to express physical phenomena in terms of biological conceptions. It seemed to be more logical to accept the existence of matter in two states (the animate and the inanimate) as an initial assumption. Some properties were naturally common to matter in either state, and it was therefore legitimate to study the physical properties of living matter on a basis of observational facts and not of speculative theories of origin. Dr Gray then developed the argument that within the sphere of embryology could be recognized more clearly than in any other biological science the two main attributes of living matter: (1) an inherent complexity of structure and (2) a dynamic potentiality of initiating events which either did not occur at all, or only occurred very infrequently in inanimate systems. Similar inferences could be drawn from the study of the relationship between the fully grown organism and its physical and chemical environment, but in this case the tendency was to concentrate on the physical events rather than on the potentiality of the organism to control or vary its own activities. Summarizing the present position, Dr Gray said that the only laws which physics had provided for an analysis of biological phenomena rested on a statistical basis. They only applied to systems which contained a large number of participating units, and only described natural phenomena in terms of probability and not of absolute truth. If these laws were to be accepted as a means of describing the behaviour or the structure of an organism, it was necessary to accept also the conventions attached to the laws, and to agree to ignore such events as were improbable though they might conceivably occur. From this point of view the spontaneous origin of living from inanimate matter must be regarded as a highly improbable event, and as such could be assumed not to have occurred. Similarly, the development of an organism from so called undifferentiated protoplasm involved processes which were without parallel in inanimate nature. It was dangerous to assume in the present state of knowledge that the statistical laws of physics could satisfactorily describe all biological events. What was known of the physical and biological properties of living matter suggested that the fundamental unit of structure was extremely small, and that it contained potentialities for change which were unique in the universe. These properties must be accepted as fundamental axioms of

biological science, which might or might not prove in the future to have their parallel in the physical world. Not infrequently the physiologist could restrict his interest to the physical properties of isolated organs, the origin of which did not concern him. The zoologist, on the other hand, knew that the beautifully adapted mechanism known as an "organ" had been evolved from a system unlike itself, and might in turn initiate something new. For this reason he could not afford to forget what might be called "the intrinsic potentiality of the living organism." Experimental zoology could be divided into two types of study: (1) the investigation of the physical and chemical properties of living organisms; and (2) a study of the intrinsic potentialities of living matter, revealing, as it did, a co-ordination of events which was without inanimate parallel. In the first type of work use must be made of every new weapon which the physicist could supply. In the second type of work, however, biology must be the mistress, and not the servant, of physics or of chemistry. She must make her own foundations, and build on them fearlessly, prepared to change her views, if need be, but not prepared to force the wine of life into bottles which were designed for use in the simpler and less intoxicating fields of chemical science.

(*To be concluded*)

TUBERCULOSIS OF THE HIP

THE ORTHOPAEDIC CONGRESS DISCUSSION

[FROM A CORRESPONDENT]

It is significant that in a recent discussion on the treatment of tuberculosis of the hip-joint at the meeting of the International Orthopaedic Society in London, most of the speakers dwelt at some length on the question of operative treatment. One was led to conclude that the modern operative treatment was no longer in the experimental stage, but accepted in many countries as an essential part in the therapeutics of this condition. The opening speaker, Professor P. Erlacher (Graz), dwelt briefly on the "conservative" regime that has been so generally accepted as the correct treatment for surgical tuberculosis. Many years ago it was realized that the joint lesion was but an outward and visible sign of an inward and serious general disease, and that the first aim of treatment must be to raise the patient's resistance so that he could overcome the systemic infection. Rest, heliotherapy, actinotherapy, and a full diet were of proven value; tuberculin was still on trial. In addition, there must be adequate immobilization of the affected joint, either by extension or in plaster-of-Paris. Although extension permitted exposure of the maximum skin surface and easy access to the diseased joint, this form of treatment was necessarily limited to cases in hospital, and the speaker was inclined to favour plaster, not only because it was applicable to patients who could not be admitted to special hospitals, but because of the more perfect immobilization and consequent freedom from pain that it gave. Such "conservative" treatment, continued for four years, generally resulted in a fairly firm fibrous ankylosis of the hip. Could this long and expensive therapeutic programme be shortened by some sort of direct attack on the joint? The injection of chemicals, *x*-ray treatment, etc., were either of little value or positively dangerous. The one hope was surgical intervention. If an extra-articular focus of disease could be identified before the hip-joint had become involved prompt eradication of the focus was followed by rapid healing. Professor Erlacher even went so far as to recommend early excision of an intra-articular focus followed by some form of arthrodesis. Naturally, operation would be followed by a period of general treatment, but not for the length of time required under a purely conservative regime. Professor Adolfe Maffei (Brussels) was an enthusiastic advocate of arthrodesis. In adults he performed a para-articular arthrodesis in the acute stage of the disease, a combined intra-articular and extra-articular operation in the subacute stage (where there was considerable cavitation of the femur or acetabulum), and a juxta-articular operation (where there was an unsound fibrous ankylosis). He operated on children, but only in the quiescent stage. Dr. M. S. Henderson (Mayo Clinic) reported on the condition of forty-three out of forty-six patients (almost all adults) who had been treated by arthrodesis. One patient died of generalized tuberculosis ninety days after operation. Fusion was not obtained in three other cases, but the remainder had firm bony ankylosis, although secondary operations had been necessary in two cases in which the graft had failed to unite with the trochanter. He was convinced of the superiority of the combined operation; sinus formation had been more common after purely extra-articular arthrodesis. He saw no reason why the operation should not be performed in childhood. Professor E. Sorrel (Strasbourg) was satisfied with the results of conservative treatment in children. Arthrodesis was rarely indicated, and then only in the healed stage of the disease. In adults, however, the prognosis with conservative treatment was so gloomy that operation was frequently called for. He operated on active and healed hips, his choice of operation agreeing in the main with Maffei's. In the interesting, if somewhat hurried, discussion that followed the reading of the opening papers, almost every European country, and America, was represented. Professor Julius Hass (Vienna), the pioneer of extra-articular arthrodesis, pointed out that operation was no longer advanced as the rival but rather as the companion of conservative treatment. He was in entire accord with Erlacher's treatment of extra-articular lesions, and stressed the importance of avoiding perforation of the synovial membrane during operation. Mr. G. R. Girdlestone (Oxford) favoured the combined operation in adults and extra-articular arthrodesis in the healing stage in children. Professor L. Rocher (Bordeaux) reported five cases, all in children, in which he had operated for lesions apparently confined to the neck of the femur, but had found on exposing the hip that a tuberculous synovitis was also present. In each case he had courageously extirpated the primary focus and performed a complete synovectomy. Perfect recovery had followed.

COMMENTARY

It is evident that among orthopaedic surgeons there is widespread dissatisfaction with the results of purely conservative treatment for tuberculosis of the hip. It is not the patient's general condition but the state of the joint itself that is too frequently unsatisfactory. As recovery with a relatively normal mobile joint is very rare, local treatment must be directed to the production of a fixed joint with a fair prospect of freedom from late pain or deformity or recurrence of disease—in other words, bony ankylosis. As spontaneous bony fusion so rarely occurs, operative fixation must be performed sooner or later in most cases. It should never be forgotten that operation does not take the place of general treatment, though it may reduce the length of the patient's stay in hospital. At what stage is arthrodesis to be performed? In children it should never be carried out in the acute stage, though the reasons for this were not brought out very clearly at this meeting; the operation may, however, be considered in the healing stage. In adults arthrodesis should be performed early or late, provided that there is no contra-indication. Success depends less on the type of operation than on the judgement of the surgeon in selecting his cases and deciding on the time for intervention, and on the skill with which he performs the operation. Properly carried out, arthrodesis yields from 60 to 90 per cent. of successes. It would appear, then, that in the present state of our knowledge we can offer a patient nothing better than a fixed, painless joint that is not likely to trouble him in years to come. A safe, painless, movable joint is still beyond the horizon, though there are three promising recent developments: the early operation for strictly extra-articular lesions (to which reference has been made); the wide excision of the hip described by Bankart at the meeting of the British Orthopaedic Association in July, 1933; and arthroplasty, performed years after successful arthrodesis, as described by Albee. As yet it is too early to assess the exact value of these procedures, and patients with tuberculosis of the hip must, for the present, be thankful if they have a sound, stiff joint.

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METABOLISM DURING FEVER

The measurement of temperature has become so routine a procedure in practical medicine that one tends to lose sight of the complicated mechanisms involved both in the maintenance of a constant body temperature and in the phenomena associated with fever. The recognition of the clinical significance of a raised temperature and its accompaniments dates from a period long before the era of quantitative metabolic investigations. Once having established that the heat of the body is produced by the combustion of foodstuffs, it became obvious that, unless this heat is disposed of, there will be a retention of heat and hence a rise in temperature. Normally, therefore, there is complete equilibrium between the heat produced by metabolic processes and the heat eliminated. In violent exercise—for example, running or walking for long distances—there is so great an increase in the rate of heat production that the mechanisms for eliminating heat are not adequate for maintaining a heat balance, so that very considerable rises in temperature occur. While conclusions of this sort may be drawn on more or less common-sense grounds, the accurate study of the metabolic changes in fever is a matter of some difficulty. Measurements made on cases of spontaneous fevers are clearly not easy to control, so that methods must be sought by means of which fever can be induced in man, either on therapeutic grounds or of such a kind that no harmful results follow. In this way the changes produced during fever can be studied in the same individual and comparisons made with the non-febrile state.

Such a method has been used recently by E. Delcourt-Bernard.[1] The subjects investigated were patients with subacute or chronic affections of the joints or genital adnexa of gonorrhoeal origin. The agent for the induction of fever was the anti-gonococcal vaccine prepared by the Institut Pasteur in Paris. This vaccine has been recommended in gonorrhoeal affections for injection at the "portal of entry" of the infection—that is, Skene's or Bartholin's glands, nipples in cases of mastitis, rectal mucous membrane in cases of pelvic infection. The injection is followed in about thirty minutes by a rigor. After a certain number of injections (two to fifteen) this reaction no longer appears and the treatment is stopped. It is found that this vaccine does not produce this violent kind of reaction if injected subcutaneously, intradermally, intramuscularly, or submucously; nor does it produce a rise in temperature when thus injected. Delcourt-Bernard, however, finds that the characteristic reaction occurs after intravenous injection, and so he used both this route and injection by Skene's glands. The complete reaction to such injections consists of a preliminary period of about fifty minutes (pre-rigor), a rigor of about thirty minutes, a progressive rise in temperature lasting twenty to 120 minutes, a temperature plateau of sixty to 120 minutes, and a gradual defervescence for twelve to sixteen hours. If the subject has had several reactions with rigor a subsequent injection will produce a febrile reaction without rigor. During the reaction with rigor the rectal or vaginal temperature may rise to 41.6° C. (106.9° F.), but more usually it does not exceed 40° C.: the pulse rises to 120–140 per minute. Both temperature and pulse are considerably less if no rigor occurs.

In this way, therefore, a study can be made at will of the metabolic phenomena accompanying pyrexial attacks, control figures being obtained for each subject before each injection and frequent repetition of the experiment being possible. The author of this very interesting work studied the metabolic rate (indirect, open-circuit method), the respiratory quotient, the proportions of the heat produced which were retained and eliminated, the pulmonary ventilation, the blood pressure, and the excretion of water and chlorides. Having obtained the total calorie production during any period of the febrile attack the proportion of heat retained is readily calculated from the fact that the water equivalent of the human body is 0.83 times the body weight in kilograms (W), hence the heat retained during a rise in temperature of t°C. is (0.83 × W × t) calories: this amount of heat deducted from the total produced gives the heat eliminated by all the available channels. During the complete reaction with rigor it was found that in the pre-rigor period there occurred on the average a 15 per cent. fall in heat production and during the rigor itself there was a smart rise in heat production of about 112 per cent. The muscular contractions constituting the rigor were found, on careful analysis, to account for about half of the increase in heat production during the rigor. Immediately after the rigor the heat production falls to a level of about 25 per cent. above the basal rate and then rises to 30–35 per cent. During the first two hours of the defervescence period the heat production continues at 10 per cent. above the basal rate. In the reaction without rigor the rise in calorie production is much less (+ 16 per cent.).

Analysis of the non-protein respiratory quotient showed that the rise in thermogenesis during the febrile attack is due to an increased combustion of fats (+ 70 per cent.). Protein metabolism does not appreciably change, and carbohydrate metabolism is increased only if there is muscular contraction (rigor): in attacks without rigor the combustion of carbohydrate fell by 53 per cent. These data give a quantitative picture of the clinical fact that fevers make great inroads into fat deposits. In normal conditions thermogenesis and thermolysis are almost equal, except for minor imbalance incident to slight variations in body temperature. In the febrile state this balance is disturbed. During the pre-rigor period, when the heat production is diminished by about 15 per cent., there is already a retention of heat amounting to 25 per cent. of the

[1] *Rev. Belge des Sci. Méd.*, March, April, May, 1933.

total calorie production. During the rigor the retention of heat reaches the remarkable height of 75 per cent., and even afterwards there is still a retention of 30 to 40 per cent. Heat is lost by the body principally by two means—(1) evaporation, (2) radiation, conduction, and convection. Work by DuBois and others has shown that during fever there is no great change in the rate of water elimination, although this varies in different subjects. After the rigor the vaso-dilatation is often accompanied by considerable diaphoresis, but this may not occur till the commencement of defervescence. Much the greatest importance, in explaining the heat retention, must be attached to the condition of the peripheral circulation.

Maragliano, as long ago as 1889, showed by plethysmographic methods that as the temperature rose in a malarial attack there occurred a progressive vaso-constriction. This vaso-constriction continued as the temperature continued to rise after the rigors, and as the slow defervescence set in there was a corresponding progress towards vaso-dilatation. Continuous oscillometric record of the blood pressure during the febrile states studied by Delcourt-Bernard showed that soon after the injection of the vaccine there was a fall in blood pressure, accompanied by a fall in pulse rate, there being a certain amount of failure of the peripheral circulation. Later, both before and during the rigor, there was an intense vaso-constriction of the peripheral vessels, with a marked rise in blood pressure and pulse rate. This mechanism is adequate for the production of the great heat retention observed. The increase in thermogenesis during the fever is accompanied by large increases in pulmonary ventilation, so that the great heat retention cannot be correlated with a diminished loss of heat by this route. Finally, this author finds that during the febrile reaction, with or without rigor, there is a rise in the rate of urinary secretion to two or three times the normal, the excretion of chloride running parallel. These results are of great interest as giving a quantitative insight into the processes involved in what may be called a "pure" febrile reaction. They cannot be immediately applied to cases in which the fever may be only one feature. This is clearly so, for example, in the case of malaria, in which an increased protein katabolism has often been demonstrated, and in the case of pneumonia, in which a great retention of chlorides is known to occur.

MATERNAL WELFARE IN NEW ZEALAND

The report of the Director-General of Health in New Zealand for the year ending March 31st, 1932,[1] offers a welcome record of sustained progress in dealing with the great problems associated with maternity. As a result of the considerable efforts made by the Dominion during the last ten years a generous provision of hospital beds for midwifery, amounting to one bed per 1,000 of the white population, is now available, and during the year under review roughly 70 per cent. of the total births took place in hospital. This offers a sharp contrast to conditions in England and Wales, where not more than from 10 to 15 per cent. of the total births occur in hospital. Four-fifths of the hospital accommodation is in special maternity hospitals or maternity units; the remainder are hospitals which also admit a limited number of medical and surgical cases, under strict regulations with regard to the admission of septic cases. The training of midwives (who are all trained nurses) and of "maternity nurses" has been stiffened; the attendance at the public antenatal clinics has increased by 50 per cent. in the last five years. The infant mortality rate for the year under review was no more than 32.15 per 1,000 live births—a record for the Dominion. The birth rate was also the lowest on record.

It is therefore a matter for concern and regret that the total puerperal mortality rate has remained practically stationary during the years 1927-31. The mortality from the toxaemias has risen slightly, that from the "accidents" of pregnancy has risen considerably, while the mortality from septic abortion has risen alarmingly. On the other hand, the mortality from puerperal sepsis, excluding septic abortion, shows a most gratifying fall from 2.01 in 1927 to 0.68 in 1931. The inspector of maternity hospitals outlines the administrative and other measures to which this great improvement is to be attributed. Prominent among them are the wider application of the principles of surgical asepsis, and the reduction in the number of instrumental deliveries, the forceps rate in hospitals having fallen from 14.5 per cent. in 1927 to 9.15 per cent. in 1931. The inspector also records, with gratification, the "almost entire elimination of epidemic sepsis" from the hospitals.

The rising returns of mortality from septic abortion are clearly giving the New Zealand authorities great concern. Out of twenty-nine fatal cases which were officially investigated in the year 1931 twenty-six occurred in married women, a fact which, it is pointed out, indicates that the incentives to abortion arise mainly from social and economic circumstances, and not from loose living. Here is one of the most difficult and anxious problems in the whole field of maternal mortality. A rising death rate from this cause may be sufficient, as in the case of New Zealand, to counteract any improvement which may be gained in the mortality from sepsis following labour. The practice of criminal abortion, and the methods employed, are outside the influence or control of the medical profession, which is called upon only to clear up the debris of the destruction wrought by others. The problem of dealing with it is one which faces all the Western nations at the present time: a falling birth rate and a rising maternal mortality from criminal abortion can only be effectively dealt with by national and international action, for both have their origin in the same social and economic conditions which bear so heavily on all.

[1] Department of Health. Report of the Director-General of Health, New Zealand. For the year ended March 31st, 1932. Wellington: W. A. G. Skinner, Government Printer. (1s.)

VASO-CONSTRICTOR EFFECTS OF TOBACCO

The part played by tobacco in the causation of cardio-vascular disease has long been a disputed problem. It is certain that nicotine has definite pharmacological effects upon the neuro-muscular mechanisms concerned in the contol of the circulation. Recent work connected with this was recorded in our *Epitome* of August 19th, para. 134. It is equally certain that circulatory syndromes may occur in heavy smokers and disappear rapidly with the withdrawal of tobacco. As far as arterial degeneration is concerned many have considered that where a familial or personal disposition exists the process is hastened by excessive smoking, and that when arterial disease is already developed, tobacco may aggravate it by inducing vaso-constriction. Two years ago N. W. Barker[1] investigated at the Mayo Clinic 350 unselected cases of thrombo-angiitis obliterans. He found that tobacco could not be the only factor related to this disease, since a definite though small proportion of the patients smoked either very moderately or not at all. Further, Horton and Brown[2] have put on record a series of ten female sufferers from thrombo-angiitis obliterans, of whom only four had smoked to excess. More recently, Maddock and Coller[3] have studied the effect of cigarette smoking upon the skin temperature in normal persons. They found a definite drop in the cutaneous temperature of the digits, an effect which was not produced in a control series when the tobacco smoke was filtered. Barker[4] has repeated these investigations on patients suffering from thrombo-angiitis obliterans. Similar alterations of skin temperature were produced in them, and also in a group of patients showing vaso-spastic disturbances such as Raynaud's disease. It has in the past been suggested that arterial troubles consequent upon cigarette smoking might be due to the production of methynol in the combustion of cigarette paper; this view has gained some support from the fact that pipe and cigar smokers appear to be relatively immune from thrombo-angiitis obliterans, and that symptoms similar to those experienced by excessive cigarette smokers may be produced in those who work with burning paper in garbage. Barker has investigated this problem from the standpoint of skin-temperature measurements. Five normal persons who showed a vaso-constrictor response to cigarettes by definite reduction in the skin temperature of the digits were selected for the test; the drop in temperature following the smoking of three cigarettes was recorded; the subjects then smoked a tobacco of low nicotine content to which had been added the papers from eight cigarettes. It was observed that a greater and more prompt drop of skin temperature followed the smoking of the unadulterated tobacco. One patient showed no drop with the paper-tobacco combination, but a rapid fall with tobacco alone. These experiments, regarded as a whole, indicated that cigarette smoking was attended by peripheral vaso-constriction brought about by the products of the burning tobacco. Whether this effect was produced locally upon the arterioles or through the agency of the sympathetic was questionable. The fact that a few of the susceptible persons upon whom the tests were carried out noticed salivation, sweating, increased peristalsis with nausea, and pallor of the face suggested that the peripheral effects were also part of a general stimulation of the sympathetic system. Whether these effects were due to nicotine or to some other component of tobacco smoke is a problem which still awaits solution.

[1] *Proc. Staff Meetings of the Mayo Clinic*, February, 1931, p. 65.
[2] Ibid., February, 1932, p. 107.
[3] *Proc. Soc. Exper. Biol. and Med.*, January, 1932, p. 487.
[4] *Proc. Staff Meetings of the Mayo Clinic*, May, 1933, p. 284.

PSYCHOLOGY OF PERSONAL INFLUENCE

The proceedings in the Section of Psychology at the British Association meetings at Leicester last week were enlivened by a little tilt between Dr. William Brown, Wilde Reader in Mental Philosophy at Oxford, and Professor William McDougall. Dr. Brown gave a brief address on "The Psychology of Personal Influence" opening with a remark on the increasing tendency towards group or community thinking, and suggesting that the art of individual or independent thinking might be lost. It was thought alone, in his view, which enabled a person to insulate himself adequately, but there were signs on every hand of non-insulated or group thinking, of people crowding together to do their thinking, and placing themselves for this purpose under a master whom they over-valuated. Dr. Brown then went on to examine the factor of *rapport*, which is of so great importance in the theory and practice of hypnotism, and he criticized as being too limited to explain the fact of suggestion both the sexual factor postulated by Freud and the instinct of self-abasement as put forward by McDougall. In Dr. Brown's view autosuggestion is based on a feeling of confidence and the non-existence of fear, though he does not exclude the view that in hypnosis archaic affective tendencies and beliefs may come to the surface and make themselves felt. Suggestibility could be produced in many ways, and not merely by the play of the instinct of submission. In hypnotism as he himself practised it among war victims there was no assumption of superiority on the part of the hypnotist, who sought to arouse in his patients only confidence, not the instinct of submission. Professor McDougall, in commenting upon Dr. Brown's paper, repeated his own view that there was innate in the human species a tendency to submit, to bow down, to look up. He felt also that Dr. Brown had not sufficiently distinguished between suggestibility and the actual process of suggestion. Many conditions, notably the taking of liquor, might increase a person's suggestibility, but alcohol did not induce suggestion, it induced only the condition of the brain in which suggestion was more readily effected, and in this respect hypnosis was like alcohol, it brought about a condition favourable to suggestion. The skilful leader of a group or community first produced a condition of suggestibility and then implanted his suggestion, and under such dominance the persons so acted upon surrendered their own views and accepted the views of another. Dr. Brown, in reply, pointed out that in public affairs a good leader could make a crowd into a very powerful army or nation, which would alter the history of the world, and in his view it was insufficient to brush that aside as regression or self-abasement. There was no self-abasement in a people who were anxious themselves to reach a certain thing, and who followed a leader not because they respected him, not because they feared him, or cringed before him. Moreover, any leader very soon found that he had to follow his

followers. His followers projected upon their leader their conception of what he ought to be, and he was compelled to obey them on peril of being superseded. It was necessary for a leader to have a strong self-assertive instinct and to be free from fear. Those leaders who had absolute power over their followers were those who had never shown fear. It was confidence rather than fear which was necessary to therapeutic autosuggestion. He agreed that alcohol and other drugs, as well as all emotional intoxication, and perhaps the mere fact of being in a crowd, would induce suggestibility; but suggestion when it was made and responded to was not in general through the arousal of the instinct of self-abasement in the person to whom the suggestion was made. In treating cases one came across many patients who desired to be hypnotized, but with whom no hypnosis followed; and many others who were definite that they could not be hypnotized, but who were found to be very suggestible and hypnotizable. With the latter it was not any instinct of self-abasement which was at work, but a congruence below the level of consciousness of the hypnotist and the person being hypnotized.

EPOCH MEN IN BRITISH MEDICINE

Dr. H. H. Bashford has produced a very charming series of essays on the history of medicine, in a volume which he calls, somewhat unhappily, *The Harley Street Calendar*.[1] It is, however, only with the title that fault can be found. The rest is all gold, for the essays are written in English which it is a delight to read, are full interest, and form a chain on which is strung a history of English medicine from the Saxon Leechdoms to the present day. Dr. Bashford writes of Gilbert the Englishman, John of Gaddesden, Thomas Linacre, William Harvey, Thomas Sydenham, Sir Hans Sloane, John Hunter, Edward Jenner, Sir James Y. Simpson, Lord Lister, and Sir William Osler. These are all names to conjure with, each marking epochs of which all medical men should have at least some knowledge. Beginning with a homely biography, full of intimate details, Dr. Bashford has woven round each name a pleasant account of the times in which his heroes lived. A task of much difficulty, but one which Dr. Bashford has accomplished with success, owing to his wide knowledge of English history. The art he has used and the pains he has taken are most successfully hidden, though it is clear that he has been at much trouble to be accurate in his facts, and to obtain them from many out-of-the-way sources. Readers of this book, therefore—and they should be numerous—will gain an intimate knowledge of the great men about whom he writes. They will no longer be mere names: Gilbert and Linacre will once more become as human as Harvey and Hunter, Jenner and Osler. "Jamie" Simpson's story is peculiarly fascinating as it is told by Dr. Bashford. Born in 1811 at Bathgate, he was the last comer in a family of eight of whom six were living. The family was housed in a four-roomed cottage and the total resources amounted to eight shillings and threepence. The mother was of exceptional ability, the father of lesser account. At the age of 14 Jamie went to Edinburgh "very, very young, very solitary, very poor, and almost friendless." He won a bursary of £10 a year, shared a room with two friends at three shillings a week, obtained the L.R.C.S. at the age of 19, and took his M.D. at 21, finding time meanwhile to hunt for flint arrowheads and sepulchral urns. At 29 he was elected professor of midwifery in the University of Edinburgh and was on the way to becoming Sir James Y. Simpson, Bt., whose patients were said to have put £80,000 a year into the hands of the proprietors of the Edinburgh hotels. What a story of Scottish grit and efficiency!

[1] *The Harley Street Calendar.* By H. H. Bashford. London: Constable and Co., Ltd. (Pp. 272. 3s. 6d.)

TUBERCULOUS BACILLAEMIA

Although the occurrence of tubercle bacilli in the circulation has occasionally been made a subject for investigation, the majority of pathologists have given the subject scant consideration. It was recognized, of course, that tuberculous bacillaemia did occur in miliary cases, and probably also in cases of advanced pulmonary tuberculosis, but the view that the condition was anything but a rare happening hardly commanded general credence. During the last few years, however, the work of Löwenstein and his followers has focused attention on this subject; their findings could hardly have failed to do so. Not only have they claimed to be able to cultivate the tubercle bacillus from the blood in cases of tuberculosis, but also from a number of other conditions such as acute rheumatism, polyarthritis, multiple sclerosis, schizophrenia, retrobulbar neuritis, and a variety of skin conditions—and this in a high percentage of cases. Attempts to confirm Löwenstein's work have given conflicting results, and those without the time or the necessary knowledge to pass the literature in critical review have been left in doubt as to where the truth lay. It is for this reason that Professor G. S. Wilson's report[1] on the subject to the Medical Research Council, which has just been published, is particularly welcome. The report consists of a critical review of the literature, together with appendices by Dr. Herta Schwabacher and notes by Professor C. C. Okell and Dr. E. A. Wood. Dr. Schwabacher's contribution consists of pertinent investigations carried out at the London School of Hygiene under the direction of Professor Wilson, and the notes by Professor Okell and Dr. E. A. Wood relate the findings obtained at University College Hospital. No unbiased person, after reading this report, could possibly believe that the claims of Löwenstein and his colleagues have any real foundation in fact. In very many instances their proof of successful cultivation would be unacceptable to anyone knowing anything about the subject. The lack of precautions—sometimes quite elementary precautions—observed by these workers using a technique so open to error is almost unbelievable. This does not mean, of course, as Professor Wilson points out, that Löwenstein has never cultivated tubercle bacilli from the blood or that tuberculous bacillaemia does not occur. It does occur, though it is probably limited to miliary cases and cases of advanced pulmonary tuberculosis. But that the tubercle bacillus can be isolated from the blood in a whole host of conditions which no one ever suspected of being tuberculous is a claim for which there is no proof.

[1] Special Report Series, No. 182. Medical Research Council. *Tuberculous Bacillaemia.* By G. S. Wilson. With appendices and notes by Herta Schwabacher, C. C. Okell, and E. A. Wood. London: H.M. Stationery Office. 1933. (2s. 6d. net.)

MALARIAL THERAPY AND THE COMMUNITY

During the last year certain German authorities have asserted that there is a danger of anopheline infection, and consequent dissemination of malaria, through malarial treatment of syphilis. A few cases have been recorded in Sweden and Northern Italy, although in Trieste, where anopheles abound in hospital wards during the summer, no case has been notified. In a recent communication[1] Wagner-Jauregg observes that although 3,757 cases of malaria occurred in Vienna in 1919 (following the return of troops from South-Eastern Europe) there were only eleven cases in 1922. He estimates that over 6,000 patients have been inoculated in Vienna since 1919, yet not one case of malaria occurred among the medical and nursing staffs of any of these institutions nor in any non-inoculated patient. Although he cannot deny the possibility of such anopheline infection from malaria-inoculated patients, it would appear to be highly improbable that such infected anopheles would be a serious danger to the community. He expresses himself as unable to understand why Martini recommends so strongly anopheline transmission as opposed to inoculation with malarial blood. Patients infected by anopheles are subject to recurrence from one month to a year after treatment, and must therefore constitute a greater danger than those patients in whom, after inoculation, malaria persists for two or three weeks while they are under observation in hospital. In such cases malaria is controlled if not aborted completely by quinine, and the patient is not a danger to his neighbours. It cannot be asserted that patients who are free from recurrence do not harbour plasmodia or gametes in their internal organs, and it would seem desirable that an examination of their viscera after death from aborted "inoculation malaria" should be made; such material is, however, difficult to obtain. Unfortunately, the precise value of Henry's reaction has not been ascertained—apparently it proves only that a patient is or has been infected with malaria—though further investigations are now proceeding on these lines. The dangers of malarial inoculations seem, therefore, to have been exaggerated.

THE "JAY BATHER"

The number of deaths from drowning reported during the past few weeks has given point to a letter in the *Times* of August 10th by Dr. G. H. R. Holden, chairman of the Reading Health Committee and a former president of the Oxford and Reading Branch of the British Medical Association. Dr. Holden's object in writing was to start a general movement for the improvement of facilities for teaching children to swim. In this he will not lack sympathy—and active encouragement too, we hope—from members of the medical profession throughout the country. Doctors by the nature of their calling have first-hand knowledge of what a bathing fatality means to the bereaved family circle, and many of them hold a position in public life which enables them to influence local opinion. While it is true that some deaths from drowning are due to rashness on the part of good swimmers, a far larger number occur among non-swimmers who venture, or are swept, out of their depth at seaside bathing places, or fall into deep water in canals, rivers, and docks. Moreover, the person who cannot swim well enough to get out of danger if suddenly immersed is a cause of danger to the swimmer who goes to his rescue. Almost every week during the holiday season we read of tragedies in which the breadwinner of a family loses his life in attempting to save a non-swimmer from drowning in a heavy sea or a treacherous current. Just as in the streets the "jay walker" is a peril to himself and others, so, too, is the "jay bather" in the sea—the child or semi-imbecile adult who cannot swim more than a few feeble strokes, and yet goes gaily out into unknown depths on a falling tide. There will always be deaths from drowning, but the total would be far smaller if corporations and councils throughout the country, acting *in loco parentis*, increased the facilities for instruction in swimming of elementary school children in their areas. As Dr. Holden says, all parents ought to see that their able-bodied children are taught to swim as early as possible, but he recognizes that working-class fathers cannot usually carry out this duty without assistance from the local authorities.

BIOLOGICAL STANDARDIZATION

"Methods of Biological Assay depending on a Quantal Response," by J. H. Gaddum, is the third of a series of reports that the Medical Research Council has published on biological standards.[1] Biological standardization has proved to be a necessity for a considerable number of important drugs. It is a disagreeable necessity because it is a laborious and difficult method. The difficulties have been increased by the fact that research during recent years has revealed individual variations—to an extent hitherto unsuspected—in the response by animals to drugs. Trevan showed that the term "minimal lethal dose" was really meaningless, and that it was necessary to measure the average or mean lethal dose. Dr. Gaddum, in the present paper, reveals a further complexity—namely, that in most cases the variability in the response by animals to drugs is not distributed according to the normal frequency curve, although a symmetrical frequency distribution can be obtained if the incidence of responses received is plotted against the logarithms of the doses instead of against the doses. In this monograph the author has worked out the methods by means of which the relative activity of two preparations of a drug can be accurately determined. He also gives data for the calculation of likelihood which assist in the determination of the minimum number of animals needed for a test. The monograph involves extensive mathematical argument—and in consequence does not make easy reading—but it will do much to facilitate the accurate biological standardization of such substances as antitoxins, vitamins, and hormones.

The Department of Preventive Medicine in the University of Bristol will be formally inaugurated by Sir Hilton Young, Minister of Health, on Friday, September 29th, at 12 noon.

[1] *Wien. klin. Woch.*, June 9th, 1933, p. 705.

[1] Special Report Series, No 183. H.M. Stationery Office. (1s net.)

Nova et Vetera

MANCHESTER'S LEAD IN THE HUMANE TREATMENT OF THE INSANE *

BY

E. M. BROCKBANK, M.D.

The foundation of the "Retreat" at York in 1796 by Tuke and the Society of Friends is generally looked upon as the first attempt to treat the insane by humane methods. There is no doubt that it represented a very great step forward, because the use of chains was abolished there, and more personal care, thought, and attention was given to each individual case; also those patients who were considered fit for such work were put to out-of-door occupations. In the January number of the American *Annals of Medical History*, in an article on "Psychiatry in Historical Retrospect," Dr. Forrest Harrison gives credit for similar innovations in 1774 and 1778 to Vincenzo Chiarugi and Desquin at the Hospital of St. Boniface in Florence. It also records how Philippe Pinel began to remove chains from the insane in Paris in 1794 at La Bicêtre and Salpêtrière Hospitals, and to discontinue the routine treatment of the insane with lowering purges and vomits, which was in vogue even in 1815 at St. Bethlem's.

Manchester, however, can justly lay claim to having been the first place deliberately to found a hospital in which lunatics could be "carefully attended and tenderly treated." The trustees of the Public Infirmary in Manchester, from its opening in 1752, had always regretted that the rules of their new hospital, like those of other similar institutions, did not allow persons disordered in their senses to be admitted as in-patients. But their fellow citizens had long solicited them to take the case of poor lunatics into consideration, and the trustees promised liberally to support a hospital for the care of such persons. There were then only two public institutions for the care of lunatics in England, both in London—St. Bethlem's and St. Luke's. Elsewhere they were confined in workhouses, prisons, or private madhouses. In January, 1763, an article appeared in the *Gentleman's Magazine* appealing to Parliament to take steps to put a stop to the terrible conditions then existing in private madhouses, and to prevent sane people from being made away with in such places by interested relations or impatient heirs—a danger which lasted into the nineteenth century, and was described in *Valentine Vox* by Crockton, and in *Hard Cash* by Charles Reade, in mid-Victorian days. This article must have been the final stimulus to the trustees, for in August they had a meeting "to consider of a proper plan to provide for and cure such patients as are disordered in their senses." The overseers of the poor attended, with many interested trustees, and it was decided to build a hospital for these "miserable objects." They hoped by doing so not only to benefit the poor and relieve the parishes of such difficult cases, but also to provide suitable accommodation for the better-class patient; they hoped by so combining the two that the stipend paid willingly by the friends of the better-class patient would enable the hospital to take the pauper class at a very low rate. The trustees also hoped that many of the better-class patients would be saved from the heavy charges and brutalities of private madhouses, and would have more chance of recovering their senses than in those places, where it was not to the owner's interest that they should do so.

The trustees immediately set to work to prepare plans and rules, and the new hospital was opened in 1766 to accommodate twenty-two patients, with charges of 7s. a week for paupers and 10s. for better-class patients. Their rules were drawn up to prevent the abuses of the private madhouses; one provided that all patients were to be examined before admission by a physician to the hospital "touching insanity," and were to be seen by the weekly board of trustees. There was no law at that date requiring a medical certificate before a person was confined as insane; it was not until 1784 that a law was passed requiring certification by a physician, surgeon, or apothecary before admission to a private madhouse, but even then certification was still not required before admission to any public institution.

Every means was taken at the new hospital to ensure as humane treatment of the patients as was then possible with the limited knowledge of insanity of that day, and strict orders were given forbidding any of the violences on the part of the keepers which were customary in every other place where lunatics were confined. The physicians and the trustees visited the hospital daily, and recorded their impressions in a book. Chains were not altogether done away with, but the limbs of those so confined were carefully attended to, and their bedding or straw inspected, sometimes at night, to see that it did not become foul with excretions.

The new institution met a demand, for it soon attracted benefactions from well-wishers which enabled the trustees to reduce the cost to pauper cases, and the building had to be enlarged several times before the end of the century, when one hundred patients were accommodated. The sexes were confined on different floors, and the classes in different quarters, that portion of the building used for the private patients being called the asylum, in contradistinction to the hospital for the paupers. The quiet patients were separated from the noisy ones, and the curious public were not admitted. In fact, there was nothing in this institution comparable to the conditions at St. Bethlem's and St. Luke's Hospitals, as pictured by Hogarth in his *Rake's Progress*; let alone the conditions at private madhouses, which called for frequent parliamentary inquiry and several attempts at legislation.

Dr. John Ferriar, well known for his *Illustrations of Sterne*, in which he showed that many of the choice bits of *Tristram Shandy* were "lifted" from Burton's *Anatomy of Melancholy* and elsewhere without any acknowledgement, was one of the physicians to the Lunatic Hospital and Asylum. He was the only Manchester man of the time to write on mental disorders and their treatment, and this he did in 1792 and 1795 in his *Medical Histories and Reflections*. He recommended a system of mildness and conciliation, and deprecated the idea that lunatics could only be worked upon by terrorizing them with whips and shackles. He also recommended that the mischievous and unruly patients, instead of being beaten, should be shut up in a dark cell and kept on water, gruel, and bread diet until they showed signs of repentance, which were not long delayed. He found that lunatics frequently had a high sense of honour, and that remonstrance with them on their undignified behaviour would improve their condition better than violence. He was quoted as an authority on the subject by Pinel, who in his *Treatise on Insanity* (1806) agreed with some, but not all, of Ferriar's views and methods of treatment. He was also referred to (1807) by William Stark, an architect who was commissioned to prepare plans for a new asylum at Glasgow, as an eminent physician to whom he was indebted for much valuable information. Stark attached the highest importance to Ferriar's great experience in the cure of mental derangement, and recommended some of his methods of treatment for adoption at Glasgow.

The Manchester Public Infirmary and Lunatic Hospital received the royal patronage in 1830, and became known as the Royal Infirmary, Lunatic Hospital, and Asylum. There does not appear to be any adverse criticism of its conduct or accommodation in any Government inquiry into the treatment of the insane until the report of the Commissioners in Lunacy of 1844, when it was said that the hospital was unsuitable from situation and accommodation for the reception of lunatics. It certainly was then in a wrong place, with warehouses and two hotels in close proximity, and steps were taken to remove it to the country, where it was carried on as Cheadle Royal Asylum, or, as it is now known, Cheadle Royal Mental Hospital. After the first few years the funds of the Lunatic Hospital were kept quite separate from those of the general hospital, and all surplus income expended in reducing charges and in improving the accommodation.

* An abstract of an address at the annual meeting of the Manchester Medical Society

India

Medical Aid by Women for Women

The annual report for 1932 of the National Association for Supplying Medical Aid by Women to the Women of India (Countess of Dufferin's Fund, including the Women's Medical Service) is the forty eighth of the series, and, like its predecessors, contains a mass of information about the progress of one of the most hopeful philanthropic enterprises in that part of the British Empire An interesting development in the Women's Service was the appointment of a specialist in maternity and child welfare to the All India Institute of Hygiene, Calcutta, for the purpose of organizing this line of work there Another officer of the Service has also been seconded to function as medical superintendent of the Dufferin Hospital, Quetta, and assistant to the chief medical officer in Baluchistan She will tour the province to inspect the work in progress in the various women's hospitals and dispensaries in what has previously been considered to be one of the more backward areas From the Lady Hardinge Medical College at Delhi comes a complaint that the supply of radium is still inadequate for effective curative treatment, only palliative measures can at present be undertaken This is the more regrettable since cancer patients are being sent there for treatment from places as far distant as Peshawar, Calcutta, Lahore, and Bombay. The total amount of radium at present in the hospital is 69 38 mg, whereas the dose needed for the cure of uterine cancer is 125 mg Other defects in the hospital equipment are the lack of a separate midwifery block and children's ward, the work of the ante natal department is increasing steadily as its popularity grows At the Lady Reading Hospital, Simla, a new wing has been built, with an up to date operating theatre, the old theatre has been set apart for septic cases, and the previous septic theatre now functions as the violet ray and diathermy department Owing to the limited accommodation, this last had also to be used as a babies night dormitory for some weeks at the height of the season The chief present need of this hospital is a better and more sunny children s ward There is available a small piece of land, and the necessary accommodation could be quickly provided if only funds could be obtained for building At the Lady Sandeman Dufferin Hospital, Quetta, extensive additions and alterations have been effected, including the provision of a new out patient department near the main gate, the conversion of the previous out-patient department into the much needed better class family wards, re conversion of the Marker block into a surgical block, for which it was originally erected, and the building of matron's and nurses quarters on some spare ground Similar extension has also taken place at the Government Victoria Caste and Cosha Hospital, Triplicane, Madras, where the amount of work is steadily rising, although special fees have been charged for normal and abnormal labour cases In spite of the continued unsatisfactory financial position at the Victoria Hospital for Women and Children at Vizagapatam, a new sanitary block has been built and certain repairs effected This institution has now been recognized by the Madras Government as a training centre for first class midwives Work at the Lady Dufferin Victoria Hospital, Calcutta, continued in full swing during the year while repairs and minor alterations were effected The general wards have been packed, and the private wards were well patronized As a rule, only acute cases could be admitted, the less acute having to await vacancies Patients could seldom be kept in the hospital during convalescence, and many maternity cases had to be discharged before the tenth day of the puerperium With the alterations, an examination room and a room for delivery of septic labour cases have been brought into use, but more accommodation is urgently necessary for maternity cases which are not clean on admission These reports are illustrative of the many others received from institutions supervised and controlled by the National Association Reduction in Government grants has required decreases in staff despite the extending work, and also diminution in salaries The extra strain of work has resulted in much sickness among the staffs, and closure of departments in some hospitals is now threatened The Dufferin Fund spent its annual income as usual on scholarships for medical students and grants to the various Provincial Dufferin funds for the maintenance of women's hospitals

Health of the Bengalee Student

The Calcutta University has published a preliminary report on the health and growth of the Bengalee student compiled by Dr A Chatterjee He has found that medical examinations indicate that only three out of every ten students can be classed as perfectly fit and healthy for their age, six are definitely suffering from some disability or maldevelopment, while the remaining one is physically impaired to a marked degree In weight the Bengalee is far below the average, and his chest expansion is about one inch less than the average Western standard The vital capacity is markedly low, 14 8 per cent below the European mean After the age of 16 growth stops almost completely and throughout the period of development the increase in weight is proportionately low as compared with that in height Nearly one in four of all the students are physically unfit to take even a moderate amount of exercise Not unnaturally in the circumstances there is a general disinclination for strenuous games and exercises and about 36 per cent of students join in no form of sports or physical exercises According to Dr Chatterjee, some of the causes of this deplorable condition are the faulty nature of the Bengalee diet, which is poor in proteins vitamins minerals and fats of good nutritional value while being too rich in carbohydrates the lengthy attendance in schools and colleges where the hours of work are too long and in most cases continuous the strain on the student due to his education being conducted in a foreign language, the want of proper and suitable physical culture, a general neglect of health due to ignorance of its laws, and the choice of the wrong hours for work—namely, the hottest part of the day These are said to be in part the results of the very low economic position of the average Bengalee artisan family Dr Chatterjee maintains that the first essential is the devising of a suitable standard dietary, adapted to the habits and customs of the people of Bengal, and not exceeding in price the means of the average Bengalee clerk—namely, 7 rupees per month per head He suggests a dietary which approximates this figure, but is rather monotonous, and slightly deficient in its calorie value and its fat content The addition of half an ounce of ghee to the daily ration would correct these errors He points out also that in spite of the various laws and regulations there is still much adulteration of food, and more stringent statutes are necessary to cover certain well known loopholes While lack of good food stands out as the main cause of dislike of physical activities and games Dr Chatterjee criticizes the educational authorities for having in the past neglected entirely culture of the body Physical activities have, indeed, been stigmatized as shameful and a waste of time Latterly, however, things have much improved in this respect, and various sports have been instituted, despite a lack of adequate playing

fields. Medical supervision is necessary, however, to prevent immature and undernourished youths from overstraining themselves. The figures on which these various conclusions are founded are set out, and the whole report is a valuable contribution to the study of a people.

Public Health in Bombay

A review of the decennium 1921–30 opens the sixty-eighth annual report of the Director of Public Health for the Government of Bombay. An apparently considerable increase in the population is stated to be due to the recovery after the influenza pandemic in 1918. The death rate remained about the same as in previous decennia, with slight annual variations in the increases in respect of fever, dysentery, diarrhoea, and respiratory diseases. A salient feature of this ten-year period was the active direction of attention to the question of infantile and maternal mortality. Health weeks increased in number and popularity. Prophylactic measures were taken at the smaller fairs; before 1921 only the larger fairs could be dealt with. Decided progress is reported also in the education of the people in the matter of the value of inoculation against epidemic diseases, in the treatment of blindness and leprosy, and in the fight against malaria. In reviewing the year 1931, it is noted that the health of the Presidency as a whole compared well with that of the preceding year, with the exception of an increased mortality from cholera. The small-pox death rate reached a record low figure, as also did that for plague. There was an increase in the number of births, and a decrease in the infant mortality. Malaria surveys were undertaken in about fifty places. The constant demand for quinine from the public in rural areas affords evidence that this remedy has well established its popularity. Treatment of school children with quinine prophylaxis had a salutary effect on those with large spleens. An epidemic of influenza in Bombay city was mainly of the respiratory type, but some abdominal cases were also recognized. Leaflets were distributed instructing the public what to do to avoid becoming infected, and recommending sufferers to avail themselves of the medical relief provided at the municipal dispensaries and hospitals. The total number of persons inoculated against cholera during 1930 was 310,031. The plague rate was low, Sind being entirely free, as was the case also in 1929.

England and Wales

Prevention of Cruelty to Children

The forty-ninth annual report of the National Society for the Prevention of Cruelty to Children covers the twelve months ending March 31st, 1933, and comments on the progress rendered possible by the Children and Young Persons Act of 1932. Juvenile delinquents and illegitimate children now receive a greater measure of protection, and preventive treatment is available for those whose future is endangered by the lack of proper parental control. During the year under review 106,382 reports of needless child suffering were received by the society; there was an increase in the number of cases of brutality, and the society had to deal with a total which has only been surpassed on five occasions in its history. Despite the admitted fact that instances of cruelty to children are more readily reported to-day than hitherto, the number of cases of violence (8.9 per cent.) indicates that there is still great need for the work of the society to continue. The number of prosecutions instituted during the year was 511, even though these were only undertaken as a last resort and with full appreciation of the limited degree of improvement that too often ensues. In 610 cases custody of children was transferred from the parents to voluntary homes, Home Office schools, public assistance committees, and relatives or friends. In about 7.5 per cent. of the cases in which real neglect was apparent, adult feeble-mindedness was a definite contributing cause. This is attributed to the loss of a healthy stock of male parents during the war, and to the restriction of families in the professional and higher type of artisan classes, which thus raises the relative proportions of families at the bottom of the social scale. The apparent increase in feeble-mindedness is not held to afford definite evidence that mental deficiency is more prevalent to-day in the general population, but the report of the committee appointed by the Ministry of Health to inquire into mental deficiency is awaited with considerable interest. Bad housing and overcrowding must also be incriminated. A full eighth of the cases dealt with during the year occurred in homes where the families lived each in one room, the average number of children per family being two and a quarter. An even larger number of cases concerned families living in two rooms, the average number of children per family in these cases approximating three. The report contains details of the way in which the society works, emphasis being laid on the necessity for securing that the inspectors are endowed with wisdom, sympathy, tact, and charm of manner; special attention to this is directed in their training. The large number of voluntary workers also play a great part in the activities of the society everywhere. Voluntary meetings—3,093 in the year under review—achieve useful results in educating the public and attracting new voluntary workers. The warmth of the public support during the past year is evidenced by the fact that, in spite of the financial stringency, the society was able to pay its way and to undertake new advances. The amount received from legacies reached a record height in recent years, and many branches acquired an augmentation of their funds as the result of exhibitions of "Titania's Palace." A total number of 2,851 medical and surgical cases were dealt with during the year, operations being required in 898.

Cell Barnes Colony

Cell Barnes Colony, St. Albans, a certified institution for the care and treatment of the mentally defective, will be formally opened on October 5th by the Minister of Health. It is built on the most modern principles of design and lay-out, for the accommodation of 600 patients of all ages, types, and degree, and of both sexes. The colony belongs to the Hertfordshire County Council, and will serve the needs of that county, but has room, for a few years, to take in a number of patients from other counties as well. The name derives from "Great Cell Barnes," a charming Georgian mansion which has been remodelled within, and enlarged by the addition of a new wing to serve as a nurses' home. In the Cell Barnes estate the colony has been laid out in four lines of detached buildings, each with a southerly aspect and ample space around. The total area of the estate is about ninety-five acres, and this is now being prepared for recreation and for market gardening. The total cost of the buildings, which are now almost completed, is a little less than £200,000.

Dr. Caesar Amsler, professor of pharmacology at Riga, Dr. Giulio Chiamgi, professor of anatomy at Florence, Dr. Giuseppe Levi, professor of anatomy at Turin, and Dr. Tullio Terni, professor of histology and embryology at Padua, have been elected members of the Imperial German Academy of Natural Sciences at Halle.

CORRESPONDENCE

Slum Clearance

SIR,—The Minister of Health has summoned us all to "abolish the slums," and local authorities are hastening to present five-year programmes showing how they are going to do it. The examination of some of the proposals, so far as they have been made public, makes one wonder if the medical profession has a duty to perform in expressing an opinion upon them. While it is not within our province to criticize any particular local authority without knowing all the facts of a local situation, it is very important for us to realize whither we are tending. We all want the slums abolished, but we want the work done in the best way—the way which will give the best opportunity for the people displaced to live a healthy mental and physical life.

Now my opinion is that some of the programmes are so big that they can only be tackled by the provision of new communities. This will be far and away the most economical in health and money in the end. Apart from this the suggestion of huge tenement flats, although they give delightful opportunities to the architect, is a bad one. There are circumstances in which these are necessary, but wherever they can be avoided surely they should be. Huge tenements are very costly, and cheap tenements should never be built for poor people. The gramophone and wireless to-day add another source of irritation to life for people who are cooped up to live with neighbours who dearly love a noise. The Continental tenements which have so impressed many housing reformers ought not to be taken as a precedent; for their finance is not our finance, nor do we want that production of a herd psychology which is giving rise to such bad results. Our aim has always been the production of a whole personality, the man who can call his home and his soul his own, and however we fall short of that ideal we should still strive for it. This surely is a matter which intimately affects us as the guardians of the health and well-being of the people, and a pronouncement to that end should have a great effect at the present time.—I am, etc.,

Letchworth, Sept. 11th. NORMAN MACFADYEN.

Mental Treatment Act, 1930: Temporary Patients

SIR,—The report of the Board of Control (*British Medical Journal*, September 9th) mentions that the number of temporary patients admitted to public mental hospitals continues to be disappointingly small. The Board suggests that to some extent this is due to the reluctance of public assistance officers to employ the new procedure. Possibly this is so, but the root of the whole trouble is the uncertainty as to the kind of case which will be accepted as properly falling within the category "non-volitional." An essential condition in the application for reception of a temporary patient is that the person "is for the time being incapable of expressing (him)(her)self as willing or unwilling to receive such treatment." When the Act was launched Cabinet Ministers and others in authority spoke of this temporary patient procedure as a great advance in mental treatment, and one was led to believe it could be widely adopted. Moreover, the present report of the Board of Control suggests a more frequent use.

A colleague and I had a case of early mental disorder. The patient at times was indifferent to her surroundings and impulsive. We signed the application for her reception as a temporary patient. On her arrival at the mental hospital the patient was composed, and for the time being was reasonable. A question was raised, quite rightly, whether the application was valid. The memorandum of the Board of Control (*British Medical Journal*, September 20th, 1930), in the paragraph dealing with temporary patients, says:

"The various requirements should be carefully studied by the medical officers of institutions, as they affect . . . [illegible] of the application upon which a temporary patient may be received and detained."

Subsequently I wrote to the Board of Control for guidance on the meaning of the non-volition clause, and whether it should be interpreted in a broad or narrow sense, and received the following opinion, dated July 26th, 1933, which is contrary to what I anticipated.

"I am directed by the Board of Control to acknowledge the receipt of your letter of the 20th instant with regard to the meaning of the words 'incapable of expressing willingness or unwillingness to receive treatment' under the Mental Treatment Act. The Board would prefer not to give a general interpretation of this expression, because the question whether a patient comes within its intention is one to be decided in the first instance by the medical practitioner examining the case, and in the last resort the issue can, of course, only be determined by the Courts. But while the Board are not empowered to express an authoritative opinion, they think it desirable to point out that the debates on the Bill in Parliament make it clear that this expression was not intended to leave to the medical practitioner a discretion to decide whether the patient has a rational understanding of what he is doing. In the House of Lords on December 10th, 1929 (Official Report, Column 1073) the late Lord Russell expressed the intention of the Government as follows:

"When we say 'without volition' we mean 'without volition,' whether that volition be uncontrolled or an insane impulse or not. If the patient says 'No, I will not go into your asylum, I will have nothing to do with it,' then unfortunately he will have to come under the full certification treatment. It (Section 5) is intended for cases which doctors, I think, generally call 'confusional cases,' in which people are indifferent to their surroundings, and whom treatment may benefit. Emphatically it is not intended for the reception of a patient who, rightly or wrongly, objects to treatment. If he takes that view then we do not intend, at any rate at present, that he should be included in the definition of the clause."

In view of the above I venture to submit that "confusional cases" are comparatively rare. From a former experience I should say that over 90 per cent of persons admitted to a mental hospital make or are capable of making, rightly or wrongly, an expression of opinion (generally against) concerning the treatment in a mental hospital. The Board of Control in its report states that at one mental hospital no less than 34 per cent of the admissions are temporary patients, whereas in others they are none. If the intentions of the Government are strictly carried out I think the new procedure can be used in but few cases with safety. On the one hand we have the Board of Control encouraging a greater development of the procedure, and yet the Government implies a very restricted use. The present position is most unsatisfactory, and while it is so medical practitioners and public assistance officers cannot afford to accept the risks of development of a procedure which is so desirable. The non-volitional clause should be erased.—I am, etc.,

St Albans, Sept 10th. SIDNEY CLARKE, M.D.

Treatment of Leg Fractures

SIR,—"One man's meat," etc. Surely we must recognize that in the treatment of leg fractures, as in the treatment of most other things surgical, there are more ways than one of striving after perfection; but don't let us be bitter about it. Mr. Wardle's methods are probably in no more danger of being relegated to obscurity than those of Mr. Broomhead. And about vaseline—it is almost as good for a turbulent tongue as it would appear to be during tibial traction.—I am, etc.,

Bath, Sept. 9th. CECIL TR[illegible]

Toxaemias of Pregnancy

SIR,—I have read Dr. Theobald's article on "The Aetiology and Prevention of the Toxaemias of Pregnancy," in the issue of August 26th. He states that "the 1,000 ante-natal clinics in England and Wales have merely served to lower the incidence rate of the albuminuria of pregnancy, but not that of eclampsia." I append the statistics of the Southport Maternity Hospital ante-natal clinic with regard to eclampsia, and would like to know how he correlates his statement with facts.

Southport County Borough Maternity Hospital

Year	All Patients	Individual Patients Attending the Ante-natal Clinic	Eclamptic Cases			Deaths	
			Among In-patients from Ante-natal Clinic	Emergencies		Among In-patients	Among Emergencies
				Borough	Other Authorities		
1921	129	124	—	1	—	—	1
1922	218	211	—	2	—	—	—
1923	256	247	—	2	—	—	—
1924	247	239	—	1	—	—	—
1925	264	251	—	1	—	—	—
1926	224	216	—	1	1	—	—
1927	283	272	—	1	1	—	—
1928	307	292	—	1	—	—	—
1929	281	256	1	3	—	—	1
1930	330	308	—	3	1	—	2
1931	310	292	—	2	—	—	2
1932	337	312	—	1	—	—	—
1933	200	188	—	1	—	—	1
Total	3,396	3,211	1	20	3	—	7

The one case recorded among in-patients did not carry out instructions. She became pregnant again within a year, and was under observation from a very early date. She had no albumin in the urine during the whole time of carrying the baby, and had a normal confinement at term of a healthy child.—I am, etc.,

Southport, Sept. 5th. A. S. GARDEN, M.D., L.M.

"Nerve Energy"

SIR,—Facts are usually more potent than theories. It happens that I have recently published two books, *Excitability*, and the *New Physiology of Sensation*, in which it is demonstrated that there is producible in a rhythmic structure a specific type of augmentation of activity, which I have termed the "hysteresial augmentation." The properties of this are such that, if the propositions be put forward that light produces a hysteresial augmentation of the activity of rhythmical retinal end-organs, and that the stimulation of an end-organ produces a similar augmentation of the activity of rhythmical central neurones, the properties of the reflexes are of protective behaviour of retinal end-organs, are thereby for those whose original proposition or theory lack of proper parental contri- ance, to put forward another review 106,382 reports of needless cepts as after ... etc., and there was ... deducible from the ... the ... images, or the possession by light of colour ... require instead special hypotheses to explain ... non-existence of these phenomena. That is to say, the new theory directly embraces the facts. These books have now been reviewed by physiologists in England and America, and their assessments vary from the "landmark in the history of physiology" to the "word-salad." Such extremes of opinion have, of ... always been formulated whenever there has been ... work with facts or views contrary to ...

In further accord with this, the majority complain that the views which I have put forward are so contrary to those currently accepted by physiologists that further confirmation of the facts is necessary, though, curiously enough, none of them seems to have gone to look at the facts for themselves—the obvious thing to do when in doubt, more especially when the facts are so important and so easily verified. Accordingly I consider that there is sound justification for the suggestion that physiologists do not believe in the inherent rhythmicity of central neurones.

Other facts, which are to be numbered by the thousand, demonstrate that the proposition of modifying the activity of a structure which is already rhythmically active is entirely different from the proposition of exciting quiescent muscle to activity. Accordingly I have called the former property "responsiveness," and left "excitability" to designate the latter. These two properties, moreover, are so different that a rhythmic tissue with much excitability has little responsiveness. The excitability standard used, it should be noted, is the maximum of the cycle. The existence of this responsiveness is a question of fact, which can be verified in any ordinary laboratory. But it is an entirely new discovery, and up to the present the only property of excitable tissues which physiologists have been able to use to explain the behaviour of central neurones and end-organs is the property which has been studied in the muscle-nerve preparation as excitability. This, however, in a rhythmic tissue determines only its intrinsic activity; once the tissue acquires rhythm it acquires the property of responsiveness as well, and reacts to environmental change through it.

None of the authorities quoted by Professor Fraser-Harris in your issue of August 5th (p. 267) has known of the existence of responsiveness; they have known only of the existence of excitability. They have used the only tool they know of, and that now appears to have been the wrong one. I think, therefore, that I have been correct in the statements previously made concerning the foundation theories so far current among physiologists. I would now point out again that the questions of the existence of hysteresial augmentations and of responsiveness respectively are questions of fact. If Professor Fraser-Harris is not prepared to accept the evidence of their existence presented in my own works, I can only suggest that he should see the facts at first hand for himself—a week should suffice. After that, I do not doubt that, instead of indulging in controversy, we could co-operate. But, once the facts are accepted, the implications are very serious, because they are that the undue attention given to the muscle-nerve preparation by past physiologists has been a grave hindrance to medical progress. For they have been delivering to the clinicians the wrong tools for at least a couple of generations, and so have given these latter no end of trouble in trying to use these tools for tasks for which they were unsuitable. When the clinicians learn of the new tools and make use of them I have no doubt that the resulting progress concerning the basis of nerve energy will be by mutation rather than by evolution.—I am, etc.,

Lucknow, Aug. 27th. W. BURRIDGE.

Chloroform in Labour

SIR,—I have just read Dr. Welsh's letter in the *Journal* of June 17th. My experience resembles his. Fifty years ago I was taught to give chloroform in Edinburgh, and Dr. ... according to the Edinburgh method, danger was Dr. Giulio ... It consisted in dropping the drug on a mask Dr. Giuseppe ... few drops during every pain. For many Dr. Tullio ... used in a large country town in Australia, at Padua, have ... over 1,600 cases. I gave chloroform in ... German Academy ...

every case, unless the baby was born before my arrival I never once sent for a colleague unless there was some complication which required two of us I gave chloroform at least 1,500 times solus, and never once had any anxiety, nor did I ever hear of any of my colleagues who adopted this method having trouble—I am, etc,

Manly, N.S.W., Aug 7th T J HENRY, F.R.C.S.Ed

Monilia Infections

SIR,—With reference to your annotation on monilia infections in the *Journal* of August 26th (p 386), may I forward the following remarks, which I hope may prove helpful not only to those workers who are interested, but to all who have the care of patients suffering from chronic infections of the respiratory tract

It is agreed that there is considerable confusion in the nomenclature and classification of moniliasis Surely something more than confusion must arise out of the following statement in your annotation

"Where this is clearly a more or less uncontaminated inflammatory exudate as in frank thrush or skin lesions such as paronychia, and in a certain type of cervicitis the organism may reasonably be accepted as causing the condition but its discovery in sputum cannot be regarded in the same light

It would appear to be a policy of 'seeing is believing' Arguing in a similar way, could one say that typhoid bacilli evacuated in faeces are harmless, yet, when recovered in the ulcers in the small intestine, they are pathogens?

The following authors may be of assistance in the differentiation of what is a yeast and what is a monilia

(1) Robert Crain in *Observations on the Pathogenic Yeasts and Monilia and Microsporon* (2) J Ramsbottom in *Fungi Pathogenic to Man* (vol viii *System of Bacteriology in Relation to Medicine* Medical Research Council) (3) A Guilliermond in *Clef dichotomique pour la determination des levures*

Moniliasis originally were called "tropical moniliasis," and these are associated with plants which grow in the Tropics, such as tea and tobacco The majority of moniliasis found in temperate climates are traceable to the milk of cows suffering from infective mastitis All fungi have a life history, and this has to be taken into account The direct examination of a sputum may not reveal the budding or the mycelial forms of monilia, but with the Ziehl Nielsen stain it is quite common to see minute acid fast granules, which, on careful examination, are found to be surrounded by minute portions of protoplasm, which have a faint blue stain When such are seen, one knows that monilia will be grown out of the specimen of sputum

In my paper (*Journal* May 27th, 1933, p 917), three types of monilia are referred to, on their method of growth This classification is that of the botanists, and is easily recognized in cultures Correlating these three types with clinical cases, we recognize two clinical types The first type, 'collar formation,' occurs in what, at present, are recognized as cases of "dry" bronchiectasis These cases are only recognized when a haemorrhage occurs, the majority also give a history of recurring bronchial colds, and are frequently under weight Examination of the sputum may show monilia in direct films, and the cell content consists of polymorphs and mononuclears Culture gives monilia A ray examination will show the typical picture of bronchiectasis

I had the good fortune whilst in London this summer to see through the bronchoscope a typical case of a patch of 'thrush' in collar formation at the bifurcation of a bronchus This patch was pointed out to me and I was asked what it was I gave the above answer as this was not satisfactory I referred to the case as one of 'dry" bronchiectasis and was told that the patient had had two haemorrhages—to which I could not resist saying that if the patch were pulled off the patient would suffer from a third haemorrhage

Wet bronchiectasis is that condition where the growth is a surface' or islet growth, and results in occlusion of the implicated air passage with consequent collapse of the alveoli at the distal end Given the dexterity and the willingness to co operate, I would suggest that when a gelatinous or purulent sputum gives monilia in culture and an x ray examination shows bronchiectasis the exact site should be localized as for a foreign body The bronchoscopist would then examine the part and see the inflamed area and the bacteriologist be given a saline washing or a swab direct from the area

I should like to state that in my opinion moniliasis is a primary and not a secondary infection All cases give a history of either measles whooping cough or broncho pneumonia The infection is a chronic one contracted in childhood and apparently from contaminated milk The majority of cases of tuberculosis of the lung in the adult stage also show a monilia infection

In conclusion, I would state that the morbid condition underlying monilia infections is a condition of ulceration or occlusion of the air passages, which at present is called bronchiectasis A few years ago this was known as non tuberculous broncho pulmonary lesions and prior to this as "closed tubercle"—which rather points to an unparalleled degree of confusion in nomenclature I hope to see the condition recognized as "bronchomoniliasis' The extent of these cases can be appreciated from the following extract which appears in the report for 1930 of the Chief Medical Officer of the Ministry of Health

'In about 40 per cent of patients treated in residential institutions suffering from pulmonary tuberculosis tubercle bacilli had not been found at any stage It is important to make every effort to detect tubercle bacilli in view of the fact that the work of recent years has shown definitely that certain non tuberculous broncho pulmonary lesions closely simulate pulmonary tuberculosis"

I am, etc,

P JANVRIN MARETT,
Jersey, Aug 31st Lieutenant-Colonel R.A.M.C. (ret)

P.S.—I have permission to record that Dr Gloyne of the Victoria Park Hospital, London, E 2, has undertaken, with material available at the bronchoscopic clinic of Drs Scott Pinchin and Morlock, to examine cases as suggested above If such team work as this were multiplied we should undoubtedly be able to settle the question of 'contamination'

P J M

Insurance for the Middle Classes

SIR,—In his very able and lucid article "The Practitioner and the Public' in the *British Medical Journal* of September 2nd, Dr E Kaye Le Fleming has described "the altered attitude of the public to questions of health He traces the result of the various influences which have modified conditions of medical practice, and indicates future developments which will further modify, or rather revolutionize our calling The indispensable general medical practitioner is at present denuded of his most useful services in this process of evolution by the encroachments of municipal and other clinics, voluntary associations and, 'most unkindest cut of all,' by the voluntary hospitals

The middle class, for whom but little provision is made forced by economic stress, is gradually being compelled to resort to charities primarily intended for the working classes and necessitous poor The normal middle class man abhors even the semblance of charity, and desires to pay his doctor an adequate fee, but, being unable to do so at the present juncture, he naturally would welcome a form of insurance which would protect him and his family, and, at the same time feel that his doctor would receive his just and due reward Such a scheme

necessarily be a business one, and not in any way depend upon semi-charity, such as under-paying consultants and specialists.

In his article discussing payment for medical services Dr. Le Fleming comes to the conclusion "that the only solution of the problem is by way of some form of insurance." I am prompted to write this letter because I have acted in an advisory capacity for several years to certain insurers who have a comprehensive scheme for the protection of middle-class families against the excessive cost of medical, surgical, or nursing fees in any one year. This group now wishes to extend the scope of this scheme by co-operation with general medical practitioners, and I have been asked to advise in this connexion. The scheme is for middle-class families outside the National Health Insurance Act, and is available for all families in good health who are not by reason of past illness, accident, physical defect, or infirmity particularly liable to any form of illness or disablement. For those whose record is subnormal valuable protection, within certain limitations, is provided according to the merits of each case.

The scheme provides the following benefits: medical fees (5s. to 10s. 6d. a visit), consultants' fees (up to 10 and 20 guineas a year), *x*-ray examinations and therapy (limit 6 to 12 guineas a year), operation fees (25 to 75 guineas a year), anaesthetist fees, surgical appliances (10 to 20 guineas), hospital, nursing, and nursing home charges (4 to 7 guineas a week for six to eight weeks), and abnormal childbirth (15 to 35 guineas). The cost varies from 8s. 9d. to 18s. per member per quarter, according to the amount desired as benefit. I think that these figures prove that a form of insurance can be devised on business lines which would prove mutually beneficial to doctor and patient.

Before I undertake the difficult task of attempting to formulate a satisfactory scheme I would like to hear from any of your readers who are interested. My present idea is to grade the middle class according to income—(1) £250–£500; (2) £500–£750; (3) £750–£1,250—and to suggest a capitation fee for the doctor at about £2, £3, and £5 respectively. There would be a reduction for families. For those doctors who are averse to the principle of capitation, payment for services rendered could be arranged within limitations. I have in mind three subdivisions:

(*a*) Insurance for general practitioner service without additional benefits, or, possibly one benefit such as payment of consultants' fees in case of acute illness. This would cover those who are subnormal and not a fair insurance risk, and provide ordinary medical attendance.

(*b*) Insurance for capitation rate plus full additional benefits. This would cover the ordinary risk.

(*c*) Insurance for payment of medical services, within limits, together with full additional benefits. This covers the ordinary risk, and provides funds for those doctors who object to a capitation rate.

The premium rates would not be prohibitive, as for about £1 per quarter, or about £3 10s. for a family of four, a member or a family could obtain ordinary medical attention together with certain specified additional benefits.

The plan outlined seems to be practicable, and not the least of its advantages is that the business side would be conducted entirely by those versed in finance and insurance work, and that there would be little, if any, interference with the purely medical side. The patient would benefit, as he would have free choice of doctor, with more continuous treatment, closer medical surveillance, and, above all, the knowledge that his liabilities in this respect would be limited and known to him beforehand. I might add that the insurers are of the highest possible standing in the insurance world.—I am, etc.,

London, N 5, Sept. 5th D., D. ROSEWARNE.

The G.P. and the Public

SIR,—The letter from the gentleman who signs himself "Esse quam videri" (*Journal*, September 9th, p. 507) contains some very sweeping and uncomplimentary statements concerning panel practitioners which I feel should not be allowed to pass without comment. He says that under the panel system "thousands of general practitioners have become little better than medical shop-walkers, who are reluctant to undertake responsibility for the treatment of serious disease, and content themselves with indicating to the patient the appropriate hospital or specialist to whom they should apply for treatment." He goes on to assert that this condition of affairs is due to ignorance of the correct treatment or inability to carry it out.

Such statements as these, apart from being wholly inaccurate, must do untold harm when, as sometimes happens, they get copied and enlarged upon in the lay Press. The fact is, of course, that a proper understanding of the correct treatment of serious disease frequently compels one to send the patient into hospital. In medical cases the hopeless inadequacy of home nursing in working-class houses is in itself often sufficient reason, while in surgical cases the performance of any but the most minor of operations without proper theatre conditions would be madness. Nevertheless, it must be a constant source of annoyance and regret to many general practitioners to have to put all their interesting cases into other hands when they feel perfectly competent to carry out the treatment of many of them in full themselves. This is the greatest failing of the present organization of medical practice in most of the larger towns. There must be many medical men who have been forced by circumstances to enter general practice, yet who are perfectly competent to cure their patients' hernias, haemorrhoids, prolapses, and even to diagnose correctly their acute appendices and afterwards to remove the same successfully; yet, as the patients cannot afford the cost of a nursing home, their doctors have no alternative but to send these cases into the local hospital, where the operation *may* be performed by one of the local big noises, or on the other hand may be done by a recently qualified house-surgeon.

The system in vogue in many of the small towns, where all the local practitioners have access to the cottage hospital, must make practice much more interesting to those who are fortunate enough to live in such towns, and the working of that system is sufficient proof of the inaccuracy of the statements of "Esse quam videri."—I am, etc.,

Coventry, Sept. 11th. D. MURRAY BLADON.

SIR,—One would dearly love to know who "Esse quam videri" is. Does he suffer from an inferiority complex himself, that causes him to hide his identity? His letter of September 9th does not sound likely to have been urged by a humble and modest spirit. He has slung his mud far and wide, over the entire rising generation of general practitioners, and, having done so, has retired behind the bare cold walls of the anonymous. The young man needs to be pert, and perhaps where fees are concerned is not such a hypocrite as those who pretend that the fee is only a minor matter.

A world so knowledgeable as our friend suggests makes no bed of roses for the modern G.P. In these days a slip may well lead him to the court, where he will be sued for damages that may well-nigh ruin him. The responsibility is greater than that of our ancestors in medicine. They could bury their mistakes with impunity; we cannot do this. Lastly, if this big dog that has done such a lot of

snapping at poor G P 's would show himself, we would know if he were worthy of respect or not —I am, etc ,

Nottingham, Sept 9th J G Bell

Urgent Admissions to Hospital

Sir,—Will you kindly grant me space to call attention to the (what seem to me) inadequate arrangements for admission of urgent cases to the general hospitals? My experience is that it takes ten to fifteen minutes to find out whether or not a bed is available On Friday, September 8th, I spent more than an hour 'phoning five hospitals, none of which had accommodation for my patient, who had eventually to be sent to the infirmary

The procedure is usually as follows One is answered by a voice which tells you it will put you through to the R M O After some time the R M O materializes, says he will see if he has a bed, returns five minutes or so later, and is usually awfully sorry he has not got a single bed Time occupied—ten to fifteen minutes

But it is not always so simple as this The other day I got through to the R M O of a certain hospital, who told me he would have to put me through to the obstetrical resident After a long wait the latter informed me he would have to put me through to his house surgeon Further delay before house surgeon could be found On capture, he departs to look for a bed, but returns after several minutes to say he is very sorry, etc Time occupied—twenty minutes Result, as far as my patient and myself are concerned—a serious waste of time

Is it beyond the wit of the hospitals to devise a method by which it may be known at any moment in the office whether accommodation is or is not available?—I am, etc ,

London N W 1 Sept 11th W A M Swan

A Letter Game for Visual Training

Sir —Much attention is now being given to the orthoptic training of children who have defective powers of stereoscopic fusion Worth and other workers have shown how essential is training, not only to cure squint by teaching a child to make the effort to co ordinate but also to cure that mental lack of will to use an eye which remains even after a squint has been cured by glasses So important is it to educate parents and others as to the mechanism that produces this disuse blindness of one eye that—with apologies to those to whom it is stating the obvious—I venture to give this description, which I find parents in my Warwickshire school clinics understand

If you look down a telescope with both eyes open you find that you cannot fuse the objects seen with both eyes so you close the non telescope eye But if you use a telescope (or microscope) for a few hours you will find it much easier and natural not to close that eye but by a subconscious training to mentally ignore the image seen by the non telescope eye In the same way a child who develops a squint will—to avoid seeing double—mentally ignore the image seen by the squinting eye The important point is this that even in one month this ignoring habit may become a fixed habit This eye becomes (in varying degrees) blind A vicious circle has developed, for it is obvious that the more blind the one eye becomes from disuse the less incentive there is for the child to do any fusion So, in brief squint causes disuse blindness in one eye disuse blindness in one eye perpetuates squint "

In many cases it is not enough to correct the error which started the squint The child must regain the will to use the disused eye Worth's amblyoscope and its many modifications have been used Most eye hospitals now have an orthoptic department, where excellent results are obtained with these instruments, but these services are not available outside the larger eye hospitals of the country Moreover they have the very serious disadvantages of being exercises difficult to teach and soon irksome to the child—when attention and mental effort is everything At the British Medical Association annual meeting it was stated that the treatment sometimes requires nine months (*British Medical Journal* August 19th p 348)

With the painstaking help of Messrs Dixey 19 Old Bond Street, W 1, I have devised the following game which I claim to be stereoscopic without tears it consists of an adaptation of that well known parlour game of " word making and word taking The letters are of two colours—red and blue The child plays the game wearing special goggles one glass being red and the other blue, red letters being invisible through the red glass and blue letters being invisible through the blue It follows that a player must use both eyes if he wishes to see all the letters A child using one eye alone will only see half the letters Children can play it with interest and excitement for hours Our chief difficulty has been the technical one of producing a blue glass that would make blue letters invisible

I desire to record the very great help given by a schoolmaster friend, Mr Brain of Dosthill for most painstaking experiments in pigmenting glasses and testing them on his pupils The game is on sale by Messrs Dixey whose help has made this idea practical —I am etc

Tamworth Sept 9th R Francis Jones

Obituary

JOHN PLAYFAIR, M D F R C P Ed

Hon F R C S Ed

Consulting Physician Royal Hospital for Sick Children Edinburgh

As briefly announced in our last issue Dr John Playfair who for many years had been one of the best known practitioners in Edinburgh, died after a short illness at his house in Colinton near Edinburgh on September 4th Dr Playfair was born at Coupar Angus in 1849 and belonged to a Fife family which had many distinguished representatives Taking up the study of medicine at a time when Lister's discoveries in regard to antiseptics were beginning to attract attention he graduated M B at Edinburgh in 1872, three years after Lister had succeeded Syme in the chair of clinical surgery At the same time Playfair qualified as a licentiate of the Royal College of Surgeons Edinburgh After a period of study at Paris and Vienna he began practice at 25 Rutland Street Edinburgh and for several years was assistant to Dr Angus Macdonald, who had a large general and obstetric practice He acted also for a time as medical officer to the New Town Dispensary Edinburgh, and early became especially interested in the disorders of children He was appointed assistant physician, and later physician, to the Royal Hospital for Sick Children, Edinburgh, to which he finally became consulting physician

In 1876 Dr Playfair joined the Royal College of Physicians of Edinburgh as a Fellow, and was elected its president from 1904 to 1906 The quatercentenary of the Royal College of Surgeons of Edinburgh was celebrated during his term of office, and he was elected one of its honorary Fellows He had graduated M D Ed in 1892 Throughout life he maintained his early interest in obstetrics, and was vice president of the Obstetrical Society of Edinburgh While he had a special knowledge of this branch of medicine and of the disorders of childhood he enjoyed a very extensive general practice which he carried on till within a month of his death He found time for occasional contributions to current medical literature, such as " On Croupous Pneumonia in Children " *Edinburgh Medical Journal*, 1890, and " *The Bearing of*

Pregnancy on Life Insurance," *British Medical Journal*, 1898. For many years he acted as medical officer to the North British and Mercantile Insurance Company and to the Century Life Office. Genial in manner and kindly in disposition, Dr. Playfair was highly popular with both his patients and his colleagues. He was a keen sportsman and was noted for his skill with the gun as well as for his success in the fishing competitions with his medical *confreres*. The interment took place in the Dean Cemetery on September 6th, after a service in St. Andrew's Church, Drumsheugh Gardens, at which the Fellows of the Royal College of Physicians attended. Dr. Playfair is survived by a widow, two daughters, and two sons, one of whom is Air Commodore P. H. L. Playfair, C.B.

FREDERICK GARDINER, M.D., F.R.C.S.ED.

Late Physician for Diseases of the Skin, Edinburgh Royal Infirmary

The death occurred on September 8th at his residence in Manor Place, Edinburgh, after a long illness, of Dr. Frederick Gardiner, who was well known as a dermatologist. Born in 1874, Dr. Gardiner had a distinguished career at Edinburgh University, graduating M.B., C.M. in 1895. After graduation he acted as house-surgeon in Stirling Royal Infirmary. He intended originally to devote himself to mental diseases, and was appointed assistant medical officer to Dundee Royal Asylum. Later, however, in 1901, he took the degree of B.Sc. in public health at Edinburgh, and engaged for a time in general practice, paying special attention to diseases of the skin. He took the M.D. degree, with honours, in 1902, and was also a Fellow of the Royal Society of Edinburgh. For some years he was non-resident house-physician to the dermatology department of the Royal Infirmary of Edinburgh, and later became assistant physician, and then physician. On his retirement owing to illness he was appointed consultant to this department.

Early in his career Dr. Gardiner had worked with Sir Robert Philip in the application of *x* rays to the diagnosis of tuberculosis, and a considerable amount of the pioneer work in connexion with the application of this method of treatment to chronic skin disease was carried out by Dr. Gardiner. His numerous contributions to the current literature included: "Diseases of the Skin," in *Latham and English's System of Treatment*, 1912; "Occupational Dermatitis," *British Journal of Dermatology and Syphilis*, 1922; "Seborrhoea," *Practitioner*, 1932; and he was the author of a successful *Handbook of Skin Diseases*, which had reached a third edition in 1931. Dr. Gardiner held the post of lecturer on diseases of the skin at Edinburgh University, and during the war he acted as consultant dermatologist at the Edinburgh War Hospital, Bangour. In his earlier years of professional life he enjoyed a large general practice, and his quiet, unassuming manner and cheerful disposition endeared him to his patients. As a consultant he was highly popular with his professional colleagues. He is survived by a widow and two sons, one of whom is a member of the medical profession in Edinburgh. The funeral took place at the Edinburgh Crematorium on September 11th.

THE LATE SIR JOSEPH VERCO

We have received from Dr. ALFRED LENDON of North Adelaide the following memoir supplementing the notice published on August 12th (p. 317).

The death of Sir Joseph Verco on July 29th, after a long bout of cardiac trouble, which originally decided his retirement from practice some fourteen years ago, deprives South Australia of its honoured doyen of the medical profession: had he survived three days longer he would have attained to his eighty-second year. J. C. Verco was the son of old pioneers of this Province, and after an adequate education at a secondary school he was entered as a cadet in the Civil Service: he was appointed to the railway department, and employed in the enumeration and classification of obsolete railway tickets. This occupation did not prove inspiring, and he decided to study medicine. In order to pass the London University Matriculation Examination he went back to school—this time at St. Peter's College—in order to learn Greek. He left for England, and matriculated in June, 1870, and entered at St. Bartholomew's Hospital. I have the authority of the late Luther Holden of osteological fame, who came out to Australia for a trip in the early nineties of last century, for the statement that Verco was the most brilliant student that had studied at Bart's in his time, and that at the end of his academic career in 1877 he knew almost everything that was to be known in every department of medicine and surgery. He certainly was the most distinguished medical graduate during the 'seventies at the University of London, becoming, as he did, scholar in forensic medicine and gold medalist, second in medicine, also with gold medal; gold medalist at the M.D. in 1876, and scholar and gold medalist at the B.S. in 1877. He must have been at the time of his decease about the sixteenth on the roll of Fellows of the Royal College of Surgeons of England. Amongst other accomplishments he learnt shorthand.

Dr. Verco returned to Australia in the following year and started in general practice in North Adelaide; for the word specialist had not then been invented, nor were medical officers to the hospital distinguished as physicians and surgeons even. The great promise of his student career was amply fulfilled in practice, and before he had been back nine years, and when only 36 years of age, he was chosen as the president of the first medical congress ever held in Australasia. He began to discard the embarrassing items of midwifery and family practice, then of the various special departments, and by 1891 he had settled on North Terrace—the Harley Street of South Australia—as the first purely consulting physician, and the only one for twenty-odd years. Meanwhile he had been associated as honorary medical officer with the Adelaide Children's Hospital, a position he resigned in 1890. He was elected to the staff of the Adelaide Hospital first in 1880 as honorary medical officer; in 1882 he became differentiated as a physician, and this post he held for some thirty years, resuming it again temporarily in 1914, when so many of our men left for the war. The Adelaide University started its medical curriculum in 1885, and in the following year Dr. Verco was appointed joint lecturer (with Dr. J. Davies Thomas) in medicine. On Dr. Thomas's retirement in 1888 on account of ill-health Dr. Verco became sole lecturer, and remained so till 1912. He was dean of the Faculty in 1889 and again in 1921–2. When the British Red Cross Society, wishing to show its gratitude to the Commonwealth for its help and sacrifices, sent out £150,000 to the Governor-General (Sir Ronald Munro Ferguson—now Lord Novar), he consulted Dr. Verco as to the distribution of South Australia's share. Dr. Verco suggested that £15,000 should be devoted to the establishment of a dental hospital, and thereupon the Council of the University established a Faculty and degrees in dental science. He became the first dean of this Faculty, and devoted much time to the organization of the curriculum. Dr. Verco served on the Council of the University as far back as 1895 for seven years, and again from 1919 to 1928. In 1926 he gave £5,000 to the University as an endowment to ensure the continuance of the *Australian Journal of Experimental Biology and Medical Science*, started by the late Professor T. Brailsford Robertson.

In connexion with our Branch of the Association I may mention that he was a foundation member in 1879, and the last of that band to survive. He was president in 1886–7, and during the great war he was again president for nearly its whole duration. His services to the Association were great, and he was instrumental in guarding the interests of those serving abroad during their absence. His portrait in oils was presented to him, and at one time graced the British Medical Hall. He joined, in 1878, the Adelaide Philosophical Society, which soon after was

converted into the Royal Society of South Australia. Of this society he was president for some seventeen or eighteen years. His interest in natural science was wide, but his special hobby was conchology, and his holidays were spent in dredging; he had accumulated sufficient material for three lifetimes of leisure to digest, let alone the scanty holidays of a busy medical man. When bilharziasis carriers made their appearance in Australia he was able to comfort us with the assurance that the mud of the River Torrens contained snails that were first cousins to those of the Nile, and apparently quite competent to act as intermediate hosts.

Dr. Verco was a great teacher both as a lecturer on systematic medicine and at the bedside. Students have told me that with his notes, carefully prepared, brought up to date, and deliberately uttered, they could well dispense with a textbook. Clinical teaching must gradually displace systematic lectures—for in these days of textbooks, of phonographs, and Canti's films are they scarcely required. Whilst he contributed many papers to the transactions of our Branch, all carefully worded and the facts methodically arranged, and to the transactions of the many congresses, his writings were ephemeral, except perhaps for some original work on the danger of phthisis as between husband and wife in life assurance, a contribution with Professor Stirling to Clifford Allbutt's *System of Medicine* on hydatid disease, and some early observations on myxoedema. Elderly in appearance and sedate in manner—never hurried in speech or action—definite in opinion, if somewhat "gloomy" in prognosis, he inspired confidence, from the fullness of his knowledge and the thoroughness of his examination, both in the patient and in his colleagues. For a third of a century he was the chief medical officer in this State for the famous Australian Mutual Provident Society. The Royal Society of South Australia founded a medal in his honour, and when in 1919 he retired from work the authorities were approached with the suggestion that an honour might well be conferred upon him, and accordingly in the King's Birthday list he was gazetted as Knight Bachelor. The later years of his life were spent in arduous work on the Council of the University and in research in conchology. He was deputed to represent Adelaide University at the octo-centenary of St. Bartholomew's. It was somewhat of a disappointment: after forty-five years or so a new generation had sprung up that knew not (Sir) Joseph, and even old members of the staff could not recall the name of their most famous pupil. Moreover, the climate of England disagreed with him, and he returned to Adelaide as rather more "damaged goods." It is understood that under his will, after making due provision for his widow, the residue of his estate will ultimately be distributed amongst the charities of Adelaide, whose name is legion.

The following well-known foreign medical men have recently died. Dr. PAUL HARTL, professor of physiology at Budapest; Dr. CEDOMIR MICHAELOVIC, formerly Jugo-slav Minister of Health; Professor WENZEL RUBESKA, a Prague gynaecologist; Dr. EGYDIAS WELPONER, professor of obstetrics at Trieste, aged 84; Dr. GUSTAV EMDEN, professor of physiology and director of the Institute of Physiological Chemistry at Frankfort-on-the-Main, aged 59; Dr. FREDERICK HENRY BAETJER of Baltimore, a pioneer in *x*-ray treatment of disease and author of a book on *Injuries and Diseases of Bones and Joints*, aged 58; Dr. JERE WILLIAMS LORD, the senior dermatologist of Maryland, aged 69; Dr. HENRY THIERRY, honorary inspector-general of the health services of the city of Paris and officer of the Legion of Honour; Dr. EDOUARD QUÉNU, formerly professor of clinical surgery in the Paris Faculty of Medicine, ex-president of the Académie de Médicine, and commander of the Legion of Honour, aged 81; Professor ERNST KUMMER, director of the surgical clinic at Geneva, aged 72; Dr. FRANZ REICHE, extraordinary professor of internal medicine at Hamburg, aged 69; and Dr. IRA CARLETON CHASE, formerly editor of the *Texas State Medical Journal*, aged 64.

Medico-Legal

DEATH AFTER OPERATION TO TERMINATE PREGNANCY

Verdict of "Death by Misadventure"

At Windsor on September 6th the coroner Mr. W. G. Reynolds, who sat with a jury, held an inquiry into the death of Mrs. Beatrice Litchfield aged 40 [illegible] took place in the King Edward VII Hospital Windsor following an operation to terminate pregnancy. The husband testified that his wife had been a patient of Dr. O. A. Baker of Farnham Common, who had advised her, being pregnant, to go to hospital and undergo an operation as the only course likely to save her life. He agreed that his wife had become extremely stout of recent years, but she had appeared to be in good health, and had walked to hospital where she was admitted on August 20th, and died on August 27th following the operation.

Dr. Baker said that Mrs. Litchfield had been his patient since 1926. He had attended her in a previous pregnancy and had warned her that she was on no account to become pregnant again, as he did not think she was fit to have another child. She consulted him again a short time ago, and he formed the opinion that she was pregnant. She was a woman whose weight was well over 16 stone and her general condition was such that he considered it highly dangerous for her to go to term.

Mr. D. M. W. Maxwell, assistant surgeon to King Edward VII Hospital, said that he examined Mrs. Litchfield on August 14th, and formed the opinion that she was pregnant, and that she was a most unsuitable person to go to full term. She was exceedingly stout, and had a pendulous abdomen which would mean increased risk during labour. The operation was performed in hospital by Dr. Amsler on August 22nd, and he himself was present to give any necessary assistance. The operation was exceedingly difficult owing to the patient's stoutness, the laxity of the parts, and the anteverted position of the uterus. On August 27th he was again called to the patient, and found her condition serious, with high temperature, signs of bleeding into the uterus, and infection of the uterus and associated parts. A further operation was performed in the endeavour to get rid of the contents of the uterus, but the patient collapsed and artificial respiration and cardiac stimulants were applied in vain. In reply to the jury he said that he had been present at several operations similar to the original one performed on this woman, and all had been successful.

Dr. A. M. Amsler, of Eton, obstetric physician to the hospital, said that he first saw deceased after her admission to hospital on August 21st. He agreed that she was pregnant. She suffered from increasing shortness of breath, and this, together with her excessive stoutness and the abnormal position of the uterus, caused him to think that the termination of the pregnancy would be far less dangerous than to allow it to go on to full term, or to wait until the seventh or eighth month. He believed the woman also had fatty heart. On August 22nd he performed an operation to terminate the pregnancy. He first of all dilated the neck of the uterus and ruptured the membranes. Ordinarily this would be fairly easy, but in this case it was extremely difficult. It took him twenty minutes before he succeeded in rupturing the membranes, and the position of the uterus was so abnormal that he did not like to go on any longer, and stopped there, thinking that the pregnancy would terminate itself, as it usually did. In fact, she had certain labour pains on the second and third day, but the uterus was not emptied completely. On August 27th the condition became serious, and he asked Sir Joseph Shevington and Mr. Maxwell to look at the case. They thought it well that another attempt should be made, by the same means as before, to empty the uterus. He succeeded in removing something which was [illegible] nature, but the second time he got hold of something [illegible] was not foetal, and it became evident to him that [illegible] a tear in the posterior uterine wall. Accordingly [illegible] Mr. Maxwell to open up the abdomen. [illegible] but the patient collapsed in spite of [illegible] uterine wall be removed the [illegible] were in a state of decomposition [illegible] standing artificial respiration [illegible] performed similar operations with success scores of times.

Two house-physicians gave evidence as to the anaesthetics employed, these being, at the first operation, ethyl chloride as induction, and then ether, and at the second operation gas-and-oxygen. Sir Joseph Skevington, senior surgeon at the hospital, said that he saw the patient on August 27th, and fully concurred in the view that a second effort should be made to empty the uterus. The tear in the uterus was not due to neglect during the second operation, but to the technical difficulties of the first, arising from the anatomical position of the uterus and the great weight of the woman.

Sir Bernard Spilsbury, who had made a post-mortem examination, said that the heart was enlarged and thickly covered with fat; the left ventricle was particularly dilated, and the heart muscle soft and diseased. The valves of the heart were fairly healthy, as were the arteries. The lungs were congested, and showed oedema. The peritoneal cavity contained a certain amount of watery fluid, but no blood was present, nor was there any sign of septic infection. There were a number of adhesions in the lower part of the cavity, as the result of some previous inflammation, and these extended right down to the uterus itself. The vagina was large, and contained a little blood clot. The uterus was somewhat enlarged and thickened as a result of pregnancy, the neck was dilated, and there was a recent tear of the uterine wall. This tear, when he made the examination, passed completely through the wall, but evidently it had only done so quite recently, because no blood had escaped into the peritoneal cavity. A small fragment of placenta remained in the uterus, but otherwise it was empty, and it showed no sign of any infection. The cause of death was shock from injury to the uterus induced through the attempt to terminate the pregnancy, which was of three or four months' duration. The woman was extremely stout, and the uterus had certainly been abnormally fixed by reason of the adhesions. This would render any operation to empty the uterus extremely difficult. In his view there was danger in allowing the woman to go to full term, both on account of the excessive stoutness and of the fatty condition of the heart. He believed the first operation to have been a proper one in the circumstances.

The coroner reminded the jury of the law whereby the induction of abortion for any other purpose than to avert danger to life was a crime. Any felonious intent in this case could, of course, be ruled out. The jury unanimously returned a verdict of "Death by misadventure," and added an expression—in which the coroner joined—of sympathy with the relatives and of appreciation of the efforts made by the staff of the hospital to save the woman's life.

The Services

Brevet Colonel F. D. G. Howell, D.S.O., *M.C.*, Honorary Surgeon to the King, has been appointed (temporarily) Deputy Director-General, Army Medical Services, with effect from September 16th, in succession to Major-General W. R. Blackwell, C.B., C.M.G., Honorary Surgeon to the King.

Brevet Colonel J. W. L. Scott, D.S.O., has been appointed Assistant Director-General, Army Medical Services, in succession to Brevet Colonel Howell, and will take up the appointment about the end of September.

The names of Captain R. R. Leaning, R.A.M.C., and Captain M. G. de L'I. Sturm, R.A.M.C., have been brought to notice by His Excellency Field-Marshal Sir Philip W. Chetwode, Commander-in-Chief in India, for distinguished services rendered during the military operations in connexion with the Chitral Reliefs, period September to October, 1932.

DEATHS IN THE SERVICES

Colonel Norman Hamilton Ross, late R.A.M.C., died in London on September 3rd, *aged* 58. He was born on March 25th, 1875, and was educated at Edinburgh, where he graduated M.B. and C.M. in 1896. Entering the R.A.M.C. as surgeon lieutenant on January 28th, 1898, he became lieutenant-colonel in the long war promotion list of March 1st, 1915, colonel on July 5th, 1922, and retired on June 6th, 1926. He served in the South African war in 1899–1900, when he took part in the defence of Ladysmith, and received the Queen's medal with a clasp, and in the war of 1914–18.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Mr. R. Williamson has been appointed University Lecturer in Pathology for three years from October 1st, 1933, and Dr. L. R. Shore and Dr. F. Goldby have been appointed University Demonstrators in the Department of Anatomy for the same period.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At the monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on September 4th, the following were admitted Fellows of Faculty: Mohammad Salamat Ullah, *M.C.*, M.B., B.S. (Allahabad), and Maha Nand Sardana, M.B., B.S. (Bharatpur).

Copies of the Regulations for the Dental, Triple, and Fellowship qualifications, together with lists of dates of the examinations, may be had on application to the secretary, 242, St. Vincent Street, Glasgow.

Medical News

The ninety-ninth winter session of the Middlesex Hospital Medical School will open on Tuesday, October 3rd, when Professor E. C. Dodds will deliver the introductory address, entitled "Diet, Exercise, and Weight," at 3 p.m. in Queen's Hall, Langham Place. The prizes gained during the previous year will be distributed by Sir Holburt Waring, President of the Royal College of Surgeons. The annual dinner will be held on the evening of the same day at the Savoy Hotel at 7.30 o'clock.

A post-graduate course will be held in the Library of the Old Medical School of St. Mary's Hospital, W., on Friday, Saturday, and Sunday, September 29th, 30th, and October 1st, commencing at 10.15 a.m. each day. The meetings are open to all medical practitioners without fee.

The plenary reunion of the Paris Society of Anatomy will be held on October 12th and 13th. Two main topics will be discussed. Cerebral haemorrhage will be considered from the experimental, anatomo-pathological, and physio-pathological standpoints. The medico-chirurgical anatomy of the nerve roots of the viscera will be dealt with under the two headings: macroscopical systematization and microscopical investigation. An invitation to be present is extended to non-members of the society, who should apply to the general secretary, Dr. René Huguenin, 21, rue de l'Ecole de Médecine, Paris VIe, when full details will be sent regarding railway facilities, hotel accommodation, and admission to the banquet.

Dr. Hans Maier (director of the Zürich Mental Hospital, Burgholzli) will read a paper (in French) on "Some Aspects of Sterilization in Switzerland" at the Royal College of Surgeons, Lincoln's Inn Fields, W.C., on Thursday, September 28th, at 8 p.m. Sir Humphry Rolleston, President of the Eugenics Society, will occupy the chair. There will be an opportunity for a discussion, and any person interested is welcome. Inquiries should be addressed to the International Federation of Eugenic Organizations, 443, Fulham Road, S.W.10.

A post-graduate course on alimentary diseases will be held at the Hôtel-Dieu, Paris, from October 2nd to 14th, under the direction of Professor Carnot. The fee is 250 francs.

The British Red Cross Society will hold a course of seven lectures and demonstrations on tropical hygiene at 9, Chesham Street, Belgrave Square, S.W.1, on Mondays, Wednesdays, and Fridays, commencing on Friday, September 22nd, at 5.30 p.m. The course will cover such questions as food, clothing, and medical and sanitary precautions necessary for health in hot countries. The examination for the society's certificate in tropical hygiene will be held on Monday, October 9th. The fees for the course are 5s. for members of the Red Cross Society and 7s. 6d. for non-members.

The Fellowship of Medicine has arranged a post-graduate course in chest diseases, from September 25th to 30th, at the Brompton Hospital, and during the same period an afternoon course in proctology at the Gordon Hospital. There will be a tutorial course for men graduates, on current problems in surgery, medicine, and midwifery, at the Connaught Hall of Residence, from September 29th to October 3rd. Other forthcoming courses include medicine, surgery, and the specialties at the Metropolitan Hospital, October 2nd to 14th; dermatology at St. John's Hospital, October 2nd to 28th; physical medicine (evenings) at the London Clinic and Institute of Physical Medicine, October 2nd to 25th; cardiology at the National Hospital for Diseases of the Heart, October 9th to 21st.

The London School of Hygiene and Tropical Medicine announces that the course for the D.P.H. (University of London), which extends over a period of whole-time study of nine months, will commence on October 2nd. In connexion therewith the Fishmongers' Company studentship, entitling the holder to free tuition for the whole course, is open for competition amongst European students who possess a medical qualification which is registrable with the General Medical Council. The subject of examination (both written and oral) will be hygiene, within the scope of the syllabus for the M.B., B.S., of the University of London. The examination will be held at the school on September 20th and 21st, and applications (addressed to the secretary, London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1) must be received by September 16th.

The first annual reunion of French-speaking medical electro-radiologists will be held at the Faculty of Medicine, Paris, from October 12th to 14th inclusive. The two main subjects for discussion are the technique of radiological investigation of the mucosa of the large intestine, together with its clinical sequels, and the therapeutical significance of the short and ultra-short wave-lengths. Prints of the opening papers will be supplied to members of the reunion in advance. The subscription is 75 francs for members and 25 francs for associates. The president of the reunion is Dr. J. Belot, and the secretary is Dr. Dariaux, 9 bis, Boulevard Rochechouart, Paris.

The twentieth Italian Congress of Psychiatry will be held at Sienna from October 1st to 4th, when the following subjects will be discussed: diagnosis of encephalopathies in infancy, introduced by Professor Baldozzi; psychasthenia, introduced by Professor Puca; and recent psychiatric establishments abroad, by Dr. Manzoni. Further information can be obtained from the general secretary, Ospedale Psychiatrico di S. Nicolo, Sienna.

The fourteenth meeting of the Congrès International d'Hydrologie, de Climatologie, et de Géologie Médicales is to be held at Toulouse, France, from October 4th to 10th, followed by visits to health resorts in the Pyrenees. The meetings will take place in the Faculty of Medicine, where there will also be an international exhibition illustrating health resorts and methods of physical treatment. The presidents of the congress are Professor Sabatier and Professor Abelous, and the honorary secretaries are Professors Serr and Moog. The subjects under discussion include "Indications for Stimulating Cures for Children," "Hydrological Treatment of Certain Infective Conditions of the Nervous System" (introduced by Sir James Purves-Stewart), and "The Statutory Control of Spas and their Use by the Army Medical Services." The British Ministry of Health is to be represented by Dr. Malcolm Campbell of Droitwich. The International Society of Medical Hydrology, which will hold a general meeting of members during the week, will be represented at the congress by Dr. W. G. Willoughby, past president of the British Medical Association.

The thirty-third Congress of the French Association of Urology will be held in Paris on October 9th, under the presidency of Dr. Bernasconi of Algiers, when a discussion, introduced by Drs. Fey and Dosset of Paris, will be held on the value of the methods of treatment of hypertrophy of the prostate apart from prostatectomy. Further information can be obtained from the general secretary, Dr. O. Pasteau, 13, Avenue de Villars, Paris.

The August issue of the *Canadian Medical Association Journal* has for its opening paper an address on "British Pioneers in the Modern Treatment of Tuberculosis," delivered by Sir Humphry Rolleston during the annual meeting of the Association held at St John this summer.

According to the *Bull. Off. Internat. d'Hyg. Publique* for June, an epidemic of typhus broke out in Egypt, where 1,602 cases with 205 deaths occurred between April 30th and May 17th, 1933, the provinces of Behera and Gharbieh being most affected.

William Heinemann (Medical Books) Ltd. announce for early publication *Lettsom, His Life, Times and Descendants*—a study of medical and social life in the London of George III—by Dr. J. Johnston Abraham.

A bust of the late Professor Fernand Widal was recently unveiled at the Hôpital Cochin, Paris, when addresses were delivered by Professors Bezançon, Achard, and Lemierre, and M. Daniélou, Minister of Public Health.

Professor von Lichtenberg, director of the urological department of the Hedwig Hospital, Berlin, has been awarded the gold medal of the International Society for Urology.

With the death of Viscount Grey of Fallodon on September 7th the viscounty becomes extinct, but the baronetcy, created in 1814, passes to Lord Grey's second cousin, Dr. Charles George Grey, senior medical officer in the West African Medical Staff, Nigeria.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

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QUERIES AND ANSWERS

Sore Tongue

"PALUSTRIS" asks for suggestions for diagnosis and treatment in the following case. He writes: Three years ago the papillae near the tip of the tongue suddenly became abnormally prominent, and still remain so. This is accompanied by a feeling of "rawness." A year later a small area—also near the tip, but not actually among the enlarged papillae—became superficially denuded of papillae. This bare patch was normal within a week, but recurperiodically, in almost exactly the same position, at intervals of about a month. There is no induration and no glandular enlargement. The patient's age is 50; his general health is good, except for frequent gastric flatulence to which he has been prone for a number of years. He wears a complete upper and a partial lower artificial denture of vulcanite. The plates fit well, and there is no question of mechanical irritation. He had been a very moderate pipe smoker, and a year ago gave up smoking.

Pyrexia of Unknown Origin

Dr. PERCY B. SPURGIN (London, W.1) writes in reply to "C. H. P." (September 9th, p. 516): This might be a case of "fatigue pyrexia," a not uncommon condition allied to "toxaemia of deficiency." I would suggest glucose twice a day, and haliverol, with special diet rich in vitamins. Undue exertion to be avoided, and rest insisted upon at the first sign of fatigue, for at least half an hour recumbent.

Income Tax

Colonial Service—Residence in United Kingdom

"H. P." is in the Colonial Medical Services, and is contemplating buying a residence here and returning to West Africa with his wife and child, leaving the residence in the occupation of relatives.

*** If "H. P." retains a residence available for his use in this country, then he will be liable, as a British resident, for any financial year in which he spends time here. His liability would not extend to cover pay not remitted to or drawn in the United Kingdom.

Increase in Partnership Share

"L. M. BIRM." had a one-third share in a practice from January 1st, 1931, to January 1st, 1933, since when his share has been one-half. On what basis should he be assessed for 1932-3 and 1933-4?

*** The Income Tax Acts provide that an assessment in the case of a partnership shall be made on the *firm* as a separate entity, and that in computing the income of any member of the firm the ratio to be applied is his share of the firm's profits for the year of assessment—not necessarily the share applicable to the basis year. Consequently our correspondent's share of the firm's tax will be the amount applicable to (1/3 of 3/4 + 1/2 of 1/4 =) 3/8 of the assessment for 1932-3 and 1/2 for 1933-4.

Employment of Daughter

"J. H." employs his daughter "part-time as private secretary, and makes her an allowance valued at £35 per annum, £20 of which is paid in cash, and the remainder represents board and lodging." The inspector of taxes will allow only the £20 cash payment.

*** In the case of an employer the amount to be charged by him is the expense he incurs, whether it be paid to the employee in cash or expended in providing board and lodging. Where the employment is part-time, as in this case, and the total cost includes something other than an employer's burden, the only safe guide is what would be the cost on a *quantum meruit* basis. If the services of "J. H.'s" daughter as his private secretary are worth £35 a year to him, then he is entitled to deduct that sum, whether it is paid to her in cash or expended in providing board and lodging for her.

LETTERS, NOTES, ETC.

Student Interchanges with Poland

A correspondent who has recently visited a number of hospitals and clinics in Poland informs us that under the auspices of the Medical Association of the University of Warsaw arrangements for holiday exchanges can be made between Polish medical students and those of other countries. The principle of the exchange is that a foreign student is received in the Polish hospitals and clinics, board and lodging being provided, on the condition that similar facilities be given to a Polish student abroad. The organization, which is anxious to get in touch with this country, has already made contact with seven foreign countries and has this year received sixty-nine foreign students. The interesting and historic city of Warsaw, with its many fine examples both of ancient and modern buildings, has a population of about 1,200,000. There are four State hospitals, with 276 beds; fourteen public hospitals, with 4,894 beds; twelve hospitals belonging to philanthropic societies, with 1,548 beds; and twenty-six private hospitals, with 510 beds: in all, fifty-six hospitals and 6,728 beds. In addition to the hospitals there are many other matters of medical interest—notably, the State School of Hygiene and the Municipal Institute of Hygiene. Our correspondent is satisfied that experience of such differences in the details of hospital work and organization as will always be found in a foreign country cannot but lead to increased observation and reflection and to a broadening of outlook. His experience also suggests that the reception given to students from this country would be most hospitable and cordial. While many Polish doctors speak English, a working knowledge of French would be a considerable advantage. All arrangements should be made through the Polish Embassy, but the Medical Association at Warsaw is prepared to give further information to prospective visiting students. The address of the association is: Kolo Medyków, Uniwersytetu Warszawskiego, Warszawa, Chalubinskiego 5, Poland.

Testing of pH

We have received from the British Drug Houses Ltd., Graham Street, London, N.1, a copy of the third edition of their useful and interesting sixteen-page booklet, *pH Values: What They Are, and How to Determine Them*, by T. Tusting Cocking, F.I.C., together with a new catalogue of indicators, accessories, and compact outfits, used in making tests of hydrogen-ion concentration. The wares offered are of particular interest to physiologists, biochemists, and those concerned with public health, but the "B.D.H. capillator" is especially commended to general practitioners.

Exhibits of Medical Science

Among the most interesting exhibits in the Hall of Science at the Chicago World Fair are those contributed by the Research Laboratories and Museums embraced by the Wellcome Research Institution, London. Models are shown of the institution itself, of the floating laboratory presented by Sir Henry Wellcome to the Sudan Government for use on the Nile, and of the mobile field laboratory given to the British War Office during the great war. The Wellcome Bureau of Scientific Research makes contributions from its departments of protozoology, helminthology, bacteriology, and experimental pathology. The Museum of Medical Science demonstrates its original method of visual teaching. The Entomological Field Laboratories have exhibits dealing with mosquitos and mosquito-borne disease and its prevention. The exhibits of the Wellcome Physiological Research Laboratories deal with the physiological, pharmacological, and serological problems met with in the production of diphtheria, tetanus, and other antitoxins. The Chemical Research Laboratories contribute groups of medicinal agents such as antimalarial, amoebicidal, anthelmintic, antileprotic, etc. The Wellcome Historical Medical Museum tells the story of the progress of British medicine and surgery during the past 100 years by means of portraits and records of over fifty British pioneers, while dioramas and action pictures contribute visual records of outstanding developments in medicine and surgery due to British workers. The central cases contain historical collections of surgical instruments and pharmaceutical products. Maps and statistical charts show the growth of the public health services in London during the past 100 years.

Experiments on Animals in Prussia

The recent edict of General Göring, forbidding all experiments on living animals in Prussia, had scarcely reached the newspapers of this country before its inevitable modification was announced. The Berlin correspondent of the *Times*, telegraphing on September 8th, states that pending the enactment of an Animal Protection Act vivisection is now defined as the dissection of, or operations on, a living unnarcotized animal in cases where anaesthetics are used for similar operations on the human body, and in cases where the use of anaesthetics is feasible. "As serious scientific research in the interest of maintaining health and life cannot dispense with scientific experiments with animals, these experiments will not be regarded as vivisection if the following rules are followed: Scientific experiments with animals may be made in scientifically conducted institutions under the supervision of their heads only if scientific considerations promise definite success. They must be omitted if the question at issue has already been cleared up. They are to be made painless by general or local narcotics."

Corrigendum

St. Thomas's Hospital old students' dinner (see *Journal*, September 9th, p. 515)—the chairman's name should read Dr. Charles Richard Box.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 36, 37, 38, 39, 42, and 43 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 40 and 41.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 168.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

184 Neurological Aspects of Suprarenal Insufficiency

L. H. CORNWALL (*New York State Journ. Med.*, May 15th, 1933, p. 642) records three cases which illustrate certain neurological phases occurring in the course of untreated suprarenal inadequacy. In one instance bilateral gummata in these glands caused sudden unconsciousness, followed by stupor, with short lapses of consciousness during which there was, however, confusion of mentality with disorientation as regards time, place, and persons. The second case was characterized by spasms of abdominal pain, suggestive of gastric crises, associated with anorexia, eructations of gas, a sense of fullness after the ingestion of small amounts of food, and nausea, with or without vomiting. These diminished when cortin was administered. His third patient presented symptoms which resembled those of epidemic encephalitis. The author considers that in the first case the sudden coma was probably an indication of circulatory collapse, due to influences operating on the sympathetic nervous system. The crises of visceral pain in the second case are attributed to paroxysmal dysfunction of this system. It is suggested that the cerebral symptoms in the last case might possibly have been the result of anoxaemia of the brain due to vaso-constriction of the cerebral arterioles, or, conversely, to loss of vascular tone accompanied by vaso-dilatation. In addition to the classical symptoms of suprarenal deficiency, Cornwall mentions a tendency for a rise in the nitrogen content of the blood in the absence of any manifest renal disorder, the occurrence of hypoglycaemia, and an increase of the creatine excretion. Excessive creatinuria is, he thinks, an important feature of the characteristic metabolic disturbance. He adds that in these patients there is but little tolerance of such minor operative measures as intravenous administrations or transfusions. The threshold for shock is very low, and any surgical procedure, no matter how slight, must be approached with great caution. The value of such a prophylactic and therapeutic medicament as cortin is well worth consideration in this connexion.

185 Causes of Sudden Death

T. H. B. BEDFORD (*Journ. Path. and Bact.*, May, 1933, p. 333) reviews a series of 198 cases "brought in dead" to the Leeds General Infirmary during twenty-one years. He distinguishes three groups: (1) cases of apparently healthy persons who suddenly collapsed while at work or in the streets; (2) cases of ambulatory patients who were known to be the subjects of chronic disease; (3) a few cases of patients suffering from acute disease who died while being sent to hospital by their medical attendant. Sudden death seems to be on the increase in the present century, the incidence in the present series being twenty-two in the years 1911 to 1915; thirty-six between 1916 and 1920; fifty-seven from 1921 to 1925; and seventy-six in the period 1926–30. The last quarter of the year appeared to be the most fatal. One hundred and fifty-four of the cases were male. As regards age, there were forty-six cases in the seventh decade and thirty-four in the sixth. Cardiac diseases, including aortic aneurysm, accounted for 144 deaths, lesions of the respiratory organs for nineteen, cerebral haemorrhage for fifteen, and abnormalities of the abdominal organs for five. No cause was found in fifteen cases. Valvular disease of the heart was present in thirty-five cases, the type being aortic in twenty, mitral in seven, and combined in eight instances. In only four of the aortic cases was syphilitic infection incriminated. Atheroma of the coronary arteries was responsible for sixty-three of the deaths, the left artery being in a more advanced stage of degeneration than the right in all except five. Myocardial infarction was found in twenty-seven patients and was recent in fourteen of these. With the exception of one acute infarct due to thrombosis of the right coronary artery, the infarcts were all situated in the left ventricle; they were usually found to involve the apical region, and occasionally the interventricular septum. Ruptured aneurysm was found in nineteen cases; in eleven of these it had involved the pericardial cavity. In the nineteen respiratory cases the causes were haemoptysis (seven), obstruction (six), and pneumonia (six). The total general increase of sudden deaths was not shown to be due to the more frequent occurrence of any particular cause, there being a general rise in all forms of disease. The author postulates, therefore, some change in the mode of life, and particularizes the modern tendency of the middle-aged and older persons to indulge in the more active pastimes suitable to youth.

186 Death in Tuberculosis

Having performed more than a thousand necropsies on patients who died from tuberculosis, and after extensive clinical experience, H. ULRICI (*Klin. Woch.*, June 3rd, 1933, p. 875) affirms that sudden death in tuberculosis is comparatively rare, as is death from absorption of bacterial toxins. The majority of these patients' deaths are due to the extension of organic destructive processes, to exhaustion, or, in a third group of cases, to the invasion of other vital organs, comprising secondary manifestations of the original disease—for example, meningitis following pulmonary or laryngeal tuberculosis. Although fatal haemoptysis often follows muscular effort, it may occur during sleep. Occasionally, fatal haemorrhage follows spontaneous pneumothorax. Ulrici has seen several cases of cerebral embolism following pulmonary thrombosis; pulmonary embolism may end fatally. Absorption of toxins from caseating pulmonary foci or from aspiration of septic muco-purulent material from the bronchi may produce fatty degeneration of the liver or septic foci in the spleen. Intestinal tuberculosis terminates usually in death from exhaustion. Chronic diarrhoea and anorexia combine to produce excessive emaciation. Laryngeal tuberculosis, by rendering deglutition impossible, may produce a similar condition. Heart failure is common in chronic pulmonary tuberculosis, even when the disease is quiescent, and vicarious emphysema and chronic bronchitis increase the strain upon the damaged heart. Death from complications—for example, meningitis, amyloid disease, or mixed infections originating in empyema secondary to spontaneous pneumothorax, or peritonitis following intestinal ulceration—may also occur. Persistent and increasing oedema is the most certain sign of impending death from heart failure.

187 Peritonitis Complicating Scarlet Fever

F. G. KOJIS and E. J. MCCABE (*Amer. Journ. Med. Sci.*, May, 1933, p. 710) record three cases of primary peritonitis complicating scarlet fever in a girl aged 10 years, a male infant aged 10 months, and a woman aged 32, respectively. These were the only examples of this complication among 5,500 cases of scarlet fever admitted to the Willard Parker Hospital, New York, from 1928 to 1932. Laparotomy was performed in each case, with the result that the girl recovered and the other two died. The writers have also collected sixteen other cases from the literature in patients aged from 7 months to 31 years. Eleven died and five recovered. Eight were females, three were males, and in five the sex was not stated. In the absence of any local abdominal focus the peritonitis in these cases has been attributed to transmission by the blood stream, lymphatics, or direct extension from the mouth or genitals.

Surgery

188 Electrical Treatment of Cavernous Angioma

H. BORDIER (*Paris Méd.*, May 27th, 1933, p. 469) states that angiomata, from the electrotherapeutic point of view, may be divided into two groups: simple or slight angiomata and large or lacunar angiomata. These latter constitute the cavernous angiomata, and are definite tumours which are very vascular and erectile. They are covered with healthy skin, lying just beneath it, and are formed of blood spaces similar to those found in erectile tissue. Any treatment for this type of case must be carried out without injuring the overlying skin, and it must only affect the tumour which lies beneath it. Electrolysis has been the method of choice in the treatment of this condition for a long time. Electrolysis is carried out by introducing one or two needles into the tumour and passing a current through these. Clotting occurs round the active needle. The treatment is repeated on several occasions until the tumour has been completely dealt with. The objection to this is the length of time it requires and the pain which it causes. Diathermo-coagulation, on the other hand, gives better and more rapid results. It brings about coagulation of the blood by the higher temperature produced, and at the same time destroys the angiomatous tissue. Two or three treatments are usually sufficient and last only for a few seconds. The unipolar or bipolar methods may be used. In the former the indifferent electrode is placed on some other part of the body and the diathermy current passed into the angioma through a sharp needle. In the bipolar method both needles are introduced into the tumour. The latter method is perhaps more painful, but produces a more extensive coagulation and requires fewer applications. No anaesthetic is necessary, even for children, and very little discomfort is produced. One application will often cause quite a large angioma to disappear. The results obtained by diathermo-coagulation are remarkable both in the way the angioma disappears and the aesthetic results produced. Tumours have been treated by this method on the face and scalp and on the lower lip, and photographs are shown illustrating the excellent results obtained.

189 Parathyroidectomy for Ankylosing Polyarthritis

A. AMELINE (*Bull. et Mém. Soc. Nat. de Chir.*, May 20th, 1933, p. 764) reports a case of ankylosing polyarthritis which occurred in a woman of 47 and had been present for eighteen years. The disease had a sudden onset with an acute torticollis, which was temporarily relieved by medical treatment. Subsequent attacks, which each lasted for about two months, gradually affected nearly all the joints of the body. Hypercalcaemia was present. As the patient's condition was becoming desperate it was decided to carry out an exploratory operation on the parathyroid glands. On the right side removal of what was considered to be the parathyroid body was carried out, whilst on the left side three nodules were removed from around the terminal branches of the inferior thyroid artery. Histological examination of these nodules showed that they were composed of normal parathyroid tissue. Convalescence after the operation was rapid, and there was no sign of tetany. A very marked improvement in movement and cessation of pain were noticed the day after the operation. This improvement continued and the patient left hospital on the ninth day. Three months later there was a recurrence of the joint trouble, and the condition of the patient reverted to that found before the operation, except that the calcaemia, which was lowered by parathyroidectomy, remained the same. The end-result of the operation was disappointing in view of the marked immediate improvement in the condition of the patient, and it is suggested that in some cases recurrence has been delayed for a greater length of time when the operation has been less severe. In the instance reported the patient made a good recovery, but for cases where the condition is poor it is considered advisable to carry out the operation in two stages, with an interval of a few days between the exploration of the two sides. Other cases reported show that parathyroidectomy is not able to cure ankylosing polyarthritis, but it may relieve for a varying length of time the intense suffering caused by this disease.

190 Acute Pyogenic Phlebitis

H. NEUHOF (*Ann. of Surg.*, June, 1933, p. 808) describes an acute phlebitis of venous radicles, occurring at the site of a primary infection, as a pathological process which is part of the infection, but is not a clinical or significant lesion. An acute phlebitis, however, which is derived from, and in close proximity to, an infective secondary focus is a frequent source of general septic invasion and may even cause death. When phlebitis recurs the main venous trunk draining the infective focus is usually involved. Of 150 patients suffering from surgical septicaemia 41 per cent. showed a phlebitis secondary to a suppurative focus. An important venous trunk, such as the jugular, the axillary, or the external iliac vein, was invaded in every instance. The clinical signs of septicaemia from pyogenic phlebitis are recurrent chills and fever and metastatic foci. There is usually a positive blood culture. Whilst the significance of phlebitis of the lateral sinus and pelvic veins is well known, the subject of phlebitis complicating infection of the soft parts is less generally appreciated. The primary infection is usually slight, such as an infected blister or fistula, and is followed by regional lymph-node involvement accompanied by fever. The degree of phlebitis may range from slight changes in the wall of a patent vein to the characteristic white-walled vein about its adherent purulent thrombus. Phlebitis associated with general surgical infections spreads so quickly and is so dangerous that the indication for operation is urgent, and exploration should be carried out as soon as phlebitis is diagnosed or suspected. Excision of the infected vein is advocated when thrombophlebitis exists, but may require modification when there is no thrombosis present. Full exposure of the lesion in the vein is essential, and emphasis is laid on the importance of early diagnosis and operation. Eight cases are reported in which excision of the affected vein was carried out. The operation was successful in five cases, and the patients made a good recovery. Of the remaining three, one died from multiple abscesses of the lungs, one from continued septicaemia, and one from meningo-encephalitis.

191 Barker's Incision in Knee Cartilage Operations

J. STEFANINI (*Rev. de Chir.*, No. 5, May, 1933, p. 349), remarking the present increasing frequency of traumatic lesions of the knee, states that, whatever the sequelae of the trauma—whether pseudo-cysts of the meniscus or recurrent hydrarthrosis with considerable functional disability—the only justifiable therapy is meniscectomy. The method of approach for this operation should permit of careful exploration and total amputation of the injured meniscus, and at the same time should not cause a mutilation disproportionate to the lesion requiring treatment. The author discusses the relative merits of many methods of approach, and considers one of the methods of transverse arthrotomy to be the most suitable. He finds that Barker's incision, as modified by Bonnet, gives easy access for meniscectomy, and that no disproportionate mutilation results. The incision has the form of a "J," the short limb being inferior and posterior. This incision allows of easy and rapid removal of the cartilage, and reduces to a minimum the duration of the immobilization. Articular rigidity and muscular atrophy, together with all risk of ultimate articular laxity, are reduced to a minimum. Full histories of seven cases operated on in this manner between August, 1931, and October, 1932, are given. All made complete recovery, with a disappearance of all symptoms, a normal aspect of the knee, and excellent position of the limb. None of these cases—and they included cavalry men, artillerymen, and foot soldiers—had asked for the least percentage of invalidity.

Therapeutics

192 Vitamins B in Diabetes

Citing the work of numerous investigators, M. LABBÉ, F. NEPVEUX, and J. D. GRINGOIRE (*Bull. de l'Acad. de Méd.*, May 23rd, 1933, p. 689) draw attention to the important action of the vitamins B complex (B_1, B_2, B_3) on carbohydrate metabolism. It favours the glycogenic function of the liver and increases its content of oxido-reducers. Hence, its indication in diabetes. Vitamin therapy in diabetic patients lessens the glycosuria and glycaemia, increases their tolerance for carbohydrates, improves their general condition, and increases their weight. With doses of 15 grams of powdered vitamins the present authors noted an increased sugar tolerance of 40 to 50 grams, which nearly equals that obtained by 32 to 40 units of insulin. The improvement is progressive but slow (the tolerance increasing by about 1 gram and the glycosuria lessening by 1.7 grams daily); therefore, at the commencement of treatment insulin should also be given. As the tolerance increases the injections of insulin may be decreased or even discontinued. To illustrate the foregoing points, notes are given of eleven diabetic cases. Favourable results were obtained in eight of these: in one case a regulation of the carbohydrate metabolism without diminution of the glycosuria was noted; the remaining two cases showed no improvement. That vitamins can be given orally is of appreciable advantage to the patient.

193 Amino-acids in Gastric and Duodenal Pain

J. LENORMAND (*Paris Méd.*, June 10th, 1933, p. 518) has used amino-acids by intracutaneous injection in peptic ulcer and functional dyspepsia. This line of therapy was suggested by experiments showing that the duodenal ulcers which usually occur in dogs after duodeno-ileostomy could be prevented by exhibition of amino-acids. It was first employed by Weiss and Aron of Strasbourg. The author uses daily intracutaneous injections of 0.2 c.cm. of a solution containing 2 per cent. of tryptophane and 4 per cent. of histidine. The conclusion he has reached is that this treatment has little effect upon the healing of peptic ulceration, but will relieve pain where other methods fail in organic and functional dyspepsias. This action he attributes to the increase of mucus in the gastric juice, which has been shown to occur after injection of amino-acids.

194 Meta-synephrin and its Isomers

M. L. TAINTER and A. B. STOCKTON (*Amer. Journ. Med. Sci.*, June, 1933, p. 832) record further work on racemic meta-synephrin (metahydroxyphenyl-1-methyl-amino-2-ethanol-1), including its recently obtained laevo- and dextro-isomers, and comment on their therapeutic value. All these compounds were found to raise the blood pressure when injected intravenously into atropinized cats, the ratios of activity of the hydrochlorides to adrenaline hypochloride being: laevo-isomeric meta-synephrin, 4.3; the racemic form, 5.6; the dextro-isomer, 184; and the ketone, 433. The pressor responses to laevo-meta-synephrin were sensitized by cocaine, whereas the responses to the other compounds were unaffected. Paralysis of the sympathetic vaso-constrictors by ergotamine, which resulted in reversal of the adrenaline action, decreased, but did not similarly reverse the pressor responses to the meta-synephrin compounds. The combined results in cocainized and ergotaminized animals showed that these meta-synephrin compounds did not exercise pure sympathicotropic influences as adrenaline does. The intramuscular or subcutaneous injection into patients of doses of from 5 to 10 mg. of racemic meta-synephrin hydrochloride brought about persistent rises of blood pressure without unpleasant or serious concomitant effects. The oral administration of the laevo-compound or racemic mixture in total doses of from 120 to 140 and 200 to 300 mg., respectively, caused increases in blood pressure which were well sustained for two or more hours. Applied locally to the nose and throat, meta-synephrin proved to be a valuable decongestive drug, promptly reducing swelling and oedema without irritation or after-effects. When added to procaine solutions in maximum concentrations, meta-synephrin doubled the duration of local anaesthesia produced, whereas adrenaline trebled it. Meta-synephrin had no demonstrable effects on the blood sugar level, allergic reactions, and bronchospasms in experimental animals or patients. The authors conclude, therefore, that the main field of usefulness of meta-synephrin would seem to be as a systemic circulatory (pressor) stimulant, and as a locally acting vaso-constrictor on mucous membrane, such as that of the nose. For these purposes the racemic and laevo-meta-synephrins should be of practically equivalent value in appropriate dosage. Meta-synephrin, it is added, has all the demonstrated therapeutic actions of para-synephrin, and to a higher degree, with the added advantage of being effective orally. It should, therefore, be able to replace the latter as a medicinal agent.

Ophthalmology

195 Cystic Angiomatosis of the Retina

P. DELBÈS (*Thèse de Paris*, 1933, No. 109), who records four illustrative cases, states that this condition, which is also known as von Hippel's disease, after the writer who first described it in 1895, is a familial and hereditary affection with a characteristic ophthalmoscopic picture. Both eyes are affected. The evolution is slow, but the visual prognosis is hopeless. Histologically the condition is an angio-reticuloma of the retina, accompanied by a considerable glial proliferation. Formation of cysts is the rule, and originates from degeneration of the reticular cells, the proliferated neuroglia tissue, or the retina itself. The coexistence of cystic angioma of the retina and cystic angioma of the cerebellum suggests that the conditions are the same.

196 Mydriatic Synergy

According to F. FLYNN (*Brit. Journ. Ophthalmol.*, May, 1933, p. 298), atropine does not produce maximum dilatation even in normal eyes, and still less in iritis. Laevo-glaucosane, though more powerful, is both very painful and expensive. Atropine fails because its concentration in the aqueous is too low, and because only the normal tone of the dilator muscle is called into action. A dose of mydricaine contains atropine sulphate 1/60 grain, cocaine HCl 1/10 grain, laevo-rotatory suprarenine HCl 1/600 grain, NaCl 1/80 grain, chlorbutol 1/120 grain, in 5 minims of sterilized water. It should be employed to give initial dilatation, which can then be maintained by atropine. Dilatation commences in thirty to forty seconds and is at a maximum in three to four minutes. One dose is injected subconjunctivally, close to the synechia to be ruptured. The atropine paralyses the sphincter; the suprarenine and cocaine stimulate the dilator, localizing the injection and anaesthetizing the eye respectively. Should the first injection fail a second or third may be given at intervals of twenty-four hours. Mydricaine is of great use in the extraction of an intra-ocular foreign body, traumatic prolapse of the iris, congenital cataract operation, plastic exudate in the anterior chamber, corneal ulcer, and atropine irritation.

197 Retrobulbar Neuritis of Nasal Origin

R. BERGMEISTER (*Wien. klin. Woch.*, May 5th, 1933, p. 556) refers to the frequent occurrence of retrobulbar neuritis as a sequel of infections of the accessory nasal sinuses. He suggests that the insertion of tampons saturated in cocaine-adrenaline solution as a preliminary to intranasal operations induces an active hyperaemia of the nasal mucosa with prolonged anaemia of the mucosa of the middle turbinals. The resultant damage to the mucosa favours the spread of infective bacteria through-

out the nasal tract and accessory sinuses. The anatomical relations of the optic nerves and chiasma increase the danger of the occurrence of retrobulbar neuritis by the spread of infection through the vascular and lymph channels. Bergmeister records the case of a girl, aged 19 years, who complained of headache, progressive exophthalmos, and oedema of the right upper eyelid, accompanied by right optic papilloedema, and rapid diminution of visual acuity (to 6/36). Skiagrams showed *irregular shadows in both frontal sinuses*. The other sinuses appeared to be normal. No objective evidence of disease in the frontal sinuses or the ethmoidal cells was discovered. Amblyopia with "red-green" central scotoma increased, but these symptoms diminished after the right frontal sinus had been trephined and drained. The ethmoidal cells were explored also. Although vision improved, ophthalmoscopic examination revealed acute progressive degeneration of the papillomacular fibres with pallor of the disk. Symptoms of early multiple sclerosis appeared—the abdominal reflexes, knee-jerks, and plantar reflexes were very feeble. There was doubtful nystagmus. The patient refused protein therapy (typhoid vaccine) and neosalvarsan treatment. Bergmeister states that multiple sclerosis follows retrobulbar neuritis in approximately 30 to 70 per cent. of cases.

Obstetrics and Gynaecology

198 Traumatic Separation of the Corpus and Cervix Uteri

W. STEMMER and B. HEYDE (*Zentralbl. f. Gynäk.*, June 3rd, 1933, p. 1276) state that, owing to the protected situation of the uterus within the true pelvis, injuries to the non-gravid organ as a result of accident are extremely rare. They describe the case of a woman, aged 23, who was thrown out of a motor car by collision and suffered, after transient haematuria and paraparesis in the absence of fracture of the pelvis or other bone, from suppression of the menses and severe pain at the time when they were due. Twelve months later the internal os was dilated, with considerable difficulty, for supposed haematometra; a small amount of fluid blood was evacuated. Not until eighteen months after the accident, when a second attempt at curetting had produced no endometrial tissue and the abdomen was opened for suspected perforation, was it recognized that a complete separation existed between the cervix and the body of the uterus, which was also detached from its broad ligaments. Hysterectomy was done, ligature of the uterine arteries, previously torn, being unnecessary.

199 "Chemical Sympathectomy" in Gynaecology

Since 1926, when Doppler of Vienna first suggested the idea of destruction of sympathetic fibres by a chemical agent, many investigators have worked on the subject. A. BINET (*Gynécol. et Obstét.*, May, 1933, p. 393) reports some recent work on the subject. He found that the technique was ideally simple and that chemical intervention gave excellent results in all his cases. Section of the sympathetic fibres supplying the reproductive organs, by favourably modifying the circulation of the blood to them, is stated to be a cure for many gynaecological disorders. It was applied successfully to cases of dysmenorrhoea, dyspareunia, amenorrhoea, vaginismus, leucorrhoea, nymphomania and frigidity, pruritus of the vulva, and various trophic troubles of the genital apparatus. Binet points out that the sympathetic innervation of the uterus, regulated by the hypogastric plexus, is entirely independent of the ovarian plexus, which innervates the ovary. Endocrine insufficiency of the ovary is translated into genital troubles such as amenorrhoea, dysmenorrhoea, sterility, inadequate metabolism of the lipoids producing obesity, and also psychic troubles. Laparotomy permitting easy access to the pelvic organs is essential. After exposure of the posterior parietal peritoneum, the desired site of the sympathetic supply is injected by means of a syringe and long needle. The chemical agent of choice has proved to be an aqueous solution of phenol at 5 to 7 per cent. This fulfils the conditions of being absolutely innocuous to neighbouring tissues, of not causing a toxic reaction, and of acting on the sympathetic fibres alone. The utmost precautions must, of course, be taken not to puncture a vein with the needle. Binet fully reports five cases in which he performed this operation with success and relief of symptoms. He makes use of sterile ampoules containing 30 c.cm. of 6 per cent. tricresol.

Pathology

200 Cultivation of Poliomyelitis Virus

E. GILDEMEISTER (*Deut. med. Woch.*, June 9th, 1933, p. 877) records success in the cultivation of poliomyelitis virus by a method similar to that devised by the Maitlands for the cultivation of vaccinia virus. Monkeys were inoculated intracerebrally with virulent material, and when they died, after five to thirteen days, the lumbar cord was removed under aseptic conditions and cultivated by various methods. The cord was ground up in Tyrode's solution in an agate mortar, the suspension centrifuged, and the supernatant fluid used for the inoculation of different media. Tissue cultures did not prove very successful, for after three subcultures the virus would no longer reproduce the disease in monkeys. On the other hand, cultivation in fluid medium containing living but not multiplying tissue cells was much more satisfactory. The medium consisted of Tyrode's solution containing 10 per cent. monkey serum, together with the finely cut up brain of a ten- to twelve-day chick embryo. The cultures were incubated in Carrel flasks at 37° C., and were subcultured twice weekly. At the time of writing the author states that by this method the eighteenth subculture had been reached, and that there was no evidence of any loss in virulence for the monkey.

201 Hepatic Function in Scarlet Fever

K. SCHIRLITZ (*Klin. Woch.*, May 27th, 1933, p. 829) observes that it is common knowledge that scarlet fever frequently produces a diffuse degeneration of the liver cells, which may be detected by the very sensitive urobilinogen test. This is valuable also in diagnosis. Schirlitz obtained a positive reaction in 67 per cent. of his cases. Urobilinogen occurred most frequently from the first to the sixth day, but seldom after the ninth day. The estimation of the amount of acetonuria is, he states, a very delicate and practicable method of assessing the extent of liver damage. In a series of 160 cases of scarlet fever, acetonuria occurred in 75 per cent., accompanied by excess of urobilinogen as a pathological excretion product. It occurred for *one day only* in 26.5 per cent., for two days in 25 per cent., for three to six days in 20.5 per cent., 11.5 per cent., 6.5 per cent., and 5 per cent. of positive cases. In one case it persisted over twelve days. The duration of urobilinogenuria and of acetonuria coincided closely, except in one case. Adults were affected almost as frequently as children (66:77). In the majority of acetonuric cases the blood contained traces of acetone and of β-oxybutyric acid, the proportion of the latter being about thrice that of acetone. Specimens of blood and urine were obtained before breakfast, and the percentage of ketones was thus probably higher in the urine. The author states that this ketonaemia may be a sign of derangement of hydrocarbon metabolism, due to hepatic damage. He adds that the lactose test is the most delicate for the estimation of the extent of these lesions. After ingestion of 1.35 oz. lactose, a renal excretion of 45 to 55 grains may be considered normal; any excess indicates hepatic damage. Speaking generally, the occurrence of ketonaemia—that is, acetonuria—is a sign of irritation.

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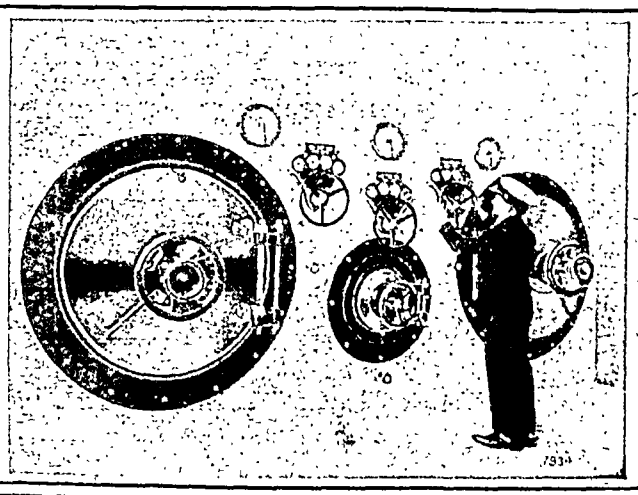
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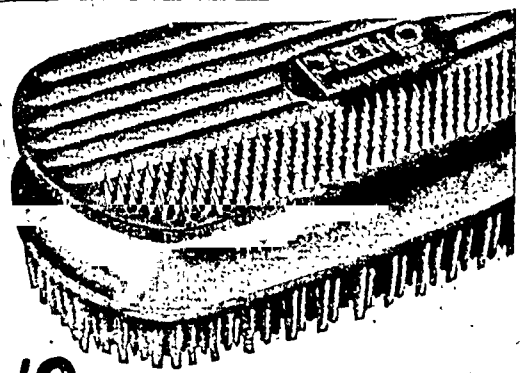
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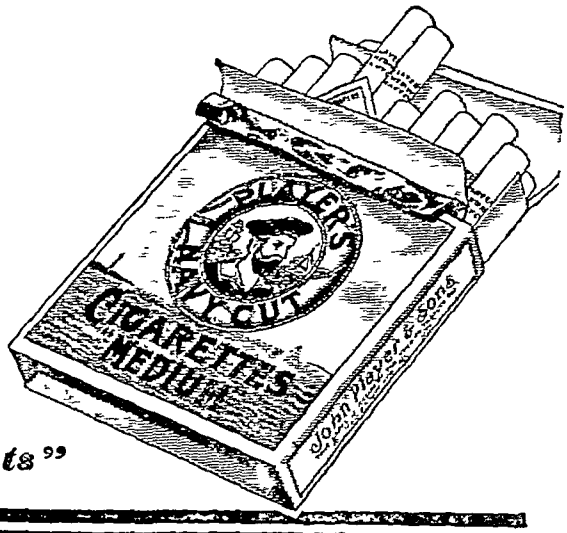
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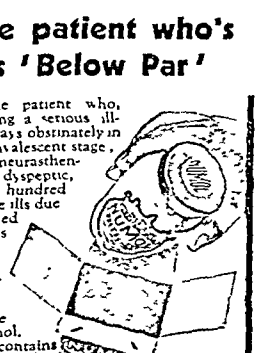
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Mon., Oct. 9	MAURICE B. WRIGHT, O.B.E., M.D. Psycho-therapeutic Methods. 1. Analytical.	2. General Psychology and Mental Mechanisms.
Thurs., Oct. 12	Psycho-therapeutic Methods. 2. Analytical.	3. General Psychology and Mental Mechanisms.
Mon., Oct. 16	Psycho-therapeutic Methods. 3. Analytical.	4. General Psychology and Mental Mechanisms.
Thurs., Oct. 19	Professor MILLAIS CULPIN, M.D., F.R.C.S. London School of Hygiene and Tropical Medicine. Clinical Types. 1. Anxiety States.	ALICE M. HUTCHISON, M.D., M.R.C.P. Child Guidance.
Mon., Oct. 23	2. Hysteria.	EMANUEL MILLER, M.R.C.S., L.R.C.P., D.P.M. East London Child Guidance Clinic. Psychological Treatment of Delinquents.
Thurs., Oct. 26	3. Obsessional States.	EDWARD A. BENNET, M.C., M.D., D.P.M. The Development of Modern Psycho-therapy.
Mon., Oct. 30	4. Sex Aberrations.	ISABEL G. H. WILSON, M.D., Ch.B., D.P.M. Commissioner, Board of Control. Clinical Types. 1. Cyclothymia.
Thurs., Nov. 2	ADOLPHE ABRAHAMS, O.B.E., M.D., F.R.C.P. Physician, Westminster Hospital. Physical Aspects of Psychological Illness.	2. Schizophrenia and Paranoia.

This course forms part of a one year's course in Psycho-therapeutic Theory and Method, but may be attended by qualified Medical Practitioners who wish to take it as an isolated course of lectures. FEE for the 20 lectures: £2 2s. Cheques to be made payable to the INSTITUTE OF MEDICAL PSYCHOLOGY.

Applications should be made to the HON. LECTURE SECRETARY, at the Institute, who will send particulars of other Post-Graduate lectures.

M.D. THESIS

(Camb., Edin., Glas., Durham, &c.)

SKILLED COACHING, GUIDANCE, and ADVICE from Special Tutors, in conformity with the Regulations of the various Universities.

Apply for particulars and free booklet, "Hints on Writing a Thesis for the M.D. Degree," to the SECRETARY, Medical Correspondence College, 19, Welbeck Street, London, W.1.

COUNTY BOROUGH OF WOLVERHAMPTON.

NEW CROSS HOSPITAL, WOLVERHAMPTON.

The Public Assistance Committee invite applications from single gentlemen, duly qualified, for appointment as an ASSISTANT (Resident) MEDICAL OFFICER.

Salary will be at the rate of £200 per annum, with apartments, board, attendance, etc. The appointment is limited to a term not exceeding one year.

Applications, stating age, qualifications, and experience, and accompanied by copies of recent testimonials, must be addressed to the Public Assistance Officer, Stafford Street, Wolverhampton.

Wolverhampton. J. BROCK ALLON,
September, 1933. Town Clerk.

WESTERN OPHTHALMIC HOSPITAL, Marylebone Road, N.W.1.

Applications are invited for the post of JUNIOR RESIDENT HOUSE SURGEON. The salary is at the rate of £100 per annum, and the appointment is for about seven months.

The selected candidate will be required to take up duties early in October.

Applications, accompanied by copies of three testimonials, should reach me by Sept. 23rd.

H. W. BURLEIGH, Hon. Secretary.

THE WARNEFORD, OXFORD.

JUNIOR MEDICAL OFFICER (male) required with Mental Hospital experience. Salary £300, with board, lodging, etc. Apply, with copies of three recent testimonials, to the Medical Superintendent.

ROYAL LONDON OPHTHALMIC HOSPITAL (MOORFIELDS EYE HOSPITAL), City Road, E.C.1.

Applications are invited for the office of SENIOR RESIDENT OFFICER. Candidates must be registered Medical Practitioners and must be prepared to begin duties on Nov. 1st.

Salary at the rate of £150 a year, with board and residence in the Hospital. Additional income will accrue to this post, the care of private patients being included in the duties.

In the event of the First House Surgeon being appointed, other candidates are requested to state whether they would accept the office of First House Surgeon at the rate of £150 a year, Second House Surgeon at the rate of £125 a year, or Third House Surgeon at the rate of £100 a year.

The appointments are for a period of six months.

Applications, with testimonials, stating age and qualifications, must be received not later than October 2nd.

A. J. M. TARRANT, Secretary.

ROYAL UNITED HOSPITAL, BATH.

SENIOR HOUSE SURGEON wanted for October 1st, to take charge of General, Surgical, Gynaecological and Obstetrical beds. Salary £175 per annum, with board-residence.

The Resident Staff consists of Two House Surgeons, House Physician, and Casualty Officer.

The appointment will be for not less than six months, and candidates must be male, unmarried, and of British nationality.

Applications, with three testimonials, to be addressed to the undersigned at once.

J. LAWRENCE MEARS,
Sept. 7th, 1933. Secretary-Supt.

MILDMAY MISSION HOSPITAL, Austin Street, Bethnal Green, E.2.

Applications are invited for the post of HONORARY ASSISTANT GYNAECOLOGIST (woman). Applicants must be Fellows of the Royal College of Surgeons of England, and preferably Fellows or Members of the College of Obstetricians and Gynaecologists. The Council is anxious that all Members of the Hospital Staff should be in sympathy with the religious work of the Hospital.

Applications, together with testimonials, should be sent in as soon as possible to the Medical Superintendent.

THE OTAGO HOSPITAL BOARD.

UNIVERSITY OF OTAGO AND DUNEDIN HOSPITAL, NEW ZEALAND.

Applications are invited for the position of RESIDENT MEDICAL OFFICER (Senior).

Candidates must hold a degree in Medicine of a British University, must have been qualified for three years, and have held resident hospital appointments for at least one year.

The successful applicant will be required to act as Medical Tutor under the direction of the Professor of Medicine, and as Superintending House Physician and Medical Registrar.

Salary to be at the rate of £500 per annum, with board and residence, less 10 per cent. reduction.

Full details may be obtained on application to the High Commissioner for New Zealand, 415, Strand, W.C.2.

Otago Hospital Board, JOHN JACOBS,
Dunedin, New Zealand. Secretary.
August 2nd, 1933.

LURGAN UNION (NORTHERN IRELAND).

MALE OR FEMALE RESIDENT MEDICAL OFFICER WANTED.

The Board of Guardians will, at their meeting to be held on October 5th, 1933, receive and consider applications from duly qualified persons for the position of Resident Medical Officer of the Infirmary and Fever Hospital for one year at a salary of £100, with apartments, laundry, and first-class rations.

Travelling expenses (saloon and third-class railway fare) will be allowed to the candidates who attend the Board meeting by request.

Applications for the appointment, accompanied by certificate of registration and copies of testimonials, will be received by me up to 10 a.m. on the date above named.

The Infirmary is in course of reconstruction, involving a large expenditure which it is expected will make it one of the most up-to-date Hospitals in Northern Ireland.

By Order,
Clerk's Office, Workhouse, Lurgan. J. CALVERT, Clerk of Union.
September 7th, 1933.

CITY OF LEEDS.

ASSISTANT MEDICAL OFFICER FOR MATERNITY AND CHILD WELFARE.

Applications are invited from qualified and registered medical practitioners for the post of Assistant Medical Officer for Maternity and Child Welfare. Applicants must have had not less than three years' post-graduate experience, including experience in General Medicine and Surgery, and in the treatment of Children's Diseases and Diseases of Women. Preference will be given to candidates possessing the D.P.H. The salary offered is £500, rising by annual increments of £25 to £700, and is subject to a temporary percentage deduction.

The person appointed will be required to pass a medical examination, and to contribute to the Superannuation Fund established under the Local Government and Other Officers Superannuation Act, 1922. The appointment will be terminable by one month's notice on either side.

Form of application and particulars as to the duties of the appointment may be obtained from the Medical Officer of Health, 12, Market Buildings, Vicar Lane, Leeds, 1.

Applications, endorsed "Maternity and Child Welfare Officer," together with copies of three recent testimonials, must be delivered at my office, 26, Great George Street, Leeds, 1, not later than the first post on Wednesday, September 27th.

THOS. THORNTON,
September 4th, 1933. Town Clerk.

CITY OF LEEDS.

ASSISTANT RESIDENT MEDICAL OFFICER, KILLINGBECK SANATORIUM.

Applications are invited from registered Medical Practitioners (male) for the post of Assistant Resident Medical Officer at the Tuberculosis Sanatorium, Killingbeck (220 beds). Applicants must be unmarried, and preference will be given to those who have held previous hospital appointments.

The appointment will be for one year at a salary of £250 per annum, with board, residence, and laundry. The salary is subject to the percentage deductions adopted by the Council.

Applications, on a form to be obtained from the Medical Officer of Health, together with copies of three recent testimonials, endorsed "Tuberculosis Officer," should be delivered at the Medical Officer of Health, 12, Market Buildings, Vicar Lane, Leeds, 1, not later than 10 a.m. on Saturday, September 23rd.

THOS. THORNTON,
September 8th, 1933. Town Clerk.

COUNTY COUNCIL OF MIDDLESEX.

CENTRAL MIDDLESEX COUNTY HOSPITAL, WILLESDEN; HILLINGDON COUNTY HOSPITAL, UXBRIDGE.

RESIDENT ASSISTANT MEDICAL OFFICERS (Male).

The County Council invites applications for the above appointments. Candidates must be registered Medical Practitioners, unmarried, and must have held resident appointments in a *General Hospital*.

Candidates for the appointment at Central Middlesex County Hospital must have had special experience in Obstetrics and Gynaecology.

For the appointment at Hillingdon County Hospital experience in general Surgery and Diseases of the Ear, Nose, and Throat is required.

The officers appointed will work under the direction of the Medical Superintendents of the Hospitals, and will devote their whole time to their official duties.

The salary attaching to each appointment is at the rate of £400 per annum, rising by annual increments of £50 to £500 per annum, together with board, lodging, and laundry, valued for superannuation purposes at £100 per annum.

The successful candidates will be required to pass such medical examination as the County Council may direct, and, unless subject to the Poor Law Officers' Superannuation Act, 1896, to contribute to the County Council's Superannuation Fund.

The appointment will be held during the pleasure of the Council and subject to three months' notice on either side.

Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than Sept 28th.

No special application forms are provided. Envelopes must be endorsed "Resident Assistant Medical Officer, Central or Hillingdon County Hospital" as the case may be.

Canvassing, directly or indirectly, will be a disqualification.

N.B.—Central Middlesex County Hospital is a General Hospital of 350 beds, about half of which are occupied by acute medical and surgical cases and maternity cases.

Hillingdon County Hospital is a General Hospital of some 150 beds for medical, surgical, and maternity cases. 100 beds for chronic cases in Hillingdon Institution, which adjoins the Hospital, also are under the care of the medical staff of the Hospital. (C D 17)

ERNEST S. W. HART,
Clerk to the County Council.

Middlesex Guildhall, Westminster, S.W.1.
September, 1933

THE RADIUM INSTITUTE, Riding House Street, London, W.1.

Applications are invited for the post of HOUSE SURGEON. Candidates must be fully qualified, unmarried, and of British nationality. The appointment is for a term of six months, and the successful candidate will be required to take up his duties on October 1st next. The salary will be at the rate of £150 per annum, with board, lodging, and laundry.

Applications, stating age, qualifications, and experience, with copies of three recent testimonials, must be received at the Institute not later than the first post on Monday, Sept 25th.

THOS. A. GARNER, Secretary.

ROYAL CHEST HOSPITAL, City Road, E.C.1.
(Royal Northern Group of Hospitals)

A vacancy occurs for a PHYSICIAN with charge of out-patients. Candidates must possess the degree of M.D. or M.B., obtained by examination at a British University, and be Fellows or Members of the Royal College of Physicians of London.

Full particulars of the appointment, and details with regard to the submission of testimonials, etc., may be obtained from the undersigned, to whom applications should be sent not later than September 25rd.

GILBERT G. PANTER, Secretary.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.1.

Applications are invited from Medical women who have had previous V.D. experience for the part-time appointments of ASSISTANT CLINICAL OFFICERS (Two) in the department for treatment of Venereal Diseases (female) vacant respectively on November 1st and January 1st. Tenable for 12 months. Salary £150 per annum.

Intending candidates should submit applications stating age and experience, with copies of three recent testimonials, to the undersigned not later than before September 30th.

REGINALD R. GARRATT, Secretary.

COUNTY COUNCIL OF MIDDLESEX.

DISTRICT MEDICAL OFFICER.

The County Council invites applications from duly qualified registered Medical Practitioners resident in the district for the appointment of DISTRICT MEDICAL OFFICER for the Medical Relief District of Enfield Town and Cooper's Lane. The salary attaching to the appointment will be £250 per annum, plus certain fees in connection with emergency midwifery. The salary will be liable to annual review in accordance with any increase or decrease in the duties performed. The officer appointed will be required to carry out his duties of providing medical attendance upon the sick poor of the district in accordance with the Public Assistance Order, 1930, of the Minister of Health, and to name to the Council some duly qualified Medical Practitioner who will, in the case of his absence or other hindrance to his personal attendance, act in his place.

Applications, stating (1) name, (2) age, (3) qualifications and experience, accompanied by copies of not more than three recent testimonials, must be received by the undersigned not later than September 22nd.

No special application forms are provided. Envelopes must be endorsed "District Medical Officer."

Canvassing, directly or indirectly, will be a disqualification.

Guildhall, Westminster, S.W.1
September 4th, 1933.

ERNEST S. W. HART,
Clerk of the County Council.

COUNTY COUNCIL OF MIDDLESEX.

WEST MIDDLESEX COUNTY HOSPITAL, ISLEWORTH.

VISITING PATHOLOGIST (Part-time).

The County Council invites applications for the above appointment. Candidates must be registered medical practitioners, with special knowledge and experience of pathology and biochemistry, who are engaged wholly or chiefly in the practice of this branch of medicine.

The pathologist appointed will be required to attend the hospital on two half days per week at first, at times to be arranged, and the remuneration payable is three guineas per session of 2—3 hours.

The appointment will be held during the pleasure of the County Council, and subject to three months' notice on either side.

Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than September 28th.

No special application forms are provided. Envelopes must be endorsed "Visiting Pathologist, West Middlesex County Hospital."

Canvassing, directly or indirectly, will be a disqualification. (C D 16)

ERNEST S. W. HART,
Clerk of the
County Council

Middlesex Guildhall,
Westminster, S.W.1.
September, 1933.

WEST END HOSPITAL FOR NERVOUS DISEASES, In patient Department, Gloucester Gate, Regent's Park, N.W.1.

The Committee of Management invites applications from British male candidates for the post of JUNIOR HOUSE PHYSICIAN. Duties to commence November 1st. Salary at the rate of £100 per annum, with board, residence, and laundry. Appointment in first instance for six months.

Candidates should send their applications, with copies of three recent testimonials, to the undersigned by Friday, October 20th.

J. P. WETENHALL, Secretary.

75, Welbeck Street, W.1.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN (80 Beds)

Wanted at once, a RESIDENT HOUSE PHYSICIAN (lady). Salary £130 p.a. The appointment is for six months, but may be extended by mutual arrangement. Applicants must be fully qualified. Applications, with three testimonials, one relating to anaesthetics, to be sent to the undersigned.

ARTHUR N. WHISTON, Secretary.

25, St. Mary's Gate, Derby.

JEWISH MATERNITY HOSPITAL, Underwood Street, E.1.

Applications are invited for the post of RESIDENT HOUSE SURGEON. Duties commence October 1st for a period of four months with an option to extend for six months. Salary at the rate of £50 per annum. Applications, together with copies of three recent testimonials, to be sent to the undersigned not later than September 18th.

ALICE MODLE, Secretary.

LONDON JEWISH HOSPITAL, Stepney Green, E.1.
(General Hospital—108 Beds)

The Council of Management are about to appoint an HONORARY ASSISTANT SURGEON, who will be required to attend Out-patients on two mornings each week (but only one session is necessary for the present). Candidates for the post must be Fellows of the Royal College of Surgeons of England, Edinburgh or Ireland, or Masters of Surgery of London, Oxford or Cambridge University, and shall not be engaged in the practice of Pharmacy or Midwifery. Candidates desiring to make application must send twenty-four copies of their application with copies of three recent testimonials to the Secretary at the Hospital on or before Friday, October 6th.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

The Committee invite applications for the post of ASSISTANT SURGEON with charge of beds. Two attendances required weekly. An honorarium to cover travelling expenses will be paid. Candidates must be Fellows by examination of the Royal College of Surgeons.

Applications, with copies of three recent testimonials, which may be printed or typewritten, should be sent on or before September 30th, to the undersigned, from whom further particulars may be obtained.

CHARLES H. BESSELL.
August 28th, 1933 Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

HOUSE PHYSICIAN required October 7th.
CASUALTY OFFICER required October 7th.
Some ophthalmic work additional. Six months' appointments. Salary at the rate of £100 per year, with board, lodging, and laundry.

Applications must be made on forms to be obtained from the undersigned, and must be sent in with copies of not more than four testimonials, on or before September 19th.

CHARLES H. BESSELL,
August 10th, 1933 Secretary.

THE PRINCESS BEATRICE HOSPITAL, Richmond Road, Earl's Court, S.W.5
(General Hospital—80 Beds)

RESIDENT MEDICAL OFFICER (male) required to act as House Surgeon and Casualty Officer for six months as from October 1st. Salary at the rate of £110 per annum, with board, residence, and laundry. Previous resident experience essential.

Applications to be sent to the House Governor not later than September 19th, stating age, accompanied by copies of three recent testimonials.

THE ROYAL GWENT HOSPITAL, NEWPORT, MON. (160 Beds)

Wanted, a JUNIOR RESIDENT MEDICAL OFFICER to act as HOUSE SURGEON to Out-patients and as HOUSE PHYSICIAN.

Salary £135, with board, lodging, and laundry. Resident Medical Staff 5. Eligible for promotion.

Large Out-patient Department.

Applications, stating age and qualifications, with copies of three recent testimonials, to be sent to the undersigned.

Applications from ladies not entertained.

J. K. MILLWARD,
Sept 1st, 1933 Secretary-Supt.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Road, S.E.1.

There is a vacancy for the post of HONORARY SURGICAL REGISTRAR at the above Hospital. Candidates must be Fellows of the Royal College of Surgeons, and would be expected to call upon members of the Hon. Medical Staff, a list of whom would be furnished on request. Preference will be given to candidates having had experience of special departments. Particulars regarding the appointment can be obtained from the undersigned, to whom applications should be sent, not later than September 20th, with not more than three recent testimonials.

J. H. TEASDALE, Secretary.

THERE WILL BE A VACANCY for a RESIDENT MEDICAL OFFICER at WEST MINSTER HOSPITAL ANNEXE, 66 Fitzjohn's Avenue, Hampstead, on November 1st.

Salary at the rate of £200 per annum, plus accommodation and board. This appointment offers an opportunity for wide and [illegible] experience.

Candidates who [illegible] have had a Resident post preferred.

Applications should be submitted to the undersigned at the Westminster Hospital, Broadway, S.W.1, not later than Sept. 20th.

CLIFFORD H. POWELL, Secretary.

CARDIFF ROYAL INFIRMARY.
(Associated with Welsh National School of Medicine.)
(Number of available Beds—490).

Applications are invited for the post of RESIDENT REGISTRAR.

The post is tenable for a year, with a possible extension to two years. Salary is at the rate of £100 per annum, with board and lodging.

Applications are also invited for the undermentioned posts:—

TWO HOUSE PHYSICIANS.
ONE HOUSE PHYSICIAN—Medical Unit.
TWO HOUSE SURGEONS.
ONE HOUSE SURGEON—Gynæcological.
CASUALTY SURGICAL OFFICER.

Salary is at the rate of £50 per annum, with board and lodging for the House Physicians and House Surgeons. For the Casualty Surgical Officer salary is at the rate of £75 per annum to an applicant with previous Hospital experience, and £50 per annum without.

Appointments are for six months commencing October 20th.

Application forms can be obtained from the undersigned and should be returned with copies of three recent testimonials, not later than first post on September 30th.

R. ARMSTRONG,
September 11th, 1933. Medical Supt.

ST. MARY'S HOSPITAL, W.2.

CASUALTY HOUSE SURGEON.

Applications are invited from duly qualified candidates for the post of Casualty House Surgeon. Candidates must have been House Surgeons for a full period of office to this Hospital or to some other General Hospital approved by the Board.

The salary is £100 per annum, with board and residence, and the appointment is for six months.

Applications, with copies of testimonials, not exceeding three in number, should reach the undersigned (*from whom particulars of the office may be obtained*) on or before Wednesday, September 20th.

The successful candidate will be expected to take up the duties on October 1st.

W. PARKES, Secretary.

ROYAL VICTORIA INFIRMARY, NEWCASTLE-UPON-TYNE.

Applications are invited for the post of SENIOR SURGICAL OFFICER to the LEAZES HOSPITAL (Pay-Bed Section of the Royal Victoria Infirmary).

Candidates must be registered in Medicine and in Surgery.

The term of appointment is for one year, beginning October 1st, and is renewable for a further period.

Salary £200 per annum (less reduction of 5 per cent.), with board and residence.

Applications, stating age, experience, and accompanied by three recent testimonials, should be sent not later than Friday, September 22nd, to the undermentioned, from whom further particulars may be obtained.

S. DUNSTAN, House Gov. & Sec.

ANCOATS HOSPITAL, MANCHESTER.

RESIDENT MEDICAL OFFICER required to commence duty on November 1st next. One having held a previous appointment essential. Appointment for six months. Salary at the rate of £150 per annum, with board, residence, etc.

HOUSE SURGEON (General) required to commence duty on November 1st next. Appointment *for six months*. Salary at the rate of £100 per annum, with board, residence, etc.

Applications for the above appointments should state age, qualifications, experience, etc., and should be forwarded, together with three recent testimonials, to the undersigned, on or before Monday, October 2nd.

By Order of the Board,
HERBERT J. DAFFORNE,
General Supt. & Secretary.

BURY INFIRMARY, LANCS.
(127 Beds.)

Applications are invited for the post of THIRD HOUSE SURGEON (male), who must have both Medical and Surgical qualifications. The appointment is for six months at a salary at the rate of £150 per annum, with board, residence, and laundry. The successful applicant will be required to commence duties October 1st.

Applications, stating age, qualifications, and nationality, with copies of three recent testimonials, to be sent to the undersigned not later than September 22nd.

Particulars of duties may be had on application.

ALEX. W. MAITLAND, Hon. Secretary.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.1.

A HOUSE PHYSICIAN and a HOUSE SURGEON are required on October 14th and 18th respectively.

Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock, on Thursday, September 28th, with copies of not more than three testimonials given specially for the purpose, and also evidence of their having held a responsible Hospital appointment.

The appointments are made for six months. Salaries at the rate of £100 per *annum*, laundry allowance £5, board and residence in the Hospital.

Candidates must be unmarried and possess a legal qualification to practice.

All candidates must be in attendance to appear before the Joint Committee, at their Meeting on Wednesday, October 4th, at 5 p.m. precisely.

Forms of application and copies of the rules may be obtained from the Secretary.

By Order of the Board of Management,
HERBERT F. RUTHERFORD,
September, 1933. Secretary.

THE HOSPITAL FOR SICK CHILDREN, NEWCASTLE-UPON-TYNE. (94 Beds.)

Applications are invited for the following appointments:

HOUSE PHYSICIAN;
SENIOR HOUSE SURGEON;
JUNIOR HOUSE SURGEON;

(male or female) for six months as from October 1st. Salary at the rate of £100 per annum, together with board, residence, and laundry. Applications, stating age, and qualifications, with copies of testimonials, to be sent to the Secretary, Mr. NEIL BRODIE, 18, City Road, Newcastle-upon-Tyne, 1.

ROYAL LONDON OPHTHALMIC HOSPITAL (Moorfields Eye Hospital), City Road, E.C.1.

PATHOLOGIST AND CURATOR.

Applications are invited for the office of Pathologist and Curator. Candidates must be registered Medical Practitioners and must be prepared to begin duties on November 1st.

Salary will be at the rate of £200 per annum.

The Pathologist and Curator will be appointed for one year, and will be eligible for re-appointment yearly, but shall not hold this office for more than five years.

Applications, stating age and qualifications, with copies of testimonials, must be received by the undersigned not later than October 2nd.

A copy of the regulations governing the post will be sent on application.

A. J. M. TARRANT, Secretary.

NATIONAL HOSPITAL, QUEEN SQUARE, W.C.

ASSISTANT PATHOLOGIST.

Applications are invited for the post of Assistant Pathologist. Candidates must be medically qualified, and have had training in Clinical Pathology and Biochemistry. The appointed officer will be expected to undertake most of the biochemical work of the hospital, and will have opportunities for research; he will deputise for the Pathologist during his absence. Attendance will be required for six half days a week and the salary will be £250 per annum. The appointment is for one year, and the holder is eligible for re-election.

Applications should be sent to the undersigned on or before Friday, October 6th.

GODFREY H. HAMILTON, Secretary.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.1.

Applications are invited from duly qualified Medical Women for the post of RESIDENT CASUALTY OFFICER. Previous experience as Hospital Resident essential. Salary £150 per annum. Intending candidates should submit applications, stating age and accompanied by copies of three recent testimonials, to the undersigned on or before September 30th. The appointment is tenable for six months from November 1st next.

REGINALD R. GARRATT, Secretary.

ROYAL LIVERPOOL BABIES' HOSPITAL, WOOLTON.

Required, RESIDENT MEDICAL OFFICER for the above Hospital. The appointment to commence immediately, and to terminate March 31st, 1934. Salary at the rate of £90 per annum.

Applications, with copies of testimonials, to be sent to the Chairman of the Hospital, c/o The Child Welfare Association, 9, Copperas Hill, Liverpool.

MANCHESTER ROYAL INFIRMARY.

CENTRAL BRANCH, ROBY STREET, MANCHESTER.

HOUSE SURGEON (LADY).

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment. Applicants must be registered and hold a Medical and Surgical qualification.

The appointment is tenable for nine months, commencing October 1st, three months as Junior at £100 per annum, three months as Assistant at £100 per annum, and three *months as* Senior at £200 per annum, together with board and allowance for laundry.

Applicants must state age and qualifications, and send twelve copies of their application and testimonials, to the undersigned by 9 a.m. on Thursday, September 21st.

By Order,
FRANK G. HAZELL,
General Supt. & Secretary.

THE LONDON LOCK HOSPITAL, 91, Dean Street, W.1.

The Board of Management invite applications for an appointment of SURGICAL REGISTRAR (male), with honorarium at £100 per annum. Candidates must be Fellows (or Members) of the Royal College of Surgeons of England, or *Surgical Graduates of a University* of the United Kingdom. The appointment is for one year in the first instance, commencing October 6th. Candidates must submit their applications, with three copies (only) of testimonials, not later than 10 a.m. on September 21st, addressed to the undersigned, from whom copies of the Laws and By-laws relating to the appointment can be obtained.

By Order of the Board,
J. F. MORTON,
August, 1933. Secretary.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.4. (140 Beds.)
A General Hospital for Women and Children, including Medical, Surgical, Ear, Nose, and Throat, Ophthalmic, Orthopædic, Urological, Skin, and Venereal Diseases Departments.

Applications, are invited from fully qualified Medical Women for the undermentioned appointments,

HOUSE PHYSICIAN; HOUSE SURGEON; each for a period of six months from Nov. 1st.

Salary at the rate of £100 per annum, with board, residence, and laundry. Candidates are requested to call on Members of the Hon. Medical Staff before September 30th, by which date applications and copies of testimonials, must reach the Secretary at the Hospital.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.1.

Applications are invited for the post of HOUSE PHYSICIAN (male) for six months from October 1st (first two months in Casualty and Out-patient Department). Salary at the rate of £120 per annum, with board, and residence.

Applications, stating age, experience, and qualifications, accompanied by copies of four testimonials, to be sent to the undersigned not later than September 25th, from whom rules and other particulars can be obtained.

By Order of the Committee of Management,
W. H. SIDNELL,
Sept. 8th, 1933. Secretary-Supt.

JERSEY GENERAL HOSPITAL AND POOR LAW INFIRMARY.

RESIDENT MEDICAL OFFICER.

Applications are invited for the above post (male). Applicants must be duly qualified practitioners in medicine and surgery. Salary £200 per annum, with board, residence in the hospital, and laundry.

The appointment is for one year, and is renewable. Applications, with testimonials, must be sent in on or before September 26th, addressed to the undersigned, from whom further particulars may be obtained.

P. BEUZEVAL, Secretary.

THE BUCHANAN HOSPITAL, ST. LEONARDS-ON-SEA. (103 Beds.)

Applications are invited from British subjects for the posts of SENIOR and JUNIOR HOUSE SURGEON (female). Salaries at the rate of £175 and £125 per annum respectively for a period of six months commencing October 1st.

Applications, stating age, qualifications, and experience, accompanied by copies of at least three recent testimonials, should be sent to the undersigned by September 23rd.

S. C. W. DISNEY, Secretary.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh)

(a) British Islands.

Town or District	Town or District.	Town or District
CONTRACT PRACTICE	**CONTRACT PRACTICE** (contd.)	**PUBLIC HEALTH**
EBBW VALE, MON. (*Workmen's Medical Society*)	MARDY, GLAMORGAN (*Workmen's Medical Scheme*)	DORSET COUNTY COUNCIL (*County Medical Officer of Health*)
GILFACH GOCH, GLAMORGAN. (*Workmen's Medical Scheme*)	NEATH AND DISTRICT. (*Medical Aid Association*)	HERTFORDSHIRE COUNTY COUNCIL. WARE SANATORIUM (*Assistant Medical Officer*)
LLWYNPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN (*Workmen's Medical Scheme*)	OAKDALE, MON (*Medical Officer for Medical Aid Association*)	COUNTY BOROUGH OF SOUTH SHIELDS. (*Assistant School Medical Officer*) HARTON INSTITUTION AND CLEADON COTTAGE HOMES (*Medical Officer*)
LOWESTOFT MEDICAL INSTITUTE. (*Medical Officer*)	OGMORE VALLEY, GLAMORGAN (*Wyndham Colliery Medical Aid Society*) (*Workmen's Medical Scheme*)	NORTH RIDING OF YORKSHIRE COUNTY COUNCIL. (*Temporary Maternity and Child Welfare Medical Officer—Woman*)

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. (*All Friendly Society Appointments*)	Dr. J. G. HUNTER (Medical Secretary, New South Wales Branch), 135, Macquarie St., Sydney, N.S.W.	**QUEENSLAND.** (*Brisbane Associated Friendly Societies Institute*) (*Toowoomba Associated Friendly Societies, Medical Institute, Toowoomba*)	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	**WELLINGTON, NEW ZEALAND.** (*Contract Practice Appointments*)	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch, British Medical Association, P.O. Box 1850, Wellington, New Zealand)
VICTORIA. (*All Institute or Medical Dispensaries.*)	Dr. J. P. MAJOR (Hon. Sec., Victorian Branch, British Medical Association, Medical Society Hall, East Melbourne, Victoria.			**WESTERN AUSTRALIA.** (*Contract and Lodge Practices*)	Hon. Sec., Western Australian Branch, British Medical Association, N.S.W. Chambers, St. George's Terr., Perth, Western Australia.

September 13th, 1933. By Order of the Council G. C. ANDERSON, Medical Secretary

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COUNTY MENTAL HOSPITAL, WINWICK, WARRINGTON.

Applications are invited for the post of ASSISTANT MEDICAL OFFICER. Candidates must be male, single, and under 35 years of age. Commencing salary £500, rising by annual increments of £25 to £600, with further increase on promotion, subject to a deduction of 3 per cent. under the Asylum Officers Superannuation Act, 1909. There are no emoluments. The selected candidate will be required to live in the Hospital, and will be provided with board, lodging, etc., for which a charge of £150 a year is made. A temporary abatement from the gross salary will be made, the amount of the abatement on £500 being £18 15s. The possession of a Diploma in Psychological Medicine will entitle the officer to an additional £50 per annum. Applications, giving full particulars, with testimonials (copies only) should reach the Medical Superintendent not later than the first post on September 20th

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WEST BROMWICH & DISTRICT GENERAL HOSPITAL (130 Beds)

Applications are invited for the post of CASUALTY HOUSE SURGEON (male).

Candidates must be doubly qualified and unmarried. Salary at the rate of £200 per annum, with board, residence, and laundry.

The appointment is for six months, and the candidate appointed will be required to take up his duties on October 1st next.

Applications, stating age and qualifications, with copies of recent testimonials, should be sent to the undersigned on or before Sept. 23rd.

By Order,
Edward St., FRANK J. HANCOCK,
West Bromwich. Secretary & Supt.

COUNTY MENTAL HOSPITAL, LANCASTER

Applications are invited for the post of ASSISTANT MEDICAL OFFICER

Candidates must be single and under 35 years of age. Commencing salary £500, rising by annual increments of £25 to £600, with further increase on promotion, subject to a deduction of 3 per cent. under the Asylum Officers Superannuation Act. There are no emoluments.

The selected candidate will be required to live in the Hospital, and will be provided with board, lodging, etc., for which a charge of £150 a year is made. A temporary abatement from the gross salary will be made, the amount of the abatement on £500 being £18 15s.

The possession of a Diploma in Psychological Medicine will entitle the officer to an additional £50 per annum.

Applications, giving full particulars, with testimonials (copies only), should be forwarded to the Medical Superintendent before September 25th

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ST. JOHN'S HOSPITAL, LEWISHAM, S.E.13.

Applications are invited for the appointment of RESIDENT MEDICAL OFFICER (male), which will become vacant on or about October 21st. The appointment is for one year at a salary of £200 per annum, with board, lodging, etc. The Resident Medical Officer acts as panel practitioner to the resident female staff.

Applicants should have been qualified not less than two years, and should have surgical experience. Applications, with copies of not less than three testimonials, should reach the undersigned not later than October 1st.

J. C. GILBERT, Secretary Supt.

DERBY CITY HOSPITAL

THIRD RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Third Resident Medical Officer (male) at the above Hospital of 300 beds. The Hospital provides treatment for acute medical and surgical cases, tuberculosis, obstetrics, and children's diseases, etc.

Candidates must be registered in Medicine and Surgery.

The appointment is for a period of twelve months, two months' notice of resignation to be given, and the successful candidate will be required to commence duty on or about November 1st.

Salary at the rate of £200 per annum for the first six months' then rising to £250, with board and residence, subject to temporary economy deduction in force.

Applications, stating age, experience, and accompanied by three recent testimonials, should be sent not later than Thursday, September 21st, to the undermentioned.

GORDON LILICO,
Public Health Dept., Medical Officer of
Derwent St., Derby. Health.

THE BURSLEM HAYWOOD AND TUNSTALL WAR MEMORIAL HOSPITAL.

Wanted, SENIOR MALE RESIDENT MEDICAL OFFICER. Salary £175 per annum, with board and residence. Must be fully qualified and have had some experience in Hospital Surgical work. Applications, stating age and experience, together with copies of three recent testimonials, to be sent to the undersigned.

C. E. LOWNDES,
High Lane, Secretary
Burslem, Stoke-on-Trent.

(Appointments continued on p. 42)

British Medical Journal
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.
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Tel.: EUSTON 2111 (4 lines).

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All advertisements should reach the above address by not later than first post TUESDAY preceding publication.

NOT CLASSIFIED.

YOU ARE INVITED TO VISIT THE CENTRAL RESEARCH CLINIC, 20/22, Chenies Street, W.C.1. A private hospital where General Practitioners find £20,000 worth of Equipment which they can use for the benefit of their patients and themselves.

9461 PADDINGTON IS THE 'PHONE NO. of 26, NORFOLK SQUARE, HYDE PARK, W.2.—ROOM, BATHS, AND BREAKFAST, 6/6 a night. Baths are not extras; h. and c. water all bedrooms. The Manager will be pleased to reserve rooms for any date, and to send further particulars if you write him.

ASSISTANCIES.

WANTED, OCTOBER 1st, ASSISTANT TO live at growing Branch Surgery. Private Practice, with small panel, in North-West seaside town, mostly residential. Hospital experience and minor surgery essential. Salary according to experience. — Address, No. 6631, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANT IN LARGE INDUSTRIAL Practice, near Manchester, single, cyclist, total abst. Salary £350 p.a, with free rooms and attendance. *State age, experience,* nationality, religion, and when *free.*—*Address,* No. 6608, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — ASSISTANTSHIP BY EXPERIenced Medical Woman, middle-aged, but energetic, not maternity. Free Oct. 1st. North Country preferred, but not essential. Part-time considered if near London.—Address, No. 6620, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANTSHIP BY SCOTTISH Graduate, M.B., Ch.B., in London; ex H.S. and H.P., 3 years' Hospital experience, age 30. Excellent testimonials. Free end September. — Address, No. 6714, B.M.A. House, Tavistock Square, W.C.1.

WANTED BY OXFORD UNIVERSITY Graduate, ASSISTANTSHIP with view, age 33, single. Hospital and G.P. experience 3½ years. Southern Counties. Capital available. — Address, No. 6709, B.M.A. House, Tavistock Square, W.C.1.

WANTED BY SCOTS GRADUATE IN October, ASSISTANTSHIP, with view in six months. Some capital available. Ex Casualty H.S. and H.S. Over 2 years' G.P., all classes. Aet. 32.—Address, No. 6619, B.M.A. House, Tavistock Square, W.C.1.

WANTED, EARLY OCTOBER, INDOOR male ASSISTANT, South-West Lancs. Own car (allowance). Salary £300 per annum. Dispenser kept. Usual bond. Particulars and photo. — Address, No. 6704, B.M.A. House, Tavistock Square, W.C.1.

WANTED, — INDOOR MALE ASSISTANT, for mixed Practice in London, near West End. No branch surgery. Few visits. Commencing salary £300 per annum. Usual bond. State age, experience, references.—Address, No. 6609, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY.—INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view, good salaries. State full particulars.—BRITISH MEDICAL BUREAU, 35, Cross Street, Manchester, 2.

WANTED, UNMARRIED MALE ASSISTANT, early October, for mixed Practice in Lancashire. Rising salary to young keen man, with hospital experience, and able to drive car. — Address, No. 6507, B.M.A. House, Tavistock Square, W.C.1.

WANTED, YOUNG, UNMARRIED MALE outdoor ASSISTANT in Midlands, British, for mixed general practice. Salary £280, plus half midwifery fees (about another £50). All found. Usual bond.—Address, No. 6622, B.M.A. House, Tavistock Square, W.C.1.

WANTED, — ASSISTANTSHIP, OUTDOOR preferred, by woman M.B., B.S., D.P.H., etc. Experienced G.P., private and panel. Anaesthetics, Children. — Address, No. 6633, B.M.A. House, Tavistock Square, W.C.1.

WANTED, — INDOOR ASSISTANT, MALE, mixed Practice, South Wales. £350 p.a., all found. Usual bond. Car, dispenser.—Address, with age and full particulars, No. 6703, B.M.A. House, Tavistock Square, W.C.1.

WANTED, — SINGLE, MALE, OUTDOOR ASSISTANT for Yorks, West Riding town. Salary £400. State full particulars.—Address, No. 6601, B.M.A. House, Tavistock Sq., W.C.1.

ASSISTANTSHIP WITH VIEW, PARTNERship or Practice, by M.B., Ch.B.(Edin.), aged 28 years, Scotch, T.T., ex H.P., H.S., Sick Children, R.M.O. Maternity Hospital, experienced G.P. Excellent references. Free Oct.—No. 6630, B.M.A. House, Tavistock Sq., W.C.1.

ASSISTANT, INDOOR, WANTED, BRITISH. £300 per annum, and motor allowance. Industrial and rural Practice in good county. State age, experience, and references.—Address, No. 6621, B.M.A. House, Tavistock Sq., W.C.1.

INDOOR ASSISTANT REQUIRED FOR OLDestablished panel and private Practice near London. Suit young gentleman recently qualified. Please write particulars and photo, if possible. — Address, No. 6628, B.M.A. House, Tavistock Square, W.C.1.

M.B., B.S.LONDON, EX H.P., H.S., 1 YEAR G.P., 25, single, seeks ASSISTANTSHIP in good-class country town (or country) Practice. Own car. Free November 1st.—Address, No. 6612, B.M.A. House, Tavistock Square, W.C.1.

M.R.C.P.(EDIN.), INDIAN, 32, KEEN, energetic, exp. G.P. and panel, desires ASSISTANTSHIP or *Locum Work,* with or without view. Free *October 12th.*—Address, No. 6632, B.M.A. House, Tavistock Square, W.C.1.

NEWLY - QUALIFIED MALE ASSISTANT (British born, Protestant) wanted immediately. Salary £250—£300. Yorkshire, West Riding. — Address, No. 6710, B.M.A. House, Tavistock Square, W.C.1.

WOMAN ASSISTANT WANTED FOR working-class Practice in South Lancashire. Car provided. State age and *essential* particulars. — Address, No. 6624, B.M.A. House, Tavistock Square, W.C.1.

LOCUMS.

FOR LOCUM TENENS APPLY TO
PERCIVAL TURNER, Ltd.
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After Office Hours: Epsom 9142.

WANTED.—LOCUM TENENCY BY EXPErienced doctor who has recently sold his practice. Country preferred. Own car if desired. Fishing most acceptable (especially trout). Graduate of Oxford University.—Add., No. 6634, B.M.A. House, Tavistock Sq., W.C.1.

LOCUM TENENS.—NOW AVAILABLE FOR engagements. Experienced panel and G.P. work. Qualified 1907. St. Bart's. Recent refs. —Apply, stating terms, "LOCUM," The Red House, Lancing, Sussex. 'Phone: Lancing 57.

MEDICAL WOMAN, ELDERLY, RETIRED, *doing* summer LOCUMS, open to further ENGAGEMENTS *after* September 20th. No midwifery or heavy work. — Address, No. 6712, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIPS.

WANTED.—THIRD PARTNER FOR GROWing Practice in pleasant market and industrial town in Eastern Midlands. Visiting fees 5/- and upwards. One-sixth share of £5,400 at two years' purchase after preliminary assistantship. Scope for surgery in hospital and nursing home. Edinburgh or London Graduate preferred. — Address, stating particulars of education and experience, No. 6515, B.M.A. House, Tavistock Square, W.C.1.

WANTED, — PARTNERSHIP BY WOMAN, aged 31 years, F.R.C.S.E., M.B., 7 years' experience hospital and G.P. Keen midwifery and gynaecology. Capital available. Short preliminary assistantship. — Address, No. 6605, B.M.A. House, Tavistock Square, W.C.1.

P[illegible] BY EXPERIENCED [illegible] Practice, with good panel. Share worth £1,000 to £1,500. Capital available. — Address, No. 6529, B.M.A. House, Tavistock Square, W.C.1.

RADIOLOGIST, WELL-QUALIFIED, DESIRES *small SHARE. Only the highest type of practice need apply.* — Address, No. 6565, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

WANTED FOR SERVICE ON THE BENGAL AND NORTH-WESTERN RAILWAY and the ROHILKUND AND KUMAON RAILWAY, INDIA, a fully qualified MEDICAL OFFICER.

Applicants should have University qualifications and have held resident appointments in Hospitals as House Physician, House Surgeon, and as a Resident Medical Officer for at least three years, and should be an F.R.C.S. and capable of undertaking major surgery.

Salary Rs.750 or more, rising to Rs.1,100 per mensem, the commencing salary to be arranged according to qualifications. There is a prospect of ultimate promotion in due course rising to Rs.2,200 per mensem for approved applicant.

Three years' agreement in the first instance; free first-class passage to and from India.

The selected candidate will be required to pass a medical examination for service in India before appointment.

Applications, marked "Medical Officer," accompanied by necessary documents regarding degrees, etc., should be addressed to the Managing Director, 237, Gresham House, Old Broad Street, London, E.C.2, not later than September 25th, from whom further details regarding conditions of service can be obtained.

THE FLEETWOOD STEAM TRAWLERS' MUTUAL INSURANCE ASSOCIATION LIMITED invite applications for the post of MEDICAL OFFICER to the Association, whose members are the owners of the majority of steam trawlers in the port of Fleetwood.

The position will be a whole-time one, and the selected candidate must agree not to undertake private practice. Salary £600 per annum, rising by annual increments of £50 to £800.

Preference will be given to candidates with City Hospital experience and special knowledge of septic conditions following slight injury. Surgical qualifications and experience are essential. Duties, particulars of which will be supplied on application to the undersigned, to commence December 1st.

Applications, stating age, which must not exceed 35, qualifications, present position and duties, particulars of past service and experience, and all other essential information, accompanied by not less than three recent testimonials, must be sent to the Association, endorsed "Medical Officer," and addressed to the Chairman not later than October 1st.

Canvassing, either directly or indirectly, will be a disqualification.

Station Road, Fleetwood.
August 11th, 1933.
T. LONGWORTH, Secretary.

A DISPENSER, LADY, DESIRES POST WITH Doctor, temporary or permanent. Hall certificate. Experienced general practice, panel, hospital. Quick and reliable dispenser. Good book-keeper. Good testimonials.—Address, No. 6627, B.M.A. House, Tavistock Square, W.C.1.

A LADY DISPENSER - BOOKKEEPER supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations. — Write, wire, or 'phone (Bayswater 0969), Secretary, 7, Westbourne Park Road, W.2.

DISPENSER (LADY) HALL—EXPERIENCED [illegible] practice [illegible] desires POST with Doctor Doctor or Hospital Good testimonial—BETTY DYER 2 Walterton Road Paddington Phone Abercorn 4781

DOCTOR HIGHLY RECOMMENDS DOCTOR'S wife gentlewoman, 33 (no children) as COMPANION NURSE Would travel with Invalid Lady or Gentleman Bring children from abroad Excellent sailor good reader excellent chauffeur Personal references—No 6510, B M A House, Tavistock Sq W C 1

DOCTORS REQUIRING QUALIFIED Dispensers Nurse Dispensers Secretary Dispensers or Chauffeur Dispensers are invited to write, call or phone Temple Bar 5858 THE DISPENSERS' BUREAU 3 Lindsay House 171 Shaftesbury Avenue, London, W C 2

GORDON HALL SCHOOL OF PHARMACY TRAINS WOMEN in PHARMACY and DISPENSING and can supply Qualified Dispensers—Apply PRINCIPALS, Gordon Hall Drayton House W C 1 Phone Museum 3960 Autumn session September 21st

LADY BACTERIOLOGIST, PHD BERLIN fluent Russian, German, French also Italian Spanish seeks POST as LABORATORY ASSISTANT, SECRETARY or TRANSLATOR—Address No 6710 B M A House, Tavistock Square, W C 1

LADY DISPENSER BOOK-KEEPER RECEPTIONIST requires POST Apothecaries Hall Diploma 3 years experience private and panel good reference near Ilkley or near London preferred—Address No 6614, B M A House, Tavistock Square W C 1

SOUTH PERSIA — MEDICAL OFFICER REquired by Company Candidates must be of British parentage single and between 30 and 35 years age must be well qualified and have held House appointment Agreement for 1 to 3 years Commencing salary £800 p.a. rising by annual increments of £50 Free furnished quarters and first class passages out and home—Apply to the General Manager BRITISH MEDICAL BUREAU, 12 Stratford Place London, W 1

STENOGRAPHER TYPIST REQUIRED BY THE Chief Medical Officer of a large industrial company in S E London Must have had previous experience in medical work and not be under 25 years of age Salary £180 rising to £200 p.a.—Address No 6006, B M A House Tavistock Square W C 1

TRAINED NURSE KEEN, ENERGETIC, 15 years exper private and panel practice, dispensing book keeping typing etc, urgently REQUIRES SIMILAR POST with Lady Doctor, South England, preferably near Weymouth Excellent reference.—Address No 6011, B M A House, Tavistock Square W C 1

TYPEWRITING, DUPLICATING AND TRANSlations Experts in Medical work TESTIMONIALS THESES, etc copied in style that commands attention Accuracy guaranteed—WOBURN BUREAU 3 Upper Woburn Pl W C 1 (Adjoining B M A House) Euston 1775

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 85, Eccleston Square, S W 1 (Telephone Victoria 2722), *supplies* qualified Dispensers Book keepers, Laboratory Assistants Sanitary Assistants, Male Nurses Mental and Special Treatment Orderlies Dental Clerk Orderlies, Porters Caretakers etc., *without* charge to prospective employers.

PRACTICES

WANTED—PRACTICE, PARTNERSHIP, OR preliminary ASSISTANTSHIP by qualified surgeon Also experienced general practice, private panel, midwifery Within 60 miles Birkenhead Capital available Sound concern—No 6525, B M A House Tavistock Sq, W C 1

WANTED — SOUND MIDDLE CLASS PRACTICE in South within 40 miles London Income £1 200, with good panel Detached house garden garage Good schools Strict confidence observed—Address, No 6617, B M A House Tavistock Square W C 1

WANTED — LONDON OR SOUTH, SOUND PRACTICE or PARTNERSHIP Capital available Preliminary Assistantship considered.—Address No 6007, B M A House, Tavistock Square, W C 1

WANTED SOUTH OR SOUTH WEST London PRACTICE preferably non panel over £1 000 p a with fair sized house garden garage — Address No 6403 B M A House Tavistock Square, W C 1

WANTED BY *OXFORD GRADUATE* PRACTICE or PARTNERSHIP, a Nucleus will be considered—Address No 6623, B M A House Tavistock Square, W C 1

WANTED—PRACTICE IN HOME COUNTIES £600—£800 p a Plenty of scope for increase Panel and private House rented Preferably growing suburb or new estate—Address No 6708 B M A House, Tavistock Square W C 1

ANYONE *WISHING TO SELL A PRACTICE* or PARTNERSHIP please apply to Messrs PEACOCK & HADLEY LTD 19 Craven Street Strand W C 2 who have a number of applicants waiting to purchase before Winter Large premiums cash paid

CASH *OFFERED FOR PRACTICE WITH* large panel or transferable appointment(s) in W or NW London Advertiser has had practice 12 years and has extensive experience Prem as assistant hip or partnership entertained—Address Dr 133 *Station Road* N W 4

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FOR SALE — WITHIN EASY REACH OF Edinburgh panel and private PRACTICE Gross receipts for last three years average over £1 000 Premium 1½ years purchase Suitable house and garage—Apply B A 6 Scottish Medical Bureau, Drumsheugh Garden Edinburgh

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IDEAL PRACTICE IN *IDEAL SPOT RETURNing* £1 400 a year cash panel 600 for sale with book debts drugs and furniture of house £3 000 House specially built rent £100 or sell Garage and garden—Address No 6705, B M A House, Tavistock Square *W C 1*

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LONDON, S E. DEATH VACANCY (NEAR Elephant and Castle) — Old-established PRACTICE. Receipts nearly £600 p.a. including panel nearly 1 100 Shop fronted house on rental Premium £900—Apply PEACOCK & HADLEY, LTD 19, Craven St, Strand, W C 2

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MANCHESTER—OLD ESTABLISHED GOOD house garage £60 Receipts £650 excellent scope Panel about 780 increasing Price 1½ years purchase part deferred—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6 Brown Street

*NICE RIVERSIDE TOWN — OLD ESTAB*LISHED PRACTICE. Receipts average nearly £700 p a including panel 450 Nice house to be sold Premium for Practice £1 000 District is mainly residential —Apply, PEACOCK & HADLEY, LTD, 19, Craven Street, Strand, W C 2

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WARWICKSHIRE—EASILY WORKED UNopposed PRACTICE in picturesque village Receipts about £900 Panel about £900 Premium £900 Modern house built for doctor freehold for sale Consulting room etc—Address No 6709 B M A House Tavistock Square W C 1

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BARGAIN PRICE—FOR SALE EXCEPTIONAL HOUSE [illegible] immediate possession electrical appliances [illegible] Valuable property [illegible] WHITELEY LTD 105 90 Queen [illegible] W

COMPLETELY REFITTED FLAT OF THREE WELL SITUATED CONSULTING ROOMS [illegible] Main [illegible] Latter [illegible] —Apply B M A [illegible] Tavistock Square W C 1

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EXMOUTH—EXCELLENT PROFESSIONAL [illegible] to let part of house—Address No 6624 B M A House Tavistock Square W C

HARLEY ST—WELL APPOINTED CONSULTING ROOM with part use of [illegible] inclusive of all amenities £100 per annum Also room for occasional use — Address No 6618 B M A House Tavistock Square W C 1

HOUNSLOW DETACHED DOUBLE-FRONTED corner RESIDENCE in first-class position for Doctor Practice calls no competition 5 bedrooms 3 reception etc Brick garage Secluded rear garden Redecorated Pet 2-3" £1 250 Field—HORNE Auctioneer Hounslow

EXCELLENT OPENING FOR DOCTOR. ISLEWORTH—MODERN DOUBLE-FRONTED DETACHED corner RESIDENCE occupying the most prominent position on superior fully developed estate 5 bedrooms etc Pet 2441 Redecorated throughout 20'5 Field—HORNE & SONS 177 High Street Hounslow

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It is required that candidates shall be Members of the Royal College of Physicians of England, or undertake to become so within twelve months of their election.

The successful candidate will be appointed for a term of three years, and will be eligible for re-election.

After six years, his honorarium (£40 per annum) will cease, and he will be called Physician to the Hospital.

Particulars, as to the duties, can be obtained on application to the undersigned, to whom applications, accompanied by Diplomas and Certificate of Registration, should be sent by September 30th.

HAROLD F. SHRIMPTON, September 12th, 1933. House Governor.

THE CANCER HOSPITAL (FREE) (Incorporated under Royal Charter), Fulham Road, London, S.W.3.

Applications are invited for the post of ASSISTANT RADIOLOGIST at the Cancer Hospital (Free), Fulham Road, London, S.W.3.

Applicants must be registered Medical Practitioners, who hold a Diploma in Radiology (or have passed the examination for the Diploma).

The appointment will be for one year, at a salary at the rate of £350 per annum. Applications, *giving full* particulars as to age, qualifications, etc., together with copies only of three recent testimonials, should be sent to the undersigned on or before Saturday, October 14th.

CLEMENT COBBOLD, Secretary.

ALTRINCHAM GENERAL HOSPITAL. (100 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £120 per annum, with board, residence, and laundry.

The appointment is for six months in the first instance, duties to commence October 1st.

Applications, stating age and experience, together with copies of recent testimonials, to be sent to the Secretary, General Hospital Altrincham, not later than September 25th.

VICTORIA HOSPITAL FOR SICK CHILDREN, HULL.

RESIDENT HOUSE PHYSICIAN (lady) required to commence duty about Sept. 30th. Salary £100 per annum, with board, residence and laundry. Applications, with copies of recent testimonials, stating age, qualifications and other particulars to be sent to the Secretary as soon as possible—not later than September 20th.

DEVONSHIRE ROYAL HOSPITAL, BUXTON, DERBYSHIRE (300 Beds)
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Applications are invited for the post of ASSISTANT HOUSE PHYSICIAN (male) to commence duties immediately Candidates must be fully qualified and registered The appointment is for a minimum period of six months and may be extended for a further period of six months Salary commencing £150 per annum, and rising to £175 after three months service, with board, residence and laundry

Applications endorsed Assistant House Physician, stating age, experience and qualifications together with copies of three recent testimonials, must be forwarded without delay to the undersigned from whom any further particulars may be obtained

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SECOND HOUSE SURGEON (male) Salary at the rate of £80 per annum
Both with board, residence and laundry

NOTE.—Candidates must be duly qualified Medical Practitioners, registered in this country and must have had experience in Ophthalmology Applications (in which it should be stated whether the candidate is prepared to accept the Second House Surgeon appointment) accompanied by copies of testimonials, are to be sent to the Secretary, on or before Saturday, October 7th

Intending candidates are requested to call upon the Staff of the Hospital, a list of whom can be obtained from the General Office

THE ROYAL HOSPITAL, WOLVERHAMPTON
(Incorporated under Charter)

HOUSE PHYSICIAN required for October 8th The Hospital contains 300 beds, the usual special departments, and is recognised by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice Candidates must be registered under the Medical Acts, and unmarried.

The appointment is for six months, with a salary at the rate of £120 per annum, board, furnished rooms, and laundry provided Application with copies of testimonials, to the undersigned

Wolverhampton W H HARPER
Sept 4th, 1933 House Governor

WEMBLEY HOSPITAL

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male) fully qualified 43 beds (9 private), being extended to 51 beds Salary £150 per annum, with board, residence, and laundry The appointment is for six months, with eligibility for reappointment The successful candidate will be required to commence duty by or before October 9th Applications, stating age, qualifications, and experience, together with copies of two recent testimonials, should be sent to the undersigned

G A PAINES, Secretary

VICTORIA HOSPITAL FOR SICK CHILDREN, Park Street, HULL

RESIDENT HOUSE PHYSICIAN (lady) required to commence duty about September 30th Salary £100 per annum, with board, residence and laundry Applications with copies of recent testimonials stating age, qualifications and other particulars, to be sent to the Secretary as soon as possible, not later than Tuesday, September 12th

THE WEIR HOSPITAL, Grove Road, Balham, S W 12

JUNIOR RESIDENT MEDICAL OFFICER (male, unmarried) required October 4th Candidates must be fully qualified and duly registered Salary £150 per annum, with board, residence and laundry

Application with copies of testimonials, to be sent to the Secretary from whom further information may be obtained

RIPPLED

RESIDENT SURGICAL OFFICER required, to commence duty on October 12th Preference given to candidates with orthopaedic experience Salary at rate of £350 per annum, with board

Apply before September 30th with six copies (not more than four testimonials to R W MARTIN, W S, Secretary, E H C C, 11, Coates Crescent, Edinburgh, from whom further information as to the appointment may be obtained

HILL END MENTAL HOSPITAL, ST ALBANS
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SECOND ASSISTANT MEDICAL OFFICER (male) required D P M or similar qualification essential Salary £500 per annum, rising by £25 per annum to £550 per annum, with, in addition, emoluments valued at £90 10s per annum The appointment is subject to the provisions of the Asylums Officers Superannuation Act, 1909, and to a temporary economy deduction of £26 5s on the commencing salary Application forms from the Medical Superintendent

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ALFRED J SMALL, Secretary

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RESIDENT SURGICAL OFFICER (Female) required The appointment is for six months Salary £150 per annum Duties to commence October 1st or as soon as possible after that date Applications, stating age and qualifications with copies of three recent testimonials to be forwarded to the undersigned forthwith

T H FLETCHER, Secretary

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HONORARY ASSISTANT SURGEON required Applications are invited for the post of Honorary Assistant Surgeon They should be accompanied by copies of three testimonials, and should reach the undersigned by September 23rd

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NEAR NORTH WEST COAST—Country PRACTICE of over £800 p.a. in beautiful district Panel 329 Scope Good sport. Premium £1 100—No 477

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PRACTICE offering great opportunity for increase Average cash receipts £500 p.a. Panel 495 No midwifery Good house 2 reception 7 bedrooms and 3 professional rooms small garden Rent £63 p.a. Premium 1½ years purchase Vendor retiring—No 475

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LANCS TOWN eight miles from Manchester — Old established mixed PRACTICE averaging £ 00 p.a. Panel 639 Scope for increase District rapidly developing Good house 2 reception 3 bedrooms garage and garden separate entrance to Surgery Premium—Practice and house — £1 500 — No 493

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MANCHESTER—Old established mixed PRACTICE Cash receipts last year £660 Panel 788 Scope Good corner house 2 reception 4 bedrooms, garage. Rent £60 p.a. Premium 1½ years' purchase Could be worked along with another small Practice for sale, quite near, doing £500 per annum, with a panel of 350 —No 437

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15. PARTNERSHIP.—LONDON SUBURB.—A one-third share (with increase up to one-half later) is offered in a very old-established good mixed-class Practice, situated in well-populated district, and offering good scope for development. Gross cash receipts average between £4,000 and £4,500 p.a. Guaranteed income of £1,500 for the first year. Panel of 800. Suitable accommodation available. Premium for share £3,250. Ingoing partner must be experienced, and qualified about four years.
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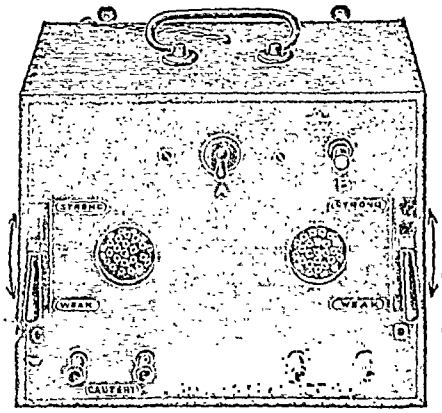
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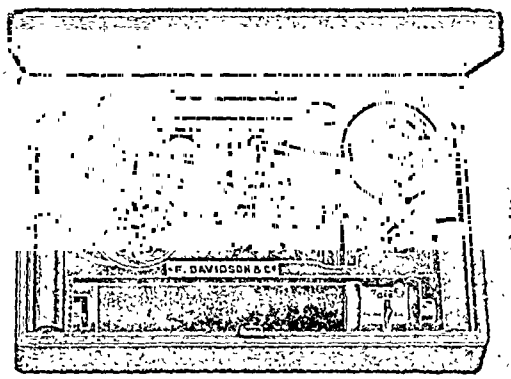
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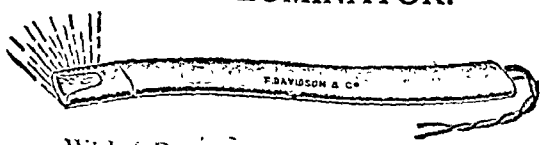
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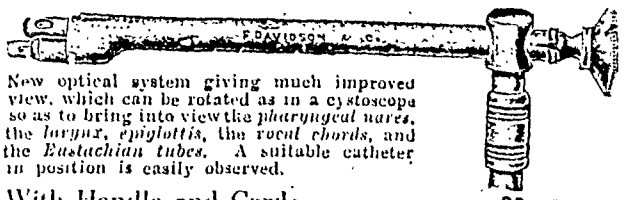
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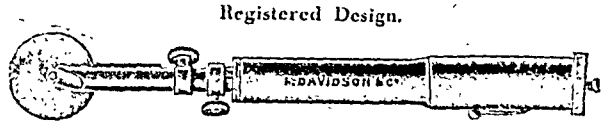


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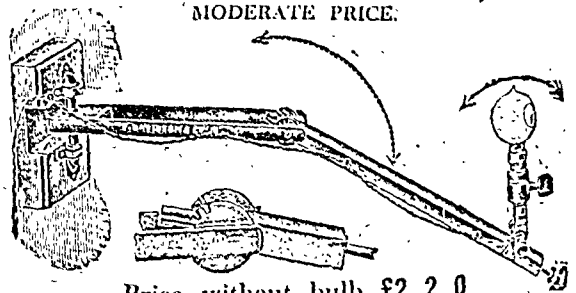


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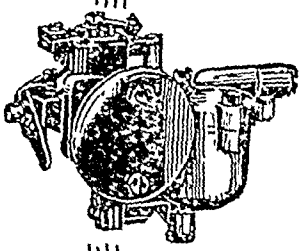
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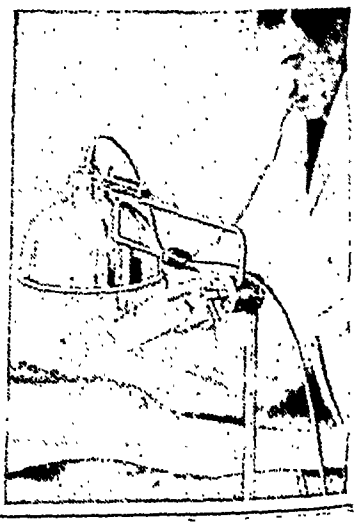
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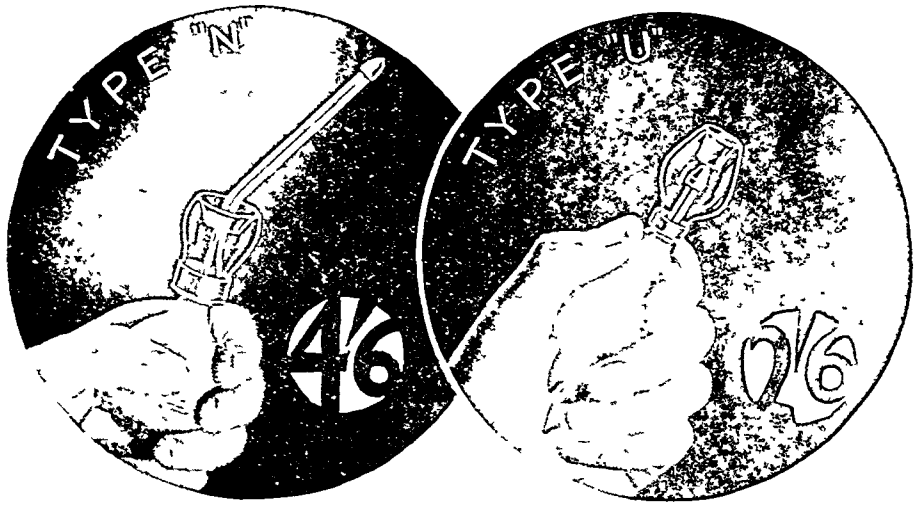
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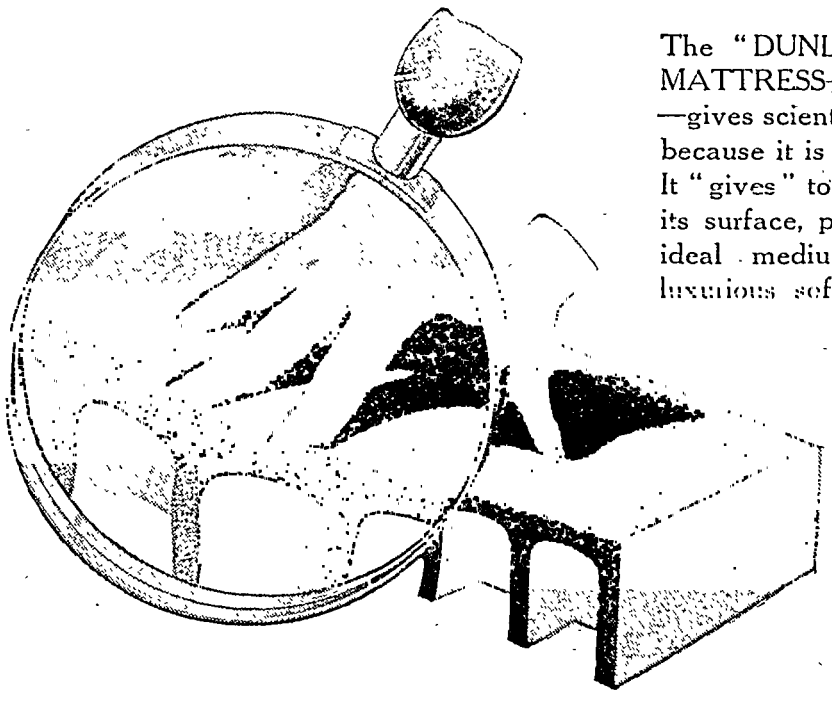
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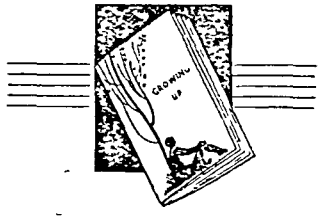
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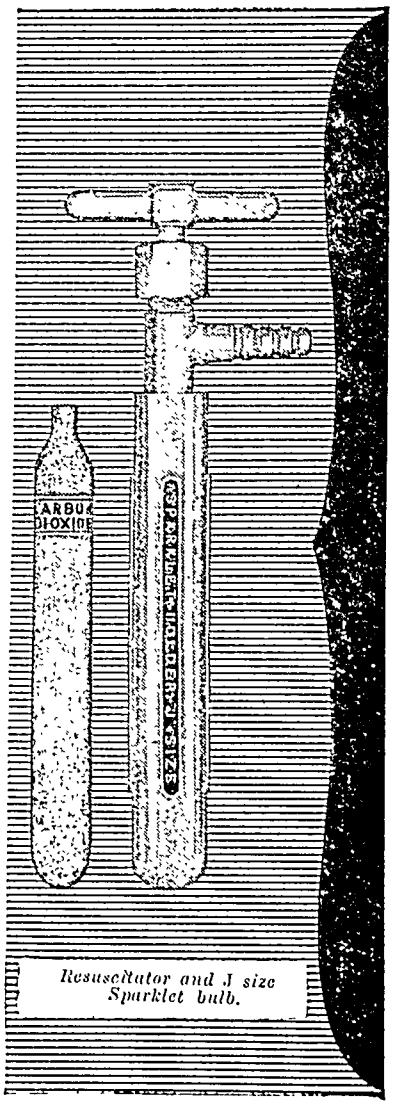
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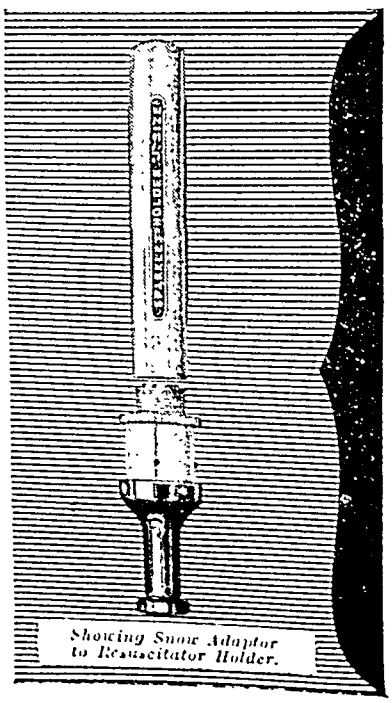
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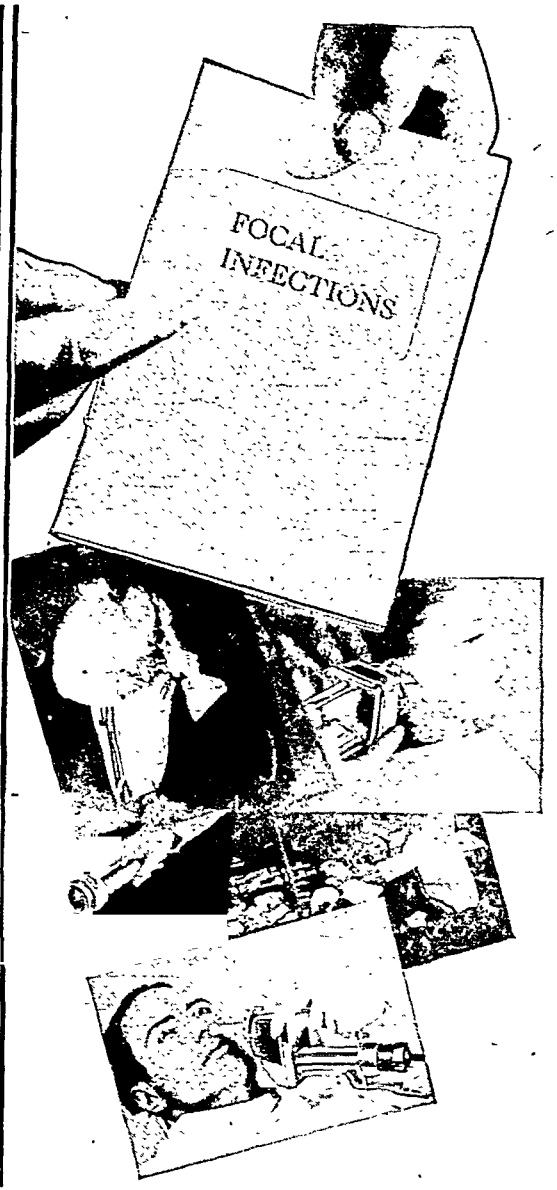
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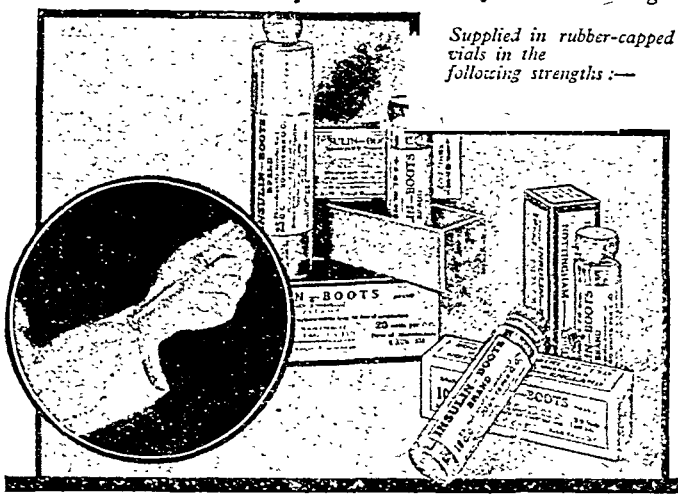
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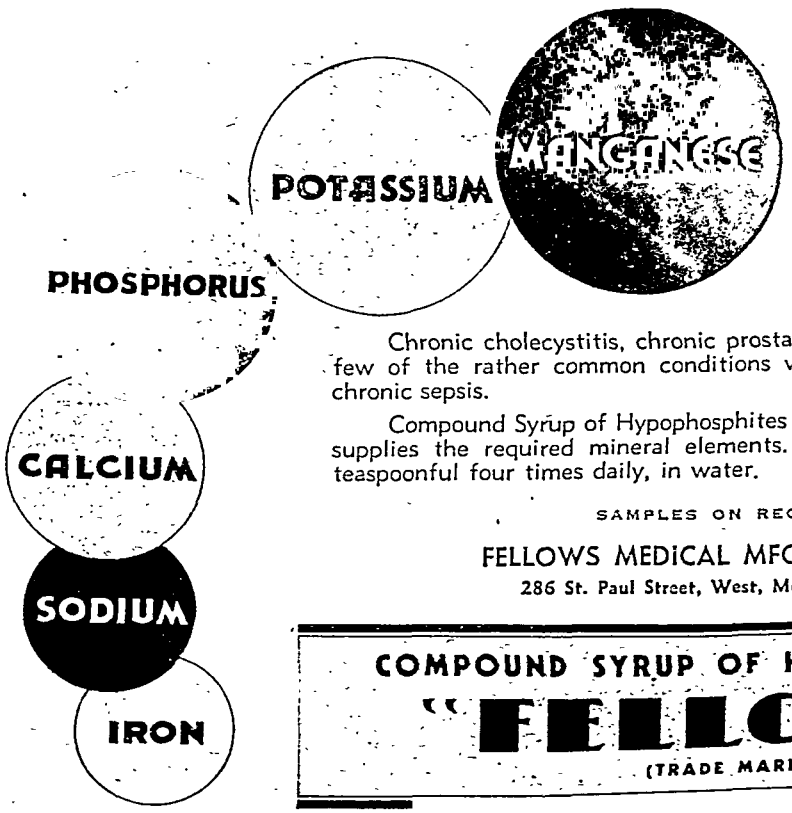
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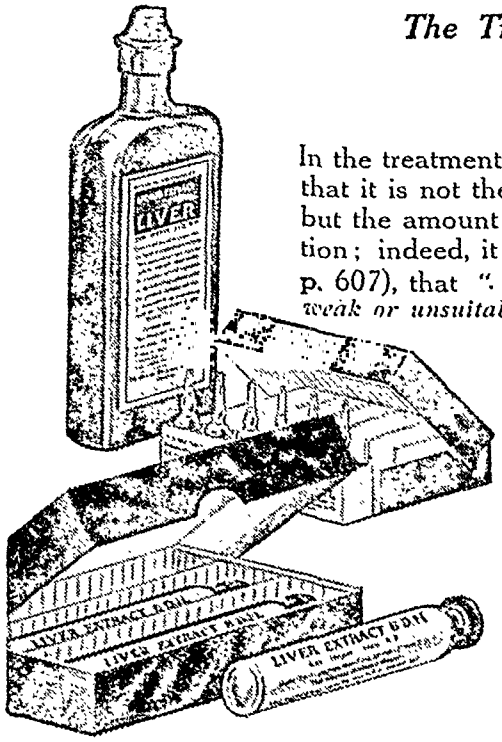
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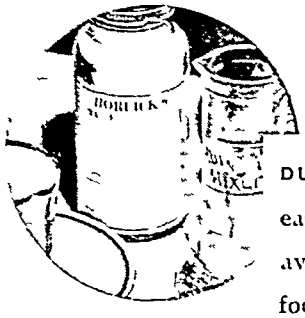
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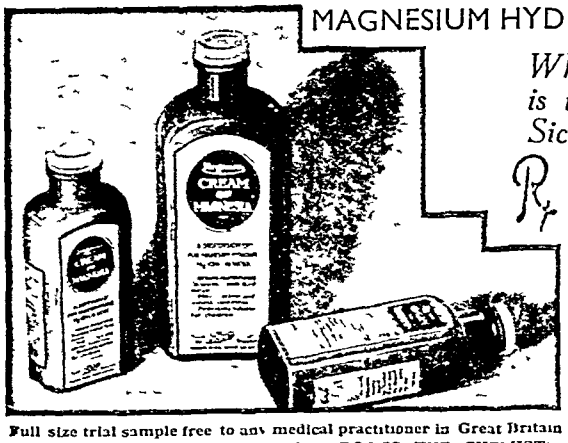
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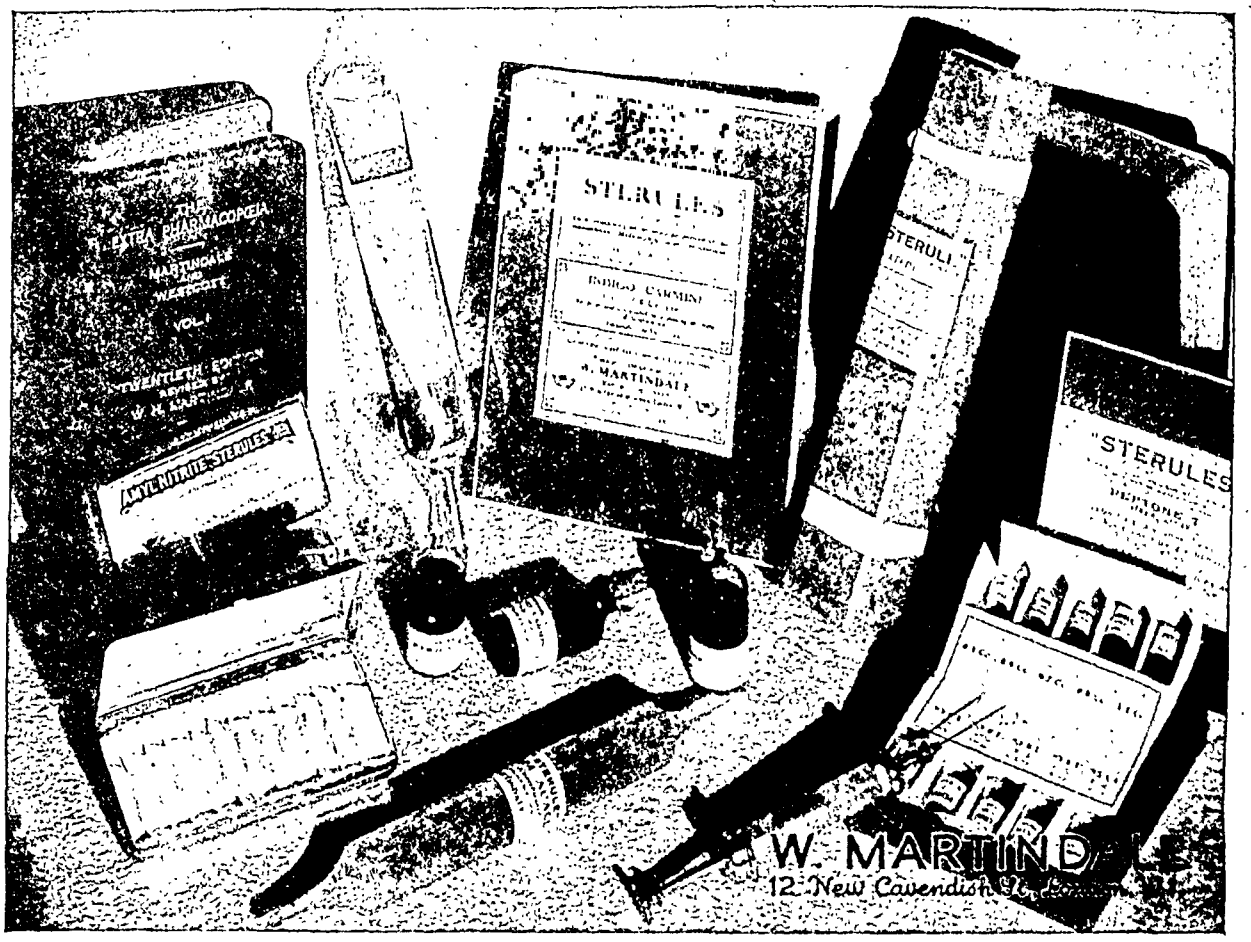
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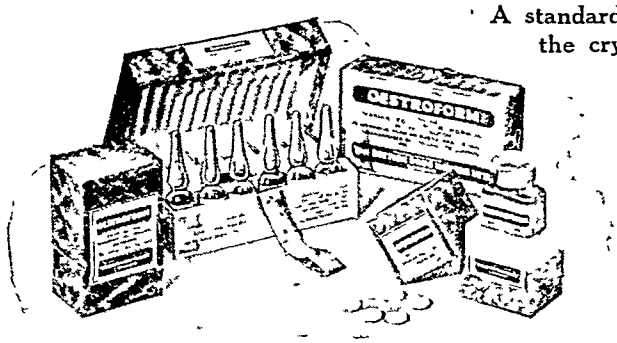
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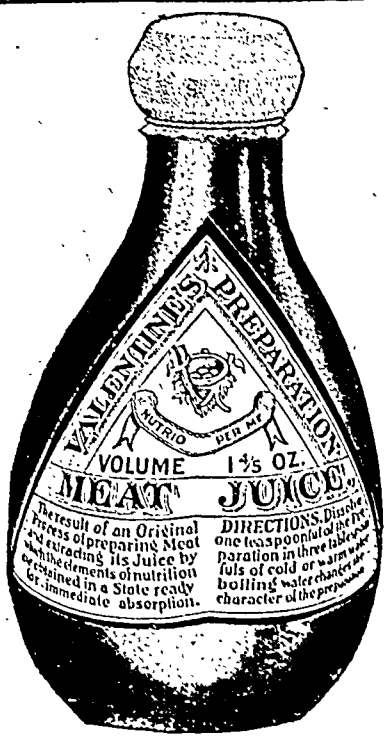
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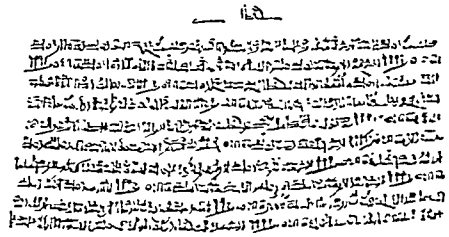
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Observations ON

GYNAECOLOGICAL ASPECTS OF ENDOCRINOLOGY*

BY

EMIL NOVAK, M.D., F.A.C.S.

BALTIMORE, MARYLAND, U.S.A.

In the international exchange of ideas the medical profession is an exponent of the doctrine of free trade, for no scientific idea is dutiable, and no thought need be given to the laws of high or low tariff upon which the ordinary trade marts are so delicately balanced. Our ships are our medical journals, while more directly personal transmission of messages is possible through visitors from the profession of one country to that of another. Many of your distinguished gynaecologists and obstetricians have brought valued messages to our American medical organizations throughout the years, and a number of my American confreres have been honoured, as I now am, by the privilege of mingling with you and participating in the discussions at *your annual meeting*.

With the invitation to address you came also the suggestion as to a title, so that the usual first problem of the prospective speaker was very agreeably dissolved, especially as I could scarcely have selected a topic of greater general appeal. This widespread interest in endocrinology applies particularly to the field of gynaecology, which makes more numerous points of contact with endocrinology than does any other specialty in medicine. The reasons for this are obvious. Our daily work has to deal with aberrations not only in the structure but also in the function of the female reproductive organs. One of the most intensively worked problems in the field of physiology to-day is that of the female reproductive cycle, and pretty much all of the great deal we have learned about it in recent years has to do with its endocrinology. Much of this new knowledge is applicable in the clinical interpretation of our daily problems, particularly in the field of the so-called functional disorders. This has immensely broadened and deepened the scope of gynaecology, so that it is no longer to be looked upon, as was the tendency in past years, as merely a special branch of surgery. If I may quote from a very recent paper of my own, "If the proper study of mankind is man, so the proper study of gynaecology is woman, in all her varied biological aspects, rather than merely as a creature possessing pelvic organs of a certain size, shape, and position." The pursuit of gynaecology in this broader sense will often lure the clinician far beyond the pelvic brim, especially if his diagnostic nose is keen on the endocrine scent.

This is not the place—nor is it necessary—to bewail the rather maudlin endocrinology and organotherapy of an earlier day. This is past history, for the endocrinologist of to-day is trying manfully to hold his imagination under the leash of scientific control, though even now the leash may occasionally snap under the powerful tug put upon it. Nor would there be time, within the limits of a paper of considerate length, to review the development of our knowledge of the reproductive phenomena, though it might flatter our vanity to look back from our present complacent heights upon the centuries of superstition and speculation which have surrounded the discussion of these questions.

HORMONE FUNCTION OF THE OVARY

The hormone concept of menstruation belongs practically to our own generation, for it was not until 1899 that it was established that the essential role of the ovaries is dependent upon their internal secretion. Up to that time it had been believed that the influence of the ovaries is exerted through nervous channels in accordance with the then rather generally accepted theory of Pflüger, enunciated in 1863. It is worth while digressing for a moment to point out that, even though the ovarian internal secretory function had not been demonstrated until 1899, ovarian preparations had been fed to patients for some years before this time, merely on an assumed analogy with the thyroid.

With the establishment of the hormone function of the ovary, there began the long discussion as to which element in the ovary is responsible for its internal secretion. The work of Fraenkel in 1903 called attention to the functional importance of the corpus luteum, both as a cyclical structure and as the source of a substance which in rabbits at least, is essential to the maintenance of gestation in its early stages. The mistake was made as it has been made so many times since then in endocrinological investigations, of applying to other animals the results of studies upon some one species. Although Fraenkel's work has been abundantly confirmed as applied to rabbits, it has been shown that in the human being the corpus luteum, while undoubtedly of importance in the first stages of pregnancy, is not quite so indispensable as it is in the rabbit.

Parenthetically it may again be noted that the over-eager clinician, on the basis of the work of Fraenkel and others who followed him, at once began to administer corpus luteum substance, in one form or another, to patients with supposed hypofunction of the ovaries. Following Fraenkel's work, and more especially after the demonstration by Hitschmann and Adler in 1908 of the menstrual histological cycle in the endometrium, there began an important series of correlative studies upon the ovarian and uterine cycles. As a result of these and without much aid from the anatomist, physiologist or biochemist gynaecologists were able, largely on the basis of histological study, to construct an apparently satisfactory theory of menstruation. From a chronological standpoint the sequence of events thus postulated has been essentially confirmed by the more recent investigations along physiological lines.

Up to 1917 as a matter of fact anatomists and physiologists had shown very little interest in reproductive physiology, as a glance through any of the older text-books will show. It was the discovery of the vaginal smear method of chronological study of the sex cycle in the laboratory animals which lighted up the interest of the experimental worker and most of the advances in recent years have been made through laboratory investigations. The work of Frank, Allen and Doisy, and many others upon the ovarian follicle hormone, that of Corner and W. Allen upon the hormone of the corpus luteum, that of Smith and Engle in America and Zondek and Aschheim in Germany upon the anterior hypophyseal function—all these marked milestones in our knowledge of the subject. In all these investigations the British school of investigators has occupied an important front-line position.

To jump at once to a discussion of present-day viewpoints, it is now universally accepted that the ovary produces two distinct hormones. One of these is folliculin (oestrin, theelin, menformon), the characteristic hormone of the active Graafian follicle. With the cessation of a menstrual period and the removal of the corpus luteum inhibition a crop of follicles begins to mature. For some curious reason one of these outstrips its fellows, reaching full maturity and thus achieving the distinction of becoming the presiding follicle of the particular cycle and of giving off the ovum for that cycle. The less *fortunate*

* Read in opening a discussion in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Dublin, 1933.

follicles die at various stages of maturation through the mechanism designated as atresia folliculi.

During the process of maturation of the follicles a steadily increasing amount of folliculin is secreted, and this produces in the uterus two chief effects—namely, hyperaemia and growth, in both the endometrium and the musculature. With the rupture of the follicle begins the corpus luteum phase of the cycle. During its period of activity the corpus luteum produces two hormones, folliculin and progestin, the latter being its own characteristic hormone. That the yellow body, in the human at least, continues the secretion of folliculin was not established until quite recently, but the work of Allen, Frank, and others leaves no doubt concerning this fact. It clears up a point which hitherto has been difficult to explain, for the follicle reaches its maximum at the mid-interval period, while blood hormone studies show a large amount of folliculin in the blood shortly before menstruation. The significance of this observation as regards the cause of the menstrual bleeding will be emphasized later.

The folliculin effects of growth and hyperaemia are therefore carried beyond the ovulation phase, but, in addition, the endometrium is then subjected to the influence of progestin. This is responsible especially for the secretory activity of the glandular epithelium, which is never observed before ovulation. It will thus be seen that the folliculin influence is continuous from the end of one menstrual bleeding to the beginning of the next, while progestin is a factor in only the latter portion of the intermenstrual phase.

The underlying cause of the corpus luteum retrogression, the endometrial desquamation, and the onset of bleeding is still unknown, as I have discussed in a recent paper. The doctrine of "primacy of the ovum," so strongly championed by Robert Meyer, must be abandoned. According to this, it is the death of the ovum which determines the retrogressive phenomena above mentioned, and thereby the occurrence of bleeding. To mention only one of a number of obstacles to the acceptance of this belief, the cycle goes on quite undisturbed, even though the ovum be washed out of the genital canal shortly after ovulation.

OVULATION AND MENSTRUATION

Another important question which has been opened up in the past few years has been as to the relation, if any, which exists between ovulation and menstruation. To raise the question a few years ago would have seemed heretical, for there seemed to be general acceptance of Meyer's dictum that "Ohne Ovulation, keine Corpus luteum; ohne Corpus luteum, keine Menstruation." The studies of Corner, Hartman, and Allen upon monkeys have shown beyond the shadow of a doubt that in these animals perfectly typical periodic bleeding, certainly menstrual in a clinical sense, very frequently occurs in the absence of ovulation. Meyer contends that this bleeding is a "pseudo-menstruation" and not a genuine menstruation, inasmuch as it is not accompanied by the same endometrial changes as those characterizing the usual human cycle. With this the above-mentioned investigators would unquestionably agree, even though the bleeding is clinically identical with the human phenomenon as regards periodicity, rhythm, duration, and amount. After all, the discussion appears to be merely a play on words, the outstanding fact being that a type of periodic bleeding indistinguishable from menstruation can occur in the absence of ovulation.

The application of this new fact to the human problem opens up new possibilities. Certainly the usual menstrual cycle in woman is of the traditional type, with ovulation, corpus luteum formation, and the characteristic endometrial cycle above described. That an anovulatory periodic bleeding can occur, however, is demonstrated in the frequent cases of functional menorrhagia, in which corpora lutea are characteristically absent. It is illustrated also in the occurrence of such menstrual, or pseudo-menstrual, bleeding in women far beyond the menopause in association with granulosa-cell tumours of the ovaries. With such tumours ovulation and corpora lutea, or for that matter even ova, are not found.

I have previously expressed the belief, though I cannot yet produce the evidence, that the anovulatory type of cycle is perhaps more frequent than we now believe, even in apparently normal women, just as it often occurs in normal monkeys. If this is true, it may well explain certain cases of sterility in which both partners are apparently perfectly normal in every way. If eggs are not thrown off from the ovary, pregnancy is obviously impossible, although we unfortunately have no means of determining by examination which women ovulate and which do not. In this respect we are less fortunate than those working with monkeys, for Hartman seems to have shown the possibility of establishing the occurrence of ovulation by the simple method of bimanual pelvic examination. In these animals the mature follicle is obviously a more prominent structure than it is in the human patient, in whom, furthermore, the frequent occurrence of large atretic follicles on the ovarian surface would make palpation findings very unreliable.

The third physiological problem to which I should like to allude is that dealing with the hormonal mechanism involved in the actual bleeding of menstruation. The phenomenon immediately preceding this is the retrogression of the corpus luteum, a structure which appears to mother and protect the endometrium. So long as the corpus luteum itself is thriving and functioning, the endometrial development advances, so that, in the case of the corpus luteum of pregnancy, the pregravid endometrium passes by an easy transition into actual decidua. Once retrogression of the corpus luteum occurs, or once it is excised, the endometrium degenerates, is cast off in considerable part, and bleeding begins; if the corpus is excised four or five days before the normal menstrual date, it may be confidently predicted that premature menstruation will appear in from twenty-four to forty-eight hours after the operation.

Against this must be placed certain observations made upon the effects of excision of the growing follicle. If this is done bleeding likewise occurs, although usually not for a number of days afterward, depending chiefly upon the stage of development of the follicle. Moreover, if folliculin be injected into a castrated animal for a series of days bleeding will occur, but not until a number of days later. Similarly at least some amenorrhoeic women will exhibit bleeding after sufficiently large and sufficiently prolonged folliculin treatment, although here likewise the bleeding occurs some days after the cessation of the injections.

Since the follicle contains only folliculin, it is apparently the withdrawal of this hormone which determines bleeding. The bleeding after corpus luteum excision or regression, formerly a disturbing factor in this regard, is readily explained by the now demonstrated fact that the corpus likewise is a producer of folliculin, as well as of its more characteristic progestin. On the basis of such evidence as this there seems no escaping the view that the withdrawal of folliculin, or at least a drop in the folliculin level, is the immediate hormone cause of menstrual bleeding.

This concept carries with it many important implications, and may change our views of various types of uterine bleeding. For example, the rupture of the follicle is followed by a temporary drop in the folliculin level, as is apparently borne out by blood hormone studies. This

is a logical explanation of the intermenstrual staining, at times fairly free, which is observed in some women at about the time of ovulation. In monkeys, such intermenstrual bleeding, either macroscopic or microscopic, is a constant finding.

Again, in the exceedingly common functional type of bleeding, seen so often in the menopausal years, during puberty or adolescence, or at various periods during reproductive life, it has been generally accepted that the cause is of endocrine nature, consisting of a relative excess and persistence of folliculin, and an absence or deficiency of progestin, for corpora lutea are characteristically absent in such cases and the endometrium never shows secretory changes. The mere hyperfolliculinism, however, is not an adequate explanation of the bleeding, for there must be some additional factor which brings about a drop in the folliculin blood content, and thus induces the bleeding. Since the latter is so often periodic, as in the common functional menorrhagias, we must assume that the high folliculin content is lowered at intervals by some other periodic factor. The nature of the latter cannot be stated with any precision, but it is almost surely dependent upon the intimate and apparently reciprocal relations existing between the ovaries and the anterior hypophysis.

The work of Hisaw, Moore, and others indicates that this relationship is automatic and self-regulatory, so that an excess of folliculin, for example, inhibits the pituitary function, with corresponding inhibition of the ovarian activity. If this thermostat-like mechanism is the one concerned, we have at least a broad explanation of the principles involved in these functional haemorrhages, though we must look to future investigations for the details. The same principles may be invoked to explain the periodic bleeding, not distinguishable from menstruation, seen in very young children or very old women suffering from granulosa-cell tumours, already alluded to.

PITUITARY SEX HORMONES

No consideration of ovarian function can be complete without some reference to the closely intertwined endocrine function of the anterior hypophyseal lobe. The dominating role of the latter over the ovary has been firmly established by the brilliant experimental studies of Smith and Engle, in our country, and Zondek and Aschheim, in Germany. While there is general acceptance of the main fact, several controversial questions have been thrown into the ring. One of these is as to the unity or duality of the pituitary sex hormones. Zondek especially has urged that two separate hormones are involved, one (prolan A) a follicle-ripening principle, responsible for the mobilization of folliculin, the other (prolan B) being concerned with luteinization and the production of progestin. An increasing number of investigators, however, believe that the two effects represent merely different phases in the activity of the same principle.

The second moot point concerns the identity or non-identity of the pituitary sex hormones and the so-called pituitary principles found in such large amount in the urine of women during even very early pregnancy. The German gynaecological journals have been full of this discussion between the "identicists," led by Zondek, and the "non-identicists," of whom Philipp has been the chief champion. In most respects there seems to be no doubt about the identity of the physiological effects of the substances in question, but differences have been pointed out, as for example recently by Evans and his collaborators, which must be explained before any final conclusion can be reached. Whether the "prolan" in the urine of pregnancy is actually of pituitary origin, or whether it is produced elsewhere, and whether or not it is to be looked upon as merely an activator of pituitary function, as Evans and his co-workers suggest, the fact remains that it is increased in amount, almost explosively, in the early stages of pregnancy. The Aschheim-Zondek test, with its various modifications, has been one of the most important by-products of the present-day feverish interest in the problems of reproductive physiology. Its value and reliability in the diagnosis of early gestation are now universally accepted, as is its frequent usefulness in the diagnosis and management of cases of hydatidiform mole and chorion-epithelioma.

GYNAECOLOGICAL ORGANOTHERAPY

I have said nothing as yet as to the matter of gynaecological organotherapy, nor does it seem necessary to discuss this except along very broad lines. It would be unfortunate if one's interest in endocrinology were predicated upon one's evaluation of the efficacy or inefficacy of organotherapy. This would be a very narrow and unsound point of view, for the results of gynaecological organotherapy have been disappointing, while the accomplishments of gynaecological endocrinology have been numerous and brilliant. Our interest in endocrinology should be based chiefly upon the fact that it has put into our hands a mass of knowledge directly applicable to the interpretation of many of our everyday clinical problems, as I emphasized at the outset of this paper.

To attempt anything but a cursory and general consideration of these various clinical problems in gynaecological endocrinology would be out of the question within the limits of a single paper. The approach to all of them should be along the pathways which have been cleared by scientific investigation. It is therefore scarcely necessary to go into the details of organotherapy with anyone who is at all familiar with what has been learned concerning the endocrinology of the reproductive processes. What is sound and what is unsound is obvious to anyone so equipped.

With reference to endocrinopathic amenorrhoea, for example, one should remember that the breakdown in the endocrine mechanism may involve any one or more of a group of ductless glands, perhaps most often the thyroid, the pituitary, or the ovary. That the suprarenal may be the primary offender, however, is illustrated by the fact that amenorrhoea may be one of the manifestations of defeminization seen with cortical tumours of the adrenals. The differentiation of causes is often difficult and not infrequently impossible. Efforts along this line must include not only careful clinical study, but also the employment of such laboratory methods as blood and urine hormone studies, basal metabolism determination, *x*-ray studies, etc. In this way one can often arrive at a fairly rational determination of the endocrinological type presented by the particular case

Can we say as much for the rationale of the treatment available in most cases? I believe not. In the clearly hypothyroid cases, the administration of thyroid extract is rational and often successful. Not so, as a rule, with those which, with greater or less show of reason, we classify as hypopituitary or hypogonadal. Here also we frequently resort to the inevitable "pinch of thyroid," combining it with some form of pituitary or ovarian therapy, most often without success, and for reasons which often suggest themselves. Can we hope to awaken a non-functioning or under-functioning ovary by the hypodermic use of theelin? Unless every scientific worker is wrong, we cannot. At best we can in this way substitute for the normal ovarian secretions an uncertain and probably very inadequate amount of one of these secretions. The other hormone, progestin, is not yet available for clinical use. Even if both were used, prohibitive enormous dosage is necessary to reproduce in the h

endometrium the histological changes characterizing the menstrual cycle, as indicated by the recent experiments of Clauberg and Kaufman upon castrated women.

But even though it were possible thus artificially to replace the ovarian hormones, is there any reason to believe that the function of the ovary would be restored and the normal menstrual function re-established? I know of none. Indeed, if the dosage of theelin is sufficiently large or prolonged, ovarian function is injured, as Hisaw and his collaborators have shown. It is true that with theelin alone bleeding may at times be produced, occurring usually some days after the last injection, and clearly due to folliculin withdrawal, as I have already discussed. But such bleeding is not menstrual, it cannot be expected to occur regularly, it is not associated with ovulation, and of course does not enhance the chances of fertilization for the sterile woman. If I may quote from a recent paper of my own, "It is as if we pushed the pendulum of the run-down menstrual clock for a single idle, incomplete beat, when what we need is a key to wind the clock."

From what we have said as to the governing role of the anterior hypophysis, we might well consider this as the winding mechanism of the clock. But what can we do when the pituitary itself appears to be in need of winding? Shall we use pituitary preparations in a substitutional way, hoping that these will start the ovarian mechanism? And, if so, which shall we employ? As with the ovary, the various extracts for oral use are almost without effect both experimentally and clinically. What of the newer prolan-containing preparations for hypodermic use? Potent as these are upon the ovaries of certain laboratory animals, the available evidence indicates that they have little or no effect upon the human ovary. Whether this is merely a species difference or whether it indicates that prolan obtained from the urine of pregnant women is not the same as the sex hormone or hormones produced by the pituitary cannot as yet be stated.

Many combination forms of treatment have been suggested and tried, such as the use of the anterior pituitary growth hormone in combination with the prolan-containing substances, but the results to date have been unimpressive and we are still floundering in the morass of incomplete knowledge. This is a pessimistic picture which I have painted, but I believe it is not exaggerated. To mollify those who are more enthusiastic than I concerning the treatment of amenorrhoea, I should add that I am just as optimistic about the future of organotherapy along this line as I am pessimistic of its accomplishments to date. It would indeed be almost incredible that, with so many earnest workers in the field, further scientific advances should not yield therapeutic measures far more effective than any we now possess.

Concerning the treatment of the functional haemorrhages, I shall limit myself to the mere mention of the plan of organotherapy which seems to me to have yielded far better results than any other. To my mind, it has represented the most successful application of organotherapy in the gynaecological field. I refer to the use of the so-called luteinizing hormones obtained from the urine of pregnant women. This plan, suggested by us in 1931, was based upon the fact that corpora lutea and progestin are characteristically absent in these cases. If progestin were available, it should be possible to convert the hyperplastic endometrium into a functional, pregravid one, thus completing the cycle. That this can actually be accomplished has since then been shown by Clauberg, in an experiment upon a castrated woman. Large and prolonged dosage with folliculin produced typical hyperplasia of the endometrium, but further treatment with injections of progestin converted the latter into a typical secretory one, corresponding to the normal premenstrual phase.

There seems at present little prospect of obtaining progestin for general use, because of the fact that it is obtainable from corpora lutea in such tiny amounts, and no other source is as yet known. Since the prolan B principle in the urine of pregnant women has a strong luteinizing effect upon the ovaries of such experimental animals as the mouse and rat, it was hoped that it might serve as a substitute for progestin, in that it would, through the production of luteinization, provoke the dysfunctioning ovary to produce its own progestin. That the abnormal bleeding can be controlled in a very large proportion of cases we have convinced ourselves by an experience in more than 200 cases, and similar good results have been reported by others. So prompt is the effect in some instances that we were soon convinced that it could not be due to an actual histological change in the ovaries, and direct studies of the ovaries have since then been made bearing out this idea. Just how the haemostatic effect is brought about we cannot be sure, although I am inclined to think that it is in some way dependent upon the interaction of the hypophyseal and ovarian secretions.

Time does not permit of a discussion of other possible fields for the rather tentative organotherapy of the day. Reynolds and I have suggested the use of the prolan-containing preparations as adjuvants in the treatment of primary dysmenorrhoea, on the basis of the former's experimental studies, which indicate that these substances are powerful inhibitors of the rhythmic contractility of the uterine musculature. For the details of this subject I must refer to the original paper by Reynolds and myself, and to a second more recent paper by myself.

I should have liked also to discuss more fully the field of organotherapy in the occasionally distressing vasomotor symptoms of the menopause, either natural or artificial. The inefficiency of the oral administration of ovarian extracts is now conceded by practically all gynaecologists. At present the most popular treatment, in our country at least, is the hypodermic administration of folliculin in one or other of its commercial forms. Since there is a deficiency of this hormone in at least some phases of the menopause, and since folliculin is a substance of undoubted physiological potency, there is a semblance of rationale for this form of therapy. Whether through psychic channels or otherwise, many patients are improved, so that the practitioner, hard put to it as he is to give these patients relief, will probably continue to use folliculin for this indication until some better plan of treatment is evolved. I need not stress that simple regulatory and sedative measures should never be overlooked in such patients, and, for that matter, they are all that is necessary in the milder cases.

CONCLUSION

In this paper I have chosen to touch briefly upon many aspects of endocrinology rather than to select some one problem for more exhaustive consideration. In this way it has, I hope, been possible to give you a more panoramic viewpoint as to the trends in our country. I dare say that the process of scientific diffusion and osmosis between the nations has made our viewpoints not unlike your own in most respects.

The practice of gynaecology without at least some knowledge of endocrinology is fast becoming an incongruity. It is just this asset, plus a knowledge of gynaecological pathology, which most often, to my mind, marks the difference between the real gynaecologist and the mere gynaecological operator.

The goldfields of endocrinology are now being feverishly worked by many men in many lands, but the surface has been little more than scratched as yet. Perhaps the first nugget was dug up as far back as 1855 by one of your

countrymen, Thomas Addison, but the real rush to the goldfields did not begin until something like a quarter of a century ago. The yield already has been amazing, and the story of endocrinology constitutes perhaps the most fascinating chapter in the history of medical science. No longer need the endocrinologist be spoken of with derision as a "ductless gland faddist," for some at least of his early dreams have materialized into facts, and not a few of these facts have been successfully applied in the relief of human suffering and disease

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GYNAECOLOGICAL ASPECTS OF ENDOCRINOLOGY*

BY

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Gynaecological interest in endocrinology is at present focused almost exclusively on the hormones of the ovary and the pituitary (particularly the anterior lobe), and on the substances identical with or at least closely similar to them which are found in the placenta and in the urine of pregnant women. Even within these relatively narrow bounds we have a subject of such complexity, with a recent literature so voluminous, that it would be impossible to review the whole subject within the limits of your tolerance. I shall therefore only touch upon certain matters which are of more particularly practical interest from the diagnostic and therapeutic points of view.

DIAGNOSIS

The Aschheim-Zondek test for pregnancy, although not the foundation of our knowledge, has perhaps done more than any other single discovery to stimulate interest and research on this subject. Following up the results obtained by the implantation of anterior pituitary substance into immature female mice, these observers found that the urine of pregnant women contained, from an early period of gestation, quantities of anterior pituitary hormones (or substances closely resembling them) sufficient, when injected into female mice, to bring about the same changes—namely, a rapid and intensive development of the ovaries characterized by the presence of haemorrhagic follicles and corpora lutea. I shall not discuss the technique of the test, but rather its practicability.

Four years ago Crew and Wiesner of Edinburgh University, having in the Genetics Department a sufficiency of suitable animals, established a Pregnancy Diagnosis Station,* open to all practitioners at a nominal fee, for the purpose of trying out the practical value of the test. The station is not a commercial undertaking but is carried on in the interests of the profession and of science. During these four years tests have been made in some 6,600 cases, and the actual error, as checked by subsequent clinical observation of the patients, has been approximately 2 per cent. In the last year it was reduced to 0.89 per cent. A degree of accuracy equal to 98 per cent., still more to 99 11 per cent., demonstrates the practical value of the Aschheim-Zondek test beyond all reasonable criticism. The Edinburgh Pregnancy Diagnosis Station, which has provided the only large scale trial of the reaction in Britain, has also demonstrated the value of such a station as a practical diagnostic aid. Positive errors (*that is, reaction positive but no pregnancy*) are few. Negative errors (test negative but pregnancy existing) are more common in the early weeks, as might be expected. A negative result in the very early weeks should be accepted with caution if it runs contrary to clinical observations, and another test should be made later if necessary.

The explanation of these negative errors is that there is a smaller quantity of anterior pituitary hormones in the patient's urine than is normal in pregnancy, and in 1929, during the first year's working of the station, Crew and Wiesner noticed that not infrequently these results occurred in cases in which abortion subsequently took place. This observation has been so often confirmed by them that a weak positive reaction may now be accepted as implying a definite risk of abortion. Moreover, it was found that in these cases the changes in the vagina and uterus in the experimental animals were frequently normal in degree, indicating that the oestrin content of the urine was approximately normal. There would thus appear to be a deficiency of the anterior pituitary hormones in these cases, and as the oestrin secretion is usually adequate, we have argued that the need is mainly for rho II (prolan B) to stimulate the corpus luteum to increased production of progestin. On this basis we have successfully treated a number of cases of habitual abortion with luteinizing doses of rho factors. Such treatment is of course unlikely to succeed in the presence of any organic conditions calculated to produce abortion, and it has never proved successful in our hands in actual threatened abortion. I would enter a plea here for the more general adoption of the Aschheim-Zondek test in early pregnancy, even where there is no particular reason to question the diagnosis, for the simple reason that valuable information on this point of a patient's liability to abortion may be forthcoming.

In hydatidiform mole the anterior pituitary hormones are present in the urine in great excess as compared with normal pregnancy, and it is natural to try to link this observation with, on the one hand, the abnormal growth of chorionic epithelium characteristic of that condition and, on the other, the usual concomitant of lutein cysts of the ovary. Interesting speculations present themselves as to the nature of this link. Does the chorionic epithelium stimulate excessive luteinization directly or through the medium of the anterior pituitary lobe, or does the chorionic epithelium itself form the hormones in the urine? In other words, is the placenta, so to speak, a distillery or merely a "bonded store" for anterior pituitary

*Read in opening a discussion in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Dublin, 1933

*Pregnancy Diagnosis Station, University, King's Buildings, Edinburgh

hormones? From the histological point of view I can imagine the placenta of the early months being a distillery, but not in the late months, when the chorionic epithelium has so much the appearance of passivity. There are also phylogenetic objections to the view that the placenta is a gland of internal secretion, because it appears so late in the scheme of evolution compared with the recognized endocrine glands. On the other hand, Phillips[2] and Ehrhardt and Mayes[3] found that during pregnancy the anterior pituitary lobe itself was poor in its secretions, an observation which certainly suggests that its work is temporarily taken over by another organ.

The positive Aschheim-Zondek reaction in cases of chorion-epithelioma, and its consequent diagnostic value in that condition, are so well established that no detailed reference need be made to them. Chorion-epithelioma of the testicle in the male also gives rise to a positive reaction, and this brings me to the question whether the test for pregnancy can be falsified by positive results in cases of cancer or other new growths. Zondek[4] claims that neoplastic disease, especially cancer of the genital tract, causes a slight increase in the anterior pituitary hormones in the urine as compared with the non-pregnant condition. While there is reason, I understand, to doubt the accuracy of any quantitative estimations of anterior pituitary hormones in units, the proportions which he gives—five mouse units per litre in non-pregnant women, 100 to 150 units in tumour cases, either malignant or benign, and 5,000 units in normal pregnancy—are indicative of how slight is the practical risk of fallacy from this source. With the possible exception of chorion-epithelioma, therefore, tumour growth does not affect the practical value of the pregnancy test in any real sense, and the number of cases in which the diagnosis lies between chorion-epithelioma and incomplete abortion is fortunately small. Research is going on as to the effect of the anterior pituitary hormones on tumour growth, but so far the results are conflicting. The whole subject is replete with interest when we consider the similarity in some respects between cancer tissue and trophoblastic tissue; nor is this diminished by the chemical relationship between oestrin and carcinogenic substances recently demonstrated by Cook, Dodds, and Kennaway.[5]

Another diagnostic field of great importance is to be found in the application of our knowledge of the hormonal mechanism of menstruation to irregular uterine bleeding. So far the interpretation of these haemorrhages is not by any means complete, because there are still serious gaps in our knowledge of the menstrual mechanism. The bulk of the evidence suggests that menstrual bleeding is due to a withdrawal of hormones rather than to the interposition of a positive bleeding factor such as Hartman has postulated. I have repeatedly confirmed Fraenkel's observation that the excision of the human corpus luteum in the second half of the menstrual cycle induces menstrual bleeding within thirty-six hours, and this seems strongly suggestive of the removal of an inhibitory factor. Most authors now subscribe to the view that it is the withdrawal of oestrin which causes the menstrual flow; and, experimentally, menstruation can be produced in this way. But I would remind you of the work of Smith and Engle[6]; these observers took sexually mature monkeys and treated them with anterior pituitary hormones in doses calculated to increase oestrin formation, adding large doses of theelin in the last few days of the treatment. They then stopped the injections and removed both ovaries, thus eliminating, so far as we know, all sources of oestrin and providing a doubly pronounced stimulus to uterine bleeding on any theory of oestrin withdrawal. Notwithstanding this, they succeeded in preventing bleeding by injections of large doses of corpus luteum extract, which contained only a minimal quantity of theelin—far too small to vitiate the experiment. This brings us back to the older view that the actual cause may be the withdrawal of progestin by the retrogression of the corpus luteum, and that progestin has an inhibitory action on menstrual bleeding as it has on follicular growth. At the least it suggests that the withdrawal of both ovarian hormones is necessary. Moreover, there is another point to which Wiesner has drawn my attention—namely, that the reactivity of the uterine muscle is a part of the menstrual phenomenon—and we now know that progestin or some associated corpus luteum hormone seems to have an inhibitory action upon uterine contractions.

The recognition of the possibility of anovular "pseudo-menstruation" occurring with periodic regularity in women is an important contribution to our knowledge which both throws light on some cases of sterility and introduces an element of possible error into many of our so-called cures of amenorrhoea.

Neither space nor our present knowledge will permit an attempt to interpret irregularities of menstruation and functional uterine haemorrhages in detail, but some general bearings may be indicated. Regular normal menstruation is the outward and ultimate expression of a complicated hormonic mechanism involving at least three structures—the anterior pituitary lobe, the ovary, and the genital tract. There are thus three points of attack upon which a disturbing factor may act. It may act upon one or other of the glandular links in the mechanism and produce either over- or under-activity of internal secretion. It seems possible, also, that it may act on the genital tract and affect its reactivity to ovarian hormones, so that menstrual disorders may occur in spite of normal supplies of ovarian hormones. It is generally assumed that glandular over-activity or arrhythmic function is associated with excessive or irregular uterine bleeding, and under-activity with amenorrhoea or scanty menstruation. But no such generalization is really warranted, for the material from several hundred cases received at the Pregnancy Diagnosis Station, in which a rough hormone analysis has been made, shows that amenorrhoea in the non-pregnant woman can be found in association with either an excess or a deficiency of cornifying hormone; while irregular bleeding may occur in women whose urine, collected between periods of bleeding, is wholly or almost devoid of cornifying hormone. Furthermore, as the ovary and the pituitary are members of a larger group of endocrine glands whose interdependence on each other is axiomatic, the functions of the thyroid and the adrenals cannot be wholly neglected.

THERAPY

In approaching the subject of the therapeutic employment of the sex hormones, in which, it is probably safe to predict, the future of gynaecology lies, the first thing to be said is that, in the present state of our knowledge, very little can be expected. We are still far from having reached finality in regard to the physiology of menstruation or the pathology of uterine bleeding. Ten years hence our outlook on these matters will almost certainly be materially changed, and our therapeutic results should meantime be considered purely tentative. One cannot but feel dismayed at the present phase of indiscriminate use of these substances, which has been created almost exclusively by the deluge of often misleading and never disinterested brochures from manufacturing chemists. I would strongly support the protest in this respect which Lord Horder[7] recently made in his admirable oration to the Medical Society of London on "New Treatments for Old."

Admitting this tentative basis, and admitting also that clinical experiments are on a very different plane as regards

exactitude both in performance and in interpretation from those of our laboratory colleagues, there are two methods of therapeutic approach. The one is the use of the ovarian hormones, oestrin and progestin (to use terms which seem to be becoming generic); the other is the use of anterior pituitary hormones (or in practice the nearly identical substances extracted from the urine of pregnant women) to stimulate the ovaries to produce their own hormones. In each case the important general principle must be kept in mind that the hormone of any endocrine gland is incapable of stimulating its parent gland. Hormone therapy is essentially substitutive. But the hormone of one gland may stimulate another, as in the case of the anterior pituitary lobe and the ovary.

The next point, and one which I think ought now to be stressed, is that the only rational basis for hormonal therapy, and the only fruitful way in which we clinicians can increase our knowledge, is the scientific investigation of the patient's hormonal state before treatment. It is irrational to inject any hormone unless one has evidence that the natural supply of it is deficient. I would urge that the patient's urine should be sent to a laboratory such as the Pregnancy Diagnosis Station in Edinburgh, where the presence or absence of anterior pituitary hormones and of oestrin can be demonstrated, even although wholly satisfactory quantitative tests for the former are still lacking. Obviously such a method of investigation requires to be supplemented by careful clinical study of the bodily evidence of pituitary, ovarian, or thyroid deficiency, but the laboratory provides the final and only accurate test of the actual hormone state of the patient's sexual organs, and the most reasoned basis for the administration of substitutive hormones.

My own observations in sex-hormone therapy have been largely in the use of the gonadotropic hormones prepared by Wiesner and Marshall from pregnancy urine—which are anterior pituitary hormones very similar to, if not identical with, Zondek's prolans—and in the use of some of the oestrin-containing preparations on the market. The two gonadotropic factors have not been separated, but there is good ground for the belief that small doses produce the follicle-stimulating action of rho I, while in larger doses rho. II is dominant and stimulates the corpus luteum to progestin secretion. That is the tentative basis on which we have been working.

Primary amenorrhoea has so far proved a disappointment, possibly because we have usually been dealing with an intrinsic anterior pituitary deficiency. Secondary amenorrhoea is a more hopeful field because by stimulating the formation of oestrin by substitutive therapy (rho I, prolan A) and then stopping it, one can at least temporarily restore "menstruation" in many cases where the condition has been due to a minor disturbance of function. It is very probable, although I know of no direct evidence, that some of these cases may be due to the condition, recognized in the cow, of "corpus luteum persistens," in which event a restoration of the menstrual cycle produced by temporary substitution might be expected to continue. Treatment by oestrin may similarly be successful in such circumstances. If I may use a simple metaphor, a case of primary amenorrhoea due to anterior pituitary deficiency is like a clock which *cannot* go because it lacks the mainspring; some cases of secondary amenorrhoea are like a clock which *will* not go because of some trifling disturbance such as a piece of dust in its mechanism. No amount of shaking will ever make the first one go, but gentle shaking will often restart the second and make it go, at any rate for a time. But shaking the clock is empirical therapy, with all its potentialities of harm!

In regard to functional bleeding we have had one or two striking successes with luteinizing doses of anterior pituitary hormones in the menorrhagia of puberty; and I can confirm, in a few isolated instances, Novak's results with similar treatment in bleeding of the "metropathia haemorrhagica" type, using rho factors where he used a proprietary preparation. But most of these cases occur in women between 40 and 50, and access to an ample supply of radium has led me to treat them by intrauterine radium after curettage as the speediest and most permanent method of cure.

In cases of habitual abortion in which all recognizable pathological causes had been excluded we have had more than a dozen successes with luteinizing doses of anterior pituitary hormones. Presumably they were women in whom there was an absence, or a low content, of these hormones in the urine, although I plead guilty that the earlier cases were not investigated in the way that I have been urging. Wiesner, Marshall, and I[9] published a note of them in the *Lancet* last autumn which evoked the editorial censure. The writer of the leading article in the *Lancet* painted the dangers of indiscriminate and permanent luteinization of the ovaries in terms which suggested a new "yellow peril" and, incidentally, his own detachment from clinical experience, for he overlooked the fact that the quantities we had injected were vastly less than the quantities of the same hormones excreted in normal pregnancies. Recently Marshall has proved that the injection of rho factors into mice in doses incomparably greater in proportion than any we used in women, far from causing sterility, is actually followed by increased fertility. While, therefore, the fears of the editor were unwarrantably exaggerated, yet we must agree with him that the indiscriminate use of potent hormones is unwise. To adapt the phrase of Opie, recounted by Dr. John Brown,[9] and to say that before administration sex hormones should, like the artist's paints, be "mixed with brains," is but to reiterate in other words my plea for a previous laboratory diagnosis of the hormone state of the patient.

Study of the time relationship of the two ovarian hormones involved in menstruation naturally suggested the hope that dysmenorrhoea might find therein its explanation. The work of Knaus,[10] of Robson and Illingworth,[11] of Reynolds and Allen,[12] and of others now warrants the view that the corpus luteum secretes a hormone which, in presence of oestrin, desensitizes the uterine muscle against the action of posterior pituitary hormone, which is presumably its natural stimulant, and reduces its spontaneous activity. The question at once arises, whether the pain of dysmenorrhoea may be due to the lack of this desensitizing hormone, and whether the injection of corpus luteum extract or of luteinizing doses of anterior pituitary hormone would not prevent the pain. My colleagues (Young and Haultain of Edinburgh, and Hendry of Glasgow) and I have been studying this subject for the last two years, and our results will be published as soon as the number of cases seems to us to justify definite conclusions. Meanwhile, I can only say that treatment on these lines in suitably chosen cases has given a very encouraging degree of success. There must always be so many factors in dysmenorrhoea, psychical as well as physical, that it is impossible to imagine that any one line of treatment can ever prove a specific.

The last point I would mention is the menopause. It is hardly too much to say that our real knowledge of what takes place in the sphere of sex hormones at this epoch is in inverse proportion to its frequency. We have long *assumed* that the physiological changes at this time are due to the natural cessation of ovarian secretions, and the symptoms associated with it to the consequent imbalance of the whole endocrine group. It is only since some scientific clinicians have made a hormonal examination of such cases that we are beginning to have a rational

Up to the present time no evidence has been advanced to show that the organisms multiply in sewage, so that in the present state of our knowledge alternative (*a*) is more probably correct.

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RECENT EXPERIMENTAL WORK ON THE AETIOLOGY OF HODGKIN'S DISEASE*

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Recent work on the aetiology of Hodgkin's disease has served to bring fresh interest to bear on the nature of this condition.

In 1930 L'Esperance reported having isolated the avian tubercle bacillus from cases of Hodgkin's disease and claimed to have reproduced the condition in chickens. These claims have been investigated by Davidson (1933), the workers of the Rose Research on Lymphadenoma (1932), van Rooyen (1933), and others, all of whom failed to reproduce the disease in birds or to isolate the avian tubercle bacillus from human lesions in the disease. In 1930 Twort found that the subcutaneous inoculation of a guinea-pig with a suspension of Hodgkin lymphatic tissue produced after three to four days a swollen inflammatory nodule, in which no bacteria could be demonstrated by the application of ordinary methods. The workers of the Rose Research on Lymphadenoma (1932) next published an extensive series of observations on the pathology of the condition, showing that neither spirochaetes, yeasts, diphtheroids, nor acid-fast organisms were responsible for the causation of the disease.

THE ENCEPHALITIC SYNDROME IN RABBITS

Among the many findings of the last-named workers those of M. H. Gordon were perhaps of the greatest significance. He found that the intracerebral inoculation of rabbits with suitable suspensions of lymphadenomatous tissue was followed in three to four days by highly characteristic changes affecting the central nervous system of the animal. The sequence of events was: initially, slight impairment of locomotion, this being followed by progressive ataxia, muscular incoordination with spasm, spastic paralysis of the hind limbs, and frequently accompanied by incontinence of urine and faeces. The severity of these lesions produced in the rabbit were to some extent dependent on the acuteness of the case from which material was derived. Thus tissue from an acute case of Hodgkin's disease produced, in addition to the foregoing changes, violent convulsive movements, head retraction, opisthotonos, and grinding of the teeth. Animals affected to such an extent inevitably died, but in the less severe type of lesion several recovered completely, and a few passed into a chronic state in which severe muscular atrophy and wasting were much in evidence.

This "encephalitic" syndrome, as described by Gordon (1932), was found to be highly specific in character, and could not be elicited by the intracerebral inoculation of rabbits with material derived from cases other than those of Hodgkin's disease. This fact has been utilized by the writer (1933), who attempted to use this finding to form the basis of a biological test for the more accurate diagnosis of Hodgkin's disease.

The test has proved of value as an aid to the clinical and post-mortem diagnosis of this disease, particularly when the appearances presented are not entirely typical of the condition. In view of the satisfactory results obtained from the Gordon biological test, it has been proposed that material removed at biopsy and necropsy from suspected cases of Hodgkin's disease should be subjected not only to histological examination, but also to this animal inoculation test. It must be emphasized, however, that a rabbit which exhibits the encephalitic syndrome reveals no cultivable bacterium in either its brain or meninges. Hence, prior to the acceptance of a positive result in any animal, the possibility of bacterial infection being responsible for the effects manifested should first be excluded by appropriate methods of bacteriological examination.

ITS AETIOLOGY

From the theoretical standpoint one or other of the following causes might be responsible for the production of the condition.

(*a*) Trauma following damage by mechanical irritation.
(*b*) A specific neurotoxin present *in vivo* in lesions of Hodgkin's disease, or produced *in vitro* by changes in the tissue of the lesion after removal from the body.
(*c*) The action of a virus specifically associated with the disease and producing an effect on the nervous system of the rabbit.

The complexity of this problem, combined with the incomplete state of our knowledge regarding diseases produced by ultra-microscopic viruses in general, render it extremely difficult to express a dogmatic view regarding the nature of the pathogenic agent under discussion. I propose, therefore, merely to discuss the arguments relative to the above-mentioned hypotheses, guided by the experimental evidence so far advanced.

HISTOLOGICAL CHANGES IN THE RABBIT'S BRAIN

Below is a discussion on trauma and the histological changes produced experimentally following intracerebral inoculation with Hodgkin tissue and with a variety of other substances.

The chosen site of inoculation lies in the occipital lobe of the rabbit, and is situated well behind the motor area of its brain. Histo-pathological changes following the inoculation of Hodgkin tissue into this area were relatively slight in character. They revealed the occurrence of some localized haemorrhage occupying the path of the needle, and surrounded by a zone of lymphocytic infiltration. Occasionally similar infiltration of the meninges overlying the point of inoculation was also noticed, but this finding was too inconstant to be regarded as a regular feature. It may be stated that the slight histo-pathological changes produced in the experimental animal were not sufficient to account for the progressive degree of disability produced in the living animal. On the contrary, it could be shown that very severe damage could be inflicted to the brain tissue of the occipital lobe without in any way reproducing Gordon's encephalitic syndrome.

Such experimental damage may be deliberately produced by the intracerebral introduction into this area of chemical and mechanical irritants, such as turpentine, aleuronat, sodium nucleinate, quinine-urethane, or powdered glass. Likewise, the use of milk, dead bacteria—for example, *B. pyocyaneus*, *B. typhosus*, and *B.*

* Read in the Section of Pathology and Bacteriology at the Annual Meeting of the British Medical Association, Dublin, 1933.

anthracis—carbon particles, or human lymphoid tissue affected with a variety of different pathological conditions, could similarly be injected intracerebrally without in any way reproducing the syndrome under discussion. Histologically, however, the brain of an animal injected with any of the irritant substances mentioned above reveals extensive damage, changes such as severe haemorrhage, necrosis, degeneration, and cellular infiltration being evident microscopically in the brain of a rabbit which was apparently in good health prior to necropsy.

It is thus clear that the encephalitic syndrome cannot be regarded as the outcome of gross changes produced in a rabbit following the introduction of non specific irritant substances into the brain of that animal.

TOXIN OR VIRUS?

The only unequivocal proof of the existence of a living virus is by means of its demonstration *in vivo* and *in vitro*, the former by serial propagation in the living animal and the latter as evidenced by its multiplication *in artificial* culture.

Neither condition has been fulfilled in the case of this pathogenic agent. The weight of experimental evidence so far advanced is equally capable of indicating the cause of the encephalitic syndrome to be the outcome of specific toxic activity or to its being that of a living virus. Thus the ability of this substance to withstand desiccation, to resist 73° C. for half an hour, to be annulled by the action of weak antiseptics, and occasionally to give rise to immunity phenomena (Gordon, 1932–3) is a common property of both a virus and a toxin. This agent has been further stated by Gordon to be non filterable, but the writer has latterly been able to demonstrate in a series of preliminary experiments that filtration could be effected under certain conditions. He also observed that tissue suspensions appeared to be most active when suspended in broth ranging from *p*H 6·2 to *p*H 7·2. This aspect of the subject is under course of investigation and will be dealt with later.

CONCLUSION

It can be stated that the encephalitic syndrome produced in the rabbit is specific for Hodgkin lymphoid tissue, and may consequently be utilized as a biological test for the diagnosis of the condition. The present nature of the syndrome produced in the rabbit is not the outcome of a simple traumatic and inflammatory change produced in the brain of the animal, but is probably due to the action of either a specific toxin or a filterable virus derived from the human subject suffering from Hodgkin's disease. The present available data regarding the nature of this pathogenic agent neither confirm the possibility of these effects being the results of a specific toxic activity nor exclude them from being due to the action of a filterable virus.

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THE MANIPULATIVE TREATMENT OF PAINFUL FEET*

BY

PHILIP WILES, M.S., F.R.C.S.

There are many causes of painful feet, but if serious injury and disease are excluded they nearly all fall within the following classification: (1) chronic foot strain; (2) minor deformities, corns, etc.; (3) chronic arthritis.

Chronic foot strain is a term used to describe those cases in which there are painful feet without radiographic or other evidence of disease. The patient complains of pain, which in the early stages is localized and perhaps only occurs after unusual exertion; later, the pain becomes nearly constant and radiates widely, tending to spread up the leg as far as the knee. On examination, when the feet are passively put through their full range of movements, pain is produced at the extremes of one or more of the movements. A superficial oedema of the feet and ankles is not infrequently present; it gets worse towards the end of the day and disappears during the night. The pain is due to failure of the muscles controlling the joints of the feet, allowing strain to fall either on normal ligaments or on "adhesions." The pathology of adhesion formation is similar to that of any other scar tissue. Some trauma or strain ruptures a few fibres of a ligament, joint capsule, muscle, or perhaps only a few capillaries, and a small haemorrhage into the surrounding tissues occurs. The usual process of repair ensues and ends in the formation of a scar which at this site is called an "adhesion." Pain is caused whenever such scars or adhesions are placed under tension, and there are only two ways of relieving it. The first is palliative and prevents the adhesions from being stretched. The second is curative, it ruptures the adhesions and prevents them from being reformed. The customary method of treating chronic foot strain has been the former, arch supports are fitted which aim at stopping any strain falling on the adhesions. The relief given by supports, however, is only temporary because they fix the feet in such a position that the adhesions can contract yet further until eventually even the small amount of movement permitted by the supports will cause pain. The rational treatment is curative. The adhesions should once and for all be ruptured and should then be prevented from reforming by massage and exercises.

Minor deformities and chronic foot strain are not infrequently found to be associated. For example, a painful hammer toe may cause the weight to be thrown on the wrong part of the foot and thus give rise to a chronic strain. If the strain only is treated it will continue to recur until the primary trouble is remedied. In the opposite way a chronic strain may result in a painful callosity forming on the ball of the foot, but however often the callosity is cut it will continue to reform until the chronic strain is cured and ceases to cause misuse of the foot. Each case of painful feet requires most careful consideration of the factors involved so that all the causes of pain may be removed and recurrence avoided.

Chronic arthritis of the feet is common in patients over 45 years of age. It is often of the rheumatoid type and may be part of a generalized condition or may be localized to the feet. X-ray photographs will show more than some bony rarefaction and the outstanding feature is stiffness due to infiltration and contracture of the periarticular tissues. Manipulative treatment will be used with caution but in selected cases it is of great benefit. By a careful combination of manipulation, physiotherapy, and suitable footwear it should be possible to make every patient at least comfortable, while a number can be freed of all symptoms for many years.

* Read in the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Dublin, 1933.

FLAT FEET

Painful low-arched feet do not present a problem greatly different from other cases of painful feet, but there is such confusion of thought on the subject of flat feet generally that it requires separate consideration. The foot is designed with multiple bones and joints which give it a considerable range of movements under active muscular control. The posture of the foot within this range of movements is normally determined by its muscles. The ligaments play no part in the maintenance of posture, and only serve to check the extremes of movement. The foot is usually described as having two "arches," the one longitudinal between the os calcis and the metatarsal heads and the other transverse across the metatarsal heads. In a normal foot the existence of these "arches" depends entirely on muscular action. The arches can be raised and flattened at will, and if they cannot be flattened the foot cannot be regarded as normal. This is well seen in ballet dancers who have been trained from early childhood and have retained supple feet; when examined standing with muscles relaxed their feet are absolutely flat, but preparatory to and during movement the arches are very apparent. The customary method of judging flat-foot by examining the extent of contact of the sole with the ground gives a fallacious result. Judged by this standard flat-foot is a natural condition, not a pathological one. It only becomes pathological when the instep cannot be raised either because the foot is stiff or because of inadequate muscular control.

The shape of the foot, like any other part of the body, is subject to a wide range of variation, but the high arch which is often regarded as normal is largely the product of modern conditions. The stiff shoes we wear restrict mobility and allow the foot to stiffen, the shape of the shoes tending to cause an arched position. The ligaments and periarticular tissues contract, thus limiting the range of movements until eventually it is no longer possible to flatten the foot. If in these circumstances the muscles become tired or their action is for any reason inhibited, the weight of the body falls on the contracted tissues, which are stretched and give rise to pain. The treatment of such a condition is obvious as soon as the mechanism of its production is appreciated. The foot must be mobilized and its range of movements restored. It is only temporizing to fit arch supports which, even if they give relief at first, will in the end aggravate the trouble by causing further restriction of movement and consequent stiffening.

There is a large group of cases often labelled "flat-foot" but more accurately described as "valgus foot," in which the forefoot is pronated and everted at the mid-tarsal and subastragaloid joints, so that an appearance of flat-foot is given. There are several causes of the condition. One is weakness of the invertors of the foot, and treatment should be directed towards strengthening these muscles. Arch supports do not correct the deformity, but some strain may be taken off the muscles by wedging the soles of the shoes. Another cause is contraction, not infrequently congenital, of the calf muscles inserted into the tendo Achillis. The foot should be able to dorsiflex to form an angle of about 80 degrees with the leg in order to permit normal walking, so a comparatively small limitation of this movement is of importance. Such a patient overcomes the disability when walking by everting the forefoot, but the foot returns at once to a normal posture when the ankle is plantar-flexed. It is of importance to recognize these cases because the foot itself is perfectly normal. It is the calf muscles that are at fault, and the treatment is to stretch or otherwise lengthen the tendo Achillis or, alternatively, to abolish the need for full dorsiflexion by wearing high heels. Chronic foot strain is particularly apt to occur in cases of "valgus foot," because of the unusual stresses which arise from the constant misuse. It should be treated by manipulation, and steps should be taken to correct the deformity and prevent recurrence of the strain. It must be emphasized, however, that it is the chronic strain and not the deformity itself that calls for manipulation.

Patients with "flat feet" come under observation either for cosmetic reasons or because they have pain. The former should be carefully examined to determine whether they have "valgus feet" or whether they have normal mobile feet perhaps with inadequate or unbalanced muscular development, and the appropriate remedial measures should be instituted. In the latter cases the pain arises as the result of chronic foot strain, which, however, is more common in medium or high-arched feet than in low-arched feet. This is because the medium or high-arched feet have become partially fixed in their contracted position, and any subsequent muscular failure or unusual strain will cause the feet to flatten so that the contractions are placed under tension. There is only one rational treatment for chronic strain in any type of foot, and that is mobilization by manipulation.

END-RESULTS

I have carried out a "follow up" of patients who have received manipulative treatment in the orthopaedic department of the Middlesex Hospital and in my private practice. In all, 146 consecutive patients were communicated with and 100 results obtained, seventy-two patients being seen personally and twenty-eight replying by letter. The results in these 100 cases have been classified as follows:

Cured, no further foot trouble of any sort	75
Much improved, usually free from pain, but occasionally get tired or aching feet	19
Improved	5
Unchanged	1
	100

Chronic Foot Strain

There were thirteen cases of chronic arthritis, the remainder being classed as chronic foot strain. There is a considerable difference between the results in these two groups, which are therefore separated. The following results and all figures hereafter refer only to the eighty-seven cases of chronic foot strain.

Cured ...	72 = 83%	Improved	1
Much improved...	13 = 15%	Unchanged	1

There were seventy women and seventeen men, and there was no appreciable difference between the results. Age had no influence on the results. It so happened that all the twelve patients under 20 and ten out of the eleven patients over 50 were cured.

The mobility of the feet was the most important single prognostic factor. The more mobile the feet to start with the better were the results. This is only to be expected, for in mobile feet there is probably only a single adhesion causing pain, while in stiff feet there is a more general periarticular contraction. The degree of mobility has been classified into good, fair, and bad; this is quite an arbitrary division, but it should be fairly constant for one observer.

Mobility	Number Treated	Result			
		Cured	Much Improved	Improved	Unchanged
Good ...	26	25 = 96 per cent.	1	—	—
Fair ...	37	32 = 86 per cent.	5	—	—
Bad ...	24	15 = 62 per cent.	7	1	1
	87	72 = 83 per cent.	13	1	1

The disability suffered by the patient had no influence on the results, but it is interesting to note that there were thirteen non arthritics who had been obliged by pain to give up their work. Treatment gave ten cures and three cases much improved. With one exception these patients were back at work within a month of manipulation. The duration of symptoms varied from a few weeks to several years, but this was without prognostic significance. Over half the cases came for treatment within three months of the onset of symptoms, but nearly a quarter waited for over a year.

The site of the lesion can often be accurately determined as, at any rate in the early stages, each group of joints has its own localization of symptoms. As time passes, however, the pain and aching spread diffusely over the whole foot and up the leg, but even so the primary site can usually be found.

Site	Number Treated	Result			
		Cured	Much Improved	Improved	Unchanged
Mid tarsal	43	36	6	—	1
Internal lateral ligament	11	10	1	—	—
External	8	8	—	—	—
Anterior metatarsalgia	22	8	3	1	—
Others and unknown	13	10	3	—	—

The mid tarsal joints, those between the os calcis and the cuboid and between the head of the astragalus and the scaphoid, are the most commonly affected joints and account for about half the cases in this series. Pain is usually referred to the inner border of the foot and, on examination, is produced by full inversion or eversion. These patients usually complain that they have flat feet or that their arches are dropping, and they have nearly all tried arch supports of some kind without obtaining permanent relief. The results of manipulation are almost uniformly good if only the patients can be persuaded to throw away their supports and maintain the suppleness and improve the strength of their feet by exercises.

Chronic strain of one or other of the lateral ligaments of the ankle joint almost invariably follows an acute strain—it may have been months or years previously—which has been neglected. Pain and tenderness are located in front of the malleoli, and pain is produced by passively stretching the ligament. There were nineteen cases in this series, and they were all cured except one, which was much improved and would probably have been cured by further manipulation.

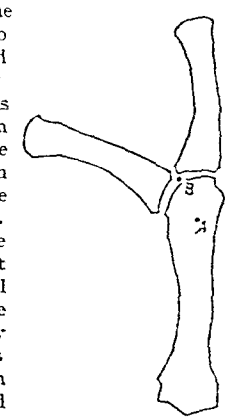
Anterior metatarsalgia is pain under the heads of the metatarsals, usually the outer metatarsals. It is due to misuse of the foot caused by ill-fitting shoes, minor deformities, or even a chronic strain in some other part of the foot. As Bankart has pointed out, the first metatarsal is a large strong bone designed to transmit the body weight, the other metatarsals are slender bones which serve to maintain balance. The latter are quite unsuited for weight bearing, and if too much weight is constantly placed on them pain is sooner or later bound to result. In support of this view it may be noticed that in these cases it is almost invariably found that the outer sides of the shoes are worn down, while the inner part under the big toe is unworn. The shape of certain types of women's shoes is a common cause of anterior metatarsalgia. Those with a high Louis heel are especially bad offenders, they are usually shaped so that the sole slopes directly as a continuous inclined plane from the back of the heel to the ball of the toes. There is nowhere for the heel to obtain a purchase, the foot slides into the shoe, the toes are cramped up, and the whole body weight has to be borne on the heads of the metatarsals. Shoes can be designed to overcome this trouble without any loss of elegance. It is only necessary for the heel of the shoe to be made more or less parallel with the ground so that there is a flat surface for the heel to stand on.

Chronic arthritis is used here to include all types of arthritis except that affecting only the big toe joint and causing hallux rigidus, and also excepting tuberculosis and gout. There were thirteen patients in this series: three were 'cures,' while six were much improved and four improved. It is necessary to exercise care in selecting cases for active treatment, as indiscriminate manipulation may do more harm than good. In a mild case with but little damage to the articular cartilage it may be possible to restore normal function to the foot. In more severe cases however, the object of manipulation is to give sufficient movement to the feet to prevent constant tension on the infiltrated and contracted periarticular tissues.

MANIPULATIVE TECHNIQUE

An anaesthetic is essential to successful manipulation in all but the slightest cases, as complete muscular relaxation is required. A straight gas is enough for a simple case, but more severe cases need rather longer time than is given by gas alone. The amount of force used by the manipulator is considerable but if the feet are very stiff, it is not advisable to do too much at one sitting, because the bruising and reaction may then be so great as to make it impossible for the patient to maintain the improvement, and fresh adhesions will form. It may be necessary to manipulate the feet two or three times to restore the full range of movements: the amount to be done each time can only be judged by experience. After treatment is an integral part of all manipulative therapy. It consists of massage and exercises to ensure that the whole range of movements gained by manipulation is maintained without the adhesions reforming and to strengthen the muscles of the feet, thus protecting them against fresh injury.

Manipulation should be performed in a controlled manner avoiding sudden jerking movements which are necessarily uncontrolled. The operator's elbows are held close to his sides, and power is obtained from his whole body weight. First the knee is flexed the foot is grasped just below the ankle with one hand and the leg held above the knee with the other. Traction is then made in the direction of the long axis of the leg, this slightly separates the joint space of the ankle and permits a small amount of antero-posterior and lateral movement. Next, with the knee still bent, the ankle is fully dorsiflexed. The knee is now straightened and held steady by an assistant. The leg is still held above the ankle with one hand, the forefoot is grasped with the other, and full plantar flexion, inversion, and eversion are obtained. It necessary greater power can be brought to bear on the astragalo-cuboid ligaments and the lateral ligaments of the ankle by holding the heel with one hand, the mid-tarsal region with the other, and adducting or abducting the foot round the thumbs as a fulcrum. The grip is now shifted so that the foot is held with one hand on each side of the line of the tarso-metatarsal joints and while tension is maintained to open up these joints



among the best in the volume. Illustrations are unfortunately scanty throughout, and of indifferent quality. Few would recognize in Fig. 31 the characters of acromegaly. The bibliography, which is arranged with regard to each chapter, is a most valuable feature of the book.

This is a work more easily criticized than praised, and yet there is a great deal of valuable material within its covers. Advanced students will be well advised to read it, especially those who are in a position to undertake first-hand study of diseases of the nervous system as they occur in the wards or out-patient department of a hospital.

PULMONARY TUBERCULOSIS IN THE YOUNG

That medicine is not an exact science and that the physician is a naturalist rather than a scientist are facts that are often lost sight of by those who contribute to medical literature, a literature that sadly needs the refreshing leaven provided by such books as Dr. ALIBERT'S *La Tuberculose Pulmonaire de l'Adolescent*.[2] Here we find no claim to omniscience and no pretension to exhaustiveness, but simply a close study of the pathogenesis of 743 cases of adolescent pulmonary tuberculosis from which the author has drawn his very logical conclusions and has critically examined the relation of these to current opinions. Where he finds himself unable to agree he makes no ponderous attack upon his adversary, but contents himself with a few flashing rapier thrusts—often very penetrating ones—to further his contention. It is such lightness of handling that makes this excellent book so particularly readable. The English reader will realize at once that the problem of adolescent phthisis in France differs somewhat from our own—another example of local differences in the manifestation of tuberculosis. Dr. Alibert's study of primary infection in this age period is particularly interesting. He demonstrates its close similarity, clinically and pathologically, to the primary infection in childhood, and stresses its benign course if it can be recognized and treated in its early stages. This study takes us back to our own much ridiculed "hilus tuberculosis," on which it throws a good deal of light. Great importance is placed on the situation of the lesion of the primary infection, especially in relation to the development of later disease of the adult type. Briefly stated, Dr. Alibert contends that primary infections are usually perihilar. He divides them into three anatomical types—suprahilar, parahilar, and subhilar—and states that 79 per cent. of the localized early infiltrations of the adult type arise directly from old suprahilar primary infections. His critical study of the pathological and clinical entity of Landouzy's "typho-bacillose," which has for so long been unquestioningly accepted in France, is a very valuable part of the work. This is a book which should be read not only for instruction by those who are interested in tuberculosis or diseases of adolescence, but also, as a technical model well worthy of study, by those who are contemplating authorship.

Although Professor MYERS has written his new book, *The Child and the Tuberculosis Problem*,[3] in popular rather than scientific language it is not a work that can be regarded as a piece of pure public health propaganda, good propaganda though it is. The author's long term of specialization in this particular subject commands a respectful attention to every statement he makes, and it must be admitted that some of his suggestions are so radical that without his authority they would be in danger of a curt dismissal as too new and too unpalatable. Professor Myers reiterates his belief that the danger from tuberculosis lies in massive and repeated infection, that this danger is not only confined to childhood, and that in the prevention and control of infection is to be found the method of controlling the manifest disease. Those who are inclined to disagree with the practicability of this campaign should certainly read this well-thought-out exposition of it, presented as it is with characteristic American intensity. As propaganda material the grim little diagrams with which the book is illustrated are excellent.

SMALL-POX IN EGYPT

In a work issued by the Egyptian Ministry of the Interior on *Small-Pox in Egypt*[4] Dr. AHMAD HILMY BEY, Assistant Under-Secretary of State for Public Health, gives a survey of the disease in Egypt from the time of its first appearance in that country until the present day, with tables showing the number of cases and deaths from 1886 until 1931, the distribution of the disease in various parts of the country, and the quantity of lymph issued. Of recent years two important epidemics have occurred in Egypt, one in 1919-20 and the other in 1926. In 1919 there were 7,895 cases notified, and 3,004 in 1920. The death rate for 1919 was 24.39, while that for 1920 is not stated. The first general vaccination was carried out, and in the course of the three years 1919-21 no fewer than 6,000,000 persons were vaccinated, with the result that there was a decrease in the number of small-pox cases, which began in the second half of 1920 and continued throughout 1921; but subsequently a rise took place. It was not, however, till the end of 1925 that another epidemic began, and continued until the early part of the summer of 1926. The total number of cases notified in Egypt in 1926 was 2,676, with 542 deaths, or a mortality of 20.25 per cent. The principal causes for the epidemic of 1926 appear to have been, first, the fact that more than half the population of Egypt was left unvaccinated in 1919, and secondly, the weakening of immunity of those who had been vaccinated in 1919. The second general vaccination was therefore instituted, with the result that the incidence of small-pox fell from 2,676 cases with 542 deaths (20.25 per cent.) in 1926, to 240 cases with 34 deaths (14.17 per cent.) in 1927. Only twenty cases with four deaths were notified in 1928, and twenty-six cases, of which 19 were imported, with four deaths, in 1929; while in the two following years there were only fourteen and ten cases respectively, of which twenty were imported, with no deaths.

HUMAN ODONTOGRAPHY AND HISTOLOGY

Odontography Mr. HERMAN R. CHURCHILL defines as dealing "with the description of the internal and external configuration, position, structure, attachment, and interrelation of the human teeth, and the correlation of the dental arches," and to it he devotes the "larger half" of his book.[5] The individual teeth and their anatomical relations are described minutely and clearly, and special attention is paid to the temporary teeth, which the author feels are generally neglected. In this section are included short descriptions of the blood, nerve, and lymph supply of the teeth, and an appendix contains some useful reference tables, of which those showing the incidence of root canals in the permanent and in the

[2] *La Tuberculose Pulmonaire de l'Adolescent*. Par André Alibert. Preface du Dr. Courcoux. Paris: N. Maloine. (Pp. 180; 11 figures. 25 fr.)

[3] *The Child and the Tuberculosis Problem*. By J. A. Myers, Ph.D., M.D., F.A.C.P. Introduction by William P. Shepard, M.D., F.A.P.H.A. London: Baillière, Tindall and Cox. (Pp. xvi + 230; 10 figures. 17s. 6d.)

[4] *Small-pox in Egypt*. Its History and Control. By Dr. Ahmad Hilmy Bey. Published by the Ministry of the Interior, Egypt, Department of Health. 1933. (Pp. 29.)

[5] *Human Odontography and Histology*. By Herman R. Churchill, D.D.S. A textbook for undergraduates and graduates in dentistry and dental hygiene. London: Henry Kimpton. 1933. (Pp. 258; 248 figures. 21s. net.)

temporary teeth call for special attention. The second part contains a short, but entirely sufficient, description of the body tissues the dental student deals with and of their embryology. As was to be expected the chapters on the dental tissues are the most exhaustive and the most interesting. In discussing enamel the author notes that recent crystallographic methods of investigation show that enamel rods "comprise crystals which belong to the hexagonal system," and quotes S. E. Pond's suggestion that, as solidification proceeds in the rods, the mass assumes the hexagonal form. In describing the tooth pulp the author bluntly states that the ultimate terminations of the nerves "arborize around the fibrilloblasts, but enter neither these cells nor the dentinal tubuli."

Throughout the book the illustrations are pertinent and of a high quality, but the author has reserved his best for those chapters on the dental tissues. Some space, we think, might have been devoted to root-forms in relation to the difficulties of extraction, and "secondary dentine" might well receive more extended notice. British dentists will note with pleasure that the book is dedicated to the memory of Arthur Hopewell Smith. Hopewell Smith's last contribution to dental science was a paper suggesting that the multinuclear giant cells which fill Howship's lacunae are rather of the nature of dead or dying cells than active growing cells, and we are glad to see that the suggestion has not escaped the author's notice.

X RAYS IN BIOLOGY

In his book on *Homogeneous X Radiation and Living Tissues*[6] Dr. MOPPETT republishes a great deal of his former work with considerable additions. His experiments, conducted upon the chorio-allantoic membrane of the chick embryo, lead him to the conclusion that *x* rays of some ranges of wave-length have a stimulating action and produce hypertrophy, while other ranges have an inhibitory influence and lead to atrophy. The work has aroused a considerable amount of criticism, some authors maintaining that similar results can result from bacterial infection or from injury, and that the effects produced are of the nature of a secondary change. In any case the chorio-allantoic membrane of the chick embryo is one which exhibits simultaneously hypertrophic and atrophic areas normally, as part of the ordinary life-history of a structure which is itself evanescent in nature.

LAWS OF ANIMAL METABOLISM

Nutrition[7] is a posthumous work of Dr. GRAHAM LUSK, which forms one of the series of primers on the history of medicine published under the general title of "Clio Medica." This small pocket volume of 142 pages must be regarded as an artistic production of high quality. The author deals with the development of a single idea—namely, the laws governing animal metabolism. He shows how these laws were gradually revealed by the labours of a dozen men of genius during the eighteenth and nineteenth centuries. Incidentally, he gives a short but very clear account of the extraordinary intrusion of the phlogiston doctrine into chemistry and the manner in which it hampered all advance for a century. The special merit of the work is that all the persons concerned are revealed as living figures. This is a remarkable achievement in view of the small size of the volume and the large field it covers, but the following quotations from a preface by Professor E. F. DuBois indicate the factors that made it possible.

"*I* do not know of anything that gave Lusk more pleasure than the preparation of this brief history of nutrition. After forty-two years of teaching and the most fruitful type of brilliant research he devoted his spare hours to recording the deeds of his predecessors. No man in the field of metabolism possessed a greater knowledge of the literature, no man had a better appreciation of the *old masters* . . . The mind of Graham Lusk was a special Valhalla to which [illegible] veyed dead heroes of the test tube or stethoscope [illegible] were reserved for living heroes, for no man was more generous in appreciation of his contemporaries than was Lusk."

This little work is therefore a history compiled under the most favourable conditions possible—namely, as a labour of love by a master of the subject.

Notes on Books

The volume on *Radium*[8] issued by the Union Minière du Haut Katanga is now an old friend, and has grown from a modest pamphlet to a portly tome of nearly 350 pages, with numerous illustrations and excellent diagrams. For the greatest part of the book we have unqualified praise, and from personal experience can recommend it as a valuable work of reference for the laboratory and for teaching purposes. We think, however, that the sections on the biological action of the rays and on therapy would have been better omitted. As regards the former, the space available is quite inadequate; as regards the latter, we think it calculated to give a wholly erroneous impression of the very great difficulties attending the subject. The illustrations of the different methods of application are excellent, and give a good idea of the various procedures from many distinct sources. Brief epitomes of different methods of treatment and the enumeration of conditions in which radium may be "useful" are, however, quite another matter, and encourage a tendency which needs curbing rather than stimulating—namely, the idea that all that is necessary for radium surgery is a sufficiency of radium and a fair knowledge of operative technique.

Appearing now in its seventh edition, Dr. CUMBERBATCH's *Essentials of Medical Electricity*[9] maintains its high place as a standard textbook on the production and use of electricity for therapeutic purposes. The new edition is especially valuable for the more comprehensive account it gives of high-frequency and diathermy. Whereas in the last edition one chapter dealt with this subject, there are now seven chapters concerning high-frequency in general, its physical properties and production, and its uses in treatment. The author suggests the adoption of the term "electrothermic" to describe currents which depend for their therapeutic effect on the production of heat. In connexion with the development of "artificial fever" by diathermy, it is interesting to consider the possibility of its use in the treatment of dementia paralytica, instead of the more drastic malaria treatment. A welcome feature of the new series of plates illustrating the motor points in testing electrical reactions is that they also show the muscles represented by each point. Among the other illustrations are some that are not as good as they ought to be in such a very excellent and practical book.

With the increasing use of interferometric methods in clinical diagnosis a small elementary book on the subject may well be useful, and this M. DURUPT has endeavoured to supply in his manual *L'Interférométrie en Clinique*[10] which is clearly written and contains a bibliography of the subject.

[6] *Homogeneous X Radiation and Living Tissues.* By Warnford Moppett, M.D., Ch.M. Sydney; Australasian Medical Publishing Company, Ltd.; London: H. K. Lewis and Co., Ltd. (Pp. 133; 75 figures. 12s. 6d. net.)

[7] Nutrition. By G. Lusk, Sc.D., M.D., LL.D. Clio Medica X. New York: Paul B. Hoeber, Inc. 1933. (Pp. xi + 142; 13 figures. 1.50 dollars.)

[8] *Radium.* Brussels: Union Minière du haut Katanga. [illegible] Chemical Service Co., Ltd. (Pp. 346; 131 figures.

[9] *Essentials of Medical Electricity.* By E. P. Cumberbatch, M.A., M.B., D.M.R.E. Seventh edition. London: Henry Kimpton. 1933. (Pp. xiv + 508; 5 plates, 132 figures. 16s. 6d. net.)

[10] *L'Interférométrie en Clinique.* Par A. Durupt. Collection des actualités de Médecine Pratique. Paris: G. Doin et Cie. (Pp. 284; illustrated. 28 fr.)

In his work on *Sex Efficiency through Exercises*[11] Dr. TH. H. VAN DE VELDE, whose triology on marriage is well known to English readers, gives a detailed account, profusely illustrated by photographs, anatomical diagrams, and a cinematograph supplement, of the pelvic exercises to be carried out by women for the threefold purpose of efficiency in coitus and parturition and prevention or alleviation of gynaecological diseases. A bibliography of recent work is appended.

We have received the *Register of Members*[12] of the Chartered Society of Massage and Medical Gymnastics, which covers the period from July, 1920, to April, 1933. In the present issue mention is made of additional professional qualifications possessed by members such as nursing (general and special), midwifery, educational gymnastics, and dispensing. Changes of address have been recorded. In addition to the alphabetical lists of over 9,000 masseuses and masseurs there is a valuable place index which enables those practising in various districts to be identified at once—a convenience to general practitioners. It may be recalled that the rules of the society prevent members from undertaking any case except under medical direction, from advertising except in recognized medical and nursing papers, and from selling goods to patients in a professional capacity or accepting secret commissions on the sale of goods. It is therefore advisable that this *Register* should be fully utilized by medical practitioners who have occasion to prescribe massage or medical gymnastics. A similar register of members practising in Scotland is published by the Scottish Local Board. Mention is made in it of the two orthopaedic clinics at Edinburgh and Glasgow respectively, and of the training schools at Glasgow for men and women. The address of the Scottish Local Board is 25, Queensborough Gardens, Glasgow.

A new edition has appeared of *Bradshaw's Continental Handbook and Directory of Bathing Resorts*. This useful little guide is published, at 3s. 6d. net, by Henry Blacklock and Co., Ltd., Bradshaw House, Surrey Street, W.C.2.

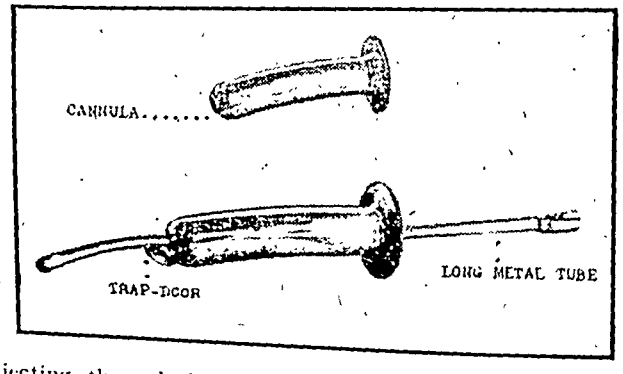
[11] *Sex Efficiency through Exercises.* Special Physical Culture for Women. By Th. H. van de Velde, M.D. London: William Heinemann (Medical Books), Ltd. 1933. (Pp. xvii + 163; illustrated. 25s. net.)

[12] *Register of Members of the Chartered Society of Massage and Medical Gymnastics.* Tavistock House North, Tavistock Square, W.C.1. (Pp. 371. 4s.)

Preparations and Appliances

AN INTRAUTERINE CANNULA

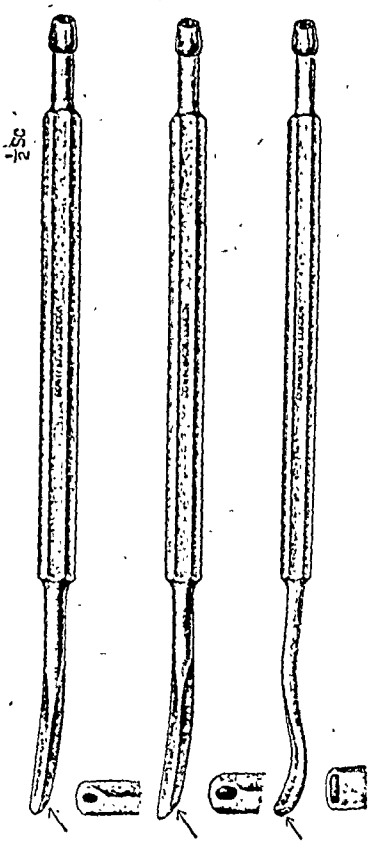
Dr. F. R. PARAKH (Bombay) writes: Anyone who has been injecting mercurochrome-glycerin into the uterus for septic conditions must have experienced certain difficulties in keeping the medication in the cavity for any length of time.



Injecting the solution with an ordinary rubber catheter or long metal tube, and removing the same immediately afterwards, drains away the liquid, especially when the cervix is not closed. This cannula, which is made in three different sizes to suit individual cases, has a small trap-door, which opens one way only. A long intrauterine metal tube, fixed to an ordinary 20 c.cm. Record syringe, is passed through this cannula into the uterine cavity. The solution is injected, and the tube removed, allowing the trap-door to close. As the cannula is tightly fitting the cervix, and the trap-door is closed, no fluid can escape, and the cannula can be allowed to remain as long as necessary. I have to thank Messrs. N. Powell and Co. (Bombay) for making this instrument for me.

"SUCKING DISSECTORS" FOR TONSIL ENUCLEATION

Dr. R. R. WOODS, F.R.C.S.I. (Dublin), writes: The idea of a tonsil enucleator which also removes the blood from the field of operation is so simple and such a good one in practice that one wonders that it has not already become universal. Such an instrument was described in the *British Medical Journal* (September 10th, 1932, p. 520) by Mr. Lowndes Yates, but it suffered from the disadvantage that the suction canal was too far removed from the cutting edge. The essentials for a sucking dissector are: (1) The dissector must be an efficient instrument, and its efficiency must not be diminished by the presence of the suction canal. (2) The canal must open as near the cutting edge as possible in order that the blood may be removed from the actual tissue that is being cut. (3) The canal must be capable of rapidly removing blood when used with a reasonably efficient pump.



The instruments illustrated here have been made to my design by Messrs. Down Bros. The dissectors are triangular on transverse section; in the apex of the triangle runs the suction canal, while the angles at the base form the cutting edges. These angles are about 60 degrees, and when sharpened the edge is exactly the type that enucleates most efficiently. It is easy to cut through the mucous membrane without damaging the tonsil capsule, and one thus finds the right "layer" without difficulty. At the same time the toughest bands of fibrous tissue can be severed. The canal opens at the very end of the instrument directly adjacent to the cutting edge, and it is large enough to break up a blood clot when used with an electric suction pump. In spite of this the instruments are not bulky. I use a foot switch to control the pump during the operation. The smaller of the two instruments is used for making the initial incisions and for freeing the upper pole of the tonsil. The larger one is used after the upper pole is free for sweeping out the remainder of the tonsil. The curved retractor enables one to retract the anterior pillar so as to get a good view of the tonsil bed and at the same time to suck out blood so that the securing of bleeding points is greatly facilitated.

The advantages of these instruments are: (1) The time of operation is at least halved. (2) An operation which is occasionally difficult is rendered very much easier. (3) Everything is done under perfect visibility. (4) There is less haemorrhage. The perfect visibility means that less damage is done to the tonsil bed and a cleaner dissection results. (5) There is less post-operative pain. The throat is not rubbed by swabbing and sponging, and consequently the mucous membrane is less damaged. When using these instruments enucleation of the tonsil becomes a quicker, safer, and easier procedure.

THE BRITISH ASSOCIATION

ANNUAL MEETING IN LEICESTER

(Concluded from page 534)

PSYCHOLOGY AS AN EMPIRICAL SCIENCE

Professor T Aveling took for the subject of his presidential address in the Section of Psychology the status of psychology as an empirical science Quoting Sir Arthur Eddington— Mind is the first and most direct thing in our experience, all else is remote inference '—he said this might mean either that we directly apprehended the mind as an experiencing entity, or that we knew—and only knew directly—phenomena, the objective mental contents and subjective states which, as at one time was widely held, constituted our minds or consciousness Professor Aveling maintained that we knew both the former as an existent in every act of experience, and the latter as events within experience There was more in " mind " than the sensory experiences which formed the starting point for physical science All the sciences of Nature began in sensory experience and abandoned it for conceptual construction returning once more to experience to verify their constructive work The function of science was not only to theorize but also to predict and control, and only in the immediacy of experience could the accuracy of the predictions be tested or the competence of the controls be established The empirical sciences that began with sensory material worked from this towards its explanation on conceptual lines and derived the force of conviction with which they impressed us from the fact that they were ultimately based upon the evidence of our senses Both empirical and physical sciences, however, were selective of their material, and left out of account much experience which, as such, was as good as any other Professor Aveling said that if seeing was believing, and mathematical proof convincing, the immediate living experience of himself knowing, and feeling, and willing was most impressive of all He suggested that these neglected experiences were necessary to explain the constructions of the empirical sciences of Nature After an elaborate discussion he concluded that, provided the meaning of the term was not limited to sensory experience only, but was extended to all and everything that might be experienced psychology was the most empirical of all the sciences

NARCOSIS AND MENTAL FUNCTION

Dr J H Quastel read a paper on this subject in the Section of Psychology, pointing out that the psychological effects of oxygen want (anoxaemia) resembled in many ways the reactions present in psychotic and neurotic conditions, and those found also in alcoholism and light narcosis Study of the biochemical basis of narcosis had shown that narcotics acted, apparently, by preventing the nerve cells from receiving the amount of energy necessary for their functional activity This they did by bringing about a condition equivalent to anoxaemia, not by interfering with the amount of oxygen present but by diminishing the ability of the cells to oxidize substances (glucose, lactic acid) which formed the main fuel of the cells Further study had shown that substances normally formed in the body, and normally broken down in the liver, had effects similar to those of narcotics so that a disturbance of the detoxicating powers of the body might lead to conditions the psychological conditions of which would resemble those found in oxygen want The treatment of psychotic conditions by prolonged narcosis was extremely important Dr Quastel suggested that the success of this form of therapy depended on the removal during the narcotic stage of toxic metabolites or fatigue products in the brain The main danger in this treatment was the disturbance in the carbohydrate metabolism of organs, such as the liver, whereby intense ketonuria might be established The introduction of the glucose insulin modification of prolonged narcosis treatment had removed this danger, so that this form of therapy was now comparatively safe

DISORIENTATION AND VERTIGO

A joint discussion on disorientation and vertigo was held by the Sections of Psychology and Physiology The opener, Dr J T MacCurdy gave examples of the dependence of spatial orientation on the balancing system When this latter was disturbed disorientation resulted and a secondary psychological confusion produced a failure to recognize objects In normal circumstances balance depended on postural and righting reflexes which were stimulated by changes in otolith organs semicircular canals, muscle tensions, deep pressure and vision The muscular system was the most important it had an incredibly low threshold and speed of reaction and was unconscious There was probably awareness only of exaggerated response—namely when balance was lost awareness was for disequilibrium not equilibrium Dis equilibrium was sensed by vision and the vestibular proprioceptive organs This was illustrated in flying which demanded an acquired balancing reaction until this was gained visual orientation was difficult or even impossible Hence there was conflict and giddiness until the aeroplane was treated as part of the body Conflict led to excessive proprioceptive stimuli because reaction did not abolish stimulus as in effective balancing This led to nausea via excessive and incoordinate reflex response The normal response to such an event as alighting on the ground when jumping was extensor tension and rigidity of the abdominal wall to prevent displacement of the viscera If this was rapid and effective the diaphragm did not move and there was no consciousness of trunk muscle response If it was ineffective a diaphragmatic tug resulted such as was felt in lifts A co ordinate response involved accurate muscle contraction and, if this had to be maintained a change from diaphragmatic to costal breathing With an incoordinate response the diaphragm worked against a rigid abdominal wall, the abdominal contents were squeezed as in vomiting, and, if this persisted the whole nausea vomiting cycle was evoked In the other type there was a general rigidity of the limbs and trunk in an exaggerated and incoordinate effort to prevent displacement of the body This included rigidity of the abdominal muscles and so the same result ensued Dr T G Maitland discussed rectilinear movement as a cause of general vertigo including the relation of general to special vertigo in so far as they both resulted from passive displacement Among modern forms of locomotion the best example of displacement causing general vertigo was the swift vertical drop in a lift, and of that causing special vertigo the flat spin of an aeroplane Such movements as those caused by swings switchbacks aeroplanes passing through air pockets and boats in a rough sea had angular direction but the resulting vertigo was general rather than special implying the activity of a rectilinear factor Dr Maitland then considered the relation of the semicircular canals to rectilinear movement and concluded with an interpretation of vertigo and its biological significance

FACTORS IN THE PROCESS OF OSSIFICATION

Professor R Robison F R S opened a discussion in the Section of Physiology on ossification by indicating the close biological relationship existing between the two histologically different routes in the development of the calcified animal skeleton—namely, that which led primarily to calcified cartilage, and that which led directly to bone formation He stated that phosphatase was synthesized by both hypertrophying cartilage cells and by osteoblasts, both also, at a certain stage in their development, secreted in the intercellular spaces a specialized ground substance, which possessed properties distinct from those of the enzyme but were [illegible] normal calcification In the animal the amount of calcium salt might lag somewhat behind the formation of this specialized matrix but the presence and extent of the latter could be demonstrated by calcification in vitro In embryonic rabbit femora and tibiae the hypertrophic

cartilage had been found to be fully calcifiable, possessing both phosphatase and the second essential mechanism. In the rudimentary long bones of fowl embryos, however, the cartilage hypertrophied and synthesized phosphatase, but did not at once become calcifiable. The full calcifying mechanisms were subsequently developed in parts of the cartilage, but part became eroded without acquiring these powers. Similar stages in the development of the calcifying mechanisms had been noted in cultures of endosteal bone grown *in vitro*. The area of calcifiable tissue was sharply defined, and did not include the whole of the osteoid. No explanation had yet been obtained of the second calcifying mechanism. The calcification *in vitro* of other tissues, such as those of the kidney and aorta, had also been effected by prolonged immersion in calcifying solutions, but these experiments had emphasized still more strongly the special properties exhibited by the fully developed hypertrophic cartilage and osteoid tissue. Dr. Honor B. Fell dealt with the disputed conception of the osteoblast as a specific bone-forming cell. The views that osteoblasts and fibroblasts were identical, and that ossification was caused by the presence of an excess of calcium in a young and highly vascularized connective tissue, had not been supported by experiments *in vitro*. In these, the osteoblasts from the embryonic fowl mandible, and from the periosteum and endosteum of the developing limb bones, when isolated from the body and cultivated under standard environmental conditions, readily formed bone *in vitro*, while similar cultures of connective tissue, growing under the same conditions, did not ossify. These results implied that the osteoblast possessed inherent bone-forming properties which were lacking in the ordinary unmodified fibroblast. A close histogenetic relationship existed between the osteoblast and the hypertrophic chondroblast, and tissue culture experiments had shown that the one type of cell could be directly transformed into the other.

Professor H. D. Kay said that the clearly demonstrated importance of phosphatase in the deposition of bone salts had recalled attention to the fact that phosphorification as well as calcification took place in growing bone. The phosphatase mechanism was also possibly concerned with bone resorption, for *in vitro* experiments had shown that under certain conditions bone salts could be transformed again into soluble phosphoric esters in the presence of phosphatase. In experimentally induced abnormal bony conditions changes in the phosphoric ester content of the tissues had been observed. The marked increase in the phosphatase content of the blood which was frequently associated with diseases involving the skeleton had been shown to be reversible after adequate therapeutic measures had been taken. The production of experimental rickets in rats on a normal diet containing vitamin D, by adding small quantities of beryllium carbonate to the food, had supplied evidence in support of the view that one of the major activities of this vitamin was to stimulate the intake of phosphorus through the intestinal wall. Dr. Leslie J. Harris, discussing vitamin action and bone formation, put forward a theory that vitamin D acted primarily by raising the blood calcium-phosphorus balance, causing increased absorption of calcium and/or phosphorus from the gut, and diminished excretion into it. This theory accounted for many well-known facts, such as the association of rickets with a high faecal and a low blood and bone calcium and phosphorus content, and enabled it to be predicted that overdoses of the vitamin should cause hypercalcaemia and/or hyperphosphataemia, and hence excessive calcification, for instance, at the growing end of the bone. These effects had been experimentally confirmed. The widely advocated theory that vitamin D acted by stimulating the parathyroid gland had been disproved by showing that the latter, in contrast with vitamin D, did not increase the net absorption of calcium and phosphorus, and acted by withdrawing calcium from bone, thus causing loss to the body. The primary effect of vitamin C deficiency was to bring about degeneration of osteoblasts, odontoblasts, ameloblasts, etc.; hence the consequent cessation of osteogenesis. Other effects in the hard tissues were secondary. Dr. Donald Hunter stated that it had been shown by clinical, biochemical, radiographic, and histological evidence that two hormones influenced the metabolism of bone. The parathyroid hormone raised the serum calcium, depressed the plasma phosphorus, and caused an excessive excretion of calcium in the urine. The thyroid hormone raised the excretion of calcium in both the urine and faeces, but there was no increase in the serum calcium. In both hyperparathyroidism and hyperthyroidism calcium was removed from the skeleton; in both cases the mechanism of removal was a lacunar resorption by osteoclasts.

CHEMICAL CONTROL OF THE CIRCULATION

Another discussion in the Section of Physiology was opened by Sir H. H. Dale, Secretary of the Royal Society, who remarked that the study of the chemical control of the circulation had begun with the discovery of adrenaline and of the pituitary pressor principle. The former was predominantly augmentor to vascular tone, although there was evidence that its actions included a vaso-dilator effect. It had long been thought improbable that there was any organ of internal secretion which formed a hormone predominantly vaso-dilator in function, although depressor substances had been found in most tissues. The first of these to be identified was choline. The next discovered was histamine, which had been shown to exert a dilator effect on the minute vessels, complicated to different extents in different species by a constrictor action on the larger arterioles and venules. This substance played an important part in the effects of local injuries to the skin. Another dilator substance, an unstable choline ester indistinguishable from acetylcholine, was liberated as the result of stimulating various parasympathetic nerves and the arterio-dilator branches of sensory fibres. Further vaso-dilator substances discovered in recent years were the adenosine series, constituents of muscle extracts, and kallikrein, which appeared to circulate in an inactive form in the blood, and to be rendered active by a rise in acidity. None of these substances seemed to act as a true hormone. It appeared possible also that adrenaline might be retained peripherally in an inactive form, to be released by sympathetic nerve impulses as a humoral transmitter of their effects. Professor J. H. Burn said it had been shown that vaso-constrictor substances such as tyramine and ephedrine exerted only a slight effect when injected into the arterial system of the body wall and limbs of cats or dogs perfused by defibrinated blood; similarly, stimulation of the sympathetic chain exerted only a slight effect. The constrictor effect of tyramine, of ephedrine, and of sympathetic stimulation was increased if adrenaline was continually added to the blood used for perfusion so as to maintain a uniform concentration. The addition of adrenaline had the further effect of bringing to light dilator effects following the injection of ephedrine and the stimulation of the sympathetic chain. The effect of a maintained concentration of adrenaline on the tyramine response was exerted *pari passu* with its effect on the histamine response, and also with a similar effect on the response to acetylcholine. The vaso-dilator effect of small doses of adrenaline was not seen in circumstances in which vaso-dilatation from sympathetic stimulation occurred. The effect of adrenaline was considered to be an effect on the vessel walls in general, and not on the neighbourhood of the sympathetic terminations in the walls. Dr. A. N. Drury added that adenylic acid, isolated from muscle, had a depressor activity which was shared by related compounds such as adenosine, yeast adenylic acid, and yeast cytidylic acid. There was evidence that in muscle extracts a depressor substance was present, in addition to adenylic acid, which had very similar properties to yeast cytidylic acid. Adenylic acid had been isolated from the blood, and was considered to be the substance responsible for the "primary toxicity" of fresh defibrinated blood. It was liberated from damaged muscle, and might play a part, therefore, in the dilatation of vessels which accompanied injury. It produced also a local dilatation and leucocytosis, and might be responsible for the phenomenon of tissue

damage It was quickly inactivated by the tissues, so that it must be liberated continually if it was to produce a lasting effect Dr J H Gaddum discussed the two arbitrarily termed substances kallikrein" and 'P substance,' which appeared as vaso dilators in some tissue extracts, and had baffled chemists Both produced a fall of pressure in animals which had received atropine, and had so been rendered insensitive to choline Both were distinguishable from histamine by being unstable in acid solutions and producing a fall in blood pressure in etherized rabbits They differed from adenosine by being unstable in alkaline solutions Kallikrein had been obtained from urine and blood, but had been found in a particularly high concentration in the pancreas It was insoluble in alcohol The P substance was present in intestine and brain distinguishable thus from kallikrein by its distribution and by being soluble in absolute alcohol Further knowledge about the general actions and significance of these two substances would only be obtained when better methods of purification had been devised

MILK PRODUCTION AND DISTRIBUTION

A discussion on milk production and distribution in relation to nutrition and disease took place in the Section of Agriculture, which Professor T J Mackie opened with a paper on the milk supplies of the country in relation to the public health He said that the hygienic problem still awaited an effective and practical solution The community needed an abundant supply of clean milk but the consumption of this commodity in this country was relatively low It was difficult for the medical profession to urge a fuller use of milk until the existing dangers of disease had been diminished Ordinary raw milk remained a menace to the public health, and immediate measures of control were necessary The necessity for scrupulous cleanliness and intelligence in dairying methods still required emphasizing although it was certainly the case that the large milk distributing agencies were now increasingly improving their methods on scientific lines Professor Mackie advocated a more effective control by public authorities The immediate complete eradication of bovine tuberculosis was he considered, an impracticable policy, and the campaign must progress slowly There was at present little inducement for the individual farmer to clear his herd in face of the extra expenditure involved From the point of view of the public health the Government might justifiably supply the initial stimulus towards the eradication of bovine tuberculosis Since tuberculous milk would be distributed for a long time yet, the only practicable policy was disinfection In view of the facts of milk borne tuberculosis, only two types of milk were justifiably saleable to the public—namely, that from cows which had reacted negatively to the tuberculin test, and that which had been effectively pasteurized Where it was possible to supply these the sale of ordinary raw milk should be prohibited In other districts it should be sold only under a special designation so that the consumer could take steps himself towards sterilizing it Dr N C Wright, dealing with some implications of compulsory pasteurization, said it appeared that the natural outlet for the long established producer retailer was the sale of high grade tuberculin tested milk Compulsory pasteurization might well provide him with a relatively stable if not exclusive market for his milk while making it extremely difficult for the small dealer to continue in business It was not true that pasteurization would discourage clean milk production by masking the inherent defects of milk produced under dirty conditions Reports from cities in which compulsory pasteurization had been in existence for a long time showed that the hygienic methods of handling milk at the farms had definitely improved In any case, any retrograde tendency could be countered by the adoption of a suitable pre pasteurization bacterial standard a course which had been adopted with success in nearly five hundred American cities Even if the voluntary growth of tuberculin tested herds in Great Britain under the Milk (Special Designations) Order was maintained at its present rate, it would take over four hundred years to reach the American standard of freedom from tuberculous infection Mr Ben Davies director of laboratories of the United Dairies Ltd approached the problem from the point of view of the dairy industry He said that the Milk Reorganization Commission had emphasized the necessity of assurance that all milk was produced in accordance with the highest hygienic standards but its demands had been whittled away until they had been reduced to a request for a raw milk which is reasonably safe produced under reasonably clean conditions and as far as possible free from infection It was admitted that the Milk and Dairies Order needed amendment but the chief present objection was the persistent disregard of some of its most necessary provisions In most rural districts the Order was being treated as a dead letter The principle that the attainment of a standard of cleanliness which should be regarded as the natural attribute of all milk was a performance so meritorious as to demand the payment of a bonus or premium was wholly harmful Any failure to maintain such a standard should involve the infliction of a severe penalty It was impossible to accumulate any material commercial quantity of milk at any time or in any part of Great Britain which did not contain the tubercle bacillus and the only safeguard of a pure milk supply was pasteurization

Professor G Selby Wilson stated that in the last twenty years at least 10 000 cases of scarlet fever septic sore throat diphtheria enteric fever dysentery and gastro enteritis had been traceable to milk borne infection while 100 000 persons had developed tuberculosis as the direct or indirect result of drinking tuberculous milk About 500 cases of undulant fever occurred annually in England and Wales where it also appeared to be milk borne Such risks could never be entirely eliminated by measures designed to ensure that all the cows employed were healthy Some form of heat treatment was essential which would destroy all pathogenic bacteria while interfering to a minimal degree with the nutritive value of the milk Until milk was produced under hygienic conditions and exposed to such heat treatment the medical profession could not feel justified in recommending its unrestricted use

THE VETERINARY CONGRESS

The annual congress of the National Veterinary Medical Association of Great Britain and Ireland the name of which it is proposed should be altered to the British Veterinary Association) commenced its annual congress at Llandudno on Monday September 18th under the presidency of Lieut Colonel P J Simpson F R C V S

CONTAGIOUS ABORTION AND UNDULANT FEVER

Dr W H ANDREWS in a paper on Vaccination against Bovine Contagious Abortion and the Relation of this Disease to Undulant Fever of Man agreed with the recent statement of M Fadvean that there is no certain scientific proof of the efficacy of the live vaccine in preventing abortions but he was unable to agree with him in rejecting entirely the field evidence relating to vaccinations conducted throughout the country over a period of nearly twenty years The confidence of the veterinary practitioner, and the willingness of the farmer to pay for the inoculation afforded satisfactory proof that the *apparent* results were good—that is that the number of abortions practically always fell greatly after inoculation General conditions often favoured such a fall but in a number of instances they should favour an increase, and the vaccine was understood to be used very commonly in herds subject to frequent replacement and therefore herds in which the infection had little chance of dying out When suitable strains were used the inoculation probably tended to limit the spread of infection in a herd, but the justification of the use of the method must be based on the extent to which it prevented abortions There was no evidence that vaccination had a curative effect on infected animals but no other

measure could be claimed to exert such an effect. The question of udder infections was one of real importance, and strains used for vaccination should be only of moderate virulence. Eradication by isolation was the ideal method, and should be applied whenever possible; but it could not be undertaken at present in a very considerable proportion of the herds. The "closed herd" method recommended by M'Fadyean was very useful in suitable cases, but did not eradicate infection, and was quite unsuited to the many dairy herds that must be frequently recruited. The author believed that attention to questions of the strain and phase of *Br. abortus* should result in improvement of the live vaccine, and that research on these lines might possibly lead to the preparation of an effective dead vaccine.

The discussion was opened by Captain S. J. Motton, (from the veterinary practitioner's point of view), Captain J. McAllan and Sir Weldon Dalrymple Champney, (from the public health point of view), and Mr. L. E. W. Bevan (from the experimental pathology aspect).

BACTERIOLOGY OF MILK

On Tuesday Mr. G. O. Davies presented to the Public Health Section a paper on "The Significance of Acid-fast Bacilli and *B. coli* in Milk." He said that the undoubted responsibility of bovine tuberculous mastitis for a considerable percentage of human tuberculosis made the reliability of routine methods employed for the detection of tuberculous milk of the utmost importance. In view of this, it was pertinent to consider whether acid-fast bacilli other than tubercle bacilli were likely to vitiate the results of the microscopical or biological tests. He concluded that, provided due care was taken and the results were interpreted in the light of available knowledge, the likelihood of error was remote. The presence of *B. coli* in water had long been accepted as an index of its potability, such organisms being taken to indicate that faecal contamination had occurred. A similar test, the presumptive *B. coli* test, had been introduced into the routine bacteriological examinations of milk, and it formed one of the standards by which the purity of milk was judged. Mr. Davies showed that while the presence of *B. coli* in milk indicated that the methods employed in the production or keeping of milk were at fault, such organisms afforded no indication as to whether faecal contamination had taken place or whether they were present as the result of defective sterilization of utensils or of keeping the milk at a temperature conducive to bacterial growth.

MEAT PRESERVATION

On Wednesday morning Dr. W. R. Wooldridge read a paper on "Meat Preservation," the discussion being opened by Dr. T. Moran. Dr. Wooldridge said that the optimum conditions for the storage of meat were those that inhibited normal enzymic processes of meat autolysis, diminished the rate of oxidation of the fats and of muscle pigment, reduced to a minimum the rate of loss of water, and arrested the growth and enzymic activity of micro-organisms. Meat should always be examined for disease before preservation, and the conditions of slaughter and dressing should be improved. Meat might be preserved by keeping it at a lower temperature than the normal. Conditioning of meat should be carried out at 37° to 38° F. for ten to twelve days. When meat was frozen, ice formed between the muscle fibres, and, on thawing, this water drained away as "drip." With rapid freezing ice formed within the muscle fibres and little drip appeared on thawing. Pork frozen at 14° F. showed little drip. Most bacteria, except the achromobacteria, would not grow at 32° F. Chilled meat should not contain ice, and therefore should not be kept at a temperature below 30° F. Ice-free chilled beef approximated very closely to fresh beef. The preservative action of cold was improved by controlling the humidity and by increasing the atmospheric concentration of CO_2; SO_2 might be used. In canning, the enzymic and bacterial degradation of meat was inhibited by a preliminary heat treatment followed by storage in partially [illegible]ted hermetically sealed cans. Many tins still contained bacterial spores, but that canning was a good method of meat preservation was well shown by the very low incidence of poisoning due to these products. Meat might be preserved by treating with common salt and saltpetre; and it was frequently smoked. The preserving qualities of the smoke were probably due to its surface-drying action and its content of formaldehyde and other antiseptics.

DANGEROUS DRUGS REGULATIONS

CODEINE AND DIONIN

The Home Secretary announces that in consequence of the coming into force of the international convention for limiting the manufacture and regulating the distribution of narcotic drugs, an Order in Council has been made under Subsection (3) of Section 2 of the Dangerous Drugs Act, 1932, applying, with certain modifications, Part III of the Dangerous Drugs Act, 1920, to methylmorphine (commonly known as codeine) and ethylmorphine (commonly known as dionin) and their respective salts.

The Dangerous Drugs (Consolidation) Regulations, 1928, have, by a Provisional Rule dated September 13th, 1933, been so amended that they will not apply to methylmorphine, ethylmorphine, and their respective salts. The effect of the Order is, therefore, that on and after October 1st next these drugs and their salts may not be imported into or exported from the United Kingdom of Great Britain and Northern Ireland without a licence issued by the Secretary of State under the Dangerous Drugs Acts. As regards internal control, regulations will be made in due course controlling the manufacture, wholesale trade in, and possession of these drugs, and will be the subject of a further notice.

Attention is called to the fact that the Dangerous Drugs Act, 1932, does not extend to preparations and other compounds containing codeine, dionin, and their respective salts, and that, therefore, the Order affects only these drugs when not compounded with other substances.

BENZOYLMORPHINE

By Provisional Rule dated September 13th, 1933, the Dangerous Drugs (Benzoylmorphine) Regulations, 1928, have been repealed and the Dangerous Drugs (Consolidation) Regulations, 1928, amended so that the latter now apply to benzoylmorphine and any preparation, admixture, extract, or other substance containing benzoylmorphine. This alteration has been made purely to simplify the Regulations, and does not alter the legal requirement that all transactions in benzoylmorphine must be licensed or authorized by the Secretary of State. Benzoylmorphine is not, as far as is known, used in medicine, and is consequently not found in legitimate trade. It is not manufactured in this country nor imported.

A committee for survey of research on the gonococcus and gonococcal infections has been formed by the Division of Medical Sciences of the U.S. National Research Council, in co-operation with the American Social Hygiene Association. Its purpose is to collect, analyse, and collate the facts already established and the efforts now in progress to add to knowledge of the gonococcus and gonococcal infections, especially as regards bacteriology, pathology, immunity, mechanism of infection, and some of the forms of therapy. At the close of the preliminary survey the committee, assisted by a conference of experts, will compile a report with the object of stimulating interest in the study of the gonococcus, of providing a point of departure, and of suggesting promising leads for further investigation. The survey will cover the literature, but it is hoped that unpublished work, and studies which were incomplete or whose results were inconclusive, may also be included. The chairman, Dr. Stanhope Bayne-Jones, earnestly invites the co-operation of workers interested in this field. Other members of the committee are Dr. Edward L. Keyes, Dr. Walter Clarke, secretary, and Dr. Francis Blake, chairman of the Division, *ex officio*. Headquarters have been established at Room 1101, 450 Seventh Avenue, New York, where communications and reprints will be welcomed.

British Medical Journal

SATURDAY, SEPTEMBER 23rd, 1933

ENDOCRINOLOGY

The continued and lively interest now taken in endocrinology is evidenced by the continued stream of books on the subject. During recent months a number have appeared dealing with it from different points of view, while at the Annual Meeting of the British Medical Association in Dublin last July there was a discussion on gynaecological aspects of endocrinology, of which the two opening papers appear in our current issue. In such a rapidly growing subject it requires courage to attempt an exhaustive monograph, but this has not deterred Dr. W. Engelbach, who has produced three volumes, entitled *Endocrine Medicine*,[1] with an additional index volume. It is probably the most comprehensive study of endocrinology since Falta published his in 1923, for Max Hirsch's *Handbuch*, which is appearing in a number of fasciculi, is still far from completion. The first volume, entitled "General Considerations," has a foreword by Professor Llewelys Barker. As might be anticipated from Dr. Engelbach's earlier works, a good deal of stress is laid on anthropometrical considerations, but for the general reader one of the most helpful sections in this volume is that devoted to the normal histology of the endocrine glands at different stages of life. The second volume deals with the infantile and juvenile endocrinopathies, fully illustrated by photographs of clinical cases. This is one of the most elaborate accounts of the various factors involved in infantilism and dwarfism with which we are acquainted. Volume iii is concerned with adolescent and adult endocrinopathies, which are illustrated in the same lavish manner. Such comparatively recent subjects as hyperparathyroidism are adequately dealt with, though we are surprised to find so little on cortical insufficiency in Addison's disease and the value of cortical extracts in its treatment. This illustrates the almost insurmountable difficulties in the way of producing a monograph on this scale at the present moment of active progress. The author must be congratulated in the first place on his amazing industry: we rise from a study of the book almost bewildered by the mass of details he has accumulated. We might venture a criticism that he has been rather sparing in generalizations which would serve as signposts through this well-wooded forest, but perhaps he feels the time is not yet ripe for this. There can be no doubt, however, as to its value as an encyclopaedic work of reference.

Dr. A. W. Rowe's *Differential Diagnosis of Endocrine Disorders*[2] is designed on a different plan. The first steps in the recognition of endocrine disorders were clinical and the methods of treatment necessarily empirical. Now that the resources of the laboratory have increased so greatly, the time has come to attempt to assess, as accurately as possible, the physical data characteristic of endocrine types and diseases. Only in this way can a check be kept on the present tendency to uncontrolled speculation on a subject which makes a special appeal to the imagination. Dr. Allan Rowe is well known in America for the well-organized studies undertaken in his clinic. His aim in this book is to investigate vital functions by a series of standard tests. Obviously it is not possible to apply such elaborate measures in the routine investigation of cases encountered in general practice, and it is therefore useful to have such a carefully compiled work to which reference can be made. The material is based upon investigations carried on since 1912, in the course of which over 5,000 individuals have been carefully studied by a large group of observers.

But it is not derogatory to such elaborate and scientific productions as these to say that the ordinary reader will find it easier to gather an idea of progress in the subject from Dr. R. Rivoire's *Les Acquisitions Nouvelles de l'Endocrinologie*.[3] It is written in most lucid French, and has the merit of emphasizing the general trend of each of the recent advances. Dr. Rivoire makes no attempt to deal with the classical work on the subject, but the recent acquisitions to our knowledge are clearly defined. We do not remember to have read a better account of the relationship between pituitary and ovarian hormones, and of the bearing of this on disorders of menstruation. It is extraordinary how much information is conveyed in 178 not very closely printed pages. One cannot but admire such a combination of clarity and condensation. Dr. Guy Laroche's *Opothérapie Endocrinienne*[4] was reviewed in these columns when it first appeared in 1926, and this, the second edition, is characterized by the same sanity and reasonableness in its treatment of the new work. This, as its title implies, is mainly concerned with the pharmacology and therapeutics of the hormones, but there are earlier sections on the physiological bases of the endocrines, and clinical descriptions of the various syndromes. Dr. R. G. Hoskins's *The Tides of Life*[5] is a frankly popular exposition of the subject. Yet he is careful to restrain his imaginative and speculative faculties within reasonable compass, unlike some other books dealing with the endocrines in relation to personality. It is true that he states that "their potency is almost unbelievable. Their influence is pervasive in all that we do and are. In the present they co-operate in determining the forms of our bodies and the working of our minds. In the past they have set the pattern of our advancement through the ages." After this the reader is hardly prepared for so moderate and balanced a state-

[1] *Endocrine Medicine*. By W. Engelbach, M.D. Three volumes and an index. London: Baillière, Tindall and Cox. 1932. (The whole, £10.)

[2] *The Differential Diagnosis of Endocrine Disorders*. By A. W. Rowe. London: Baillière, Tindall and Cox. 1933. (23s.)

[3] *Les Acquisitions Nouvelles de l'Endocrinologie*. Par R. Rivoire. Paris: Masson et Cie. 1933. (26 fr.)

[4] *Opothérapie Endocrinienne*. Par Professeur Guy Laroche. Deuxième édition. Paris: Masson et Cie. 1933. (48 fr.)

[5] *The Tides of Life*. By R. G. Hoskins, M.D. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1933. (15s. net.)

seriously ill with fever and a severe degree of anaemia. The mortality rate is very high, but, recently, successful results in as many as 70 per cent. of cases have been reported where adequate treatment by means of "pentose nucleotide K 96" has been adopted. This is a mixture of the sodium salts of pentose nucleotides prepared under the direction of the committee on nucleotide therapy of the Harvard Medical School. According to Chown and Gelfand 10 c.cm. should be injected intramuscularly twice a day until the white cell count has very definitely risen, and then the same dose is given once a day until the white cell count has been essentially normal for at least three consecutive days. As a rule there is no definite change until at least five days after this form of treatment is begun. In none of the cases here reported did this form of treatment appear to produce any effective change or postpone the fatal termination, but in view of the extremely hopeless outlook usually present in agranulocytosis the use of nucleotide to stimulate the bone marrow seems justified and worthy of trial.

ALUMINIUM AND HEALTH

Two recent papers by Lieutenant C. A. Dunbar Mitchell, R.A.M.C.(T.A.), provide a very useful discussion of the amount of aluminium present in food cooked in aluminium vessels.[1] In the last three or four years the methods of estimating small quantities of aluminium have been intensively studied both here and in other countries, and figures are now accumulating on which reliance can be placed. For example, Carnot's gravimetric method, in which aluminium phosphate is precipitated, is liable to serious error if calcium is present; Gwyer and Pullen found that when the estimation was performed at a reaction of *p*H 4.9, a solution containing 2.4 grains per gallon of aluminium appeared to contain fifty times as much; on the other hand, at *p*H 4.5 the correct figure was obtained. It is probably a point of this kind which explains the difference between the amounts of aluminium found by different observers in milk after boiling in aluminium saucepans. Thus, while le Hunte Cooper quoted Eastes as finding 2,000 parts per million, Gwyer and Pullen found 0.16 part per million, Schwartze, Murphy, and Cox (using a method involving conversion to an aurine tricarboxylic acid lake) found 0.6 part per million, and von Fellenberg found 0.7 part per million. The conclusions of Beal, Unangst, Wigman, and Cox are of interest; they have checked their very careful method, described by Mitchell, by adding known small quantities of aluminium to food, and making sure that they correctly estimated the amounts added. They find that when neutral foods are cooked in aluminium there is no appreciable removal of the metal. Acid juices remove up to 13 parts per million from bright pans, and up to three times as much from dark pans. For a man eating a diet of 2 kg. of nothing but stewed fruit, the total amount of aluminium consumed might be as much as 82 mg.; experiments on university students have shown no ill effects to follow the daily consumption of 200 mg. for long periods. For some years the presence of aluminium in cereals, vegetables, and fruits was doubted. From the results obtained with methods recently devised all workers are now agreed that aluminium occurs as a natural constituent, and are also agreed on the order of the amount present. For a representative diet the workers in the Mellon Institute put the daily intake of aluminium at 12 mg., of which 5 mg. is present as a natural constituent of the food. Fellenberg puts the total intake at 16 mg., of which 7 mg. occurs in the food. Dunbar Mitchell draws the conclusion that as the food itself contributes nearly 50 per cent. of the aluminium taken in each day, it is unreasonable to suppose that the aluminium exerts any ill effect.

[1] Aluminium Vessels and Food Contamination, *Journ. R.A.M.C.*, 1933, lx, 99, 161.

DEATH IN DIABETIC COMA

Dr. Herman Lande has written an article on the uncontrolled causes of death in diabetic coma[1] which describes a new syndrome, and merits critical consideration from all doctors who deal with such conditions. Diabetics still continue to die since the introduction of insulin, and most statistics—including recent ones from New York City, analysed by Dr. Lande—show a greatly increased death rate from diabetes in the last thirty years. This is accounted for by the increased incidence of the disease at all ages, while the result of insulin therapy has been to lower the death rate in New York in persons under 35, to keep it constant between the ages of 35 and 45, and therefore to concentrate the increased diabetic death rate into the latter years of life. This is no mean achievement for insulin, although it is ignored by such opponents of insulin therapy as our anti-vivisectionists, who vaunt the increasing diabetic death rate as an argument against insulin without any consideration of the facts that normal life has been prolonged and that even diabetics cannot escape death any more than octogenarians. Dr. Lande's article is immediately concerned with the more interesting problem of death in diabetic coma where all possible means of insulin therapy have been employed. He has analysed the causes of twenty-four deaths among eighty-two cases of coma admitted to the Mount Sinai Hospital, New York, from 1923 to 1933, a death rate of 24 per cent. Of the fatal cases 33 per cent. had complications, such as bronchopneumonia or septicaemia, sufficient in themselves to cause death; 52 per cent. had infections. In the sixty-three uncomplicated cases the death rate was only 22 per cent., so that the effect of complications in increasing the death rate is obvious. The effect of age on mortality is very striking. There were only 12 per cent. of deaths in cases under 40, but 54 per cent. over 40 years. There were no children among these cases, and from several children's clinics we know that the mortality in juvenile diabetic coma is negligible. It appears, therefore, that the younger and healthier the organism the more surely does insulin rescue the patient from coma. The immediate cause of death was usually vasomotor collapse (shock) and the circulatory failure which has been emphasized by writers in this country. Besides this Lande describes (we believe for the first time) ten patients who died in hyperpyrexia, and in seven of these no evidence of infection was obtained. He offers no explanation for this new syndrome, although one might be inclined to ascribe it to the intensive intravenous saline therapy employed in most of these cases. The author does

[1] *Journ. Amer. Med. Assoc.*, July 1st, 1933, p. 9.

not give the details of his treatment, but it is clear that he did not use very large doses of insulin, an average in the first twenty-four hours of 174 units in the fatal and 124 units in the non-fatal cases. He has thought it advisable to buffer each unit with 1 to 2 grams glucose. He lays great stress on the need for combating the dehydration and the circulatory collapse with abundance of fluid, giving this as liberally as possible by mouth—otherwise by rectum, and by subcutaneous and intravenous injection.

"GINGER PARALYSIS"

Several references have been made in these columns to the extraordinary epidemic of peripheral motor paralysis of the legs and arms which occurred in 1930 in the south-east of the United States, as a result of drinking imitation ginger extract.[1] A history of this remarkable catastrophe has recently been written by Kidd and Langworthy.[2] Fluid extract of ginger had been used as a cheap alcoholic beverage for many years in the district concerned, and its popularity was greatly enhanced by prohibition. This increased demand led to the production of cheap imitation substitutes, ginger being relatively expensive. One such substitute consisted of alcohol and castor oil, flavoured with ginger, and, although this hardly sounds an attractive formula, the beverage was popular and harmless. Unfortunately some enterprising person hit upon tri-ortho-cresyl phosphate as a still cheaper and more effective substitute. This compound was used in the manufacture of imitation leather and other commercial processes; it was very cheap, and its slightly burning taste provided a fair simulation of ginger. Nothing was known of the poisonous properties of the compound, and large quantities of this synthetic ginger extract were sold before the medical authorities were suddenly confronted with an epidemic of paralysis of unknown origin. The cause was quickly discovered, but not before 20,000 cases of paralysis had occurred. This epidemic is remarkable for two reasons: first, for the extreme specificity of the toxic effects, and secondly, because that effect is produced by only one compound out of a large series of closely related substances. The lesion resulted in a lower neurone paralysis of the legs and arms, and almost every case showed the same train of symptoms—namely, tingling in the calves of the legs, followed by rapid paralysis of the legs with ankle-drop, which was followed a week later by the same effects on the arms. Very few deaths resulted from this poisoning, but partial recovery occurred only after some months, and in many cases the paralysis still appears to be permanent. The economic loss to the community from this epidemic is estimated at more than £10,000,000. No toxic action of the nature described had previously been demonstrated in the case of any cresol derivative, and it has been shown (Smith *et al*[3]) that the paralysis is only produced by tri-ortho-cresyl phosphate. It is not produced by ortho-cresyl, or by para- or meta-tri-cresyl phosphate. This is a very remarkable example of a sharply specific action produced by only one out of a group of compounds closely similar as regards chemical and physical properties. Curiously enough, tri-ortho-cresyl phosphate poisoning has recently occurred in Europe, for the substance has been used to make imitation apiol—volatile oil of parsley. (Oil of parsley has had a reputation in folk-lore as an abortefacient since the Middle Ages.) Poisoning from this imitation apiol has been reported from Holland, Yugoslavia, Germany, and France.[1 2] The paralytic dose is estimated at from 3 to 9 c.cm. of ortho-cresyl esters. Fortunately the number of cases of poisoning in Europe is small, but it is a remarkable coincidence that the same toxic compound should have been used as a drug adulterant simultaneously in different continents for wholly different purposes.

[1] *British Medical Journal*, 1930, ii, 971; 1931, i, 322.
[2] Kidd, J. G., and Langworthy, O. R.: *Bull. Johns Hopkins Hosp.*, 1933, lii, 39.
[3] Smith, M. I., Elvroe, E., and Frazier, N. H.: *U.S. Pub. Health Rep.*, 1930, xlv, 2509.

SYPHILIS AND CANCER: A PARALLEL

Dr. William Allen Pusey, in his interesting Gehrmann Lectures,[3] recently delivered in the University of Illinois, draws attention to the advances which clinical medicine had made in connexion with syphilis before the discovery of the specific organism in 1905.

"By the latter half of the eighteenth century there had been accumulated a great fund of knowledge about syphilis. To enumerate only some of the important items. The symptoms had been fully described, the distinction between gonorrhoea and chancroid and syphilis had been made. The enormously important subject of syphilis of internal structures had been worked out by many investigators. Hereditary syphilis was well known and its most important facts described. The dangers and importance were recognized of extragenital infections and of mediate transmission of the disease; of infection by kissing and by innocent contact with infected individuals, as of children sleeping with syphilitic parents or of physicians and midwives from syphilitic patients; of infections from surgical instruments and from contaminated utensils. What a record of achievement in knowledge this is!"

But the cause of the disease was wholly unknown until in a moment, in the twinkling of an eye, one day in April, 1905, Fritz Schaudinn demonstrated the spirochaete—the *causa causans*—in the secretions of one of Erich Hoffmann's patients. To-day we are in a similar position in regard to cancer. Dozens of facts have been collected, many theories have been advanced, experimental evidence is not wanting. Physicians, surgeons, pathologists, epidemiologists, and statisticians are on the alert and we are where we were with syphilis at the beginning of the year 1905. *Nil nisi clavis deest.* The key may be found at any moment. The discovery of the *Spirochaeta pallida* put all the facts in their proper order, and syphilis took its place as an infective disease which could no longer be looked upon as a Divine retribution for infraction of the moral law. It became capable of scientific investigation and it could be treated on rational lines. Dr. Pusey's lectures are remarkably well illustrated by a series of portraits.

Sir Thomas Lewis's Harveian Oration, on "Clinical Science," will be delivered before the Royal College of Physicians of London on Wednesday, October 18th, at 4 p.m.

[1] Gross, E., and Grosse, A. *Arch. f. Exp. Path. u. Pharm.*, 1932, clxviii, 473.
[2] Itallie, L. V., Harmsma, A., and van Esveld, L. W.: 1932, clxv, 84.
[3] *The History and Epidemiology of Syphilis.* By W. Pusey, A.M., M.D., LL.D. London: Baillière, Tindall & Cox. 10s.)

THE NATION'S HEALTH

SIR GEORGE NEWMAN'S REPORT FOR 1932*

The annual report of the Chief Medical Officer of the Ministry of Health is a national budget, more important (though less regarded), because dealing with more vital concerns, than the one which the Chancellor of the Exchequer unfolds to the House of Commons. Like the latter, it includes long processions of figures, but just as the financial position of the nation cannot be completely expressed in a balance sheet, so the public health is not wholly to be measured by the Registrar-General's returns and the other statistical information which the Ministry can command. In any assessment of the public health there are factors, beyond the statistician's compass, that require for their understanding a knowledge of medical sociology, a historical sense, a philosophic outlook, and a critical habit of mind. It is these characteristics which make Sir George Newman's annual reports—this is the fifteenth to appear above his signature—so illuminating.

UNEMPLOYMENT IN ITS EFFECT UPON HEALTH

The years following the war have seen a breakdown of our social system, which has proved itself unable to provide employment for large employable masses of the community. With two and a half million people on the unemployment registers failure is unmistakable. On the other hand, the system has been triumphantly vindicated in that it has averted the physical consequences of its own breakdown. In any earlier period of social history a health regression, taking generations to overcome, would have followed on the heels of economic disaster. As it is, very little mark has up to now been left in the shape of ill-health and obvious malnutrition on the people most affected. If the human machinery of industry has been rendered idle, at least it has not been allowed to deteriorate. Large-scale unemployment has been with us for nearly twelve years, intensified by world crisis during the last three. Such a state of affairs might have been expected to produce serious results on the health, not only of those actually unemployed, and their families, but also of those who, although in employment, were made conscious of their own insecurity, or in some other way were brought within the circle of eclipse. The effects of anxiety and depression upon bodily and nervous function are well known; add to these, in the case of the unemployed themselves, the corroding effect of compulsory idleness, and, most important of all from this point of view, inadequacy of diet, and one might very well look for some reflection in the tables of mortality and in whatever statistics are available to indicate the physical condition of the people. Yet the conclusion reached, after observations which occupy many pages of the report before us, is that, taking the country as a whole, and excepting certain localized areas and special groups, no general sickness, ill-health, or incapacity is to be attributed to unemployment.

THE DECLINING DEATH RATE

The first line of evidence is the death rate, although it is admitted, of course, that a great deal of the impairment and sickness which might be expected to follow unemployment does not end in death. The death rate for 1932 in England and Wales was again low—namely, 12 per thousand. This is below the average for the last ten years, and well below the average for the previous decade. Various constitutional conditions which have a particular social and domestic significance, such as tuberculosis, prematurity of birth, diseases of the nervous system, and bronchitis and pneumonia, all continue to show a markedly declining death rate. Moreover, if the parts of England and Wales where economic distress is most acute are taken, any direct connexion between social circumstances and the death rate still eludes observation. Of the eight administrative counties (including the coalfields) which may be regarded as distressed areas, three had a death rate in 1932 below the national average, and the same was true of seven of the sixteen county boroughs which claim to share in the Exchequer assistance grants. Even where the death rate in these areas is higher than that for the whole country, the difference, save in one instance (Anglesey, where it is 15.3), is not pronounced. There is evidence that in what may be called for short the "bad" areas there has been greater improvement of recent years, as shown by the tables of mortality, than in the "good."

The infant death rate, which may be regarded as another criterion of social well-being, was 65 per 1,000 births in 1932. The only year in which it has stood at a lower figure was 1930, when it was 60. The rate is only half the average which ruled during the first decade of this century. Even in the areas where infant mortality remains highest (namely, the county boroughs of Dewsbury, Dudley, Gateshead, Liverpool, Salford, Sunderland, West Bromwich, and Wigan, in all of which it is over 90) it does not reach the average figure for the country as a whole (100) which obtained as recently as 1911–20.

NO WIDESPREAD MALNUTRITION

For evidence as to the prevailing morbidity recourse has been made to the annual reports of the medical officers of health and school medical officers in the affected districts, and to the experience of regional medical officers under the national health insurance system. The most sensitive index of malnutrition is the condition of children of school age; but here the testimony is that malnutrition is declining rather than increasing. From a study of these reports Sir George Newman declares that it is not correct, as a medical practitioner in the provinces recently stated, that "malnutrition is widespread (in spite of statistics to the contrary) among both children and adults." The seventy-four regional medical officers were requested to report to the Ministry their considered views on the subject, and it may be of interest to sketch the "map" of the country which resulted. In North-West England some evidence of malnutrition was found in West Cumberland, but in Lancashire and the adjacent parts of Cheshire and Derbyshire only four out of fourteen officers noted any such evidence. In the North-East the ill effects, not widespread or severe, concerned chiefly men on Tyneside and in the mining districts of Durham. In Yorkshire there was some indication of malnutrition in the Sheffield area; but in the Midlands seven out of ten reports indicated no harmful effects whatever. In the Eastern Counties the effects were found to be relatively slight, and psychological rather than nutritional. In London the balance of opinion was that the physical ill effects of unemployment have been very small, and in the Home Counties practically non-existent. The same is true of the Western and South-Western Counties, except among the Forest of Dean miners.

As for Wales, the harmful effects noted were restricted to the mining districts in the south, and to the unemployed miners themselves, especially middle-aged men with families. The physical ills of unemployment, when discernible, are in general more evident in men than in women; when they do occur in women they take the form chiefly of anaemia, slowness in recovery reaction, and debility after confinement.

In the country as a whole, in spite of local rises and falls in the incidence, there is at present no medical

* *On the State of the Public Health.* Annual Report of the Chief Medical Officer of the Ministry of Health for the Year 1932. (H.M. Stationery Office. 6s. net, by post, 6s. 4d.)

evidence of any general increase in sickness or mortality which can be traced to the effects of economic depression Sir George Newman warns his readers, however, not to be too readily assured of the future The national health is a finely poised equilibrium, dependent on many complex issues—international peace, the importation and home production of food, wages and a knowledge of their wise expenditure, sanitary administration, public medical services, personal hygiene, and so forth It shares the liability of all carefully balanced structures to sudden overthrow from external causes Although the medical reports contain no signs of widespread physical degeneration, there is an undercurrent of forewarning, particularly as to the risk of mental instability in men and prolonged undernourishment of women and children

AMELIORATIVE TENDENCIES

How is it that in this prolonged period of severe strain the national health has been maintained? A remark is quoted from a medical officer of the Health Department of the League of Nations "I have inspected in many countries, and one difference I find is this in England you have the medical machinery already available for meeting exceptional circumstances, and you are using it" The factors at work have been the public medical services of the local authorities, including hospital provision for infectious and general diseases, the great extension of the care services for prospective mothers, infants, and school children (including the feeding of these last in necessitous cases), the system of poor relief and public assistance, unemployment insurance, and the health insurance service, with sickness, disablement, and some specialist benefits Some general causes have also been operating to an unknown degree the cheapness and variety of food, a wholesome water supply, new and reconditioned housing The habits of the people must not be disregarded the increased sobriety, the zeal for fresh air and exercise (the increased opportunity in this respect in the case of the unemployed must have gone some way to mitigate their lot), and, finally, the growing practice of personal hygiene The value of twenty five years of the school medical service should now be reflected in the health behaviour of the younger generation of adults Through all these factors, operating in their varying degrees, the physical outlook of the English people is being changed The "happiness of health" is being learned

CAUSES OF DEATH

One death out of every four is due to diseases of the heart or circulatory system, one out of every eight to malignant disease, one out of nine to bronchitis, pneumonia, and other respiratory diseases, one out of twelve to diseases of the nervous system, one out of about eighteen to pulmonary tuberculosis, one out of twenty two to violence Some 3,500 more people died of violence last year than died of old age Suicides, of which there were 5,743, are on the increase, partly owing to the troubles of the times, and partly to a changed psychology towards the act as a means of release But even more people—5,962—fell victims to road traffic than died by their own hand One result of the continued depression in industry, though the adoption of safety methods has also contributed, is a diminution in the number of fatalities in factories and workshops—602, as compared with 755 the previous year

THE BIRTH RATE AND MATERNAL MORTALITY

If the death rate is slowly receding, the birth rate is diminishing far more strikingly If it were conceivable that the birth rate should continue to fall at the pace of recent years we should be a childless country soon after the middle of the century The death rate for 1932 was only 3·4 per 1 000 below the figure for 1901 10, but the birth rate (15·3 per 1 000 living) is not much more than half of what it was in that decade The number of births in this country last year—613 472—compares with an annual average of 900 000 at the end of the Victorian era On the other hand more infants are being saved, and during the last forty years the infant death rate has come down from 153 per 1 000 [illegible]

Puerperal mortality still remains at a high [illegible] The deaths of women classed to pregnancy and [illegible] numbered 2,587, and there were 713 [illegible] not to be classed, but returned as associated with [illegible] The total puerperal mortality was 4·21 per 1 000 [illegible] births and of this 1·61 was due to puerperal sepsis and 1·240 other puerperal conditions The death rate from [illegible] has shown a slight tendency to rise but the [illegible] are very similar to those obtaining for the last twenty years An attempt has been made to separate out the number of deaths due to septic abortion, which it is [illegible] may have increased, and may explain the persistence of the high rate Out of 991 deaths due to puerperal sepsis no statement on this point was given in 412 of the others, 262 were returned as post abortum and 317 as post partum Among the administrative counties maternal mortality is highest in Pembrokeshire (9·55) and lowest in the Isle of Wight (0·90) while in the county boroughs it is highest in Halifax (8·75) In Gloucester it is 8·15 although Gloucester has the lowest infant mortality (50 per 1,000) in the country It is remarkable that several areas which have a high maternal mortality have a low infant mortality Northamptonshire, for example has a maternal mortality of 5·27, which is considerably higher than the average for the country, but its infant mortality is 46, which is very much lower On the other hand Manchester, with the unusually high infant mortality of 86, has a maternal mortality below the average Even though there may be no connexion between the rapid fall in infant mortality and the persistence of a high maternal mortality, the latter does qualify the satisfaction which may be rightly felt at the former

The important sections of the report dealing with the insurance medical service, general epidemiology, tuberculosis and venereal diseases, and cancer remain for later review

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N Almosnino states that, in Rumania, poliomyelitis of which a few sporadic cases had been observed in Bucarest in March May, and June, 1927, first assumed an epidemic form in July of that year, when forty seven cases were notified forty two of which were in the suburbs of Bucarest and five in neighbouring villages In August 439 cases were notified, 121 of which were in Bucarest and the rest in the neighbouring departments The epidemic reached its height in Bucarest during this month, and in the province in September It came to an end in December, 1927 The total number of cases in Rumania during 1927 was 2,133, with 225 deaths—a fatality rate of 10·5 per cent In May, 1928, a recrudescence of the epidemic occurred In Bucarest there were thirty six cases between May and September, the peak of the outbreak being reached in July In the rest of the country the epidemic reached its height in August, when there were ninety seven fresh cases The total number of cases in 1928 was 472, with sixty six deaths—a fatality rate of 14 per cent A still further outbreak occurred in 1929, so that the total number of cases between August, 1927, and the end of May 1929 was 2 635 Of these 517 occurred in Bucarest, 295 having been infected in that city and 222 in neighbouring districts These statistics only refer to cases with paralysis The case mortality for 1927 1928 and 1929 was 10·5, 14, and 17·3 per cent respectively The disease appears to have been spread by means of abortive forms, healthy carriers and indirect contagion [illegible] ways, highroads, and water carriers all helped in dissemination

Nova et Vetera

JOHN ARMSTRONG, 1709-79: POET, PHYSICIAN, ESSAYIST

Dr. S. G. FLOYD writes from Bournemouth: I must confess I had never heard of Dr. John Armstrong till I came across a copy of his work, *The Art of Preserving Health*, a didactic poem in four books, first published in 1744. With this was bound up another poem on the *Oeconomy of Love*, being advice to lovers and newly married couples. This is very amusing, but frankly Rabelaisian, and would not be allowed to pass the censor if published nowadays. It appeared anonymously in 1736, and was reissued in an expurgated form in 1768.

The medical profession has produced some great poets, including Keats, Goldsmith, and Bridges, but Armstrong is the only one I know of who has attempted writing a medical work in blank verse. Materia medica in hexameters would be a welcome addition to students, and would make this rather dry subject much more attractive. The following extracts are from his poem on "Health." He begins his poem on "Air" by singing the advantages of living in the country.

> "How best the fickle fabric to support
> Of mortal man, in healthful body how
> A healthful mind the longest to maintain
> 'Tis hard in such a strife of rules to chuse
> The best, and those of most extensive use
> Harder in clear and animated song
> By philosophic precepts to convey
> Yet with thy aid the secret wilds I trace
> Of Nature, and with daring steps proceed
> Thro' paths the Muses never trod before."

Then comes a compliment to Dr. Mead of St. Thomas's Hospital.

> "Nor should I wander doubtful of my way
> Had I the lights of that sagacious mind
> Which taught to check the pestilential fire
> And quell the dreaded python of the Nile.
> O thou beloved of all the graceful arts
> Thou long the fav'rite of the healing powers
> Indulge O Mead! a well designed essay
> Howe'er imperfect and permit that I
> My little knowledge with my country share
> Till you the rich Asclepian stores unlock
> And with new graces dignify the theme."

Malaria seems to have been the greatest curse of his day. After vaunting the healthiness of Richmond, Greenwich, Dulwich, and Hampstead, he is very severe on Essex.

> "Green rise the Kentish Hills in cheerful air
> But on the marshy plains that Essex spreads
> Build not, nor rest too long thy wandering feet,
> For on a rustic throne of dewy turf
> With baneful fogs her aching temples bound
> Quartana there presides; a meagre fiend
> Begot by Eurus, when his brutal force
> Compressed the slothful Naiad of the fens
> From such a mixture sprung this fitful pest
> With feverish blast subdues the sick'ning land
> Cold tremors come and mighty love of rest
> Convulsive yawnings, lassitude, and pains
> That sting the burdened brows, fatigue the loins
> And rack the joints and every torpid limb
> Then parching heat succeeds till copious sweats
> O'erflow, a short relief from former ills
> Beneath repeated shocks the wretches pine,
> The vigour sinks, the habit melts away
> And oft the sorceress in her fated wrath
> Resigns them to the furies of her train
> The bloated Hydrops and the yellow front
> Ting'd with her own accumulated gall."

Dr. Armstrong does not say much about treatment, but recommends stews, so

> "That through the thirsty channels of the blood
> A smooth diluted chyle may ever flow."

And suggests whey and sherbet as drinks.

In regard to diet he notes that the labourer can digest almost anything, but that the languid stomach "curses even the pure delicious fat and all the race of oil." He gives good advice in regard to moderation in alcohol.

> "What dexterous thousands just within the goal
> Of wild debauch direct their nightly course.
>
> * * * * * *
>
> But ah! What woes remain! Life rolls apace
> And that inevitable disease old age
> In youthful bodies more severely felt
> More sternly active shakes their blasted prime.
>
> * * * * * *
>
> When life is new, the ductile fibres feel
> The heart's increasing force and day by day
> The growth advances; till the larger tubes
> Acquiring (from their elemental veins
> Condensed to solid chords) a firmer tone."

And adds a footnote: "From this gradual condensation of the smaller vessels and consequent rigidity of the larger ones, the progress of the human body from infancy to old age is accounted for." There were no sphygmographs in those days, otherwise he might have discovered hyperpiesis. As regards exercise, he strongly recommends gardening, foils, tennis, dancing, and shooting; he is very timid about bathing. The fourth book deals with the passions. This is very philosophical, and has not much medical interest.

The *Dictionary of National Biography* gives four and a half columns to Armstrong, "poet, physician, essayist," and describes the poem from which I have quoted as his masterpiece, and as one holding a distinguished place in the class of poetry to which it belongs.

Scotland

William Mackenzie Medal

The William Mackenzie Medal will this year be awarded to Professor Jules Gonin of Lausanne in recognition of his valuable contributions to ophthalmology, especially those bearing on the treatment of detachment of the retina. The presentation of the medal will be made in the Hall of the Royal Faculty of Physicians and Surgeons, Glasgow, on Friday, October 13th, at 8.30 p.m., when Professor Gonin will deliver the William Mackenzie Memorial Lecture on "The Evolution of Ideas concerning Retinal Detachment within the Last Five Years."

Laboratory of the Royal College of Physicians

Sir Robert Philip, curator of the laboratory of the Royal College of Physicians of Edinburgh, announces that in 1932 the output of both research and reporting departments was well maintained; eighteen workers were engaged in twenty-one researches, while the number of papers published exceeded that of the previous year. Dr. W. O. Kermack and the superintendent of the laboratory have continued mathematical investigations on endemic disease; their work has been extended to include the case of a community of susceptible individuals where members are removed as the result of some general cause of death acting according to constant non-specific death rates. A paper on the results obtained has been published in the *Proceedings of the Royal Society*. In the course of a statistical examination of antirabic treatment no evidence has been obtained that live vaccines are more effective than killed preparations; liability to post-vaccinal paralysis, however, seems to be greater after treatment with the former. A fresh and promising line of research in regard to industrial diseases has been started with the co-operation of the Factory Department of the Home Office. This consists in: (1) The collection of pathological specimens relating to industrial diseases. (2) The investigation by Colonel Harvey of the pathology of toluene poisoning. Colonel Harvey is now engaged in experimental work on animals with reference to the effects

of benzene and toluene poisoning on the blood, the blood forming organs and the nervous system Toluene appears to be less toxic than benzen , chiefly because it is less volatile (3) The elaboration by Dr Kermack of a method for detecting one part of nitro benzene in 500,000 dilution in urine In a series of specimens from workers exposed to the vapour of this substance no significant quantity was detected in any instance (4) The study by Colonel Liston of the cause of the skin sepsis which is prevalent among workers in jute factories Other researches in progress include the investigation of all cases of mammary carcinoma treated at the Edinburgh Hospital for Women during the period 1920–32 , it is hoped that valuable data may emerge from a correlated study of the clinical findings, the histological pathology in each case, and the results of treatment Attention is also being directed to the value of biopsy as an aid to diagnosis in early or doubtful carcinoma, the importance of histological appearances as a guide to the degree of malignancy and prognosis, the relation of clinical and histological findings in mammary carcinoma the light which these findings throw on the methods and efficacy of treatment, and the bearing of tumour formation in the breast on the wider aspects of malignant growth A modification of the Bendien test is now being carefully investigated, and the chemotherapeutic studies in progress relate to the synthesis of quinoline compounds of possible anti malarial activity, of arsenical derivatives of acridine and related compounds, and of compounds of the plasmoquine type

Edinburgh Venereal Diseases Scheme

In a prefatory note to the annual report for 1932 of the Edinburgh Venereal Diseases Scheme, Dr John Guy, the medical officer of health, remarks with satisfaction that there is evidence of a fall in the incidence of new cases of syphilis The measures being taken to prevent inherited syphilis by the provision of ante natal treatment are meeting with success, in that there is a decrease in the number of children under the age of 12 months who suffer from this condition, and those for dealing with the prevention of blindness from ophthalmia neonatorum are giving good results He adds that the increase in the number of attendances by each individual is an indication of the desire of patients to get well, while the reduction in the defaulter rate shows the value of home visitation and follow up work, especially in dealing with mothers and children Dr Guy believes that even more satisfactory results could be obtained in controlling the venereal diseases if the public health authority were given greater administrative control over infected persons The attendance rate of out patients was higher than that of any previous year With regard to incidence the percentage of gonorrhoea cases was high, but this, according to Dr David Lees, the medical officer in charge of the scheme does not reveal the true prevalence of the disease Many patients, and some medical practitioners, are apt to look too lightly on this infection, and to be content with the relief of symptoms, no insistence being made on the need for establishing certainty of cure Particularly does he find this so in the case of female patients, many of whom reported first with late complications, having had no previous treatment No evidence was obtainable of any decline in the incidence of gonorrhoea, in contrast with the more satisfactory position as regards syphilis Gonococcal vulvo vaginitis in children under the age of 14 is cited as a condition which it is imperative to treat in hospital In co operation with the child welfare department arrangements have been made to look for this infection in all young children admitted to hospitals under the control of the corporation , this should lead to a reduction in the number of cases, and should prevent epidemics Experiments have been made with a view to replacing by protein shock therapy the treatment of cases of nerve syphilis by malaria infection No preparation has given such good results as the inoculation of malaria blood Dr Lees remarks that while home visitation is a valuable asset to the venereal diseases scheme it has not been possible to devise an effective scheme for male patients He can conceive of no alternative likely to be effective with defaulting male patients other than that of conferring on the medical officer of health of some administrative control over known infective cases He adds that there is need in Edinburgh for hostel accommodation for infected girls such as is provided by the London County Council

Ireland

Vital Statistics for Northern Ireland

The Registrar General's return for the quarter ended June 30th shows that 6 629 births were registered in Northern Ireland during the quarter representing an annual rate of 20 8 per 1 000 of the estimated population This rate is 0 2 below the rate for the corresponding quarter of 1932 and is 2 3 below the average rate for the second quarters of the ten year period 1923 32 In the Irish Free State the number of births registered during the quarter was 14 994 or an annual rate of 20 0 in England and Wales and in Scotland the rates were 15 4 and 18 9 per 1,000 respectively Deaths registered during the quarter numbered 4,124 giving an annual rate of 13 0 per 1 000 There were 467 deaths of infants under 1 year, the mortality being 70 in every 1 000 births registered, as against 74 for the corresponding quarter of the previous year and an average of 68 for the second quarters of the five preceding years The number of deaths from the principal epidemic diseases and from tuberculosis showed a decrease on the average for the corresponding quarter of the five year period 1928–32, while the number of deaths from cancer was lower than it has been in any quarter during the last two years

Tuberculosis in Belfast

Dr Andrew Trimble Chief Tuberculosis Officer for Belfast, reports that in 1932 there was a marked reduction in the number of women suffering from tuberculosis relative to that of men In 1915 for every 100 men found to be suffering from this disease 150 women were similarly infected in 1932 the comparable figures were 100 and 123 For every 100 males who died from this cause in 1914 there were 128 female deaths in 1932 the relative figures were 100 and 98 Dr Trimble considers that Ireland is at present passing through a phase in regard to the relative incidence of tuberculosis comparable with that observed in England about thirty years ago He deduces that Ireland will pass through a similar cycle in respect of the death rate at a later stage It is his opinion also, that the course of the disease in Ireland is becoming more chronic and fibrotic in type, a fact which may explain the lengthening period now observed between the inception of the disease and its termination Of 1,008 new patients examined during the year under review no fewer than 318 (31 5 per cent) had had definite opportunity of infection through contact with other tuberculous patients These 318 patients knew of their tuberculous relatives, and admitted the possibility of infection, so it was manifest that similar conditions of risk, but unrecognized had obtained in many other cases Dr Trimble remarks that it is obvious in retrospect that improvement of the living conditions of the poor—especially in regard to isolation and nursing of the tuberculous patient—is one of the most important factors

the campaign against tuberculosis. He fears, moreover, that the offensive habit of spitting in streets and public conveyances is on the increase. He regrets that in the case of a large number of admissions to the Belfast Municipal Sanatorium the authorities have no choice either of the stage of the disease at which patients are admitted or even of their suitability for institutional treatment. He pleads for the provision of hospital accommodation nearer the homes of the patients, the lack of which is rendering the work at sanatoriums of a repair nature rather than curative. Such provision would also have a definite economic value. A feature of the Belfast scheme is the Graymount Open-Air School, where children, not themselves suffering from clinical tuberculosis but living in daily association with infected relatives, obtain the prophylaxis of good food, fresh air, midday rest, and the general inculcation of hygienic habits which may be expected to cut down the bridges to infection in the home, and increase bodily resistance to the disease. Dr. Trimble insists that school years are the most important in the whole life of an individual, for during those years the foundations of health may be either strengthened or sapped, and habits may be formed which will inevitably conduce to personal happiness or misery during the rest of life. The use of Grade A (tuberculin-tested) milk is increasing in the city, but the more general adoption of pasteurization would, in Dr. Trimble's opinion, be justified by a still sharper fall in the mortality from the non-pulmonary forms of tuberculosis.

High Infant Mortality in County Dublin

Dr. J. A. Harbison, medical officer for County Dublin, states in his first annual report, for the year 1932, that the death rates from tuberculosis and infant mortality are higher than those prevailing in similar areas in other countries. The number of patients who were examined under the tuberculosis scheme in operation throughout the county was 1,557, and arrangements have been made for a central dispensary. The Board of Health proposes to acquire premises at Blackrock for the establishment of a health centre to accommodate both the tuberculosis and the school clinics. Dr. Harbison refers to the increasing difficulty of arranging institutional treatment for cases of pulmonary tuberculosis, and urges the need for additional accommodation for advanced cases. Immunization schemes in the areas of Rathcoole and Tallaght have had the effect of reducing the number of notifications of diphtheria, and a similar scheme is now being considered for Dundrum, where the figures for scarlet fever and diphtheria have been above the average. Referring to sanitary administration, the report states that by the provision of trained sanitary inspectors to make routine, as well as special, inspections of their respective areas, it is hoped to deal more expeditiously and effectively with all insanitary conditions. The number of dwellings condemned as unfit for human habitation was 605, the occupants of these dwellings totalling 2,567. In the borough of Dun Laoghaire there are approximately 185 insanitary houses of the slum type which, Dr. Harbison considers, should be pulled down and cleared as soon as possible. Available sites for housing in this borough are scarce, but Dr. Harbison has prepared a list of possible ones, of which, he has been informed, the estimated cost of acquisition, including legal expenses and compensation, would average £244 per acre. A cognate problem to the housing difficulty has presented itself in County Dublin—namely, the accumulation near the seashore of wooden structures used during the summer as human habitations. These are most numerous in the Portmarnock area. Although by-laws exist, affecting tents, vans, and sheds in the Balrothery area, it was never contemplated that such by-laws should deal with this form of habitation. If these huts are capable of being occupied for three months they may be occupied for twelve, and must therefore be treated as houses, and dealt with by the Closing Orders when they fail to comply with all the conditions necessary to render a house fit for human habitation. Where a number which are unfit for human habitation are congregated together they should be treated as an insanitary area and disposed of accordingly. Some of the fields in Portmarnock are densely and indiscriminately packed with these dwellings, which are also to be found dotted around the adjacent permanent brick houses. A survey of the areas where these huts exist has revealed: (1) defective drainage of the land on which they are erected; (2) imperfect water supply; (3) structures in all stages of disrepair and dilapidation, and, as regards sleeping accommodation, inadequate in respect of light, ventilation, and cubic space; (4) no adequate disposal of household refuse; (5) dry closets, usually inadequate in number, primitive in construction, and in unsuitable positions. Such conditions are full of possibilities for the outbreak of epidemic disease.

England and Wales

Direct Representatives on the G.M.C.

In November three direct representatives of the profession in England and Wales will be elected to the General Medical Council. The Representative Body of the British Medical Association, at its Annual Meeting in Dublin last July, chose the following to receive the support of the Association: Dr. J. W. Bone, Dr. E. Kaye Le Fleming, Dr. Christine Murrell. Each of these candidates has a fine record of work for the profession in many capacities, and Dr. Bone and Dr. Le Fleming have already served one term of five years upon the General Medical Council as direct representatives. It is understood that voting papers for the ensuing election will be issued to registered practitioners resident in England and Wales on September 29th.

Royal Photographic Society's Exhibition

The seventy-eighth annual exhibition of the Royal Photographic Society of Great Britain, which remains open at the society's headquarters at 35, Russell Square, W.C.1, until October 7th, comprises an attractive natural history section and certain exhibits of particular medical interest. The radiographs shown include a demonstration of the use of uroselectan B for renal examinations and a striking picture of the lipiodol injection of the whole biliary tract through a post-operative sinus. There is also a particularly good radiograph demarcating the vascular system of the leg in the neighbourhood of the knee-joint and below it. In addition to simpler subjects, such as scoliosis, calcareous deposits in the thorax, hands, and finger-tips, an exostosis of the femur, and vesical calculi, there are numerous *x*-ray photographs of malignant disease, including normal and plastic prints of multiple secondaries of the skull, sarcoma in the humerus and also in the muscles of the hip, secondary deposits of carcinoma in the thorax, a case of cystic disease with spontaneous fracture of the femur, and a metastatic carcinoma of the humerus. The natural history section is more interesting than ever this year, and it is rather unfair to specify particular photographs. Those who visit the exhibition may be advised, however, not to miss studying the birds, and noting such charming studies as the life-history of the stone curlew, king penguins nesting, and the greater spotted woodpecker. Other outstanding exhibits in this section are the breeding habits and early development of the blue acara fish (for which set a medal was

awarded), a quarrel between a cock and a hen merlin, an automatically obtained snapshot of a badger by night, and another medal winning set showing the opossum and young. An exhibition is given of the various possibilities obtainable by the cine Kodak special by means of which new type of camera moving pictures of varying degrees of rapidity and ingenuity can be obtained for students of medicine and natural science. In the general sections the photographs are as good as ever, and reveal the way in which modern photographic art and science is steadily making advances on the best of the past. A remarkable instance of this is provided by 'lumnograms' of illegible documents in which, by the use of ultra violet rays, the words in two documents dated respectively 1280 and 1307 from the Public Records Office have yielded photographs which can be read. The deciphering of charred documents in this way, and by infra red rays, is also demonstrated, one most striking result being obtained by direct contact of the charred fragment with a film for forty days in the absence of light.

CORRESPONDENCE

Treatment of Syphilis

SIR,—Dr. T. Anwyl Davies's article (*British Medical Journal*, September 9th, p. 487) on the treatment of syphilis in the primary and secondary stages by bi-weekly injections of arsenobenzenes of the '914' type, with concurrent bismuth injections, which he has employed for three years, is corroborative evidence of the great value of this method of treatment. Since 1924, at the Seamen's Dispensary, Liverpool, all suitable cases of syphilis have been treated intensively, and a full report of the method employed was published by my assistant, Dr. E. L. Prebble, with due acknowledgement of the pioneers in this routine, in the *British Journal of Venereal Diseases*, April 1933. The necessity for regularity in treatment is there proved, and the record of ten years shows that no serological or clinical relapse has occurred in any case which has received two courses of the prescribed treatment.

The main factor in the most efficient treatment of syphilis is regularity of sufficient dosage plus as short an interval between injections as is consistent with freedom from severe toxic effects. Clinical experience shows that a total dosage of 0·75 gram '914' weekly, *split into two* approximately equal doses with concurrent bismuth injections intramuscularly, will render the serum Wassermann reaction completely negative in all cases of primary and secondary syphilis, but that extension of the period between injections beyond four days reduces considerably the value of the course.

It would appear that the rapid elimination of the '914' group, as opposed to the '606' group, demands that the interval between injections should not exceed four days, otherwise spirochaetes left unkilled proceed to regions therapeutically inaccessible, or in some other way become resistant to ordinary treatment.—I am, etc.,

Liverpool, Sept. 18th. A. O. ROSS.

Tuberculous Bacillaemia

SIR,—The statement in your annotation (September 16th, p. 538) that tuberculous bacillaemia "is probably limited to miliary cases and cases of advanced pulmonary tuberculosis" is not in accord with the clinical evidence. In disseminated lupus vulgaris the lesions arise in children in the course of some minor debilitating illness, and are attributed to the breaking down of a small tuberculous focus with dissemination of tubercle bacilli in the blood stream. In erythema induratum (Bazin's disease) and the papulo-necrotic tuberculides a multitude of lesions will arise over the course of years from the presence of tubercle bacilli in the blood stream. These affections dependent upon a tuberculous bacillaemia give rise to clinical manifestations by reason of individual peculiarities in the 'soil,' and it is difficult to believe that a similar bacillaemia does not commonly exist under similar circumstances without clinical signs where those individual peculiarities are absent. Yet in these tatty lupus erythema induratum and the papulo-necrotic tuberculides there is no serious evidence of ill-health apart from the skin manifestations, and certainly there is no suggestion of miliary tuberculosis or of advanced pulmonary tuberculosis.—I am, etc.,

Leeds, Sept. 18th. JOHN T. IRVING.

Toxaemias of Pregnancy

SIR,—I am sorry Mr. Paramore is hurt (*Journal*, September 9th). I paid him the greatest compliment in my power by devoting a great deal of time over a period of two years to subjecting his hypothesis to experimental investigation. If a litre and a half of sterile liquid paraffin be introduced under local anaesthesia into the peritoneal cavity of a dog held in Pavlov's stand the intraperitoneal pressure returns to the normal about two hours after the injection is finished. Of course the intra-abdominal pressure is increased during exercise—bed-making included—and rises to well over a metre of water while straining at stool. Indeed it is probable that if it were possible for a healthy man to maintain this pressure for half an hour he would commit suicide. In normal circumstances a high intraperitoneal pressure can only be maintained for a few seconds. I advanced (*Journ. Obstet. and Gynaecol. British Empire*, 1932, xxxix, 804) other reasons for concluding that the intra-abdominal pressure is not significantly raised during pregnancy, and with respect I suggest that purely theoretical conjectures cannot be allowed to stand in the face of experimental evidence.

My view is that the hepatic lesions associated with eclampsia are merely incidental and may occur during the course of obstructed and possibly normal labour without any toxaemic manifestations. The fact that the incidence of eclampsia in Germany was doubled in the last two years of the world war is probably due to the fact that the women ate more vegetables and less meat. I do not think that Mr. Paramore did me the honour of reflecting on what I meant by an adequate diet. While I am forced to disagree entirely with his views and have developed my thesis along widely different lines I acknowledge with the greatest of pleasure the fact that he has stimulated me to investigate the mechanical factors introduced by pregnancy which I believe to be of indirect importance, and am glad that we are agreed that there is no evidence of a pregnancy toxin.

I had read Dr. W. C. W. Nixon's paper, but it was impossible to refer to the enormous literature dealing with the wide field I attempted to cover. I used intramuscular injections of calcium chloride in 1927 and 1928 before I was able to obtain calcium gluconate. Having seen a considerable number of cases of eclampsia I am completely unable to understand how it is possible to assess the value of any single therapeutic agent which may be used. In 1930 (*Proc. Roy. Acad. Med.*, Sect. Obstetrics and Gynaecology, May 19th) I wrote: Startling results can hardly be expected from any line of treatment, and I would ask Dr. Nixon to ponder over the seized pistons of a motor car. Perhaps he will use his next eclamptic patient after she has recovered from the

fits, calcium, advita capsules, marmite, iron, and iodine, and satisfy himself as to the remarkably rapid improvement which occurs. Accurate estimations of the total calcium in the serum are not easily made without long practice, and in any case I have tried to point out that they are of little value. I fancy that not many people will be impressed with "the light of scientific investigation" which makes the administration of calcium unjustified. I was delighted to read the letter of my friend Dr. R. A. M. Scott, also published in the *Journal* of September 9th (p. 509), and am glad that he stressed the benefit to the foetus of an adequate diet given to the mother during pregnancy, and drew attention to the necessity of continuing this diet during lactation.

Dr. Garden (*Journal*, September 16th, p. 544) asks me to correlate my statement that "the 1,000 ante-natal clinics in England and Wales have merely served to lower the incidence rate of the albuminuria of pregnancy, but not that of eclampsia" with the excellent figures he publishes from the Southport County Borough Maternity Hospital. The exact number of ante-natal clinics is not known, but the relevant statistical reports published by the Registrar-General for England and Wales show that the mortality rate for eclampsia and the toxaemias of pregnancy was higher in 1931 than in 1921. Such deaths are more accurately certified than most, and I have assumed that the mortality rate is a fair index of the incidence rate.—I am, etc.,

London, W.1, Sept. 16th. G. W. THEOBALD.

Humane Treatment of the Insane

SIR,—It is quite true, as claimed in the interesting article by Dr. Brockbank in the *Journal* of September 16th (p. 540), that a great deal of credit must be given to Chiarugi for his enlightened views on the treatment of mental disease, which were so much in advance of the times, as may be seen in his *Tratto della Pazzid* (Florence, 1793). Dr. John Ferriar's work, *Medical Histories and Reflections* (Warrington, 1792), also shows clearly his desire to introduce new and gentler methods into mental hospitals and the treatment of the insane. Although I would not for a moment suggest any depreciation of his splendid efforts and the work at Manchester, I am inclined to the belief that most people will rightly hold that William Tuke must still be accepted as the real definite pioneer in England of this great and beneficent movement.

If we must go back to "first attempts" it will be necessary to go back still further, since there can be little doubt that St. Vincent de Paul (1576–1660), a Franciscan monk of the University of Toulouse, was probably the first to proclaim that mental disease was no different from bodily disease, and that "Christianity demanded of the humane and powerful to protect, and the skilful to relieve, the one as well as the other." Other early examples of humane treatment of mental disease are to be found in the Egyptian civilization, for in this country the temples dedicated to Saturn were, to all intents and purposes, asylums of the best description: healthy exercise was the rule; walks in the gardens of the temple, rowing on the Nile, excursions, dances, concerts, etc., were all in use as in the most modern mental hospital of to-day (Voisin, *Des Causes Morales et Physiques*, etc., 1826). It is true that medical treatment was limited, and that the cure, when it occurred, was attributed to the miraculous intervention of the tutelar deity; this, however, was a belief current at a much later period at Gheel (whose patron saint was St. Dymphna), and one which still holds good in some places to-day.—I am, etc.,

W. Sept. 15th JAMES R. WHITWELL,
Hon. Librarian, Royal Medico-Psychological Association.

The G.P. and the Public

SIR,—Dr. Murray Bladon's letter (*Journal*, September 16th, p. 546) puts the present position perfectly. The population of this country is for the most part crowded into urban districts. In these the public are used to being sent to hospitals, and in many cases they are sent not in the least because the practitioner considers it essential, but because they demand it. It is necessary to consider to what extent that demand is reasonable or unreasonable.

The "panel and private" doctor is for the most part keen and interested in his work; but in practice the public refuses to afford him the opportunity of cultivating that interest. It will often be found that if a patient is not rapidly improving within twenty-four hours he expects to be referred to a hospital; alternatively, his female relatives are already broaching the question of transfer to another doctor (if one has not yet been called in). This affords one of the arguments against free transfer of doctor under the panel system; it militates against scientific observation in medicine, and for the most part is against the best interests of the patient. Nevertheless, there are times when a genuinely independent opinion is called for.

The criticism of "Esse quam videri" is not without foundation. The service given by G.P.'s *is* in practice unsatisfactory—that is, in the sense that, for reasons at present beyond our control, the range of service given is less complete than it need be. Consider the position of a panel patient with a sebaceous cyst. The doctor offers to remove this. In two cases out of three the patient does not turn up, having obtained an H.S.A. voucher for hospital. When he does turn up, the doctor has to sterilize his instruments, etc., specially, and remove the cyst without assistance—there is usually no colleague or nurse, and the lighting arrangements are not of the best. The patient had been right when he did not turn up. He has dimly perceived that the doctor's facilities may not be of the best, though he (the patient) may not question his doctor's ability.

I desire to suggest that, under national health insurance arrangements, there should be instituted throughout the country a sufficient number of "minor hospitals." These need not be very elaborate affairs—three to four rooms would do. To these could be referred cases for minor operations (by their own doctors); but, in addition, they could afford scope for the local talent and special knowledge mentioned by Dr. Murray Bladon. The "specials" of clinical type (eyes; nose, throat, and ear; and skins) could be dealt with by doctors with some special experience to whom cases are referred by other doctors. In this way we should really get early treatment of cases which are, in fact, at present inevitably allowed to drift. For example, a case of early non-suppurative otitis media could be treated thoroughly at once. As regards these, hospital is not usual at present until advanced deafness or tinnitus develops, and the cases are then incurable. Again, an opinion could be obtained on the question of iritis. A local ophthalmic G.P. could see the case. The latter, if in doubt on the question of iridocyclitis, would *then* advise reference to a major hospital. Earlier treatment would be the rule; and the public would soon give the profession the full confidence which would be its due. In the meantime, the out-patient departments of our great hospitals are overcrowded with enormous numbers of cases which general practitioners are essentially competent to deal with.

The chief obstacle to the institution of such "minor hospitals" is the question of professional rivalry and jealousy. A doctor is afraid of his patient being seen by another local doctor because he thinks he might lose his

patient It should be possible to overcome this difficulty, particularly if nearly every doctor has a specialty—I am, etc,

Dagenham Sept 19th MAURICE MELGRAVE

SIR,—While "Esse quam videri" apparently writes in what we may hope is only a temporary spasm of disillusionment his letter is not by any means without a marked background of truth In a busy industrial practice, especially if one is single handed, the opportunities for the pleasurable side lines of medicine are limited, not by their scant occurrence, but by one's inability to devote the necessary time to them The crowded waiting rooms which would appear to be universal in any practice where the panel list is *not* at a *minimum* size are an effective check on any ambitions of this nature, and I feel that the majority of your readers will agree that it is difficult to maintain an interest keen enough to surmount the routine work of certificates and card indexes, alterations in panel lists, and all the other jobs connected with the present national health insurance scheme

The downward path is easy, and the horrible thought of automaton prescribing and an entire loss of interest must occur to many a young practitioner As to how much these fears are unfounded, and how much justified, I do not intend to express any opinion—it must be largely a matter of individual reaction—but I will admit to uneasy feelings, which I know to be shared

Medical insurance is so essentially a matter of national and individual importance, and so closely linked with modern private practice that it would be better to await some scheme where the patient, the doctor, and the society share the benefits of sensible forethought This might be achieved by drastically limiting the total numbers on each panel list, and increasing the capitation fee (fewer patients—better service), and by the institution of a small fee for each bottle of medicine prescribed on the ground that easily obtained things are seldom valued Some change is surely long overdue General practice team work run from a well equipped clinic may be a Utopian idea but at any rate the mere possibility of it would give a more cheerful outlook —I am, etc,

Manchester Sept 16th DOUGLAS B BOYD

Urgent Admissions to Hospitals

SIR —My own experience of the delay in getting urgent cases admitted to voluntary hospitals is exactly the same as that of Dr Swan (September 16th, p 547) I have long since given up the idea of ever getting an acute case admitted to a voluntary hospital and I now make a practice of sending emergencies into the local L C C hospital (St James s) where I can always be certain of speedy admission and excellent treatment

The only solution of the difficulty is the creation and development of a system of pooling beds for emergency cases by the voluntary hospitals May I suggest, with all humility, that the London voluntary hospitals should arrange for the establishment of a central bureau to which the various voluntary hospitals should send a daily notification as to the number of beds that they are prepared to keep ready for emergencies The general practitioner would then merely have to telephone to the bureau, which would arrange for the admission of the patient Such a system was adopted years ago by the Metropolitan Asylums Board, and is still being used with complete success by the Infectious Diseases Section of the L C C hospital service Every London general practitioner knows how easy it is to ring up 'City 7200' to get a case of infectious disease admitted to an L C C hospital Why should it not be equally simple to get a non infectious emergency admitted to a voluntary hospital? It might even be possible for the voluntary hospitals to get the L C C to organize the bureau An emergency case would not only be admitted to hospital expeditiously but at the same time arrangements could be made for proper transport by ambulance

No doubt at first the voluntary hospitals might not relish the break in that glorious (or inglorious) isolation that they have for so long enjoyed but unless common sense is done general practitioners will send all their emergencies to the L C C hospitals and except for street accidents no acute cases will find their way into the ward of the London voluntary hospitals —I am etc

London S W 12 Sept 18th CHARLES W BROOK

Insurance for the Middle Classes

SIR,—I have read with much interest Dr Rosewarne's letter in the *British Medical Journal* of September 16th (p 545) The scheme as outlined appears on the whole satisfactory whether payment is by capitation fee or per attendance There are, however, certain points which do not seem to be covered in the scheme as outlined

No mention is made of the normal confinement The abnormal is covered presumably under consultants and operation fees but it might be undertaken by the family practitioner Are these services to be included in the capitation grant? There are also certain services of a specialist or quasi specialist type which a general practitioner might feel himself competent to give I have in mind such treatments as minor operations injection of varicose veins, prescribing of glasses in straightforward cases and the simpler forms of electrical treatment There are patients who prefer such treatments from their own medical attendant rather than travelling long distances to a pure specialist or clinic The general practitioner under national health insurance rules may often have difficulty in establishing a right to charge for services outside the scope of his contract the result is a tendency to send his cases off to hospital which means a loss of interest to the keen man There are practitioners who would be willing to undertake the study of such subjects and to acquire experience, and it seems that in such cases extra remuneration should be allowed for actual services rendered

There are two further points which apply to rural areas in particular Mileage may be a considerable item in a sparsely populated district and is apt to mount up where frequent visits have to be made The second point is the question of drugs which in rural practices often have to be dispensed by the doctor owing to the absence of a chemist in the district

The rules of the deposit section of the National Deposit Friendly Society might be helpful in their scheme of extra benefits for operations, etc Under these patients are allowed up to a certain amount according to the size of the deposit, anything over and above having to be met by the individual patient —I am, etc,

Docking Norfolk Sept 17th I H LLOYD WILLIAMS

Ante-natal Treatment and Maternal Mortality

SIR —In your issue of August 26th there is an article by an able obstetrician, in which he makes the statement that ante natal treatment has had no lowering effect on maternal mortality In the issue of the *Post Graduate Medical Journal* for August there is an article by another able obstetrician, who states that one of the greatest advances in obstetric medicine has been in the direction of ante natal care We ordinary practitioners might have to

know some of the arguments for and against the value of certain methods of pre-natal care in view of the above diversity of opinion. I suggest that a body like the Medical Society of London could usefully arrange such a discussion.—I am, etc.,

Golders Green, N.W., Sept. 12th. L. S. WOOLF.

Primary Thrombosis of Axillary Vein

SIR,—The article on the above subject by Mr. J. Cosbie Ross, in the *British Medical Journal* of September 16th (p. 525), has brought to my mind a case that occurred twelve years ago in my practice in Ealing.

A strong, healthy married man, aged 26 years, noticed difficulty in removing his ring from the third finger of his left hand. Swelling extended up the arm, to the shoulder, and the upper left chest during the following three days. There was at times very severe pain at varying places in the arm and forearm. Very obvious veins appeared on the left side of the chest. The patient was kept in bed with the arm on a pillow. He made a complete recovery in the course of about four weeks. He remains in perfect health and has had no recurrence. The condition did not follow any illness or unusual exertion.

—I am, etc.,

New Malden, Sept. 17th. FRED. W. JAMES.

Obituary

PROFESSOR FÜLLEBORN

We regret to record the death, on September 9th, in his sixty-seventh year, of Geh. Medizinalrat Professor Dr. Friedrich Fülleborn, director of the Tropical Institute in Hamburg.

Professor Fülleborn as a scientist had an international reputation, and as a man and sympathetic friend he was universally beloved. Well versed in many sciences, he will chiefly be remembered for his pioneer work in helminthology. He was one of the world's greatest, if not the most renowned worker in this important study of biology, and proved himself a worthy successor to Loeckhart and Loose. He was one of the earliest pupils in the London School of Tropical Medicine, and remained throughout one of Patrick Manson's most sincere and staunch admirers. Fülleborn was a many-sided character, and was almost equally well known for his studies on anthropology and pure zoology. Fülleborn was also a great judge of human nature, and was a connoisseur in art and a confirmed epicure. He was well known in every country in Europe and America, and was particularly welcome in England, to which he returned after the war as a kind of pilgrimage to visit the shrine of Manson, under whom he first studied tropical medicine in 1900–1, and also, he would jocularly remark to partake of a saddle of mutton at S——'s. Professor Fülleborn was one of the original founders of the Tropical Institute in Hamburg in 1901, and from that date he has been one of its most brilliant and tireless workers. In September, 1926, he was recognized as a professor of tropical medicine by the University of Hamburg, and in July, 1930, was appointed director of the Institute on the recommendation of Professor B. Nocht. Fülleborn had a good deal of military service, and as a regimental medical officer saw much fighting in the Herero war and in German East Africa. In the great war he was called up for service in 1914, found himself immediately at the front, and was badly wounded. Afterwards he served as a malaria expert on the Balkan front. Fülleborn was the recipient of many honours from many universities, and was a corresponding member of the Royal Society of Tropical Medicine as well as of the Royal Society of Medicine.

P. M.-B.

We regret to announce the death, on September 4th, at a Southsea nursing home, after a long illness, of Dr. J. H. F. WAY. The eldest son of F. W. Way, M.R.C.S., of Portsmouth, he was born in 1868, educated at Epsom College and University College, London, and received most of his medical training at St. Thomas's Hospital, obtaining the L.S.A. in 1892 and the M.R.C.S. in 1896. For thirty-one years he was a medical practitioner in Southsea, but retired owing to ill-health in 1926. Dr. Way was for some years honorary secretary and subsequently chairman of the Portsmouth Division of the British Medical Association, and was also a member of the Portsmouth Insurance Committee. For eight years he acted as honorary medical officer to the Diocesan Rescue Homes, Southsea. He was keenly interested in the work of the St. John Ambulance Association and received the award of Hon. Associate in the Order of St. John of Jerusalem. Dr. Way's kindly and tolerant nature endeared him to all his colleagues in the Portsmouth area. The funeral service at St. Matthew's Church, Southsea, was attended by a number of medical men, including Dr. F. C. B. Gittings, honorary secretary of the Portsmouth Division of the B.M.A., and Dr. J. T. Westby, representing the Portsmouth Panel Committee.

The death occurred on September 14th, at his residence, Port William, Wigtownshire, of Dr. WILLIAM MCDOWALL SELBY, J.P. Dr. Selby was born at Kirkcowan, Wigtownshire, in 1873, and after preliminary education at George Watson's College, Edinburgh, he took up the study of medicine at the university, and graduated M.B., C.M., with honours, in 1894. For a time he was demonstrator in anatomy at Minto House Medical School, Edinburgh, and later house-surgeon in the Leith Hospital and house-physician in the Royal Hospital for Sick Children, Edinburgh. For some two years he was an assistant in general practice at Hawick, and in 1897 he took over his father's practice in Wigtownshire. Here he was one of the best-known practitioners in the South-West of Scotland for thirty-five years, retiring last year on account of failing health. He held the posts of medical officer to Mochrum Parish and medical officer to the Post Office. He also took a warm interest in many local activities outside his professional work. He was one of the founders of Port William Horticultural Society, and was an active member of the Dumfries and Galloway Antiquarian Society. On his retirement he received a public presentation in recognition of his many services to the community.

Medical News

The annual distribution of prizes at Charing Cross Hospital Medical School will be held on Friday, September 29th, in the hospital, following tea at 4 p.m. The prizes will be distributed by Professor W. Langdon Brown. The annual dinner of past and present students will take place on September 30th in the Café Royal, Regent Street, at 7.30 for 8 p.m., with Dr. William Hunter in the chair; cost of tickets 10s. each. The post-graduate course will be held on Saturday and Sunday, September 30th and October 1st, from 10 a.m. to 5 p.m.

The annual dinner of past and present students of St. Mary's Hospital will be held on Saturday, September 30th, at 7.30 p.m., at the Trocadero Restaurant. Dr. Reginald Miller will be in the chair.

The Westminster Hospital annual dinner will be held at Grosvenor House on Saturday, September 30th, at 7.30 p.m., with Dr. Eric Gandy in the chair.

The winter session at King's College Hospital Medical School will commence on October 5th, when Sir George Newman will deliver the introductory lecture. A course of lectures, free to all medical practitioners, on medicine, accentuating the preventive aspect, will be delivered in the lecture theatre of the medical school on Thursdays at 4.30 p.m. from October 12th to December 14th, inclusive, and from January 11th to March 8th, 1934.

A reunion of past and present members of the Medical School of Birmingham University will be held on Tuesday, October 3rd, when a series of lectures for post graduate members and final year students only will be given in the lecture theatre of the General Hospital and at Queen's Hospital In the medical theatre, Edmund Street, at 5 p m , Professor Arthur J Hall will distribute prizes and deliver an address to students At 7 45 p m *there will be a reception by the Dean in the Great Hall,* Edgbaston, and at 8 15 p m a dinner

The annual address at the Central London Throat, Nose, and Ear Hospital (Gray's Inn Road, W C) will be given by Dr C P. Symonds on Friday, October 6th, at 4 p m His subject is " The Clinical Significance of Vertigo "

The prize distribution and conversazione will be held at the Royal Dental Hospital of London School of Dental Surgery on Friday, October 6th, at 8 p m , with Sir Holburt Waring, President of the Royal College of Surgeons, in the chair The annual clinical " At Home " will be held at the hospital on Saturday, November 25th, and the annual dinner at the Troçadero on the evening of the same day, with Mr J G Turner, F R C S , in the chair

On Friday, September 29th, at 8 45 p m , Professor D Fraser Harris will speak at the Princess Elizabeth of York Hospital, Shadwell, E , on " Science and Poetry " The chair will be taken by the Printer to the University of Oxford, Dr John Johnson Visitors welcomed

We are asked to announce that Dr Hans Maier has consented to deliver his lecture at the Royal College of Surgeons on September 28th at 8 p m in English instead of in French, as announced last week (p 550)

At the meeting of the Royal Sanitary Institute on October 17th at 5 15 p m , at 90, Buckingham Palace Road, S W Mr John D Watson will read a paper on " The Middlesex Sewerage and Sewage Disposal Scheme " At the meeting on October 21st at 10 30 a m , in the West Ham Town Hall Stratford a description of the River Lea improvement works will be given by Mr Lionel Jenkins, who will afterwards conduct those attending over the works

The Fellowship of Medicine has arranged a post graduate course in medicine and surgery at the Metropolitan Hospital, Kingsland Road, from October 2nd to 14th and an afternoon course in dermatology at the St John's Hospital for Diseases of the Skin from October 2nd to 28th An evening course of lecture demonstrations on physical therapy will be held at the London Clinic and Institute of Physical Medicine from October 2nd to 25th A tutorial course in medicine, surgery, and midwifery for male graduates has been arranged for the period September 29th to October 3rd inclusive, at the Connaught Hall of Residence (University of London), Torrington Square An intensive course in cardiology will take place at the National Hospital for Diseases of the Heart from October 9th to 31st For graduates not desiring a special course of instruction, daily clinics are available in almost every branch of medicine and surgery Arrangements for these clinics and for special courses must be made with the Fellowship of Medicine 1, Wimpole Street, W 1

A series of post graduate lectures on medical, surgical, and special subjects will be given at the Manchester Royal Infirmary on Tuesdays from September 26th to December 12th (except October 24th) and demonstrations of clinical cases on Fridays from September 29th to December 15th The meetings are free and commence at 4 15 p m Details may be obtained from the secretary of the post graduate lectures

The annual post graduate course for former students of the London Hospital will be held on October 11th to 14th, from 10 a m daily

The President of the National Smoke Abatement Society is Dr H A Des Vœux, and its vice presidents include Sir Thomas Barlow and Dr J Johnstone Jervis The fifth annual conference is being held at Sheffield on September 22nd, 23rd, and 24th, with headquarters at the Grand Hotel

A congress of therapeutics will be held in Paris from October 23rd to 25th, under the presidency of Professor Loeper president of the French Society of Therapeutics The subjects to be considered include the parenteral approach to gastric ulcer pharmaceutical combinations, treatment of *B coli* infections the adrenaline group of drugs, short waves in therapeutics and the treatment of dermatitis due to *x* rays and radium Inquiries should be addressed to Dr G Dorn treasurer of the congress, 8, Place de l'Odeon, Paris VIe

An international congress in connexion with the scientific and sociological aspects of the cancer campaign will be held in Madrid from October 25th to 30th In the scientific section special attention will be paid to the biology of the cancer cell, early diagnosis of the disease, treatment, and tumours of the nervous system In the sociological section will be considered industrial cancer including its legislative and insurance sides statistical investigations, organization of anti cancer campaigns both nationally and internationally, and education of the public Further information may be obtained from the secretary general Dr Don Julio Bejarano, Facultad de Medicina Decanato, Atocha 104 Madrid

A confidential report on markets in India for surgical medical dental and veterinary instruments based on information received from H M Trade Commissioners at Calcutta and Bombay, has been issued by the Department to firms whose names are entered on its special register United Kingdom firms desirous of obtaining a copy of the report together with particulars of the special register service of information should apply to the Department of Overseas Trade 35 Old Queen Street S W 1 Reference No B Y 7649 should be quoted

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal B M A House, Tavistock Square, W C.1.**

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QUERIES AND ANSWERS

Menstrual Eruption

" L B " would be glad to learn of any line of treatment for a young unmarried woman in excellent health who suffers from a non itching papular rash on the forehead chest and back which comes on regularly a few days before menstruation and disappears in the last two days of the flow The bowels are very regular in action Various haematinic mixtures have not brought relief from this affection which distresses her very much

Obesity

" M B " writes I should feel grateful for suggestions as to the treatment of an obstinate case of obesity in a young female patient Strict dieting must be avoided as it tends to keep the body weight stationary and [illegible] in the customary dosage is futile

"Pulex ubiquitus"

"HOPEFUL" writes: I am unfortunate enough to possess a peculiar attraction for the common flea, and the lesions in a very short space of time become urticarial in type, and are accompanied by intense itching. This summer, with the hot weather, the discomfort was very marked. Can any of your readers suggest a local application to the skin, or anything which could be sprinkled on clothes, to render me a less attractive meal. I may say that the brand we keep here seem to laugh at Keating's powder.

Blood Sugar and Blood Urea

"A. G." would be glad to know if there is any simple yet reliable apparatus for the determination of blood sugar available for use in general practice; also apparatus for determination of blood urea.

Wanted: A Drum Defender

In answer to "T. S." (*Journal*, June 3rd, p. 991), Dr. BRUCE MALAHER (Pernambuco) writes recommending Flent's "sound absorbers"—a mixture of cotton-wool and wax—obtainable, post free, for $1.10, from Flents Products Company, 89, Broad Street, New York. He adds: I use these nightly on my ship to shut out noises of every description, and have, for the last four years, found them absolutely invaluable. In course of time the "ear balls," as I call them, become dry and tend to shrink, but each pair lasts me for two or three months, and "T. S." will probably not need more than one dollar's worth in the year.

Income Tax

Allowance for Fees Paid to Medical Agency

"D. P. S." has claimed to deduct from his gross earnings £10 for fees paid to a medical agency for introduction as locumtenent and afterwards for the assistantship he still holds. The claim has been refused, though two years ago a similar claim was allowed elsewhere.

*** So far as liabilities under Schedule E are concerned the payment to obtain an appointment is incurred anterior to and not "in performance of" the duties, and is not allowable. This would apply to the fee paid in connexion with the assistantship. In our opinion the locumtenent earnings are properly assessed under Schedule D, as the profits of carrying on a profession rather than as the earnings of employment, and on that ground we consider that the agency fees paid for locumtenent work are allowable for income tax purposes.

LETTERS, NOTES, ETC.

Cancer and Diabetes

Dr. J. TERTIUS CLARKE (Harrow) writes: In the *Journal* of October 29th, 1932, I called attention to the association of diabetes and cancer and to the alternation of the two diseases in different members of the same family. This association was much emphasized by the late Dr. J. A. Shaw-Mackenzie, whose main hypothesis concerning the genesis of cancer was that the disease is caused by a deficiency in quantity or quality of the intracellular enzymes, though the site of the disease might be determined by local injury or irritation. It would seem that there is an hereditary tendency to a physiological deficiency in both these diseases, in the one case of insulin and in the other of certain intracellular enzymes; and, further, that the tendency to these systemic defects is sometimes limited to a family, but in the case of the Jews it becomes racial. In the Epitome to the *Journal* of July 29th is a note by Bolduan and Weiner on the causes of death among Jews, which shows that in both males and females the rate of death per thousand, from both diabetes and cancer, is higher among Jews than among non-Jews. In other diseases—for instance, pneumonia, phthisis, syphilis, and diseases of the liver—the rate of death is lower among Jews than among non-Jews. These statements are derived from 14,047 Jewish deaths and 27,186 non-Jewish deaths in New York City in 1931. Dr. Shaw-Mackenzie based his serum tests for cancer on this deficiency of the lipolytic and proteolytic intracellular enzymes, and claimed that together they gave a 95 per cent. correct diagnosis. His treatment was aimed at restoring the efficiency of these enzymes by the injection of olive-oil soap with bile salts by the mouth and occasionally the administration of secretin. By these measures he obtained many beneficial results, such as the reduction of pain and fetor, the disappearance of recurrent nodules in the scars, and even the cure of the patient for five, ten or more years.

Tapeworm Infection in North-West Russia

Diphyllobothrium latum (it was known as *Bothriocephalus latus*) is of serious importance, economically, in North-West Russia as an intestinal parasite, causing a notable anaemia, clinically similar to that which ankylostoma produces. A paper by G. K. Petruschewsky and W. Tarassow of the Fishery and Medical Research Institutes of Leningrad (*Archiv f. Schiffs- u. Tropen-Hygiene*, June, 1933) indicates the gravity of the problem. They report that at least sixty-two stations for the study of intestinal worm infections have been set up in Russia and Siberia, and that they have themselves been examining conditions in the North-West, in the region of Lakes Ladoga and Onega, where they have examined over 11,000 men (women are nowhere mentioned). They quote figures of infection with Diphyllobothrium in this area, 4 per cent. in 89,000 examined in Leningrad, 16 in Archangel, and 23 around Murmansk; other intestinal parasites were also found. The fish were infected in proportion as the lakeside population was more numerous, and the men in proportion as more of them were engaged in fishing: in one village on Lake Onega, where all were fishermen, all were infected. Tapeworm ova reach the lake water with human dejecta. From an ovum develops a ciliated embryo which, swallowed by a cyclops or other small crustacean, grows until host and "prozekoid" are eaten by a suitable fish, when the prozekoid becomes freed, bores through the stomach wall of its new host, and encysts itself (now a "plerocerkoid") in certain fish in the muscles, in others in the internal organs. The host fish, if caught, is in these poor regions inadequately cooked (toasted before a small fire or enveloped in paste and baked). Swallowed by man, the plerocerkoid becomes again active, reaches the intestine of its new host as a tapeworm, and a fortnight later its ova are being discharged and the cycle is ready to recommence. The authors could not be satisfied with mere investigation, but opened a small hospital, where they treated 307 men; one man was infested by fourteen tapeworms, of a total length of 83 metres, or 90 yards. They boiled all dejecta, a most necessary measure. In Lake Onega they found 88 per cent. of the pike infected, and many perch. Their examination was most painstaking, and their results, if carefully followed up, will lead to great improvement in the vitality of the populace in the region concerned.

A Midwifery Case-book

Dr. E. M. R. FRAZER of Burton-on-Trent has sent us a convenient, stoutly bound, and inexpensive notebook for midwifery cases, designed to meet the needs of the general practitioner who "in all probability dislikes 'writing up cases,' but yet who, at times, does feel the need of a 'few notes.'" Modelled on an exercise book, it affords space for essential details of a hundred cases under the headings of "labour," "puerperium," and "pre-natal examination" on the left-hand page, and "name," "history," "measurements," and "ante-natal examinations," etc., on the right. The flyleaf contains an alphabetical index. The case-book will shortly be obtainable from Messrs. H. K. Lewis and Co., Gower Street, W.C.

Socialist Health Activities

Dr. F. G. BUSHNELL, Organizing Secretary, Socialist Workers' National Health Council (Nutley Cottage, Nimbridge, Woking), writes to inform readers of the *Journal* that a series of health tours to health institutions in and around London on Wednesday afternoons is being arranged in order to familiarize workers with existing institutions and their management, and to press home the need for the socialization of the health services. No charge for the course is made to employed or unemployed workers attending as individuals.

Epoch Men in British Medicine

In the annotation under this heading last week it should have been explained that Dr. Bashford's *Harley Street Calendar* first appeared in 1929, but was reissued by the same publishers a few weeks ago.

Corrigendum

In the description of the self-retaining tonsil haemostatic forceps given on page 531 of last week's issue the word "approximation" should have appeared instead of "appropriation" in the eighth line.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 42, 43, 44, 45, 48, and 49 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 176.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

202 Basal Metabolism in Hypertension

E MAY and R COUDER (*Bull et Mem Soc Med des Hop de Paris*, May 8th, 1933, p 551) draw attention to the rarity of basal metabolic data in cases other than those associated with endocrine disorders They were much struck by the incidence of raised basal metabolism in cases of hypertension Of thirty two such cases one gave a subnormal value, sixteen lay between − 10 and + 10 per cent and fifteen between + 10 and + 60 per cent The authors do not state the method used in the determination, but the limits of normality are given from the results of an examination of twenty six normal subjects, twenty three of which gave values between − 10 and + 10 per cent Further classification of the thirty two hypertensive cases into essential, arteriosclerotic, and renal showed that the percentages of these which presented increased metabolic rates were respectively 62, 44, and 14 There thus appears to be a marked difference between the renal cases and the others In considering possible endocrine mechanisms, which might reasonably account for these changes in hypertension, the authors discard any suggestion of hyperthyroidism or hyperadrenalinaemia (This contrasts strongly with recent work in which hyperadrenalinaemia is claimed as demonstrable in hypertension) They were unable to account for the raised metabolic rate by an accelerated circulation rate, nor could it be shown that the phenomenon was related to cardiac decompensation Reference is made to the fact that a high proportion of cases of Raynaud's disease also possess increased rates of metabolism In six such cases the authors found that four gave B M R values between + 18 and + 42 per cent These observations in conditions of vasomotor disturbance must clearly be brought into line with the similar observations in hypertension The authors refer to the possibility of associated medullary centres for vasomotor control and metabolic regulation

203 Diagnosis of Malignant Gastric Ulceration

As the result of their own investigations, associated with a study of the literature, G W HOLMES and A O HAMPTON (*New England Journ Med*, May 11th, 1933, p 971) conclude that the location of gastric ulceration affords definite indications as to its malignancy or otherwise From case records for the years 1928 and 1929 they collected 128 benign gastric ulcerations and 121 gastric carcinomas In the case of the ulcers thirty nine occurred in the pylorus, eighty in the mid portion of the stomach, and three in the cardiac region The remaining six were prepyloric in site As regards the carcinomas, however, seventy five were situated in the prepyloric region, seventeen in the middle portion of the stomach, twenty one at the cardia, and eight were classified as diffuse The relative proportion of malignant to benign ulcerations in the prepyloric region was thus twelve to one The authors state that during the last three years they have tested the validity of this conclusion Only one chronic benign prepyloric ulcer was found, in contrast with eighteen malignant growths resected from this situation Several of these tumours were only recognized as being malignant after paraffin sections had been prepared from different parts of them Other evidence of a similar kind is cited and it is concluded that the detection by radiological examination of an organic lesion within the prepyloric area affords a very strong presumption of its inherent or actual malignancy The removal of such growths is therefore urgently indicated These ulcers are definitely chronic and are to be differentiated from acute ulcerations which may occur anywhere in the stomach, and usually heal promptly and completely They appear in that portion of the stomach which extends from the pyloric valve towards the fundus for a distance of about one inch and forms the pyloric canal or antrum This portion of stomach contracts to form a canal at the height of pyloric activity In localizing the lesion the centre of the ulcer is taken as the site of origin Chronic ulcerations occurring above this region on the lesser curvature and those situated within the pyloric valve should not be classed as prepyloric ulcers Six illustrative cases are detailed

204 Thallium Poisoning in California

J C MUNCH, H M GINSBURG and C E NIXON (*Journ Amer Med Assoc* April 29th, 1933, p 1315) describe the outbreak of thallium poisoning which occurred in California in 1932 and define the lines of treatment. The outbreak was caused by the mixing of a rodenticidal preparation containing thallium sulphate in 1 per cent concentration with wheat flour used for bread making Of the thirty two persons exposed to this poisoning fourteen required treatment in hospital, and six died from acute thallium poisoning The characteristic symptoms—alopecia and pains in the legs and feet—developed in twenty two of the series, and were associated with abdominal colic, nausea, vomiting diarrhoea or constipation, stomatitis, peripheral neuritis, and symptoms referable to cerebral involvement The treatment advocated is as follows In cases seen early the stomach should be emptied by lavage or emetics, and cathartics should be administered the latter must not contain sulphates, since the insoluble thallium compounds fixed in the gastro-intestinal tract will be converted into the soluble sulphate To combat shock dextrose should be injected intravenously and such stimulants as caffeine adrenaline and ammonia should be given Intravenous injections of sodium iodide should follow at once to fix the absorbed thallium in the body Gradual elimination is furthered by natural means or by the injection of small doses of sodium thiosulphate with careful attention to the urinary thallium excretion Disturbances in calcium metabolism are countered by giving calcium salts and the various symptomatic manifestations are dealt with as indicated in each case Necropsies in this series revealed the usual macroscopical and microscopical features of thallium poisoning, and the metal was detected in the kidneys liver, lungs, and spleen

205 Rickets in Manchester

C CHISHOLM (*Brit Journ Child Dis* April June 1933 p 83) states that there is a considerable average percentage (75) of severe rickets in Manchester varying with the different areas of the town and different periods the year, in children not under welfare supervision further number up to 21 per cent of the infant on the borderline of vitamin deficiency showing at slight evidence of rachitic changes The peak incidence of rickets in Manchester occurs at the spring or early summer but may fall much later year than is generally expected The fall in the in the late autumn is considerable compared with amount of radiation at that season and is probably to the cumulative protection afforded by the retained autumn sunshine Chisholm thinks that the incidence of rickets under present conditions of infant welfare work depends on the capacity of the mother for intelligent care and urges that potential mothers should be trained child care and dietetics

Surgery

206 Intrathoracic Goitre Simulating Aortic Aneurysm

In recent years a number of cases of intrathoracic goitre have been reported. Van den Wildenberg has found sixty-six incomplete and eight complete intrathoracic goitres in a series of over 1,400 thyroidectomies. E. STIÉNON and VAN DEN WILDENBERG (*Arch. des Mal. du Cœur*, May, 1933, p. 289) describe the case of a physician, aged 57 years, diagnosed as aortic aneurysm. The patient complained of intense dyspnoea and cough on slight exertion, slight huskiness, dysphagia, and rapid emaciation (loss of 22 lb.). All other clinical symptoms of aortic aneurysm were absent. On deep digital pressure behind the suprasternal notch a hard rounded non-pulsatile swelling could be felt. The thyroid gland was not palpable in the neck. The Bordet-Wassermann reaction was negative. Skiagrams showed a large circular shadow above, and continuous with, that of the aorta. On examination with the fluorescent screen this shadow was seen, on deep inspiration and coughing, to be quite separate from that of the aorta. The oesophagus and trachea were displaced to the right. At operation the claviculo-sternal insertion of the left sterno-mastoid was divided; the upper pole of the left thyroid lobe was shelled out from behind the trachea, to which it was adherent. A left subtotal thyroidectomy was performed. The tumour, which was as large as a fist, was a parenchymatous goitre without evidence of malignancy. The patient made an uninterrupted recovery, regained his former weight, and was soon able to resume his practice.

207 Perforated Gastric and Duodenal Ulcer

E. M. FISHER (*Med. Journ. of Australia*, April 29th, 1933, p. 524) records thirty-eight cases of perforated peptic ulcer, and discusses the aetiology and treatment of this condition. The commonest situation for these ulcers is the anterior and antero-superior surface of the duodenum, pylorus, and pyloric portion of the stomach, or about midway along the lesser curvature. In most cases a perforating ulcer is found within one inch of the pylorus. The effect of muscular exertion and injury in initiating perforation is very debatable, but in one case of Fisher's series a blow in the epigastrium seems to have been the determining factor. There is usually a definite history of indigestion, but occasionally the perforation is the first sign of the existence of a previously unsuspected ulcer. The author details the clinical signs, and warns against drawing false conclusions from the fact that the abdominal rigidity may diminish markedly after the first few hours. The relief is only temporary, and, if an operation is delayed, the condition will advance to toxaemia and peritonitis. As regards treatment, the ulcer must be closed speedily in all cases. Fisher advises simple suture, unless special indications exist for excision or primary gastro-enterostomy and partial gastrectomy. Quick intervention is essential, since each further hour of delay after six increases the likelihood of general peritonitis. There were eight deaths in the present series of cases. In three relatively young patients there was a long transportation to be endured before the operation. Four of the eight patients were 59 years old or more, an indication of the seriousness of ruptured peptic ulcer in later life. The author concludes by pointing out that it is not always the case that suture is followed by cure, although probably about 60 per cent. of patients can resume their ordinary life. Nevertheless, he considers it wisest to employ this procedure as a rule, and to wait for further developments, when the most beneficial line of treatment can be deduced and adopted at leisure.

208 B. DESPLAS and MUTRICY (*Bull. et Mém. Soc. Nat. de Chir.*, June 3rd, 1933, p. 838) record the results of treatment in a series of fifty-five cases of perforated gastric and duodenal ulcer. Deaths totalled eleven, giving a mortality of 20 per cent. Only one of the cases occurred in a female, the remaining fifty-four being males. Perforation was found to be more common in the stomach than in the duodenum, forty being gastric perforations and fifteen duodenal. In fifty-three cases the ulcer was invaginated by suture, whilst in twelve of these a gastro-enterostomy was also added. Forty-three of these patients recovered and ten died following the operation. In thirty-four cases suprapubic drainage was practised, and all the deaths occurred among these patients, but it is thought that as they were the more serious cases it is hardly likely that the drainage added to the risk of the operation. In two cases gastrectomy was carried out—one patient recovered and one died. This latter case had a perforation on the anterior wall of the pylorus, and had been perforated for five hours; pylorectomy was done with a gastro-enterostomy, but the patient died five days later. Necropsy showed that the suture line of the anastomosis had given way. It appears that this operation is a dangerous procedure even in favourable cases, and is not to be advised. Statistics from other sources show it is accompanied by a high mortality. It is concluded that the classical operation of suture of the perforation has, in early cases, a very low mortality; anything more radical has additional risk and is not advisable.

Therapeutics

209 Plasmoquine with Quinine in Malaria

H. B. F. DIXON (*Journ. Royal Army Med. Corps*, June, 1933, p. 431) records a series of 600 cases of malaria which were treated with plasmoquine and quinine. The patients were kept under observation subsequently for periods ranging from ten months to three and a quarter years—95 per cent. for this maximum time. The preparation used was plasmoquine simplex in doses of 0.02 and 0.01 gram; with this were given 10-grain doses of quinine twice daily. No toxic results followed this dosage, but in patients on a larger dose amounting to 0.04 gram daily a slight cyanotic or greyish tint of the face was noticeable. This did not appear when the daily dose was reduced to 0.3 gram. Tachycardia occurred in six cases as the result of undue exercise. There was a significant reduction in the relapse rate as compared with that usual in quinine treatment. Thus, in 215 cases of primary or benign tertian malaria, there were nine cases of return of fever and parasites in the blood (4.18 per cent.). Plasmoquine was given to 141 patients after quinine treatment had been followed by relapses; only six relapsed again (4.7 per cent.). In 126 cases of infection with *P. falciparum* there were only two relapses, and none at all in quartan cases. Dixon remarks that his results confirm those of Manifold and other workers, and show that a combination of plasmoquine and quinine is effective in reducing the relapse rate. He found that women and children took the drug well, and showed no evidence of intolerance or idiosyncrasy. All cases were diagnosed microscopically, and the treatment was begun at the earliest possible moment.

210 Icoral—A New Respiratory Centre and Cardiac Stimulant

H. FRANK (*Deut. med. Woch.*, May 19th, 1933, p. 764) describes experiences with a new remedy, "icoral," consisting of the hydrochlorides of two synthetic bases. One of these, m-oxy-n-ethyl-diethyl-aminoethyl-aminobenzol, exhibits a specific stimulating effect upon the respiratory centre, whilst the other, m-oxy-n-phenyl propanolamine, shows an action on the heart and circulatory system analogous to that of ephedrine. The preparation consists of a 5 per cent. solution of these substances, mixed in the ratio of 4 parts of the former to 1 part of the latter. Analeptics possessing stimulant effects on the respiratory centre are uncommon in the *Pharmacopoeia*, and such substances as adrenaline, useful as they are, have only transitory effects on the circulatory system, and do not

affect the respiration. Icoral is stated to possess not only an important action on the circulation, but also a protracted stimulating influence on the respiration. Animals poisoned with morphine or barbituric acid were used to show the respiratory stimulation obtained with the drug. The author used it in all cases of severe poisoning with narcotics and hypnotics, and employed instrumental methods for recording blood pressure and respiration. Comparisons were made with other drugs after the effect of icoral had worn off. The drug was used in thirteen cases of poisoning with barbituric acid, in two cases with carbon monoxide poisoning, and in one of morphine poisoning. The ages of the patients varied from 20 to 70 years. All these cases were in advanced states of collapse when received for treatment, but actually only three died later, the cause of death being bilateral aspiration pneumonia. In all cases the administration of icoral (intravenous or intramuscular) led to a rise in blood pressure of some 20 to 30 mm. Hg, and the respiration was deepened and quickened when it had been much slowed by the poison. The injections were in many cases quickly followed by recovery of partial consciousness and reflexes. In one case of quinsy with suffocation the intravenous injection of 0.5 c.cm. of icoral effected a very good recovery when the patient was *in extremis*. In cases of severe infections (pneumonia, with or without influenza), with collapse of purely vasomotor type but without clinically demonstrable failure of the respiratory centre, icoral proved of no value. A certain amount of care is advised in the intravenous administration of this drug, but, in the absence of a severely damaged myocardium, 0.3 c.cm. can always be given and repeated in twenty minutes.

211 Treatment of Idiopathic Pleural Effusion

Professor H. SCHOTTMÜLLER (*Münch. med. Woch.*, May 26th, 1933, p. 798) defines this condition as a disease of one pleura which, in typical cases, begins very acutely and simulates symptomatically a croupous pneumonia. The temperature shows a protracted course and falls by lysis: no signs are detectable in other organs, usually not even in the lungs. He considers tuberculosis to be the cause, and in this is in agreement with many other workers. It is not, however, always possible to establish the tuberculous aetiology, not even by bacteriological examination of the exudate, repeated skiagraphy, etc. He concludes, therefore, that in many cases it may have to do not with an "anatomical" tuberculosis, but with a toxic process due to a tuberculous focus in the lung or mediastinum. He considers that the so-called tuberculosis of the serous cavities (polyserositis) presents a completely different picture, in that, although it may have a favourable course, it runs a very chronic one. The serous cavities are affected in various orders and the exudate is not usually so massive as in the so-called "idiopathic" form. In polyserositis we have, he believes, an anatomically manifest tuberculosis of the serous cavities. Twenty years' experience of the idiopathic type leads the author to consider that it most frequently appears in the spring months and that it is associated with the third decade of life. The disease takes a favourable course, but recovery is retarded by the somewhat slow absorption of the exudate. The question arises as to whether the exudate should be aspirated off, or whether spontaneous absorption should be relied upon. The author has for many years used the aspiration method and is convinced that it is the method of choice. Drainage is practised as soon as any considerable amount of fluid has accumulated, and is not delayed until symptoms due to a large volume of fluid appear, or until the temperature has fallen. Should a further exudate form it is drained, as before, and repeated a third or fourth time if necessary. As much as two litres of fluid have often been removed by the author, using a thin needle and local anaesthesia. Although theoretical considerations have led other workers to regard the exudate as possessing certain immune properties, the author insists that the results of relatively early aspiration in his many cases speak for themselves.

Neurology and Psychology

212 Delayed Mental effects of Cranial Injury

ALFRED GORDON (*Journ. Nerv. and Ment. Dis.*, March, 1933, p. 259) describes eleven cases of cranial injuries, with and without fractures, but without gross neurological symptoms. In all, psychotic manifestations developed many months or years after the somatic trauma. The cases are all described in full, and special emphasis is laid on the psychological constitution of the individual, taking into account the biological and mental experiences of early life, and the influence of the latter. In every case it is shown that there existed deeply seated trends of emotional character dating from infancy and ready to become exteriorized in an abnormal way under the influence of some affective stimulus. The psychotic reactions appeared to be a reorganization of these emotional trends into delusional presentations. Gordon states that concussion of the brain can no longer be considered a transient state without structural damage, late degenerative changes may be expected, and hence every head injury, however trivial, should be viewed from a serious standpoint. In the cases described the psychopathological manifestations made their appearance many months or years after the initial injury to the head, and it is shown that they were invariably preceded by a strong emotional force of an abnormal character. It is stated that the old somatic trauma *per se*, with all the diffuse cicatricial foci in the brain of long standing, are not the direct aetiological factors in the development of the psychoses. The latter are the result of the disturbance of the dynamics of mental life, the essential nature of which consists chiefly of elements of an affective character. Trauma is thus merely the initiating causative factor in the psychotic state.

213 Self-mutilation in Parkinsonism

S. P. GOODHART and N. SAVITSKY (*Amer. Journ. Med. Sci.*, May, 1933) report a case of self-mutilation in chronic encephalitis in a girl, aged 16, of Russian-Jewish parentage, consisting of avulsion of the eyeballs and extraction of teeth, all but seven of which she pulled out in the course of two years. No infection took place. This is said to be the only example hitherto recorded in the literature of self-blinding in chronic encephalitis.

214 Radium Therapy in Psychoses

Over twenty years ago G. PETIT (*Bull. de l'Acad. de Méd.*, February 21st, 1933, p. 225) in collaboration with Dominici and Jabouin had reported the persistent radio-activity of the organism (in horses) after intravenous injections of insoluble radium. This fact, together with the elective fixation of radium on the nerve centres (as demonstrated by radiograms and analyses of the ashes of the organs), led him to employ radio-active serotherapy in certain psychoses. Radium injected into the jugular vein has been proved to be not wholly eliminated. By measuring the emanation in the urine a difference is noted between the abundant discharge following the injection and the slow elimination of the residual fraction; more than a year after injection of 1 mg. of the sulphate, the blood is still clearly radio-active and contains particles of radium. Theoretically the coagulum should contain all the cells and solid particles in suspension in the plasma, and the serum would be radio-active merely owing to its content of dissolved emanation; however it has been demonstrated that, besides the latter, the serum contains measurable traces of natural radium. Petit has succeeded in radio-activating serum *in vitro* and it is such a doubly radio-active serum that he employs in treatment. The results following its use are summarized; further details will be published later. Of thirty-four cases of mental confusion, twenty-one were cured, six improved, and eight died; the latter were cases of acute azotaemic psychotic encephalitis in which any treatment

was unavailing. In fifteen cases of acute delirium there were six cures, four failures, and five deaths. Three cases of melancholia failed to respond to treatment. No ill effects have followed this therapy. During the war, owing to the lack of horses and radium, subcutaneous injections of thorium x were substituted; this occupies the same place in the radio-active scale of thorium as radium does in that of uranium. The full results of this treatment are not given, but cure in three apparently hopeless cases is reported. Two of these were associated with a syndrome of dementia praecox of three and a half years' standing and mental confusion of nine months' duration; in the third, though the symptoms had lasted for only some weeks, they prognosticated dementia praecox.

Obstetrics and Gynaecology

215 Metrorrhagia of the Menopause

According to P. MOULONGUET and L. GASNE (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, May, 1933, p. 387) a certain number of cases of metrorrhagia of the menopause are due to morbid conditions of the blood or blood vessels, or to cardiac or hepatic insufficiency. Others are due to adnexal disease, or carcinoma of the cervix. Ordinary physical examination will nearly always reveal the cause and lead to surgical treatment, but occasionally an early intracervical carcinoma eludes detection. In a remaining large group of cases, with no grossly morbid physical signs, decision about diagnosis and treatment is difficult. It is important to remember that cancer of the body of the uterus is by no means always a disease of the aged, and may occur (and be overlooked) at the time of the menopause. Digital exploration of the uterus, apart from the possible detection of a fibroid polypus, is of little diagnostic value; for both to the finger and to the naked eye there is a great resemblance between a vegetating neoplasm and those hypertrophic polypoid conditions of the endometrium which constitute the most frequent and the most benign findings, and which are readily susceptible of radiotherapeutic cure. Conversely, cylindrical-cell carcinoma of the uterus, the writers remark, is not radio-sensitive; and to overlook its presence and treat a case by irradiation is disastrous. Dilatation, curetting, and microscopical examination of the fragments are therefore indispensable parts of diagnosis. By their means not only cancerous, but also precancerous, conditions of the endometrium can be recognized.

216 Metro-salpingography in Diagnosis

S. D. SAVELIEVA and V. K. MALINOVSKAJA (*La Gynécol.*, May, 1933, p. 249) review a series of 450 gynaecological cases in which lipiodol was used for diagnostic purposes. The cases were seen over a period of two and a half years. The technique of administration is minutely described. It was found possible to allow patients with patent tubes to leave the hospital on the following day, and those with obliteration of the interstitial part of the tubes were allowed to return to their habitual occupations directly after the radiography. The possible danger of infection was avoided by a previous bacteriological examination of the flora of the vagina, and by a scrupulous preoperative preparation of vagina and cervix. Rupture of the tubes was avoided by the use of a manometer, with the reading kept at about 25 mm. Hg. Reviewing the published reports of various surgeons who have used salpingography extensively, the authors conclude that complications can be reduced to a minimum if the two precautions mentioned above are taken and careful attention is devoted to details of technique. The reading of the radiograms should be done by an observer who is conversant with the appearance of the normal uterus and tubes when injected with lipiodol, and also with the physiological variations dependent on the uterine contractions which are produced at the moment of injection of the opaque liquid into the uterine cavity. The report deals with the following groups of cases: (1) forty-eight women with primary sterility; (2) seventy-six women with secondary sterility; (3) thirty-three with metrorrhagia; (4) six with secondary amenorrhoea; (5) twenty for diagnosis of pelvic tumours; and (6) fifteen with malformations. The great value of salpingography in all these cases proved to be that it put a precise limit to surgical intervention. In order to exclude error of diagnosis, it is advised that the radiogram control should be repeated after fifteen to twenty minutes, after twenty-four hours, and again after the lapse of several months.

217 Insulin in Metrorrhagia

M. L. QUADRAS-BORDES (*La Med. Ibera*, June 3rd, 1933, p. 777) records four illustrative cases, in women aged from 21 to 32, in which metrorrhagia of ovarian origin was successfully treated by administration of insulin in doses of 24 units in the twenty-four hours. The rationale of the treatment is that the internal secretion of the pancreas affects coagulation of the blood by favouring the formation of thrombin.

Pathology

218 Cultural versus Guinea-pig Inoculation Methods in Detection of T.B.

A. SAENZ and L. COSTIL (*C. R. Soc. de Biol.*, May 12th, 1933, p. 50) took a small quantity of a 16-day-old glycerin potato culture of a bovine strain of tubercle bacillus, pressed it between filter paper, and suspended it in quarter strength Sauton's fluid so that 1 c.cm. of the suspension contained 1 mg. of the moist growth. Serial dilutions were then made up to 1/100,000,000. Each dilution was then seeded in 0.5 c.cm. quantities on to two tubes of Löwenstein's and two tubes of Petragnani's medium. At the same time 0.5 c.cm. of the different dilutions, starting from the 1/100,000 dilution, was inoculated into four guinea-pigs by the subcutaneous route. The results of the cultural experiments were that colonies developed in all tubes up to the 1/1,000,000 dilution, which gave rise to two colonies per c.cm. The guinea-pigs were killed after four and a half months. All the survivors of the 1/100,000 and the 1/1,000,000 dilutions were found to be tuberculous. Of the four animals inoculated with the 1/10,000,000 dilution, only one showed evidence of tuberculosis. None of those inoculated from the 1/100,000,000 dilution reacted to tuberculin, or showed tuberculous lesions at necropsy. These experiments suggest that the animal inoculation method is slightly more sensitive for the detection of tubercle bacilli than the cultural method. Nevertheless, the authors consider that the cultural method has so many advantages that, for routine work, it should be employed in preference to animal inoculation. When, however, the bacilli are very few, or are of the dysgonic type, or when the material is contaminated with other organisms, the guinea-pig inoculation method is generally to be preferred.

219 Agglutination Test in Weil's Disease

S. POSTMUS (*Nederl. Tijdschr. v. Geneesk.*, June 10th, 1933, p. 2648) states that, contrary to what was found in the Dutch Indies by Baer and Zuelzer, in Holland the serums of subjects of Weil's disease retain their agglutinating properties for years. He records nineteen cases in which a positive agglutination reaction was found in from one to seventeen years after the attack. It is therefore possible to make retrospective diagnosis of the disease a long time after its occurrence. P. C. CLEYNDERT, jun. (ibid., June 10th, 1933, p. 2641), records five cases, in patients aged from 12 to 26, in two of which spirochaetosis icterohaemorrhagica was associated with other diseases—namely, malaria in one case and tuberculous meningitis in the other. The diagnosis of Weil's disease in each case was established by the agglutination test.

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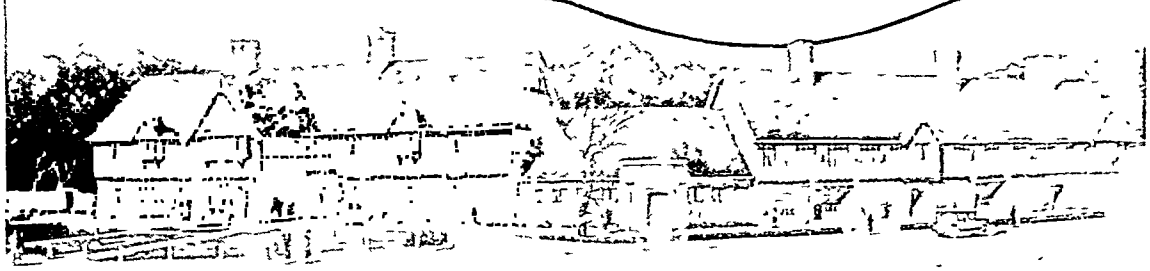
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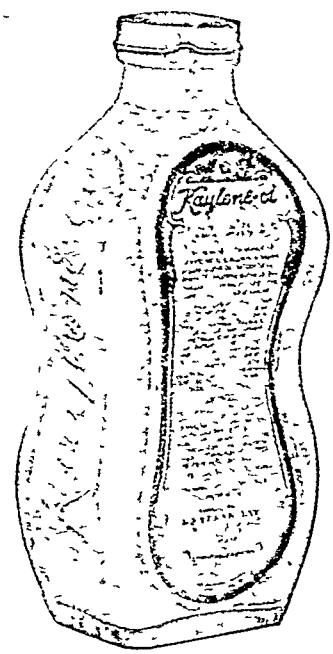
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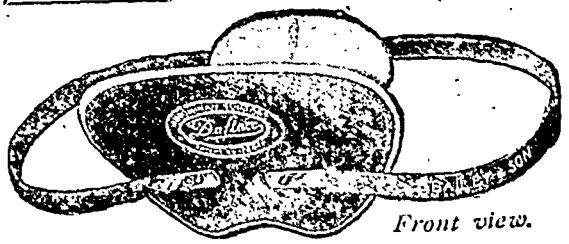
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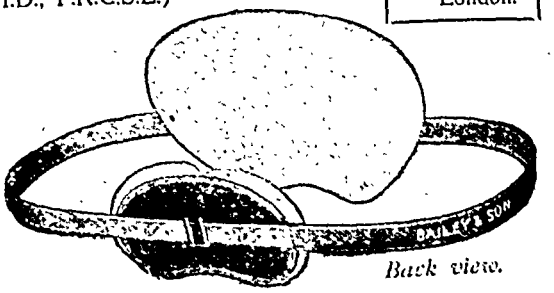
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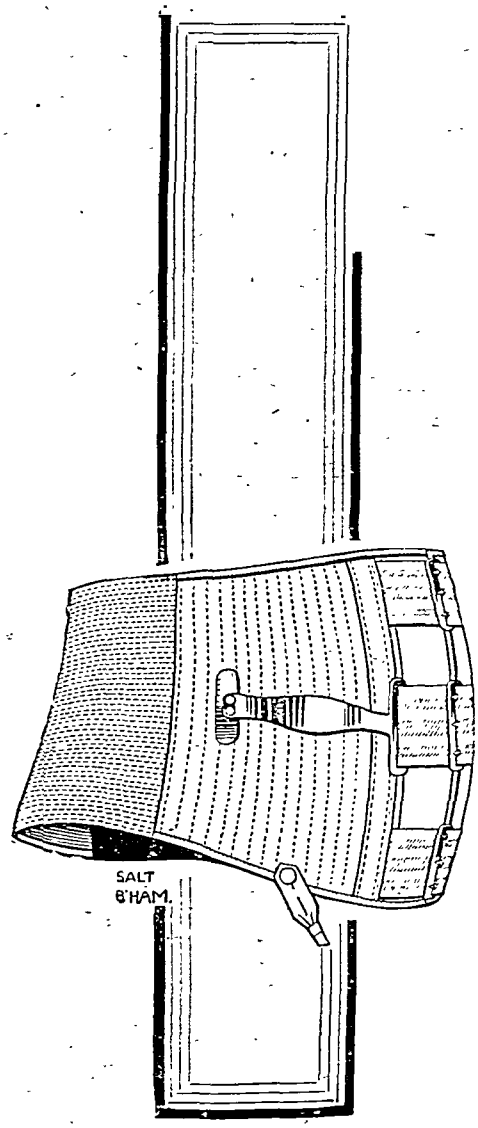
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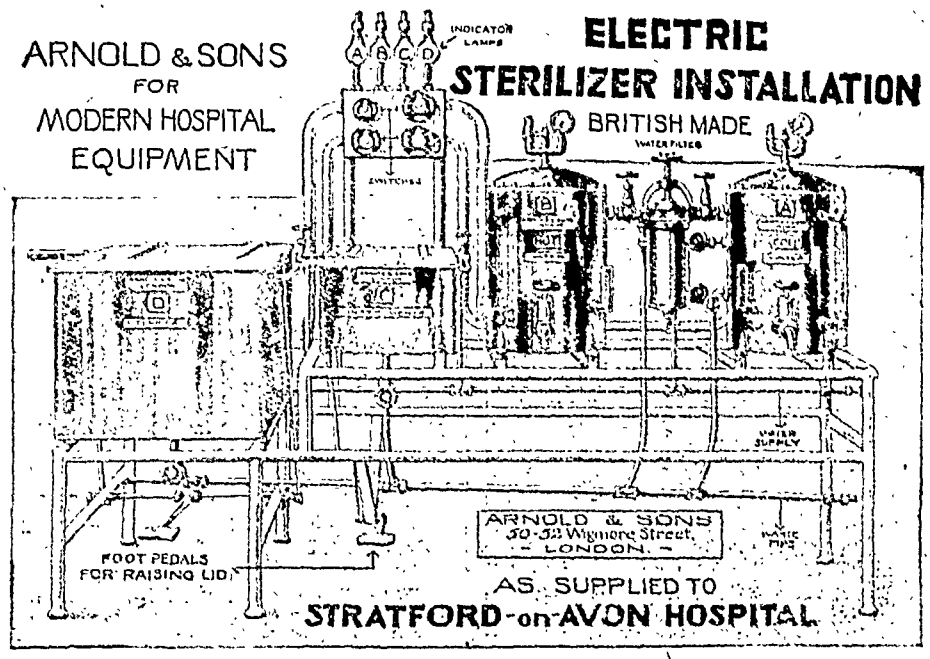
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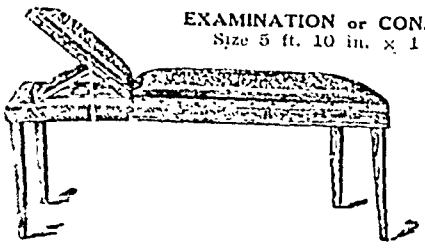
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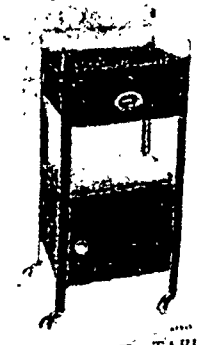
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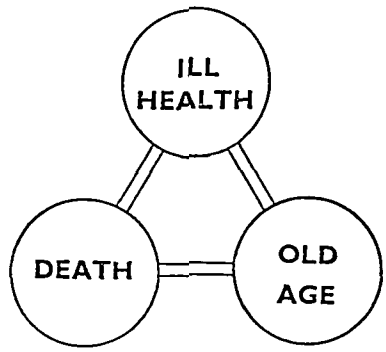
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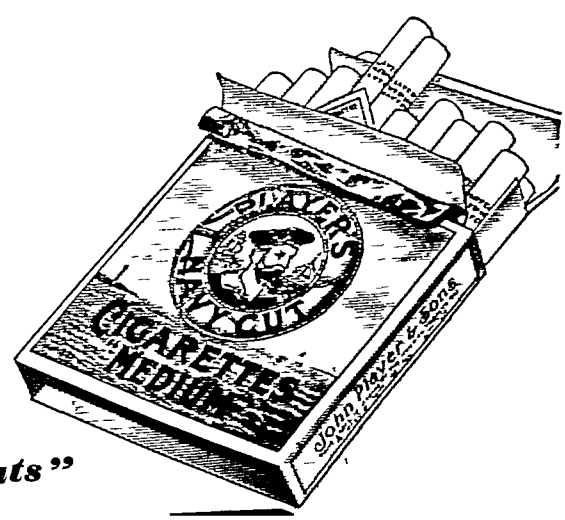
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Station: Eden Park (Southern Railway).

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HOUSE SURGEON (Male) required. Salary £150 per *annum*, with residence, board, and laundry. Applications, with not more than three testimonials, to be sent to the Secretary, Miss SUSAN SMITH, South Cliff, Kidderminster.

MEDICAL CORRESPONDENCE COLLEGE,

19, Welbeck Street, London, W.1.

CONJOINT BOARD EXAMINATIONS

Candidates taking the First, Second, or Final Conjoint Examinations should make sure of passing at the first attempt by enrolling for the short intensive Revision Courses of the College.

POSTAL, ORAL, PRACTICAL, CLINICAL COURSES.
MICROSCOPE AND MUSEUM WORK.

Highly qualified Tutors with accurate knowledge of the special features of these examinations.

Write at once for booklet, "How to Pass the Conjoint Board Examinations." Sent free on application.

Address: The Secretary,
MEDICAL CORRESPONDENCE COLLEGE,
19, Welbeck Street, London, W.1.

THE ROYAL INFIRMARY OF EDINBURGH.

APPOINTMENT OF CLINICAL TUTOR TO THE DERMATOLOGICAL DEPARTMENT.

The Board of Managers invite applications for the above post, which will become vacant on October 1st. Candidates should be fully qualified and registered, and should preferably have had some experience in Diseases of the Skin. There is a small salary attached to the post at present at the rate of £40 per annum.

The appointment will be for one year from the date mentioned above.

Applications should be sent to the undersigned.

HENRY MAW,
Sept. 16th, 1933. Secretary & Treasurer.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

The Committee invite applications for the post of ASSISTANT SURGEON with charge of beds. Two attendances required weekly. An honorarium to cover *travelling* expenses will be paid. Candidates must be Fellows by examination of the Royal College of Surgeons.

Applications, with copies of three recent testimonials, which may be printed or typewritten, should be sent on or before September 30th, to the undersigned, from whom further particulars may be obtained.

CHARLES H. BESSELL,
August 28th, 1933. Secretary.

THE ROYAL INFIRMARY, SHEFFIELD.
(500 Beds.)

OPEN APPOINTMENT.

Applications are invited for the post of CLINICAL ASSISTANT (male or *female*) to the Dermatological Department. Salary £300 per annum.

Letters, stating age and giving particulars of qualifications, and any previous experience, should be submitted to the undersigned forthwith.

Board Room, JNO. W. BARNES, F.C.I.S.,
Sept. 14th, 1933. Gen. Supt. & Sec.

WOULD EXPERIENCED, UP-TO-DATE general practitioner give TUTORIALS to inexperienced general practitioner too busy to attend Post-Graduate courses? Fee which must be moderate to be arranged.—Address, No. 6330, B.M.A. House, Tavistock Square, W.C.1.

GOVERNMENT OF IRAQ.

ROYAL COLLEGE OF MEDICINE, BAGHDAD.

The closing date for the receipt of applications for the undermentioned appointments has been extended to September 30th, 1933.

PROFESSOR OF EPIDEMIOLOGY & PUBLIC HEALTH.
PROFESSOR OF MATERIA MEDICA.
PROFESSOR OF GYNAECOLOGY AND MIDWIFERY.

Full particulars of service can be obtained from the Iraqi Minister, Royal Iraqi Legation, 22, Queer's Gate, London, S.W.7.

THE OTAGO HOSPITAL BOARD.

UNIVERSITY OF OTAGO AND DUNEDIN HOSPITAL, NEW ZEALAND.

Applications are invited for the position of RESIDENT MEDICAL OFFICER (Senior)

Candidates must hold a degree in Medicine of a British University, must have been qualified for three years, and have held resident hospital appointments for at least one year.

The successful applicant will be required to act as *Medical Tutor under the direction of* the Professor of Medicine, and as Superintending House Physician and Medical Registrar.

Salary to be at the rate of £500 per annum, *with board and residence*, less 10 per cent. reduction.

Full details may be obtained on application to the High Commissioner for New Zealand, 415, Strand, W.C.2

Otago Hospital Board, *Dunedin, New Zealand.* JOHN JACOBS, Secretary.
August 2nd, 1933.

SOUTHERN RHODESIA MEDICAL SERVICE.

The Government of Southern Rhodesia invites applications for the post of GOVERNMENT *MEDICAL OFFICER. Salary* is at the rate of £500—£25—£750 per annum, with private practice.

Applications should be submitted on the prescribed forms, stating qualifications, experience, age, etc., to the Official Secretary, Office of the High Commissioner for Southern Rhodesia, Crown House, Aldwych, *London*, W.C.2, *from* whom application form and further particulars may be obtained

Applications will be received up to Oct 14th. Canvassing will disqualify

LURGAN UNION (NORTHERN IRELAND).

MALE OR FEMALE RESIDENT MEDICAL OFFICER WANTED.

The Board of Guardians will, at their meeting to be held on October 5th, 1933, receive and consider applications from duly qualified persons for the position of Resident Medical Officer of the Infirmary and Fever Hospital for one year at a salary of £100, with apartments, laundry, and first-class rations.

Travelling expenses (saloon and third-class railway fare) will be allowed to the candidates who attend the Board meeting by request.

Applications for the appointment, accompanied by certificate of registration and copies of testimonials, will be received by me up to 10 a.m. *on the date above named*

The Infirmary is in course of reconstruction, involving a large expenditure which it is expected will make it one of the most up to date Hospitals in Northern Ireland

By Order,
Clerk's Office, J. CALVERT,
Workhouse, Lurgan. Clerk of Union.
September 7th, 1933.

CITY OF BIRMINGHAM.

MATERNITY AND CHILD WELFARE DEPARTMENT.

CANWELL HALL BABIES' HOSPITAL (84 Beds)

A RESIDENT MEDICAL OFFICER is required for a period of six months; duties to commence on November 24th.

Applications are invited *from ladies with* previous experience as House Physician in a Children's Hospital. Salary £250 per annum, with board and laundry.

The salary and emoluments will be subject to the "voluntary abatement" approved by the Council in respect of its officers The officer appointed will be required to refund to the Council all fees, allowances, and emoluments (other than the foregoing) received by her

Applications, giving all particulars of qualifications, age, and experience, and accompanied by copies of three recent testimonials, on forms which will be supplied on request, should be sent to the Medical Officer of Health, The Council House, Birmingham, on or before October 7th.

HUNTINGDON COUNTY HOSPITAL.

HOUSE SURGEON (male) required. Salary £125 and laundry allowance. Apply, Dr. W. R. Glover, M.D.

COUNTY COUNCIL OF MIDDLESEX

CENTRAL MIDDLESEX HOSPITAL WILLESDEN,

RESIDENT ASSISTANT MEDICAL OFFICERS (Male).

The County Council invites applications for the above appointments. Candidates must be registered Medical Practitioners, unmarried, and must have held resident appointments in a General Hospital.

Candidates for the appointment at Central Middlesex County Hospital must have had special experience in Obstetrics and Gynaecology

For the appointment at Hillingdon County Hospital experience in general Surgery and Diseases of the Ear, Nose, and Throat is required.

The officers appointed will work under the direction of the Medical Superintendents of the Hospitals, and will devote their whole time to their official duties.

The salary attaching to each appointment is at the rate of £400 per annum, rising by annual increments of £50 to £600 per annum, together with board, lodging, and laundry, valued for superannuation purposes at £100 per annum.

The successful candidates will be required to pass such medical examination as the County Council may direct, and, unless subject to the Poor Law Officers Superannuation Act, 1896, to contribute to the County Council's Superannuation Fund.

The appointment will be held *during* the pleasure of the Council and subject to three months' notice on either side

Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than Sept 28th

No special application forms are provided Envelopes must be endorsed "Resident Assistant Medical Officer, Central or Hillingdon County Hospital" as the case may be

Canvassing, directly or indirectly, will be a disqualification.

N.B.—Central Middlesex County Hospital is a *General Hospital of 850 beds, about half of* which are occupied by acute medical and surgical cases and maternity cases

Hillingdon County Hospital is a General Hospital of some 150 beds for medical, surgical, and maternity cases. 100 beds for chronic cases in Hillingdon Institution, which adjoins *the Hospital, also are under the care of the* medical staff of the Hospital (C D. 17)

ERNEST S W HART,
Clerk to the County Council.
Middlesex Guildhall, Westminster, S W 1
September, 1933

COUNTY BOROUGH OF BIRKENHEAD.

DEPARTMENT OF THE MEDICAL OFFICER OF HEALTH

BIRKENHEAD INFIRMARY

RESIDENT MEDICAL OFFICER

There is at present a vacancy for a Resident Medical Officer at the above Hospital Candidates must be males and unmarried

The possession of the degree of M D or M R C P. is essential.

Salary £300 per annum, with residence, board, and laundry. The appointment will be tenable for one year.

Applications must be made on forms to be obtained from Dr D MORLEY MATHESON, Medical Officer of Health 9, Hamilton Square, Birkenhead, and must reach me not later than Saturday, October 7th

Town Hall, E. W TAME.
Birkenhead. Town Clerk
September, 1933

WARWICKSHIRE & COVENTRY JOINT COMMITTEE FOR TUBERCULOSIS

KING EDWARD VII MEMORIAL SANATORIUM, HERTFORD HILL, Near WARWICK.

Applications are invited for the post of JUNIOR ASSISTANT MEDICAL OFFICER (male) at the Memorial Sanatorium, near Warwick, of 195 beds.

The successful candidate will be appointed for six months, and will have special opportunity of gaining experience in treatment by artificial pneumothorax, by ultra violet light, and in X-ray work.

The salary will be at the rate of £200 per annum, with board, *lodging, and laundry*, and the occupant of the post may be promoted at a later date to the post of Senior Assistant Medical Officer.

Applications, with recent testimonials, should be forwarded direct to the Medical Superintendent at the Sanatorium by not later than Monday, *October 9th*.

Shire Hall, L. EDGAR STEPHENS,
Warwick. Clerk of the Joint Committee.
September 15th, 1933.

COUNTY COUNCIL OF MIDDLESEX.

WEST MIDDLESEX COUNTY HOSPITAL, ISLEWORTH.

VISITING PATHOLOGIST (Part time).

The County Council invites applications for the above appointment Candidates must be registered medical practitioners with special knowledge and experience of pathology and biochemistry, who are engaged wholly or mainly in the practice of this branch of medicine

The pathologist appointed will be required to attend the hospital on two half-days per week at first, at times to be arranged after appointment, the remuneration payable is three guineas per session of 2—3 hours

The appointment will be held during the pleasure of the County Council and subject to three months notice on either side

Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than September 28th

No special application forms are provided Envelopes must be endorsed "Pathologist, West Middlesex County Hospital"

Canvassing, directly or indirectly, will be a disqualification. (C D 16)

ERNEST S W HART
Middlesex Guildhall, Clerk of the
Westminster, S W 1. County Council
September, 1933

LANCASHIRE COUNTY COUNCIL

PARK HOSPITAL, DAVYHULME, Near MANCHESTER

APPOINTMENT OF JUNIOR RESIDENT MEDICAL OFFICER

Applications are invited *from registered male* Medical Practitioners for the appointment of Junior Resident Medical Officer at the above Hospital Candidates must be unmarried

Preference will be given to applicants having experience in Midwifery, Gynaecology, and Diseases of Children

The *appointment* will, in the first instance be for a period of six months the successful applicant being eligible for reappointment for a further period of six months at the end of that period

The salary is at the rate of £200 per annum, subject to an emergency abatement, together *with the usual residential allowances*

The Hospital comprises 500 beds

Forms of application may be obtained from the County Medical Officer of Health, Public Assistance (Hospital and Medical) Department County Offices, Preston, to whom all applications, accompanied by copies of not more than *two recent testimonials, must be forwarded* not later than Thursday, October 5th

County Offices, GEORGE ETHERTON
Preston Clerk of the County Council
September 18th, 1933

LANCASHIRE COUNTY COUNCIL

JUNIOR ASSISTANT MEDICAL OFFICER for the WRIGHTINGTON HOSPITAL PARBOLD LANCS.

Applications are invited for the post of Junior Assistant Medical Officer (male, unmarried) for the *Wrightington Hospital* (containing 226 beds for non-pulmonary tuberculosis) salary £200 There is an emergency deduction of 1½ per cent from the salary The appointment will be for 12 months.

Forms of application and conditions of appointment obtainable from Central Tuberculosis Officer, County Offices, Preston. Closing date October 4th

County Offices, GEORGE ETHERTON,
Preston. Clerk of the County Council.
September 19th, 1933.

ROWLEY REGIS URBAN DISTRICT COUNCIL.

AURAL SPECIALIST.

Applications are invited for a part-time Specialist to CONDUCT a CLINIC for diseases of the ear, nose, and throat. One session lasting approximately two hours will be held each month, and the remuneration will be at the rate of £2 12s. 6d. per session. Candidates should possess a Diploma in Laryngology, etc., or the F.R.C.S (Eng.), and should have had adequate hospital experience.

The appointed candidate will be under the administrative control of the Council's Medical Officer of Health.

Applications, giving full particulars as to age, qualifications, and experience, should be received by the undersigned not later than the first post on October 2nd, endorsed "Aural Specialist."

Council House, CLIFFORD BUCKLEY.
Old Hill, Staffs. Clerk of the Council
September 12th, 1933.

URBAN DISTRICT OF MERTON & MORDEN (SURREY).

URBAN DISTRICT OF CARSHALTON (SURREY).

JOINT APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

(Amended Advertisement.)

Applications are invited for the appointment of Medical Officer of Health, subject to the provisions of the Public Health (Officers) Act, 1921, and the Sanitary Officers Order, 1926. Candidates must not be more than 45 years of age.

The person appointed will be required to perform all the duties imposed on a Medical Officer of Health under relevant Acts and Orders and shall be responsible to the respective Councils, in a supervisory capacity or otherwise, for Maternity and Child Welfare work in each of the above-named districts, and will also be required to carry out all such duties as the respective Councils may, with the consent (if necessary) of the Ministry of Health, from time to time direct.

The person appointed must reside within the Urban District of Merton and Morden, must not engage in private practice, and must devote whole-time to the duties of the office.

The appointment will be subject to the approval of the Ministry of Health, will also be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

The inclusive salary will be £900 per annum, plus a yearly allowance of £100 for travelling expenses; office accommodation, stationery, and clerical assistance will be provided by each authority.

Applications, stating age and date of birth, qualifications, and experience, accompanied by copies of not more than three recent testimonials, should be addressed to the Clerk, Council Offices, Kingston Road, Merton, S.W.19, so as to reach him not later than 12 o'clock noon on Monday, October 9th, endorsed "Medical Officer of Health."

Canvassing in any manner whatsoever is prohibited, and will disqualify candidates.

C. J. MOUNTIFIELD,
Clerk of the Merton & Morden U.D.C.
J. W. WRIGHT,
Clerk of the Carshalton U.D.C.
September 18th, 1933.

THE METROPOLITAN BOROUGH OF STOKE NEWINGTON.

TO MEDICAL PRACTITIONERS.

The Council of the Metropolitan Borough of Stoke Newington require the services of a Medical Practitioner (holding the necessary qualifications as to Vaccination) as PUBLIC VACCINATOR for the Borough. The fees payable to the person appointed will not be less than those specified under the Vaccination Order, 1930 (during the past year the fees amounted to about £84).

The person to be appointed must reside and practise within the Borough of Stoke Newington.

The appointment will be subject to the sanction of the Minister of Health.

Applications, stating qualifications, and full particulars, together with not more than three testimonials, should be addressed to the undersigned not later than Wednesday, October 4th.

C. KENT WRIGHT,
Town Hall, Stoke Newington, N.16. Town Clerk.
September 15th, 1933.

THE RADIUM INSTITUTE, Riding House Street, London, W.1.

Applications are invited for the post of HOUSE SURGEON. Candidates must be fully qualified, unmarried, and of British nationality. The appointment is for a term of six months, and the successful candidate will be required to take up his duties on October 1st next. The salary will be at the rate of £150 per annum, with board, lodging, and laundry.

Applications, stating age, qualifications, and experience, with copies of three recent testimonials, must be received at the Institute not later than the first post on Monday, Sept. 25th.

THOS. A. GARNER, Secretary.

THE STAFFORDSHIRE GENERAL INFIRMARY, STAFFORD.

HOUSE PHYSICIAN required about the middle of October. Salary £150 per annum, and board-residence. The appointment must be held for at least six months, and the duties will include those of Casualty Officer. The Hospital has 100 beds, and there are two Residents.

Applications, stating age, accompanied by copies of three recent testimonials, as to qualifications and experience, should be forwarded to the undersigned forthwith.

A. E. COLLINS.
Stafford. Secretary.
September 23rd, 1933.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS, Victoria Park, E.2.
('Bus, Tram, and Rail, Cambridge Heath, L. & N.E. Railway.)

A vacancy for a HOUSE PHYSICIAN (male) will occur on November 1st. Six months' appointment. Salary at the rate of £100 per annum. Board, residence, and laundry provided.

Applications, with copies of three testimonials, should be sent to the undersigned on or before Friday, October 20th.

GEORGE WATTS, Secretary.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.1.

Applications are invited from duly qualified Medical Women for the post of RESIDENT CASUALTY OFFICER. Previous experience as Hospital Resident essential. Salary £150 per annum. Intending candidates should submit applications, stating age and accompanied by copies of three recent testimonials, to the undersigned on or before September 30th. The appointment is tenable for six months from November 1st next.

REGINALD R. GARRATT, Secretary.

THE HOSPITAL FOR DISEASES OF THE SKIN.

Applications are invited from fully qualified medical men, with experience in dermatology, for the post of REGISTRAR at the above Hospital. Candidates must apply, in writing, to the Secretary, from whom further particulars can be obtained, before October 9th next. The appointment will be made in the first instance for one year, but the holder will be eligible for re-appointment.

FREDERICK HAYTER,
71, Blackfriars Rd., S.E.1. Secretary.

ROYAL VICTORIA & WEST HANTS HOSPITAL, BOURNEMOUTH.

The Board of Management will, after the expiration of one month, proceed to appoint an HONORARY ANAESTHETIST. Applications, stating qualifications, age, and experience, should be sent to the undersigned by October 18th. Canvassing, personally or otherwise, will disqualify.

By Order of the Board of Management,
GORDON M. SAUL,
September 18th, 1933. Secretary.

ROYAL SOUTHERN HOSPITAL, LIVERPOOL.

WANTED.
A MEDICAL OFFICER TO THE SPECIAL DEPARTMENTS AND RESIDENT ANAESTHETIST.

The salary for this appointment is £60 per annum, including board and residence.

The appointment will be for six months, duties commencing as from October 1st.

Applications and copies of testimonials to be sent to the undersigned at once.

C. H. SPENCE, Assistant Secretary.

THERE WILL BE A VACANCY FOR A RESIDENT MEDICAL OFFICER at WESTMINSTER HOSPITAL ANNEXE, 66, Fitzjohn's Avenue, Hampstead, on November 1st.

Salary at the rate of £200 per annum, plus accommodation and board. The post offers an opportunity for wide and unique Radium experience.

Candidates who previously have held a Resident post preferred.

Applications should be submitted to the undersigned at Westminster Hospital, Broad Sanctuary, S.W.1, not later than Sept. 29th.

CHARLES M. POWER, Secretary.

WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.1.

There will be a vacancy for a HOUSE SURGEON to the Ear, Nose, and Throat, and Eye Departments on November 1st. The appointment is for six months (non-resident) and the salary is at the rate of £102 per annum.

Applications should be submitted to the undersigned immediately.

CHARLES M. POWER, Secretary.

ROYAL SURREY COUNTY HOSPITAL, GUILDFORD. (182 Beds.)

Wanted, November 1st, HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry. Applications, stating essential particulars, with copies of not more than three testimonials, to be sent to the Secretary-Superintendent not later than October 7th.

ROYAL SURREY COUNTY HOSPITAL, GUILDFORD. (182 Beds.)

Applications are invited for the post of HON. ORTHOPAEDIC SURGEON and should be sent to the Secretary-Superintendent not later than October 5th, accompanied by three testimonials.

LONDON COUNTY COUNCIL.

RESIDENT ASSISTANT MEDICAL OFFICERS (Grade I) required at the undermentioned hospitals.

Duties assigned by medical superintendents and include if necessary, assistance at other establishments under the control of the Council.

Candidates must be registered medical practitioners of at least one year's standing. Experience in resident appointment in a general hospital desirable. Salary £350, rising annually by £25 to £425, with board, lodging, and washing. Remuneration and conditions of service are subject to review.

*1. PRINCESS MARY'S HOSPITAL FOR CHILDREN, MARGATE. Experience in surgical tuberculosis and the administration of anaesthetics essential.

*2. GROVE PARK HOSPITAL, Lee, S.E.13.—Experience in treatment of pulmonary tuberculosis, including artificial pneumothorax methods and the administration of anaesthetics is essential.

†3. NORTHERN HOSPITAL, Winchmore Hill, N.21.—Experience as for Grove Park Hospital.

* No accommodation for a married man or for a woman.

† No accommodation for a married man.

Application forms obtainable (stamped, addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 3a), County Hall, S.E.1, returnable by October 6th. Canvassing disqualifies. Further inquiries should be addressed to medical superintendent at respective hospitals.

HUDDERSFIELD ROYAL INFIRMARY. (240 Beds.)

Applications are invited for the following post:

JUNIOR CASUALTY OFFICER AND RESIDENT ANAESTHETIST (male or female) to commence duty about the middle of October.

Salary at the rate of £150 per annum, with board, residence, and laundry.

The Hospital is officially recognised for the Surgical Practice required of non-members before admission to the Final Fellowship Examination of the Royal College of Surgeons of England.

Applications, with copies of three recent testimonials, to be addressed to the undersigned immediately.

H. E. G. HALL, Gen. Supt. & Secretary.

NOTTINGHAM GENERAL DISPENSARY, Broad Street, NOTTINGHAM.

Wanted, RESIDENT SURGEON (male or female), unmarried. Must have medical and surgical qualifications. Salary £250, with £25 increase per year up to £300. House, with attendance, lights, and fuel (not board). This Institution is a non-provident one. No beds. No midwifery.

Applications, stating age, and accompanied by copies of recent testimonials, to be sent by October 12th, to—

R. J. WILLATT,
5, Thurland Street, Nottingham. Secretary.

LONDON HOSPITAL, E.1.

Applications are invited for the post of SECOND ASSISTANT AND REGISTRAR to the Medical Unit.

The appointment is for one year from the date of election, but may be renewed for a further period.

Salary £300 per annum.

The latest date for receiving applications is October 7th.

Further particulars may be obtained from the House Governor.

ARTHUR G. ELLIOTT, House Governor.

THE NELSON HOSPITAL, Merton, S.W.20. (84 Beds—63 General, 21 Maternity.)

Wanted at once, TWO RESIDENT HOUSE SURGEONS (male), unmarried. Applicants for one of the appointments should have a good knowledge of Obstetrics and Gynaecology.

Majority of work Surgical.

Appointments for six months in first instance. Salary at the rate of £100 per annum. Applications, with copies of two testimonials, should be sent to the Hon. Secretary, not later than September 30th.

THE GORDON HOSPITAL, Vauxhall Bridge Road, S.W.1. (35 Beds.)

A RESIDENT HOUSE SURGEON is required at the above Hospital. The appointment is for six months, with salary at the rate of £80 a year, with board, residence, and laundry. Candidates are desired to send applications and full particulars as to age, qualifications, and experience, together with copies of three recent testimonials, to the undersigned not later than Monday, October 2nd. Duties to commence on or about October 16th.

HUBERT F. REW, Secretary.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B M A House, Tavistock Square, W C 1 (in the case of Scottish appointments with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh)

(a) British Islands.

Town or District	Town or District	Town or District
CONTRACT PRACTICE	**CONTRACT PRACTICE** (contd.)	**PUBLIC HEALTH**
EBBW VALE MON (Workmen's Medical Society)	LLANDY GLAMORGAN (Workmen's Medical Service)	DORSET COUNTY COUNCIL (County Medical Officer of Health)
GILFACH GOCH GLAMORGAN (Workmen's Medical Service)	NEATH AND DISTRICT (Medical Aid Association)	HERTFORDSHIRE COUNTY COUNCIL WARE SANATORIUM (Assistant Medical Officer)
LLWYNPIA CLYDACH VALE PENYGRAIG GLAMORGAN (Workmen's Medical Service)	OAKDALE MON (Medical Aid Association)	COUNTY BOROUGH OF SOUTH SHIELDS (Assistant School Medical Officer) HARTON INSTITUTION AND CLEADON COTTAGE HOMES (Medical Officer)
LOWESTOFT MEDICAL INSTITUTE (Medical Officer)	RHONDDA VALLEY GLAMORGAN (Medical Aid Society) (Medical Service)	NORTH RIDING OF YORKSHIRE COUNTY COUNCIL (Temporary Maternity and Child Welfare Medical Officer—Woman)

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B M A House, Tavistock Square, W C 1

Town or District.	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch
NEW SOUTH WALES. (*All Friendly Societies Appointments*)	Dr. J. G. HUNTER (Medical Secretary New South Wales Branch) 135 Macquarie St. Sydney N.S.W.	**QUEENSLAND** (*Brisbane Associated Friendly Societies Institute*)	The Hon. Sec. Queensland Branch British Medical Association, B.M.A. Building, Adelaide St. Brisbane	**WELLINGTON NEW ZEALAND.** (*Contract Practice Appointments*)	Dr. G. F. V. ANSON (Hon. Sec. New Zealand Branch) British Medical Association, P.O. Box 156 Wellington, New Zealand
VICTORIA. (*All Institute or Medical Dispensaries*)	Dr. J. P. MAJOR (Hon. Sec. Victorian Branch British Medical Association Medical Society Hall East Melbourne Victoria	(*Toowoomba Associated Friendly Societies Medical Institute, Toowoomba*)		**WESTERN AUSTRALIA.** (*Contract and Lodge Practices*)	Hon. Secs. Western Australian Branch, British Medical Association, No. 6 Bank of N.S.W. Chambers St. George's Terr. Perth, Western Australia.

September 20th, 1933. By Order of the Council G. C. ANDERSON, Medical Secretary

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LONDON JEWISH HOSPITAL, Stepney Green, E.1
(General Hospital—108 Beds)

The Council of Management are about to appoint an HONORARY ASSISTANT SURGEON, who will be required to attend Out-patients on two mornings each week (but only one session is necessary for the present). Candidates for the post must be Fellows of the Royal College of Surgeons of England, Edinburgh or Ireland or Masters of Surgery of London, Oxford or Cambridge University, and shall not be engaged in the practice of Pharmacy or Midwifery. Candidates desiring to make application must send twenty-four copies of their application, with copies of three recent testimonials, to the Secretary at the Hospital on or before Friday, October 6th.

NORTH DEVON INFIRMARY, BARNSTAPLE
(70 Beds)

Wanted for September 26th duly qualified sole RESIDENT MEDICAL OFFICER. Salary £150 per annum, with board, apartment, and laundry. Appointment to be for not less than six months. Applications stating age, qualifications, with copies of recent testimonials to be sent forthwith to the Hon. Secretary as above.

CHESTER ROYAL INFIRMARY
(211 Beds)

HOUSE SURGEON (male) required, for November 1st. Salary £150 per annum, with board, lodging, and washing. Application list closes October 6th.

Application forms may be obtained from W. H. GRACE, M.D., M.R.C.P., Hon. Superintendent of Resident Medical Staff.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.1

Applications are invited for the post of HOUSE PHYSICIAN (male) for six months from October 1st (first two months in Casualty and Out-patient Department). Salary at the rate of £120 per annum, with board, and residence.

Applications, stating age, experience and qualifications, accompanied by copies of four testimonials, to be sent to the undersigned not later than September 20th from whom rules and other particulars can be obtained.

By Order of the Committee of Management,
W. H. SIDNELL,
Sept. 8th, 1933. Secretary Supt.

ST. JOHN'S HOSPITAL, LEWISHAM, S.E.13

Applications are invited for the appointment of RESIDENT MEDICAL OFFICER (male) which will become vacant on or about October 21st. The appointment is for one year at a salary of £200 per annum, with board, lodging, etc. The Resident Medical Officer acts as panel practitioner to the resident female staff.

Applicants should have been qualified not less than two years and should have surgical experience. Applications with copies of not less than three testimonials should reach the undersigned not later than October 1st.

J. C. GILBERT, Secretary-Supt.

THE WARNEFORD, OXFORD

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Application, stating age and particulars of qualification, and enclosing copies of testimonials, should be forwarded to the undersigned.

W. T. SOUTHWOOD, Supt. & Secretary.

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HOUSE SURGEON (male) required to commence duties on October 19th. Six months' appointment. Salary payable at the rate of £125 per annum, plus board, residence, and laundry.

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(*Appointments continued on p. 48.*)

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CLOTHES OF DISTINCTION for MEN of DISCRIMINATING TASTE. Specially Cut, Fitted, and Moulded to each individual figure, made from Finest Quality Materials and in the Best Possible Style, cost no more than mass production ready-made clothes.

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1000 DOCTORS' A/C FORMS, 15/- CARR. PAID. Printed in the modern easily-read lettering on splendid paper. Write for sample. Letterheads, Cards, Envelopes, etc.—ANDERSON & SON, Printers, 1, Hill Place (near Surgeons' Hall), Edinburgh.

APPOINTMENTS.—Contd.

THE PRINCESS ELIZABETH OF YORK HOSPITAL FOR CHILDREN
(Formerly East London Hospital for Children), Shadwell, London, E.1.

The following Medical Officers are required:
1. HOUSE PHYSICIAN.
2. CASUALTY OFFICER.

Salary in each case at the rate of £125 per annum, with board, residence, and laundry provided.

The appointments are for six months, from October 27th.

Applications, stating age, nationality, qualifications, and experience, accompanied by copies of not more than three recent testimonials, should reach the undersigned not later than October 9th next.

J. F. RUSSELL, Secretary.

BURTON-ON-TRENT GENERAL INFIRMARY. (142 Beds.)

Applications are invited for the post of CASUALTY OFFICER AND HOUSE PHYSICIAN (male). Salary at the rate of £150 per annum, with board, residence, and laundry.

Applications, stating age and qualifications, together with copies of testimonials, to be sent to—

F. W. THORNLEY, Secretary.

NORTH STAFFS ROYAL INFIRMARY, STOKE-ON-TRENT

ASSISTANT HOUSE PHYSICIAN required. Salary £125 per annum, with board, residence, etc. Previous Hospital experience desirable. Send Applications, with copy testimonials, immediately.

W. STEVENSON, Secretary.

ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY, WIGAN. (180 Beds.)

Wanted as soon as possible after October 1st, a RESIDENT MEDICAL AND SURGICAL OFFICER AND REGISTRAR. The period of the appointment will be until December 31st, 1934. Candidates must have held previous resident appointments at a Hospital. Preference will be given to those possessing the F.R.C.S. or M.S. Degree. The salary is at the rate of £250 per annum, with board, residence, and laundry. Applications, giving proof of registration and not more than three testimonials, to be sent to the undersigned as soon as possible.

A. STANLEY BRUNT,
Sept. 14th, 1933. Gen. Supt. & Sec.

ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY, WIGAN.

A vacancy occurs for an HONORARY SURGEON, who must be legally registered to practise Medicine and Surgery, and reside preferably within six miles of the Infirmary. Applications, with copies of two recent testimonials, stating age, qualifications, etc., to reach the undersigned (from whom further information can be obtained) by Monday, October 9th.

The Senior Honorary Assistant Surgeon is an applicant for this vacancy.

By Order of the Board of Management,
A. STANLEY BRUNT,
Sept. 14th, 1933. Gen. Supt. & Sec.

ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY, WIGAN.

A vacancy occurs for an HONORARY ASSISTANT PHYSICIAN who must be legally registered to practise Medicine and Surgery and reside preferably within six miles of the Infirmary. Applications, with copies of two recent testimonials, stating age, qualifications, etc., to reach the undersigned (from whom further information can be obtained) by Monday, October 9th.

By Order of the Board of Management,
A. STANLEY BRUNT,
Sept. 14th, 1933. Gen. Supt. & Sec.

ST. CHAD'S HOSPITAL, BIRMINGHAM. FOR PAYING PATIENTS.

RESIDENT MEDICAL OFFICER required (male or female). This post offers exceptional educational advantages. There is a large staff of Consulting Specialists in all branches of Medicine. Salary £100 per annum, with furnished apartments, board (excepting stimulants), and laundry.

Candidates must be fully qualified and registered, and have previously held Resident post.

Applications (marked R.M.O.), with full particulars of experience, age, etc., together with copies of recent testimonials, should be sent to the undersigned not later than Sept. 30th.

ARCHIBALD SLATER, Chairman.

TAUNTON AND SOMERSET HOSPITAL, TAUNTON. (104 Beds.)

SENIOR HOUSE MEDICAL OFFICER required November 1st. Charge of Surgical beds. Three Residents on Staff. Applicants must have held a resident Hospital appointment for six months. Appointment (six months with option re-election) approved by University of London for purposes of M.S. exam.

Salary £150 per annum, with board, residence, and laundry, and the retention of certain fees.

Applications, with copies of three recent testimonials, by October 25th, to F. J. J. STACEY, Secretary.

LEEDS MATERNITY HOSPITAL, Hyde Terrace, LEEDS. (126 Beds.)

Applications are invited for the posts of SENIOR HOUSE SURGEON and JUNIOR HOUSE SURGEON. Honorarium payable: Senior House Surgeon £52 per annum; Junior House Surgeon £26 per annum.

The appointments are to be for a period of six months in the first instance, from November 1st, 1933, to April 30th, 1934.

Applications are to be sent to the Secretary, the Medical Faculty, Leeds Maternity Hospital, Hyde Terrace, Leeds, 2, on or before Oct. 7th.

HENRY F. PITT,
Sept., 1933. Secretary-Supt.

GENERAL INFIRMARY, SALISBURY. (Voluntary Hospital—171 Beds.)

HOUSE SURGEON (male) required to commence duty as soon as possible.

The appointment is for six months, with the right of applying for reappointment at the end of that period for a further period of six months.

Candidates must be unmarried, fully qualified, and registered. Salary £150 per annum, with board, etc.

Applications to be sent to the House Governor at once, from whom a copy of the Rules may be obtained.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.3.

The Committee of Management invite applications for the following posts:

FIRST ASSISTANT RESIDENT MEDICAL OFFICER.

Candidates must have held a Resident Hospital appointment for not less than six months. Salary £150 per annum, with board and residence, and an additional £25 per annum for services in connection with paying patients. The post is a Senior Resident appointment, and will include the duty of Assistant to the Surgeons to the Hospital. The appointment is for twelve months commencing November 1st.

SECOND ASSISTANT RESIDENT MEDICAL OFFICER.

Candidates must have held a Resident Hospital appointment for not less than six months. Salary £150 per annum, with board and residence. The appointment is for six months commencing November 1st.

HOUSE PHYSICIANS.

There are three vacancies for House Physicians. The duties include work in the Out-Patient Department as well as in the Wards, and one of the selected candidates will also be appointed Assistant to the Tuberculosis Officer for the Local Tuberculosis Dispensary at the Hospital. The appointment is for six months, commencing November 1st, with an honorarium of £50.

JUNIOR HOUSE PHYSICIAN (MALE) AT THE SANATORIUM AT FRIMLEY.

The appointment is for six months, commencing November 1st, with an honorarium of £50. At the expiration of his term of office, or in the event of a vacancy, the Junior House Physician will be expected to apply for, and, if appointed, to hold the post of Senior House Physician for a further term of six months.

Applications, with copies of testimonials, must reach the undersigned not later than Saturday, October 7th.

Brompton. FREDERICK WOOD,
September, 1933. Secretary.

THE CANCER HOSPITAL (FREE) (Incorporated under Royal Charter), Fulham Road, London, S.W.3.

Applications are invited for the post of ASSISTANT RADIOLOGIST at the Cancer Hospital (Free), Fulham Road, London, S.W.3.

Applicants must be registered *Medical Practitioners, who hold a Diploma in Radiology* (or have passed the examination for the Diploma).

The appointment will be for one year, at a salary at the rate of £350 per annum. Applications, giving full particulars as to age, qualifications, etc., together with copies only of three recent testimonials, should be sent to the undersigned on or before Saturday, October 14th.

CLEMENT COBBOLD, Secretary.

THE CANCER HOSPITAL (FREE) (Incorporated under Royal Charter), Fulham Road, London, S.W.3.

The Committee are prepared to receive applications for the post of HOUSE SURGEON, to commence duties on November 1st. Salary at the rate of £100 per annum.

The appointment is for six months, and subject to rules, a copy of which may be obtained from the Secretary.

Previous experience as a House Surgeon is indispensable.

Applications, with three (copies only) testimonials, to be sent to the undersigned not later than first post on Monday, October 9th.

CLEMENT COBBOLD, Secretary.

MILDMAY MISSION HOSPITAL, Austin Street, Bethnal Green, E.2.

Applications are invited for the post of HONORARY ASSISTANT GYNAECOLOGIST (woman). Applicants must be Fellows of the Royal College of Surgeons of England, and preferably Fellows or Members of the College of Obstetricians and Gynaecologists. The Council is anxious that all Members of the Hospital Staff should be in sympathy with the religious work of the Hospital.

Applications, together with testimonials, should be sent in as soon as possible to the Medical Superintendent.

NORTH LONSDALE HOSPITAL, BARROW-IN-FURNESS. (152 Beds.)

RESIDENT PHYSICIAN (male appointment). Applications are invited for the above resident appointment from fully qualified practitioners experienced in the administration of anaesthetics. Salary £175 per annum, with board, residence, and laundry.

Applications, stating age, experience, and [illegible] copies of three recent testimonials, to be sent to the Secretary, not later than October 1st.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.1

A HOUSE PHYSICIAN and a HOUSE SURGEON are required on October 14th and 18th respectively.

Gentlemen are invited to send in their applications, addressed to the Secretary before 12 o'clock, on Thursday, September 28th, with copies of not more than three testimonials given specially for the purpose and evidence of their having held a responsible hospital appointment.

The appointments are made for 6 months. Salaries at the rate of £100 per annum. Laundry allowance £5, board and residence in the Hospital.

Candidates must be unmarried and possess a legal qualification to practise.

All candidates must be in attendance to appear before the Joint Committee at their Meeting on Wednesday, October 4th at 2 p.m. precisely.

Forms of application and copies of the rules may be obtained from the Secretary.

By Order of the Board of Management,
HERBERT F. RUTHERFORD
September 1933. Secretary.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.1

There are several vacancies for HONORARY MEDICAL AND SURGICAL CLINICAL ASSISTANTS in the Out-patients Department of this Hospital. Applications are invited from gentlemen legally qualified to practise who will be willing *to offer their services on two mornings* a week from 9 a.m. until about 12.30 p.m.

Candidates should apply personally to the Medical Registrar to Out-Patients.

H. F. RUTHERFORD
September 13th, 1933. Secretary.

ROYAL MANCHESTER CHILDREN'S HOSPITAL, PENDLEBURY, near MANCHESTER. (190 Beds.)

Wanted, a RESIDENT SURGICAL OFFICER. Salary £125 per annum, who will be appointed for six months. Duties to commence November 1st. Candidates must be unmarried and duly registered. Previous hospital experience essential. A Fellow of one of the Royal Colleges of Surgeons would receive preference. Applications, stating age and accompanied by copies of not more than three testimonials to be sent to the undersigned not later than Thursday, October 5th. Canvassing directly or indirectly may disqualify.

By Order,
W. M. HUMPHRY, Secretary.

ROYAL MANCHESTER CHILDREN'S HOSPITAL, PENDLEBURY, near MANCHESTER. (190 Beds.)

Wanted a RESIDENT MEDICAL OFFICER. Salary £125 per annum, who will be appointed for six months. Duties to commence November 1st. Candidates must be unmarried and duly registered. Previous hospital experience essential. Applications, stating age and accompanied by copies of not more than three testimonials to be sent to the undersigned not later than Thursday, October 5th. Canvassing, directly or indirectly, may disqualify.

By Order,
W. M. HUMPHRY, Secretary.

ANCOATS HOSPITAL, MANCHESTER

RESIDENT MEDICAL OFFICER required to commence duty on November 1st next. One having held a previous appointment preferred. Appointment for six months. Salary at the rate of £150 per annum, with board, residence, etc.

HOUSE SURGEON (General) required to commence duty on November 1st next. Appointment for six months. Salary at the rate of £100 per annum, with board, residence, etc.

Applications for the above appointments should state age, qualifications, experience, etc., and should be forwarded together with three recent testimonials, to the undersigned, on or before Monday, October 2nd.

By Order of the Board,
HERBERT J. DAFFORNE,
General Supt. & Secretary.

BURY INFIRMARY, LANCS. (127 Beds.)

Applications are invited for the post of THIRD HOUSE SURGEON (male) who must have both Medical and Surgical qualification. The appointment is for six months at a salary at the rate of £150 per annum with board residence and laundry. The successful applicant will be required to commence duties October 1st.

Application stating age, qualifications, and nationality with copies of three recent testimonials to be sent to the undersigned not later than September 22nd.

Particulars of duties may be had on application.

ALEX. W. MAITLAND, Hon. Secretary.

CITY OF CARLISLE

TEMPORARY APPOINTMENT

SCHOOL DENTIST

Applications are invited for the above temporary appointment from registered Dental Practitioners who hold a diploma in Dental Surgery.

The appointment will be for two or three months' duration from October 2nd or as soon thereafter as can be arranged. The candidate appointed will be required to devote his whole time to the duties of the office and the salary will be at the rate of £10 10s. per week.

Applications enclosed "School Dentist" stating age, qualification and experience together with three recent testimonials must be sent as soon as possible to the undersigned.

Public Health Dept., 19 Fisher Street, Carlisle. Sept. 19th, 1933.

ALLAN SEMPLE
School Medical Officer

DARLINGTON MEMORIAL HOSPITAL (200 Beds.)

Wanted HOUSE SURGEON, one of four appointments, male, British, fully qualified. Salary £150 per annum, board, residence and laundry. Applications, stating age, qualifications, experience, together with copies of two recent testimonials to be addressed to me.

A. RIDDLE, Secretary, Supt.

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WANTED BY LADY DOCTOR INDUSTRIAL PRACTICE in Midlands or large town (not Wales). Panel of about 1,200. Income £1,000. Yorks or Scotland preferred.—No. 207.

WANTED—GOOD CLASS GENERAL PRACTICE near enough to London to get into evenings. Income £1,500—£1,600. Capital to purchase.—No. 203.

WANTED—BY WELL QUAL. GRAD. IN SIX months time, PRACTICE or PARTNERSHIP. Good class—panel not objected to—Cheltenham if possible. Prov. Town or Country S. of Birmingham. Income £1,500. Capital £3,000.—No. 200.

NORTH EAST COAST — OLD ESTAB. PE. Receipts £1,600 p.a. Panel 700. Fees 3/6 up. Premium £2,500. Good corner house 4 bedroom 2 reception rooms 2 bathrooms maids and boxroom. Sep. Surgery. Price £2,500.—No. 9191.

PARTNERSHIP — SOUTH WEST COUNTIES. Senior retiring. One-third share producing £1,000 further shares later. Panel 1,200. Scope for surgery. House, 3 bed 2 recep. bath, gas. Rent £40 p.a. Other house available.—No. 919[illegible].

PARTNERSHIP—CENTRAL LONDON—HALF share. Old-established. Receipts about £1,000 p.a. Panel 2,000. Fees 5/- to 21/-. Single man, aged about 30 preferred. Flat available or could reside elsewhere. Premium for quick sale £500.—No. 9207.

EAST COAST—CASH RECEIPTS LAST 12 months £909. Panel 120 increasing. Fees 3/6 up. House 2 recep. 3 bed. bathroom surg., and waiting. Rent £70 p.a. Premium £250.—No. 920[illegible].

PARTNERSHIP — JUNIOR REQUIRED — Eastern Counties, in Surg. Practice. Share to begin about £400. Partner must be a good all-round man about 30.—No. 9200.

SOUTH WEST COUNTIES—COUNTRY PRACTICE. Receipts average £400. Subsidy £150 granted by Panel committee. Premium £[illegible]55 to include lighting equipment, instrument and drugs. House 6-7 bedroom 2 recep. rooms, surgeries and office. Good garden, 3 acres. Rent £65.—No. 9204.

SOUTH COAST — FAVOURITE RESORT — £900—£600 p.a. and ample scope. Panel of 580. Ill-health cause of sale. Very little midwifery. Visiting fees 3/6 to 10/6. Small modern corner house (3 bed.) with garage and good garden. Price, House and Practice, £2,050.—No. 9189.

MIDLANDS—IMPORTANT BUSINESS AND Manufacturing Town. Assistant with view to one-third share in PRACTICE of £1,800 p.a. Salary as assistant £400 indoor and all found. Applicants must be able to undertake refractions.—No. 9188.

BERKS — OLD ESTABLISHED — COUNTRY PRACTICE, about £700 p.a. has been £1,100. Panel about 500. Visiting fees 2/6 to 7/6. Very little midwifery. Splendid house specially built for Vendor, with two acres of grounds, 2 reception rooms, 6 bedrooms, surgery, and waiting rooms, etc. Consider £4,000 offer for practice and house freehold.—No. 9173.

MANCHESTER — ABOUT £900 P.A., IN creasing, old established PRACTICE. Panel 1,120. Opposition less than usual. Visiting fees 4/6 and 5/-. Lower surgery fee 2/6. House on main road, 4/5 beds., 2 recep., and separate surgery. Rent £60 on lease also Branch on main road. Premium £1,100.—No. 9144.

LONDON, N.W. — SUBURB — RECEIPTS last three years £450. Panel 60. Visits 5 up. Surg. 3/6 to 5/-. Mids 8 to 10 p.a. fees 3 to 6 gns. Prem. £400. Good house, with garden 5 bed., 2 recep., ep. surg. and gar. Rent £100 p.a. on long lease or for sale at £1,550.—No. 9142.

ASSISTANTS REQUIRED — (1) SUFFOLK. Good mixed-class Practice. £250—£300 all found. (2) N. WALES. No obstetric. Low all found. Six months. £400 to suit.
Full particulars. Six months. £400 to suit.
Speak Welsh if possible.

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Accountancy and legal services furnished by the Agency, where desired, at moderate inclusive charges. No charge is made to Principals for the introduction of Locum Tenens or Assistants.

1. GLOUCESTERSHIRE.—In a small pleasantly situated town amidst beautiful surrounding country, old-established PRACTICE worth £1,370 last year, including panel producing £560. Very attractive house in its own grounds of 2 acres, and containing 3 large professional rooms (separate entrance), 2 reception, 5 bedrooms, bathroom, etc. Vendor's freehold. Price £2,000, or might be rented. Premium 1½ years' purchase.
2. MIDLANDS.—Old-established middle and better-class PRACTICE in clean and attractive manufacturing city. Cash receipts average over £1,600 p.a., including appointment worth £165 (transferable) and panel of 1,220. Visits 5/- to 2 gns. Midwifery discouraged, fees 5 to 15 gns. Exceptionally good house in own grounds, with ample accommodation, fitted with every labour-saving device and economically run. Situated in best residential part. Cottage in the grounds is let at £37 a year. Price, freehold, £5,000 (£3,500 on mortgage). Premium £3,500. Scope for active man.
3. WORCS.—Attractive country district within 5 miles of favourite town.—Unopposed old-established PRACTICE, producing over £500 p.a., including panel of 300. Very easily worked and very little midwifery. Exceptionally nice house, with petrol gas laid on. Beautiful garden, with tennis court, paddock, etc. (about six acres in all). Rent £65 p.a. on lease. Premium £750. Ill health sole reason for sale.
4. LADY DOCTOR'S PRACTICE. — LONDON, SOUTH-EAST.—The half share is offered in a well-established middle and working-class Practice averaging for the last three years £1,188 p.a. Panel of about 600. Two appointments worth about £130 a year. Fees from 2/6. Small house, containing 1 reception room, 3 bedrooms, bathroom, etc., and professional rooms. Price for freehold £750. Premium for share 2 years' purchase. Ill health reason for sale. Preliminary assistantship of one to two months offered.
5. WILTS.—Very old-established unopposed country PRACTICE, situated in very pretty agricultural district within 15 miles of large town. Average gross cash receipts for last three years £970. Panel of over 800 and appointments produce £249 p.a. Fees 2/6 to 7/6 with medicine extra. Very little midwifery from 2 to 5 guineas. House is an exceptionally nice one, very compact and in excellent repair, containing 4 professional rooms, 3 reception rooms, 6 bedrooms and dressing-room and maid's room. Bathroom etc., with h. and c. Walled-in garden, 2 large paddocks and fields, etc. Price freehold £2,500. Or smaller house available if preferred. Premium 1½ years' purchase. Sport of all kinds.
6. KENT.—PARTNERSHIP.—A one-third share (with increase up to one-half later) is offered, after a preliminary assistantship, in very old-established good middle and working-class Practice producing approximately £2,400 p.a. Panel of 1,375. Fees 3/6 to 10/6. Appointments worth over £350 p.a. Premium for share 2 years' purchase. Purchaser should be preferably Scotch or English and able to undertake major surgery.
7. BIRMINGHAM.—Rapidly increasing PRACTICE, situated in fast developing district, within easy reach of the centre of the town, offering large scope. Gross cash receipts for past twelve months £980, including panel of 1,220. Visits from 3/6. Midwifery from 3 gns. About 25 cases. Suitable house with dining room, lounge, 3 bedrooms, bathroom, etc. Surgery, waiting room and dispensary with separate entrance. Good garden and garage. Price for leasehold (with 97 years to run) £1,500. Premium £1,500. Sport of all kinds within easy reach.
8. SOUTH AFRICA.—Within eight hours of Durban.—Well-established PRACTICE, situated in very pretty Township, near sea coast and producing between £600 and £700 p.a. including appointments. The income was formerly much larger, but owing to world-wide depression it is now at its lowest ebb, but signs of improvement are already showing. Vendor is even now able to save money owing to the low cost of living. Opposition negligible. Bungalow residence with about an acre of garden. Rent £60 a year on lease. Premium only £500, to include furniture, drugs, instruments, etc., valued at about £200. Excellent climate and sport. Ill-health of Vendor's wife reason for sale.
9. PARTNERSHIP.—CO. DURHAM.—A one-third share (with increase later as arranged) is for DISPOSAL in a well-established chiefly industrial class practice, offering very good scope. Average gross cash receipts for past three years nearly £2,400, including panel bringing in £850 p.a. Appointments are worth £870 p.a. Fees from 2/6. Moderate expenses. Suitable house available for ingoing partner, on rental. Good sporting and educational facilities within reach. Premium for share 2 years' purchase. Ingoing Partner should pref. be an R.C. as there is a large Catholic population in the district.
10. YORKSHIRE UNIVERSITY TOWN. — Old-established middle and working-class PRACTICE, averaging for the past three years £1,132. Easily worked, and good scope for increase. Panel of over 1,000. Very light expenses. Good house with 2 reception, 5 bedrooms, etc., and separate surgery accommodation. Price for freehold £1,500. Premium, to include book debts, drugs, etc., £1,900.
11. EGYPT.—Well-established PRACTICE producing about £950 p.a., and offering scope for increase. Fees 10/6 to 2 gns. Excellent accommodation can be rented at £16 10s. monthly. Premium, to include all furniture, drugs, drug bottles, instruments, etc., £2,000.
12. WITHIN SIX MILES OF CHARING CROSS.—Good middle and working-class PRACTICE. Gross cash receipts for last twelve months about £950, including panel of 837. House contains 2 reception, 5 bedrooms, etc. Rent on lease £70 a year. Scope for increase. Premium only £1,000 for quick sale.
13. WESTERN SUBURB.—Old-established better middle-class non-panel PRACTICE, averaging for the last three years over £2,200. One appt. worth £80 p.a. Visits from 3/6 to 10/6. Not much midwifery. Suitable house, with 3 reception, 6 bedrooms, etc. Price £1,400, [illegible] m £4,000. Good introduction given.
14. [illegible] SUBURB.—Old-established good mixed-class PRACTICE, averaging for the last three years £1,030, including panel bringing in about £340 and appts. worth nearly £100. Fees from 3/6. Detached house with good garden, and containing 4 reception, 6 bedrooms, etc. Price for leasehold £1,200. Premium £1,900, or near offer.
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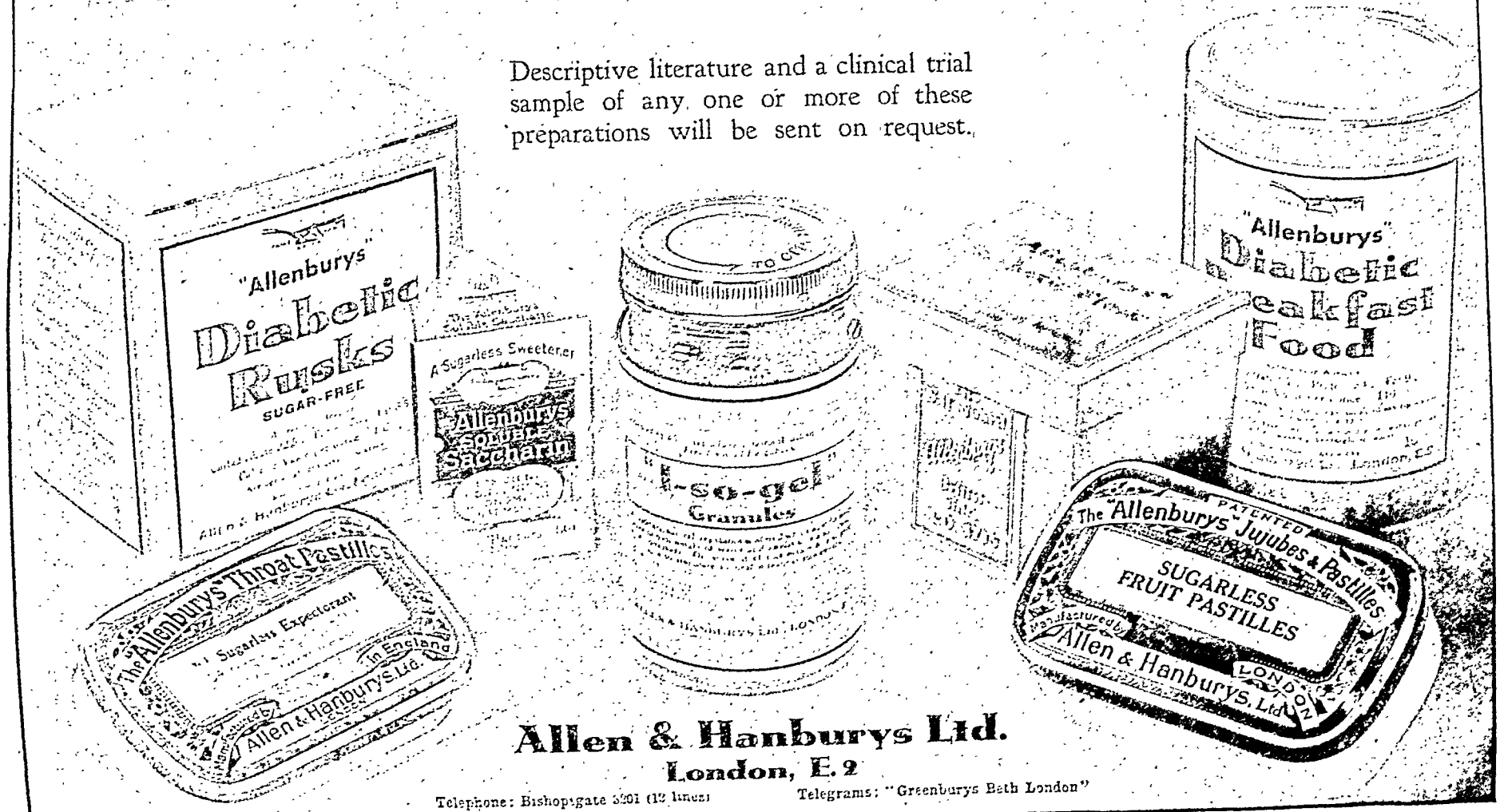
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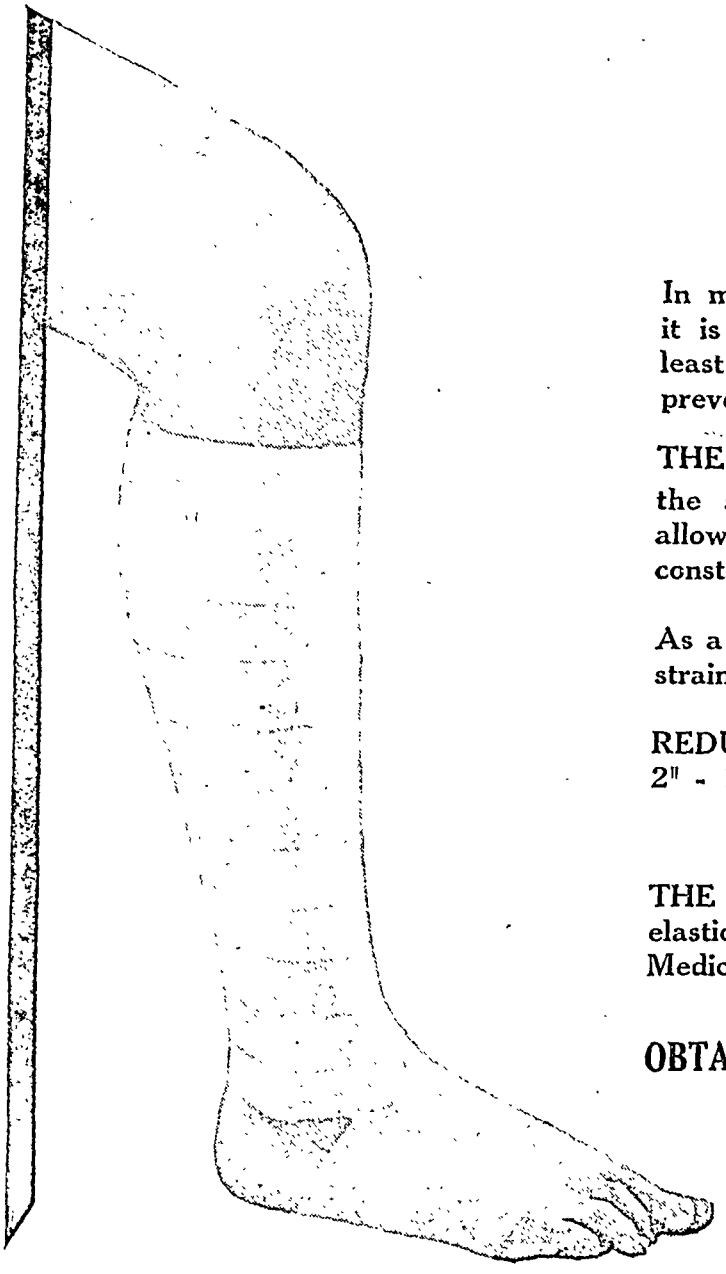
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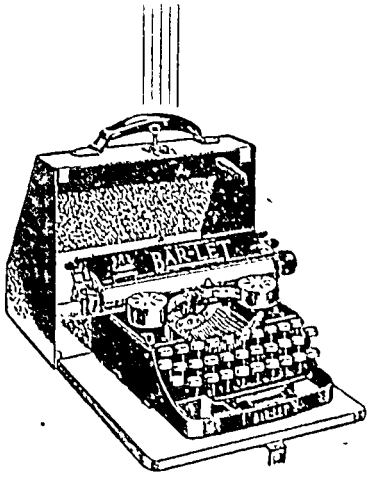
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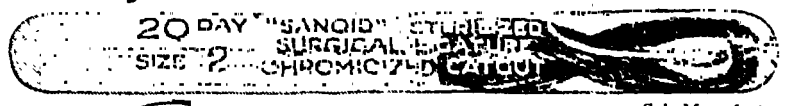
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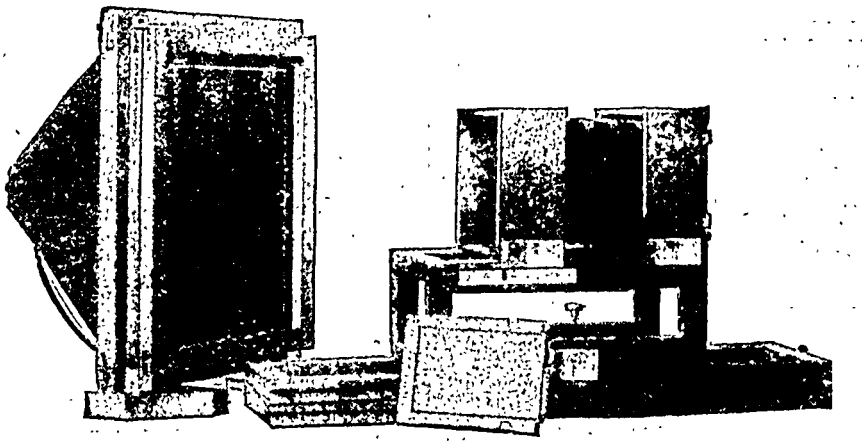
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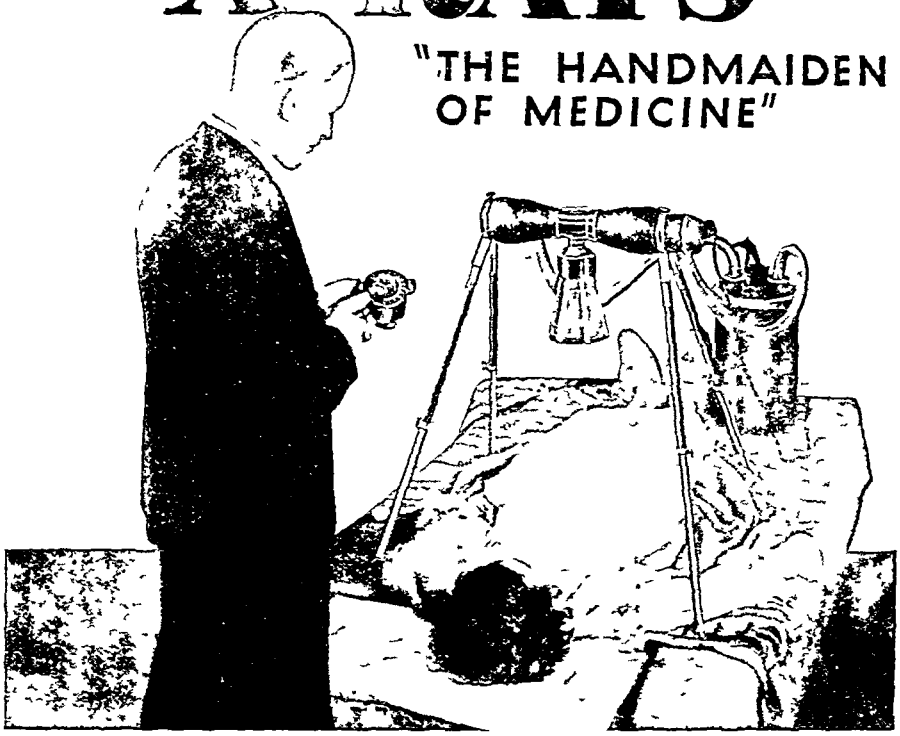
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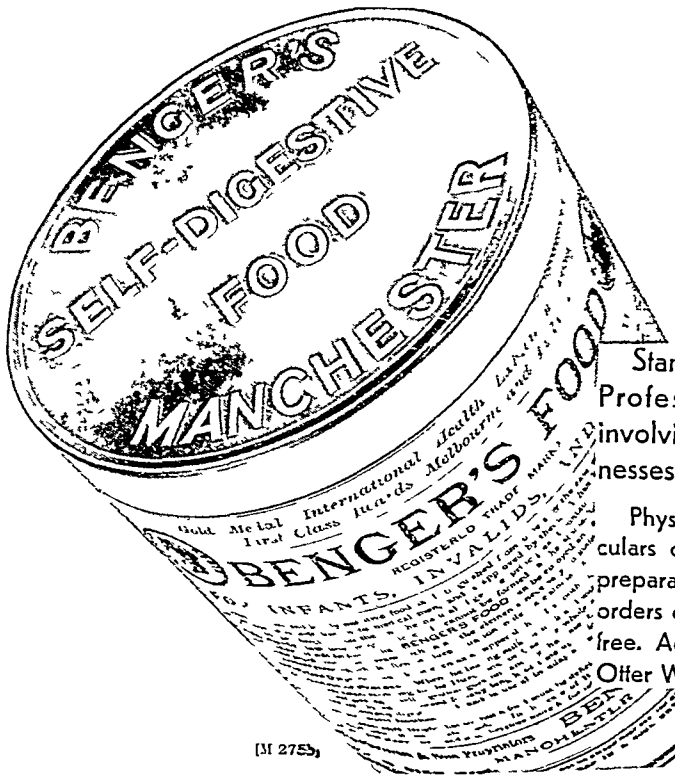
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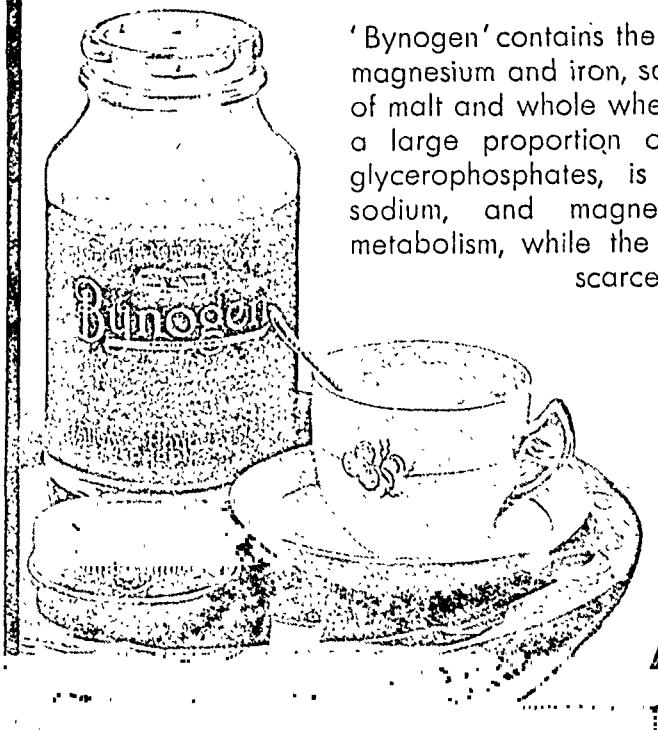
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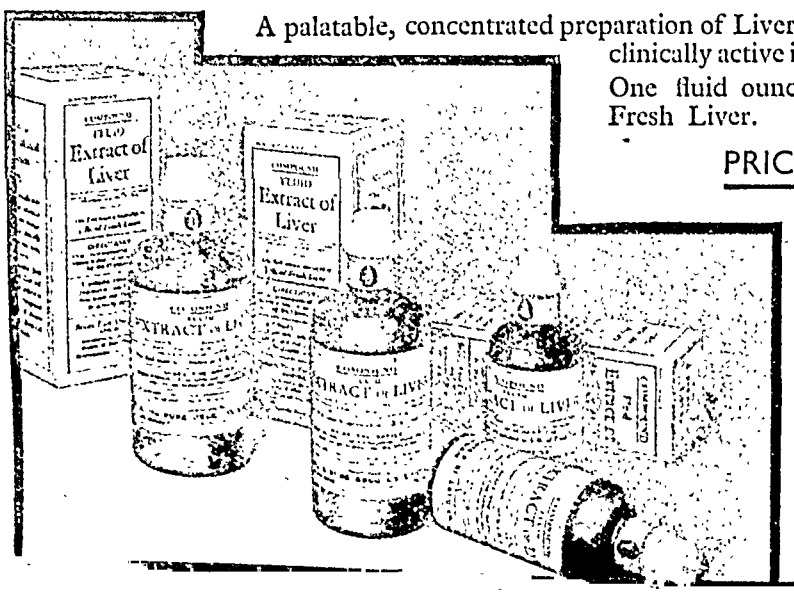
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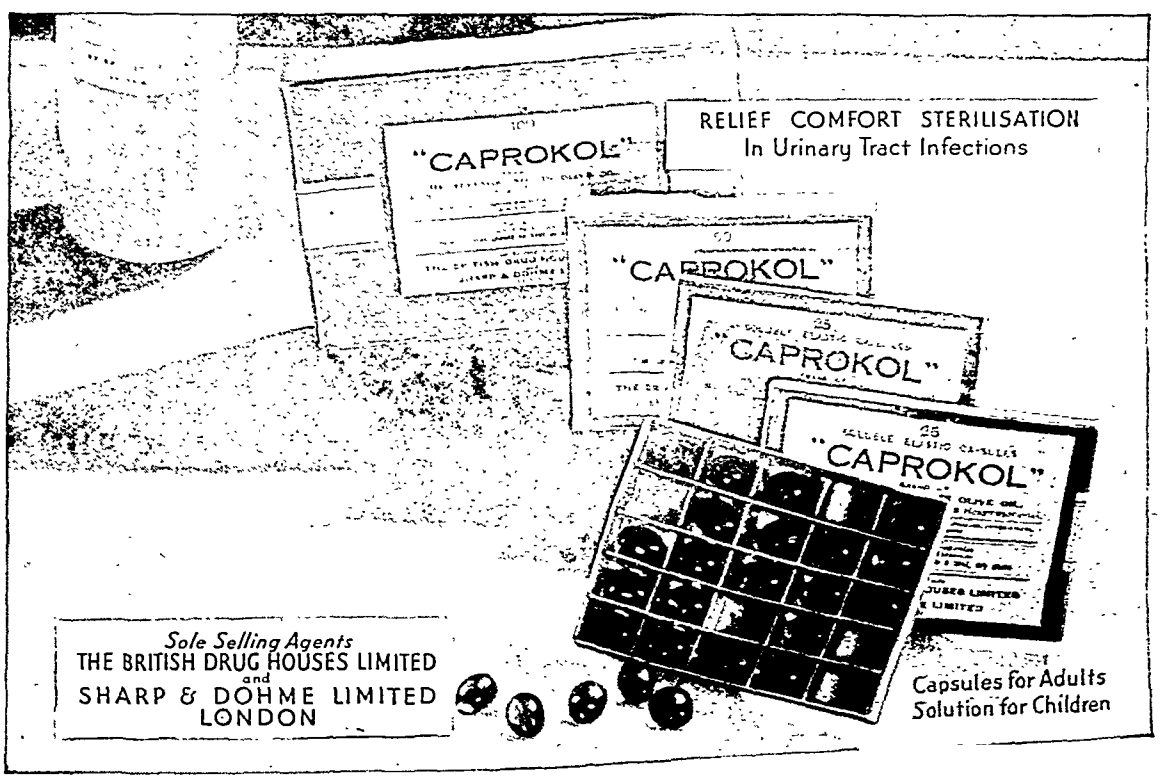
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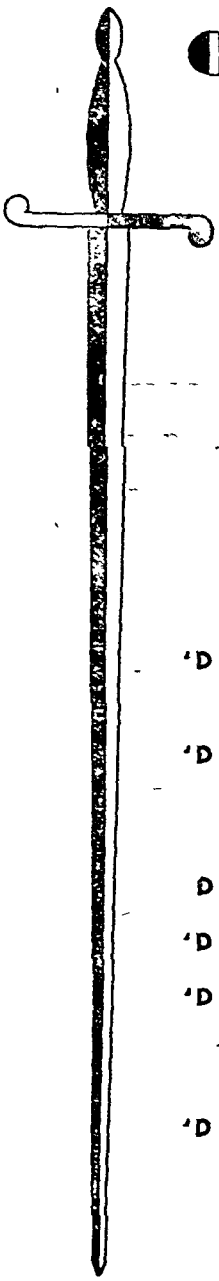
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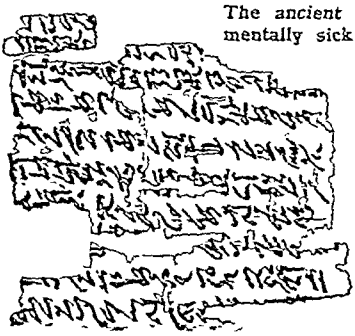
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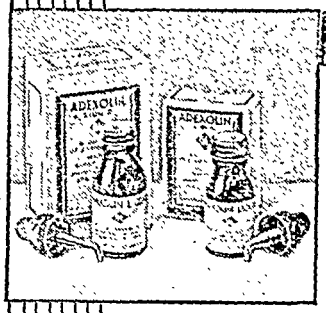
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A Paper

ON

THE RADIOLOGY OF HEART DISEASE*

BY

JOHN PARKINSON, M.D., F.R.C.P.

PHYSICIAN IN CHARGE OF THE CARDIAC DEPARTMENT OF THE LONDON HOSPITAL; PHYSICIAN TO THE NATIONAL HOSPITAL FOR DISEASES OF THE HEART

(With Special Plate)

In the diagnosis of heart disease we rely on symptoms and signs. While symptoms retain the high regard of physicians, some physical signs have depreciated and are being revalued because they do not conform to the modern standards exacted by the sphygmomanometer, the electrocardiograph and *x* rays. Such instruments represent the current demand for precision, even at the expense of simplicity. An instrumental method eliminates many fallacies inherent in the personal factor. For example, hypertension may be suspected (or not) from palpation of the pulse but the sphygmomanometer gives us reliable information as to its presence and degree. Similarly, the electrocardiograph excels in the recognition of abnormal heart rhythms, not to mention certain myocardial defects which nothing else can reveal. *X* rays now claim a place in cardiac diagnosis because they furnish us with detailed evidence beyond the reach of percussion. Should any dislike this development, I would have them accept it as a modern application of a traditional method in medicine. It is inspection by x-ray sight (radioscopy), with an extension and permanent record of the visual picture (radiography).

PERCUSSION

The purpose of percussion was to decide the size and shape of the heart and, incidentally, of any contiguous and relevant swelling in the chest. The personal equation involved in its practice is notoriously great and current opinion will scarcely deny the inaccuracy of the method. The cardiac silhouette, so unmistakably achieved to-day with *x* rays, proves quite different from the area of cardiac dullness obtained by percussion. It has been said that faith is necessary for successful percussion; indeed I would say that it requires more faith than this generation possesses, and a tactile and aural sense at the disposal of few. Difficulties due to obesity, emphysema, and sex are shirked in percussion. The truth is that the heart is a rounded organ hanging in a rounded thorax, and the old scheme of it as a flat solid applied to the anterior chest wall is inconsistent with our modern conception of it as a three-dimensional structure. The heart lies obliquely within the thorax, and its base lies far back against the spine. Percussion gives a rough idea of the transverse width of the heart in a single plane and that only under favourable conditions. Once having seen what *x* rays can show, percussion will be discarded as an obsolete source of meagre and faulty information. Already the inaccuracy of percussion has led to stressing of palpation of the apex beat in judging enlargement. This is a valuable bedside method, but it is limited in scope, for it tells only of the left ventricle and is apt to mislead when tachycardia is present.

RADIOLOGY

The main object of radiology—like that of percussion—is to determine the size and shape of the heart. It is destined to depose percussion and to contribute enormously to our knowledge of cardiac conditions, since it is more accurate and informing. The heart is well placed for inspection by *x* rays, surrounded as it is by translucent lung, moreover, thus enveloped, the pulmonary artery and its branches are before our eyes as cardiac accessories. Little progress will be made if the radiocardiogram is regarded as a mere picture instead of the representation of a heart which ought to be conceived both anatomically and pathologically. It is to this aspect that I would draw your attention. We now have in our hands a vivid method of applying anatomy and morbid anatomy to the study of the heart in living patients. By its means we can perform a veritable biopsy of the heart.

THE NORMAL HEART

The protean individuality of the cardiovascular shadow is what strikes one in routine examination. It is said that no two electrocardiograms are exactly alike and the same may be said of the radiocardiogram. Modifications due only to thoracic build and to overweight may be as great as those due to disease. The moral is that we must learn to interpret aright the many patterns of normality which undoubtedly prevail.

It would be detrimental to the progress of radiocardiology if it were thought that an anterior film alone fulfils our purpose. Radio copy may suffice for it permits observation of pulsation on the borders of the heart and by turning the patient, enables us to follow its contour and to view the heart as a pulsatile organ composed of chambers with vascular inlets and outlets. If a permanent record is required, and if orthodiagraphy is inadequate, the record should include not only the anterior but also one oblique position or both oblique positions. Dr. Bedford and I have prepared a series of three diagrams to represent the radiological anatomy of the heart and great vessels, in so far as this explains what we see on an anterior, a right oblique and a left oblique radiogram (Figs. I, II, and III). We think them consistent with the best current opinion and they are founded closely upon particular teleradiograms taken by us from normal patients. The degree of rotation of the patient in the oblique positions will of course modify the outline. In Figs. 1, 2, and 3 (Plate) are shown typical normal radiograms in these three standard positions to indicate how the diagrams (Figs. I, II, and III) may be applied.

THE SIZE OF THE HEART

Under the influence of percussion there has arisen a tendency to think that an anterior film of the chest provides a sufficient means of determining whether the heart is enlarged or not. As this is such a common and important clinical question to answer it behoves us to be critical before accepting this belief. One criticism would be that no longer should we speak of enlargement of the heart as if it were commonly enlarged as a whole, for the enlargement is generally regional, and a localized product of the existing lesion. Formerly clinical enlargement had little reference to anything but the left ventricle and perhaps the right auricle on the opposite border—no more, in fact, than the width of the cardiac shadow at a particular level. It is hard to get accustomed to the newer knowledge that the right ventricle may appear high on the *left* border, and that the left auricle often constitutes part of the *right* border. It is good practice, therefore, to determine the enlargement of a particular chamber or vessel, as well as to consider the heart as a whole.

Others will discuss the recognized methods of measuring the cardiac outline. Notwithstanding the provision of normal standards by scientific workers, practice proves them to be so elastic that comparison of an individual patient's measurements with normal tables seldom gives

* Read in opening a discussion at a combined meeting of the Sections of Medicine and Radiology at the Annual Meeting of the British Medical Association, Dublin, 1933.

4. The difficulties surrounding the radiology of heart disease largely disappear if, instead of looking for general enlargement, attention is centred upon the particular chambers or great vessels which may be modified in size, shape, or position.

5. If electrocardiography has reached its present sound position by the support of physiology, radiology of the heart will establish best its rightful position by enlisting the support of anatomy and morbid anatomy.

In conclusion, special care should be taken not to distress a patient by confronting him with *x*-ray findings as if they implied an additional diagnosis or a complication which magnified his disease. For instance, the cardiac enlargement of hypertension is an associated sign which should not be regarded as a disease in itself, but as a completion of the diagnosis.

RADIOLOGY IN HEART DISEASE*

BY

PETER KERLEY, M.D., D.M.R.E.

ASSISTANT RADIOLOGIST TO WESTMINSTER HOSPITAL; RADIOLOGIST TO THE ROYAL CHEST HOSPITAL

(With Special Plate)

Radiology of the heart is still in its infancy. While the radiologist can justly claim to have advanced the diagnosis and pathology of pulmonary and gastro-intestinal diseases, he has so far added comparatively little to the study of heart disease. He has certainly greatly improved the diagnosis of enlargement of the heart and aorta, but in the realm of pure pathology he has contributed practically nothing. The modern conceptions of the causation and course of heart diseases have not been materially influenced by *x*-ray investigations. The reasons for this deficiency are largely technical. First, the rapid movement of the heart does not lend itself to accurate radiography, and although the necessary apparatus for cardiac cinematography has been perfected the cost is prohibitive. Secondly, the radiograph shows only the borders of the heart. We have not yet found a drug which, when injected into the blood stream, renders the blood more opaque than the muscular wall of the heart, and there is not much hope of the discovery of such a drug. Until the production of a cheap photo-electric cell, cardiac cinematography will not be a practical proposition.

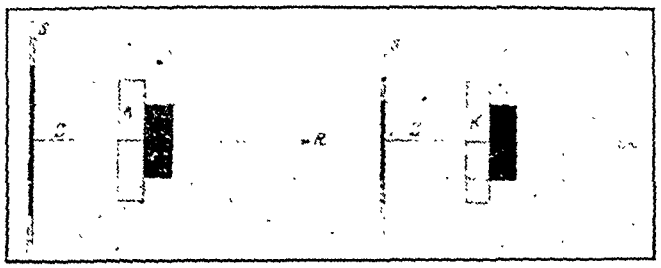
THE VALUE OF SCREENING

The most important method of *x*-ray examination of the heart is simple screening. On the fluorescent screen we can at once form an accurate estimate of the size of the heart, and the experienced observer can tell at a glance whether the heart is enlarged or not. The screen also shows the position of the heart relative to the chest wall and to the other intrathoracic organs. Variations in the position of the heart due to deformities of the bony thorax or to fibrotic or emphysematous changes in the lungs can be most misleading and, indeed, impossible to diagnose by the usual clinical methods. Such variations are perfectly clear on the fluoroscopic screen.

The shape of the heart, which varies considerably both in health and in disease, is also noted on the screen, and by rotating the patient into different angles the observer is able to tell whether the alteration in shape is due to enlargement of any of the chambers of the heart. Certain diseases of the heart cause a characteristic alteration in shape, such as the boot shape in aortic incompetence or the flask shape in pericarditis with effusion. The pulsation of the heart as observed on the screen does not indicate as much as one would expect. The rate of pulsation of the heart is too fast for fine variations to be seen by the naked eye. Gross variations such as occur with heart-block and auricular fibrillation are easily identified, but these are conditions in which clinical diagnosis is easy.

ORTHODIAGRAPHY: TELERADIOGRAPHY: KYMOGRAPHY

There are three other methods of radiographic investigation. The oldest of these still in common use is known as orthodiagraphy. On leaving their source *x* rays diverge widely, and, as Figure I shows, the image of the heart, if too near the source, is grossly distorted. To overcome this difficulty an instrument known as the orthodiagraph has been devised. With this instrument only the central ray, which does not diverge, is employed. This central ray appears on the screen as a tiny point of light, and is slowly manipulated by the observer round the shadow of the heart. At suitable points the observer marks the edge of the heart on the screen with a pencil, and the final result is a drawing of the type shown in Figure II. As only the central undeviating ray has been used, accurate measurements of the heart can be made on the drawing.



(*a*) FIG. I. (*b*)

(*a*) Showing distortion due to tube R being too close to object. (*b*) Showing absence of distortion with parallel rays coming from a distance.

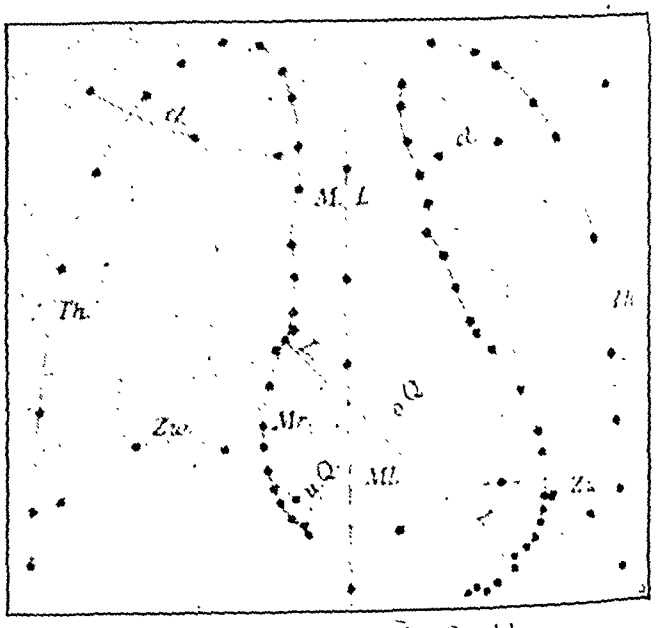


FIG. II.—Orthodiagram after Groedel.

The second method, known as teleradiography, has many advantages over orthodiagraphy, but is more expensive. Powerful apparatus now enables radiographs to be taken at a distance of two metres, when all the rays are more or less parallel and distortion is negligible. The heart measurements can therefore be made on the actual radiograph.

The third method, known as kymography, has only recently been devised. This method makes use of a fine

* Read in opening a discussion at a joint meeting of the Sections of Radiology and Medicine at the Annual Meeting of the British Medical Association, Dublin, 1933.

slit or diaphragm, which is fixed over the border of the heart. The x rays are projected through this slit, and a film is made on which is recorded a zigzag image representative of the pulsations of the heart. The interpretation of a kymograph is by no means easy, and the claim of German workers that this method yields more information than the electrocardiograph has yet to be substantiated.

THE NORMAL HEART

The *x* ray appearance of the normal heart varies considerably with the age, sex, and habitus of the individual. In children up to the age of 4 years the heart relative to the width of the chest is very large, and both heart and great vessels appear as an opaque, pear shaped opacity with an even, regular border on each side. From 4 years of age until puberty the heart shadow gradually becomes smaller, and a well defined notch separates it from the vascular shadow. Irrespective of sex or habitus, the heart shadow at puberty is generally of the long, narrow type. From puberty until the age of 21 the heart gradually changes in form, until it finally assumes one of the three normal adult shapes. In the average adult the heart shadow is of the so called oblique type, its transverse diameter bearing a relation to the chest width of 1 to 2. This ratio is known as the heart–lung coefficient. In wide chested individuals with a high diaphragm the heart lies transversely rather than obliquely in the chest, and the heart–lung coefficient may be as low as 1 to 1·9. Roughly speaking, the transverse heart is seen more often in women than in men. In long, narrow chested individuals with low diaphragms the heart shadow appears very narrow, and the heart–lung coefficient may be as high as 1 to 4.

The right border of the normal heart shadow is formed by the right auricle, which is separated from the shadow of the ascending aorta by a well defined notch. The left border is formed partly by the edge of the left ventricle and partly by the edge of the appendage of the left auricle. The latter is separated by a notch from the shadow of the pulmonary artery. The popular idea that a notch separates the ventricular shadow from the auricular one is erroneous. The two shadows merge together imperceptibly, and it is only when the heart is diseased that they appear as separate entities. The heart–lung coefficient is a reasonably accurate measurement for practical purposes, and provided the ratio is not lower than 1 to 1·9 it can be taken that the heart is not enlarged. This measurement can easily be made on the screen, and is more reliable than clinical estimation of size. Every doctor is aware of the unreliability of percussion of the heart in obese and emphysematous subjects. It is not generally known how many normal subjects are suspected of cardiac enlargement. I have seen perfectly healthy men rejected for life insurance or jobs involving physical strain because percussion and palpation suggested that the apex beat was outside the nipple line. Screen examination, with a mark on the nipple, showed the heart to be well inside the nipple line.

In addition to the heart–lung coefficient a complicated system of radiographic heart measurements has been worked out. This system is too detailed to go into in this paper, but a few observations on its value are worth noting. Provided the technique is constant, the measurements are extremely accurate, and reveal minute alterations in the size of the heart. In clinical practice the system is seldom required, but it has proved of the greatest value in many physiological investigations, and particularly in the investigation of the athletic heart. During a great epidemic of diphtheria in Leipzig in 1915 Dorner carried out a large number of measurements on infected children, and found that radiographic evidence of cardiac enlargement was present long before symptoms or clinical investigation pointed to cardiac involvement. These measurements have also been helpful in establishing enlargement of the heart from hyperthyroidism.

THE "SMALL" HEART

The small or narrow heart was unknown before the radiological era. There is no radiographic method of estimating either the volume or weight of the heart, and the radiological definition of a small heart simply means that it appears small relative to the width of the chest. The situation of the diaphragm rather than the shape of the bony thorax appears to be the chief factor in the production of the so-called small heart. If the diaphragm is in the fifth interspace the heart appears wide, if it is lower than the sixth interspace the heart appears small. When for any reason the diaphragm is depressed the heart rotates slightly to the right and forward, and consequently appears smaller on a radiograph. Wenckebach suggests that, if the diaphragm is situated unusually low, the effect of its respiratory contractions on the circulation is diminished, so that the amount of blood passing into the heart is lessened and the heart is actually smaller. This is very doubtful, as there are many common diseases which lower the diaphragm and are not accompanied by a lowering of the blood pressure. That the small heart is apparent, not real, is proved by the alteration in the radiological size during pregnancy. I have made some observations on changes in the shape and size of the heart during pregnancy, and have found that a woman who normally has a small heart, has a transverse and apparently wide heart during the last two months of pregnancy. This alteration occurs with the elevation of the diaphragm, and about six weeks after delivery the diaphragm is back in its normal position and the heart again appears to be small. But for the frequency with which a small heart is seen in cases of tuberculosis it is doubtful if the term would ever have been coined. Many observers have suggested that the toxaemia associated with chronic pulmonary tuberculosis causes atrophy of the heart muscle and a real decrease in the size of the heart. Necropsy findings certainly do not support this view, and I would suggest that the compensatory emphysema which always accompanies pulmonary tuberculosis depresses the diaphragm with consequent rotation of the heart to the right and an apparent diminution in size.

ENLARGEMENT OF THE HEART

The *x* ray diagnosis of enlargement of the heart may be very simple or very difficult. In cases of heart failure associated with arterial disease or chronic nephritis the enlargement is obvious, and when the increase in size is associated with valvular or congenital disease the shape of the heart simplifies the diagnosis. In borderline cases, however, in which there is no heart failure and no gross alteration in shape, there may be great difficulty in arriving at the correct diagnosis. Adults with tachycardia or precordial pain form the bulk of the borderline cases. A screen examination of a rapidly pulsating heart often gives the impression of enlargement, therefore reliance should be placed on orthodiagrammatic measurements and teleradiographs, which must be carefully correlated with the clinical findings. In tachycardia associated with myocardial disease the measurements invariably reveal a real enlargement. I do not believe that *x* ray examination is of any value in the diagnosis of early myocardial disease. Symptoms may point to the presence of this condition, but I have never yet seen a case in which *x* ray evidence of enlargement preceded electrocardiographic alterations. I would go so far as to state that in doubtful cases an *x*-ray diagnosis of enlargement of the heart should never be made unless there is definite clinical evidence to support it. In many of these cases

of tachycardia and precordial pain the *x*-ray examination shows elevation of the left side of the diaphragm due to gaseous distension of the stomach and splenic flexure. Measurements show the heart to be within the normal limits, and dietetic treatment brings relief.

A differential *x*-ray diagnosis of the cause of cardiac enlargement is not possible unless the enlargement is associated with some definite alteration in the shape of the heart or great vessels. For example, an enlarged pulmonary artery points to congenital disease and an enlarged aorta to acquired disease. The shape and position and density of the aorta offer valuable evidence as to the nature of enlargement of the left ventricle. Although we are not primarily dealing with aortic disease at this meeting, I would like to emphasize the following points. An aorta which shows up denser than the left ventricle is atheromatous. An aorta which on a teleradiograph is not dilated but is as high as the level of the first costal cartilage is atheromatous unless there is some fibrotic lesion in the lungs to account for its high position. Visible atheromatous plaques in the aorta are not necessarily of serious import. I have had under observation for seven years a man with dense plaques in his aorta. He has never had any aortic pain nor any signs of cardiac disease, and he leads a normal life.

Changes in the Shape of the Heart

The most characteristic alterations in the shape of the heart are produced by congenital and valvular diseases. Nearly all congenital lesions with an admixture of the venous and arterial streams show enlargement of the pulmonary artery, which appears as an additional bulge on the left border of the heart just below the aortic knob. An exception to this is the tetrology of Fallot, in which there is a defect at the level of the pulmonary artery and the heart has what is known as the "*cœur en sabot*" shape. Coarctation of the aorta reveals itself radiographically, first, by an alteration in the shape of the heart; the left ventricle is enlarged and the aortic knob is invisible. Secondly, there is visible erosion of the lower borders of the ribs due to the dilatation of the intercostal arteries forming a collateral circulation. Thirdly, in many cases of coarctation a left oblique view reveals the actual stenosis, and the bifurcation of the trachea stands out as if it were drawn in on the radiograph.

Aortic regurgitation and mitral stenosis cause typical alteration in the shape of the heart shadow. The well-known boot shape of aortic regurgitation needs no detailed description, but there are so many variations in the shape produced by mitral stenosis that they deserve special mention. In a well-established case of mitral stenosis the heart shadow has what is described as the loaf shape. The right border is unaltered. The left border shows a small aorta, a large pulmonary artery, and an extra bulge caused by enlargement of the appendage of the left auricle. In many cases this extra bulge is not visible, and all the enlargement of the left auricle is posteriorly and to the right. An enlarged left auricle is often visible through the heart shadow, and in the first oblique position fills up the normally clear posterior mediastinal space. In many cases the left auricle enlarges so much to the right that it overlaps the shadow of the right auricle and actually forms the right border of the heart shadow. Occasionally aneurysmal dilatation of the left auricle takes place, and the radiograph shows the auricle to be reaching almost to the right axillary line.

Mitral Stenosis

It is not so much in the diagnosis of mitral stenosis as in the diagnosis of its complications that radiography is of great help. One often hears of an enlarged left auricle displacing the oesophagus and causing dysphagia. Any enlargement of the left auricle displaces the oesophagus backwards, but in my experience neither the displacement of the oesophagus nor the pressure of the auricle on it is responsible for dysphagia. It is only when there is associated heart failure and chronic congestion of the liver that dysphagia occurs. In such cases the oesophageal veins are grossly dilated, and this is responsible for the difficulty in swallowing. The oesophagus is an elastic and very mobile organ, which can withstand extreme degrees of displacement without any disturbance of its function. A less frequent complication of mitral stenosis is paralysis of the left recurrent nerve. This is due to the enlarged left auricle pressing upwards into the bifurcation of the trachea and causing pressure on the nerve between the left main bronchus and the aorta. Splaying of the bifurcation of the trachea is very commonly associated with mitral stenosis and may be responsible for haemoptysis. I have seen several cases in which haemoptysis occurred and in which there was no radiographic or clinical evidence of hyperaemia of the lungs. Probably the pressure caused oedema of the tracheal mucosa, and slight coughing caused rupture of small vessels.

Hyperaemia, Oedema, and Collapse of the Lung

Passive hyperaemia of the lungs caused by mitral stenosis or heart failure gives remarkable and very varied *x*-ray appearances. These variations throw much light on the pathology of the condition. While many of them are simply the result of the hyperaemia being observed at different stages, others are related to unsuspected pulmonary diseases, and some are certainly due to congenital abnormalities of the vessels themselves. The *x*-ray appearances of the early stages of passive hyperaemia are generalized loss of translucency and marked increase in the density of the vascular shadows. These shadows are also coarser than normal, and their ramifications are visible right out to the periphery of the lungs. The hilar shadows are enlarged, and the movements of the diaphragm are restricted. If the hilar shadows are observed closely on the screen pulsation can be seen on them. The loss of translucency is due to compression of the alveoli by the distended capillaries, and the enlarged hilar shadows and coarse vascular markings result from distension of the pulmonary arteries and veins. Assman states that in very early stages of mitral stenosis the enlarged pulmonary artery presses on the left upper lobe vein and causes hyperaemia localized to the left upper lobe. I have never seen a case showing such localized hyperaemia. If the hyperaemia becomes chronic the loss of translucency is more marked, and the vascular striae in the lungs become still coarser and wider because the perivascular lymphatics now show up. The hilar shadows are grossly enlarged on account of the additional shadows thrown by oedematous bronchial glands, and the interlobar fissure between the right upper and middle lobes is strikingly clear and thickened. This thickening of the interlobar fissure is due to transudation into the large lymphatic, which connects the superficial pulmonary plexus with the parietal pleura. On good lateral views it will be seen that the greater fissures are similarly affected. The shadow accompanying the second rib also shows thickening. It was previously thought that this shadow was pleural in origin, but Knutson has shown that it is produced by a sheath of connective tissue containing the superior thoracic artery and vein and a large branch of the first thoracic nerve. The clarity of this shadow in mitral stenosis is certainly due to swelling of the vessels in Knutson's sheath, and in many doubtful

cases of mitral disease I have found its thickened appearance to be of great diagnostic value.

Certain cases of chronic hyperaemia give rise to a miliary appearance in the lungs, and the inexperienced observer can easily confuse this with miliary tuberculosis. The miliary spots which are scattered all over both lungs in chronic hyperaemia are caused partly by dilated capillaries seen end-on and partly by exudation of heart-failure cells into the alveoli. There are two features which distinguish miliary hyperaemia from all other miliary diseases. First, the spots decrease in size towards the periphery, and secondly, the intercostal spaces are wider than normal. Chronic passive hyperaemia is the only intrinsic condition of the lungs in which the actual volume of the lungs is increased. Although the air content of the lungs appears to be reduced by half and little or no expansion can be observed on the screen, yet the intercostal spaces are widened. When the stasis is so severe that it is transmitted to the bronchial arteries all the previous signs are intensified and, in addition, the number of lung markings is increased. The oedematous bronchial mucosa gives off much secretion, and the affected bronchi become visible and add to the general loss of translucency. It is in this advanced stage that mistakes in diagnosis are frequently made. There is considerable exudation from the tense capillaries, and this process tends to be greatest near the hilum, where the veins are largest. At the same time there is collapse of lobules which are compressed by capillaries and have their air entry diminished by oedema of the bronchioles. These areas of collapse occur where there is most interstitial tissue—that is, near the bifurcation of the large vessels and bronchi. On a radiograph they produce an appearance similar to that of bronchopneumonia, with foci coalescing. Again, the chief point in the differential diagnosis is the widening of the intercostal spaces, which may be greatest in the immediate vicinity of the most opaque area. If by any chance pleural adhesion or fibrosis is present and causing loss of normal elasticity, the addition of chronic hyperaemia may cause a large area to collapse. Such an area may be situated in any part of the lungs, and may give an appearance similar to lobar pneumonia. It may even give appearances very like those of advanced pneumonoconiosis.

A severe attack of passive hyperaemia always leaves permanent radiological evidence behind it. The interlobar pleura remains thickened, and the shadows of the perivascular lymphatics persist as fine, sharp lines, most marked at the bases and near the hila. This appearance simulates fibrosis and bronchiectasis. The differential diagnosis is made on the screen by noting the normal expansion in the apparently fibrotic area. Occasionally one sees on radiographs of mitral stenosis and hyperaemia true fibrosis at the base of a lung. This fibrosis may be due to infarction, but I am more inclined to the opinion that it follows thrombosis. I have observed radiographically eight cases of infarction following operations and injuries. In all of them there was complete resolution in the infarcted area without any subsequent fibrosis. In rare cases one finds a severe degree of hyperaemia and a marked increase in the density of the pulmonary arteries out of all proportion to the heart lesion. There is little doubt that these are cases of advanced atheroma of the pulmonary arteries, and, as the condition is found in young people, it probably has a congenital basis. I am not referring to true Ayerza's disease nor to chronic cases in which the pressure in the arteries has been consistently high. Abnormalities of this nature can present the most baffling clinical signs. Until mechanical and chemical advances are made it is in the solution of such problems that the greatest scope of cardiac radiology lies.

RADIOLOGICAL DIAGNOSIS OF CARDIAC ENLARGEMENT*

BY

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I propose to devote the time at my disposal in this discussion to considering a single problem—namely, the measurement of the heart and the recognition of cardiac enlargement; this is a very important problem, because enlargement of the heart generally points to heart disease. Gross enlargement can easily be recognized in most cases by palpation and percussion; but the slighter degrees of enlargement cannot be detected with certainty by these methods, and when the patient is fat or emphysematous the task becomes quite impossible without the aid of *x-ray examination*. Let us therefore consider how radiology can help us in such cases, how it is applied, and what its limitations are.

An orthodiagram (Fig. 1) or a teleradiogram gives us a frontal silhouette of the heart, which enables us to

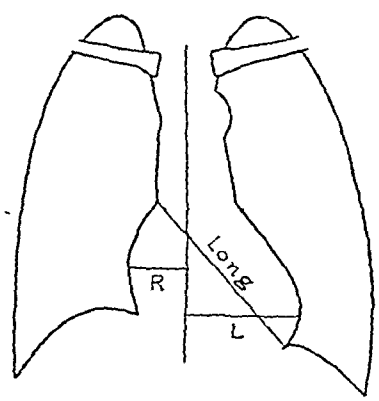


FIG. 1.—Orthodiagram of diagonally placed heart in normal subject of average build. R and L = transverse diameter of heart to right and left of middle line. Long = longitudinal diameter.

measure with accuracy what previously we had been able to map out only very roughly by percussion. As an index of heart size we can take either the area of this frontal silhouette or its transverse diameter. The latter is preferable, because the borders of the silhouette, where the shadow of the heart merges with that of the great vessels above and of the liver below, are not clearly defined. Accurate radiographic measurements are of considerable value in comparative studies on individual patients. They tell us definitely whether the heart is slightly larger or slightly smaller than it was on some previous occasion, whereas percussion and palpation can only reveal comparatively gross changes in the size of the organ.

Clinically, provided the heart is not displaced, we regard it as enlarged if palpation or percussion leads us to believe that its left border crosses the mid-clavicular line or that its right border extends more than a finger-breadth beyond the sternum. Radiographically we regard the heart as enlarged when the transverse diameter of the heart shadow, as calculated from the sum of its two components to the right and left of the middle line (*R* and *L*, Fig. 1), is greater than half the internal diameter of the thorax.

* Contribution to a joint meeting of the Sections of Medicine and Radiology at the Annual Meeting of the British Medical Association, Dublin, 1933.

Here we are faced with a difficulty. The transverse diameter of the heart shadow varies with the lie of the heart in the chest. When the diaphragm is high (Fig. 2) the heart lies more transversely, when it is low (Fig. 3) it lies more vertically. The hearts of people of "stocky" build, who are too heavy for their height, therefore tend to be wide, and those of people of "lanky" build, who are too tall for their weight, tend to be narrow in proportion to their size. These facts were perfectly

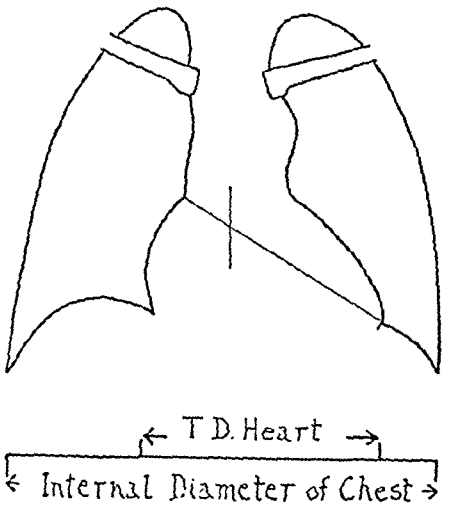


FIG. 2.—Transversely disposed heart of "stocky" normal subject.

familiar to us before the days of radiology. It was well known that, in normal healthy subjects, an apex beat situated in the sixth intercostal space tended to lie nearer to the middle line, and one situated in the fourth space farther from the middle line than one situated in the fifth space. In other words, in assessing cardiac enlargement, we must take into account not only the width of the heart but also the lie of the heart, which varies with the shape of the chest and the build of the subject. The

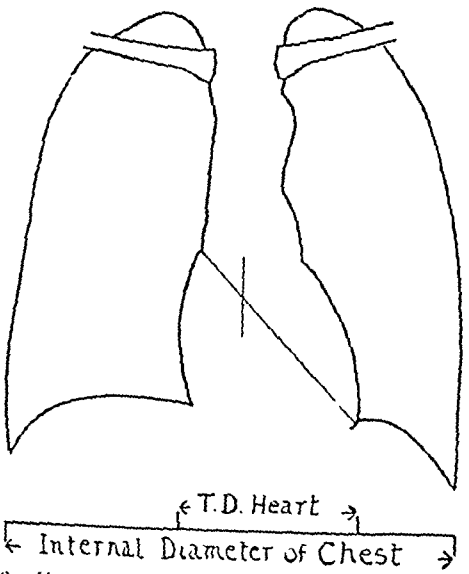


FIG. 3.—Vertically disposed heart of "lanky" normal subject.

lie of the heart is indicated radiographically by the inclination of the longitudinal diameter of the heart shadow to the vertical, the longitudinal diameter (Long, Fig. 1) being the line joining the apex of the heart to the angle formed by the junction of the shadow of the right auricle with that of the great vessels.

To render comparable measurements obtained by different workers, it is important that teleradiograms (and orthodiagrams) should be taken under standard conditions. The examination should be made in the erect posture, with the breath held at the end of a normal expiration; and, since the heart is larger in diastole than in systole, the exposure should be not less than one second's duration, in order to include both phases of the cardiac cycle.

The transverse diameter of the heart shadow in normal healthy subjects varies directly with the body weight; but, from what I have said about the lie of the heart, it will be clear that it varies inversely with the height of the subject. Hodges and Eyster[1] have worked out, statistically, a formula for predicting the transverse diameter of the heart from weight and height: TD = 95.9 + (W × 0.8179) − (H × 0.1941). In this equation the transverse diameter of the heart shadow (TD) is expressed in millimetres, the weight (W) in kilograms, and the height (H) in centimetres. Eyster also introduces a correction for age, but this makes comparatively little difference to the result, and I do not propose to consider it here.

Let me now refer briefly to certain limitations of this method of heart measurement. The frontal silhouette is a two-dimensional picture, whereas the heart is a three-dimensional organ. Hence our estimate of the cubic volume of the heart can only be approximate when based on this measurement alone. Nevertheless, we must remember that in the pre-radiological era the diagnosis of cardiac enlargement rested entirely on the results of percussion and palpation. Even under the most favourable circumstances the measurement of the heart by these means is much less accurate than when it is taken from the radiographic frontal silhouette, while in emphysematous and obese subjects it is rarely possible to obtain any idea of the size of the heart without *x*-ray examination.

Further, under pathological conditions, enlargement of the heart rarely involves all chambers to an equal extent. Some are more affected than others, as, for example, the left auricle and the right ventricle in mitral stenosis, or the left ventricle in hyperpiesis. These lesions are clearly shown by changes in the shape of the heart outline, as seen in the postero-anterior and in the two oblique positions. A change in shape is therefore of even greater importance than a change in size of the heart shadow, since it gives us a clue to the cause of the enlargement. Such regional enlargement is easily recognized in the radiogram, but cannot be satisfactorily expressed in simple numerical terms, like the transverse diameter of the frontal silhouette. While admitting, therefore, that we have not yet reached our final objective, it must be recognized that it is to radiology that we owe the great advance which has been made in accuracy of measurement. The size of the heart varies considerably in different healthy individuals, and it is not until we pass beyond the range of normal variation that we can speak of cardiac enlargement as pathological. What is the extent of that range? Bedford and Treadgold[2] found that in 86 per cent. of a series of 116 healthy adult males the observed transverse diameter of the heart shadow fell within ± 10 per cent. of the predicted normal value as calculated from Eyster's formula. Of the remainder, in 9 per cent. the hearts were smaller, and in 4 per cent. larger, than those of the intermediate "normal" group. This leads on to the further consideration of the pathological significance of cardiac enlargement.

At the Olympic Games in Amsterdam in 1928 Ellis and I[3] examined a group of over 200 athletes, including long-distance runners, sprinters, cyclists, weight lifters, and competitors in various other kinds of sport. We found that the average transverse diameter of the heart shadow in each group of athletes was approximately proportional to the body weight. There was one exception,

however—namely, the group of marathon runners, in this group the heart was very much larger than the body weight would have led one to predict. It would be impossible to find any group of men whose circulatory mechanism is functionally more efficient than that of Olympic marathon runners, and it would be absurd to regard the cardiac enlargement in this case as pathological. Similar findings have been reported by other workers[1-3] in men who participated in other types of sport entailing prolonged and severe exertion, notably ski running and cycling. The same is true throughout the animal kingdom, the hearts of athletic animals being heavier in proportion to their body weight than those of animals which lead a more sedentary life. One is bound, therefore to conclude that slight cardiac enlargement is, by itself insufficient evidence on which to base a diagnosis of heart disease although, when considered in conjunction with the other clinical findings and the habits of the patient, it may be of great value in diagnosis.

I have confined my attention to cardiac enlargement because I do not believe that one is ever justified in regarding a heart which is too small as pathological, unless there be additional evidence to support the diagnosis. Bedford and Treadgold[2] found a heart with a very small transverse diameter in a member of the Schneider Cup team, and Ellis and I[3] found a similar heart in the Olympic champion for the 100 and 200 metres[4].

In conclusion, let me summarize my remarks by endeavouring to answer the question, "What can x ray examination contribute to the diagnosis of pathological cardiac enlargement?" I would submit that it can make at least three important contributions.

1. It can tell us all that we can learn from percussion and palpation regarding cardiac enlargement and it can do so with a much higher degree of accuracy than either of these methods.

2. It can give us reliable information regarding slight changes in heart size and the slighter degrees of cardiac enlargement, even under the most unfavourable circumstances. Although slight cardiac enlargement by itself is not sufficient ground on which to base a diagnosis of heart disease, it may sway the balance when considered in conjunction with evidence from other sources.

3. *X* ray examination can reveal changes in the shape of the heart outline. These changes tell us which chambers are enlarged, and so indicate the probable cause of the enlargement. This, in my opinion, is its most important contribution. The frontal silhouette alone gives us a far more accurate idea than does percussion of the shape of the heart, whereas examination in the two oblique positions yields additional information of which percussion can tell us little or nothing.

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SOME OBSERVATIONS ON RICKETS,

WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN PIGS

BY

JOHN POOL McGOWAN, M.A., M.D.

ABERDEEN

(With Special Plate)

In describing these observations on rickets in pigs which were made during the period 1922–31, the question of the causation of the disease, whether due to deficiency of calcium, phosphorus, or vitamin D, comes under discussion.

CALCIUM DEFICIENCY

Since rickets was first observed the question of calcium deficiency as a cause has always been a major point for debate—for example, by Korenchevsky (1922).

Hutyra and Marek (1913) deal at great length with this aspect of the disease in pigs. Elliot, Crichton, and Orr (1922) also working with pigs alleged that rickets in these animals could be prevented by adjusting the CaO percentage of their ration to that of the P_2O_5. As however 10 c.cm. per pig per day of the antirachitic substance cod liver oil was administered in the basal ration the condition resulting from the calcium deficiency could not have been rickets. Evidence will be adduced later to show that in all likelihood the lesions produced were those of osteoporosis or very exceptionally in the circumstances of osteoporosis complicated by a condition of rickets already present before the animals were submitted to the experiment.

During the years 1922–6 the opportunity occurred of observing, among large breeding stocks with an annual population of hundreds of susceptible pigs, the effect of 'balancing' in the ration the CaO with the P_2O_5. Rickets as a natural disease in pigs occurs most frequently in January and February, and in the stocks just alluded to, fed on this 'balanced' ration and during these months, hardly a pig which could be the subject of the disease escaped it. Zilva, Golding, and Drummond (1924) performed experiments on pigs with results which confirmed these observations, and showed that while the administration of cod liver oil prevented the occurrence of rickets, the "balancing" of the CaO with the P_2O_5 of the ration was quite ineffectual. Subsequent to the publication of their paper a 'repeat' of their experiments confirmed these results. Later still the specimens from an experiment, in which groups of summer pigs (free therefore, from 'latent' rickets) were fed some on a calcium deficient ration, others on this ration with the addition of a vitamin D preparation, and others again on this ration with cod liver oil added were examined by me. Advanced osteoporosis with fractures of the bones was present in all groups and particularly in that receiving cod liver oil. Rickety changes were entirely absent. In 1931 I was requested by Dr. R. D. Sinclair* (who has allowed me to refer to his results) to report on the specimens derived from a somewhat similar experiment. Groups of pigs were fed some on a calcium-deficient ration, others on the same ration with exposure to sunlight, others on the same ration with exposure to ultra-violet light, and others again on the same ration with the addition of cod liver oil.† Osteoporosis of an advanced type, often with fractures, was present in the bones of all the groups; rickety changes were absent (see Special Plate).

The following provisional interpretation of these collected observations seems justified—namely, that calcium deficiency produces osteoporosis which cod liver oil is practically powerless to prevent, and that, while administration of calcium does not prevent 'latent' rickets

* *Scientific Agriculture* (1933, xiii, 480) records the other details of this experiment.

† Observations were also made on a parallel series of groups where the P_2O_5 was balanced with $CaCO_3$. Osteoporosis, less in degree than in the calcium-deficiency series and worst in the basal group, was present except in the cod liver oil group. The most feasible explanation of these phenomena would appear to be along the lines of a condition of alkalosis interfering with assimilation remedied to some extent by a state of acidosis produced by vitamin D (*vide infra*).

from developing into "patent" rickets, or rickets itself from appearing, cod-liver oil is very effective in this regard.

Hess (1930) and Park (1923) stress the point that deficiency of calcium in the diet does not produce rickets and that the administration of calcium will not cure or prevent it. On the other hand, cod-liver oil has no effect on the condition caused by deficiency of calcium. A type of so-called rickets—the low-calcium high-phosphorus variety—has been described (McCollum and Simmonds, 1925) as occurring in experimental rats. The histological description of this condition as a whole is indicative of osteoporosis: some slight appearances present, which might conceivably be regarded as being of a rachitic nature, could be attributed to the animals having already been the subjects of the disease before they were placed on experiment. This further evidence from the literature therefore goes to confirm the conclusions already stated. Korenchevsky (1922) believes that osteoporosis may indeed occur in the course of rickets, being induced by a state of cachexia, debility, and lack of nutrition developing in the course of the disease. This, however, is an accident, and not the essence of the condition. The basic histological changes present in such states as scurvy, scurvy rickets, general cachexia, and the calcium deficiency just referred to—conditions markedly different in regard to aetiology and cure—are atrophy and osteoporosis, while in rickets they constitute pronounced hypertrophy. All these diseases have much in common as far as the symptomatology of the bones is concerned (however they may be modified by intercurrent influences, such as movement, fractures, stresses, and strains), because of the interference with the integrity of the epiphyseal grid, as described (McGowan, 1924). It should be realized, however, that rickets is aetiologically and pathogenetically—as it is morphologically—quite distinct from the other conditions just referred to above.

THE AGE FACTOR

Before considering the possible relation of phosphorus or vitamin D deficiency to the occurrence of rickets some fundamental points in connexion with the disease may be dealt with. Hess (1930) has emphasized the point that rickets occurs much earlier in infants than is generally imagined. Schmorl (1909) found it present histologically in four children of about one and a half months old, and Park (1923) quotes Dunham as having observed a very advanced case in a premature child of one month. The subject of "latent" rickets, where the disease is usually observed accidentally post mortem, and that of "patent" rickets, where symptoms are exhibited during life, is thus introduced again. These conceptions are matters of great moment in an understanding of the disease. A concrete example in connexion with pigs, recorded elsewhere (McGowan, 1926), illustrates this. At that time a considerable number of cases had been collected (these have been added to in the course of the present investigations) in which histological evidence of the presence of rickets in pigs was forthcoming at the tenth to the twentieth day of life, while clinical symptoms do not usually appear till the animal is from 10 to 12 weeks old. Such occurrences have important implications. In this way one may explain, as already mentioned, the finding at times of morphological appearances of rickets in pigs which have been fed on a calcium-deficient ration. Further, all experiments hitherto conducted on the aetiology of rickets in rats, dogs, pigs, etc., have necessarily been performed on weaned animals, and the fact that such experimental animals might quite well have been the subjects, at the commencement of the experiment, of rickets acquired naturally in this way introduces serious complications in regard to interpretation of results. A converse situation exists in which rats and their young, supplied without the knowledge of the experimenters with vitamin D, have created difficulty in vitamin D assay by their failure to become rachitic on the diets usually employed for this purpose.

The possible reasons for the appearance of rickets during the suckling stage have been discussed (McGowan, 1926) in relation to the occurrence of an allied disease in pigs—"iron deficiency." The conclusion was arrived at that iron deficiency was due to a deficiency of iron in the milk relative to its protein content and to the growth potential of the young animal. These inimical conditions could be overcome by ensuring that the sows were "good milkers," and so supplied large quantities of milk to their offspring, the excess protein of which would be burnt off, leaving, however, the large quantity of iron of the excess milk to obviate the occurrence of anaemia. A parallel was drawn in regard to the occurrence of rickets, and an instance was quoted in which rickets in lambs born in January from mothers grossly fat (and poor milkers) was prevented by the simple expedient of providing an abundant supply of milk from foster mothers, all other conditions remaining the same. In this connexion it is also of interest to note the practice of Shorthorn breeders, who rear their December-born bull calves indoors each on the milk obtained from two or more foster mothers. By this means large, overgrown specimens of the breed are obtained, yet with an entire absence of rickets, in spite of the indoor life and absence of sunlight.

CALCIUM AND PHOSPHORUS DEFICIENCY

It now becomes necessary to discuss the particular ingredient of milk which is deficient when rickets occurs. Sow's milk contains 0.4 per cent. CaO and 0.35 per cent. P_2O_5. Korenchevsky (1922) pointed out that human milk contains no excess of CaO over the minimum requirements of infants, and that with a growth potential over the average a condition of relative calcium deficiency could easily arise. In view of the excessive rate of growth in modern breeds it is reasonable to assume that the same conditions exist to an even greater extent in pigs, and that the CaO content of pig's milk represents an irreducible minimum. If this is the case, considering the smaller absolute amount of P_2O_5 compared with CaO in the milk, and considering the fact that CaO is mainly employed in the formation of bone, that CaO and P_2O_5 collaborate in the body in this function, and that the body has a very great need for P_2O_5 in connexion with the formation of the soft tissues, it would seem that deficiency of P_2O_5 in milk must be a contingency more to be expected than deficiency of CaO.

As regards the protein content of milk in relation to the disease, it should be noted that swine colostrum contains 15.56 per cent. of protein as compared with the 6.6 per cent. of ordinary sow's milk.

Hess (1930) has stressed the importance of albuminized milk in causing rickets. He points out that egg white increases the intensity of the disorder because it increases the growth-promoting properties of the diet: the protein of cow's milk has come under a ban for similar reasons.

INFLUENCE OF GROWTH RATE

Hess (1930), Park (1923), and Mellanby (1922,* 1925) have emphasized the great importance of growth—especially in cases where there is growth in bulk without proportionate growth in bone—in connexion with the appearance of rickets. It has been stated that without excessive growth rickets could hardly appear. The great susceptibility of premature infants because of their rapid growth in proportion to size has been emphasized by everyone. Moreover, Park (1923) has stated that the liability to rickets varies directly with the youngness of the organism and the speed of new tissue formation.

* It is necessary to mention that in Mellanby's experiments (1925) on the "cereal" effect in rickets his diets are very deficient in calcium, and that his illustrations of sections of rib junctions show osteoporosis and atrophy *only*, without, so far as one can judge, any trace of rickets. It should also be noted that the worst offender as regards production of "rickets"—oatmeal—contains 16.1 per cent. protein and 7.2 per cent. fat, as compared with the 7.9 per cent. protein and 1.4 per cent. fat of the much less noxious substance, wheat-flour.

Again, the frequency of the appearance of rickets during periods of rapid growth has also been remarked upon. On the other hand, Park avers that the older the animal —and hence slower growth—the more difficult is the production of rickets, and the more independent of the antirachitic vitamin the animal seems to be. Vitamin A, by favouring growth, has also a furthering influence on the appearance of rickets. Finally, Mellanby (1922) points out that the administration of thyroid to dogs increases the rachitic changes by increasing metabolism, an observation in harmony with the finding of John Thomson that cretins, if given thyroid, develop rickets, and for this reason require the simultaneous administration of cod-liver oil.

All modern breeding tendencies are towards the development of an animal which will grow fast and mature quickly. In such animals the growth is disproportionately great in the earlier stages. Thus, while a newborn pig may treble its original size in two weeks, it requires the next six weeks to treble in turn the size at this stage, showing thus the greater comparative rapidity of growth at the earlier period. This is a point of considerable importance in dealing with the early appearance of rickets in pigs. From such considerations as the above *the conclusion was drawn* (McGowan and others, 1931) *that rickets was due not to a relative deficiency of calcium but to a relative deficiency of phosphorus.*

TRUE FUNCTION OF VITAMIN D

We have now to consider the part that vitamin D plays. Because vitamin D can cure and prevent rickets it would be illogical to conclude from this alone that a deficiency or lack of it was the cause of the disease: on such reasoning syphilis could be ascribed to a deficiency of salvarsan. Theiler and Green and Du Toit's (1932) observations on aphosphorosis in cattle, and Wilson's (1932) observations on osteomalacia, two conditions allied to rickets, which develop in spite of strong insolation, show that something more fundamental than vitamin D—in this instance lack of phosphorus in both cases—is involved in their initiation. Further, the occurrences in lambs and Shorthorn calves already referred to demonstrate that vitamin D is unnecessary for normal or even excessive healthy growth when other conditions—especially an adequate amount of P_2O_5—are optimal.

It must be emphasized that these observations are not meant to minimize the important part that vitamin D plays in rickets. It is a question of the logical ascription of a consequence to a cause. To use a crude simile, vitamin D might be regarded as playing the part of governor of a steam engine, while phosphorus would be something more vital—say, the piston. Elsewhere (McGowan and others, 1931; McGowan, 1933) evidence has been adduced to show that the probable mode of action of vitamin D, in its preventive and curative roles, is by the setting free of phosphoric acid from the lipins, thus increasing the acidity as well as the available phosphate of the body. The acidity itself may have an important effect (through rendering possible increased secretion of HCl in the gastric juice) on the intestinal reaction, and hence on absorption of adequate amounts of P_2O_5 (and CaO). Browning (1931) quotes several observers—for example, Bacharach and Jephcott (1929)—as having shown that vitamin D renders the contents of the intestine acid.

DISCUSSION

Histological and other observations made during the years 1922–31 showed that a fair proportion of the rickets cases in pigs appeared in "latent" form during the suckling stage, and that the subsequent feeding of pigs on a diet high in $CaCO_3$—especially in winter conditions—resulted in the appearance of "patent" rickets, due either to an aggravation of the already existent "latent" disease or to a *de novo* initiation. Elsewhere (McGowan, 1933) evidence is forthcoming that the mere ratio of CaO to P_2O_5 in the diet is of little importance in relation to the ultimate metabolism of these substances, and that the two matters of real moment are the acidity of the gastric juice and the occurrence of great excess of CaO ($CaCO_3$) in the diet. Other important factors, however, require detailed mention—namely, the percentage composition of the diet as regards CaO and P_2O_5 and the related circumstance of the amount of food that has to be eaten before the animal is "filled" and its appetite appeased.

On the average, milk may be taken as an example of the ideal food. As already stated, it contains, in pigs, 0.4 per cent. CaO and 0.35 per cent. P_2O_5; so that for the introduction of a comparatively small amount of CaO and P_2O_5, a considerable bulk of food requires to be taken to satisfy the animal's appetite. In spite of this consumption of an apparently dilute fluid, in the fastest growing period of the young pig (from birth to the age of 3 weeks) a kilogram of sow's milk, containing 4.0 grams CaO, causes an increment of 250 grams in the body weight (Prazmowski, 1932). Similar conditions hold good for another natural food—grass—in which the composition as regards CaO and P_2O_5 is of the order 0 25 per cent. Suggestions of this kind from Nature cannot be lightly disregarded, and they would appear to give a clear indication of the "fuel mixture," for which the body machine is built. If one turns to a consideration of the "concentrates" employed in the unnatural and artificial feeding of animals by man, one finds that in these—on the basis of what has just been said, and considering the bulk required to satisfy the appetite—about three or four times more P_2O_5 is used than is necessary. At the same time, in such a ration only one-quarter of the necessary CaO is present—taking milk as a standard. When, however, such a ration is "balanced" by means of $CaCO_3$ so that the CaO/P_2O_5 ratio is unity, the diet contains about three to four times the requisite CaO. Under these conditions a simple calculation will show that a pig of 100 lb weight, eating 5 lb of such food per day, would require to secrete more than 20 litres of gastric juice per day before its gastric contents could give a reaction to the acid side! Such considerations afford a ready explanation of the experimental production of the high-calcium low-phosphorus type of rickets, and also of the failure of the procedure of "balancing" the P_2O_5 by means of $CaCO_3$ to prevent the occurrence of rickets in the cases referred to at the beginning of this communication. They likewise indicate a gross economic waste*—directly, because the added $CaCO_3$ renders useless and unabsorbable the P_2O_5 supplied in an amount three to four times more than necessary; indirectly, because of the production of disease by such manipulations.

Tetany and convulsions were observed very frequently in the rachitic pigs on this "balanced" ration. Shohl and others (1931) have shown that the condition of the blood in rickets is one of alkalosis, which brings about a lowering of the ionized calcium in the blood; and Zucker, Johnson, and Barnett (1922), and Zucker and Matzner (1923) have stressed the fact that in rickets the reaction of the intestinal canal is alkaline. In the present instance the administration of such quantities of $CaCO_3$ must tend to exaggerate further this alkalotic condition of the body and its juices. Thus, it can easily be imagined that in such circumstances a condition of "achlorhydria" could supervene, with the result that there would be difficulty in absorbing not only P_2O_5 but even CaO.

* The advisability of feeding concentrates incorporated with a bulky non-concentrated food such as turnips, cabbages, etc., seems apparent.

The findings recorded elsewhere (McGowan and others, 1931 ; McGowan, 1933) in connexion with rabbits fed on high $CaCO_3$ diets are also of interest in this connexion. Here large quantities of calcium are excreted in the urine as $CaCO_3$ by an interaction in the kidney between $CaCl_2$ and $NaHCO_3$, whereby $CaCO_3$ on the one hand and NaCl and HCl on the other are formed. The consequent replacement of the alkaline $NaHCO_3$ by NaCl and HCl brings about a tendency to reduction of alkalosis and to a swing over towards acidosis, such as is seen in the administration of salts of calcium with fixed acids.* An example of this is seen in calcium chloride therapy, where the acidosis so produced plays a considerable part in the cure of tetany by increasing the ionization of calcium (Gamble, Ross, and Tisdall, 1923).

The peak of occurrence of rickets in the investigation I am recording took place in January and February. In the months immediately prior to this there were fewer "patent" cases because sunlight had acted as a protection in the suckling stage, while the relative infrequency of the disease in the months immediately succeeding may be attributed to sunlight acting as a curative agent to the older pigs. It goes without saying that in the summer months both curative and protective roles would be operative.

Reference has already been made to aphosphorosis in cattle and its relation to rickets. Theiler (1932) has shown that the histological appearances in this condition are essentially those of rickets, modified, of course, by the fact that it occurs in adult animals in which the epiphyses are no longer actively functioning. Its occurrence is due to lack of phosphorus in the pasture ; administration of phosphorus cures it ; and it develops in spite of abundant insolation. The significance of these phenomena in relation to an understanding of vitamin D action has already been indicated. Osteomalacia in human beings has many points in common with this disease. It can also occur in spite of considerable insolation (Wilson, 1932), and in such circumstances it is amenable to the administration of tricalcium phosphate. Usually, however, osteomalacia presents a wider picture. The clinical symptoms, including as they do tetany, may be regarded as a mixture of those associated with aphosphorosis and acalciosis. The history of its onset indicates a deficiency not only of P_2O_5 but also of CaO in the diet. There is hypocalcaemia, while the histological appearances of the bones, with the presence of osteoid tissue coupled with the extensive removal of the bony trabeculae, may be interpreted as a mixture of those appropriate to rickets and to osteoporosis. As regards treatment the beneficial effect, in most cases, of administering P_2O_5 (and vitamin D) is considerably added to by the simultaneous exhibition of CaO.

It has already been stated that rickets is of frequent occurrence in premature infants. In such cases it is very often associated with tetany, and it seems possible that there is here, also, a mixture of aphosphorosis and acalciosis, brought into being by the needs of the rapidly growing body outstripping the supply both of P_2O_5 and of CaO contained in the milk.

SUMMARY

In pigs deficiency of calcium in the diet produces osteoporosis, and cod-liver oil, vitamin D, and sunlight are practically without avail in preventing or curing this condition. On the other hand, the "balancing" of the ration with the $CaCO_3$ (especially when the P_2O_5 of the ration consists of "concentrates") not only fails to prevent the appearance of rickets, but would seem to aggravate the condition if already present in a "latent" form, or to initiate it. Cod-liver oil, vitamin D, and sunlight, however, prevent and cure rickets.

Emphasis is laid on the early appearance of rickets in pigs, and the bearing of the existence of this "latent" form on an understanding of the disease and on the interpretation of experimental results discussed. Rickets is regarded as being due to a deficiency of phosphorus in the diet relative to its protein content and the growth potential of the animal, and its origination in the suckling animal is discussed from this standpoint. The role of vitamin D—a secondary one—is also discussed, and its probable mode of action, as previously defined, reaffirmed.

In connexion with the question of CaO and P_2O_5 absorption, emphasis is laid on gastric acidity and its neutralization by excess of $CaCO_3$ in the diet, together with the percentage composition of CaO and P_2O_5 in relation to the amount of food required to appease the animal's appetite. The ratio of CaO to P_2O_5 in the diet, as such, is considered to be of little importance in connexion with the absorption and utilization of these substances.

The economic waste that may arise from feeding "concentrates" and the hazards attributable to balancing the P_2O_5 in such cases with $CaCO_3$ are indicated. Observations on tetany and alkalosis in rachitic pigs with large quantities of calcium in the diet are recorded. The seasonal incidence of the disease in these animals is also dealt with.

It would seem permissible to regard osteomalacia as essentially a combination of aphosphorosis and acalcicosis due to deficiency of both phosphorus and calcium in the diet.

In dealing with the histological problems which have arisen in the course of discussion, I would like to acknowledge the great help received from Dawson's monograph (with Struthers), *Generalized Osteitis Fibrosa* (1923), and to record the fact that the specimens from the cases of early rickets were submitted to him for verification. Specimens illustrated on the Special Plate (except that from Pig 10) are from pigs with calcium-deficient diet of experiment 1930–1. The basal ration consisted of ground oats, barley and sharps, with meat, linseed, and alfalfa meals. It contained 0.21 per cent. CaO and 0.82 per cent. P_2O_5. The photographs are from rib junctions cut fresh and treated with von Kossa's silver nitrate method.

Addendum.—Since this was written my attention has been called to a paper, *The Significance of Calcium and Phosphorus in the Development and Growth of Pigs*, by Reimers and Smuts (*Archiv f. Tiernahr. u. Tierzucht*, 1932, Ab. B. vii, 471). It is impossible to discuss it with advantage as, amongst other things, there is no description of the histopathology of the bones—a very grave omission.

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* Other explanations of this phenomenon have been offered—for example, Berg (1923), *Vitamins* (Allen and Unwin), and Haldane, Hill and Luck (1923), *Journ. Physiol* lxvii 361.

OBSERVATIONS ON THE EXAMINATION OF SWIMMING-BATH WATER

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While no official standards of purity of the water of swimming pools are available, the general principles of examination are well established. It is desirable that the total number of organisms should be as low as possible, and that pathogenic strains should be absent.

The actual number of bacteria present is, however, by no means easy to ascertain. The apparent number varies with the depth at which the water is collected, the type of medium employed for culture, and the temperature and period of incubation. Where, as is now usual, bactericidal substances are added to the water the time elapsing between collecting and testing is very important. Moreover, the inhibiting power of one type of organism in a culture on the growth of others is very well known to bacteriologists, but is not generally taken into account. For example, the selection of MacConkey's medium or litmus lactose agar in the culture of faeces may frequently determine whether or not streptococci are grown. The inhibiting power of moulds is particularly marked, and moulds are always prominent in bath-water specimens. In our opinion standard methods of swimming-bath analysis greatly underestimate bacterial numbers. The medium used is normally a simple broth agar; no serum or blood is added.

Thresh, Beale, and Suckling state: "It would be useless attempting to discover the specific organisms of these diseases (that is, pneumonia, tonsillitis, syphilis, etc.) in any water; we can only make certain that a water is practically free from the typical, most abundant, and most easily recognizable bacteria of excretal origin." These authors quote many instances of the incrimination of bath water in respiratory disorders and in otitis media, and it would appear to be reasonable to test specifically for such organisms as the streptococcus, the pneumococcus, and *Staphylococcus aureus* as common pathogenic throat organisms. Since, however, the water of swimming baths is to-day usually chlorinated, the test for the faecal strains becomes more logical, though, as will later be suggested, by no means exhaustive. It is generally accepted that such strains are the most resistant to chlorine; if they are killed the pyogenic group are not likely to survive. The efficacy of chlorination, or any form of disinfection, however, depends to an unpredictable degree on the medium in which organisms are suspended; and no valid conclusions can be drawn from systems not identical.

Where no method of disinfection of swimming-bath water is used we have invariably found faecal strains in large numbers, and in one case haemolytic streptococci. The faecal strains isolated are in themselves innocuous; but their isolation is no measure of the presence or absence of the pyogenic organisms which clinical experience appears to suspect.

In this paper an account is given of the examinations performed during the past three years on the three public baths in the Westminster City Council area. They were among the first to be fitted with chlorination and filtration plants under the direction of Dr. A. Shinnie, to whose constant help and interest we owe the facilities for the examinations recorded. The results of examination of a control series of non-chlorinated baths have also been taken into account. The technique used is given in a footnote*; it must be emphasized that it was directed only towards the detection of faecal strains and streptococci, as well as total bacterial population. The isolation of pyogenic organisms other than streptococci was not attempted, and this paper is merely a study of the efficacy of chlorination and filtration methods in a representative series of London baths, according to standard criteria.

REVIEW OF MATERIAL

A number of competitive systems of disinfection are in common use. The water is always continuously flowing; it enters at the shallow end, and is removed at the deep end. The speed of flow varies, but is usually such that a complete "turnover" is obtained in from four to six hours. Aluminium salts are added to precipitate organic matter; the reaction of the water is kept alkaline, and after filtration through sand and oxygenation by an air blast, chlorine gas is continuously added just before the inlet.

Chlorine Content and its Testing

The difficulty of maintaining a proper concentration of chlorine is obvious. In very hot weather it was not possible to keep the chlorine concentration above 0.3 part per million owing to rapid evaporation. Moreover, the only method of estimation which is commonly employed is a colorimetric one, the concentration of chlorine being found by the colour produced by the addition of tolidine. Although the Ministry of Health report states that a concentration of 1.3 parts per million of chlorine is innocuous, this is very far from true. Such a concentration produces instant smarting of the eyes and a most unpleasant and persistent interference with the sense of taste and smell, lasting in some individuals for forty-eight hours. Our experience is quite definite that bathers will not tolerate a higher concentration than 0.5 part per million. Complaints are universal when this point is exceeded. Moreover, our results show that no concentration above this point is necessary. The dangers of over-chlorination are certainly as definite as those of under-chlorination. The tolidine method is, however, of doubtful value in the hands of unskilled workers. The colour developed varies directly with the time elapsing after the addition of tolidine. It is essential to make readings after precisely the same time. Again, the difference in colour intensity of the comparator tubes is very slight, even between the limits of 0.2 and 0.5 part per million. Thresh, Beale, and Suckling accept the limits of 0.2 part and 0.4 part per million as suitable.

As our observations indicate that below 0.3 part bacteria are not killed sufficiently quickly, and that above 0.5 part eye irritation is marked, it is desirable that some more delicate and simple method of chlorine control should be introduced. Investigations on this line are being made.

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* TECHNIQUE OF EXAMINATION OF BATH WATERS

1. Put 2 c.cm. of the water into a sterile Petri dish with a sterile pipette; add 15 c.cm. nutrient agar, melted and cooled to 45° C. Mix, and allow to set. Repeat procedure with 1 c.cm. of water. Incubate at 37° C.

2. Add to bile salt broth, with Durham's tubes, 5 c.cm., 2 c.cm., 1 c.cm., and 0.5 c.cm. of water. (The 5 c.cm. is added to double-strength broth.)

3. Add 25 c.cm. of water to bottle containing 100 c.cm. litmus milk; heat in water bath at 80° C. for ten minutes; pour on sterile liquid paraffin to about half-inch depth.

4. Centrifuge two 10 c.cm. tubes of water, repeating three times. Pour off supernatant fluid; inoculate glucose broth tubes from deposit in one tube, examine the deposit in other tube for debris, cells, bacteria, spores, protozoa, etc.

5. Count colonies on plates after twenty-four and forty-eight hours' incubation. Examine bile salt broth for lactose fermenters and plate out if necessary. Examine litmus milk for foaming clot. Examine glucose broth tubes for streptococci.

at the time of testing; in others we noted that the vast majority of organisms were of one type. On one occasion an actively motile chromogenic organism was almost the sole organism present; on others various types of moulds. It is eminently possible that seasonal or atmospheric conditions may produce air contaminations by chlorine-resistant, non-pathogenic forms. On the whole, however, when there is a large number of bacteria, particularly brought out in our control tests (not recorded here) of non-chlorinated baths.

SUMMARY

This series of investigations into the public bath waters of the Westminster City Council covers a period of just over three years.

For eighteen months of this period the water was taken from the situation of the outflow grid at the deep end, and therefore represents the water almost immediately prior to its treatment by the filter plant. In a sense this water is a fair average sample of the water that has been subjected to the full effects of chlorination plus contact with the contaminating human bodies, and with air, bacteria, etc. For a second eighteen months the water was taken from near the surface, where the water was most in contact with the human bodies and aerial contaminants. It is thought that, generally speaking, the bacterial content of this layer is higher than that taken from the depths, and this is what might be expected. Thus, while this surface water represents what one might term the "local efficiency" of the chlorination as regards the individual bather, the deeper water at the outflow represents the general efficiency of the filtration and chlorination of the whole mass of bath water, before passing through the filter once more. Both are obviously of great importance, but from the point of view of public health the surface water is probably the most important.

While the numbers of the bathers at any given period do not appear to affect in any constant way the proportion of bacteria found, the season of the year does seem to show a variation, the numbers of bacteria being fewer in the winter months.

Sterilization is imperfect when the chlorine figure is below 0.3 part per million, and no bath water should have so low a value. When a chlorine figure of over 0.5 part per million exists, it will be found that the bathers complain of smarting eyes, and nausea if the water is swallowed. It will further be found that the atmosphere of the bath is nauseating, and even irritating. We regard the figure mentioned in the Ministry of Health report—namely, 1.3 parts per million—as being a proportion of chlorine quite intolerable in practice. The figure to be aimed at, therefore, is 0.5 part of chlorine per million parts of water, no more, and not less than 0.3 part per million on any account.

While the accusation may be made that our bacteriological tests do not take into account the catarrhal organisms and the meningococci, it is fair to assume, from a knowledge of their life-history on artificial media, that the proportion of chlorine in the bath would almost instantly render them innocuous, particularly in the case of the meningococcus. It would seem probable that such organisms are much more likely to be distributed by gross contamination of the towels by nasal mucus, particularly where young children are concerned (schools).

Finally, it seems highly desirable that some automatic device should be employed to maintain constant chlorination of the water at a proper figure, instead of the chlorine figure of the water being obtained by a method of human trial and error, which is the only one at the moment employed, so far as we know.

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Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

A CASE OF SYPHILITIC SPONDYLITIS

(With Special Plate)

Syphilitic spondylitis is of sufficient rarity to warrant the publication of the following case.

J. V., a male aged 37 years, and married, gave a history of urethral discharge fifteen years previously. This had lasted about six weeks, and was treated with medicine only. About six years ago pain developed in the lower part of the back, especially on stooping. This gradually increased in duration and intensity until it was constantly present, being worse on movement and at night. For three years the pain has affected the back of the thighs also. The patient has been losing weight and his appetite has been very poor. On examination there was no scar indicating healed chancre on the genitals. There was tenderness over the spines of the twelfth thoracic, first, second, third, and fourth lumbar vertebrae, and rigidity of the lumbar spine. Movement in bed caused pain, and the patient could hardly sit or stand erect. The blood Wassermann was strongly positive. X-ray examination showed increased density of the third, fourth, and fifth lumbar vertebrae, with flattening of the bodies. Osteoarthritic bridges joined the articular margins. There was no evidence of damage to the spinal cord.

COMMENT

The absence of a history of primary or secondary syphilis has little importance in the diagnosis of osseous lesions. Stokes[1] found that 64 per cent. of his cases gave no history of a primary sore and 87.3 per cent. no history of secondary manifestations. Many (25 per cent.) gave a history of urethral discharge only. Genital scars are similarly uncommon. The diagnosis rests on (*a*) a strong positive blood Wassermann reaction, (*b*) the *x*-ray picture, and (*c*) a striking response to specific therapy. Of secondary importance are associated syphilitic cutaneous lesions or scars. It must be borne in mind that such conditions as a round-celled sarcoma may show improvement under anti-specific treatment. Treatment presents no pitfalls. A Herxheimer reaction is rare in these cases and the response to specific therapy rapid. In this case iodides were given by the mouth with lipoluble bismuth intramuscularly. Within forty-eight hours the patient enjoyed an uninterrupted sleep, and in a week was able to sit up without pain. The tenderness on pressure also rapidly disappeared. Further improvement occurred on the administration of neoarsphenamine. The prognosis is good. Resistant cases do occur, but, with the exception of the *x*-ray findings, which constitute a fixed scar comparable to the Argyll Robertson pupil, one may expect complete clinical and serological cure. Some decrease of the condensation of the vertebrae is to be expected, and, in fact, this has already been demonstrated in films taken two months after the commencement of treatment.

We wish to thank Dr. Bromley for the illustration accompanying this note.

North Staffordshire Royal Infirmary. A. WILSON GILL.
A. D. FRAZER.

[1] Stokes, J. H.: *Modern Clinical Syphilology*, 1928, p. 689.

Reviews

SICK CHILDREN

It is now eight years since the late Dr. JOHN THOMSON produced the last edition of his deservedly popular text-book, *The Clinical Study and Treatment of Sick Children*,[1] and it was a happy inspiration of the publishers to ask Dr. LEONARD FINDLAY to undertake the preparation of a fifth edition. It must have been no easy task to rewrite and enlarge so thoroughly what was essentially a compilation of personal observation, and Dr. Findlay has managed to retain in no small measure the distinctive touch of the senior author.

The interval since the last edition has seen a great many advances in the study of diseases of children, not a few of which have emanated from the Glasgow school, enabling Dr. Findlay to write at first hand on the nutritional disorders of infancy, rickets, the disorders of the acid-base regulating mechanism, the rheumatic infection, and tuberculosis. It is possible to criticize some of the conclusions on the last two subjects, for it is generally agreed that pulmonary tuberculosis in childhood is not invariably fatal, as is stated (p. 970), if a broad view is taken of what constitutes this infection of the lungs, while to state that salicylates are a " veritable specific " (p. 911), even for the arthritis of rheumatic infection, and to recommend the use of them for at least three months, is to suggest a beneficial effect on the whole rheumatic process, which modern research indicates as unjustified. These are, however, matters of terminology and of personal bias, and in a book of this kind, essentially aiming at being a practical supplement to general medicine, dogmatism is necessary if the teaching is to be effective. Dr. Findlay's own work on tetany, congenital syphilis, bronchiectasis, and congenital oesophageal abnormalities enables him to deal with these subjects in a masterly fashion, and many of the illustrations in these, as well as other parts of the volume, are excellent and a worthy addition to the book.

As the junior author is now working in London it is possible to claim that three medical schools, Edinburgh and Glasgow being the other two, have a share in the new edition, and this broad outlook, taken in conjunction with the senior author's personal views, has resulted in a remarkably useful volume.

ORTHOPAEDICS AND NEUROLOGY

The authors of *Paralysis in Children*[2] have set out to bridge a small but important gap in medical literature. Dr. R. G. GORDON and Miss FORRESTER-BROWN believe very rightly " that a book from the combined standpoint of orthopaedics and neurology, showing how the two subjects dovetail into each other, is not out of place." The book is divided into three parts—general, clinical, and treatment. There is a certain amount of intentional repetition in these three sections, as it is the authors' expectation that the book will be used by some as a work of reference ; in our opinion it is probable that anyone consulting it will not be satisfied till he has read it through, for the whole subject is covered in the relatively brief space of 323 pages, and is presented in a most readable form.

The first part, illustrated by excellent diagrams, contains a brief account of the physiology of movements, the incidence of lesions causing paralysis, the aetiology of paralysis in children, and the diagnostic significance of physical signs. The second part is concerned with the description of every aspect of the paralyses that affect children. Case reports are introduced here and there to emphasize certain difficulties in diagnosis or other points of special interest. The paragraphs on post-natal nerve injuries, disseminated sclerosis, and Thomsen's disease might well have been omitted, or at least abbreviated, seeing that these conditions are rare in children and present no features peculiar to early life. Of special merit are the sections on acute anterior poliomyelitis and spastic paralysis. The authors are perhaps a little dogmatic in describing the initial infection in poliomyelitis as systemic, and in advocating the use of convalescent serum in the pre-paralytic stage of the disease. Neither the exact path of spread of the infection nor the therapeutic value of serum can yet be regarded as established. The third part is a most complete presentation of the orthopaedic treatment of paralysis. Splinting, massage, electricity, re-education, etc., are accurately described, together with the indications for their employment, and—most important—their limitations and common abuses. Operative treatment is very properly left till the last, and is summarized in such a way that " the practitioner . . . should have a clear idea of the possible directions in which the surgeon can be called upon to assist him in the management of the case." The authors have striven to avoid detailed descriptions of operations. We think that this principle could have been applied even more drastically: such discussion of special operations as has been included is of little interest to the neurologist and too brief to be of use to the orthopaedic surgeon.

There are few errors in the text ; " Souter " on pages 274 and 310 should be " Soutter," and the *x*-ray photograph on page 49 is upside down. The small faults referred to are apparent only because they contrast strongly with the otherwise uniform excellence of a book that deserves to be read by all who are in any way concerned with the management of paralysis in children.

THERAPY OF RHEUMATIC DISEASE

A critical survey of the numerous methods of treatment advised or practised in the so called rheumatic diseases is no light enterprise, and this, in brief, is the task which Dr. W. S. C. COPEMAN has undertaken in *The Treatment of Rheumatism in General Practice*.[3] Moreover, his aim has been, not the construction of a mere academic or historical record, but rather the presentation of a verdict on therapeutic values as judged in the light of actual experience. This experience has been largely gathered at the British Red Cross Clinic, where, as is well known, patients attend in large numbers and the equipment needed for physical methods of treatment is on a generous scale. From organizations of this type medicine has the right to expect confident and definite contributions to knowledge and practice, for where much is given in the shape of opportunity much may reasonably be required in the shape of results.

It may be said at once that Dr. Copeman's book does not disappoint such an expectation. Few, if any, of the therapeutic proposals advanced in this field have escaped his attention, and while in some directions he confesses his want of personal experience, he is able in most instances to express a judgement based on actual trial and observation. The quality of his conclusions creates generally a favourable impression upon the reader, for they are judicial in tone and free from any suspicion of

[1] *The Clinical Study and Treatment of Sick Children.* By the late J. Thomson, M.D., rewritten and enlarged by L. Findlay, M.D., D.Sc., F.R.F.P.S.G. Fifth edition. London and Edinburgh: Oliver and Boyd, Ltd. 1933. (Pp. xxxvi + 1,075 ; 344 figures. 30s. net.)

[2] *Paralysis in Children.* By R. G. Gordon, M.D., and M. Forrester-Brown, M.D. London: H. Milford, Oxford University Press. 1933. (Pp. viii + 328 ; 116 figures. 15s. net.)

[3] *The Treatment of Rheumatism in General Practice.* By W. S. C. Copeman, M.A., M.B., B.Ch., M.R.C.P. Foreword by Sir William Hale-White, K.B.E., M.D. London: Edward Arnold and Co. 1933. (Pp. 215 ; 9s. net.)

hare-lip, cleft palate, spina bifida, or other malformations should be "helped out of the world," the abnormal being always regarded by the folk with superstitious awe. The old Scottish proverb, "Tak tent (beware) of them that God has set his mark on," embodies this idea. It is also still quite common in Scotland to hear the jocular remark from an aged invalid, "I doot ye'll hae to tak the mason's mell (maul) to me"; or, from a bystander, "Ay, he'll no dee till ye ca' oot his harns" (knock out his brains). Whether or not lingering traces are to be found here of a previous well-established custom—now, as in the case of many such others, referred to chiefly in jest—it is difficult to say; but we have other evidence that, up to fairly late times, such a custom did exist.

McPherson[2] quotes from the Kirk-Session records of the parish of Alves, Morayshire, a case which came up for discipline on March 15th, 1663. Here, "the minister represented to the Eldership that he had heard of a verie sinful miscarriage in some people in Easter Alves, viz., the ringing of a Millen Bridle (as they call it) upon ane aged and diseased poor woman, called Margaret Anderson, thereby to hasten her death as they conceived. Their names are Andrew Angus and Agnes Rob." At a later date "compeared Andrew Angus and confessed he rang the bridle: he being interrogated what were the words he spake at the ringing of it, answered that he said:

'Cran's flesh or wran's flesh
Come oot thy way.'"

Agnes Rob confessed that "she went out for and sought for and brought to the house the bridle at the diseased woman her own desire." As McPherson remarks, there is no association here with witchcraft: the phrase used was a magic formula. "It appears to be a method of hastening the end, available to any who sought to employ the means." What "the Millen Bridle" actually was is unknown; but the expressions used of "as they call it" and "as they conceived" suggest that the custom was well known in the district.

Campbell,[3] under the heading of "Killing those too long alive," states that if a person in the Scottish Highlands is thought to have lived too long, and it becomes desirable to get rid of him, his death can be ensured by bawling to him thrice through the key-hole of the room in which he is bed-rid:

"Will you come, or will you go?
Or will you eat the flesh of cranes?"

Here again, as in the first case, we have the use of "crane's flesh" in the invocation. I have been unable to ascertain that any evil attribute is attached to the crane in the folk-beliefs of the Highlands. The "wran" (wren), however, is a sacred bird; so, as the choice "cran's flesh or wran's flesh" is given in the Alves case, one would think the former held some power of doing ill.

McPherson also gives, in an interesting extract from Aubrey[4] "another method of achieving the same object" in seventeenth century England. This is got in a "countrie storie" of the "holy mawle weh (they fancy) hung behind the church dore weh when the father was seaventie the sonne might fetch to knock his father on the head as effoete and of no more use."

But Le Rouzic,[5] curator of the *Musée Miln* at Carnac, Brittany, provides a more detailed and recent account of such proceedings. He commences with the facetious remark that formerly the Bretons lived to such an age that it was necessary to break their heads with a holy hammer (*un marteau béni*); but goes on to say that every time the death agony is prolonged it is still said by the folk, "We will need to take the holy hammer to finish him." This hammer was of stone, and was kept carefully in each district, generally in the old chapels. When it was required, the oldest person in the village used to fetch it, and "operated"—that is to say, broke the head of the dying—in the presence of all the inhabitants assembled to recite the prayers for the dead. He further quotes a speaker at the Congrès de l'Association Bretonne in 1899 as stating that a ceremony of this kind was carried out at Poulharff as late as 1830.

Here, the daughter of an old paralyic, Mathô-Talen by name, aged 85 and bed-ridden for ten years, desired a neighbour, late at night, to go to a village nearly a league distant and fetch the holy hammer (in the Breton tongue, *er mel béniguet*), for which her father asked to put an end to his suffering. The beadle of the chapel (in this case at Saint Meltro) was the guardian of the mysterious hammer, a heavy and almost spherical stone measuring 42 centimetres in circumference, which was kept in a recess in the church wall, and hidden by an old placard. When brought to the sick man's house, where all the neighbours were already met, the oldest inhabitant (a woman), stooping beneath its weight, grasped the stone to her chest. The paralytic having now with difficulty left his bed for a bench, she thrice made the sign of the Cross with her right hand; and then, with both hands, raised the stone above her head, waving it and saying: "Mathô-Talen, for the last time commit thy soul to God, for here is what will relieve thee from the agonies of death, and lift from thee the burdens of life." The ends of his fingers having been wet with holy water, he slowly made the sign of the Cross with his right arm. Lowering the stone little by little with both hands, she at last placed it gently on his forehead, steadying it there with her left. Then, again raising her right, she cried in a shrill voice: "By the Holy Trinity, in the name of the Father, the Son, and the Holy Spirit, thanks to the holy hammer of Saint Meltro, the deliverer of the aged, rest in peace, Mathô-Talen, for thou hast lived well!" Hardly had she finished when the old man drew his last breath; his limbs stiffened and he gave up the ghost while saying, "God be thanked!"

Le Rouzic mentions that in the *Musée Miln* there are several such *marteaux bénits*; and that at Le Notério, and Saint Germain in the commune of Brech, he had seen similar stones. At the latter place, kept in the sacristy and stated by their keeper "to have been formerly much in demand," the "hammers" were two balls of deep blue schist about 15 cm. in diameter. *Ils avaient cassé beaucoup de crânes.* He also notes *cette légende du rite catholique*, which consists of knocking thrice with a hammer of silver on the head of a deceased Pope.

It is worthy of note that in the cases in Morayshire and Poulharff, and also in the English one mentioned by Aubrey, the instrument of release was in the hands of some guardian. At Alves the "bridle had to be sought for and brought to the house"; in the other cases it was kept in a church. Again, in Aubrey's case "the father was seaventie"; while in the Scottish, Breton, and North-Eastern Asian cases the sufferer was not only aged but personally desirous of the "happy dispatch." It is interesting, too, to note that the word for hammer or maul ("mell") is the same in both Scots and Breton, and it brings us in touch with the "millen" of the "bridle"; for to "mill," in the Scottish vernacular, is "to give one a beating, to drub." It is possible that the word "bridle" at Alves in 1633 had another meaning as well as that attached to it now; in Scots it also connotes "the piece of iron fastened on the end of the beam of a plough, to which the harness is attached,"[6] and is applied, too, to a special piece of wood used in carpentry. Taking the usual signification, McPherson thinks that death may have been caused by strangulation; but, whatever the instrument may have been, and however it may formerly have been used, it is not unlikely that "the ringing of the bridle" was, even by that time, merely a ceremony in which actual violence had given way to ritual and incantation such as was used in Brittany.

In favour, then, of a once prevalent and long-persisting custom of hastening the death of the aged, infirm, and sick, we have some folk-evidence in Scotland, England, and Brittany that is fairly strong.

DAVID RORIE.

REFERENCES

1 Frazer: *The Dying God.*
2 McPherson: *Primitive Beliefs of the North-East of Scotland.*
3 Campbell: *Superstitions of the Scottish Highlands.*
4 Aubrey: *Remaines of Gentilisme.*
5 Le Rouzic: *Carnac.*
6 Jamieson: *Dictionary of the Scottish Language.*

JOHN PARKINSON RADIOLOGY IN HEART DISEASE

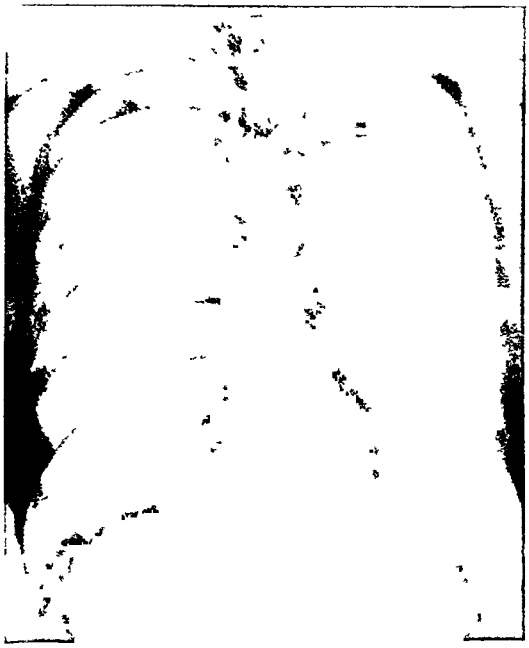


FIG 1.—Normal heart, female aged 20. Radiogram, anterior position. (Cf. Fig. I.)

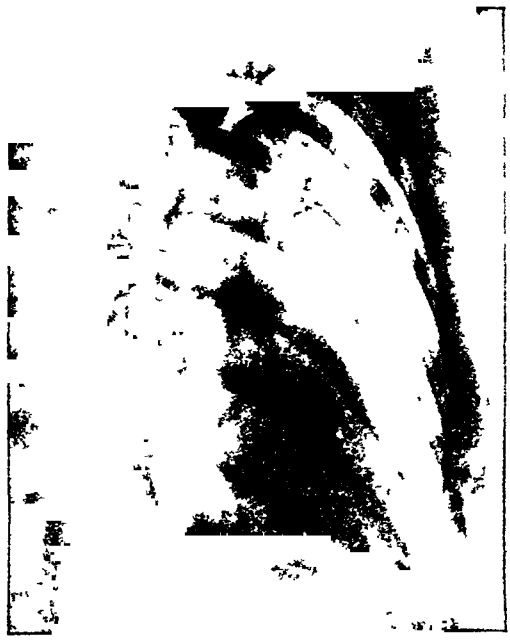


FIG 2.—Normal heart, female aged 38. Radiogram, right oblique (or Oblique I) position. (Cf. Fig. II.)

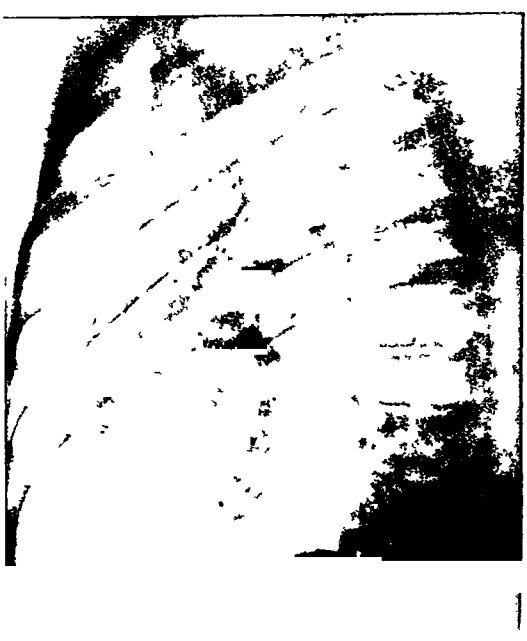


FIG 3.—Normal heart, male aged 31. Radiogram, left oblique (or Oblique II) position. (Cf. Fig. III.)

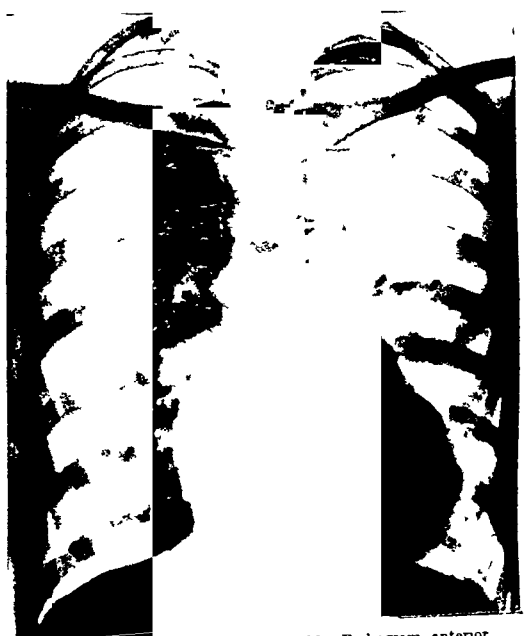


FIG 4.—Mitral stenosis, male aged 36. Radiogram, anterior position. On the left border, prominent pulmonary artery and conus (R.V.). On the right border, prominent right auricle with left auricle behind it. Congested lungs. (Cf. Fig. IV.)



FIG. 5.—Mitral stenosis, male aged 47. Radiocardiogram, right oblique position. Prominent conus (R.V.) anteriorly; prominent left auricle posteriorly, outlined by barium in the oesophagus. (Cf. normal, Figs. II and 2.)



FIG. 6.—Aortic incompetence (syphilitic). Male aged 49. Prominent left ventricle; enlarged aortic knuckle. (Cf. Figs. I and 1.)



FIG. 7.—Goitre; auricular fibrillation, male aged 57. General enlargement of the heart.



FIG. 8.—Heart failure; aortic incompetence (syphilitic), male aged 57. Enlarged left ventricle; right hydrothorax; congestion of pulmonary artery branches.



FIG 1.—The boot-shaped heart of aortic regurgitation.



FIG 2.—Mitral stenosis with chronic passive hyperæmia of the lungs. Note the thickening of the interlobar pleura and Knutson's sheath.



FIG 3.—Miliary type of chronic passive hyperæmia of the lungs.



FIG 4.—Chronic passive hyperæmia of the lungs with thrombosis at the base of the right upper lobe. Note the bronchial glands.

JOHN POOL McGOWAN: SOME OBSERVATIONS ON RICKETS

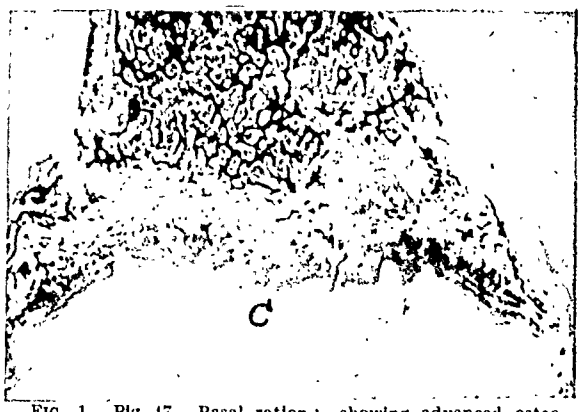


FIG. 1.—Pig 47. Basal ration: showing advanced osteoporosis, with fractures and disintegration.



FIG. 3.—Pig 45. Basal ration with ultra-violet light: advanced osteoporosis.

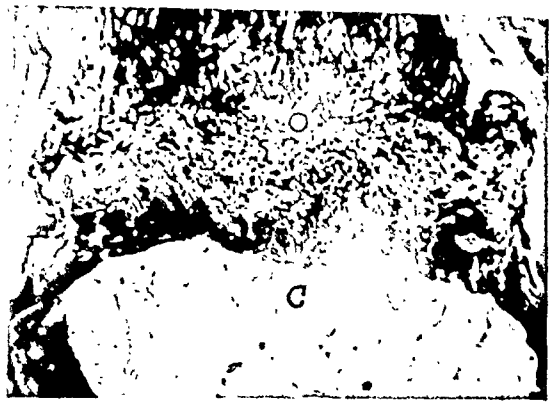


FIG. 2.—Pig 102. Basal ration with sunlight: as in Fig. 1.

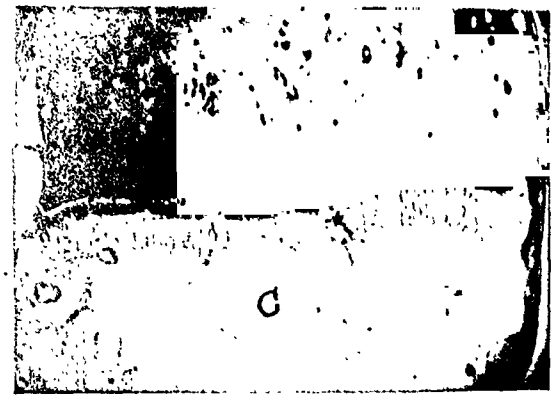


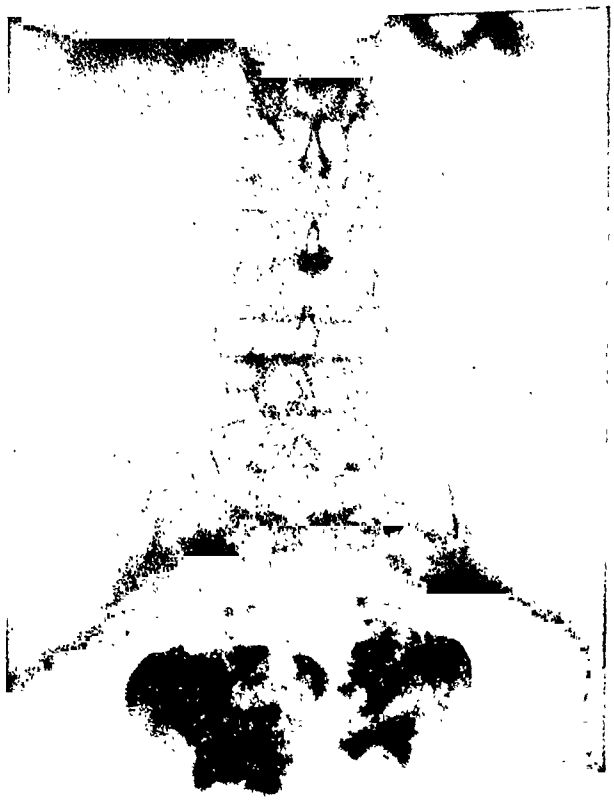
FIG. 4.—Pig 10. Basal + $CaCO_3$ + cod-liver oil—normal rib junction: note that the line separating the cartilage from the dense calcified bony trabeculae is straight or slightly concave.

JOHN POOL McGOWAN: SOME OBSERVATIONS ON RICKETS



FIG. 5.—Pig 44. Basal ration with cod-liver oil: advanced osteoporosis, with fractures at X.

A. WILSON GILL AND A. D. FRAZER: SYPHILITIC SPONDYLITIS



X-ray of spine, showing increased density of third, fourth, and fifth lumbar vertebrae with flattening of bodies—osteo-arthritic ridges joining articular margins.

British Medical Journal

SATURDAY, SEPTEMBER 30th, 1933

TUBERCULOSIS IN NORTH WALES

The marked liability to tuberculosis shown by the Welsh people along the western and northern seaboard, as compared with an absence of any special liability in the populations of the eastern counties along the border, has long been recognized, and attention was focused upon certain peculiarities in the age distribution of tuberculosis mortality in Wales by the late Dr John Brownlee in his reports to the Medical Research Council on "An Investigation into the Epidemiology of Phthisis in Great Britain" in 1918 and 1920. Brownlee showed that there was, throughout West and North-West Wales, a marked liability to what he called the "young adult" type of death rate, a liability which, unlike the "middle age" type noted in large urban centres, proved to possess no tendency to correlation with the general death rate or with high tuberculosis rates in infancy and childhood. This problem had long occupied the attention of the Welsh National Memorial Association and of the Tuberculosis Department of the University of Wales, valuable contributions to its study being made by R. G. Hutchinson while tuberculosis physician for Carmarthenshire (*Tubercle*, May, 1920) and Mr. Emrys Bowen in his Cecil Prosser Scholarship Report, published in the *Journal of the Anthropological Institute* in 1928.

As the result of a series of reports on the specially high incidence and death rates of certain villages and small towns in North Wales presented to the council of the Welsh Memorial Association by Mr. J. E. Tomley, whose long experience on Insurance Committees had given him a special insight into local conditions, fresh consideration was brought to the problem in recent sessions of the association's medical committee, and, on the initiative of the principal medical officer, Dr. D. A. Powell, a recommendation was made to the council that a whole-time investigation, with especial reference to the tuberculosis incidence in Gwyrfai and its immediate neighbourhood in Carnarvonshire, was urgently needed. It is one of the great advantages of a National Tuberculosis Scheme, such as exists in Wales, that facilities can be made available for research work of this kind, and it was in this way that Dr. Herbert Chalke came to be selected for the inquiry now under consideration. His valuable report[1] contains a collection of statistical material, charts, maps, and tables which invites personal study by those interested in the epidemiology of tuberculosis, but does not lend itself easily to summary. He is to be congratulated on having been able, in the short period of six months, to accomplish such an exceedingly complete investigation into the complex social problems of a shy and elusive population inclined to ignore (or at least hide within the secret archives of the family) the existence of cases of a terrifying and pride-destroying disease. His success must be attributed to his own Welsh nationality and the sympathy and tact brought by him to a difficult task.

The rural district of Gwyrfai is typical of the mixed agricultural and urban communities of North Wales. The population is poor, ill housed, and full of the fatalistic and poetical uplift which lends such fervour to religious movements in Wales and it puts up patiently with material conditions which might be thought intolerable elsewhere. The chief industry is slate quarrying, and the aggregations of population depending upon this source of work lack the wide distribution which is an advantage in country districts and yet have never developed the amenities usual in towns. To the undoubted liability to severe "young adult" phthisis characteristic of the Welsh littoral this district adds the aggravating factor of a dusty industry. The report of Dr. T. W. Wade of the Welsh Board of Health[2] had already made it clear that the excessive tuberculosis mortality among slate quarry men and slate workers was definitely associated in this district, with a dust hazard. It is not surprising, therefore, to find, in Dr. Chalke's report, that the saddle-back type of age mortality is prominent in the curves of pulmonary tuberculosis deaths by age groups in Gwyrfai and that Brownlee's "young adult" type coexists with the "old age" type, regarded by that author as characteristic of areas where the industrial population is exposed to an injurious dust. The Gwyrfai district is not, however, a homogeneous unit. The map opposite page 22 of the report will serve to show how the tuberculosis incidence varies with the proximity to the slate quarries, the height above sea-level, and the density of population. The excellent photographs opposite pages 15 and 17 give an idea of the type of housing and the landscape in this part of Wales. In addition to a close examination of the conditions in Gwyrfai and a chapter on the slate quarrying industry and its implications in relation to pulmonary tuberculosis, the report draws a valuable comparison between two selected villages, describes in detail a, perhaps not quite typical, North Wales seaside resort the name of which is not disclosed, and presents two elaborate tables illustrating the factor of family history and intermarriage of near relatives in the areas studied. These latter provide much food for thought. Lord Raglan in his recent book *Jocasta's Crime*, shows that there is little if any reliable evidence for the harmfulness of the mating of near relatives, and his views on this subject, so far as they concern ordinary physical characters, may well be correct. But where the problem of in-breeding is complicated by exposure to intensive bacterial infection in overcrowded houses we cannot help recalling the experiments of Lewis and Looms in the mating of brother and sister guinea-pigs

[1] Report on an Investigation into the Causes of the Continued High Death Rate from Tuberculosis in certain parts of North Wales. By Herbert D. Chalke, M.A., M.R.C.S., D.P.H. Cardiff: King Edward VII Welsh National Memorial Association, 1933.

[2] 1927. H.M. Stationery Office.

[3] London: Methuen and Co. Ltd. 1933. (6s. net.)

over a series of generations and the emergence of more or less "pure" strains, some of which were much less able to resist experimental tuberculous infection than others. It is not impossible that some such strains may come into existence in closely in-bred human communities; and the social conditions in Gwyrfai are well calculated to make the worst of such a liability. The following instance, quoted by Chalke, will serve to illustrate the situation. "A male of 20, who has tuberculous disease of the lungs, is engaged to marry his second cousin, herself an observation case. He has been warned of the inadvisability of marriage, but he will not alter his decision. The father and grandfather of this man both died of tuberculosis."

Dr. Chalke's report must be studied at first hand to appreciate the sombre tragedy of the picture which he draws of the intimate life of this beautiful region, the delight of tourists and the inspiration of poets. Poverty, under-nourishment, promiscuity, fatalism, and exposure to a dangerous industry; a love of finery that places clothes in a more important category than food; and the type of love and affection that prefers to shield the victim of phthisis from the doctor's verdict rather than face an unpalatable truth: such are the conditions under which the war against tuberculosis must be waged by the Welsh National Memorial Association. Well may Dr. Chalke place education and propaganda in the forefront of the battle. But doctors can only point out the way. It remains for the people, aided by their local authorities, to seek health and ensue it.

PROBLEMS OF COMPARATIVE HYGIENE

The greater part of the programme of the fifty-first Annual Congress of the National Veterinary Medical Association, which was held at Llandudno from September 18th to 23rd, was devoted to subjects of particular interest to veterinary general practitioners. At three of its meetings, however, the conference discussed problems which concern medical public health authorities, as may be judged from the report published in our last issue at page 573.

The amount of canned foodstuffs consumed in Great Britain is increasing very rapidly: the public find them palatable, satisfying, and convenient; moreover, the recent tests conducted by the Ministry of Agriculture have shown them to be not inferior, in calorific value, to fresh foodstuffs. Despite the dangers of defective tins and of botulism the incidence of human poisoning through eating canned food is very low. Canning has distinct advantages over other methods of preserving meat, but from the point of view of public health it is essential that meat destined for canning should be submitted to efficient veterinary and laboratory inspection. This criterion is already applied to the meat canned in the United States of America under the direct supervision of the Federal meat inspection service, but it does not invariably apply to the products of the meat-canning industry of Great Britain. Some of our local authorities possess efficient meat inspection services, and probably many more desire them but lack the money, yet in most parts of the country there appears to be little demand for the inspection of stock before and after slaughter. The British public has recently given attention to the humane methods of slaughtering animals for meat, but has exhibited very little concern about the quality of the animals and the disposal of their meat and meat products. Until a uniform and efficient system of meat inspection is in operation in all parts of Great Britain, irregularities, which may be detrimental to public health, are bound to occur in all branches of the fresh meat and canned meat industries.

Hitherto the *B. coli* contamination of milk has been attributed solely to uncleanliness of the cow and its environment. In recent years, however, considerable improvements in the hygiene of dairy cattle have been made, largely as a result of the "clean milk campaign." Having cleaned up the cows and their buildings, producers are now being called upon to attend to their sterilizing plant. Under the improved hygienic conditions of the average dairy farm to-day, milk having a significantly low bacterial count can be produced providing the dairy utensils have been sterilized by steam. It has also been shown that in order to ensure its retention of a low count at the time of its delivery to the householder, the milk, on leaving the producer, must be maintained at or below 50° F. Thus the next task of the clean milk campaign will be to encourage the adoption of steam-sterilizing plants by producers and of cooling plants by distributors.

Authoritative speakers from the veterinary and medical professions contributed to a lengthy discussion on the infection of man and cattle by *Brucella abortus*, but they made no additions to the valuable knowledge gained from the many combined discussions of the past three years. The essentials of the problem before the two professions have been defined on many occasions. Undulant, or abortus, fever in man most commonly follows the consumption of raw milk of infected cows, and evidence accumulated by Sir Weldon Dalrymple-Champneys, Professor G. S. Wilson, and others shows that the incidence of the disease in man is large enough to merit the earnest attention of the medical profession. Efficient pasteurization renders such infected milk safe for human consumption, but the greater part of the milk consumed in this country is raw or equal to raw milk in its potentialities for causing disease in man. Though no exact statistics are available, all veterinary authorities regard *Brucella abortus* infection (bovine contagious abortion) as the most prevalent disease of the cattle of Great Britain. Thus the rational method of protecting human health against abortus fever is the elimination of the disease in our cattle. Unfortunately, the veterinary profession is acutely divided upon this problem of animal health. One school of thought requires the scheduling of the disease and the elimination of all diseased stock from dairy herds. The other school emphasizes the economic difficulties of applying such proposals, and upholds the

conservative policy of the Ministry of Agriculture Until the veterinary profession has adjusted its differences, and until the source of infection—namely, in the cow—is effectively controlled by veterinary action, those responsible for the public health will doubtless be required to rely upon pasteurization, boiling, and other methods for eliminating or reducing the dangers of infected raw milk

PLANS FOR MEDICAL CARE

Some time ago, in a leading article, we discussed the report of the Committee on the Costs of Medical Care in the United States of America [1] In the *Transactions of the College of Physicians of Philadelphia* for 1932, recently published,[2] there are three papers bearing on the same matters to which the attention of those interested in the general subject may well be drawn One is on "The Purposes of the Committee on the Costs of Medical Care," by Dr Arthur C Morgan, in the second paper Dr Samuel Bradbury discusses "The Plan of the British Medical Association for a General Medical Service for the Nation", while the third, by Dr Walter S Cornell, is "A Review of some Recent Medical Literature relating to Medical Economics, Costs of Illness, and Organization of Medical Practice" Together these constitute a survey of the general situation, state with an accurate understanding the purpose of the American inquiry and the character of the British proposals, and give fairly complete references to recent articles in American periodicals on the subjects under discussion

In the first of these papers there is little that calls for any addition to our earlier comment From the second we gather several interesting facts In a sickness survey made by the Metropolitan Life Insurance Company, covering some 630,000 persons of all ages in urban and rural districts, about 2 per cent were actually sick and unable to work, one-third of whom had been ill for at least six months, of these sick folk 30 per cent had no medical attention of any kind In the seven years following 1923 the hospital unit of care (the "patient day") increased 38 per cent, and the proportion of the population of the United States attending dispensaries increased from 1 in 35 to 1 in 18 Undeniably there is a drift from private practice to hospital and dispensary for medical care Two comments may be made on this Dr Bradbury himself asks whether it is not because wages have failed to rise as rapidly as the cost of caring for illness Miss Constance Kent remarks that "formerly patients were afraid to go to hospitals for fear they would die there now they are afraid to go for fear they will not come out solvent"

The most valuable and suggestive part of the articles, however, will be found under the heading "Comment" in the last three pages of the third These observations by Dr Cornell bring out clearly four points (1) That much existing ill-health is due to poverty and ignorance —the same basic condition that breeds immorality and crime—and that the fundamental procedure to assure health is an attack not on any prevailing system of medical practice, but on certain points in the existing social order, (2) that the results measured in lives saved and reduced costs of illness are far better where a health department, while using its own powers, coincidently encourages private medical practitioners to offer their own services on the best basis, (3) that physicians in private practice should use better business methods, millions of dollars being lost annually in unpaid fees through timidity or vague ideas of dignity and (4) that "the plan of health insurance free of commercial or political control, has much to commend it" We suggest to the members of our profession both here and in America, a careful reading or rereading, of the British Medical Association's pamphlets —"A General Medical Service for the Nation, and "The Essentials of a National Medical Service

[1] *British Medical Journal* March 18th 1933 p 470

[2] *Transactions of the College of Physicians of Philadelphia* Third series, vol liv Edited by W G Elmer M D (Pp xcvi + 166)

PAINFUL FEET

The publication in recent years in this *Journal* of leading articles, annotations, and reviews all of which have had to do with foot troubles, or the relations between the foot and the shoe, have reflected the interest which is taken in such matters Orthopaedic surgeons and those general surgeons who are specially interested in deformities and disabilities of the locomotor apparatus are more and more showing reliance upon bloodless surgery and less and less upon appliances In the last decade the appearance of books on manipulative surgery such as those by Mr Tumbrell Fisher and Mr Blundell Barkart has called for appreciative notice in our columns, and these and other publications have indicated the direction in which the surgery of foot troubles is likely to advance When we consider the extremely unnatural conditions in which the feet of shoe wearing people are placed it is not matter for surprise that strained and painful feet are common among workers and especially among working women but rather is it matter for surprise that they are not universal An initial difficulty in the consideration of foot trouble is the impossibility of establishing a type of foot that should be considered the normal There is a wide range from high arch to low arch which may be considered as not pathological and indeed the extent to which the foot is arched is of far less importance than its neuro muscular equipment In the paper by Mr Philip Wiles on "The Manipulative Treatment of Painful Feet," read in the Orthopaedic Section at the Annual Meeting at Dublin, of which a report appeared in our last issue, he deprecated the use of foot supports, and recorded a most gratifying of success in cases of painful feet treated by ole movement under a general anaesthetic ar rupture of adhesions whose existence had previously diagnosed There is no doubt that the application of arch supports for weak and p l feet has been abused and that their pr scription in cases the presence of adhesions can be demonstrated w

at least previously breaking down the adhesions, will obviously prove futile. There will, however, be found cases without such adhesions, and there can be little doubt that numbers of patients find relief and comfort from the use of supports prescribed under skilled advice. Much mischief has been done by the indiscriminate sale of foot-plates by commercial bodies, often of foreign origin, whose primary object naturally is to push the sale of their goods. Such mischief comprises sins both of commission and of omission ; the former from the application of unsuitable appliances, and the latter in preventing the seeking of good advice and the adoption of proper surgical measures. The amount of misery which is inflicted through lack of proper treatment of minor foot disorders is incalculable.

ANAESTHESIA UNDER ETHER

Two of the most alarming but, fortunately, uncommon complications which may occur during the course of ether anaesthesia are ether convulsions and sudden cardiac arrest. Both these conditions are the subject of a recent paper by Dr. W. N. Kemp.[1] Various theories have from time to time been propounded in order to account for the occurrence of ether convulsions, but current opinion indicates that none of these adequately explain all cases of this phenomenon and that the problem remains unsolved. Not the least ingenious is the acapnia theory advanced by Dr. Kemp last year in order to explain most cases of deep ether convulsions, and it is in support of this that he now cites further evidence in the form of three cases which were treated in accordance with his beliefs. According to the acapnia theory, deep ether convulsions result from alkalosis, which in turn is due to the rapid elimination of carbon dioxide from the body consequent upon artificial stimulation of the respiratory centre by etherization and operation. In two of the three cases he mentions the convulsions were immediately controlled by converting the open method of administration into a closed method, and so increasing the percentage of carbon dioxide in the inspired air. In the remaining case the convulsive attack was not preceded by pulmonary over-ventilation, and was not controlled by the rebreathing technique ; recourse had, in fact, to be made to the inhalation of chloroform. Although the theory under consideration may apply to certain cases it cannot be of universal application. This contention is supported by Dr. Kemp's third case, and by the fact that instances of ether convulsions have occurred during closed ether anaesthesia. As regards cases of unexpected cardiac arrest during ether anaesthesia, Dr. Kemp quotes three cases of this condition, each of which was followed by temporary resuscitation. In two, necropsy revealed an enlarged thymus gland. Analysing the factors involved in its causation he suggests that these patients were unable, on account of unsuspected endocrine dysfunction, to withstand anaesthesia for more than a limited period of time. They received a relative overdose of ether, not in the quantitative sense, but in the sense that their resistance to anaesthesia is to be measured in terms of minutes rather than of hours. Recent endocrine literature leads this author to believe that the post-mortem finding of enlargement of the thymus gland or idiopathic hyperplasia of the mesenteric lymphatic glands indicates that the individual in question is handicapped by a partial dysfunction of the adrenal cortex or the thyroid gland, or both, and with such a handicap is not able to withstand the "time-shock" factors of anaesthesia and operation. Such a discussion as this naturally leads to a review of the various available methods of cardiac resuscitation, and attention is drawn to the observation of Hooker, who, while working on the problem of ventricular fibrillation following electric shock, showed that the fibrillating dog's heart can be arrested by perfusion with potassium chloride, and that normal cardiac function can subsequently be restored by the carotid perfusion of a solution of calcium chloride in normal saline. As Dr. Kemp considers that the best chances of cardiac resuscitation by the usual methods are no more than one in four, he suggests that the possibilities of perfusion of the coronary arteries by way of the carotid or brachial artery with a 0.023 per cent. solution of calcium chloride in normal saline (at a pressure of 150 mm. Hg) might be profitably explored.

[1] *Brit. Journ. of Anaesthesia*, July, 1933, p. 145.

"CLINICAL SCIENCE"

After twenty-four years, and with numerous publications of great distinction standing to its credit, the well-known journal *Heart*, edited by Sir Thomas Lewis, has come to an end. This would be a considerable misfortune for scientific medicine were it not that the last number of *Heart* has been followed by the first number of a new publication entitled *Clinical Science incorporating Heart*.[1] This new periodical, conducted by Sir Thomas Lewis, will be published at the rate of one volume each year, the volume consisting of four parts, to be produced at variable intervals. Its contents will no longer consist exclusively of cardiovascular papers. The first decade of the present century witnessed an intensified attack upon the problems associated with cardiovascular disease, and for a quarter of a century *Heart* has been the medium through which a great body of pioneer work on the functions and derangements of the circulation has claimed the attention of the medical world. Of late years there has been an increasing knowledge of the intimate relationship between the various systems of the body ; it is realized that the study of disease in one organ must embrace the study of numerous interrelated organs and systems. For example, the cardiovascular system must be regarded not purely as a haemodynamic mechanism, but rather as an instrument controlled by the autonomic and endocrine systems, and by other agencies. With the evolution of these ideas concerning medicine and clinical research the era of a journal devoted exclusively to the heart came naturally to an end. The scope of the journal has therefore been widened to include all original work relating to clinical science. That the erstwhile nature of the publication has not been entirely effaced by its external change will be seen from the table of contents, which includes articles on the mechanism of cutaneous pain, histamine headache, angina of effort, and some glucosides of digitalis. Contributions on the physiological activation of insulin and the estimation of renal

[1] Published by Shaw and Sons, Ltd., 7, Fetter Lane, E.C.4.

function in health and disease provide in the present issue a justification for the change of title. No doubt succeeding issues will contain an increasing number of publications on subjects other than the circulatory system, as the modified scope of the journal becomes more and more widely known. Physicians and clinical research workers owe many debts of gratitude to Sir Thomas Lewis, and his foundation of a new periodical embracing all departments of clinical medicine is by no means the least. It is to be anticipated that *Clinical Science incorporating Heart* will be conducted with the same discrimination and regard for scientific methods that has marked all the past works of the editor. It seems likely also that the present period of transition may in years to come be regarded as an important stage in the development of medicine as a science.

PURIFICATION OF SWIMMING BATHS

Four years ago the Ministry of Health published a report on the purification of swimming-bath water.[1] Since that time the popularity of bathing has increased by leaps and bounds, and a large number of swimming pools, publicly and privately controlled, have sprung up all over the country. With the heavy loads of bathers to be accommodated during such a fine summer as we have had in 1933 these baths have been worked hard, and it is not unnatural that the purity or otherwise of them should have been a matter of concern both to the individual swimmer and to the medical officer of health. In August of this year an enterprising newspaper took it upon itself to engage an "eminent pathologist" for the purpose of examining the water in a number of baths. The results of this investigation have been made widely known and reveal —apparently—a far from satisfactory state of affairs. To what extent fears are justified on this score it is impossible to say. The fact remains that very little work on swimming-bath examination has been published in this country recently. The subject bristles with complexity, and conclusions are difficult to draw. Investigators are generally agreed that chlorine is at present the most reliable agent for disinfection. There are, however, many points still unsettled. For instance, what is the ideal concentration of chlorine in a swimming bath, and how can this be maintained? What is the standard for bacterial purity? From what part or parts of the bath should samples for testing be taken? What is the pathological significance of the various bacteria found? Drs. Braxton Hicks and Pulvertaft have, with Mr. Chopping, written a paper (published this week at page 603) which comprises bacteriological and other observations on indoor swimming baths over a period of three years. They have endeavoured to provide answers to some of the questions raised above, and it is hoped that the material presented may be of value in guiding others to a solution of the many problems involved. One of the most interesting and important points is the authors' suggestion that some automatic device should be employed to maintain constant chlorination at an agreed figure, and thus dispense with the seemingly inaccurate colorimetric method at present in use.

[1] *The Purification of the Water of Swimming Baths.* H.M. Stationery Office, August, 1929. (1s. net.)

CLINICAL PICTURE GALLERIES IN MEDICAL EDUCATION

The real clinician—though sometimes said to be born, like the poet—is mainly the product of long experience in observation, whereby the facies of disease becomes so firmly impressed on the cerebral cortex that, even when banished to the unconscious, it asserts its presence and guidance in the valuable property of clinical instinct. That all-round specialist and pioneer of post-graduate education in this country, Sir Jonathan Hutchinson, was a firm believer in the utility for teaching purposes of illustrations of the features of diseases, as was shown by the contents of the museum he attached to the Medical Graduates' College and Polyclinic in Chenies Street. Dr. Hawthorne, among his many services to the medical profession, which are so well known to his colleagues in the British Medical Association, has for long past taken a keenly active interest in post-graduate education, and for years was prominent at the Chenies Street school. Out of his wide experience he now advocates[1] that every medical school should possess a clinical picture gallery, for "if pathological facts in the shape of specimens in a museum need presentation of this order, why not also clinical facts in the shape of a picture gallery?" A beginning in this direction has long existed in the models of skin diseases—for example, those in the Guy's Hospital Museum executed by Joseph Towne; but the full expansion of a method which appeals so forcibly to the visual memory now receives a much-wanted stimulus, which it is to be hoped will be widely effective.

ANGINA PECTORIS

While it is generally held that anginal pain is the consequence of myocardial ischaemia, most clinicians regard angina pectoris as a syndrome possessing no constant pathogenic basis. Lian, in his recent work,[2] develops this hypothesis, and considers that four-fifths of all patients suffering from angina belong to a cardio-arterial group. He classifies certain other forms of the syndrome as "cardiac," this type corresponding in part to the variety described by Gallavardin as "paradyspnoeic," and including also the attacks that occur in association with chronic valvular disease. Like Gallavardin, he recognizes a form of "angor névrosique," but he separates from this category certain cases in which reflex factors such as cholelithiasis and gastric or colic distension seem to play a prominent part. Lian undertakes a careful analysis of angina decubitus, and while subscribing to the view that many such seizures are related, though occultly, to effort or its counterparts, suggests that others may be caused by nocturnal augmentation of the circulating volume of blood and consequent ventricular strain. The arguments advanced in support of this view are interesting though scarcely convincing. The section on coronary thrombosis contains a careful consideration of the problem of infection. The characteristic presence of fever in cardiac infarction complicates this question. The author quotes Herrick, and presents case histories which,

[1] Hawthorne, C. O.: *Post-Graduate Med. Journ.*, September, 1933.
[2] *L'Angine de Poitrine.* Par Camille Lian, avec la collaboration de MM. A. Blondel, G. Huret, M. Marchal, et H. Welti. Paris: Masson et Cie. (55 fr.)

like many others in the literature, indicate that a general infection preceded the acute coronary occlusion. It is inferred that in such cases blood-borne infection must operate by inducing thrombosis at a pre-existing atheromatous area in the coronary artery. In this connexion two cases of Merklen are cited: coronary thrombosis was followed by phlebitis in the one and by angiitis in the other, the vessels of the leg being involved in both instances. In addition to this infective form and the ordinary form of cardiac infarction, Lian recognizes an incomplete, or abortive, form, in which the clinical picture may be hard to differentiate from that of ordinary angina decubitus, and a cardiogastric form, characterized by evidence of a gross lesion, and accompanied by nausea and persistent vomiting. Both in transient and in permanent coronary occlusion a misdiagnosis of abdominal disorder or disease is not infrequent. The form of coronary thrombosis simulating acute cholecystitis has received much attention of recent years, and it is well known that the differential diagnosis turns upon the history, and the presence or absence of respiratory distress, arrhythmias, and electrocardiographic changes. The form of angina known as abdominal angina is perhaps more problematic. Lian considers that in the majority of instances pain of anginal type occurring with an abdominal distribution is of coronary origin, the site of the pain representing one of the areas to which cardiac pain may radiate; he believes, however, that sometimes such pain may be related to aortitis in the descending thoracic or abdominal aorta, or to arterial disease involving the branches of the coeliac axis. It is difficult to exaggerate the importance of this treatise, which represents the thought, experience, and judgement of an acknowledged authority. While it will in general be of greatest significance to cardiologists, it cannot fail to interest all serious students of clinical medicine.

THE TRAFFIC IN NARCOTIC DRUGS

The report recently made to the Council of the League of Nations by the Permanent Central Opium Board is, on the whole, satisfactory. Forty-nine nations are now parties to the Geneva Convention of 1925, Chile and Turkey having this year deposited their ratifications. Some countries have again failed to supply the annual statistics prescribed by Articles 21 and 22 of the Convention. The chief manufacturing countries return a total of 25,319 kg. of morphine, 1,294 kg. of heroin, and 3,973 kg. of cocaine produced in 1932. It must, however, be noted that no less than 16,866 kg. of the morphine manufactured were used in the preparation of substances not covered by the Convention. In most cases the figures for 1932 show a reduction on those for 1931, but Bulgaria, Poland, and Kwangtung appear for the first time as producing countries. Germany and Great Britain show some increase of manufacture in 1932, while Soviet Russia shows a very considerable increase in the case of morphine and heroin. Unfortunately the general improvement is somewhat off-set by the situation in China. The check that has of late years been given to illicit imports of narcotics has coincided with the establishment of illicit factories of the alkaloids, some of them situated in foreign concessions or leased territories over which the Chinese Government has no jurisdiction. Mr. Wellington Koo has assured the Council of the League that the Chinese Government is as anxious as ever to combat the opium evil in all its phases. The total consumption of heroin in Japan exceeded that of all the rest of the world put together, while the consumption of cocaine in Japan per head of the population is greater than that in any other country, with the exception of Kwangtung leased territory. As regards seizures on account of illicit import or export, the available statistics show a considerable decrease in 1932, as compared with 1931, except in the case of cocaine; but the Board warns the Council against concluding that illicit traffic is disappearing, and suggests that the explanation may be only that the centres of the traffic and the routes of transit are changing.

MEDICAL CARE: POLICY AND ACTION

At the Representative Meeting of the British Medical Association in Dublin an important motion was proposed by Brighton which, owing to its wording and to certain details contained in it, could not be accepted, but with the underlying idea of which a large number of members of the meeting had much sympathy. The fact which the motion really sought to emphasize was that when the general policy of the Association with regard to public health and medical service has been formulated by the Council and endorsed by the Representative Body, it is the function of the Branches and Divisions to ensure that every possible step should be taken to implement it in the area of each local government authority. Too often nothing is done where alone effective action can be taken. The central office of the Association is always ready to inform, advise, and help, but it is not possible for headquarters to initiate local action; and indeed it must usually look to the local unit for any indication that the time and circumstances are ripe for action in any particular area. With a view to emphasizing this situation, the Medical Secretary has communicated with all secretaries of Branches and Divisions, and we print in this week's *Supplement* an open letter from him to members of the Association, to which particular attention should be given by all those who wish the Association's policy to be carried out to the improvement of medical service and the betterment of public health on lines which the profession as a whole approves. It relates not merely to public assistance domiciliary attendance and to the establishment of public medical services, both general practitioner and consultant, but to that drift to hospitals and away from private practice to which we refer also this week in a leading article on page 615.

Lord Horder will deliver the opening address at the Welsh National School of Medicine on Friday, October 6th, at 8 p.m., in the Institute of Physiology, Cardiff. His subject will be "Medicine as a Career."

The annual conference of representatives of Local Medical and Panel Committees will be held at B.M.A. House, Tavistock Square, W.C.1, on Thursday, October 19th.

France

[FROM OUR CORRESPONDENT IN PARIS]

Value of a Classical Education to Doctors

In a recent letter to Professor Marfan, Dr. Roux, head of the Pasteur Institute, voices his opinion on the value to medical men of a classical education. "During the twenty-five years I have conducted the course of bacteriology at the Pasteur Institute," he says, "I have had to do with many hospital interns, and I have noted of recent years that the quality of the workers was much inferior to what it was before 1900. Even among talented workers who sometimes conduct interesting researches there are to-day few who know how to draft a memorandum properly. Their composition is disorderly, and they misuse their terms, etc." Dr. Roux goes on to prophesy that if medicine does not revert to the demand for a classical education for its students, it will cease to possess an *élite*.

The Private Ward in the Public Hospital

The problem of the private ward in the public hospital is becoming more insistent in France—just as it is, I understand, in England. It cannot be dismissed by a facile reference to the notorious dangers of combining philanthropy with business. The problem has been reduced to concrete terms by a correspondent in *Concours Médical*, who puts his case thus. In the town where he practises he owns a nursing home; in the same town there is a public hospital with private wards, the occupants of which have contributed so considerably to the hospital's funds that its executive committee contemplates an extension of this system. Now the public hospital, being exempt from various taxes and other expenses to which the private nursing home is subject, is able to charge less than its competitor. Legally, a public institution is forbidden to compete with private institutions. The public hospital is not entitled to launch out into the care of the sick for profit unless there is a lack of private initiative in this particular field. If there is no private nursing home, or if there is one which only admits a limited number of patients capable of paying substantial fees, then the public hospital may take private patients. It looks, however, as if this quarrel between the private and the public hospital is going to be quietly settled by the public and the persons concerned with the administration of the public hospitals.

Collective Research and Public Health Work by General Practitioners

The newly formed and rapidly growing *Assemblée française de médecine générale* is a wonderful example of what collective study can achieve. The secretary-general, Dr. Godlewski, the founder of this scheme for collective research by general practitioners, continues to show himself as efficient in execution as he was brilliant in conception. Already fifty-two provincial branches of this society have been formed. A special subject is set before the branches some time beforehand; this is discussed one month locally, and in the following month the results of these discussions are submitted to a general meeting in Paris. This summer the subject was the future of the pleurisy patient. The outcome of this inquiry was that prognosis depended greatly on the circumstances of the patient, the duration of the rest he took, and the subsequent medical supervision. Accordingly a resolution was adopted urging the insurance authorities to provide patients with several months of convalescence in suitable quarters under medical supervision, so that the pleurisy of to-day might not become the tuberculosis of to-morrow. This resolution was promptly brought to the attention of the Minister of Public Health. The subject to be discussed locally in October, and at headquarters in November, 1933, is the incidence and character of syphilis to-day, while the subject for December, 1933, and January, 1934, is the forms and the ultimate prognosis of infantile convulsions. In February and March next year goitre in France will be discussed. It is anticipated that Belgium, Luxembourg, and Switzerland will join this medical study circle.

England and Wales

Medical Magistrates

Following the third biennial Conference on Mental Health, to be held at Caxton Hall, Westminster, from November 22nd to 24th, there will be a special session for medical magistrates only on Saturday, November 25th, at 10.30 a.m., in the House of the Royal Society of Medicine (1, Wimpole Street, W.). The subject for discussion at this meeting, to which admission is by invitation only, is "The Medical Attitude to Crime." Lord Horder will take the chair, and the opening speakers will be Dr. M. Hamblin Smith and Dr. R. D Gillespie. Medical magistrates who would like to attend should write direct to Miss De Vere Hunt, secretary, National Council for Mental Hygiene, 78, Chandos House, Palmer Street, S.W.

Massage and Medical Gymnastics

The Chartered Society of Massage and Medical Gymnastics, which has been holding its annual conference and dinner in London, was founded in 1894 as the Society of Trained Masseuses, and established itself as an examining body in massage. After six years, with 200 certificate holders, it became incorporated. In 1905 it arranged with the War Office to examine and grant certificates to Army orderlies trained in massage. The first examination for teachers of massage and medical gymnastics was held in 1913. On the outbreak of the war a Corps of Masseuses was founded, consisting almost entirely of members of the society, who were employed in the military hospitals and command depots. Later developments of this movement were the military and the pensions massage services. At the end of the war the society found itself with a membership of 4,000 and a widening opportunity. In 1920, by the amalgamation of two bodies, the other being a Manchester organization, and by reincorporation, it became the Chartered Society of Massage and Medical Gymnastics. The growth of the society of recent years has been remarkable, owing to the increasing recognition of physical treatment and the establishment of special departments in hospitals, and the society has now eighteen branches and a membership of 9,000, of whom fewer than 600 are masseurs. The society's examination in medical electricity was established in 1915, and in medical diathermy and light therapy in 1929. Those who have taken this additional qualification are accepted for the register of biophysical assistants without further formality.

Mr. R. C. Elmslie took the chair at the fifth annual dinner at the Connaught Rooms on September 20th, and a large number of members of the medical profession were the guests. During the evening a message was sent to the Queen at Balmoral, she having become patroness of the society, and before the company dispersed a gracious reply was received. Mr. P. Rockliff, secretary of the joint committee of approved societies, in proposing the health of the hosts, suggested that there was a large field for massage as an additional benefit under national health insurance. Some approved societies were, indeed, insisting

on massage as an additional benefit, but it was no use approaching the Ministry of Health on the subject unless there was a trained personnel adequate to the needs of the country. He urged the society to enlist the help of its friends in the medical and approved society world in making representations to the Ministry. The time was appropriate for such an application, because next January new schemes would be set in motion under which the approved societies, as their fourth quinquennial valuation was completed, would have to expend their surpluses, and it appeared that the surpluses would be substantial, although it was true that so far the results forthcoming pertained only to the smaller societies. The chairman, in response, mentioned that the society was seeking to impose a high educational standard upon those who took up massage, and the difficulty of the intermediate stage in any such endeavour was being dealt with by a committee consisting of representatives of the society and of educational bodies. An attempt was also being made to form a central register of medical auxiliaries. This had been undertaken with the co-operation of the British Medical Association, the Society of Apothecaries, and the Society of Radiographers. It was hoped that during the next twelve months the register would make its appearance, and those whose names were enrolled would be regarded as properly qualified and trained to carry out massage and electrical and other ancillary treatments under medical supervision. Dr. Anna Broman, in proposing the health of the guests, said that the day was over when "a little soothing massage" was regarded as a luxury for the wealthy neurasthenic. The day was nearly over when the young physician in the out-patient department ordered vaguely "massage and physical movements," and hoped never to see the patient again. The day had not yet quite come when it would be realized that in the right hands massage and movements yielded important, definite, and quick results. She claimed credit for English massage in that it had had the sense to adopt the system of another country (Sweden), because it had recognized the integrity of that system as a balanced and comprehensive whole. The two replies to the toast were very much abbreviated owing to the fact that dancing was overdue, but Professor Winifred Cullis spoke of her pleasure in lecturing before the society, and her acquaintance with a branch of it as far away as Vancouver, and Dr. G. C. Anderson, Medical Secretary of the British Medical Association, referred to the national register of medical auxiliaries, mentioning that it had been delayed on account of legal complications, but it would be forthcoming before long, and would be not only in the interests of the profession of massage, but to the great benefit of the community. The proceedings concluded with compliments to the chairman, voiced by Dr. Justina Wilson, who recalled some of her experiences in the early days as "a pilgrim and a pioneer" in establishing a department of physiotherapy at St. Bartholomew's, and the help that Mr. Elmslie rendered. Mr. Elmslie, in response, said that if only other branches of medicine and surgery could be induced to support massage in the way that orthopaedic surgeons had done there would be no further cause to lament its slow progress.

The New Borough of Willesden

A charter of incorporation has lately been conferred upon Willesden, which has thus been created a municipal borough in the county of Middlesex. Willesden, an important industrial area lying to the north-east of London, has a population of almost 200,000, and contains about 30,000 houses and a hundred miles of highway. The pride of Willesden in its amenities, especially its public health services, is exemplified in an official souvenir of the granting of the charter. The old urban district council, with a forward-seeing eye, appointed its first health visitor for the care of mothers and children thirty years ago, and even before the Act of 1907, requiring the medical inspection of school children, Willesden had begun work in this respect under its then medical officer of health, Dr. William Butler. Its first maternity and child welfare centre was established in 1916, and it has now three health centres, the latest being the first municipal centre in this country to combine the work of maternity and child welfare with the care of the school child. At these centres more than 200,000 visits are made yearly. It has a maternity hospital, which is recognized as a training school for midwives, and is staffed by a consulting obstetrician (who is responsible for the care of the expectant mother from the time of ante-natal examination), a house-surgeon, and a sister-in-charge. In 1929 clinics were established in Willesden for the diagnosis of any abnormal symptom suggestive of cancer, and here advice is freely given, and facilities arranged, where required, for hospital treatment. The death rate in Willesden in 1875 was 21 per 1,000, and to-day, notwithstanding the fact that the district in the meantime has been largely industrialized, it is only 10 per 1,000, and in the same period the infant mortality rate has fallen from 162 to 61. For twenty-one years the public health department has been the responsibility of Dr. G. F. Buchan, to whose untiring zeal a tribute is paid in the brochure. Dr. Buchan was for some years a public health representative on the Council of the British Medical Association. Another familiar figure in the Association whose portrait appears in the brochure is Dr. John Smyth Crone, high sheriff of the county of Middlesex, and a former chairman of the urban district council, who has "passed the chair" of the Willesden Division.

London Hospital Post-Graduate Course

The annual post-graduate course for former students of the London Hospital will be held this year on the four days October 11th to 14th. For each day, except the last, a full programme of lectures and demonstrations has been arranged. On October 11th Dr. Maitland Jones will lecture on some peculiarities of disease in the child; Dr. Panton on coliform urinary infection; Dr. Russell Brain on herpes zoster; and Dr. Marrack on simple chemical tests. Clinical demonstrations will be given by Mr. Keizer on teeth in general practice; Mr. Donald on sepsis; and Dr. Horace Evans on nephritis. On the second day Mr. Muecke will lecture on "Everyday Helps"; Mr. Goulden on minor eye injuries; Dr. O'Donovan on dermatitis and compensation; Dr. D. Hunter on obesity; Mr. R. A. Brews and Mr. V. J. Lack on birth control; and Dr. J. Parkinson on heart failure. Dr. Clark-Kennedy will give a ward demonstration, and Dr. Leyton will deliver the Schorstein Lecture on multiglandular diseases. The lecturers on the third day will include Professor Ellis, treatment of nephritis; Dr. Riddoch, headaches; Dr. Bedson, serum prophylaxis of virus diseases; Dr. Wall, medical complications of pregnancy; Dr. Hutchison, chronic intussusception; Mr. Dix, non-operative treatment of minor prostatic obstruction. Mr. N. Patterson will give a demonstration of cases, and Dr. Vilvandré a radiological survey. The course will conclude on Saturday morning with a lecture by Dr. Tallerman on colic and vomiting in early infancy, a clinical demonstration by Mr. Howard, and a lecture-demonstration by Mr. Walton on gall-gladder surgery. In addition to the lectures, etc., outlined above routine teaching will proceed as usual in the out-patient departments, and during the afternoons surgical operations will be in progress.

Scotland

Scottish Milk Scheme

A Scottish milk marketing scheme, which some time ago received the assent of Parliament, last week obtained the necessary approval of the registered producers of milk in Scotland. A corresponding scheme for England and Wales was approved by the milk producers with a majority of 96 per cent., the Scottish scheme was approved by 77 per cent. In Scotland milk production is valued at an annual output of £6 000,000, but owing to the difficulty of disposing of surplus milk, the industry has experienced considerable trouble. The scheme involves the whole of Scotland south of the Grampians, with over 6,000 registered producers and more than 170,000 cows. The board, which is now proceeding to the appointment of a general manager and secretary at a salary of £2 000 per annum, an accountant at £1 200, and a marketing officer at £1,200, will organize the disposal of the whole of the milk produced in the Scottish area. Producers must register with the board, those who are not so registered will be prohibited from selling fresh milk. An essential part of the work will be the control of the import of dairy products in competition with home supply. The board will also fix the general price for milk, and producers will receive a share of the proceeds on a flat rate in proportion to the amount of milk they produce. The scheme should do a good deal not only to protect producers, but to improve the quality of milk supplied to consumers, although it may have the effect of raising slightly the retail price.

Prophylactic Dentistry in Aberdeen

In the report of the medical officer of health for Aberdeen for the year 1932 special reference is made to work undertaken in connexion with dental prophylaxis and propaganda. School medical examinations during the year revealed that only 11·8 per cent. of the children had sound teeth, while over 76 per cent. had one to four decayed teeth, and nearly 11 per cent. had five or more decayed teeth. Oral sepsis was present in just over 1 per cent. Dr. H. J. Rae remarks that, as a general rule, a tooth which is found on inspection to be sound will not have become unsaveable within a year. He advises therefore, that treatment visits to a school should not be paid at longer intervals than a year, but this standard has not yet been attained in the county of Aberdeen, the visits being separated frequently by so long as two years or even more. Shortage of staff is given as the reason for this. Dr. Rae points out one factor that reduces the number treated—namely, that many parents consent finally to their children receiving treatment only after they have refused several times. The result is that as much time is spent on putting into fair condition a mouth which should have received attention some years previously as would suffice for the efficient treatment of possibly half a dozen children who require less treatment. Thus the sequel is one child with a mouth in fair condition, instead of half a dozen children with mouths in really good condition. Too many parents, it is added, delay dental treatment for their children until toothache supervenes. On several occasions parents have, through the head teacher or directly, demanded treatment by the school dental staff. Even if it were possible and desirable to fulfil these demands, which would inflict loss on many children for the slight benefit of a few, the only useful procedure would be extraction, since decay by that time has so far advanced that no conservative dentistry can be practised. Dr. Rae maintains that in school dentistry extractions should be few relative to fillings, and toothache should be almost unknown. Work on the temporary teeth is not wasted effort since the condition of the temporary teeth has a profound effect on the permanent ones. It is true however that parents are not so ignorant about the benefits conferred on their children by regular dental inspection as they were ten years ago and the percentage of consents has more than doubled in this period. Still there is need of more education of the public on this subject. During the year under review the Dental Board sent to Aberdeen a dental exhibit accompanied by a trained demonstrator which consisted of cases of models showing the structure of the teeth, the progress of decay, the development of the teeth at different ages, various irregularities caused by bad habits, and a perfect set of teeth contrasted with a dirty and neglected set. In the schools short talks were given to the children, who then visited the exhibit in groups, and had the models explained to them in detail.

Post-Graduate Courses in Edinburgh

Reference was made in this column some months ago to the booklet issued by the University of Edinburgh giving particulars of the post graduate courses in medicine held there in the summer vacation and at other times of the year. These courses are organized jointly by the University and the School of Medicine of the Royal Colleges. Following the series of lectures and demonstrations held during July, August, and September, a course on diseases of the nose, ear and larynx, with practical instruction in treatment, functional examination and endo-copy (fee four guineas) will begin on October 10th and last for eight or ten weeks. A series of six lecture-demonstrations on the disorders of speech and voice will begin on October 16th. A course in orthopaedic surgery will be given during the autumn and summer terms commencing on October 9th and April 23rd. Details of other courses to be arranged during the University terms are also supplied in the booklet, which can be had from the dean of the Faculty of Medicine, University New Buildings, Edinburgh. Accommodation in the houses of University Hall is available for graduates attending the autumn courses.

Ireland

Hospital Sweepstakes

The following is the substance of a statement which has been issued by the Committee of the Associated Hospitals participating in the Irish sweepstakes. Lord Power-court, chairman of the committee, had an interview with Mr. De Valera, President of the Executive Council, when the position of the hospitals was fully discussed. As a result of this discussion the President arranged for Dr. Ward, who is immediately responsible for the working of the Public Hospitals Act 1933, and who is Parliamentary Secretary for Local Government and Public Health, to see Lord Power-court. At that interview Dr. Ward explained very fully the intentions of the Government. The Hospitals Commission was to be set up immediately to investigate all claims and make a report as soon as possible. Since some claims were comparatively easy to adjust, as, for example, those of maternity and children's hospitals, where the district in which they operated was clearly defined, grants could be made to those hospitals in the near future. The general hospitals presented a much more difficult problem, and it was the aim of the Government to establish a system whereby waste and overlapping of work would be reduced, and a scheme of co-ordination introduced. By this means the whole nation would benefit. The training of students would be improved, and doctors would be

in which they are incubating, and are killed off in the joint. It is highly probable that they gain entrance to the blood stream by the agency of leucocytes which eventually succumb and circulate in the blood stream till they arrive at the seat of election for which they have affinity or whose tissues are sensitized to their presence. Organisms can be isolated in those cases where they are multiplying in the blood stream, but we know that, although everybody with a septic focus has organisms passing into his blood stream, they are very rarely isolated, and it is probable that they never will be, as once they have been acted upon by lysins and leucocytes they may not, although still alive, be in a condition to be cultured. In these circumstances there will have to be some modification of Koch's postulate.

We must concede to other organisms the same pathogenesis as the streptococcus. We must realize that the streptococcus varies its morphology *in vitro* and must be expected to do so *in vivo*. At times it is virulent, at others less so, and according to its virulence and reaction on the part of the individual so will the pathological changes produced vary. It can be specific, not only for the different tissues that go to make up a joint, but it can also cause hypertrophic or atrophic changes according to virulence or reaction on the part of the individual. As it can also invade all tissues of the body to which blood goes, and produce like changes there, there should be a similarity in the pathological conditions of the joints to those of the kidneys, heart, etc. It will not be by isolation and culture of these semi-digested organisms that we shall learn the truth of the causation of disease, but by recognition of the similarity of pathological changes produced in the doubtful cases to those in which there is no doubt. Toxins produce atrophic as well as hypertrophic changes.

The calcium metabolism is largely in the hands of the thyroid as well as the parathyroids, and where the one suffers the others do likewise. An infection involving the thyroid cannot very well miss the parathyroids. With increased thyroid activity there is an increased output of lime ; with myxoedema there is a tendency to retention. In osteomalacia, osteitis fibrosa cystica, and osteitis deformans there is enough evidence to suggest interference with the parathyroids. We know very little of how the parathyroids act, but believe they control the deposition of lime salts. Of a necessity they must suffer derangements, as do all other tissues and organs, and any irritation or damage would cause the deposition or lack of it at the peripheral ends of the bones. Except for the tetanic symptoms, we know little of parathyroid interference, but that cystic bone disease is at times associated with parathyroid tumours suggests that hyperactivity may denude the bones of lime, and that there may be some relation between the deposit of osteophytes round a joint and reduced parathyroid activity. Although dysthyroidism is so often associated with chronic arthritis, there is usually some infection at the back of that. We are so sure of the action that organisms can have on joints that it is as well to exhaust that point very thoroughly before seeking other causes, never forgetting that the caecum is a potent source of infection and very difficult to clear.

That trophic changes have some bearing on joint conditions is undoubted, and there is a suggestion I would like to put forward, as I do not think it has been mentioned before. In tuberculosis of the lung we are aware, as Pottenger so ably points out, that nocuous impulses passing from the lung to the cord set up irritation in the neighbouring nerve cells which supply muscle and skin, bringing about considerable atrophy of those tissues. Surely this atrophy cannot be limited to such, but must include joint tissues as well. For instance, an arthritic hip might be associated with a chronic appendix or some other bowel lesion. Confirmation of this would be of great value. There is a general belief that toxins absorbed from a focus may produce changes elsewhere. As far as I am able to find there is no proof that this is so—that is, for specific lesions—but the view that the organisms themselves gain entrance and are carried directly to the joint, and their toxins liberated locally, is far more likely to be the truth, as we are sure this does occur.

The remarkable power women have of absorbing calcium during pregnancy, and of depleting their own supplies if suffering from any form of calcium starvation, lays them open to arthritic conditions to a greater extent than men, and is probably ovarian in origin—hence the value of pelvic diathermy. Cases which we have been in the habit of looking upon in the past as gout respond in a remarkable way to the clearing up of pyorrhoea or of some such focus.

We are rather too much inclined to fall back upon the old mythical belief in metabolic disturbances as the basis of many diseases. Such a belief acts like an anodyne to our minds, and we are apt to leave it at that rather than look for further causation. We must be ruthlessly sceptical of our old views until they are proved to be sound. As time passes we are finding that more and more pathological conditions owe their origin, directly or indirectly, to the presence of micro-organisms, and that, apart from direct injury, poisons, and lack of certain ingredients, there is very little that can harm the tissues. The results obtained in all kinds of diseases by the removal of infections, forces one to believe that they are the biggest factor in the production of disease.—I am, etc.,

Melbourne, Aug. 8th. SYDNEY PERN.

Treatment of Glaucoma

SIR,—Mr. B. W. Rycroft, in his article on the above subject (*British Medical Journal*, September 16th), concludes his summary on the treatment of acute glaucoma with the words " . . . followed by operation under subtenon or retrobulbar novocain anaesthesia." In this connexion I should like to draw the attention of those interested in the subject to Mr. Somerville-Large's paper on iris anaesthesia (*British Journal of Ophthalmology*, 1932, p. 166). In four out of ten cases, where retrobulbar anaesthesia was employed in iridectomy for the relief of acute intraocular tension, did severe orbital haemorrhage embarrass the operator. Anyone who is in the habit of using this method of anaesthesia for excision of the globe will have experienced this complication (without being appalled or inconvenienced). But in cases of acute glaucoma its occurrence is likely to be fatal to the eye. It seems to me that such a risk should not be taken—especially as one knows that risk to be considerable when the tissues are engorged. The subtenon injection, on the other hand, is perfectly safe, and every bit as efficient.—I am, etc.,

Cambridge, Sept. 25th. E. G. RECORDON, M.B., B.Ch.

SIR,—I was very much interested in Dr. Rycroft's article on glaucoma. Concerning the employment of eye massage, I feel called upon to say that it is better to employ manual vibrations in their place, owing to the very great penetrative effect of the latter. They can be applied either directly over the eye through the eyelid or else bilaterally over the temples. The latter site can be chosen if the eye cannot bear the pressure of direct massage over it. The effect of these vibrations in relieving the pain and reducing the intraocular tension is

often very marked. *En passant*, I must mention that vibrations produced by machines are of no use in chronic glaucoma. Another factor in the production and persistence of glaucoma—one which has received hardly any attention—is chronic contractions in the suboccipital muscles. These can easily induce varying degrees of venous and lymphatic congestion, and can be the exciting cause, or one of the exciting causes, of eye trouble. That such contractions can cause chronic congestive headache, and that the headache is relieved by their removal, is, of course, well known.—I am, etc.,

London, W., Sept. 25th. EDGAR CYRIAX.

Psychology and the Curriculum

SIR,—The question of the desirability of adding a course of psychology to the medical student's overburdened curriculum has recently been discussed in our *Journal*. I do not know what form of psychology some of the writers have in mind, but there is one which I think is very much required. I mean the psychology of sex. A few lectures would be sufficient. It is true that the necessary knowledge can now be acquired from such works as those of Havelock Ellis—and I am glad to see that a small cheap résumé of his larger works can now be obtained—but I believe the ignorance of many of the newly qualified medical men on this subject, so important to their patients, is very great. How many doctors have the requisite knowledge and will to advise adequately the nervous wrecks and potential suicides, of both sexes, whose condition is often partly due to an exaggerated fear of the effects of masturbation in its many forms? Again, is it not time that doctors, at all events, should be equipped to deal with the many problems of married life and the sexual "perversions" or "deviations," as Ellis terms them, which are so much more common than those who choose to hide their heads in the sand of prudery or ignorance will let themselves realize?—I am, etc.,

Hove, Sept. 25th. R. WHITTINGTON.

The G.P. and the Public

SIR,—I am glad to see that my letter in your issue of September 9th (p. 507) has caused a certain amount of discussion, which is all to the good.

I suppose every student, when he qualifies and leaves his medical school, is keen to do his best from the professional point of view towards his patient. In most cases it is a matter of necessity that he shall earn his living forthwith, and it is not always possible for him, as I said before, to gain post-graduate experience of the most valuable kind before he goes into practice. If he finds himself in a big panel practice in an industrial area it is practically impossible for him to do what he would like to do. He cannot devote the time to each patient which is necessary for a proper examination, and it is a daily rush to get through his work. No matter how good his resolutions may have been at the start of his career it is impossible for him to carry them out. *Facilis descensus Averno;* and a man must have strength and enthusiasm beyond the ordinary if he would continue to do his duty to his patient as he was taught to do it in his student days through all the manifold worries of a big panel practice. It is because he is powerless to give all the personal attention which a case may demand, and which he knows should be given, that he sends his patient to hospital. As I said in my original letter, he becomes a sort of medical shop-walker, who directs patients to the place where they can obtain skilled treatment, which he has not the time to give. With the passage of years the time at his disposal is apt to grow less and less, and eventually he loses the ability for skilled treatment, even though he had the time.

Cottage hospitals—that is, hospitals with unlimited staffs—might be a way out of the difficulty, but unfortunately they vary in accordance with the personal views of the local practitioners. All are short of money, or at any rate many of them. Some are models of their kind, well equipped, admirably administered and staffed, and affording really skilled treatment. Others are slipshod, with untrained nurses, except for the matron and one sister, perhaps. I think that the public would be horrified if they knew what goes on in some of them. They should certainly be subject to some sort of supervision. The creation of inspectorships of cottage hospitals by the Ministry of Health is long overdue.

It might get over the difficulty if national insurance hospitals, staffed by panel practitioners, and maintained by funds raised by a small increase in the contributions, could be formed. This, however, would lead to needless duplication in many districts, especially in thickly populated districts where general hospitals already exist, and it might be uneconomical. This is very much the same as Dr. Melgrave proposes, except that every practitioner should treat his own panel patients. What is often wanted is a place to which poor panel patients can be moved so that they can be properly nursed and fed in a way they cannot be in their own homes. Such patients hardly require the treatment they would get in a general hospital, and would only occupy beds that could more profitably be given to serious cases.

Perhaps the Insurance Acts Committee of the British Medical Association might consider the matter as a problem and put up a case to the Ministry of Health. Nothing so elaborate as a general hospital is required, but something on the lines of a nursing home. Surgical cases requiring major treatment should not be admitted. The good that would accrue to the patient and to the practitioner alike from such institutions can hardly be exaggerated. The big general hospitals would be relieved to a great extent by such places, which could be "affiliated" with near-by general hospitals so that cases might be transferred if necessary. One can almost visualize a sort of communal out-patient department, properly equipped, where panel practitioners could see their patients and records could be kept.—I am, etc,

September 24th. ESSE QUAM VIDERI.

Insurance for the Middle Classes

SIR,—In the *British Medical Journal* of September 16th Dr. D. D. Rosewarne, discussing the question of a system of insurance against medical fees for middle-class patients, invites contributions on the subject from those of your readers who are interested.

I am one of those who are interested, and I think he would do well to advise the company for which he is acting to hold its hand a little while, till it sees whether medical practitioners will be willing to co-operate in such a scheme. The general practitioner is getting very tired of being constantly exploited, on the one hand by cute business men and civil servants and politicians and the like, and on the other by cute business men and so-called philanthropists working in the interests of so-called charities, these charities consisting chiefly of huge, cheap (very cheap) dispensaries called voluntary hospitals.

Since the clearing of the air which occurred at the Annual Meeting of the Association at Dublin (chiefly as the result of the activities of the London Medical Contributory Service) various schemes are being carefully considered by general practitioners for the conduct of the business and financial sides of medical practice by

medical men themselves, and it is probable that Dr. Rosewarne and the insurance company he is acting for will find that the general practitioner will no longer tolerate any interference with the business part of his professional activities by outsiders.

It may interest "Esse quam videri" to know that the schemes under consideration are on similar lines to the panel system, which has had the dire misfortune to earn his withering scorn and contempt. Many general practitioners who have had large experience of the working of the National Health Insurance Act are so ineffably stupid (according to "Esse quam videri") that they have formed a very high opinion of the work which has already been done under this Act and are greatly impressed with the immensity of the benefit which would accrue to the health of the population under an extension of the system to a larger portion of the people, especially if the working of it could be placed under the control of enlightened general practitioners of large experience and the blighting hand of Whitehall removed.—I am, etc.,

T. F. KEENAN, M.B., B.S.Durh.

London, S.E., Sept. 20th.

Prevention of Tuberculosis

SIR,—I read with much interest Dr. A. G. Newell's letter, published in your issue of September 9th, on the subject of practical prevention of tuberculosis. I quite expected to see further correspondence on this matter, especially when one considers the enormous amount of public money expended annually in endeavouring, quite inadequately in my opinion, to lessen this scourge.

I thoroughly agree with Dr. Newell's statement that tuberculosis in this country is mainly disseminated through our milk supply, and I think also tuberculosis is rampant in our dairy cows on account of the excessive amount of milk each animal is expected to produce. Surely this method of forced lactation is wrong, and must lead to a marked tendency to development of tuberculosis.—I am, etc.,

W. H. STEELE, M.B., C.M., D.M.R.E.

Newton Abbot, Sept. 24th.

Obituary

JAMES PATON BOYD, M.B., C.M., F.R.F.P.S.,

Late Assistant Physician, Royal Infirmary, Glasgow

We regret to record the death of Dr. J. P. Boyd of Glasgow, who had been a member of the British Medical Association since 1888.

James Paton Boyd was born in Glasgow, and received his medical education at the University, where he graduated M.B., C.M. in 1888. He continued his studies for a time in Paris, and in 1894 obtained by examination the F.R.F.P.S.Glas. After serving as resident assistant medical officer in the Royal Infirmary, Dr. Boyd became dispensary physician to that institution, and was subsequently appointed assistant physician. Through his life he maintained an active interest in the welfare of the hospital, and was one of the elected representatives of the Royal Faculty of Physicians and Surgeons on its board of management, contributing much to its progress by reason of his intimate knowledge of its needs as well as by his wise counsel. An intimate friend of the late Professor Samson Gemmell, Dr. Boyd assisted him for several years in the teaching of clinical medicine in the wards.

The claims of a large general practice and an increasing interest in anaesthetics, in which he was a pioneer, caused him to slacken in some measure his active association in the clinical work of the Royal Infirmary. Among his publications was one in 1900 on the value of nitrous oxide and oxygen in inducing anaesthesia, and he won considerable renown for his original work in anaesthetics. When the British Medical Association met at Glasgow in 1922 Dr. Boyd was one of the vice-presidents of the Section of Anaesthetics. Unfortunately, a breakdown in health two years later led to his premature retirement from medical practice, and the latter years of his life were clouded by disability.

A man of wide interests and human sympathy, Dr. Boyd had a large circle of friends, who appreciated his keen but kindly wit, his talents as a reconteur and a master of repartee, and his kindliness of heart scarcely veiled by a superficial cynicism. He was well known as a lay member of the Glasgow Art Club. More than forty years ago he was one of the founders of the Town and Country Medical Club, and remained secretary of this from its foundation until his retirement from practice.

With the sudden death on September 17th of Dr. ALEXANDER JOHNSTON WILSON, medical officer of health for the burgh of Airdrie, there passed one who had gained high esteem and affection by reason of his unremitting devotion to the welfare of the community, and the warm feelings he extended to his friends and patients. He was born in Newmains, and received his medical education at Glasgow and Edinburgh. In 1899 he obtained the L.R.C.P., L.R.C.S.Ed., and L.R.F.P.S.Glas,, two years later proceeding F.R.C.S. In 1908 he was awarded the Diploma of Public Health of the Royal Colleges of Physicians and Surgeons of Edinburgh. He commenced practice in the Calderbank and Chapelhall district, with a surgery in Airdrie, but later he removed to the latter place, and extended the scope of his work. In 1909 he was appointed medical officer of health for the burgh, police surgeon, and tuberculosis officer; he still continued his private practice. Under his supervision a new hospital for infectious diseases was brought into being, and he took an active part in the work of placing the treatment of tuberculosis on an effective basis. During the war he served as a surgeon in the military hospital in Gibraltar. He found time for many other acts of service in Airdrie; he was very popular as the medical officer of the maternity home and infant welfare centre, presided over the executive committee of the New Monkland Mental Welfare Association, was an examiner for the St. Andrew Ambulance Association, and a member of session of the Wellwynd Church of Scotland. Always a keen supporter of the British Medical Association, Dr. Wilson was chairman of the Lanarkshire Division in 1924–5, and had served on its executive committee. His funeral drew a large number of representatives of the county, including the Lord-Lieutenant, and of the various societies and organizations which he had actively assisted in his life, as well as many of his personal friends and colleagues, to whom his unexpected death came as a sharp blow.

We regret to announce the death of Dr. CHARLES MIDDLETON COATES, on September 15th, at his residence in Pentland Place, Edinburgh. He was born at Bath in 1857, the eldest son of the late Dr. Charles Coates, F.R.C.P., of Bath, who was the founder, in 1907, of the Coates and Ormerod Fund at the Royal College of Physicians of London. He was educated at Harrow, at Trinity College, Cambridge, and at the University of Edinburgh. In 1893 he obtained the diplomas L.R.C.P., L.R.C.S.Ed., and L.R.F.P.S.Glas. He practised for many years at Creech St. Michael, Somerset, where he was much respected and esteemed. He returned to Bath in 1910, and was in practice there until 1932. He always took an active interest in outdoor games, and transmitted this to his family. One son played Rugby football for Edinburgh University, and his eldest son, Dr. Vincent Coates of Bath, obtained his Blue for Cambridge and his English Rugby international cap. Dr. C. M. Coates is survived by his second wife and the children of his first marriage.

Medico-Legal

PAYMENT OF MEDICAL WITNESSES

In an article published on September 9th (p. 513) a legal correspondent discussed the remuneration of medical practitioners called to give evidence in civil courts of law. The notes printed below deal with the payment of medical witnesses in criminal proceedings at the Old Bailey, Quarter Sessions, Assizes, and magistrates' courts, and with fees at coroners' inquests.

EVIDENCE IN CRIMINAL PROCEEDINGS

In criminal proceedings the medical witness is apparently at a greater disadvantage than in civil actions, for he must give evidence whether he has received his conduct money or not. If he is called by the Crown his expenses and fee are usually paid in cash on the maximum scale by an official of the court immediately after he is released from attendance, but if he is called by the accused person and payment is withheld he has only the doubtful remedy of a civil action. The official scale of allowances to witnesses is laid down in a series of regulations made by the Home Secretary on June 14th, 1904; these amounts were revised by an order of March 1st, 1920. The figures given are maxima, and the court has a discretion to allow lesser amounts.

Practising members of the medical profession who attend to give evidence, but not otherwise, in the town or place where they live may be paid one and a half guineas a day. In this regulation "town" means municipal borough or urban district, and "place" means anywhere within a radius of three miles of the court. If on the same day the medical witness gives evidence in more than one case he may be paid three guineas. For attending to give evidence at a court more than three miles from his residence, or in another town, he may be paid three guineas, but he gets no extra remuneration for appearing in more than one case. These sums relate to fees and do not include travelling expenses, though they include subsistence during the hearing. (In civil procedure "conduct money" includes both travelling expenses and subsistence.) Expert witnesses may receive such allowances as the court considers reasonable, including, where necessary, an allowance for qualifying to give evidence. A witness can only be paid for a full day if he is necessarily detained away from his home or place of business or employment for at least four hours for the purpose of giving evidence. Otherwise, he is only entitled to half the full day's allowance.

Witnesses, whether medical or lay, when they come from a distance of over two miles, are allowed travelling expenses as follows. If they travel by railway or other public conveyance they may receive the fare they have actually paid, provided they travelled third class and at return rates (if these were available). If there is no railway or public conveyance and one or more witnesses have to travel by hired vehicle they may be remunerated for the sum which they have actually paid, but not more than one shilling and sixpence a mile each way. If two or more witnesses attend from the same place the total allowance must not exceed one shilling and sixpence a mile each way unless the court thinks it was reasonably necessary to hire more than one vehicle. Witnesses who travel on foot or by a private conveyance may draw a sum which must not exceed threepence a mile each way, provided there is no railway or other public conveyance available. Witnesses suffering from serious illness may be allowed larger sums at the discretion of the Court.

THE CORONER'S COURT

The remuneration for medical practitioners who assist the coroner by giving evidence and making post-mortem examinations has been laid down by the Coroners (Amendment) Act, 1926, Section 23. A practitioner who gives evidence at an inquest but has made no post-mortem examination receives one and a half guineas for each day on which he is required to attend. If he makes a post-mortem examination and gives a report and also attends to give evidence he is entitled to three guineas for the first day and one and a half guineas for each subsequent day on which he is required to attend. No fee or remuneration is payable for a post-mortem examination instituted without the previous direction or request of the coroner. Unfortunately the Coroners (Amendment) Act, 1926, makes no provision at all for the money which a witness has spent on travelling to and from the court. In country districts the amount may be considerable. Certain local authorities, under the powers they are given by the Act, have authorized the payment of travelling expenses to medical witnesses at inquests. The medical man who is summoned to appear before a coroner can ascertain whether or not such a provision is in force in his district by ringing up or writing to the office of the local authority.

When an inquest is held on more than one body at the same time each body forms the subject of a separate inquisition, and a separate fee is payable to the medical witness in respect of each inquisition. This point was settled in the County Court at an action arising out of an inquest on the victims of the Caterham air-liner tragedy in November, 1929. A doctor examined seven bodies and on two occasions gave evidence of the cause of death. He claimed twenty-one guineas, but the coroner contended that as there had only been one inquiry the doctor was only entitled to three guineas for his two attendances. The case (Greig *v.* Nightingale) was heard by His Honour Judge Hill-Kelly at Redhill County Court on July 16th.[1] The learned judge held that there are really, in law, as many inquests as there are dead bodies before the coroner. The language of the Coroners Acts, he said, contemplates throughout an inquiry touching the death of a single person, and he had no doubt that the statute clearly recognized that a separate inquest was held on each body. He therefore found that the doctor was entitled to seven separate fees. As he pointed out, the sum was large, but a coroner does not usually sit on seven bodies at the same time, and a strange result in an unusual case ought not to affect the interpretation of the Act.

The question was raised about a year ago whether any distinction could be drawn between a medical man called to testify to the cause of death and a medical man who only gives evidence of the facts relating to the death. At an inquest before the coroner for the St. Albans Division in February, 1932,[2] a medical practitioner gave evidence that he had attended at an operation on a child suffering from meningitis; the child had died on the following day. A dispute had taken place between this practitioner and the superintendent of the hospital in which the child lay concerning whether the operation should be performed or not, and it had been performed at the instance of this practitioner. The coroner had treated him as an ordinary witness to fact and had paid him 2s witness's fee and 5s. for travelling expenses, and had paid the same amount to five other doctors who had given evidence, awarding the statutory payment only to the doctor who had performed the post-mortem examination and given evidence of the cause of death.

The doctor sued the coroner in the County Court,[3] the question at issue being whether he had attended the inquest "in obedience to a summons of a coroner under the Coroners Act, 1887." The legal advisers of the coroner maintained that the coroner had power to summon witnesses, including medical men, at common law as well as under the Act, and argued that the only witnesses who could be summoned under the Coroners Act were legally qualified medical practitioners who had either made a post-mortem examination or were called to testify to the cause of death. The coroner, in evidence, said that he did not feel that he was justified, in the circumstances, in paying seven doctors at the full medical rate. The judge held that the doctor was being called because of his medical knowledge and was entitled to be paid as a qualified medical witness. He ordered costs on the higher

[1] *British Medical Journal*, 1930, ii, 233.
[2] *The Barnet Press*, March 5th, 1932.
[3] Dalton *v.* Ottaway: *The Herts Advertiser and St. Albans Times*, June 24th, 1932.

scale, because he ruled that the matter was of public interest and involved general principles. His judgement seems to leave in doubt the question of whether a medical man who is actually in the position of an ordinary lay witness and is not required to use his professional knowledge can claim the medical fee. Nevertheless, it establishes that a doctor who is called because of his medical knowledge is entitled to be paid at the statutory rate.

After this action, apparently so as to avoid the effect of this decision, the coroner sent his officer to see certain essential medical witnesses and, after taking statements from them, warned them of the date of the inquest and of the fact that their evidence might be required, but told them that he was instructed by the coroner not to serve them with subpoenas. When the medical witnesses attended they were informed that, as no subpoena had been served, no fees would be paid. This was regarded as an attempt to defeat the provisions of the Coroners Act, 1926, Section 23. The Medical Defence Union, in conjunction with the British Medical Association, decided to send a memorial to the Lord Chancellor, but before doing this they approached the Coroners' Society. This society passed a resolution to the effect that any medical man who gave evidence on a medical question was entitled to receive his fee whether or not he had been served with a subpoena. The coroner persisted in withholding these fees even after this expression of opinion, but his society finally persuaded him to abandon this attitude.

SUMMARY

To sum up, the medical witness is allowed expenses as follows:

High Court.—With subpoena: travelling expenses and one guinea fee if living in London, three guineas fee if living out of London. The Taxing Master usually allows more on taxation. An expert witness makes his own bargain with the party calling him.

County Court.—With subpoena: travelling expenses and one guinea fee. In court, at discretion of Registrar, one to two guineas in a suit worth less than £50, and one to three guineas in a suit worth more than £50, including the fee tendered with subpoena. An expert witness makes his own bargain, otherwise he also may claim, at the discretion of the Registrar, a qualifying fee of one to three guineas or one to five guineas according to the value of the suit.

Criminal Proceedings (including Old Bailey, Assizes, quarter sessions, and police courts).—In the same town: one and a half guineas a day for one case, three guineas for more than one case. More than three miles away: three guineas, but nothing extra for more than one case. If away from work under four hours, only half-rates. These amounts include subsistence. Travelling expenses for over two miles: third-class return. If no public conveyance, vehicle hire up to 1s. 6d. a mile. At the discretion of the Court experts may receive more, including qualifying allowance.

Coroners' Courts.—Post-mortem examination and evidence: first day three guineas, other days one and a half guineas. Post-mortem examination alone: two guineas. Evidence alone: one and a half guineas a day. Separate fee for each body. Travelling allowance: if provided by local authority.

The Services

DEATHS IN THE SERVICES

Colonel Samuel Haslett Browne, C.I.E., Bengal Medical Service (ret.), died on July 8th, aged 83. He was born on January 19th, 1850, the son of the Rev. William Browne of Buncoona, and was educated at Queen's College, Belfast, graduating M.D., M.Ch. of the Queen's University, Ireland, in 1870. Later he took the M.R.C.P.Lond. in 1896. He entered the Navy as assistant surgeon in 1870, but resigned after four years. After studying for a time in Vienna, he entered the I.M.S. as surgeon on March 31st, 1874, reached the rank of colonel on April 10th, 1903, and retired on April 28th, 1906. He served in the Afghan war of 1878-80, was mentioned in despatches in G.O.C.C. of October 14th, 1879, and received the medal. Most of his service was spent in civil employ in the Punjab where he held for many years the post of principal and professor of medicine in the Lahore Medical College, till his promotion to the administrative grade, when he was appointed inspector general of civil hospitals in Bengal, and held that post till his retirement. He was given the C.I.E. on January 1st, 1896. He was unmarried.

Universities and Colleges

ROYAL AUSTRALASIAN COLLEGE OF SURGEONS

At a meeting of the council on August 26th, the president, Sir Henry Newland, referred to the loss which the College had sustained by the death of Robert Hamilton Russell, a founder of the College and its first Censor-in-Chief. It was decided that his name, together with those of the late Sir George Syme and the late R. Gordon Craig, should be perpetuated in the new College building. H. B. Devine was elected to the position of vice-president of the College, to fill the vacancy in that position occasioned by the resignation of Sir Alexander MacCormick. The following appointments were made by the council: *Censor-in-Chief*, Alan Newton; *Honorary Secretary*, Julian Smith, jun.; *Honorary Assistant Secretary*, G. R. A. Syme. The vacancy in the number of elected members of the council was filled by the appointment of Balcombe Quick for the remainder of the late R. Hamilton Russell's term of office.

The following candidates were admitted to Fellowship:

New South Wales: H. H. Jamieson. *Queensland:* B. T. Mayes, C. L. Paine. *Victoria:* W. B. Wishart.

The following junior Members were admitted to Fellowship:

New South Wales: C. S. Colvin, E. J. Egan, J. Steigrad, P. N. Walker-Taylor. *Queensland:* P. L. O'Halloran. *South Australia:* I. A. Hamilton. *Western Australia:* S. E. Craig.

The official opening of the College building will take place in March, 1935. The next annual general meeting of the College will be held in Adelaide on March 5th, 6th, 7th, and 8th, 1934.

Medical News

The inaugural address at Westminster Hospital Medical School will be given by Professor W. Langdon Brown in the board room of the hospital on Monday, October 2nd, at 3 p.m., under the chairmanship of Sir Henry Hadow.

The new session at St. George's Hospital Medical School will open on Monday, October 2nd, when Dr. James Collier will deliver the inaugural address, followed in the evening by the annual dinner at Claridge's Hotel, with Dr. Henry Robinson in the chair.

The opening address at University College Hospital will be given by Professor A. E. Boycott in the library of the Medical School on Monday, October 2nd, at 3.15 p.m. The annual post-graduate course will be held on October 12th and 13th, and the annual dinner on October 13th, at the Hotel Victoria, Northumberland Avenue.

The new session at the London (Royal Free Hospital) School of Medicine for Women will open formally on Monday, October 2nd, at 3 p.m., when Sir E. Farquhar Buzzard will present the prizes to successful students and deliver an address.

The ninety-second session of the School of Pharmacy of the Pharmaceutical Society of Great Britain will open on Wednesday, October 4th, at 3 p.m., when Professor H. E. Armstrong, F.R.S., will present diplomas and prizes and give the inaugural address.

The 1933–4 session of the West London Medico-Chirurgical Society opens on Friday, October 6th, at 8.30 p.m., when Mr. H. Tyrrell Gray will deliver his presidental address at West London Hospital, entitled, "Principles and Practice." On December 1st there will be a discussion on "Treatment of Heart Failure," to be opened by Professor A. Fraenkel and Dr. T. Jenner Hoskin. On January 5th, 1934, a discussion will be opened by Dr. W. R. Thrower and Dr. A. P. Beddard, on "Swellings of the Legs," and on February 2nd Dr. T. A. Ross will open a discussion on "Practical Psychotherapy." In April 6th a discussion on "Paying Wards in Hospitals" will be opened by Mr. B. Sangster Simmonds.

The next extra-metropolitan dinner of the University of London Medical Graduates' Society will be held on Wednesday, October 4th, at 7.45 p.m. in Oriel College, Oxford. Tickets can be obtained from Dr. H. T. Gillett, 111, Banbury Road, Oxford. Lady Barrett will preside.

The Section of the History of Medicine of the Royal Society of Medicine will hold its first meeting of the new session on Wednesday next, October 4th, at 5 p m, when Sir StClair Thomson will give his presidential address, entitled 'The Present day Need for the Study of the History of Medicine," to be followed by a discussion The meeting is open to all Fellows of the Society

The fourth winter session of post graduate lectures at the Hampstead General and North West London Hospital, Haverstock Hill, N W 3, will open on Wednesday, October 18th, at 3 p m, when Lord Horder will give an address on 'Eugenics and the Doctor,' with Sir John Thomson Walker in the chair, and will be continued on Wednesdays from October 25th to December 13th, at 4 p m

The Fellowship of Medicine (1, Wimpole Street, W 1) has arranged a post graduate course in general medicine and surgery and the special departments, occupying the whole of each day, at the Metropolitan Hospital, Kingsland Road, from October 2nd to 14th Dermatology will be the subject of daily clinical instruction in the afternoons at St John's Hospital for Diseases of the Skin, from October 2nd to 28th During the same period a course of lecture demonstrations on physical medicine will be given at the London Clinic and Institute of Physical Medicine Forthcoming courses include cardiology, at the National Hospital for Diseases of the Heart, from October 9th to 21st, a week end course in clinical surgery on October 21st and 22nd, at the Royal Albert Dock Hospital, gynaecology, at the Chelsea Hospital for Women, October 23rd to November 4th, neurology, at the West End Hospital for Nervous Diseases, diseases of chest (week end), at the Brompton Hospital, ophthalmology, at the Central London Ophthalmic Hospital A panel of teachers giving clinical instruction daily is available throughout the year Courses, etc, arranged by the Fellowship of Medicine are open only to its members

A post graduate course, open to former students from all hospitals, will be given at Charing Cross Hospital Medical School on Sundays, from October 8th to December 10th, at 10 30 a m A fee of one guinea is charged to cover printing and incidental expenses

A series of post graduate lectures, free to all practitioners and to final year students of King's College Hospital, will be delivered in the lecture theatre of the Medical School on Thursdays at 9 p m from October 12th to December 14th, inclusive and from January 11th to March 29th, 1934 The opening lecture will be given by Mr A Edmunds, on deformities of external genitalia Subsequent lectures will be announced weekly in our medical diary

The British Section of the World League for Sexual Reform will hold a meeting at the London School of Hygiene, Keppel Street, W C, on Wednesday, October 4th, at 8 p m, when Dr J C Flugel will speak on "The Psychology of Birth Control" On December 6th Dr F G Crookshank will discuss Adler's psychology and the sexual problem

The National Hospital, Queen Square, W C, has arranged a post graduate course from Monday, October 2nd, to Friday, December 1st The course will include out patient clinics each weekday, except Saturday, at 2 p m, lectures and clinical demonstrations each weekday, except Saturday, at 3 30 p m, demonstrations on the pathology of the nervous system, on Wednesdays and Thursdays at 12 noon, on the anatomy of the nervous system, on Tuesdays at 12 noon, and on methods of clinical examination, on Thursdays at 5 p m The fee for the course is £10 10s, for those who hold perpetual tickets, and for clinical clerks, £8 8s

The Clinical Medical Studies Committee of the University of Sheffield is arranging a series of post graduate clinics in medicine, surgery, obstetrics, and gynaecology, on Sundays at 10 30 a m, and on four Fridays at 3 30 p m Clinics in special subjects—ophthalmology ear nose and throat, and dermatology—will be held on four Fridays at 3 30 p m, alternating with the Fridays devoted to the main subjects The attendance of each practitioner is restricted to one of the main subjects during the session, but he may also attend the clinics in one of the specialties The course begins on October 6th, and will continue until December 10th The registration fee is one guinea, payable to the registrar of the University Clinics will be held at the Royal Infirmary the Royal Hospital and the Jessop Hospital for Women

The biennial conference of the National Special Schools Union will be held at Sheffield in the City Hall on October 5th, 6th, and 7th The subjects for discussion include the future of special schools for the mentally defective introduced by Dr H Herd, open air schools for delicate children, by Dr Ralph P Williams rheumatic children by Dr B E Schlesinger and Dr A Bremner bone and joint tuberculosis, by Dr C Lee Pattison and the mentally defective in the ordinary elementary school by Miss Thyra Smith

A course of instruction in venereal diseases for the Ministry of Health certificate and for the certificate of the University of Manchester will begin at Salford on October 2nd The course will last for three months during which time the clinic is open to those taking the course from Monday to Friday (10 a m to 12 noon and 5 p m to 8 p m) Fifteen lectures will be given during the course on Thursday mornings at 11 a m beginning on October 5th The first ten lectures will be on the pathology and therapy of syphilis Typewritten notes will be issued The fee for the course is one guinea payable on enrolment Those desirous of taking the course must send their names to the V D Officer Salford Municipal Clinic before October 2nd

The foundation stone of the Sussex Eye Hospital in Eastern Road, Brighton will be laid on Saturday October 7th

In 1927, largely resulting from the activity of Professor Raymond Pearl and made possible mainly through the interest and support of Mrs Margaret Sanger a World Population Conference gathered in Geneva Following this, an International Union for the Scientific Investigation of Population Problems came into being Recently the executive committee of the union decided to launch a periodical to be devoted to the study of problems of population Vol 1, No 1 of this journal *Population* appeared in June last the editor is Dr E C Rhodes of the London School of Economics who contributes a survey of the problems of population Captain Pitt Rivers in an article on the urgency of population study from the bio-anthropological approach defines the scope and discusses the subject matter of ethnogenics or the study of race population culture in evolution Then follow three articles which represent the contributions of Professor Carr Saunders Professor Julian Huxley and Professor F A E Crew to the discussion on population before Section D of the British Association 1931 They deal respectively with an outline of population history, a survey of data respecting animal populations and the biological aspects of migration Sir Charles Close, the present president of the International Union, gives a brief review of the population situation to day in South and East Asia and, finally the Rev Pere V Fallon discusses certain aspects of the vital statistics of Belgium Undoubtedly there is room for this new journal, which deals with matters of profound interest and importance, both national and international, and the first number should attract for itself a welcome

The late Dr H F Gadow devoted the greater part of his life to the morphological problems of the vertebrate phylum, and the results of his investigations and reflections are contained in *The Evolution of the Vertebral Column*, which has been edited by Dr J F Gaskell and Mr H L H H Green, and will be published by the Cambridge University Press early in the autumn

The fortieth Italian Congress of Surgery will be held at Pavia from October 15th to 21st, under the presidency of Professor G Fichera, when the following subjects will be discussed drainage of the bile ducts, introduced by Professor O Uffreduzzi of Turin, and diseases from lesions of the parathyroid, introduced by Professors Donati of Milan and Sisto of Modena

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are *understood to be offered to the British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

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MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Insulin in Cases of Undernourishment

"EMBONPOINT" writes: I should be grateful if any reader could give me information as to the use of insulin in the treatment of constitutionally thin people.

Buccal Ulcers

"X.Y.Z." would be glad to know of any effective treatment for small, circular, recurring, tormenting ulcers of the mouth in a middle-aged male patient, otherwise well, apart from fibrositis. Local applications, vaccine, and general treatment have not given any lasting benefit.

? Allergenic Substance in Bread

"WIGWAM" would be glad to know if any medical practitioners are getting patients with rashes which they can reasonably attribute to modern bread, and, if so, to what ingredient thereof. Our correspondent's patient cannot eat oatmeal porridge for more than two days at a time, as it causes a rash similar to the one now complained of. The patient has eaten a good deal more bread than usual this summer, and a rash has appeared, which gets nearly well and then breaks out again, confined to the forehead, and very similar to that which follows the eating of porridge. The rash disappears soon after the porridge is stopped. Does modern bread, as usually made, contain any oatmeal?

Menstrual Eruption

Lieut.-Colonel E. L. GOWLLAND (Richmond, Surrey) writes in answer to the query by "L. B." (September 23rd, p. 589): I believe that your correspondent will obtain the desired results by giving hypodermically 2 c.cm. ampoules of colloidal calcium + ostelin on *alternate* days for twenty days before the period—that is, ten doses hypodermically; thereafter give two kalzana tablets three times daily for one month, then one kalzana tablet thrice daily, regularly, and for an indefinite time. In my experience the provision and exhibition of calcium in an assimilable form has never failed to correct the urticarial disturbances of menstruation.

Burial at Home

"C" writes: A patient of mine wishes to know how he can be buried in his own garden, which is about an acre in extent. To whom must application be made; and is much difficulty and expense entailed in this?

*** There is no legal obligation to bury dead bodies in a public burial ground or cemetery or any place set apart for burials. Many families have their mausoleums on their own private land. It would, in fact, appear to be lawful to retain a dead body in a house, provided that it is kept in a metal shell hermetically sealed and that it causes no nuisance. Where a body is buried in private land it may be assumed to be essential that that land should be freehold and that the facts of the burial are documented with the title deeds. Obviously if the land is leasehold the ground landlords could prohibit burial on the land. The Burial Act of 1855 and the Burials Act of 1906 enact that no portion of a new burial ground shall be nearer than 100 yards to any dwelling house except by consent of the owner, lessee, and occupier, but in this connexion "burial ground" refers to a public cemetery. It is not likely that the expense of burial in a private garden would exceed that in a cemetery, but information on this point could probably be obtained from the local burial authority, with whom it would be desirable to communicate as to the proposal, although it does not appear that there is any legal obligation to do so.

"Pulex ubiquitus"

Mr. P. JOHNSTON-SAINT, M.A., F.R.S.E., writes from the Wellcome Historical Medical Museum: I am unfortunately in the same category as "Hopeful" (September 23rd, p. 590). Having had occasion to travel and reside for some considerable time during the past few years in the Near East—Egypt, Palestine, Turkey, etc.—I have been much bothered by these insects. Pyrethrum powder is more or less useless. I find from experience that the following are the best antidotes: using a carbolic soap in the bath, and lightly applying oil of pennyroyal to the skin, particularly round the neck, wrists, and calves. This does much to prevent fleas entering under the clothes. Further, the use of "Flit," spraying it from a small "*Flit*" gun on the clothes, is also of great assistance; and last year, although I stayed for some little time in Tiberius—which has the reputation amongst the Arabs of being the capital of the Kingdom of the Fleas, because the King of the Fleas is supposed to reside there—I was left entirely alone. Nevertheless, I should be interested to hear of any other suggestions which "Hopeful" might receive.

Dr. M. E. PEASE (Biggin Hill), in answer to "Hopeful's" inquiry, writes: Oil of lavender is effective against onslaughts by the common flea. A drop or two should be applied to the clothing at ankles, wrists, and knees. It is too expensive to sprinkle freely.

LETTERS, NOTES, ETC.

Ligature of Stump in Appendicectomy

Mr. FREDERICK EDGE, F.R.C.S. (Birmingham), referring to Mr. M. J. Petty's article entitled "Internal Faecal Fistula and Death Following Appendicectomy". (*Journal*, September 9th, p. 491), writes: The suture of the stump or base of the appendix is often not securely made; it should be treated with the same care as suture of the intestine. Especially to be avoided is the suture of the stump with the same ligature which has been used for the mesentery. To ask one ligature to do two things is dangerous.

The Late Professor Fülleborn

A correspondent writes: The appreciation of Professor Fülleborn, signed "P. M.-B.," in last week's *Journal* contains several inaccuracies. Fülleborn was never a pupil at the London School of Tropical Medicine; he paid an odd visit there from time to time. There is no such thing as a corresponding member of the Royal Society of Tropical Medicine and Hygiene; he was an Honorary Fellow of the society. Leuckart and Looss are the correct spellings of the celebrated German helminthologists mentioned.

Prices of Vitamin-containing Products

GLAXO LABORATORIES (London, N.W.1) write: Pursuing our policy of passing on to practitioners and their patients the savings effected whenever increased sales permit more economical manufacturing methods to be adopted, we are pleased to announce that, on and from September 29th, the following changes will be made:—*Adexolin Liquid* and *Ostelin Liquid*: 2s. 6d. phials increased from 8 c.cm. to 1/2 oz.; 2 oz. bottles reduced from 10s. to 7s. 6d.; 4 oz. bottles reduced from 15s. net to 11s. 3d. net; 8 oz. bottles reduced from 25s. net to 20s. 3d. net. *Ostomalt*: 1/2 lb. jars reduced from 2s. 6d. to 1s. 9d.; 1 lb. jars reduced from 4s. to 3s.; 7 lb. jars reduced from 21s. to 17s. These changes make available vitamin therapy and prophylaxis to a great number of patients to whom they have hitherto not been easily accessible.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 44, 45, 46, 47, 50, and 51 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *183*.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

220 Angina Pectoris induced by Paroxysmal Arrhythmia

L WOLFF (*New England Journ Med* June 8th, 1933, p 1194) records four cases in support of his contention that angina pectoris (or status anginosus) and cardiac asthma may be induced by paroxysmal auricular fibrillation and paroxysmal tachycardia He thinks that this sequence of events should be distinguished as comprising a distinct clinical group, which is to be differentiated from all other cases of angina pectoris The pain begins with, or soon after, the onset, and ends with the termination of the arrhythmia Nitrites are usually ineffective, and are better not administered but morphine is indicated, except in the very short attacks Wolff has found quinidine sulphate very effective in this group, it curtails the paroxysms and the resulting pain or asthma When the patient is first seen the diagnosis of angina pectoris may be rejected altogether because of the manner in which many attacks are provoked, the occurrence of symptoms not usually associated with angina and actually due to the paroxysmal arrhythmia, and the failure of nitroglycerin to relieve the pain On the other hand, the diagnosis of coronary thrombosis may be made because the pain is prolonged, the blood pressure falls, pulmonary signs may appear, and nitrites fail to diminish the pain Embolism, pyrexia, and leucocytosis may sometimes occur with, or follow, paroxysmal arrhythmia—a possibility which must be remembered in the case of patients with pain suggestive of coronary thrombosis The cardiovascular changes which take place during an attack of tachycardia *are conducive to vascular thrombosis in a small number* of patients quinidine offers a prophylactic measure against it The author's patients had angina of effort in addition to the angina induced by paroxysmal heart action although in one case—and possibly in a second—the first attack of angina was induced by paroxysmal tachycardia *In the second patient there had been such tachycardia for* seven years before pain was induced by a paroxysm In two patients paroxysmal auricular fibrillation first appeared some time after the onset of angina pectoris, and in one of these not until coronary thrombosis had occurred

221 Hypochromic Anaemia of Gastric and Intestinal Origin

H C VAN LEEUWEN (*Klin Woch* May 6th 1933 p 698) gives a useful short review of the clinical picture of anaemia associated with disturbed gastric secretion, and calls for a distinction between the chronic hypochromic anaemia associated with gastric symptoms and that accompanied by evidences of intestinal catarrh but with no detectable gastric abnormalities The outstanding features of what he calls gastrogenic hypochromic anaemia are its very chronic course, without remissions the gastric secretory disturbance which may be achylia gastrica, but is usually hypo or achlorhydria with low peptic activity, atrophy and aphthous inflammation of the lingual mucous membrane trophic skin changes, with affections of the nail (koilonychia) bad teeth, loss of hair, diarrhoea alternating with constipation, lassitude and depression, which may lead to psychotic changes, and menstrual changes, and frequently spontaneous abortion The disease is most frequent in women The blood picture shows hypochromic cells, poikilocytosis, anisocytosis, no normoblasts, very low colour index, leucopenia, with relative lymphocytosis and no evidence of blood regeneration, as shown by no increase in reticulocytes It is emphasized that many accessory features of the disease were frequently present before the anaemia had become established Diagnosis at this early stage is very important, since treatment if instituted early produces an almost specific cure The disease sometimes becomes manifest as a result of any sudden loss of blood —for example, following delivery and haemorrhages The aetiology of the disease is unknown no theories as to this having been established Treatment consists in administration of iron and hydrochloric acid The preparations recommended are ferrum reductum and ferro stabil The trophic disturbances react excellently to this treatment In certain cases the author has observed an increase of split fat in the stools and attributes it to intestinal catarrh Where the symptomatology is that associated with gastric hypochlorhydria or achylia the author prefers to call the condition enterogenic hypochromic anaemia."

222 Complete Arrhythmia in Infectious Diseases

P TOURNAFOND (*These de Paris* 1933 No 134) who records twelve illustrative cases in patients aged from 9 to 69, one of which is original states that myocardial involvement in the course of infectious disease in the absence of clinical signs is often revealed by electrocardiographic changes usually of short duration and only rarely accompanied by changes in the pulse In a fairly large number of cases however extrasystoles are present which are usually isolated or bradycardia from incomplete dissociation may be encountered In a very small number of cases complete arrhythmia may develop, especially in acute pneumonia and diphtheria In spite of the affinity of the typhoid toxin for the myocardium it is exceptional to find any considerable disturbance of cardiac rhythm in typhoid fever Previous cardiac lesions seem to predispose to the development of complete arrhythmia, *although they were absent in most of* Tournafond's cases Complete arrhythmia generally commences suddenly, lasts a few days or sometimes weeks and disappears rapidly *No definite signs of myocardial* failure were found in these patients The tracings showed fibrillation in five cases flutter in two, and fibrillo flutter in one The prognosis of transient complete arrhythmia in infectious disease is relatively good None of the present series was fatal Treatment consists in injection of digitaline or ouabain or ingestion of quinidine

Surgery

223 Treatment of Fractures of the Spine

P MATHIEU (*Paris Med* June 17th 1933 p 538) points out the different methods of treatment of fractures of the spine when there are no signs of paralysis If paralysis is present reduction is often impossible and laminectomy must be carried out, although the prognosis after surgical intervention is so grave that if there is any likelihood of success reduction should be attempted Fractures of the spine may show a considerable displacement of the vertebrae without any severe symptoms—specially in the cervical region When the displacement is great the fracture is usually recognized early, but there are many cases of slight displacement which are only diagnosed after *x* rays, and this should always be carried out when fracture of the spine is suspected A slight fracture of a vertebra without signs of paralysis generally leads to the crushing of the bone by hyperflexion, and may even lead to a traumatic spondylitis with considerable pain Reduction must aim at the reconstruction of the spinal column It should be carried out six to ten days after the injury, under local anaesthesia Bohler's method is extremely simple The patient is placed in hyperextension with the legs strapped to a low table and the arms

and head resting on another, which must be raised 25 or 30 cm. higher than the legs. Reduction is obtained in ten to twenty minutes. The vertebral column is then immobilized by a plaster cast, which extends from the sternum to the pubis in front, and from the upper dorsal vertebrae to the coccyx behind. It allows movement of the arms and hips. A large anterior window over the abdomen is essential. This corset is worn for three months in slight cases, and for four months or more when there is much displacement. There is no danger in this method of treatment, and if Böhler's exercises are carried out complete functional restoration is assured. A case is reported and fully illustrated in which at the end of eight days the patient was able to walk and commence exercises. The corset was worn for two and a half months, and at the end of four months the spine was completely restored to its original function.

224 Splenectomy in Haemolytic Jaundice

W. D. WISE (*Amer. Journ. of Surg.*, June, 1933, p. 722) reports six cases of haemolytic jaundice which were treated by splenectomy—five were members of the same family. Reviewing the symptomatology of chronic haemolytic jaundice—namely, acholuric jaundice, enlarged spleen, anaemia, crises with pain and fever, increased fragility of the red cells, increased reticular cells, urobilin (but no bilirubin) in the urine, and increased icteric index—he states that long-standing cases frequently have associated gall-stones, which may produce an obstructive jaundice. Osseous changes may also be present, but in only one case of the series was the mongoloid facial appearance noticeable. Of the cases reported, four were sufficiently ill for treatment to be essential, while complications of nephritis and gout were present in one instance, and pyelitis in another. Wise states that the treatment of haemolytic jaundice must be surgical—removal of the spleen, which can be carried out at any age. Within a few days of the splenectomy the jaundice fades rapidly and soon disappears completely. Operation should be undertaken between attacks. If the spleen is very large, adrenaline may be given just before operation, and in some cases a blood transfusion may also be given, though this may increase the jaundice and cause a blocking in the kidneys with resultant anuria. In cases where adhesions are extensive and render a splenectomy dangerous or impossible, the ligation of the splenic artery may be considered. Of the six cases reported one had marked optic atrophy, one gall-stones, and two accessory spleens. After operation one had pneumonia and lung abscess and two had mild wound infections. All patients were relieved of jaundice and showed marked improvement of anaemia; there was no operative mortality, though one patient died some months later of cerebral haemorrhage and uraemia. The remaining five patients are now well and free from symptoms.

225 Prevention of Gas Gangrene without Serum

L. BÖHLER (*Zentralbl. f. Chir.*, May, 1933, p. 1227) has during the last seven years treated about 20,000 open wounds—compound fractures of long bones and joints, often associated with severe injury of the soft parts with torn and filthy muscular tissue. Of these cases only one died of gas gangrene, and no case was treated with gas-gangrene serum. The author believes that serum injections in these injuries have no effect, and considers surgical treatment far superior. Gas gangrene, it is stated, develops when the circulation has been interrupted by the tearing or removal of blood vessels, or where there is great injury to the muscles; also if wounds are not thoroughly excised and are closed by tight sutures. The author urges the strictest examination of the blood supply in all cases of severe wounds—which on occasion may indicate immediate amputation. He recommends the procedure of Friedrich. The injured parts are removed under local anaesthetic, the use of strong antiseptics being avoided, the skin is sutured, and the limb is raised and placed at rest with a windowed plaster bandage. Böhler also advocates surgical treatment for tetanus, believing that serum prophylaxis for this condition is of little value.

Therapeutics

226 Whooping-cough Vaccination

T. MADSEN (*Ugeskrift for Laeger*, June 7th, 1933, p. 663) gives an account of the technique adopted at the State Serum Institute in Copenhagen in the preparation of a whooping-cough vaccine. Forty-eight-hour-old cultures of several different fresh strains of the Bordet-Gengou bacillus grown on blood agar are added to a normal saline solution containing 1 per cent. of formol. The bacillary emulsion contains about 10,000 million bacilli per c.cm. Three intramuscular or subcutaneous injections are given at intervals of three to four days, the quantities given being respectively 0.5, 0.7, and 1 c.cm. This dosage is higher than that of most other workers. Professor Madsen suggests that most authorities are agreed as to the benefits of this treatment early in the catarrhal stage of the disease. In the Faeroe Islands big waves of whooping-cough are separated from each other by long intervals of complete freedom from this disease. After such an interval, practically everyone who has not had whooping-cough contracts it. During an epidemic in 1923, extending to 1924, a whooping-cough vaccine was administered to 2,094 persons, while 627 other persons could not be vaccinated for various reasons and served as controls. A new epidemic broke out in 1929, during which 1,832 persons were vaccinated and 446 served as controls. Adding the figures from these two epidemics, Professor Madsen shows that among the 3,926 vaccinated persons there were only six deaths (a mortality of 0.15 per cent.), whereas among the 1,073 controls there were twenty-six deaths (a mortality of 2.4 per cent.). Not only was the mortality sixteen times greater among the controls, but their reaction to the disease was also more severe and protracted.

227 Treatment of Spider Naevus

D. W. MONTGOMERY (*Arch. Derm. and Syph.*, June, 1933, p. 971) describes a method of obliterating the central capillary or capillaries in spider naevus. The superimposed epithelial layers offer the chief obstacle to the introduction of the electric needle, the hot point, or the chemical, and must be removed. This is effected by means of the exploratory curette introduced by Louis Brocq, which has a relatively dull edge and is curved. The instrument catches the curled-up ends of the epithelial cells and carries them away, or, if the skin surface is smooth, it penetrates beneath the cells and lifts them up. The scurf layer is first eroded thus, and then the horny and granular layers down to the mucous layer. When this is reached there is an exudation of serum tinged with blood. If a pledget of cotton soaked in boric acid solution is now allowed to remain on the eroded surface for a short time until the exudation ceases, the central vessel becomes visible as a bright red dot. It is then obliterated by piercing it with a tiny piece of cotton, tightly wound on a wooden toothpick, and dipped into a saturated solution of trichloracetic acid. Alternative measures are the application of mercuric nitrate or electrolysis. The author adds that the epidermis varies in thickness in different persons, necessitating careful graduating of the erosion process. The walls of the vessel vary also in strength. If they are weak there may be haemorrhage into the tissues, even though the erosion be most carefully performed, and the resulting purpura may obscure the field of operation.

228 Mechanism and Treatment of Asphyxia

M. J. DUFFOUR (*Journ. de Méd. de Bordeaux*, May 30th, 1933, p. 419) classifies the causes of asphyxia under the following heads: obstructions of the respiratory passages; lesions diminishing the alveolar surface area; diminution in the available amount of haemoglobin; inability to utilize oxygen on the part of the tissues (for example, cyanide poisoning); and local asphyxias due to circulatory changes. The general mechanism of all asphyxias is the same. Anoxaemia leads to rapid shallow respiration and

lowers the alveolar CO_2 resulting in acapnia, and thus is established a vicious circle Various forms of asphyxia are considered in detail in drowning the anoxaemia is said to produce circulatory arrest, which leads to acute pulmonary oedema, asphyxia is an early symptom in electrocution, carbon monoxide forms a compound—carboxyhaemoglobin—with the haemoglobin of blood, this reaction taking place 200 times more easily than the formation of oxyhaemoglobin, and death usually results when more than 65 per cent of the haemoglobin is carboxylated In treatment, manual or mechanical artificial respiration is the first step, Schafer's method is now recommended officially in France, as it has been in England since 1910 Inhalation of oxygen or of oxygen with 5 per cent CO_2 is now recognized as of great importance Dautrebande, citing the biblical precedent of Elisha and the Shunamite's son has introduced a method whereby the asphyxiated patient breathes the resuscitator's expired air Subcutaneous injection of oxygen is now largely discredited Venesection has its advocates and is particularly helpful where there is acute pulmonary oedema or other signs of raised venous pressure Of drugs, lobeline is strongly advocated for its action on the respiratory centre, while Curschmann's solution or coramine is valuable injected subcutaneously or intravenously

Laryngology and Otology

229 Light Baths and Tuberculosis of the Larynx

O STRANDBERG and J GRAVESEN (*Hospitalstidende*, May 18th, 1933, p 565) give an account of the co operation of a laryngologist and a sanatorium superintendent in the treatment of tuberculosis of the larynx At first they worked independently Up to July 31st, 1932 Strandberg had treated 251 cases of tuberculosis of the larynx at the Finsen Institute with fifteen or more artificial light baths (carbon arc lamps) each sometimes with and sometimes without surgical intralaryngeal interventions In 149 of these cases the disease of the larynx was cured and in six others it was too early to claim a real cure Cure of the disease could therefore be asserted in 59 4 per cent In those cases in which there was tuberculous infiltration without actual ulceration of the larynx the proportion of recoveries was still higher of thirty six such infiltrative cases twenty eight were cured During the six years Strandberg and Gravesen have co operated at the Vejle fjord Sanatorium, 149 patients suffering from tuberculosis of the larynx have enjoyed the benefits of artificial light, surgical *and* sanatorium treatment As many as 120 of these 149 patients (80 5 per cent) were discharged as cured This achievement is the more striking as the disease was ulcerative in 112 cases eighty seven of which ended in recovery and thirteen in improvement While the average number of light baths per patient cured was ninety at the Finsen Institute it was sixty at the sanatorium—a difference which stresses the value of sanatorium treatment Discussing the rather disappointing results obtained in England with artificial light baths in laryngeal tuberculosis, the authors note that hitherto the duration of the light bath in England has been half an hour, whereas their exposures last for an hour and a half or two hours They have seen no ill effects of this treatment though the indications for it have been so wide that even febrile patients have received it

230 Syphilis of the Mastoid

P MOUNIER KUHN and P EUVRARD (*Rev de Laryngol, d Otol, et de Rhinol* June, 1933 p 734) believe that syphilitic mastoiditis occurs more frequently in acquired than in congenital syphilis The disease affects both the superficial soft parts and the bone In the former the three stages of syphilitic infection occur The primary chancre is usually a superficial erosion rather than an ulceration, it is covered with crusts, and shows a marked tendency to phagedaenism Of diagnostic importance is the presence of hard glands in the submaxillary and mastoid regions, the nape of the neck and along the carotid chain The secondary lesions present no special characteristics excepting involvement of the mastoid ganglia which may extend to other cervical ganglia Cutaneous gummata are frequent and appear at any age They ultimately form extensive ulcerations which on healing leave pigmented cicatrices adherent to the bone They must be differentiated from cancer tuberculous ulceration, lupus, and actinomycosis The osseous lesions may appear at any period after the primary infection usually between four and eight years Brief comment is made on their pathological anatomy They occur in two forms, the superficial (osteo periostitis) and deep (mastoiditis) In the former the onset is characterized by vague pains in the auricular region, which finally become acute They are increased by movements of the head and are worse at night A hard, oedematous mastoid swelling next appears The lesions evolve, softening occurs and a fistula with abundant purulent discharge and sometimes small sequestra, is formed The tympanum, middle ear and hearing remain unaffected In syphilitic mastoiditis the onset is more insidious A dull pain becoming intensely accentuated, is the only symptom Finally a swelling appears which involves the entire mastoid region, pushes back the pinna and sometimes retracts the canal Fistula formation with abundant purulent discharge results The tympanum is usually unaffected Complications are involvement of the labyrinth meninges and lateral sinus often with marked cachexia The diagnosis is usually easy primary mastoid swelling with integrity of the tympanum and audition is suggestive of syphilis Medical treatment generally produces rapid cure potassium iodide in daily doses of 3 to 5 grams is most efficacious mercuric cyanide and bismuth alone or combined may also be employed In certain cases supplementary operative measures are needed these are briefly described

231 Contact Ulcer of the Larynx

A PERONI (*Arch of Otolaryngol* June 1933 p 741) records pathological observations which confirm the views of Chevalier Jackson as regards the causation of contact ulcer This ulcer may be described as a shallow ulcerative lesion localized on one or both sides of the larynx in the region of the vocal process of the arytenoid cartilage During phonation the lesion if unilateral comes into contact with the vocal process of the opposite side or if bilateral with the opposite ulcer The chief aetiological factor seems to be the mechanical one of pressure contact during phonation and the ulcer is therefore more commonly found in patients who use their voices extensively Peroni finds also that chronic inflammation of the nasal accessory sinuses is a not uncommon concomitant He reports two cases In the first there was advanced pulmonary tuberculosis but histological examination of symmetrical ulcerative lesions of both vocal cords showed that no tuberculous infection was present in them The vocal process of the corresponding arytenoid cartilage emerged in the bed of each ulcer The walls were composed of granulation tissue having the usual appearance of chronic inflammation but without any epithelial proliferation In the second case the patient died from gastric carcinoma with metastases The laryngeal condition was only discovered in the course of the ordinary routine examination The histological appearances were as in the first case The ulcerative process was strictly localized in both, with no other point of erosion or gross evidence of inflammation elsewhere in the larynx It was advancing, showing active necrosis in the walls of the ulcer as well as in the vocal process of the arytenoid cartilage It was not possible to demonstrate in the two cases that the ulceration of the mucous membrane depended on protrusion or erosion of the cartilage as a cause, but Peroni thinks it improbable that the necrosis was a primary process He believes that the perpetuation of the disease and its chronicity were due to the necrotic condition of the cartilages at the tip of the vocal processes, producing trauma during each act of phonation

Obstetrics and Gynaecology

232 Effects of Corpus Luteum Administration

C. CLAUBERG (*Zentralbl. f. Gynäk.*, June 24th, 1933, p. 1461) describes observations which elucidate the physiology and pathology of menstruation, and confirm his view as to the function of the corpus luteum. In a castrated woman exhibition of 50,000 mouse units of follicular hormone in fourteen days, followed by 80 guinea-pig units of luteo-hormone in sixteen days, led to development of an endometrium which showed a well-marked secretory phase: a menstruation followed suspension of the treatment. In a girl of 18, with "adiposo-genital" habitus, primary amenorrhoea, and infantile uterus, 260,000 units of follicular hormone were given in eighteen days, followed by 100 units of luteo-hormone in eleven days, together with smaller, decreasing doses of follicular hormone. On the twenty-ninth day a menstrual bleeding began, and lasted two days. Glandulo-cystic endometrial hyperplasia with persistent metrostaxis is regarded by Clauberg as due to pathological persistence of the follicle and to folliculin production. In twenty cases he has found confirmation of this view by producing cessation of the bleeding by treatment with about 80 guinea-pig units of luteo-hormone in six days; some three days after stoppage of the treatment a menstruation occurred. The existence of this menstrual phase, as well as of glandulo-cystic hyperplasia antecedently, was verified microscopically. Injections of luteo-hormone for nine days in one patient were found to produce, as well as a retardation of the menses, an endometrium which showed marked decidual reaction with no sign of regressive processes, and resembled that of tubal pregnancy. The amount of luteo-hormone injected in this case was 125 units. It is to be noted that the 80 units used in treatment of the cases of glandulo-cystic hyperplastic endometrium corresponded to the yellow bodies of some nine hundred sows. Insufficient dosage may explain previously reported failures in treatment.

233 Sedimentation Test in Gynaecology

M. G. COTTE, ROTH, and DURAND (*La Gynécol.*, June, 1933, p. 305) report on a series of sedimentation tests made on 200 cases suffering from various gynaecological disorders. They found the test of value in so far as the sedimentation rate was invariably increased in acute inflammatory processes. If the curves obtained from patients with retroversion, prolapse, or simple ovarian cyst were compared with those obtained from patients with inflamed adnexa it was found that the latter always showed a greater rapidity of sedimentation. The technique adopted by the authors consists in using 8 to 10 cm. tubes graduated into tenths of 2 c.cm. The diameter of the tubes is 3 to 4 mm. Into a syringe containing 0.2 c.cm. of a 5 per cent. solution of sodium citrate is drawn the venous blood. After well mixing, the blood is placed in one of the tubes as far as the topmost mark, and left to stand. The level of the corpuscles is noted every five or fifteen minutes. A curve representing the rate of sedimentation is then charted. The normal rate was found to be 0.7 to 0.8. The report is illustrated by fourteen charts showing the rate of sedimentation in different cases, and at different periods in the same patient. In one case of fibromata an exaggeration of the speed of sedimentation suggested the coexistence of inflammatory lesions, which proved to be correct. In another case of myomata with haemorrhage a sudden onset of phlebitis provoked a considerable modification of the test, and operation was postponed until this returned to normal, with subsequent good results. Post-operative tests showed that at the end of the first week the speed is nearly always increased, but at the end of the second week it has generally returned to normal. The authors conclude that there exists a parallelism between the rate of sedimentation and the gravity of the causal infection.

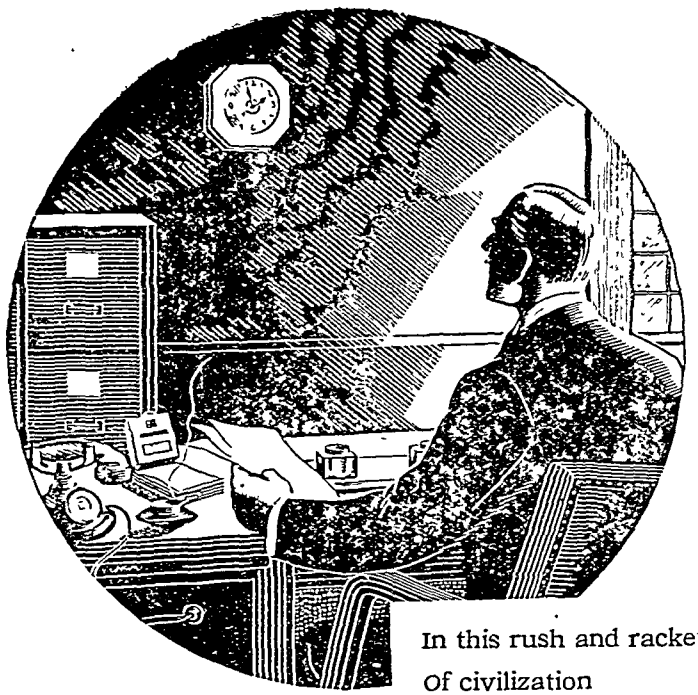
Pathology

234 Duration of Tuberculous Allergy in Guinea-pigs

K. E. BIRKHAUG (*C. R. Soc. de Biol.*, No. 24, 1933, p. 857) has inoculated 211 guinea-pigs intraperitoneally with living or with heat-killed tubercle bacilli of markedly attenuated virulence, and has tested their cutaneous sensitivity to tuberculin at bi-weekly intervals. The tuberculin test was performed by the intracutaneous inoculation of 0.1 c.cm. of a 1 in 10 dilution of old tuberculin; a positive reaction comprised redness and swellings over 5 mm. in diameter at the end of forty-eight hours. Three strains of bacilli were used—B.C.G., R.1, and Tb. 18. With dead bacilli the results obtained with all three strains were very similar. The intraperitoneal inoculation of 10 mg. gave rise to allergy in 90 per cent. of the animals within six weeks; the allergy disappeared in eighteen to twenty-two weeks. With smaller doses a lower proportion of animals became allergic, and the allergy appeared later and wore off sooner. With 0.01 and 0.001 mg. none of the animals became demonstrably allergic. Living bacilli gave similar results, but the proportion of animals becoming allergic, and the rapidity with which allergy developed, were both greater. Moreover, even with small doses, such as 0.001 mg., some of the animals became allergic. Again, the length of time during which cutaneous hypersensitivity persisted was much greater with living than with dead bacilli, though this difference was more noticeable with the R.1 and Tb.18 strains than with the B.C.G. strain. Thus guinea-pigs inoculated with 10 mg. of B.C.G. lost their sensitivity in about twenty-eight weeks and those inoculated with 1 mg. in about twenty-two weeks, while guinea-pigs inoculated with even 0.001 mg. of the other two strains remained sensitive for over thirty-six weeks.

235 Blood Sedimentation in Acute Febrile Diseases

H. HECKSCHER (*Ugeskrift for Laeger*, June 15th, 1933, p. 687) notes that the department for epidemic diseases of the military hospital in Copenhagen receives every year between 1,500 and 2,000 patients suffering from colds and influenza-like ailments. Most of these otherwise healthy young adults recover rapidly, but among them there must be a few cases of early tuberculosis. Since February, 1932, Heckscher has submitted about 700 patients in this hospital to the blood sedimentation test, in the hope that it might help him to distinguish between tuberculous and non-tuberculous cases. The rate of sedimentation was found to be but little increased during the first day or two of a febrile cold, when the fever was at its highest. This rate then increased, and remained above normal several days after the fever had ceased. In about 95 per cent. of all the cases this rate was normal, or rapidly falling to normal, within two weeks of the cessation of the fever. Among the twenty-one cases in which this rate continued to be raised beyond the two-week limit were four cases of pulmonary tuberculosis, three of pleurisy with effusion, seven of tonsillitis, and three of bronchitis and bronchopneumonia. In sixty-four cases in which this rate was still above normal after the patients had been afebrile for four days, an *x*-ray examination of the lungs was made. In all the cases in which *x* rays showed morbid changes this rate was persistently above normal. Discussing these findings, Heckscher claims that the sedimentation test would seem to be a remarkably effective means for combing out the few cases of pulmonary tuberculosis which get drafted into the army, and which are liable to be overlooked among the host of cases of transient catarrhal fever lasting only a few days. It is true that there are other means for distinguishing between the tuberculous and the non-tuberculous, but Heckscher emphasizes the shortcomings of them all—stethoscopic examination, tuberculin, *x* rays, and the examination of the sputum for tubercle bacilli.



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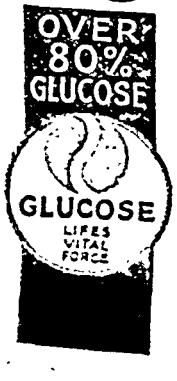
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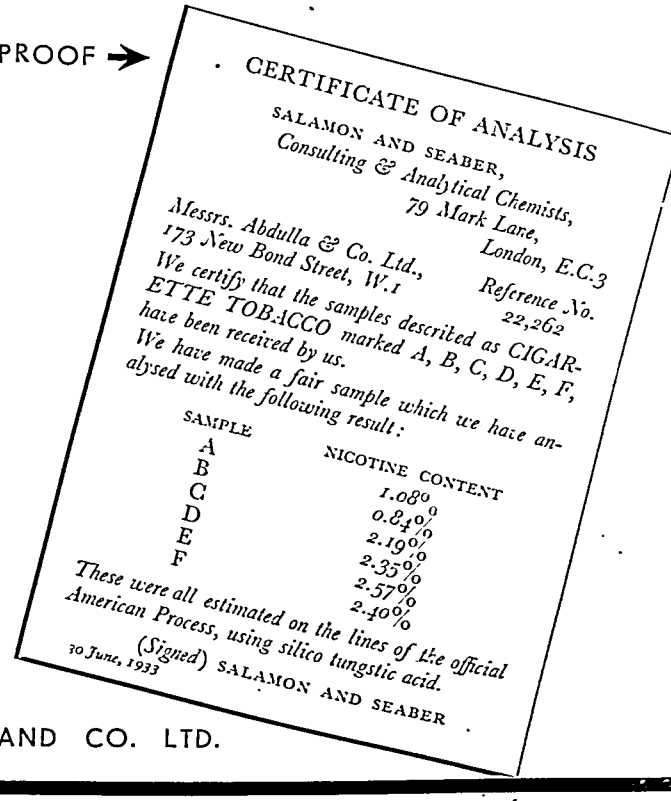
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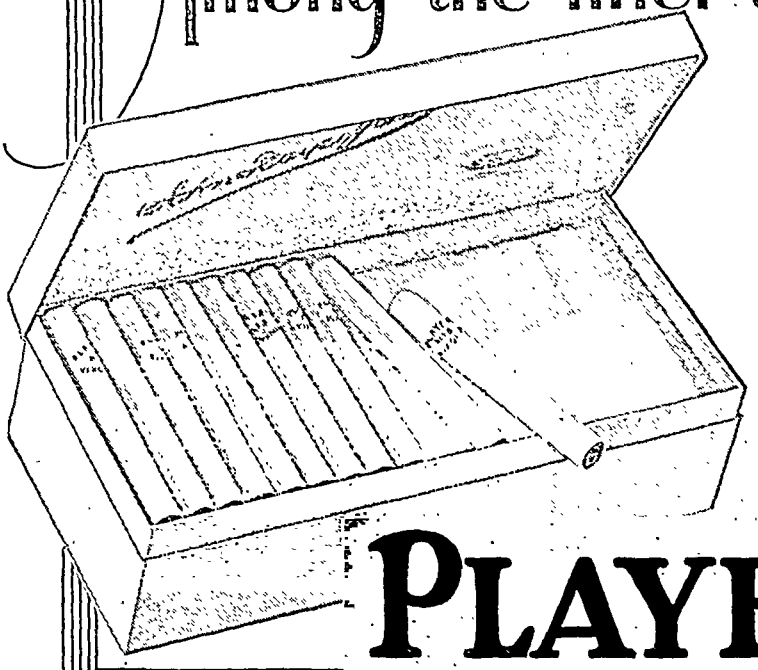
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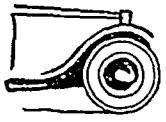
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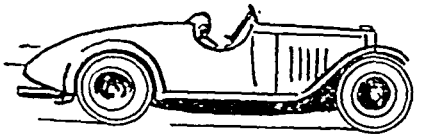
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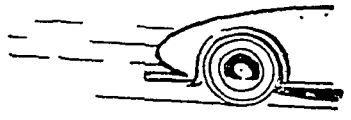
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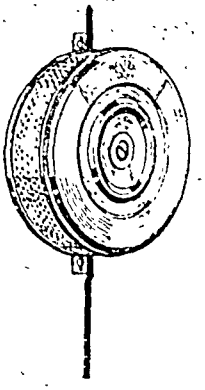
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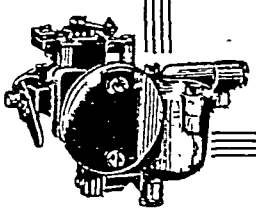
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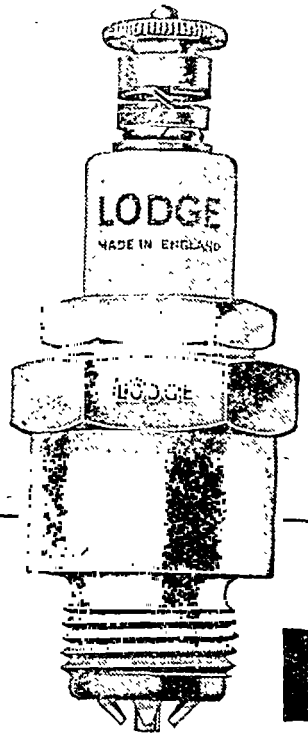
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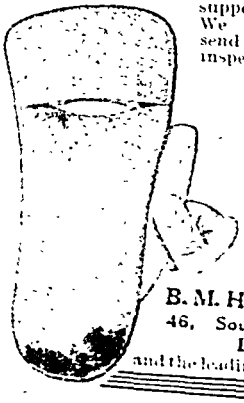


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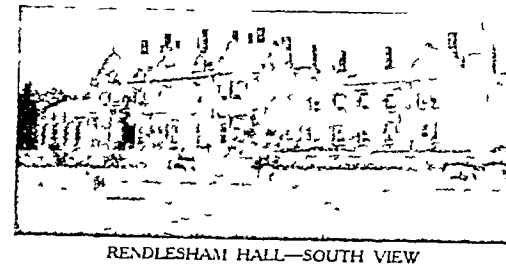
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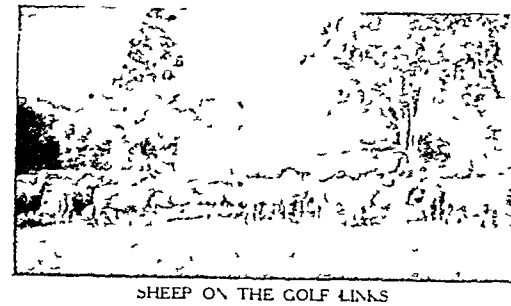
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NEW OUT PATIENTS MEN — Monday and Thursday 2 p m WOMEN—Tuesday and Friday 2 p m CHILDREN—Monday and Fridays 10 a m

IN PATIENTS (*a*) 229 beds (both sexes) in *wards or separate rooms* including beds in a ward of King's College Hospital which is in use as a temporary annexe of the Maudsley Hospital (*b*) 15 private rooms (for ladies) with private sitting room, garden and dietary

TERMS

(*a*) **£5 a week, but in case of patients with a legal settlement in the County of London a less sum may be charged according to means.**

(*b*) **£6 6s a week.**

Terms include (with rare exceptions) all forms of treatment for which unusual facilities exist —there being a staff of consultant specialists and the central laboratory of London County Mental Hospitals being attached to the Hospital

Inquiries of EDWARD MAPOTHER M D, F R C P F R C S Medical Superintendent

ALCOHOLISM & OTHER DRUG HABITS.

THE HARE NURSING HOME.

As founded and established by the late Dr FRANCIS HARE, for 20 years Med Supt. of the Norwood Sanatorium and author of "Alcohol and Man," etc., for the treatment of ALCOHOLISM, other Drug Habits Insomnia, Neurasthenia, Functional Nervous Disorders.

"THE OLD HILL HOUSE," CHISLEHURST, KENT.

Fees 5—10 guineas. Ample amusements. 20 bedrooms. Annexe for mild cases. Quiet and pleasant situation

Ladies and gentlemen admitted for treatment For prospectus etc., write or 'phone WALTER E MASTERS, M D M R C S D P H, Barrister at Law (Res Med Supt.), Author of "The Alcohol Habit" *Telegrams* "Masters, Chislehurst. *'Phone* Chislehurst 451

BOWDEN HOUSE,

HARROW-ON-THE-HILL.

A NURSING HOME OPENED IN 1911 FOR THE INVESTIGATION AND TREATMENT OF FUNCTIONAL NERVOUS DISORDERS OF ALL TYPES.

No cases under certificate. Thorough clinical and pathological examinations. Psychotherapeutic treatment, occupation, and recreation as suited to the individual case.

PARTICULARS FROM THE MEDICAL SUPERINTENDENT. *Telephone and Telegrams*: BYRON 1011.

WOODSIDE HOSPITAL

WOODSIDE AVENUE, MUSWELL HILL, LONDON, N.10

President: THE RT. HON. THE EARL OF ATHLONE, K.G., P.C.

Fully equipped with every modern appliance for the diagnosis and treatment of

FUNCTIONAL NERVOUS DISORDERS

Private Rooms, Broad Verandahs, Physiotherapy and Psychotherapy, X-ray and Dental departments, Laboratories for investigation and research. For terms and particulars apply to the Physician in charge at the Hospital. Telephone: Tudor 4211.

CAMBERWELL HOUSE, 33, Peckham Road, London, S.E.5.

Telegrams: "PSYCHOLIA, LONDON." FOR THE TREATMENT OF MENTAL DISORDERS. *Telephone*: RODNEY 4731—4732.

Also completely detached Villas for mild cases, with private suites if desired. Voluntary patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Putting Greens, Bowls, Croquet, Squash Rackets, and all indoor amusements, including Wireless and other Concerts. Occupational Therapy, Callisthenics, and Dancing Classes, X-ray and Actino-therapy, Prolonged Immersion Baths, Operating Theatre, Pathological Laboratory, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician: Dr. HUBERT JAMES NORMAN, assisted by three Medical Officers, also resident and visiting Consultants.

An illustrated Prospectus, giving fees which are strictly moderate, may be obtained upon application to the Secretary.

The Convalescent Branch is HOVE VILLA, BRIGHTON, and is 200 feet above sea-level.

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." Telephone: Rodney 4741-4742.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Certified voluntary and temporary patients are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill Tennis Courts. Entertainments, dances, and indoor amusements held throughout the year. Terms from £3 3s. per week.

Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

THE OLD MANOR SALISBURY

A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds. Detached Villas. Chapel. Garden and dairy produce from own farm. Terms very moderate.

CONVALESCENT HOME at BOURNEMOUTH.

Detached Villas standing in 12 acres of ornamental grounds, with tennis courts, etc., which Voluntary, Temporary or Certified Patients may visit, by arrangement, for long or short periods.

Illustrated Brochure on application to the Medical Superintendent, The Old Manor, Salisbury. Telephone 51.

CHEADLE ROYAL MENTAL HOSPITAL,

CHEADLE, CHESHIRE.

This REGISTERED HOSPITAL, with a SEASIDE BRANCH at Colwyn Bay, N. Wales, is for the treatment and care of those of the Upper and Middle Classes suffering from MENTAL and NERVOUS DISEASES.

The Hospital is governed by a COMMITTEE, appointed by the TRUSTEES of the Manchester Royal Infirmary.

In addition to the Main Building there are separate villas. Extensive grounds. Hard and grass tennis courts, cricket and croquet grounds, and a court for badminton. There are also wireless installations. Golf may be had within easy distance. Occupational Therapy.

VOLUNTARY, TEMPORARY, AND CERTIFIED PATIENTS received.

The Hospital is nine miles from Manchester, 50 minutes by rail from Liverpool, and 3½ hours from London.

For terms and further particulars apply to the Medical Superintendent, J. A. C. ROY, M.B., who may be seen in Manchester by APPOINTMENT.

Telephone: GATLEY 2231 (3 lines).

NORTHUMBERLAND HOUSE,

GREEN LANES, FINSBURY PARK, N.4.

Telegrams: "SUBSIDIARY, LONDON." *Telephone*: NORTH 0883.

A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses. Conveniently situated four miles from Charing Cross. Easy access from all parts. Six acres of ground highly situated, facing Finsbury Park. Private Suites. Voluntary Patients and Temporary Patients received without Certification.

Convalescent Home, **Kearsney Court, Dover.** For further particulars, apply to the **Medical Superintendent.**

MONTANA HALL, Montana, Switzerland

Built 1929-30.

THE ONLY SANATORIUM IN SWITZERLAND UNDER BRITISH OWNERSHIP AND CONTROL, AND WITH A DAY AND NIGHT STAFF OF BRITISH TRAINED NURSING SISTERS.

REDUCED INCLUSIVE TERMS——QUOTED IN STERLING.

Med. Supt.: HILARY ROCHE, M.D.(Melb.), M.R.C.P.(Lond.), Tuberc. Dis. Dip. (Wales)

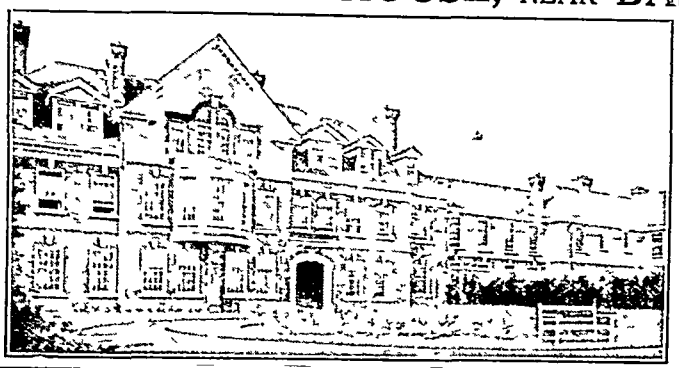
GRAMPIAN SANATORIUM,

KINGUSSIE, INVERNESS-SHIRE.

Specially built for the Open air Treatment of Tuberculosis, and opened in 1901. Bracing mountain air. Elevation 860 ft. above sea-level. Sheltered situation in pine wood. Graduated walks. Electric light throughout building and in shelters. Central heating. Fully equipped X-ray Plant. Inoculation Treatment available for patients—24 beds. Trained Nurse on duty at night. Terms £4 7s. 6d. to £6 6s. p.w. inclusive. No extras. Med. Supt.—FELIX SAVY, M.D.

For particulars apply to the Secretary.

ROOKSDOWN HOUSE, NEAR BASINGSTOKE, HANTS



FOR THE RECEPTION AND TREATMENT OF
NERVOUS AND MENTAL ILLNESS.

A Superior Modern and Attractive Building situated in a charming and bracing locality, 400 ft. above sea level

Extensive pleasure grounds, with croquet, tennis, bowling, and putting greens

Occupational Light and Hydro Therapy.

ONE HOUR RAIL JOURNEY FROM LONDON

Ladies and Gentlemen can be received as private patients on a voluntary basis or with certificates when application alone is required for the former

FEES, including all necessaries except clothing, from THREE to FIVE GUINEAS A WEEK

Brochure and information may be obtained from the MEDICAL SUPERINTENDENT

Telephone 197 Basingstoke

RUTHIN CASTLE, NORTH WALES

REDUCTION OF FEES

In view of the present economic position, the inclusive fees at Ruthin Castle, formerly from 17 guineas a week have been reduced to from 15 guineas a week

The fees include medical attendance, all scientific investigations that may be needed such as analyses bacteriological cultures, the ordinary x ray examinations, and electrocardiograph readings all treatment that may be prescribed, such as special diets, insulin, artificial sunlight electrical treatment baths, massage nursing, medicines or vaccines, board, and lodging

The only extra charge is that for a complete alimentary x ray examination or for x ray therapy

All the usual forms of treatment are given at Ruthin Castle The climate is mild The annual rainfall is 30 5 inches, that is, less than the average for England There is central heating throughout Should the accommodation in the Castle not prove sufficient, comfortable rooms can be obtained near by for those undergoing treatment

Address—THE SECRETARY, Ruthin Castle, North Wales Telegrams CASTLE, RUTHIN Telephone RUTHIN 66

The MUNDESLEY SANATORIUM

The newly opened central building makes the Mundesley Sanatorium the best equipped building in England for the cure of Tuberculosis All the bedrooms have hot and cold running water, electric light, and wireless headphones The new public rooms are spacious and comfortable

Resident Physicians:
S VERE PEARSON,
M D (Cantab) M R C P (Lond)
ANDREW MORLAND,
M D (Lond), M R C P
E. C WYNNE EDWARDS,
M B (Cantab)

For all information apply
THE SANATORIUM, MUNDESLEY, NORFOLK
(Telephone Mundesley 94)

The buildings face S S W and are sheltered from the sea by a pine clad ridge The sunshine record and dry air complete a perfect site The medical equipment is of the latest kind, and there is a day and night nursing staff

TERMS FROM 7½ GUINEAS WEEKLY.

TOR-NA-DEE SANATORIUM
MURTLE DEESIDE ABERDEENSHIRE

FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS

Managing Director DAVID LAWSON, M.D., F.R.S.E.

Southern aspect Low rainfall Pure bracing air Sheltered grounds Beautiful surroundings All modern equipment for diagnosis and treatment, including operating theatre No extra charge for X Rays, Artificial Pneumothorax, Ultra-Violet Light, or other special treatment.

Day and night Nursing Staff All bedrooms have central heating, electric light, hot and cold running water, and wireless (headphones) Comfortable and airy public rooms.

Medical Superintendent J M JOHNSTON, M.B., M.R.C.S., D.P.H For full particulars and prospectus apply to the Secretary.

Inclusive Terms: SEVEN GUINEAS A WEEK.

UNIVERSITY EXAMINATION POSTAL INSTITUTION

17, RED LION SQ., LONDON, W.C.1.

(FOUNDED IN 1882.)

Principal: Mr. E. S. WEYMOUTH, M.A.(Lond.). POSTAL OR ORAL PREPARATION FOR ALL MEDICAL EXAMINATIONS.

SOME SUCCESSES:

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Preparation for the above; also for Medical Preliminary, and all examinations leading up to M.R.C.S., L.R.C.P., or M.B. of various Universities; also for M.R.C.P.(Edin.), D.P.M., D.O.M.S., D.T.M. & H., D.L.O., D.G.O., D.M.R.E., M.M.S.A., L.M.S.S.A., etc. Many successes.

ORAL CLASSES.

M.R.C.P., M.D., Primary and Final F.R.C.S., F.R.C.S.(Edin.); also Final M.B., B.S., and M.R.C.S., L.R.C.P. Museum and Microscope Work. Also Private Tuition.

MEDICAL PROSPECTUS (48pp.)

CONTENTS:—The method and the cost of entering the Medical Profession. *Particulars of all Medical Examinations*, Postal Courses, and Oral the Higher Medical for the Higher Surgestions for the Special Diploma Examinations. Refresher Courses. Openings for Women. Hints for writing theses.

Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, Mr. E. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6313.)

THE WELSH NATIONAL SCHOOL OF MEDICINE.

(UNIVERSITY OF WALES).

OPENING OF SESSION 1933-4.

The OPENING ADDRESS for the new Session will be given by the Rt. Hon. LORD HORDER OF ASHFORD, K.C.V.O., M.D., F.R.C.P., on October 6th next at 8 o'clock p.m., and is entitled "*Medicine as a Career.*"

The address will be given in the INSTITUTE OF PHYSIOLOGY, Newport Road, Cardiff, and, in addition to students of the School, medical men, and others interested in its work and progress, and in the subject of the Address, are cordially invited to attend.

In the absence, through illness, of the President of the School, The Rt. Rev. The Lord Bishop of Monmouth, D.D., the Provost, Professor A. W. Sheen, C.B.E., M.S., F.R.C.S., will preside at the gathering.

SEAMEN'S HOSPITAL SOCIETY.

POST GRADUATE COURSES FOR SHIP SURGEONS.

The Seamen's Hospital Society announces that Part 3 of these Courses—i.e., Refresher Courses in Clinical Subjects, will be held from November 13th to December 2nd at the Dreadnought Hospital, Greenwich, S.E.10. The course is essentially practical and will include as an additional feature instruction in Operative Surgery. All applications for this Course should be sent to the Secretary, Seamen's Hospital, Greenwich, S.E.10, not later than October 23rd next.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

(University of London.)

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE (Eng.)

Dates of the Courses, 1933-34.

(Each part can be taken independently, but not concurrently.)

SECTION A. (CLINICAL AND LABORATORY INSTRUCTION)—a 3 months' Course.

October 2nd—*December* 22nd, 1933.
January 8th—*March* 29th, 1934;
April 9th—*June* 28th, 1934.

SECTION B. (TROPICAL HYGIENE)—a 2 months' Course.

January 22nd—*March* 23rd, 1934.
April 23rd—*June* 22nd, 1934.

FEES (inclusive):

Section A, £25; Section B, £15.

In Section A, students may enter for the whole Section at recognised intervals (of 4 or 8 weeks) after the beginning of the course. Short periods of laboratory or clinical instruction can also be taken at proportionate fees.

DIPLOMA IN PUBLIC HEALTH

(University of London.)

Course of Study (nine months for those working whole-time) commencing on October 2nd. Inclusive fee, 54 guineas.

DIPLOMA IN BACTERIOLOGY

(University of London.)

Course of Study (whole-time, one academic year) commencing on October 3rd. Inclusive fee, £47 15s.

EPIDEMIOLOGY AND VITAL STATISTICS

Special three-monthly advanced courses. Inclusive fee, 7 guineas.

For Prospectuses and Synopses of Lectures, etc., apply to the SECRETARY, LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Keppel Street (Gower Street), London, W.C.1.

UNIVERSITY OF LONDON.

A Course of Six Lectures on "*The Physiology of the Sense Organs*" will be given by Dr. R. J. LYTHGOE at UNIVERSITY COLLEGE, LONDON (Gower Street, W.C.1) on MONDAYS, OCTOBER 9th, 16th, 23rd, 30th, and NOVEMBER 6th and 13th, at 5 p.m.

A Course of Four Lectures on "*The Metabolism of Carbohydrates, Fats, and Proteins*" will be given by Dr. W. RONSON, D.Sc., Ph.D., at KING'S COLLEGE, LONDON (Strand, W.C.2), on THURSDAYS, OCTOBER 12th, 19th, 26th, and NOVEMBER 2nd, at 5 p.m.

A Course of Four Lectures on "*Blood Plasma and Platelets*" will be given by Dr. J. W. PICKERING, at KING'S COLLEGE, LONDON (Strand, W.C.2) on TUESDAYS, OCTOBER 10th, 17th, 24th, and 31st, at 5 p.m.

Admission free, without ticket.

S. J. WORSLEY,
Academic Registrar.

Preliminary Examinations.

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

THE WELSH NATIONAL SCHOOL OF MEDICINE.

UNIVERSITY OF WALES.

The Council of the Welsh National School of Medicine invites applications for the post of JUNIOR ASSISTANT in the MEDICAL UNIT. The appointment is a temporary one for a period not exceeding two years, is subject to three months' notice on either side, and the salary is £250 per annum. The successful applicant will be expected to take up duties as soon as possible and will be required to devote his whole time to the duties of the office.

Applications, accompanied by not more than four testimonials, must be received by the undersigned forthwith.

Twelve copies of application and testimonials are required.

The Welsh National School of Medicine, The Parade, Cardiff. S. C. EDWARDS, Secretary.

VALUABLE BOOK FREE!

Are you preparing for any MEDICAL, SURGICAL, or DENTAL EXAMINATION?

Send Coupon below for our valuable publication

"Guide to Medical Examinations"

PRINCIPAL CONTENTS:

- The Examinations of the Conjoint Board.
- The M.B. and M.D. Degrees of all British Universities.
- How to pass the F.R.C.S. Exam.
- The M.S.Lond. and other Higher Surgical Examinations.
- The M.R.C.P.
- The D.P.H. and how to obtain it.
- The Diploma in Tropical Medicine.
- The Diploma in Psychological Medicine.
- The Diploma in Ophthalmology.
- The Diploma in Laryngology.
- The Mastery of Midwifery.

Do not fail to get a copy of this Book before commencing preparation for any Examination. It contains a large amount of valuable information. Dental Examinations in special dental guide.

Send for your copy now!

The Secretary,
MEDICAL CORRESPONDENCE COLLEGE,
19, Welbeck St., Cavendish Square, London, W.1.

SIR,—*Please send me a copy of your "Guide to Medical Examinations" by return.*

Name.....

Address.....

Examination in which interested .....

THE UNIVERSITY OF LEEDS
in Association with
THE HARROGATE ROYAL BATH HOSPITAL.

The Council of the University will shortly proceed to the appointment of a RESEARCH FELLOW in connection with a scheme for the conduct of research into the cause and cure of Chronic Rheumatism. Salary to commence at £500 a year, with membership of the Federated Superannuation System. Candidates must possess a registrable medical qualification. Fuller particulars of the appointment may be obtained from the Registrar, the University, Leeds, who will receive applications up to October 28th.

UNIVERSITY OF BRISTOL.

The University invites applications for a LECTURESHIP IN PHYSIOLOGY. Salary £400 per annum.

Applications should reach the undersigned, from whom further particulars may be obtained, on or before October 20th.

WINIFRED SHAPLAND,
Secretary & Registrar.

MAKE A MAN OF HIM!

Nautical Training combined with a Public School Education

Thames Nautical Training College

H.M.S. WORCESTER

off Greenhithe, Kent,

offers a healthy School life, with an assured start in life, in training boys of 12-16 years of age to become Officers in the Merchant Service and Royal Navy (*under a new* Admiralty Cadetship Scheme).

Comdr. G. C. Steele, V.C., R.N., Captain-Superintendent, and F. T. Wynyard-Wright, M.A. (Cantab.), Headmaster, assisted by a large Naval and Scholastic Staff.

Illustrated Brochure on application to The Secretary, Room 12, Ingress Abbey, Greenhithe, Kent.

COUNTY COUNCIL OF MIDDLESEX.

MEDICAL OFFICER (NON-RESIDENT) NORTH MIDDLESEX COUNTY HOSPITAL, Edmonton.

The County Council invites applications for the above appointment. Applicants must be duly qualified medical practitioners, and should have had special experience in radium and deep x-ray therapy.

The officer appointed must devote the whole of his time to the duties of the post. He will work in the radium and deep x-ray departments of the hospital and will be a member of the staff of the hospital under the control of the Medical Superintendent. He will carry out his duties under the immediate direction of the Visiting Radiotherapeutist of the Hospital.

Salary £750 per annum (no emoluments).

The successful candidate will be required to pass such medical examination as the County Council may direct, and, unless subject to the Poor Law Officers Superannuation Act, 1896, to contribute to the County Council's Superannuation Fund.

The appointment will be held during the pleasure of the Council and subject to three months' notice on either side.

Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than October 14th. Special application forms are not provided. Envelopes must be endorsed "Medical Officer, North Middlesex County Hospital."

Canvassing, directly or indirectly, will be a disqualification. (C D /18.)

ERNEST S. W. HART,
Middlesex Guildhall, Clerk of the
Westminster, S.W.1. County Council.
September 20th, 1933.

WARWICKSHIRE & COVENTRY JOINT COMMITTEE FOR TUBERCULOSIS

KING EDWARD VII MEMORIAL SANATORIUM, HERTFORD HILL, Near WARWICK

Applications are invited for the post of JUNIOR ASSISTANT MEDICAL OFFICER (*male*) at the Memorial Sanatorium, near Warwick, of 195 beds.

The successful candidate will be appointed for six months, and will have special opportunity of gaining experience in treatment by artificial pneumothorax, by ultra-violet light, and in x-ray work.

The salary will be at the rate of £200 per annum, with board, lodging, and laundry, and the occupant of the post may be promoted at a later date to the post of Senior Assistant Medical Officer.

Applications, with recent testimonials, should be forwarded *direct to the* Medical Superintendent at the Sanatorium by not later than Monday, *October 9th.*

Shire Hall, L. EDGAR STEPHENS,
Warwick. *Clerk of the Joint Committee*
September 15th, 1933.

NORTHAMPTON EDUCATION COMMITTEE.

ASSISTANT SCHOOL DENTIST.

Applications are invited for the appointment of a fully qualified Dental Surgeon (*man*) as Assistant School Dentist. Salary £450 per annum, rising on approved service, by two annual increments of £25 to £500 per annum, less a small temporary abatement.

Further particulars and forms of application may be obtained from the undersigned by whom applications *should be received by not later* than October 10th.

Education Office, *H. C. PERRIN,*
"Springfield," *Secretary for Education.*
Wellingborough, Northampton.

LONDON COUNTY COUNCIL.

RESIDENT ASSISTANT MEDICAL OFFICERS (Grade I) required at the *undermentioned* hospitals.

Duties assigned by medical superintendents and include if necessary, assistance at other establishments under the control of the Council.

Candidates must be registered medical practitioners of at least *one year's standing.* Experience in resident appointment in a general hospital desirable. Salary £350, rising annually by £25 to £425, with board, lodging and washing. Remuneration and conditions of service are subject to review.

*1. PRINCESS MARY'S HOSPITAL FOR CHILDREN, MARGATE. Experience in surgical tuberculosis and the administration of anaesthetics essential.

*2 GROVE PARK HOSPITAL, Lee, S.E.13.—Experience in treatment of pulmonary tuberculosis, including artificial pneumothorax methods and the administration of anaesthetics is essential.

†3 NORTHERN HOSPITAL, Winchmore Hill, N.21.—Experience as for Grove Park Hospital.

* *No accommodation for a married man or* for a woman.

† No accommodation for a married man.

Application forms obtainable (stamped, addressed foolscap envelope necessary) *from* Medical Officer of Health (Staff Division 3a), *County Hall, S.E.1,* returnable by October 6th. Canvassing disqualifies. Further inquiries *should* be addressed to medical superintendent at respective hospitals.

COUNTY BOROUGH OF OLDHAM.

BOUNDARY PARK MUNICIPAL HOSPITAL.

RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners for the post of Assistant Resident Medical Officer.

Salary £200 per annum, with board, residence, and laundry.

Candidates should be unmarried.

The appointment will, in the first instance, be for a period of six months. The successful applicant, however, will be eligible for re-appointment for a further *period of six months.*

The Hospital comprises 375 beds, with facilities for gaining experience in medicine, surgery, midwifery, and diseases of children.

Applications on forms to be obtained from the undersigned, endorsed "Resident Assistant Medical Officer," should be sent to the Medical Officer of Health, Town Hall, Oldham, *and* should be received *not* later than Tuesday, October 10th.

JAMES B. WILKINSON, M.D., CH., D.P.H.,
Medical Officer of Health.
Town Hall, Oldham.

CITY OF BIRMINGHAM.

MATERNITY AND CHILD WELFARE DEPARTMENT.

CANWELL HALL BABIES HOSPITAL (84 Beds.)

A RESIDENT MEDICAL OFFICER is required for a period of SIX months' duties to commence on November 24th.

Applications are invited *from* ladies with previous experience as *House Physician* in a Children's Hospital. Salary £250 per annum, with board and laundry.

The salary and emoluments *will be subject* to the "voluntary abatement" approved by the Council *in respect of its officers.* The officer appointed will be required to refund to the Council all *fees allowances* and emoluments (other than the foregoing) received by her.

Applications, giving all particulars of qualifications, age, and experience and accompanied by copies of three recent testimonials on forms which will be supplied on request, should be sent to the Medical Officer of Health, The Council House, Birmingham, on or before October 7th.

COUNTY BOROUGH OF BIRKENHEAD.

DEPARTMENT OF THE MEDICAL OFFICER OF HEALTH.

BIRKENHEAD INFIRMARY.

RESIDENT MEDICAL OFFICER.

There is at present a vacancy for a Resident Medical Officer at the above Hospital. Candidates must be males and unmarried.

The possession of the degree of *M.D.* or M.R.C.P. is essential.

Salary £300 per annum, with *residence,* board, and laundry. The appointment will be tenable for *one year.*

Applications must be made on forms to be obtained *from Dr.* D. MORLEY MATHIESON, Medical Officer of Health, 9, Hamilton Square, Birkenhead, and must reach me not later than Saturday, October 7th.

Town Hall, E. W. TAME,
Birkenhead. Town Clerk.
September, 1933.

GLOUCESTERSHIRE JOINT COMMITTEE FOR TUBERCULOSIS.

STANDISH HOUSE SANATORIUM, STONEHOUSE, GLOS.

Applications are invited from registered medical men for the post of JUNIOR ASSISTANT MEDICAL OFFICER at the above Institution. No previous professional experience is necessary.

There are at present 250 beds in building open, women, and children. There is an orthopaedic block.

The salary is £250 per annum with board, furnished apartments and laundry in addition, subject to an economy deduction of combined salary and value of emoluments as follows:

On the first £65 per annum, nil.
On the next £205 per annum, 2½ per cent.;
and 5 per cent. on the remainder.

The appointment is for six months (with the possibility of extension for a further period of six months) and will be terminable within that *period by one months'* notice on either side.

Applications stating qualifications and age, *and accompanied by copies of three recent* testimonials, should be received not later than *October 9th.*

Shire Hall, E. T. GARDOM,
Gloucester. Clerk of the Joint
Sept. mber 22nd, 1933. Committee.

CITY OF BIRMINGHAM.

WEST HEATH SANATORIUM, NORTHFIELD, BIRMINGHAM. (120 Beds.)

Applications are invited *from fully qualified* medical practitioners for whom appointment as JUNIOR MEDICAL OFFICER (male) at the West Heath Sanatorium.

The appointment will be for a period of six months but may be extended for a further period of not exceeding six months.

Salary at the rate of £200 per annum, and full residential emoluments subject to any voluntary abatement in force from time to time.

Further particulars may be obtained from the Medical Superintendent at West Heath Sanatorium, to whom applications stating age, experience, and qualifications with copies of three recent testimonials, should be forwarded not later than October 6th.

F. H. C. WILTSHIRE, Town Clerk.

COUNTY BOROUGH OF SOUTHEND-ON-SEA.

SOUTHEND MUNICIPAL HOSPITAL.

The Health Committee of the Town Council invite applications for appointment as SENIOR ASSISTANT MEDICAL OFFICER at their Municipal Hospital at Rochford, Essex (529 beds). Salary £350—£25—£450 with full residential emoluments. The post is designated under the Local Government and other Officers Superannuation Act. Forms of application with particulars of the appointment can be obtained from the Medical Officer of Health, Public Health Offices, Southend-on-Sea, to whom applications should be delivered, or sent in an envelope endorsed "Medical Officer," so as to be received not later than Saturday, the 14th.

Town Clerk's Office, HAROLD WOOD,
Southend-on-Sea. Town Clerk.
September 20th, 1933.

LANCASHIRE COUNTY COUNCIL.

JUNIOR ASSISTANT MEDICAL OFFICER for the WRIGHTINGTON HOSPITAL, PARBOLD, LANCS.

Applications are invited for the post of Junior Assistant Medical Officer (male, unmarried) for the Wrightington Hospital (containing 220 beds for non-pulmonary tuberculosis). Salary £200. There is an emergency deduction of 1½ per cent. from the salary. The appointment will be for 12 months.

Forms of application and conditions of appointment obtainable from Central Tuberculosis Officer, County Offices, Preston. Closing date October 4th.

County Offices, GEORGE *ETHERTON,*
Preston. Clerk of the County Council.
September 19th, 1933.

BATH AND WESSEX CHILDREN'S ORTHOPAEDIC HOSPITAL, Combe Park, BATH.

HOUSE SURGEON required, to commence duty at an early date.

The appointment will be for six months, *with* salary at the rate of £120 per annum, together with quarters, board, and laundry.

Candidates must have had special experience in administering *anaesthetics.*

Applications, with copies of three recent testimonials, should be forwarded to the undersigned on or *before* October 7th.

HAROLD J. FRICKER, *Secretary.*

Sept. 25th, 1933.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.3.

The Committee of Management invite applications for the following posts:

FIRST ASSISTANT RESIDENT MEDICAL OFFICER.

Candidates must have held a Resident Hospital appointment for not less than six months. Salary £150 per annum, with board and residence, and an additional £25 per annum for services in connection with paying patients. The post is a Senior Resident appointment, and will include the duty of Assistant to the Surgeons to the Hospital. The appointment is for twelve months commencing November 1st.

SECOND ASSISTANT RESIDENT MEDICAL OFFICER.

Candidates must have held a Resident Hospital appointment for not less than six months. Salary £150 per annum, with board and residence. The appointment is for six months commencing November 1st.

HOUSE PHYSICIANS.

There are three vacancies for House Physicians. The duties include work in the Out-Patient Department as well as in the Wards, and one of the selected candidates will also be appointed Assistant to the Tuberculosis Officer for the Local Tuberculosis Dispensary at the Hospital. The appointment is for six months, commencing November 1st, with an honorarium of £50.

JUNIOR HOUSE PHYSICIAN (MALE) AT THE SANATORIUM AT FRIMLEY.

The appointment is for six months, commencing November 1st, with an honorarium of £50. At the expiration of his term of office, or in the event of a vacancy, the Junior House Physician will be expected to apply for, and, if appointed, to hold the post of Senior House Physician for a further term of six months.

Applications, with copies of testimonials, must reach the undersigned not later than Saturday, October 7th.

Brompton. FREDERICK WOOD,
September, 1933. Secretary.

BECKETT HOSPITAL AND DISPENSARY, BARNSLEY. (153 Beds.)

Applications are invited for the post of RESIDENT SURGICAL OFFICER (male). Fellowship degree of the Royal College of Surgeons, England, Edinburgh, or Dublin, will be deemed a recommendation.

Salary attached to this appointment is at the rate of £300 per annum, together with board, residence, and laundry.

The successful candidate must be prepared to take up duty November 1st.

Applications, stating age, qualifications, and experience, with copies of testimonials, should be addressed to the undersigned.

ARTHUR L. BOURNE,
Sept. 20th, 1933. Secretary-Supt.

BURY INFIRMARY, LANCS. (127 Beds.)

Applications are invited for the post of SENIOR HOUSE SURGEON, who must have both Medical and Surgical qualifications. The appointment is for six months at a salary at the rate of £200 per annum, with board, residence, and laundry. The successful applicant will be required to commence duties on or about November 1st.

Applicants must have held a previous resident appointment.

Applications, stating age, qualifications, and nationality, with copies of three recent testimonials, to be sent to the undersigned not later than October 4th.

ALEX. W. MAITLAND, Hon. Secretary.

ROYAL SURREY COUNTY HOSPITAL, GUILDFORD. (182 Beds.)

Applications are invited for the post of HON. ASSISTANT-ORTHOPAEDIC SURGEON, and should be sent to the Secretary-Superintendent not later than October 5th, accompanied by three testimonials.

This post was inadvertently advertised in last week's issue as Hon. Orthopaedic Surgeon.

ROYAL SURREY COUNTY HOSPITAL, GUILDFORD. (182 Beds.)

Wanted, November 1st, HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry. Applications, stating essential particulars, with copies of not more than three testimonials to be sent to the Secretary-Superintendent not later than October 7th.

ROYAL SURREY COUNTY HOSPITAL, GUILDFORD. (182 Beds.)

Applications are invited for the post of HON. ORTHOPAEDIC SURGEON and should be sent to the Secretary-Superintendent not later than October 5th, accompanied by three testimonials.

ROYAL HALIFAX INFIRMARY.

Wanted, a RESIDENT SURGICAL OFFICER (male, unmarried). Also a THIRD HOUSE SURGEON (male, unmarried). Candidates must be duly qualified and registered. The appointments will be for six months from November 1st. Probable promotion of Third House Surgeon if satisfactory. Salaries of Resident Medical Staff, including all services required in connection with the Paying Patients' Ward, are as follows: Resident Surgical Officer £250; First House Surgeon £200; Second House Surgeon £175; Third House Surgeon £150 per annum, with residence, board, and laundry. The Hospital contains 250 beds, including Maternity Department and Paying Patients' Block. There is also a Pathological Laboratory and a large Eye, Ear, Nose, and Throat Department.

Particulars of duties may be obtained from the undersigned, to whom applications should be sent.

A. MIDGLEY,
Sept. 23rd, 1933. Secretary.

CORNELIA AND EAST DORSET HOSPITAL, POOLE, DORSET. (107 Beds.)

HONORARY STAFF.

OPHTHALMIC SURGEON and ASSISTANT OPHTHALMIC SURGEON.

The Committee of Management invite applications for the posts of Honorary Ophthalmic Surgeon and Honorary Assistant Ophthalmic Surgeon. Preference will be given to Fellows of a Royal College of Surgeons or those possessing an Ophthalmic Diploma.

Applications, stating age, experience, qualifications, and previous hospital appointments, and accompanied by copies of three recent testimonials (which will not be returned) must reach the undersigned by Thursday, Oct. 12th.

E. S. FOLEY, Secretary.

NOTE.—The present Assistant Ophthalmic Surgeon is a candidate for the Senior post.

ST. BARTHOLOMEW'S HOSPITAL, ROCHESTER.
(Rochester, Chatham, Gillingham, and District.)
(126 Beds.)

HONORARY RADIOLOGIST.

Applications are invited for the post of Honorary Radiologist. Candidates must be duly qualified and should hold the D.M.R.E., diploma and be Specialists in X-ray work. The officer appointed will be expected to attend at least three half days weekly, and will receive a proportion of the fees paid in respect of private cases.

Applications, giving the usual particulars of experience, and qualifications, to be received by October 11th, addressed to the Secretary.

THE CANCER HOSPITAL (FREE)
(Incorporated under Royal Charter),
Fulham Road, London, S.W.3.

The Committee are prepared to receive applications for the post of HOUSE SURGEON, to commence duties on November 1st. Salary at the rate of £100 per annum.

The appointment is for six months, and subject to rules, a copy of which may be obtained from the Secretary.

Previous experience as a House Surgeon is indispensable.

Applications, with three (copies only) testimonials, to be sent to the undersigned not later than first post on Monday, October 9th.

CLEMENT COBBOLD, Secretary.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

Applications are invited for the post of MEDICAL REGISTRAR. Candidates will be required to attend at the Hospital from Monday to Friday inclusive. The appointment is for one year, with eligibility for re-election.

Honorarium £200 per annum, with luncheon and tea provided.

Applications, with copies of testimonials, should be sent by October 24th to the undersigned, from whom forms of application and rules can be obtained.

GILBERT G. PANTER, Secretary.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

Applications are invited for the office of OPHTHALMIC SURGEON (Second) to the Hospital.

Candidates must possess the degree of M.D. or M.B. obtained by examination at a British University, and be Fellows of the Royal College of Surgeons of England.

Full particulars of the appointment, and details with regard to the submission of testimonials, etc., may be obtained from the undersigned, to whom applications should be made not later than October 23rd.

GILBERT G. PANTER, Secretary.

ROYAL MANCHESTER CHILDREN'S HOSPITAL, PENDLEBURY, near MANCHESTER. (190 Beds.)

Wanted, a RESIDENT SURGICAL OFFICER. Salary £125 per annum, who will be appointed for six months. Duties to commence November 1st. Candidates must be unmarried and duly registered. Previous hospital experience essential. A Fellow of one of the Royal Colleges of Surgeons would receive preference. Applications, stating age, and accompanied by copies of not more than three testimonials, to be sent to the undersigned not later than Thursday, October 5th. Canvassing, directly or indirectly, may disqualify.

By Order,
W. M. HUMPHRY, Secretary.

ROYAL [illegible]
near [illegible]

Wanted, a RESIDENT MEDICAL OFFICER. Salary £125 per annum, who will be appointed for six months. Duties to commence November 1st. Candidates must be unmarried and duly registered. Previous hospital experience essential. Applications, stating age, and accompanied by copies of not more than three testimonials, to be sent to the undersigned not later than Thursday, October 5th. Canvassing, directly or indirectly, may disqualify.

By Order,
W. M. HUMPHRY, Secretary.

ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY, WIGAN. (180 Beds.)

Wanted as soon as possible after October 1st, a RESIDENT MEDICAL AND SURGICAL OFFICER AND REGISTRAR. The period of the appointment will be until December 31st, 1934. Candidates must have held previous resident appointments at a Hospital. Preference will be given to those possessing the F.R.C.S. or M.S. Degree. The salary is at the rate of £250 per annum, with board, residence, and laundry. Applications, giving proof of registration and not more than three testimonials, to be sent to the undersigned as soon as possible.

A. STANLEY BRUNT,
Sept. 14th, 1933. Gen. Supt. & Sec.

MANSFIELD AND DISTRICT HOSPITAL, MANSFIELD.

The Board of Management of the above Hospital (155 beds) invite applications for the post of HOUSE SURGEON (male). Duties to commence November 1st next.

Salary at the rate of £150 per annum, with residence, board, and laundry.

The appointment is for six months and is renewable.

The Resident Staff consists of a Resident Surgical Officer, and Two House Surgeons.

Applications, accompanied by not more than three recent testimonials, to be sent to the undersigned.

Dated this 22nd day of September, 1933.

C. J. ADAMS, Secretary.

GENERAL INFIRMARY AT LEEDS. (630 Beds.)

Applications are invited for the post of RESIDENT ORTHOPAEDIC OFFICER. Salary £149 p.a., with board, residence, and laundry.

The appointment is for 12 months, subject to renewal. Candidates must be legally qualified and registered and have held a resident surgical post, and had special experience in Orthopaedic work.

Applications, with copies of testimonials, to be sent in at once to the House Governor and Secretary.

S. CLAYTON FRYERS,
House Governor & Secretary.

KENT AND CANTERBURY HOSPITAL, CANTERBURY.

HOUSE PHYSICIAN (male) required to commence duties on October 9th. Six months' appointment. Salary payable at the rate of £125 per annum, plus board, residence, and laundry.

Applications, stating age and particulars of qualifications, and enclosing copies of testimonials, should be forwarded to the undersigned.

W. T. SOUTHWOOD, Supt. & Secretary.

KENT AND CANTERBURY HOSPITAL, CANTERBURY.

HOUSE SURGEON (male) required to commence duties on October 19th. Six months' appointment. Salary payable at the rate of £125 per annum, plus board, residence, and laundry.

Applications, stating age and particulars of qualifications, and enclosing copies of testimonials, should be forwarded to the undersigned.

W. T. SOUTHWOOD, Supt. & Secretary.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B M A House, Tavistock Square W C 1 (in the case of Scottish appointments, with the Scottish Medical Secretary, 7, Drumsheugh Gardens Edinburgh)

(a) British Islands.

Town or District	Town or District	Town or District
CONTRACT PRACTICE	**CONTRACT PRACTICE** *(contd.)*	**PUBLIC HEALTH**
EBBW VALE MON *(Workmen's Medical Society)*	MARDY, GLAMORGAN *(Workmen's Medical Scheme)*	DORSET COUNTY COUNCIL *(County Medical Officer of Health)*
GILFACH GOCH GLAMORGAN *(Workmen's Medical Scheme)*	NEATH AND DISTRICT *(Medical Aid Association)*	HERTFORDSHIRE COUNTY COUNCIL WARE SANATORIUM *(Assistant Medical Officer)*
LLWYNPIA CLYDACH VALE PENYGRAIG GLAMORGAN *(Workmen's Medical Scheme)*	OAKDALE MON *Medical Officer for Medical Aid Association)*	COUNTY BOROUGH OF SOUTH SHIELDS *(Assistant School Medical Officer)* HARTON INSTITUTION AND CLEADON COTTAGE HOMES *(Medical Officer)*
LOWESTOFT MEDICAL INSTITUTE *(Medical Officer)*	OGMORE VALLEY GLAMORGAN *(Wyndham Colliery Medical Aid Society)* *(Workmen's Medical Scheme)*	NORTH RIDING OF YORKSHIRE COUNTY COUNCIL *(Temporary Maternity and Child Welfare Medical Officer—Woman)*

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association B M A House, Tavistock Square W C 1

Town or District	Hon Sec of Division or Branch	Town or District	Hon Sec of Division or Branch	Town or District	Hon Sec of Division or Branch
NEW SOUTH WALES. *(All Friendly Society Appointments)*	Dr J G HUNTER (Medical Secretary New South Wales Branch) 135 Macquarie St Sydney, N S W	**QUEENSLAND.** *(Brisbane Associated Friendly Societies Institute)*	The Hon Sec. Queensland Branch British Medical Association B M A Building, Adelaide St Brisbane	**WELLINGTON NEW ZEALAND** *(Contract Practice Appointments)*	Dr G F V ANSON (Hon Sec New Zealand Branch) British Medical Association P O Box 196 Wellington New Zealand
VICTORIA. *(All Institute or Medical Dispensaries)*	Dr J P MAJOR (Hon Sec, Victorian Branch British Medical Association Medical Society Hall East Melbourne, Victoria	*(Toowoomba Associated Friendly Societies Medical Institute, Toowoomba)*		**WESTERN AUSTRALIA.** *(Contract and Lodge Practices)*	Hon Sec Western Australian Branch British Medical Association No 6 Bank of N S W Chambers St Georges Terr Perth Western Australia

September 27th, 1933 By Order of the Council G C ANDERSON, Medical Secretary

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GENERAL INFIRMARY SALISBURY
(Voluntary Hospital—171 Beds)

HOUSE SURGEON (male) required to commence duty as soon as possible

The appointment is for six month with the right of applying for reappointment at the end of that period for a further period of six months

Candidates must be unmarried fully qualified and registered Salary £150 per annum with board etc

Applications to be sent to the House Governor at once from whom a copy of the Rules may be obtained

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THE HOSPITAL FOR DISEASES OF THE SKIN

Applications are invited from fully qualified medical men with experience in dermatology for the post of REGISTRAR at the above Hospital Candidates must apply in writing to the Secretary from whom further particulars can be obtained before October 9th next The appointment will be made in the first instance for one year but the holder will be eligible for reappointment

FREDERICK HAYTER
71 Blackfriars Rd S E 1 Secretary

WESTMINSTER HOSPITAL
Broad Sanctuary S W 1

There will be a vacancy for a HOUSE SURGEON to the Ear Nose and Throat and Eye Departments on November 1st. The appointment is for six months (non resident) and the salary is at the rate of £102 per annum

Application should be submitted to the under signed immediately

CHARLES M POWER Secretary

ANCOATS HOSPITAL MANCHESTER

RESIDENT MEDICAL OFFICER required to commence duty on November 1st next One having held a previous appointment essential Appointment for six months Salary at the rate of £150 per annum with board, residence etc

HOUSE SURGEON (General) required to commence duty on November 1st next Appointment for six months Salary at the rate of £100 per annum with board residence etc

Applications for the above appointments should state age qualifications experience etc and should be forwarded together with three recent testimonial to the undersigned, on or before Monday October 2nd

By Order of the Board
HERBERT J DARFORNE
General Supt & Secretary

DARLINGTON MEMORIAL HOSPITAL
(200 Beds)

Wanted HOUSE SURGEON one of four appointments male British fully qualified Salary £150 per annum board residence and laundry Applications stating age qualification experience together with copies of two recent testimonial to be addressed to me

A RIDDLE Secretary Supt

CHESTER ROYAL INFIRMARY
(211 Beds)

HOUSE SURGEON (male) required for November 1st Salary £150 per annum with board lodging and washing Application list close October 6th

Application forms may be obtained from W H CRAGG M D M P C P Hon Superintendent of Resident Medical Staff

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HUDDERSFIELD ROYAL INFIRMARY
(240 Beds)

Applications are invited for the following post

JUNIOR CASUALTY OFFICER AND RESIDENT ANAESTHETIST (male or female) to commence duty about the middle of October

Salary at the rate of £150 per annum, with board residence and laundry

The Hospital is officially recognised for the Surgical Practice required of non members before admission to the Final Fellowship Examination of the Royal College of Surgeons of England

Applications with copies of three recent testimonials to be addressed to the undersigned immediately

H E G HALL Gen Supt & Secretary

THE PRINCESS ELIZABETH OF YORK HOSPITAL FOR CHILDREN
(Formerly East London Hospital for Children),
Shadwell London E.1

The following Medical Officers are required
1 HOUSE PHYSICIAN
2. CASUALTY OFFICER.
Salary in each case at the rate of £125 per annum, with board residence and laundry provided

The appointments are for six months, from October 24th

Applications stating age nationality qualifications and experience, accompanied by copies of not more than three recent testimonials should reach the undersigned not later than October 9th next

J F RUSSELL Secretary

(Appointments continued on p. 49)

NOT CLASSIFIED.

WANTED, CARE OF ONE OR TWO CHILDREN over three years in home of two trained Nurses. Long or short periods. First lessons and music given. Doctor's reference.—Nurse RICHARDS, 8, St. George's Rd., Broadstairs.

YOU ARE INVITED TO VISIT THE CENTRAL RESEARCH CLINIC, 20/22, Chenies Street, W.C.1. A private hospital where General Practitioners find £20,000 worth of Equipment which they can use for the benefit of their patients and themselves.

ASSISTANCIES.

WANTED BY EXPERIENCED GENERAL Surgeon and Practitioner, 20 years' practice in the Colonies, ASSISTANTSHIP, with view to Partnership, about £1,000 p.a. Near London or South Coast town (large). Highest credentials & tests. Married (family 3). —No. 6970, B.M.A. House, Tavistock Sq., W.C.1.

WANTED, YOUNG, INDOOR ASSISTANT for small town and country Practice in West Midlands. Must have held House appointments, be good anaesthetist, and able to drive car. Very little night work. English or Irish pref. Progressive salary commencing £260.—No. 6958, B.M.A. House, Tavistock Sq., W.C.1.

WANTED BY AN ELDERLY PRACTITIONER in South Wales an ASSISTANT, with view of early partnership, on easy terms.—Address, *giving full particulars as to experience, etc.*, No. 6971, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — CAPABLE ASSISTANT IN large growing Practice in Shires; Protestant; Surgeon retain fees; suitable for Fellow; good salary; exceptional prospects; single man preferred. — Address, No. 6972, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — *OUTDOOR MARRIED ASSISTANT.* Small country town in West County. Must own car. Work light. Convenient small modern unfurnished house. Salary £350, plus house and car allowance.—No. 6974, B.M.A. House, Tavistock Sq., W.C.1.

WANTED.—ASSISTANT, VIEW TO PARTnership or early succession, in large private and panel Practice (South Midlands). Excellent prospects for suitable man. Must have ample capital. — Address, No. 6955, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — INDOOR ASSISTANT, MALE, for private and panel Practice in London. Car available for professional use. Salary £300 per annum, increasing after three months. Usual bond. State age, experience, copy of refs. —No. 6963, B.M.A. House, Tavistock Sq., W.C.1.

WANTED FOR THE MIDLANDS.—INDOOR male ASSISTANT, able to drive a car. Protestant preferred. Work light. Salary £250 to £300. Vacancy about October 9th. —Address, No. 6986, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — UNMARRIED MALE ASSISTANT immediately, for mixed Practice in Lancashire. Rising salary to young keen man with hospital experience and able to drive car. —Address, No. 6984, B.M.A. House, Tavistock Square, W.C.1.

WANTED, YOUNG, MARRIED ASSISTANT, with own car, to live at surgery, London, S.W.19. Salary £365 p.a., and bonuses, with partly furnished flat and garage. Experience essential.—Address, No. 7036, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANT, INDOOR, MALE, panel and private Practice, East London. Salary £300 per annum. Car provided for work. — Address, No. 6988, B.M.A. House, Tavistock Square, W.C.1.

WANTED — ASSISTANTSHIP OR LONG LOCUMS by Medical Woman, 6 years' experience private and panel Practice. Drive car. — Address, No. 7030, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY.—INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view, good salaries. State full particulars.—BRITISH MEDICAL BUREAU, 35, Cross Street, Manchester, 2.

WANTED INDOOR, SINGLE, MALE ASSISTANT industrial Practice near Manchester. Protestant. State age and essential particulars. Car £300. Usual bond.—Address, No. 7035, B.M.A. House, Tavistock Sq., W.C.1.

ASSISTANTSHIP REQUIRED, PREFERABLY with early view, by M.R.C.S., L.R.C.P., D.P.H. (St. Bart's), single, aged 31, British, ex H.S., H.P., C.O. Good hospital and G.P. experience. Own car. Free October 1st. Capital available.—No. 6961, B.M.A. House, Tavistock Sq., W.C.1.

ASSISTANT WANTED, INDOOR, MALE, with view. Good house and beautiful country. Industrial and rural. Midlands. Salary £300. State age, experience, testimonials. — Address, No. 6983, B.M.A. House, Tavistock Square, W.C.1.

M.R.C.P.(EDIN.), INDIAN, 32, KEEN, energetic, exp. G.P. and panel, desires ASSISTANTSHIP or Locum Work, with or without view. Free October 12th.—Address, No. 6957, B.M.A. House, Tavistock Square, W.C.1.

SINGLE MAN, EXPERIENCED IN GENERAL Practice, requires post as ASSISTANT. Good references. In or near London preferred. —Address, No. 6965, B.M.A. House, Tavistock Square, W.C.1.

WOMAN DOCTOR, EXPERIENCED G.P., panel and private, also mental diseases, keen, loyal, and conscientious, SEEKS WORK, whole or part-time, in London or South England. Excellent references. Free now.—Add., No. 6951, B.M.A. House, Tavistock Sq., W.C.1.

PARTNERSHIPS.

WANTED.—S. OF ENGLAND.—SUSSEX OR Borders, PARTNERSHIP in good Practice by M.B., B.Ch., ex H.S., Casualty, H.P., children's. Keen and well experienced, especially medicine. Share worth £700—£900 p.a. Capital available. Free now.—Address, No. 6966, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—PARTNER, ANY NATIONALITY, in an old-established and a new Practice in a growing district. Great scope. £125 down, and the balance by instals. Suit young, energetic, unmarried man.—Address, No. 6953, B.M.A. House, Tavistock Square, W.C.1.

PARTNER WANTED IN OLD-ESTABLISHED mixed Practice in South Coast town. One-quarter share (at first) of £4,280 p.a. Panel 2,400. Appointments £900. Good furnished house, with garden, rent or sell. Married gentleman preferred. Premium 2 years' pur.—No 6973, B.M.A. House, Tavistock Sq., W.C.1.

WOMAN DOCTOR WANTS WOMAN PARTNER for good-class Practice in attractive residential seaside town. One-third share for sale. Hospital and private practice experience essential.—Address, No. 6979, B.M.A. House, Tavistock Square, W.C.1.

LOCUMS.

FOR LOCUM TENENS APPLY TO
PERCIVAL TURNER, Ltd.
The oldest and only Agent who for 50 years has supplied substitutes at short notice without fee to principals.
4, ADAM ST., Strand, London, W.C.2.
Teleg.: "Epsomian, Lond." 'Phone: Temple Bar 9011.
After Office Hours: Epsom 9142.

WANTED.—LOCUM TENENCY BY EXPERIenced doctor who has recently sold his practice. Country preferred; fishing most acceptable. Graduate of Oxford University. —Address, No. 6977, B.M.A. House, Tavistock Square, W.C.1.

DOCTOR WISHES LOCUM WORK; EXPERIenced in general Practice. Own car available. — Address, No. 7031, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL WOMAN, ELDERLY, ACTIVE, undertaking LOCUMS, open to further ENGAGEMENTS or Assistantship. No midwifery. Present address Birmingham.—Add., No. 7037, B.M.A. House, Tavistock Sq., W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

A LADY DISPENSER - BOOKKEEPER supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations. — Write, wire, or 'phone (Bayswater 0969), Secretary, 7, Westbourne Park Road, W.2.

DISPENSER, QUALIFIED (HALL), DESIRES POST with Doctor. Excellent experience. Doctors, private, firm, hospital, bookkeeping, first aid. Reasonable reach London preferred. —Address, No. 6978, B.M.A. House, Tavistock Square, W.C.1.

DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeuse-Dispensers, are invited to write, wire, or 'phone Temple Bar 5858, THE *DISPENSERS'* BUREAU, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

GENTLEWOMAN (29) OFFERS SERVICES RECEPTIONIST - HOUSEKEEPER, experienced, adaptable, capable, good cook, any vicinity. Very moderate salary. Excellent testimonials. — Address, No. 6959, B.M.A. House, Tavistock Square, W.C.1.

GORDON HALL SCHOOL OF PHARMACY TRAINS WOMEN in PHARMACY and DISPENSING, and can supply Qualified Dispensers. —Apply, PRINCIPALS, Gordon Hall, Drayton House, W.C.1. 'Phone: Museum 3930. Autumn session: September 21st.

LADY DISPENSER, BOOK-KEEPER, RECEPtionist *requires POST.* Apothecary Hall Diploma. 5 years' experience private and panel, good reference, now free. In or near London preferred.—Address, No. 7034, B.M.A. House, Tavistock Square, W.C.1.

LADY (34) SEEKS POST AS SECRETARY OR SECRETARY-DISPENSER. Expert shorthand typist and bookkeeper. Private and Institutional experience. Can drive car.—Address, No. 6962, B.M.A. House, Tavistock Sq., W.C.1.

M.B., B.S.(LOND.), AGED 45, EXPERIenced Surgeon and administrator, having held several important appointments at home and abroad, seeks suitable APPOINTMENT or *PRACTICE*, income about £1,500 p.a. London region preferred.—Address, No. 7033, B.M.A. House, Tavistock Square, W.C.1.

M.D.(CAMB.), AGED 32, EX H.S. AND H.P., would like to TAKE CHARGE of Country PRACTICE on occasional week-ends, in return for hospitality and expenses from London. Own car if necessary.—Address, No. 6982, B.M.A. House, Tavistock Square, W.C.1.

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Secretary & House Governor.

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Wanted, RESIDENT SURGEON (male or female), unmarried. Must have medical and surgical qualifications. Salary £250, with £25 increase per year up to £300. House, with attendance, lights, and fuel (not board). This Institution is a non-provident one. No beds. No midwifery.

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(FOUNDED 1880.)

12, Stratford Place,
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2 S. COAST.—PARTNERSHIP IN OLD-ESTABLISHED PRACTICE in very attractive District, within easy reach of two good Towns. Cash receipts average £4,280 p.a., including appointments and panel returning over £2,000 p.a. Fees range from 2 6 to 7 6. Large semi-detached house (4 bedrooms, etc.), separate surgery accommodation for sale or rent. Premium one-fourth share two years' purchase.

3 N.E. COAST.—OLD-ESTABLISHED PRACTICE IN SEAPORT Town. Cash receipts average £1,260 p.a., including appointments worth £130 p.a. and a panel of 1,115. Corner house (4 bedrooms), with separate surgery accommodation. Premium for House and Practice £2,600.

4 SHROPSHIRE & CHESHIRE BORDERS.—OLD-ESTABLISHED PRACTICE averaging £1,055 p.a. in Market Town. Panel 850. Visits 3 6 to £1 1s., medicine sometimes extra. Detached house (3 bedrooms, attics, etc.), with garage and old world garden for sale. Educational facilities. All kinds of sport. Well equipped Cottage Hospital and opportunity for one keen on Surgery. Premium £1,580.

5 BIRMINGHAM.—WELL-ESTABLISHED GROWING PRACTICE in good Suburb. Cash receipts last year £1,400. Panel nearly 1,200, rapidly increasing. House on Key Site. No other resident Practitioner allowed on Estate. Good reason for selling. Building going on in immediate vicinity (600 maisonettes being erected in near future. Price of house £525; £250 deposit, rest in rent. Premium for Practice £2,400.

6 S. WALES.—WELL-ESTABLISHED OPHTHALMIC PRACTICE in important Seaport. Receipts over £2,000 p.a., including Hospital appointment. Fees chiefly £2 2s. and upwards. Particularly good house, with ample accommodation, in best residential locality in grounds of half an acre, garden and garage, for sale or rent. Premium only 1 year's purchase for quick sale.

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10 N OF ENGLAND—OLD ESTABLISHED MIXED CLASS PRACTICE in large growing residential suburb of important town Cash receipts average £1,450 p a including appointments and panel 677 Charming modern corner residence Good introduction Premium two years purchase

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15 MIDDLESEX — VERY OLD ESTABLISHED PRACTICE IN pleasant residential riverside suburb within 12 miles of London Cash receipts past 3 years averaged £690 p a (1933, 8 months £521) Panel 450 Good house (6 bedrooms), garage and garden for sale Practice is capable of increase Premium £1 000

16 LONDON S E—PRACTICE IN SUBURBAN DISTRICT NEAR Crystal Palace Receipts average £680 p a Panel about 450 House contains 9 rooms bathroom, kitchen etc Rent £65 p a on lease Scope for increase Premium £900

17 S COAST—A WELL ESTABLISHED PRACTICE OVER £1 000 p a in popular Resort Panel 850 Excellent scope Premium two years purchase

18 MIDDLESEX — PROMISING NUCLEUS OF £250 P A IN outlying Suburban District. New corner house (3 bedrooms) for sale Exceptionally good prospect Premium £125

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21 EASTERN COUNTIES—COUNTY TOWN—VERY OLD ESTABlished middle and upper class PRACTICE averaging £1 190 p a. Panel 120 Visiting fees 7/6 to 15/6 Ten roomed house in good residential part with garage and garden for sale. Scope. Premium £2 450

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26 LONDON, E—CASH AND PANEL PRACTICE OF OVER £600 p a in populous district Panel 590 Small house to rent on lease Premium £800

27 S WALES—PARTNERSHIP (AFTER PRELIMINARY ASSISTantship) in well-established Practice of nearly £5,000 p a in important Industrial Town Good appointments and panel of nearly 3 000 After Preliminary Assistantship a one third share would be sold at first to a suitable man who should have held Hospital Appointment and have some knowledge of Midwifery and Anaesthetics.

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29 S WALES — PRACTICE BETWEEN £250—£300 P A IN beautifully situated village about 4 miles from important town Small panel Nice house (6 bedrooms) electric light gas and company's water for sale or rent. Premium £280

30 SURREY — PARTNERSHIP IN SOUND OLD ESTABLISHED good mixed class Practice about £3,000 p a in the Croydon area Small panel Very little midwifery Excellent modern detached house for sale Scope for increase Premium one half share 2 years' purchase.

31 LONDON E C—PARTNERSHIP IN OLD ESTABLISHED PRACtice in the City Receipts average about £1 650 p a including appointments and panel worth over £500 p a Premium one half share £1 000

32 LONDON W—GOOD MIDDLE-CLASS PRACTICE £400 P A in suburb within easy access of the West End Panel over 100 Attractive double fronted house with nice garden for sale. Scope for increase. Premium 1½ years' purchase.

33 HOME COUNTIES — OPHTHALMIC PRACTICE BETWEEN £300 and £400 p a in desirable Residential town under 15 miles from London Good detached house (4 bedrooms) with large garden for sale Good reasons for plenty of scope for increase. Premium £300.

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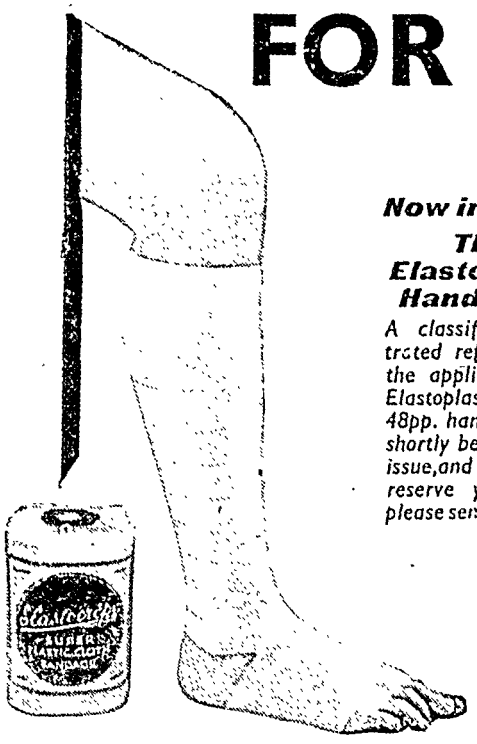
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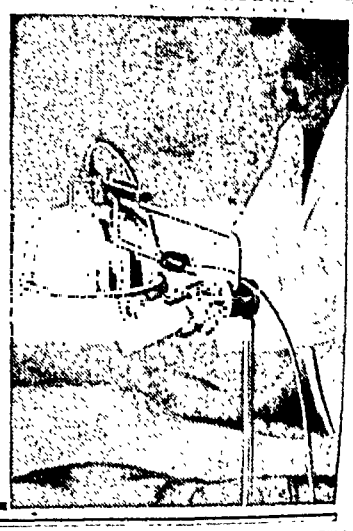
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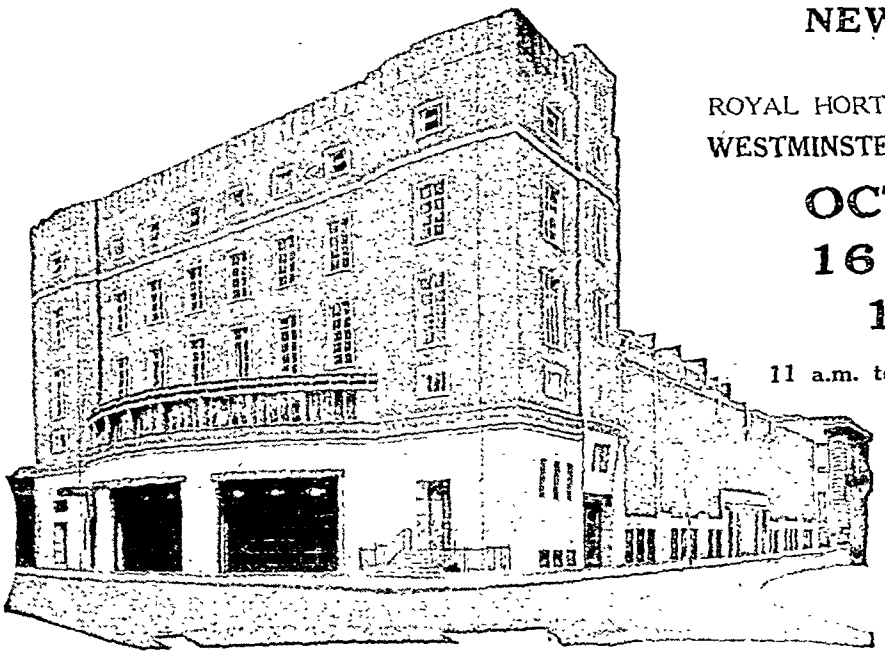
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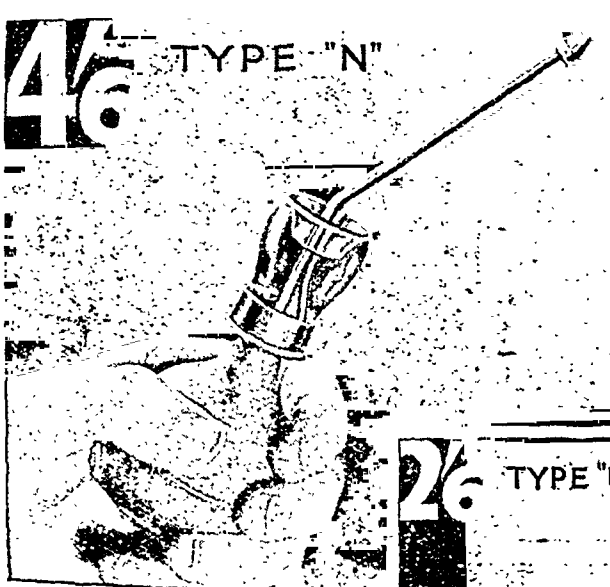
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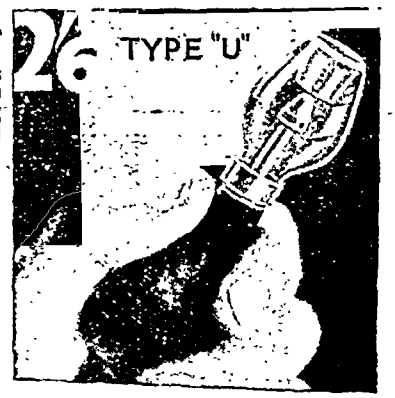
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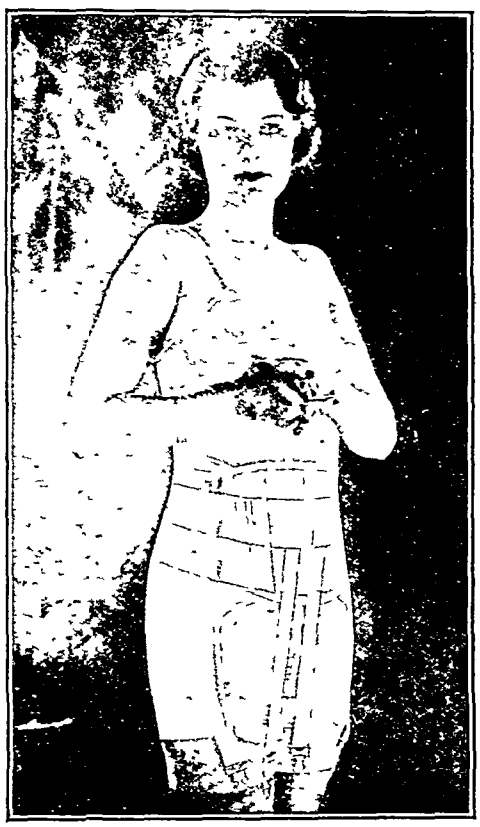
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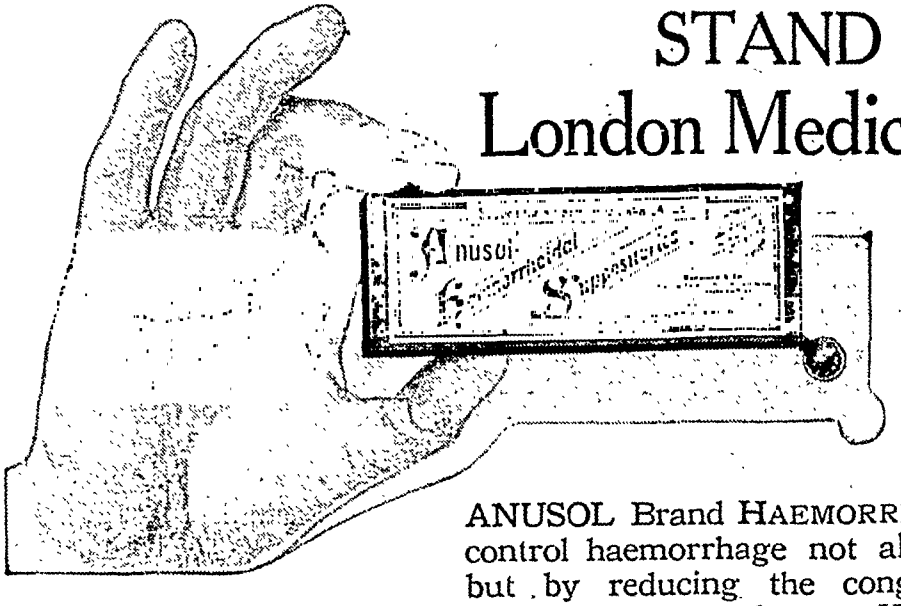
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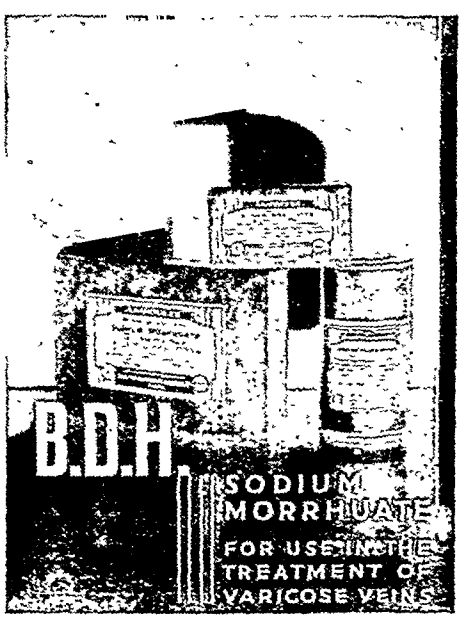
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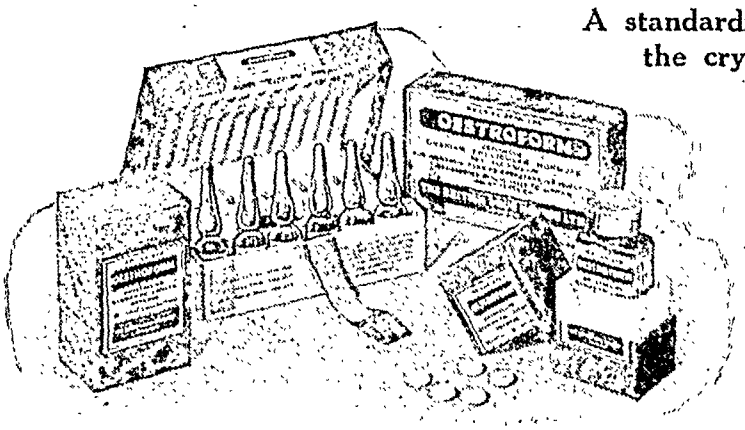
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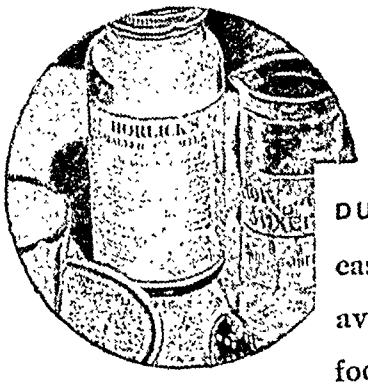
For example, in the treatment of vomiting of pregnancy, very promising results have been obtained, great relief having been experienced by the injection of comparatively large doses of Oestroform.

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No 5

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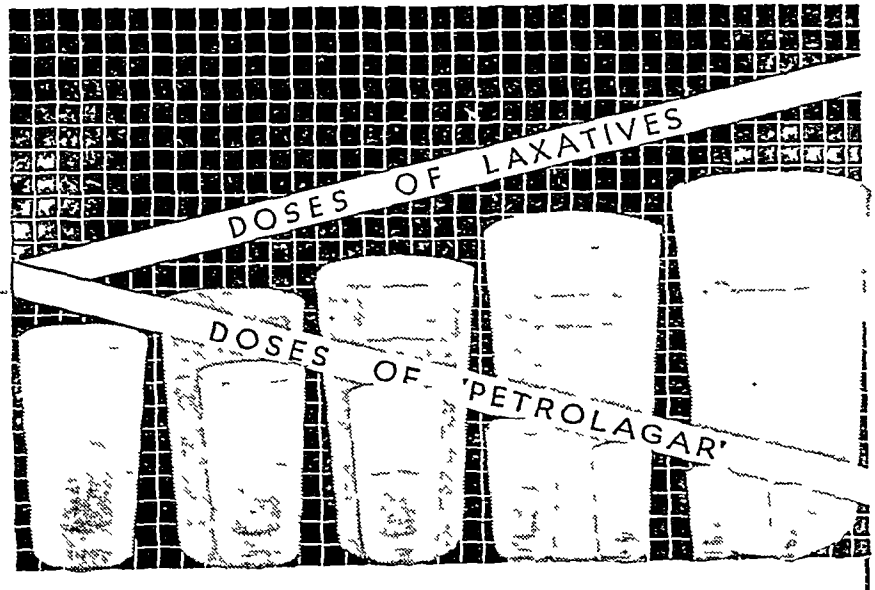
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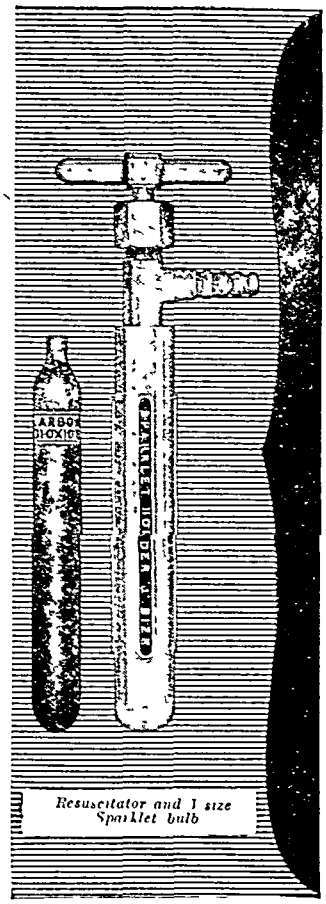
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Recent researches on influenza in Britain and America point to a pleomorphic streptococcus of the viridans type as playing an important rôle in this disease. In the Pickett-Thomson Research Laboratory, St. Paul's Hospital, London, this pleomorphic streptococcus has frequently been found in influenza cases along with pneumococci of various types in large numbers. They occur also in the nasal discharge of many cases of the common cold. It would appear, therefore, that many ordinary colds are merely mild forms of true influenza.

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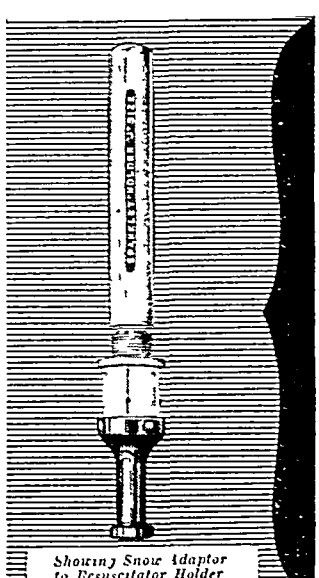
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■ ■ ■ ■

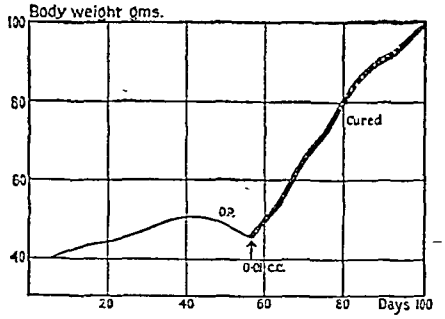
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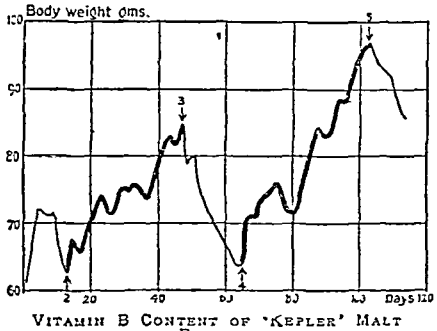
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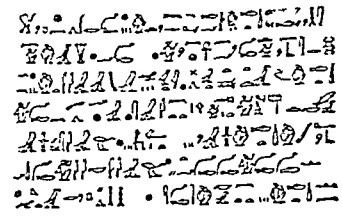
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"THE COLLECTION OF WORDS THE GATHERINGS OF SAYINGS" OF AN ANCIENT EGYPTIAN PRIEST OF HELIOPOLIS SEEKING RELIEF BY AUTO-SUGGESTION.—In the lamentations of Khā-Kheper-Rā-Senbu, part of which is here reproduced in hieroglyphic transcription, the priest gives expression to the bitter disillusionment that has overtaken him in contemplating human unworthiness and the social miseries of his time. "I squeeze out my breast for what is in it, in dislodging all that I say; for it is but to repeat what has already been said . . . one year is more burdensome than the last . . . Righteousness is cast out, iniquity is in the midst of the council hall . . . The land is in distress . . . All men alike are under wrongs . . . " and so forth. Ever and anon, however, he appeals to his heart as to a personal friend to help and encourage him: "Would that I might make clear to my heart concerning my ill, that I might throw off the burden that is on my back."



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Remarks

ON

THE DEFICIENCY ANAEMIAS OF CHILDHOOD*

BY

LEONARD G PARSONS, M D, F R C P

PROFESSOR OF DISEASES OF CHILDREN UNIVERSITY OF BIRMINGHAM, PHYSICIAN TO THE CHILDREN'S AND GENERAL HOSPITALS BIRMINGHAM

A deficiency anaemia may be defined as an anaemia which is due to an insufficient supply of one or more of the elements necessary for the synthesis of haemoglobin or for the production of the erythrocyte or for both of these, such a deficiency may be the result of an inadequate diet, defective absorption from the alimentary canal, or the failure of the body to elaborate certain substances which are essential for normal erythropoiesis

The story of the growth of knowledge of these anaemias forms one of the romances of modern medicine, and although its most dramatic chapters are those concerned with pernicious anaemia, yet the deficiency anaemias of childhood provide many incidents of great interest The story opens about the year 1920, but a fitting prologue to it is formed by the researches, in the last decade of the nineteenth century, of Bunge and his pupil Abderhalden, who showed that the total amount of iron present in the liver and spleen was highest at birth and fell progressively until the end of the lactation period, and also that anaemia could be produced by keeping animals on a milk diet for a considerable time after the normal lactation period The latter observation is turned to practical use in Switzerland, where, in order to produce a particularly white veal, calves are fed only on milk and are muzzled to prevent them from obtaining other food In the year 1920 Whipple and his colleagues at the University of Rochester, N Y, began a series of experiments with the object of determining the rate of haemoglobin formation in dogs previously rendered anaemic by repeated bleedings and receiving a diet low in iron In these investigations it was found that whole liver and also kidney were effective curative agents, and Whipple's first paper, published in 1925, aroused great interest and stimulated fresh research on anaemias These researches have proceeded along two main lines one connected with the hyperchromic megalocytic anaemias and associated with the names of Minot, Murphy, and Castle of Boston, U S A, and Wilkinson, Davidson, and others in Britain, the other with the hypochromic microcytic anaemias, work which on the laboratory side is particularly associated with the names of Hart, Steenbock, and their colleagues in the University of Wisconsin, and on the clinical side with those of the British workers, Helen Mackay and Witts

The application of the results of these investigations to clinical medicine is common knowledge, as for instance, the value of liver extract, desiccated gastric mucosa, and autolysed yeast extracts such as marmite in the hyperchromic anaemias and of massive doses of iron in the hypochromic anaemias The mode of action of these substances is perhaps not so universally known, and can only be adequately explained by a consideration of their effects on the precursors of the red cells in the haemopoietic centres rather than on the red cells in the peripheral blood The conception that the red cells in the blood stream cannot be separated from the precursors in the erythropoietic centres but that together they form one tissue—the erythron—is due to Boycott and has been developed by Witts

The erythron consists of the reticulo endothelial cells of the marrow and extramedullary centres megaloblasts, erythroblasts (early and late), normoblasts, reticulocytes, and erythrocytes This terminology (Sabin's) differs slightly from that of other writers, since they use erythroblast as a generic term to include all nucleated red cells varieties of which are described as megaloblasts macroblasts, macro normoblasts, and normoblasts In many instances macroblasts and macro-normoblasts are not differentiated from one another Recently in the erythropoietic foci which are found in the liver in fatal cases of erythroblastosis of the newborn, Hawksley, Gittins, and I[2] have been able to differentiate a cell which is more primitive than the megaloblast and to which we have given the name of pro erythroblast

The erythropoietic portion of the erythron has until recently attracted very little attention, and even now it is not generally accepted that the mere study of the cytology of the cell in the peripheral blood stream is inadequate in the investigation of anaemia In infancy this portion of the erythron is more widely spread than in the adult, because the change over from the embryonic depots of intrauterine life to those of extrauterine life is a gradual one which, although it begins during the later months of gestation, is only completed after a variable period of post natal life, and therefore during the early months of infancy blood formation occurs in the shafts of the long bones, the flat bones, liver, spleen, and lymphatic tissues Under these conditions it is obvious that in the infant there is very little reserve marrow space It is therefore not surprising that in times of stress the extramedullary centres are recalled into activity Under such conditions also bone may actually be absorbed to increase the marrow space, in some cases this is obvious on radiographic examination and the cortex may be so thinned that at necropsy the red bone marrow can be seen through it In small areas the cortex may have entirely disappeared and the marrow actually reaches the periosteum The marrow of the long bones is pink in colour in early life, at 7 years of age it is rather less pink, the surface is greasy and microscopical evidence of fat can be obtained in the middle of the shaft, but no sign of fat can be discerned by the naked eye until the age of 12 to 14 years

Under abnormal conditions the erythron may show hyperplasia hypoplasia or aplasia of the marrow of these changes it is the first which is of importance in the present discussion According to Witts[1] there are two degrees of hyperplasia (*a*) the normoblastic reaction in which the number of normoblasts in the circulating blood is greatly increased and in the adolescent child the red marrow which by that time has begun to recede and to be replaced by fat once more spreads into the shafts of the long bones and (*b*) a more profound change—the megaloblastic reaction—in which not only is the red marrow increased when this is anatomically possible, but also the level of cell differentiation is shifted back to an even earlier stage in which there is active proliferation of megaloblasts and these may even appear in the peripheral blood Nucleated red cells in the peripheral blood are evidence of hyperplasia of the marrow because these can easily be washed into the blood stream, but not of increased cell formation unless they are accompanied by an adequate reticulocytosis

Bone Marrow in Deficiency Anaemia

Owing to the fact that the hypochromic deficiency anaemias of childhood are not often fatal very little work has been done on the marrow in this form of anaemia We have, however, had the opportunity of examining the marrow in an instance of hypochromic anaemia associated with coeliac disease, and found that it presented three outstanding features (1) the replacement of a considerable part of the marrow by a structureless red jelly-like material, (2) the presence of foci of erythropoiesis

* Read in opening a discussion in the Diseases of Children Section at the Annual Meeting of the British Medical Association, Dublin 1933

in which there were a fair proportion of young nucleated red cells, the majority being of the normoblastic type, megaloblasts being absent; and (3) slight immaturity of the myeloid cell series. These findings we have interpreted as a normoblastic reaction of the marrow in which hyperplasia was giving way to hypoplasia. In the idiopathic hypochromic anaemia of adults (frequently spoken of as achlorhydric or Witts's anaemia), which, as I hope to show, is very similar to, if not identical with, nutritional anaemia of infancy, Weiner and Kaznelson[2] found that the marrow obtained from the sternum during life was packed with normoblasts and that there was an entire absence of megaloblasts, and Dameshek[3] recorded similar findings. More than one writer has, however, counselled that too much importance should not be attached to these findings until other bones have been examined, because the sternal marrow is the last to become hypoplastic.

To ensure maturation of the normoblast to the erythrocyte, and to prevent the normoblastic reaction in the bone marrow, according to Witts it is necessary that the marrow should be supplied with iron, copper, vitamin C, and thyroxine. We have accumulated evidence to show that occasionally some factor or factors present in yeast are also essential for this purpose.[20] In adults, when the marrow undergoes normoblastic reaction a hypochromic microcytic anaemia develops, and although, as stated above, there is no direct pathological evidence of a normoblastic reaction occurring in all forms of hypochromic deficiency anaemia in childhood, yet these anaemias are also microcytic, and the majority of them can be cured by giving iron in sufficient amount, although a few require the administration of both iron and copper, or of yeast, or of vitamin C, or thyroxine.

Hyperchromic deficiency anaemia occurs in children under rare conditions, such as coeliac disease. In pernicious anaemia Peabody[21] has shown that the marrow is packed with megaloblasts, and that on giving liver these become replaced by nucleated and mature red cells until the marrow picture becomes normal again. The cause of this change in the marrow is that liver supplies a "haematinic principle" which ensures maturation of the megaloblast to the normoblast and in the absence of which this change cannot occur. For the production of this "haematinic principle" it is necessary that an interaction should take place between an intrinsic factor (Castle) present in normal gastric juice, with an extrinsic factor supplied in the food; it is also essential that this product (the "haematinic principle") should be absorbed in adequate amount. Strauss and Castle,[4] as the result of experiments with marmite, have suggested that the extrinsic factor is closely allied to, if not identical with, vitamin B_2, but Lucy Wills[5] has thrown considerable doubt on this suggestion by showing that vitamin B_2 obtained from other sources than marmite failed to produce a cure in tropical macrocytic anaemia, whereas marmite itself was actively curative. She has raised the question whether the active factor in marmite is not a protein breakdown product. If there is faulty absorption of the "haematinic principle," or if there is absence either of the extrinsic factor or intrinsic factor, a megaloblastic reaction of the marrow occurs and a megalocytic hyperchromic anaemia follows. In the hyperchromic anaemia of coeliac disease the extrinsic factor is said to be lacking, or there may be faulty absorption; we have, however, been able to demonstrate that in some cases the extrinsic factor must also be lacking.

HYPOCHROMIC DEFICIENCY ANAEMIAS

Included under this head are the common nutritional or alimentary anaemias of infancy, some of the anaemias associated with coeliac disease, the anaemia occurring in scurvy, and that occurring in cretinism. Normally in the early weeks of life there is a fall in haemoglobin percentage and the red cells, both of which attain their minimal values by the middle or end of the third month, and thereafter rise slightly to a maximum at the fifth to sixth month, after which there is another slight drop in haemoglobin. This initial fall is due to haemolysis occurring at birth, owing to the transference of the child from an atmosphere of low oxygen tension in the uterus to one of high oxygen tension in the outside world. In the premature child these processes are intensified, the minimum figures being reached from the eighth to the twelfth week, the haemoglobin being 45 to 55 per cent. and the red cells 2½ to 3 millions; the rebound then occurs, and from the sixth to the eighth month the figures approximate to those of a full-term child. In addition, the blood of the premature child shows a larger number of red cells and a greater proportion of nucleated red cells at birth than the full-term child. This initial fall in haemoglobin cannot be prevented, either in the premature or the full-term child by the administration of iron.

The haematological picture of hypochromic deficiency anaemia is as follows. The colour index in a case of moderate severity is about 0.6. In the less severe anaemias, although there is a fall in haemoglobin, the red cell count is little if at all diminished; in the more severe anaemias both haemoglobin and red cells are reduced, the reduction of the haemoglobin being proportionately greater than that of the red cells. Reticulocytes are absent, or present only in very scanty numbers, not being more than 0.4 per cent. of the red cell count. A few normoblasts may be found in the blood stream in the more severe cases. The fragility of the red cells is normal. There are no constant changes in the leucocytes. The platelets are present in normal or slightly reduced numbers.

Infants suffering from deficiency hypochromic anaemia are very prone to contract infection which may to some extent alter the blood picture, a certain degree of destruction of the erythronic elements occurring and the white cells showing the reactions characteristic of infection.

1. Nutritional or Alimentary Anaemia of Infants

To be strictly accurate all deficiency anaemias should be called nutritional anaemias, but the title "nutritional anaemia of infants" has come to be associated with those forms of deficiency anaemias which are due to an inadequate supply of iron (or iron and copper). The importance and frequency of this type of anaemia has only been recognized within recent years, due in large measure to the work of Helen Mackay,[6] who, as a result of examining a large series of London babies, found that a mild degree of anaemia was almost always present, whether these were breast-fed or artificially fed; that this anaemia could be cured or prevented by the daily administration of 4½ to 9 grains of iron and ammonium citrate unless severe infection was present; and that the morbidity rate in babies with anaemia was double that in iron-treated babies. There can be no doubt, therefore, that the condition is a very frequent one. It is usually observed from the seventh month onward until a natural cure occurs as the result of the child taking a satisfactory mixed diet for some little time. Nutritional anaemia may, however, occur at an even earlier date; thus we believe that it may be noted shortly after birth, and form one of the varieties of congenital anaemia or anaemia of the newborn; or again the pallor may first be observed at the fourth month. In the latter group it occurs more frequently in premature or twin babies than in full-term single births.

A baby suffering from nutritional anaemia, although pale, is frequently well grown and well nourished. The degree of pallor varies considerably, and may be very marked; on the other hand, if the baby is crying or near a fire the anaemia, unless considerable, is not obvious to the eye. The conjunctivae do not show any icteric tinge, and the mucous membranes, like the skin, may be very pale. On rare occasions the child may show the brownish earthy colour of the skin so characteristic of idiopathic hypochromic anaemia (Witts's anaemia) of adults. The spleen is often palpable, but marked enlargement does not occur, and such a degree of enlargement is not of great importance in infancy. The lymph glands are not

enlarged. Bronchitis, otorrhoea, and rickets are not infrequently present. The infections are probably consequent upon the anaemia, but the rickets can only be regarded as coincidental, since a diet which is defective in one factor is very likely to be defective in other respects. On one occasion we have seen changes in the nails similar to those described in Witts's anaemia—namely, flattening and concavity with thinning and longitudinal ridging—a condition which has been called "koilonychia." In this particular child as in adults all the nails were not affected to an equal degree, some only being concave and others ridged. This child showed the earthy colour referred to above and there was also hypochlorhydria, so that the similarity with Witts's anaemia was singularly close. The occurrence of hypochlorhydria is not uncommon in artificially fed and/or sick infants, so that this may not be a part of the syndrome; indeed, in the few test meals which we have carried out in babies suffering from nutritional anaemias achlorhydria has not been found. Allen[7] has, however, recorded its occurrence in older children, and out of 334 cases of Witts's anaemia in adults 84 per cent. showed achlorhydria.[8] The condition of the nails and the brownish colour of the skin have been regarded with justification as evidence of iron deficiency.

Nutritional anaemia is most frequent in twins and in premature children. In the latter it differs from the above description in two ways: (*a*) enlargement of the lymph glands and spleen is more frequent; (*b*) in the earlier stages the anaemia is not really a nutritional one, being hyperchromic in character and probably due to excessive haemolysis at birth; but although the anaemia of prematurity develops in this way yet it later becomes nutritional in character, and iron is a necessary factor for its cure.

The characters of the blood in nutritional anaemia are those already described as typical of hypochromic deficiency anaemias, but there are a few other points which should be stressed. The anaemia is definitely microcytic in character as determined by Price Jones's curves, and under treatment with the missing factors the Price Jones curve shifts to the right until it comes to occupy the normocytic position. During the process of cure a degree of anisocytosis and polychromasia develops. In the examination of films stained by the Price Jones technique it is at times possible to detect two groups of cells, one of which stains darker than the other. When these groups are plotted out separately in the Price Jones manner it is found that the darker cells are larger, show more anisocytosis, and, as cure advances, become more and more numerous, whereas the cells which are more lightly stained are microcytic in character and decrease in number as the child improves.

The most frequent deficiency in this group of anaemias is that of iron, but in some cases it would appear that copper, and in others some factor or factors contained in yeast, are lacking. In attempting to find out the missing factor the child's diet is continued unchanged and a medicinal salt of iron is administered. In the majority of cases if adequate amounts of iron are given in suitable form a reticulocytic response and eventually recovery occurs, but sometimes recovery is incomplete and then another dietetic factor is added and further effects are noted. In this way we have found complete recovery to occur in a few cases when iron has been supplemented by copper and also when iron has been supplemented by yeast.

How Do These Defects Arise?

Neither breast nor cow's milk contains sufficient iron for the needs of the growing babe. Cow's milk contains less iron and less copper than breast milk, and according to Blauberg a breast-fed baby retains five times the amount of iron retained by a baby fed on cow's milk. In those early researches of Bunge and Abderhalden to which reference has already been made it was demonstrated that, in addition to a progressive fall in the iron stores in the liver and spleen from birth to the end of a lactation period, the amount of iron per kilogram of body weight fell progressively during that period; also that in certain animals the ashed residue of the foetus and of its mother's milk contained the same percentage of all minerals except iron, which was six times more concentrated in the foetus than in the milk ash. The stores of iron are chiefly laid down in the later months of pregnancy. According to Hugounenq two-thirds of the iron present in the body of the full-term infant is accumulated during the last three months of pregnancy, an observation which has been confirmed by other workers. In a paper communicated to this Association last year J. H. Sheldon[9] stated that spectrographic examination of a large series of human livers showed that copper and iron are the only metals stored as reserves of material in the liver during foetal life and that these reach their peak at birth and then drop steadily until a stable value is attained at the age of 12 to 18 months. Gladstone,[10] on the other hand, states that the maximum amount of iron in the liver is found at the age of 1 to 10 weeks, that there is no evidence of large and progressive deposits of iron during the last four months of intrauterine life, and that the chief source of iron in the liver is the haemolysis which occurs at birth. It is admitted by Sheldon that there may be a rise of iron content in the liver in the early weeks of life as the result of haemolysis; nevertheless Gladstone's thesis does not provide as satisfactory an explanation of the more frequent occurrence of nutritional anaemia in twins and premature infants as does the theory of foetal storage of iron. The theory of foetal storage of iron, copper, and probably also other factors such as thyroxine and vitamin C provides the best explanation of all the observed facts in the deficiency anaemias of early infancy. Inadequate post-natal supply of these factors also plays a part, and one which becomes increasingly important after the earlier months of infancy are past. It is clear from these observations that the diet and health of the mother during pregnancy and lactation are of great importance in order that she may be able to transfer adequate amounts of these factors to the foetus via the placenta without suffering any ill effect herself, and to supply adequate amounts of these factors in her breast milk.

Taking iron as an example of the factor which is lacking, the defect resulting in the production of a hypochromic anaemia may therefore occur in the following ways:

1. Deficient ante-natal storage:
   - (*a*) Iron deficiency in the maternal diet.
   - (*b*) Nutritional anaemia in the mother.
   - (*c*) Deficient transference of iron from mother to foetus.
   - (*d*) Premature birth, the foetus not having time to complete its iron stores.
   - (*e*) Twin pregnancy, the iron stores obtained from the mother being inadequate for both children.
2. Deficient post-natal supply:
   - (*a*) Insufficient supply of iron in breast milk, possibly due to iron deficiency in the maternal diet.
   - (*b*) Artificial feeding with cow's milk.
   - (*c*) Prolongation of milk (breast or cow's) feeding beyond the normal lactation period.
3. Deficient ante-natal storage and post-natal supply.

Although defective storage and supply are undoubtedly the most important factors concerned in the production of hypochromic anaemia, yet there may be other factors which emphasize the defects and may even be the instrument in making the anaemia obvious clinically. For instance, it seems probable that some children require a greater amount of iron than others, and that an amount which may be sufficient to carry one child through the lactation period without presenting signs of anaemia may fail to do so in another child. This difference between some children and others may be "constitutional" or the appearance of the anaemia may be the result of some illness. The unequal incidence of anaemia in different individuals is also seen in Witts's anaemia, which is not only much more frequent in women than in men, but also

is extremely convenient. Luminal 10 to 15 grains, administered per os two or two and a half hours pre-operatively, produces a quiet sleep and diminishes pre-operative excitement, while in vigorous athletic patients I have frequently given 20 to 25 grains prior to an upper abdominal operation, and found it safe, convenient, and efficient.

A practice which has appeared recently is the employment of a basal narcotic with a patient who is receiving a spinal anaesthetic. This I feel is a method meriting condemnation. It is generally observed that the blood pressure is reduced by most of those basal narcotics, although the reduction may only amount to 10 to 20 mm. of mercury. With spinal anaesthesia, on the other hand, the blood pressure is usually markedly reduced; sometimes, despite precautions, the fall of pressure is rapid and profound. In those circumstances the addition of a basal narcotic will not improve matters, and may be sufficient to jeopardize the patient's safety. Moreover, when employing spinal anaesthesia to obtain a high abdominal anaesthetic effect, the action of the lower intercostal and abdominal muscles as accessory respiratory muscles is abolished, while the phrenic centre in the cord may be encroached upon, and it is not unusual to notice somnolence and shallow respiratory interchange when the anaesthesia has spread a little too high. The depressant effect of a basal narcotic on the respiratory centre in such cases appears likely to cause some anxious moments.

Spinal Anaesthesia

The use of spinal anaesthesia has become increasingly popular in recent years, and undoubtedly a satisfactory spinal anaesthetic is the perfect anaesthetic for the surgeon. Some patients do not regard the maintenance of consciousness as an advantage, though, when it is used continually in hospital wards, a great number of patients show a preference for it. By no other method is such perfect abdominal relaxation obtained, ensuring satisfactory surgical exposure, avoidance of rough handling, accurate apposition by suture, and facile operative technique. Amongst the different drugs employed, perhaps personal experience is of more value than any elaboration of technical methods. With perfectly sharp, well-fitting needles and syringe, and a spine well flexed in the median line, the number of blind punctures and unsatisfactory spinal anaesthetics is reduced to a minimum. My own experience is practically confined to two drugs—novocain and percaine.

Novocain 5 per cent. solution, in doses of 10 to 12 mg., has proved in my hands the most reliable for producing anaesthesia below the umbilicus. When confined to this limit I regard it as perfectly safe, and if combined with ephedrine and the lowered head position it is seldom associated with unpleasant effects. For high abdominal anaesthesia I have occasionally experienced a marked fall of blood pressure, with nausea, vomiting, and collapse—symptoms which are unsettling, and certainly alarming to onlookers not accustomed to the procedure. Spinal anaesthesia, employing the diluted solution of percaine 1 in 1,500, appears to have advantages over novocain when used for high abdominal anaesthesia. The fall of blood pressure is very much less, and unpleasant effects are less common. The method recommended by Jones brings upper abdominal surgery within the scope of satisfactory spinal anaesthesia. My enthusiasm for the method was unfortunately damped by a fatality following the injection of 17 c.cm. between the second and third lumbar spines in a robust woman of 36 with cholelithiasis; while I have seen a fatality occur in an elderly man, with a strangulated hernia of fifty-six hours' duration, following the injection of a buffered solution of percaine between the third and the fourth space, the patient succumbing twenty minutes after completion of the operation. Percaine is extremely toxic if absorbed into the circulation, and there may be individual idiosyncrasy to the drug. If bleeding occurs following puncture it is wiser not to proceed, and I do not give more than 15 c.cm. of the 1 in 1,500 solution—and that between the second and the third space—for upper abdominal operations. If the anaesthesia is inadequate it may be supplemented by splanchnic anaesthesia or mesenteric infiltration.

A disadvantage of spinal administration is the inability to localize the level of anaesthesia consistently. It may be unduly high, perhaps to the nipple line, when performing a hernia, while using a similar technique in the following case the anaesthetic may be barely sufficient for the operation. The post-operative headache, sometimes associated with nausea and dizziness, which occasionally follows spinal anaesthesia constitutes one of its greatest drawbacks. Such headaches may follow lumbar puncture alone. It occurs most frequently in anaemic patients, and may be obviated by keeping the patient in the head-down position for twenty-four hours following the operation. When it does occur nothing seems to give such relief as an intravenous injection of 15 to 20 per cent. saline solution.

A discussion of local anaesthesia is perhaps more a subject for a surgical meeting than for this Section, since the induction of the anaesthetic becomes part of the technique of the operation. The most valuable application of this method is in the operation of thyroidectomy, while its employment in the reduction and treatment of fractures is rapidly superseding all other methods of anaesthesia.

"The Perfect Anaesthetic"

The increasing number of methods indicates that room for improvement exists in our present methods of anaesthesia. Further surgical progress can be accomplished if the anaesthetist can provide safe anaesthesia for the bad risks. Patients will submit more readily to surgical treatment when anaesthesia can be induced with safety in the amnesic patient. Good operative work depends on the complete muscular relaxation and normal respiratory rhythm of the perfectly anaesthetized patient, and satisfactory convalescence depends on freedom from post-anaesthetic morbidity. The necessity for the trained anaesthetist is more urgent than ever: the casual anaesthetist is the patient's nightmare and the surgeon's purgatory. The trained man is an essential unit in the modern surgical hospital.

Before concluding, may I suggest the requirements of a perfect anaesthetic agent? I submit that:

Administration should be accomplished without discomfort to either the young or the old patient, and without complicated apparatus.

Induction must be agreeable, and the anaesthetic should not have any deleterious effect on the respiration or circulation.

Blood pressure should be maintained at a normal level throughout.

Elimination should be rapid without producing harmful effects on the hepatic, renal, or pulmonary tissue.

The anaesthetic effect should be induced gradually, and it should be at all times under control.

In addition to securing sensory paralysis, complete muscular relaxation should be rapidly and safely obtained.

Judged by these standards the perfect anaesthetic awaits discovery. Of recent years extensive developments in the technique of anaesthesia have taken place. Improved methods of administration have been accompanied by the introduction of ingenious apparatus, and—perhaps on this account—the anaesthetist has welcomed the products of the analytical chemist with faith and hope, while the surgeon has extended to him the greatest of all virtues—charity.

BRONCHIECTASIS

DIAGNOSIS AND PROGNOSIS IN RELATION TO TREATMENT

BY

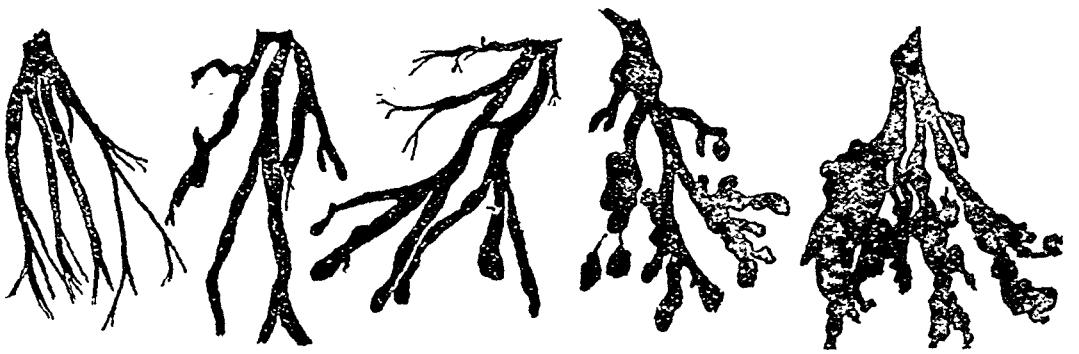
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The picture of bronchiectasis that is carried away from his textbooks by the student, to judge from his answers to written and oral questions, is that of a condition of almost hopeless prognosis in which the patient has foul sputum, clubbed fingers, and signs of basal pulmonary cavitation. Having recently consulted a number of textbooks in common use, we find it rarely conceded that there is the possibility of an earlier stage in which the diagnosis can be made and in which curative treatment is practicable.

The widespread use of lipiodol in the elucidation of obscure cases of pulmonary disease, chiefly of haemoptysis of unknown origin, has led to the publication of accounts of symptomless or "dry" cases, which indicate that their diagnosis is becoming increasingly common. Wall and Hoyle[1] have given a complete account of the cases in the literature, as well as of their own twenty examples of dry bronchiectasis, and the correspondence which followed showed that other observers, notably Leonard Findlay[2] and Pinchin and Morlock,[3] have had extensive experience of a similar condition. The problem of treatment of these non-septic (in this paper called "simple" rather than "dry") cases is an urgent one. There has been a unanimous opinion that the average treatment—artificial pneumothorax and phrenic evulsion—has on the whole proved ineffective. Thoracoplasty is, by its nature, a purely palliative procedure, which should only be performed when the whole of a lung is already destroyed by the septic process. It has of recent years been done less and less at the Brompton Hospital for this condition, whereas in pulmonary tuberculosis it is becoming an increasingly valuable form of treatment. Lobectomy in the right hands has recently been shown to have an extremely low mortality, as witness the fact that only two operative deaths have been recorded in the last thirty-four cases during the past two years at the Brompton Hospital. It is obviously the only radical cure of a localized condition, and numerous examples now testify to its striking success in the relief of symptoms.

When confronted with a case of bronchiectasis with little present disability, it is difficult to persuade oneself that a severe operation should be advised. Those clinicians who have seen the elderly adult live many years with a fusiform bronchiectasis and little incapacity will remain convinced that lobectomy is not indicated for all unilobar cases. The object of this paper is, first, to attempt to shed light on the prognosis of established cases of bronchiectasis of all types which have been subjected to the commoner varieties of treatment in order that some definite statement of the alternatives may be available when giving a prognosis or advising radical treatment to a patient. Secondly, it is intended briefly to re-state the main indications and contra-indications for particular operative procedures; and, thirdly, we hope to assist in the earlier diagnosis of unilobar bronchiectasis while the patient is still in a fit state for a radical cure.

Figs. 2–5 appear to be consecutive developments of the same process.



1. Normal. 2. Tubular. 3. Early fusiform. 4. Late fusiform, commencing sacculation. 5. Fuso-saccular.



6. Saccular: ? congenital type

Type of Case Investigated

In order to fulfil these objects 106 cases of the condition proven by lipiodol examination have been followed at the Brompton Hospital for a period of from three to six years. These cases were entirely unselected, except in so far as they have been known to the hospital or have been traceable by a questionary over that length of time. Patients at the Brompton are generally admitted for observation and elucidation of the cause of some such symptom as pyrexia, cough, or haemoptysis; or, when diagnosed already, in order to discuss possible surgical intervention. There are thus a large number of patients with advanced disease attending the out-patient department who have never been admitted to the wards and who do not come into the scope of this inquiry. The former group has been studied more extensively and will be described in another paper dealing with the causes of non-tuberculous haemoptysis. The cases under consideration here are in the second group—examples of the already established condition, many of them of the textbook variety. As many as possible have been examined, *x*-rayed, and given lipiodol again within the last few months. Naturally those patients who are fit and at work, many of whom have had lipiodol injections several times previously, have been difficult to persuade to come to hospital again. Enough, however, came forward to shed some light on the question of spread of the initial lesion. This series does not include any individuals described by Wall and Hoyle.

The classification of cases in this paper, being related only to prognosis and treatment and not to pathology, is kept as "straight" as possible. The anatomical distinction used is based on that of Moll,[4] who divides his list into tubular, fusiform, saccular, and moniliform, with intermediate types. We have taken "tubular" to represent the condition where the terminal bronchi do not taper in the normal way; and "fusiform" to represent clubbed extremities—the "glove-finger" type of radiologists—whereas in pure saccular forms cavities alone are present.

TABLE I.—*Showing Relation of X-Ray Type to Sputum*

X-Ray Type	Dry	"Simple"	Septic	Fetid		
Tubular	2	—	1	—	3	41 cylindrical
Tubulo-fusiform ..	1	—	1	1	3	
Fusiform	3	2	3	5	13	
Fuso-saccular ..	3	4	11	7	25	
Saccular	13	4	23	22	62 saccular	
Total	22	10	39	35	106	

A comparison of Tables II and III shows that for our present purposes a more directly valuable approach is to be obtained from a division of cases into infected and non-infected. In the term "dry" Wall and Hoyle have included, as Findlay points out, a few cases which, although mainly dry, still had sputum, which in one or two was infected. Ten of our cases fall into this division, which we have called "simple." Our feeling that once a case has had septic sputum it is evidently infected and is liable again to break down has been borne out by the results in our series. Since the "simple" group has exactly the same prognosis as the septic type, we feel that there is nothing to be gained by separating them. A strict division into dry and septic is a first essential, and it is of assistance to divide from the latter as a further group those cases with persistently foul and copious sputum—called here "fetid."

TABLE II.—*Showing Prognosis of X-Ray Type in Relation to Treatment*

(A) *44 "Cylindrical"* Cases*

	Medical	Surgical					
		A.P.	Phrenic	A.P. + Phrenic	Thoraco-plasty	Lob-ectomy	
Well (Dry	2	—	1	—	1	2	6 / 11
Well (With sputum	2	—	—	2	1	—	5 /
Partial incapacity..	3	1	1	—	1	—	6
Total incapacity ...	2	3	—	—	3	—	8 / 33
Died	11	2	2	—	2	2	19 /
Total	20	6	4	2	8	4	44

* A term commonly used to describe in a group those we have called tubular, tubulo-fusiform, fusiform, and fuso-saccular.

(B) *62 "Saccular" Cases*

	Medical	Surgical					
		A.P.	Phrenic	A.P. + Phrenic	Thoraco-plasty	Lob-ectomy	
Well (Dry	2	3	3	—	3	1	12 / 20
Well (With sputum	3	1	2	1	1	—	8 /
Partial incapacity...	5	—	1	—	—	—	6 /
Total incapacity	7	2	1	—	5	—	15 / 42
Died	12	1	2	3	3	—	21 /
Total	29	7	9	4	12	1	62

TABLE III.—*Showing the Relation between the Original Character of the Sputum and the Present Condition*

Present Condition	Original Condition: Dry		Septic		Fetid		Totals		
	M	S	M	S	M	S	Medical	Surgical	
Well (Dry	4	3	—	6	—	5	4 / 7	14 / 20	18 / 27
Well (Septic	—	—	2	4	1	2	3 /	6 /	9 /
Partial incapacity or "I.S.Q.": Fetid	5	—	1	3	—	—	6 / 16	3 / 18	9 / 34
Total incapacity: Fetid	2	1	7	8	1	6	10 /	15 /	25 /
Died	3	3	7	7	12	8	22	18	40
Total	14	7	17	28	14	21	45	56	101

Five cases whose present condition is unknown are not included in the above table. Since compiling the table these other five cases have been examined, but are not included.

We are not especially concerned in this account with the more uncommon types, such as the moniliform, atelectatic, and congenital cystic, although all are represented among our cases. One liberty has been taken. We hold, with J. E. H. Roberts and others, that cases of marked sacculation localized to one main bronchus (usually the left lower) in young people without any severe antecedent disease are most probably congenital in origin. Admittedly this is not susceptible of proof at the present time, but the observation is partly confirmed by the appearance of lobectomized lobes. We have tentatively used this description in ten cases, and it has been noticed that they often remain without spread for long periods of time. It is of interest to find, since the writing of this paper, confirmation in a series of articles by Graham and his co-workers in St. Louis. Their "grape" type corresponds closely with that shown in Fig. 6, and it is stressed by them that the complete absence of normal branches of a main bronchus suggests a congenital aetiology.

PROGNOSIS OF 106 CASES

Table II sets out the original lesion, the treatment, and the present condition of groups of cases diagnosed first by lipiodol in or before 1928, in 1929, and in 1930 respectively. It will be seen that although the period of observation is not a long one it has served to reveal the severity of this condition (a total mortality of 38 per cent.) and to give clear indications as to which cases have been successfully treated and which have done badly. Out of fourteen fetid cases treated medically only two patients survived, and of these one is totally incapacitated. Out of seventeen septic cases seven patients are dead and seven now totally incapacitated, with persistent fetid sputum. The "medical" death rate is very interesting when divided into the morphological groups. For instance, of the cylindrical cases eleven patients out of twenty (55 per cent.) and of the saccular cases twelve out of twenty-nine (44 per cent.) have died. Added to this, of the cylindrical cases a further 15 per cent. are partially incapacitated and 10 per cent. totally incapacitated; of the saccular cases 17 per cent. are partially incapacitated and 24 per cent. totally incapacitated. Contrasted with a total "medical" mortality of 51 per cent. our figures show a "surgical" death rate of only 30 per cent. Table II again illustrates how the latter is distributed among the *x*-ray types of cylindrical and saccular—namely, that surgical treatment does not appear to be as successful in the cylindrical types as it is in the saccular: 25 per cent. of cylindrical cases are well from surgery as opposed to 33 per cent. of saccular cases.

Another striking fact in the prognosis of the cases under discussion is that of the nineteen patients with

septic bronchiectasis who are now quite well eighteen were treated by the various surgical procedures The measures adopted were artificial pneumothorax in three, artificial pneumothorax plus phrenic evulsion in four, phrenic evulsion alone in four, phrenic evulsion plus thoracoplasty in five, and lobectomy in two

Type of Spread

Thirty six cases have been given lipiodol injections again during the last few months in order to determine the liability to extension of the lung lesion and the direction of spread In all, sixteen had been treated surgically, and in only one of these could contralateral spread be demonstrated, this being of the basal tubular type on the right side following a left thoracoplasty In three patients who had been treated by artificial pneumothorax there was extension of the disease on the same side, and in a case treated by a left artificial pneumothorax and phrenic evulsion a change from tubular to fusiform type in the left descending bronchus was revealed Of twenty medical cases only eight remained unchanged Of the twelve whose disease was originally confined to the left side there was a spread bilaterally in two, on the opposite side in three, and on the same side in three Of the four remaining unaltered one is of the congenital saccular type in the left lower lobe and the rest are fusiform Roughly the same proportion was exhibited by the five right sided cases In four surviving patients in whom the disease was originally bilateral there was considerable extension on both sides

It would appear from our series that in saccular disease of the acquired type there is almost certain to be spread with medical treatment (often to a large extent) in a very few years, and that, provided the general condition of the patient (particularly with regard to septic foci) is good, fusiform basal disease rarely may not progress, but it is much more likely to become saccular and to extend bilaterally Tubular disease always appears to become fusiform in the course of the time interval under consideration In cases treated surgically, apart from lobectomy, the tendency is for a gradual extension of saccula tion to other zones on the treated side, but there appears to have been marked diminution in successful cases in the risk of contralateral spread In artificial pneumothorax cases there is invariable progression from tubular through fusiform to saccular type Further observations are being made along these lines, and endeavours are still being made to get the remaining cases to submit to further lipiodol examinations

Treatment

Having established the severity of the condition, particularly of the septic types, an analysis of the results of operative procedures is next to be undertaken It must be remembered that even in the short space of three years thoracic surgery has made such rapid strides that the present relative status of these operations is by no means represented in our tables

Artificial Pneumothorax

If fibrosis and damage of the lung have not become so prominent as to form a rigid wall of tissue which no amount of air pressure will collapse, bronchiectasis is benefited by artificial pneumothorax If the contrary obtains it is perhaps definitely harmful, because it adds to the damming back of secretions, and hence to the general toxaemia It has been shown in a series investigated by lipiodol at the Brompton Hospital that with the most complete collapse the cavities are still invariably present, so that it is probably never possible to allow the lung to re expand without the return of symptoms This was well seen in a boy who, following an lobar bronchiectasis, had an artificial pneumothorax induced, and his sputum, which had stood at 20 oz, became reduced to 1 oz a day when the pneumothorax was found to be complete On attempting to allow the lung to re expand on several occasions his temperature was found to rise and his sputum to return to its original 20 oz The treatment of bronchiectasis by artificial pneumothorax has now been almost completely abandoned at the Brompton Hospital, except as a preliminary to lobectomy In our series there were thirteen cases treated by artificial pneumothorax, and at the present time only three of these patients are well and able to carry on a normal life Of the remaining ten three are alive and totally incapacitated and the rest are dead The three successful cases quoted may be therefore taken as being exceptional Some 300 individuals attend the out patient department of the hospital for refills, and of these we have only been able to trace half a dozen examples of bronchiectasis in which the collapse has been maintained for over two years

Artificial pneumothorax has been combined with phrenic evulsion in eight cases in our series Of these, four patients are now "dry" and well Thus the combination of the two methods appears to be slightly better than either alone In the remaining four the treatment completely failed, and they have since had either thoracoplasty or lobectomy.

Phrenic Evulsion

If artificial pneumothorax fails the next step to consider is that of a phrenic evulsion Though this has occasionally produced striking results (notably in six of our cases) one should always be prepared in the event of failure to proceed to more drastic measures, since the success in the first six months following the operation may not be maintained after the diaphragm has become a completely functionless sheet, and thus the final condition of the patient may be worse than before This prevents phrenic evulsion from being the valuable method of trial which its freedom from immediate risk would suggest A further point made by Tudor Edwards is that, should it be thought that lobectomy might have to be undertaken, a phrenic evulsion ought not to be performed as it would appear to prevent re expansion of the apex of the lung after removal of the diseased lobe However phrenic evulsion has been shown to be valuable as a preventive of secondary bronchiectasis in the lung area surrounding an abscess

Thoracoplasty

Should the bronchiectasis be in all lobes of the lung and the last two methods of treatment have proved unsuccessful, a thoracoplasty may have to be considered because of the disastrous alternative It is absolutely essential that the maximum amount of rib should be removed A number of our lipiodol x ray photographs show that even with the most complete thoracoplasty some cavitation invariably remains, and in thoracoplasties which are incomplete there is apt to be a rapid spread of the septic process to the other lung unless proper precautions (to be detailed elsewhere) are taken Nevertheless, there was an exception in one case the first stage, in which only a few inches of ribs ten to six inclusive were removed, was so successful that the patient continued almost symptomless for three years Mediastinal flutter is now very rare owing to modern conditions of strapping and after care However, in our opinion thoracoplasty should never be undertaken for cases of unilobar distribution It also appears that the degree of infection present does not contraindicate the operation, since four out of twelve of our cases so treated became "dry," although there was a considerable amount of sepsis before the operation was undertaken

Lobectomy

Lobectomy is obviously the goal to be aimed at, in that it is the only way of producing a radical cure. It is extremely important, however, that the patient should be in a fit condition and that post-operative treatment and convalescence be in expert hands. Over 90 per cent. of cases, for instance, develop an effusion into the residual space during the first few days, for which effective drainage has to be maintained, often a difficult procedure. Further, it is essential before contemplating lobectomy for a given case that lipiodol should be injected into both sides of the bronchial tree and that the greatest care be employed to fill up anterior and posterior divisions of the descending bronchus. Thus the patient must always be turned on to his face immediately after the injection, as well as bent forward. The four cases treated by lobectomy which we include are the only ones we have been able to follow personally in the years under consideration. Accounts of two extensive recent series by the surgeons concerned are at present in the press.

Summary

To sum up the question of surgery, it has become increasingly obvious that the best results are achieved when the extent of the disease and the general toxaemia of the patient are alike minimal. Any young adult who is coughing purulent sputum and who is shown to have a unilobar saccular bronchiectasis should, in our opinion, have an artificial pneumothorax induced prior to lobectomy. In certain cases the sputum may be controlled and spread prevented over a sufficiently long period for the general condition to be rendered fit for excision of the lobe. Artificial pneumothorax, if successful, greatly facilitates the operative procedure, but failure to establish artificial pneumothorax does not signify that removal of the lobe will be impossible. We are in agreement here with Ellis's (*Arch. Dis. Child.*) remarks on such cases occurring in children, and we can mention as an example a child of 5, with a saccular left lower lobe lesion, whose 12 oz. of fetid sputum is being almost completely controlled by artificial pneumothorax with a view to subsequent radical operation. At the present time lobectomy has reached such a high standard of technique that we consider it justifiable to submit to the operation all cases of unilobar bronchiectasis that have either purulent or fetid sputum or haemoptysis as symptoms. The following extract from a letter written by one of our patients who had a lobectomy in 1930 speaks for itself:

"I must say that I have never been so well in all my life. . . . I am cured of my trouble, which held me back in pleasure and in business, for I could not go out in company for that nasty stuff I used to bring up, but now I drive a three-ton lorry and work as hard as the next man, and I feel no effect of the operation that I have had. . . . My life is now well worth living."

Early Diagnosis

In order that it may be possible to see fewer of the distressingly advanced cases that we have had to describe in this paper every attention should be directed towards the possibility of early diagnosis. In studying the past histories of our patients it becomes obvious how much time was in those days wasted between the onset of suggestive symptoms and the final diagnosis; and even now one frequently sees patients who have been labelled as pulmonary tuberculosis or chronic bronchitis or asthma for many years, until any possibility of effective treatment has gone by. Three sputum specimens should be sufficient, with the *x*-ray and clinical findings complete in a fortnight, to exclude active tuberculosis and render injection of lipiodol a necessary procedure.

With the aetiology from the theoretical point of view we are unable to deal here, but we would stress, in addition to congenital stenosis, the significance of influenzal pneumonia as contrasted with the strictly lobar variety. Gaskell has convinced one of us, with his sections of lung in experimental pneumonia, that in lobar pneumonia the bronchial epithelium is left comparatively undamaged, whereas in the low-grade pneumococcal (Group IV) and the streptococcal pneumonias the epithelium is extensively damaged and ciliary action is lost. Further, there is usually some temporary collapse of the lung, and this is aggravated by that common complication of influenzal pneumonia, pleural effusion, which causes a renewed rise of temperature and which is put down so often to "delayed resolution." We feel that collapse of the lung, if maintained over sufficient length of time, is a potent factor in the causation of bronchiectasis, and it is possible to show that even the collapse produced by therapeutic measures has resulted in the conversion of a fusiform into a saccular and more advanced form.

A history of oro-nasal sepsis or of suppurative conditions of the ear is also of importance. Patients who have complained for years of catarrh, of bronchitis, of attacks of congestion, and who have finally begun to produce copious purulent sputum, are met with so frequently that sepsis of the upper respiratory tract must, it seems, be prevented if treatment for the local condition is to be effectual. Graham, in the paper referred to above, details very carefully the relation between the nasal and the bronchial mucosa. In studying the histories of a large number of patients it is noteworthy that there has nearly always been at one stage a localizing symptom or sign in the course of chronic bronchitis, such as subscapular pain, shoulder pain of phrenic type, pleurisy, or congestion, which, to our mind, demands insertion of lipiodol in order to diagnose a case of bronchiectasis in an early stage. The presence of a silent bronchiectasis may be also unmasked by the anaesthetic used in various minor operations, giving the impression that the inhalation of septic material has been the starting-point of a disease in reality already well established.

Although the "straight" *x*-ray photograph is well known to be deceptive in this condition, so that when honeycombing or cavitation is shown the condition is really advanced, yet one very suggestive sign is that of fixation of the diaphragm on screening. Observation of the movements of the diaphragm should, in our opinion, always be taken into consideration in deciding on the diagnosis and treatment of chronic chest conditions. Fixation of the diaphragm appears to be a very usual preliminary to basal bronchiectasis, and it might be said that in the absence of pulmonary tuberculosis it would form another indication for the injection of lipiodol. Further, it is of obvious importance to avoid wasting time by prescribing prolonged breathing exercises and convalescent treatment for a patient with a firmly fixed diaphragm. It is precisely in the prevention of this fixed diaphragm that, in our opinion, the prophylaxis of bronchiectasis consists. At the very least, the first appearance of fetid sputum in a young adult, or the recurrence of haemoptysis (proved non-tuberculous with a negative skiagram), should call for active measures, since we hope to have shown how spread takes place in a comparatively short time and thus prevents a case from being suitable for radical cure which, with earlier diagnosis, could have been undertaken.

Summary and Conclusions

1. One hundred and six cases of all types of established bronchiectasis have been studied for a period of from three to six years with regard to their general and local condition and the character of their sputum in relation to various types of treatment.

2 A division has been made into "dry" cases in which there is no expectoration and "septic" cases in which the sputum is purulent These do not bear an exact relation to the *x* ray cylindrical and saccular varieties which largely depend for their prognosis upon the infective factor Those infected cases which have progressed to copious foul sputum are classed as 'fetid'

3 Cases with occasional sputum, here classed "simple," are shown to have as bad a prognosis as those persistently septic

4 Ten of our fourteen dry cases treated medically have become infected within six years, and of these three patients are dead and two totally incapacitated

5 Cases with infected sputum, whatever the anatomical distribution of the disease, progress, with rare exceptions, steadily to a fatal issue if treated medically

6 Bronchiectasis with only medical treatment is an extremely fatal disease, for out of forty nine patients twenty three are dead and nine totally incapacitated, and of the remainder only four are "dry" after five years from diagnosis

7 In order to secure early diagnosis, all doubtful cases of haemoptysis and cough in which tuberculosis has been excluded by a single *x*-ray photograph should be *x* rayed again after injection of lipiodol, making sure that a lateral skiagram is taken in those cases in which antero posterior screening shows an apparent unilobar distribution of the opaque medium

8 Phrenic evulsion alone is of doubtful value, and not indicated if the operation of lobectomy is at all possible It is better combined with artificial pneumothorax

9 Thoracoplasty may, and sometimes will prolong the life of a patient with advanced unilateral disease, and will certainly make existence more tolerable for the patient and his relatives, it should never be performed for unilobar disease

10 Artificial pneumothorax is mainly useful as a preliminary to lobectomy

11 Lobectomy has proved to be the greatest advance in the treatment of this condition, but depends upon diagnosis with certainty at an early age and experienced attention to pre- and post operative measures

We are indebted to the physicians and surgeons on the honorary staff of the Brompton Hospital for permission to use their cases and for their advice, and to Dr Stanley Melville and the staff of the *x* ray department for their co operation in the matter of lipiodol examinations and for their reports Dr Thomas Larkworthy has been of great assistance in collecting cases and in carrying out some of the lipiodol examinations, and we are grateful to the staff of the lady almoner's department and to Miss Spero research clerk for the follow up work

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HYSTERECTOMY: A CRITICAL SURVEY

WITH A REPORT OF 210 CASES*

BY

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The operation of hysterectomy has gained greatly in popularity within recent years It is so extensively employed that its indications have far passed the confines of the original textbook teaching It is therefore necessary to pause and to examine its present status, to evaluate its results, and to determine its safety and after effects In order to do so I have made a survey of my own hospital and private cases for the past seven years, and have sent out a questionary to as many patients as possible An inquiry was made into the general health since operation, the occurrence and severity of the surgical menopause, and especially into the sexual life following the ablation of the uterus I have endeavoured to analyse the symptoms complained of, the indications for operation, and the type of operation with its immediate and remote results I have read through a considerable quantity of the literature, and have ascertained the views of leading gynaecologists on the subject I have endeavoured to preserve an unbiased frame of mind, and wish to present the conclusions arrived at from my own experience

Of 210 hysterectomies which I have performed, 165 were total, thirteen subtotal, twelve vaginal, and twenty according to the Wertheim technique for carcinoma of the cervix Excluding the Wertheim operations, in which the mortality was 10 per cent, there were three deaths among the remainder or a percentage mortality of 1 58 It will be seen that the total operation is almost exclusively employed, and the mortality in this series is 1 8 per cent

I do not wish to introduce the question of total *versus* subtotal hysterectomy, except to state that I have now definitely and exclusively adopted the total technique, and for the following reasons

1 My mortality rate compares favourably with that of any published series of the subtotal operation

2 Convalescence has been most uneventful, the average length of stay in hospital being sixteen days

3 Operative and post operative complications have been few In one case the ureter was accidentally cut and in three others a pelvic haematoma formed owing to inadequate haemostasis of the utero-sacral ligaments There were two cases of pulmonary embolus, one of which recovered, and two of thrombosis of the femoral vein, there were only two cases in which infection occurred in the abdominal wound Of the three deaths one was due to pulmonary embolus occurring on the tenth day, one to an ascending urinary infection and one to a generalized septicaemia originating in the operation site

4 Marital life subsequent to operation has been extremely satisfactory Of fifty women who answered my query on this point only one complained of dyspareunia, and all but three said that intercourse was as satisfactory as before and in a few cases more satisfactory I therefore conclude that removal of the cervix does not shorten the vagina or cause dyspareunia, and that it does not decrease libido—the latter applies whether the ovaries are removed or not Nor does it cause prolapse of the vaginal vault I have examined and questioned many of the patients on this point, and in only one case was there evidence of this complication

5 With regard to ease and duration of operation there is very little difference between the total and the subtotal technique When one becomes facile in technique a simple total operation can be done with safety in thirty minutes, and a complicated case should not occupy more than fifty or sixty minutes As regards haemorrhage, if the blood supply of the vaginal angle and the utero-sacral ligaments is properly controlled, it should be as easy to achieve a bloodless hysterectomy in the one case as in the other It has been argued that the subtotal operation is safer in the hands of an inexperienced operator But hysterectomy should only be undertaken by an experienced gynaecologist.

* Read in the Section of Obstetrics at the Annual Meeting of the British Medical Association, Dublin 1933

6. In assessing the positive indications for the total operation the experience and views of such men as Spencer,[1] Polak, Weibel, Bumm, Mayo,[2] and Cuthbert Lockyer,[3] who have stressed its value in latter years, must be admitted. They hold that it is definitely dangerous to leave the cervix behind. A large amount of literature has accumulated on the incidence of cancer in the cervical stump. To give only two examples, Polak[4] reported 256 cases collected in America, and the Mayos saw ninety-nine cases in their own clinic during a period of twenty years.

The existence of a chronic septic focus in the cervix is much more common than is generally believed, and its removal is just as necessary as the ablation of septic tonsils; it is often accompanied by a chronic infected condition of the uterus. The improvement in health, vigour, and outlook on life following the total operation in such cases must be seen to be realized. If the cervix is diseased or unhealthy it must be removed; if healthy it is still a source of danger from infection and malignancy, and as I hold that the total operation is equally safe, I believe that I have better ensured my patients' future safety by adopting this procedure.

Indications for Operation

An analysis of the indications for operation in this series shows that there were seventy-five cases of fibroid uterus, twelve of which were complicated by diseased appendages and ten by infected cervices; thirty-seven cases of chronic infection of the uterus and cervix; and a further fifteen cases of chronic infection of the cervix with or without parametrial involvement which would not yield to conservative measures. Four in the latter group were complicated by severe chronic rheumatism. There were eight cases of chronic pus tubes and disorganized ovaries where it was considered advisable to remove the uterus also, and two cases of pyometra. Carcinoma of the body of the uterus was the indication in eighteen cases, and carcinoma of the cervix in twenty. There were nineteen cases of bleeding uterus, of which adenomyosis accounted for seven and a chronic subinvolution metritis for the remainder. Endometriometa was the indication in one case and malignant ovaries in three cases. There was prolapse associated with chronic infected cervix in ten cases in which vaginal hysterectomy was employed.

Excessive menstrual loss associated with anaemia or with leucorrhoea was the chief symptom in eighty-four cases; ten of these were so exsanguinated as to require blood transfusion before operation. A combination of debility and premature ageing, with persistent ill-health and inability to carry on their customary duties, was complained of in thirty cases. These were distinct from the previous group, and the pathology generally found was a chronically infected or torn hypertrophied cervix with an enlarged subinvoluted, and often retroverted, uterus. On subsequent examination these uteri showed evidence of chronic infection in the endometrium and muscular wall, were often extremely soft and congested at operation, and showed fine perimetritic adhesions. They were not undergoing the normal atrophy of the menopause, and such patients were constantly absorbing toxins into their system from this chronic septic focus. As pointed out by FitzGibbon,[5] these are pre-eminently cases for total hysterectomy, and the extraordinary improvement in health and outlook which takes place in the course of the ensuing year can only be realized by interviewing the patients themselves. Following the questionary a number of my patients came personally to express their satisfaction with the result of the operation. I do not believe that any less radical measure would have produced results.

There were three cases of insanity—one confusional, one with suicidal mania and a delusion of cancer of her uterus, and a third wth chronic hallucinations. Two of these had septic foci in the cervix and uterus, and following total hysterectomy their mental condition completely cleared up in so short a time as to enable one to attribute it to the operation. In cases of mental disease in women where there are gynaecological symptoms the pelvic organs should be carefully examined, and if uterine sepsis is discovered the uterus should be removed.

In the fibroid series excessive haemorrhage was the chief symptom in forty-five cases, leucorrhoea and bearing down in ten cases, retention of urine in five, and abdominal swelling or pain in fifteen. Irregular haemorrhage before or during the menopause was mostly associated with carcinoma of the cervix or degenerated submucous myomata, while irregular haemorrhage after the menopause led to the diagnosis of carcinoma of the body in thirteen cases. In my series carcinoma of the cervix occurred much earlier in life than carcinoma of the body, and the incidence of the two conditions was practically the same.

With regard to the question of the surgical menopause I have endeavoured to analyse the results following conservation and ablation of the ovaries at various ages. I have accepted hot flushes as the most valuable criterion, and have based my deductions on their occurrence. It is obviously unwise to be dogmatic in such a small series of cases, but the following facts appear to emerge. Of women who have had the uterus removed with conservation of ovarian tissue before 36 years of age, about 50 per cent. reported mild flushes occurring soon afterwards and lasting a short time; none of the remainder suffered symptoms until the age of at least 40. It appears from this that the removal of the uterus may temporarily upset the endocrine balance, but that conservation of ovarian tissue retards the development of the menopause for a number of years. Where the ovaries were sacrificed the flushes occurred in a larger percentage of cases, were much more severe, and the surgical menopause developed sooner. In cases operated on about the menopause age conservation of the ovaries was followed by mild symptoms, while ablation produced severe symptoms in a short time. In cases past the menopause ablation of the ovaries made no difference, while in those over 50 years of age and not past the menopause removal of the uterus, with or without castration, produced more or less severe symptoms in a short time. It thus appears that when hysterectomy has to be performed during the child-bearing period the best results will be obtained by conserving ovarian tissue.

I do not propose to describe the technique of the operation. There are, however, a few essential details to be stressed.

1. The vagina and cervix should be thoroughly disinfected with tincture of iodine or brilliant green prior to operation.

2. If the uterus is malignant or septic the cervix should be stitched and the tubes clamped to prevent the escape of malignant or septic material during operation.

3. Cystic ovaries should be removed, as they are liable to cause trouble afterwards.

4. It is unnecessary to stitch the round or infundibulo-pelvic ligaments into the angles of the vagina. If the vagina is divided at its junction with the cervix sufficient supporting tissue is preserved. This also provides a longer vagina. Perineorrhaphy should be done when strictly necessary.

5. The vault of the vagina should be closed except in cases of obvious infection, when it is used for drainage.

6. Silk should be used for the pedicles, and it is advisable to avoid including too much tissue, especially at the vaginal angles.

7. If the bladder is pushed well down and one keeps close to the side of the cervix in dividing the tissues there is practically no danger of injuring the ureter.

8. It should be the practice for an assistant to examine the cavity of the uterus before the abdomen is closed, as an undiagnosed cancer of the body may necessitate the removal of further tissue.

Concerning general health following operation 140 queries were sent out; 102 patients replied or called in person. The majority of these reported a marked improvement, and such remarks as "Never felt better," "Able to do my household duties," "Feeling a new woman" were constantly made. The return to a normal blood picture in those who had suffered from excessive haemorrhage was quickly accomplished, and dramatic recoveries were seen in those who had been operated upon for chronic infection.

Total hysterectomy is a safe, sound, and rational procedure when definite indications are present. I am in no sense advocating it as a panacea for the ills of the change of life, but I suggest that it is of immense benefit in that group of cases where chronic uterine sepsis is producing a pathological menopause.

Summary and Conclusions

1. A series of 210 hysterectomies is reported.
2. Of these 165 were abdominal total hysterectomies, with a mortality of 1.8 per cent.
3. The chief symptoms complained of, and the indications for operation, are analysed.
4. The results of an inquiry into the general health, marital life subsequent to operation, and the occurrence of the surgical menopause are recorded.
5. Total hysterectomy is advocated as a routine, and the reasons for this are given.
6. Some important points in technique are stressed.

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A CASE OF ACUTE SUPRARENAL HAEMORRHAGE

BY

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The occurrence of haemorrhage into the adrenal glands has long been recognized as a separate clinical entity, but difficulty of diagnosis is emphasized by the fact that most cases are discovered at necropsy; consequently little advance has been made in ascribing to the condition a definite aetiological factor, and none at all in the treatment of the catastrophe. All ages suffer, but infants are most commonly affected. Gunson[1] reports a case in a female aged 6 days; the mother was suffering from puerperal fever and the baby had umbilical sepsis and cellulitis of the arms. Death occurred thirty hours after the onset; post-mortem examination showed haemorrhage into both suprarenal glands, while microscopical examination of a section of the suprarenal, stained by Gram's method, revealed the presence of streptococci. In only a few cases is a presumptive cause so evident as this. Eadie[2] publishes details of a case of bilateral suprarenal haemorrhage occurring in a boy aged 5 years.

The presence of a definite infective origin for the condition is demonstrated in an article by Lusk and Brumbaugh.[3] They record the case of a man, aged 27, working in a lumber camp, who was treated for a felon and later developed follicular tonsillitis, a strain of *Streptococcus haemolyticus* being isolated from the throat. Death followed a brief illness, and necropsy showed haemorrhage into the suprarenal gland, with spontaneous rupture and extensive retroperitoneal haemorrhage. Blood culture revealed the presence of a haemolytic streptococcus. This case was followed by a series of cases of empyema in contacts, and in those so affected a haemolytic streptococcus was isolated from the pus aspirated from the chest in each case. Goodhart and Still[4] report a case in a male aged 17 months, and in a brief review of the condition point out the inefficacy of treatment even when diagnosis can be made with certainty.

At the other end of the scale is the type of patient of whom Severn writes.[5] A female, aged 59, unmarried, had been under observation for melancholia and arteriosclerosis with albuminuria, when she suddenly collapsed and was found in a condition of profound asthenia, with a temperature of 102° F.: general atonia and marked abdominal distension were present. Death followed within three hours. Necropsy showed the spleen to be pultaceous and pale, while the suprarenal glands were distended, oval, and red, with no other signs of disease. Careful examination revealed that the haemorrhage had destroyed the medulla and extended to the cortex. No infecting organism was found.

Kempf[6] reports clinical details of "classical" types—that is, rapidly fatal cases of suprarenal haemorrhage in young children, accompanied by diffuse purpuric cutaneous eruption, pyrexia, and signs of acute infection. An excellent review of the subject is supplied by Rabinowitz,[7] who distinguishes cases due to: (1) asphyxia, associated with birth; (2) to sepsis (secondary) from streptococci, meningococci, and other bacteria; (3) burns; (4) definite infections such as diphtheria, typhoid fever, scarlet fever, tetanus; (5) trauma; (6) haemorrhagic diathesis, and (7) leukaemia. Two cases are reported in females aged 18 and 17 months respectively. In a subsequent discussion he lays down as criteria for a diagnosis of the condition—acute illness in a healthy child, rapidly followed by purpura and collapse, in the absence of signs pointing to a meningococcal infection.

Kessell[8] reports a case of acute haemorrhage into both suprarenal glands in a male aged 30; no cause could be ascribed to the condition, although a thorough necropsy was made. Thomson[9] sums up the essentials of our very inadequate knowledge of the subject as follows:

> "Bleeding into one or both of the suprarenals is frequently found in newborn children, as a result of birth injury. It sometimes occurs in children of a few days old, from septicaemia, but the interesting type of the disease is that which occasionally sets in in children during the first year of life, as part of a rapidly fatal illness. The disease sometimes occurs as an epidemic, though there is no other reason to believe it to be infectious. The symptoms set in suddenly with severe abdominal pain, high fever, and sometimes vomiting and diarrhoea. Scattered purpuric spots may appear over the surface of the body. Convulsions are common, and death occurs usually within twenty-four hours, with quick pulse and respiration, and general collapse. No treatment has any effect."

Henderson and Pettigrew[10] bring to notice a case in a female aged 7 months. There was a history of one day being "off colour" and vomiting once. Purpuric spots were present; sudden cyanosis occurred at night, death following almost immediately. Necropsy showed extensive haemorrhages into both suprarenal capsules.

Case Report

A female, aged 17 months, was brought to hospital on account of being "unwell" for one day. About thirty

minutes before she was seen she had had three convulsions in rapid succession; she was "very restless, then went into spasm, with arms and legs straight out and eyes open and turned up." Each fit lasted about one minute. She was unconscious, and could not be roused. Vomiting had occurred once earlier in the day. Previous history told of a normal birth at full term and an attack of whooping-cough about three months before admission.

Examination showed the child to be in a comatose condition; the temperature was 104.6° F., pulse 134, and respiratory rate 80 a minute. There was impaired concussion note over left side of chest, mainly at the base, with high-pitched bronchial breath sounds; rales were present at both bases. Abdomen was flaccid and slightly distended; there was no rigidity and no palpable tumour. Heart sounds were rapid, but otherwise normal. Pupillary, superficial, and deep reflexes were all normal. There was a rash on the trunk and limbs consisting of small erythematous spots, which, however, faded during examination; no other cutaneous manifestations occurred. Optic disks were normal.

For the next seven hours the condition of the patient was one of extreme drowsiness and apathy. At the end of this time the temperature was 105° F., pulse 128, and respiratory rate 80. About thirty minutes later another convulsion occurred, with generalized body twitchings and eyes turned up. This quickly subsided, to be followed by another brief convulsion, during which death occurred.

Necropsy Findings.—The body was that of a well-nourished female child, normally proportioned and well grown. The skin presented no abnormal features. Thoracic contents: heart normal; right lung, a little basal congestion; left lung, some consolidation and collapse affecting the lower half, the distribution suggesting a bronchopneumonic rather than a lobar pneumonic infection; pleural cavities were clear. Abdomen: the spleen was somewhat enlarged, engorged, and slightly diffluent; liver normal; suprarenals were enlarged and dark red in colour, and on section there was extensive haemorrhage into each, the left side being more affected than the right; other abdominal viscera were normal, as were also the cranial contents.

Histopathological Findings.—Sections of the adrenal glands showed that the medulla had been practically destroyed by the haemorrhage, which had extended into the cortex, but had not transgressed the boundaries of the gland capsule. There was no sign of any diseased condition of the gland itself. Section stained by Gram's method failed to reveal the presence of any organism. The spleen was engorged, but otherwise normal; section stained by Gram's method was, as in the case of the suprarenal gland, negative for organisms.

Comment

A case is reported of spontaneous suprarenal haemorrhage, presenting a fairly typical history and with fatal termination. Owing to the fact that the condition was not diagnosed until after death, investigations such as blood culture, which might have thrown light on the aetiological factor at work, were not made. The occurrence of the terminal hyperpyrexia is noteworthy, as is also the non-appearance of a definitely purpuric rash.

With regard to causation it is conceivable that an organism responsible for the state of the left lung, itself a possible legacy from the attack of pertussis, might have been culpable, a view not supported by the negative "Gram" sections. Remembering the ease with which basal collapse occurs in moribund children, the pulmonary factor in the aetiology of this case should not be overstressed.

On purely theoretical grounds, by analogy with Addison's disease, a very low blood sugar might be [illegible] these cases, though such investigation was [illegible] our patient, nor is there any record [illegible] having been made in reported [illegible] condition is borne out [illegible] suggested that a [illegible] administra- [illegible] of the [illegible] by the most rapid route available. If the patient could be tided over the acute phases of the condition—an acute glandular failure—recovery is just possible: the haemorrhage may cease as it began, spontaneously. Unfortunately, the majority of such adrenal haemorrhages progress to a fatal termination.

I wish to thank Dr. H. Sanguinetti and his assistant, Mr. Creed, of the Pathological Department, National Temperance Hospital, for their assistance in the preparation and staining of the microscopical sections; and to acknowledge my debt to the librarian of the British Medical Association Library.

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Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

REPEATED PERFORATIONS IN A CASE OF DUODENAL ULCER

There is little mention in the literature of cases of repeated perforation of the same duodenal ulcer. The following case is unique in my experience, and is perhaps worthy of brief record.

A man, aged 65, was admitted into the Southend General Hospital on June 9th last. A few hours previously he was seized with the sudden excruciating pain so characteristic of perforation, and when admitted he had all the familiar signs and symptoms of this catastrophe. He diagnosed his own condition and was able to give a concise account of three similar experiences. In May, 1925, he was admitted to St. Olave's Hospital, Rotherhithe, as an acute abdominal emergency; the abdomen was opened, and a perforated "gastric" ulcer was embedded and closed by suture. In 1927 he was operated upon on admission to St. Leonard's Hospital, Hoxton Street, for a second perforation, and again in the same hospital in August, 1932. Although full notes were not available, the same type of emergency operation was performed, infolding and suture, on each occasion.

The fourth perforation, as already mentioned, occurred on June 9th, 1933, and the abdomen was opened through the old scar. Adhesions were conspicuous by their absence; the general peritoneal cavity contained gas and much free fluid. The perforation was readily found in the first portion of the duodenum adjacent to the pylorus. It was closed in the usual manner, covered with omental tags, and on this occasion a posterior gastro-enterostomy was performed. The patient made a rapid recovery, and was discharged from hospital a month later. A careful search was made for any evidence of gastric ulcer, but none was found. We felt certain at the end of the operation that it was the same duodenal ulcer which had perforated and had given rise to the same typical clinical phenomena on each of the four separate occasions.

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London, W.1.

ANTE-NATAL VERSION AND SUBSEQUENT RUPTURE OF THE UTERUS DURING LABOUR

In midwifery there is now a great increase in ante-natal version, with a view to easing the delivery for the mother and lowering the stillbirth rate. The stillbirth rate in breech cases is over 20 per cent. in the statistics of most large maternity hospitals. There are certain recognized dangers in association with version—for example, haemor-

rhage per vaginam due to detachment of the placenta, or death of the foetus *in utero* from interference with its blood supply by injury to the placenta or by causing a knot in the cord. Premature labour may also follow version.

There is, however, a danger not yet recognized—namely, rupture of the uterus at the subsequent labour. This is liable to occur if a breech with extended legs is turned with the child in the same position, so that the presentation becomes a head-and-feet presentation. If the foetus remains in this position when the membranes rupture then the position becomes fixed by the contraction of the uterus, and the labour is obstructed and must result in rupture.

I have collected four cases of rupture of the uterus with death of the mother, and Farquhar Murray mentions four cases, with three deaths, in his article on "Obstetrical Errors" in the *Journal* for July 1st. All these were in multiparae, and all had had version for breech presentations. I have gone into the details of my cases, and I find that in two of them vaginal examination had been made previous to the rupture to discover the cause of the delay in the descent of the head, and that a foot was found presenting with the head. I feel confident that all these cases of rupture were due to this cause.

The conclusion one is forced to adopt is that either an *x*-ray examination should be made before doing a version and cases of breech with extended legs left unturned, or, if on subsequent *x*-ray examination the presentation be a head with extended legs, then the foetus should be returned to its original position and delivered as a breech.

W. McK. H. McCullagh, F.R.C.S.,
Senior Obstetric Surgeon, City of London Maternity Hospital; Surgeon, Samaritan Hospital for Women.

British Medical Association

SCIENCE COMMITTEE

The Science Committee has received statements of the work done by the Association's scholars and grantees for 1932–3, together with reports on this work by the committee's visitors.

Scholarships

Dr. H. P. Nelson (Ernest Hart Scholar) has been investigating the value of posture in the treatment of non-tuberculous infections of the lung: (1) anatomical investigation by dissection and *x* rays of the distribution and direction of the principal bronchi in the lungs in order to demonstrate the posture to be adopted for lung abscess in various parts of the organ; and (2) clinical observation of cases in hospital submitted to postural treatment. He has supplied an interim report, in which the value of posture seems to have been made clear. Professor F. R. Fraser, the Association's visitor, states that Dr. Nelson has demonstrated the clinical value in bronchiectasis and lung abscess of continuous postural drainage in seventeen cases, and has evolved what appears to be a satisfactory method of ascertaining and demonstrating the anatomical distribution and direction of the branches of the bronchi. With the completion of this, it is added, he will be able to give concise indications for the method of postural drainage that should be used in any given case. Dr. Nelson reports that an attempt to visualize anatomically the exact situation of a lesion seen in an *x*-ray examination of the chest by removing the sternum of the cadaver and injecting lipiodol (the lungs being subsequently inflated, and *x*-ray photographs being taken in two positions) did not prove satisfactory. More indirect methods have now been employed, including the dissection of bronchi, lipiodol fillings in living patients, and the examination of injected post-mortem lungs. His clinical observations led him to devise a bed for the continuous postural drainage of lesions in the lower lobe bronchi. The bed is hinged across the middle, and can be wound up so that the centre of it rises. He is satisfied that considerable clinical benefit resulted.

Dr. N. J. Logie has been conducting an investigation of chloride metabolism in its relationship to intestinal obstruction and to post-operative vomiting, with a view to establishing the existence of a connexion between the chloride content of the blood and the motor functioning of the alimentary canal. Professor L. S. P. Davidson, the Association's visitor, considers this line of research valuable, there being several very important points regarding the effect of chlorides on intestinal movements which ought to be worked out to a satisfactory conclusion.

In addition to animal experiments devised to indicate the effects resulting from an induced lowering of the blood chloride content, and others on related lines, Dr. Logie has undertaken clinical investigations on normal and diseased human subjects. It was noted that patients with post-operative abdominal discomfort and distension seemed to benefit in some cases from the administration of 5 per cent. salt solution. In certain patients the bowels acted within a short time of this administration. In others no immediate bowel action ensued, but they experienced some measure of relief. A study of the reactions of the blood of these patients to the saline administration has been commenced. Cases of likely obstruction, both spontaneous and post-operative, have had blood chloride estimations performed in view of the possibility that the lesion might prove to be progressive.

Dr. C. L. G Pratt has been making a study of the response of the heart in intact laboratory animals to toxic and other influences, with a view to providing some suggestions as to the mode of action of the same substances in the human being. The substances in course of investigation include thyroid gland preparations, bacterial toxins, ephedrine, bromides, and calcium by deprivation. Dr. J. C. Matthews, the Association's visitor, reports that it is obvious that Dr. Pratt has mastered a most difficult technique, and has displayed great ingenuity in devising special apparatus. He has accumulated a very large number of tracings, sections, and records, which require further intensive study. These, Dr. Matthews thinks, should produce results not only of theoretical interest, but also probably of great practical value, especially if they reveal the nature of the well-known tendency to cardiac failure in diphtheria, and point the way to an appropriate line of treatment.

Dr. Pratt states that during the year he has used rabbits, rats, and guinea-pigs in investigating the effect on the electrocardiogram of adding thyroxine and thyroid gland to the diet, the effect on the histology of the myocardium, on the heart ratio and the pulse frequency, and on associated non-cardiac factors. About 750 photographs were taken, and sections (some serial) of forty-four hearts were cut and stained. He has also studied the effect of intravenous injections of scarlatina toxin on the electrocardiogram of the rabbit, and of subcutaneous injections of diphtheria toxin on that of the guinea-pig. About 250 photographs have been taken in the course of this investigation, which is not yet complete. Sections of thirty-six hearts have been cut and stained, and the relevant literature studied. Details of the technique elaborated and records of the control normal electrocardiograms have been submitted in a thesis for the degree of M.Sc. in the University of Liverpool.

Dr. E. W. Skipper's work on diabetes in pregnancy is described by Professor F. R. Fraser as being thoroughly satisfactory, and contributing to knowledge on this subject. One paper has been accepted for publication in the *Quarterly Journal of Medicine*, and a second paper is being prepared which will embody observations on the alterations in carbohydrate metabolism that occur in pregnancy.

Dr. Skipper reports that he has studied thirty-nine pregnant diabetic patients (forty-three pregnancies) treated at the London Hospital since 1923. Attention was paid to the following aspects of the subject: insulin and the fertility of the diabetic; the effect of insulin on the maternal and foetal mortality; modifications in the course of diabetes consequent upon pregnancy and the puerperium; the influence of the maternal disease upon the child; the diagnosis of diabetes during pregnancy, with special reference to the non-diabetic glycosurias of pregnancy; and the management of the diabetic during pregnancy and the puerperium. He found that insulin treatment had reduced the maternal mortality, but had had

a stimulus to those whose clinical diagnostic abilities have been blunted somewhat by too frequent recourse to mechanical means of investigation.

It is fully recognized that the occurrence of diseases is influenced by factors other than infection with the specific bacteria. Dr. Rappin discusses this question in a rambling book, Considerations on the Aetiology of Infectious Diseases.[7] The essential idea that he entertains is that the alimentary tract, which contains a very varied flora, may serve as a source of bacteria which become pathogenic as the results of various conditions. As a result of this diseases may arise spontaneously. He cites the mysterious appearance of epidemics and instances in which it is difficult to account for their spread by direct contagion. Pneumonia and diphtheria are given as examples of diseases in which the bacteria may be carried by the patient and disease be lit up by other conditions. The author suggests that cocci that are found in cancer are actually produced from the tumour cells. The book contains some useful information, and the author's long medical career enables him to shed an interesting light on the development of modern ideas.

[7] *Considérations sur l'Etiologie des Maladies Infectieuses.* Par Docteur Rappin en collaboration avec M. le Docteur Doussain. Nantes: Imprimerie de Bretagne. 1933. (Pp. 132; 7 plates.)

The fourth and concluding volume of the *History of Veterinary Literature*,[8] by the late Major-General Sir Frederick Smith, has now been published, four years after his death. The completion has been effected by Dr. F. Bullock, who co-operated with the author in the preparation of the previous volumes. The present book is entitled *The Early History of Veterinary Literature and its British Development*, and it contains a list of authors noted in the order in which their first published work appeared. In each case details are given of the work of each author, and a critical appreciation of its value. The volume contains also a biographical memoir of Sir Frederick Smith.

Those were the Days![9] by Atwood Clark, is a charming series of sketches dealing with shooting, fishing, and country life, and illustrated by very clever pen-and-ink drawings. There is an excellent chapter on dog training.

[8] *The Early History of Veterinary Literature and its British Development.* By the late Major-General Sir Frederick Smith, K.C.M.G., C.B. Vol. iv: The Nineteenth Century, 1823-1860. Edited with a Memoir of the Author, by Fred Bullock, LL.D. London: Baillière, Tindall and Cox. 1933. (Pp. xxiv + 162; 12 plates. 15s.)

[9] *Those were the Days!* By H. Atwood Clark. London: Philip Allan and Co., Ltd. 1933. (Pp. 283. 12s. 6d. net.)

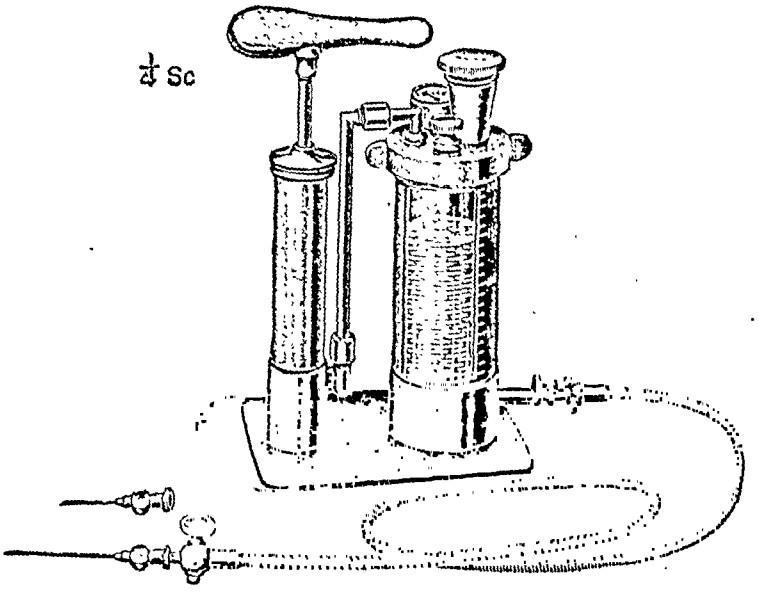
Preparations and Appliances

A LOCAL ANAESTHETIC APPARATUS

Mr. Hamilton Bailey, F.R.C.S. (London, W.1), writes:

For infiltrating large areas with local anaesthetic the apparatus shown in the accompanying figure, which Messrs. Down Bros. have made for me, has many advantages. The apparatus is sterilized by boiling. It is filled with 1 per cent. novocain, and the pump is operated until the desired pressure is registered on the gauge. By turning the tap near the needle a continuous stream of local anaesthetic is available. By employing this apparatus considerable areas can be infiltrated in a few moments with far less fatigue than when a syringe is employed. However, I still use the ordinary syringe for blocking deep nerves when veins are likely to be in the vicinity.

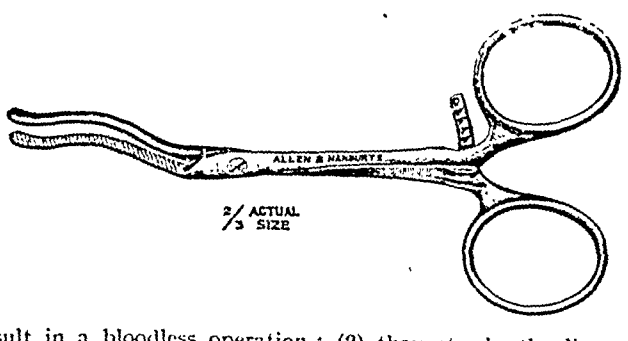
I have had the apparatus in use for six months, and have found it most satisfactory.



HARE-LIP CLAMPS

Mr. H. Morton Anderson, F.R.C.S. (surgeon, Coventry and Warwickshire Hospital, Coventry), writes:

These clamps, as shown in the diagram, have proved of value in hare-lip operations. The advantages claimed for them are: (1) they completely control the bleeding, and



result in a bloodless operation; (2) they steady the lip, and so permit of accurate apposition; (3) they are useful in bringing the flaps together and allow of suturing without tension.

The clamps are extremely light, weighing less than half an ounce each, and measure five inches in length. They have been made by Messrs. Allen and Hanburys Ltd.

HALIBUT-LIVER OIL

The vitamin A content of Collosol brand halibut-liver oil preparations, as measured by the blue unit test, is stated by the makers (Crookes Laboratories) to be eighty times as great as that of the finest cod-liver oil, with a vitamin D content correspondingly higher. The label affixed to each bottle of the oil now states the number of the batch, the date of bottling, and the vitamin value by the blue unit *B.P.* test (10 per cent. dilution), the biological test, and the spectroscopic test.

TOILET PREPARATIONS FOR ALLERGIC CONDITIONS

In a recent paper (*British Medical Journal*, July 8th, 1933, p. 43) on the treatment of allergic conditions such as hay fever and asthma, certain useful preparations were mentioned. These consist of face and toilet powders and creams made by Boutalls Ltd. of 150, Southampton Row, W.C.1, and sold by them under the name of "Queen" non-irritant toilet preparations. They are free from orris root and oil, and contain no substances which might irritate the skin or mucous membranes. The manufacturers state that these powders and creams have been specially made after consultation with members of the medical profession, so that they may safely be prescribed for patients who have the slightest nasal irritation or even the most sensitive skins.

British Medical Journal

SATURDAY, OCTOBER 7th, 1933

THE STUDY OF MEDICAL HISTORY

Fifteen years ago Dr. Arnold Chaplin, at the end of his FitzPatrick Lectures, noted with approval the great progress recently made in the study of the history of medicine. "At most centres, both here and on the Continent," he said, "its investigation has become almost a recognized branch of medicine. Although the days have long since passed when the mere mention of medical history raised a smile of genial sarcasm, many of us would be glad to see a still wider interest shown in the subject." There have been many signs since then of a wider and deeper interest, and not least so among the general practitioners of Great Britain and Ireland. Thus, for example, a Section of the History of Medicine was formed at the Annual Meeting of the British Medical Association in Edinburgh in 1927, and proved so successful that it has reappeared in the scientific programme of four subsequent meetings. Meanwhile the Section of the History of Medicine at the Royal Society of Medicine, which was created in 1912, has continued to meet from session to session under the presidency of a long line of distinguished scholar-physicians and scholar-surgeons. The latest holder of that office, Sir StClair Thomson, devoted his inaugural address this week to a consideration of the present need for the study of the history of medicine. Having disarmed any possible criticism with the remark, "I enter on the duties of president with all the ardour of a late convert and all the ignorance of a beginner," Sir StClair first examined some of the causes of the neglect which overtook this branch of study during the rapid development of scientific medicine in the second half of the nineteenth century. "With the wonderful powers placed in our hands by anaesthesia and Listerism it is no wonder that the strong wine of rapid progress went to the heads of many who did not remind themselves of the inevitability of gradualness." Moreover, it is possible that the physicians' traditional preoccupation with the past, which was only beginning to wane 100 years ago, led to some reaction against historical study.

For one reason or another the cultural side of medicine certainly suffered a measure of eclipse. "None of us—no profession, no art, no school of thought, no calling, no craft—can escape the influence of the *Zeitgeist*. These epochal discoveries have led to the glorification of the scientific side of our calling and the elevation of research. Research came to mean little beyond laboratory research, and with this came exaggeration of the physically demonstrable. . . . The technique of the mechanics of our science has left little time to study the art of medicine. . . . Had he studied the history of medicine the physician of to-day would not be so apt to be swept by the current of mechanical developments from the sure foundation of one of the oldest arts in the world." With these and other wise reflections, delicately phrased, Sir StClair Thomson led up to the central message of his address, which is that the fundamental principles of any science can be studied only through the historical approach. The student and practitioner who has acquired the habit, in however small a degree, of "thinking historically," will absorb unconsciously from the proud record of medicine a high standard of ethics, a love of his profession, a regard for its dignity, and an appreciation of its difficulties. Further, an acquaintance with the story of past triumphs and failures, and with the antiquity of many methods of treatment employed to-day, encourages "moderation in esteeming the value of our work and of ourselves." It also helps us to realize the mutability of medical theories, and so to keep a balanced and common-sense attitude towards new opinions and half-fledged hypotheses.

The range of modern medicine is so wide, the duties of the practitioner are so multifarious and so exacting, that little leisure is left for cultivating the Muses. But a study of the history of medicine—Clio Medica—would permit the physician, as Dr. Chaplin has well said, "while still tethered to his life-work, to roam in a wide circle into the realms of history, biography, philosophy, and all the activities of the human mind." It is good to be reminded from time to time that medicine is still a branch of the humanities. We cannot afford to neglect the study of its history, both for plain practical reasons and because (in Sir StClair Thomson's words) this subject stimulates general culture "by reviving a closer kinship with literature, art, music, poetry, and the adornments of life." Far-reaching is the influence of physicians and surgeons like Norman Moore and William Osler and D'Arcy Power, who bear their learning lightly and in the daily life of hospital quicken the minds of students to an interest in the continuity of medicine, thus reinforcing the work of professed medical historians such as Karl Sudhoff and Charles Singer and Fielding Garrison.

"SUCH STUFF AS DREAMS ARE MADE OF"

The choice of a surgeon to open the discussion on anaesthesia before the Section of Pharmacology and Therapeutics at the Annual Meeting of the Association in Dublin was not, perhaps, so Hibernian as might at first sight appear. For although the day has gone by when the anaesthetist was regarded as a subordinate of the surgeon rather than as a colleague, it is still true—indeed much more true than it ever was, to the great benefit of patients—that surgeons are most perceptive observers of every advance in anaesthetic technique: keenly appreciative of their anaesthetists' successes, and rightly critical of their failures. For

this reason the paper read by Mr. F. J. Morrin (see p. 636 this week) deserves, and will certainly receive, the close attention of practising anaesthetists; while his peroration on the "perfect anaesthetic" opens up a subject in which not only all branches of the medical profession, but also the whole community, can take an intelligent interest.

The requirements which Mr. Morrin postulates are certainly not attainable by any one drug at present known to us; and it is quite possible that no one drug ever will fulfil them all. Consider, for instance, the fifth postulate—namely, that the "anaesthetic effect . . . should be at all times under control." This implies that the anaesthetic agent must be capable of being very rapidly removed from the circulation (in the case of general anaesthetics), a condition only feasible when it is in the form of a gas quickly eliminated through the pulmonary exchanges. Some gas may ultimately be found which will accomplish the other five suggested postulates: but the tendency of recent progress, as is well known, is to look towards basal narcotics and premedication for a pre-operative and post-operative amnesia which no gaseous anaesthetic is likely, in the nature of things, to be capable of producing. These two amnesias, so desirable for the patient and therefore so acceptable to the surgeon, may be read into the first postulate, though not expressed there in set terms. The same postulate contains a closing demand, not indeed actually germane to the first part of it, to the effect that complicated apparatus shall not be necessary. Without elaborating the side issue as to what apparatus is, and what is not, a complicated one, it will readily be admitted that in all branches of surgery, as in the administration of anaesthetics, simplification of apparatus is a desideratum; for the human factor can never be eliminated, and to rely on a too intricate piece of machinery for reducing anaesthetic risks is to invite just that degree of minor inattentiveness which underlies a fair percentage of anaesthetic mistakes. Yet at the same time it is unlikely that the professional anaesthetist—in England, at any rate—will ever revert to the dangerous simplicity of the folded handkerchief, safety-pin, and chloroform bottle of the nineteenth century.

The next proviso, that induction must be agreeable, is now mainly fulfilled by the use of basal narcotics, which produce a state of torpidity in which disagreeable sensations will not be produced, or rather will not be recognized as such. Our ideal gaseous anaesthetic, when discovered, may conceivably cause positive pleasure during induction; but even if it does this, it obviously cannot quell pre-operative apprehensiveness, nor is it likely to minimize post-operative pain and restlessness, because of its rapid elimination from the system. It seems deducible, therefore, that basal narcotics have come to stay; and the activity with which research is being carried out into the production and properties of new ones is a tribute to the widespread recognition of this improvement in recent technique. Mr. Morrin expresses his own views upon the relative merits of several of them, and his personal preferences are naturally not exactly the same as those of a proportion of other operators and anaesthetists. Divergencies of opinion on such matters, especially during the early years of a new line of therapeutic progress and during a period of great activity in the production of new drugs for the purpose, are a healthy sign; for they mean that unbiased trials are being given to alternative substances. To some extent at least the medical profession has to rely for its information as to the pharmacology of these anaesthetics and narcotics upon the pamphlets issued by the manufacturers, or upon scientific papers issued by those in their employ. The evaluation of all the many basal narcotics now upon the market by some wholly unprejudiced authority of recognized standing—as for example the Medical Research Council—would be a real benefit to patients and to the profession. None of them is, *ex hypothesi*, capable of being regarded as the perfect anaesthetic; but certainly some of them more nearly fulfil the functions required of them than others do, and a scientific assessment of their relative performances would be a great public service. Meanwhile the ideal anaesthetic, which must "leave not a wrack behind," is still "such stuff as dreams are made of," and our experiences on the operating table are "rounded with a sleep" produced by agencies less perfect.

BRITISH ORTHOPAEDIC PRACTICE

It is always well for us to get even a glimpse at ourselves as others see us, and when we can feel sure that the observer is absolutely unbiased and has not stooped to flatter his late hosts, we can accept approbation and encouragement with pleasure. Such a report as that by Dr. Melvin S. Henderson on orthopaedic surgery in the British Isles, which he made to a staff meeting of the Mayo Clinic,[1] may, we feel sure, be taken as a case in point. Dr. Henderson's report dealt with the visit which he made this year to take part in the meeting of the International Society of Orthopaedic Surgery, which was held in London last July, and he also visited many orthopaedic hospitals and clinics in Great Britain, finishing his tour by a trip to Ireland and taking part in the Annual Meeting of the British Medical Association in Dublin. Dr. Henderson is no stranger in this country. He reminds his colleagues of the Mayo Clinic that his first visit to Britain was made in 1911, and he usefully compares what he found then with what he saw and heard in 1933. "Twenty years ago," he says, "in England orthopaedic surgeons were few in number and were not considered an altogether necessary addition to the rapidly growing number of specialists. Now orthopaedic hospitals are distributed throughout the kingdom, and those in charge devote their entire time to orthopaedic surgery." He described with warm approbation his visits to orthopaedic hospitals in

[1] *Proc. Staff Meetings Mayo Clinic*, viii, No. 31.

Aberdeenshire, Lancashire, Manchester, Birmingham, Alton, London, and elsewhere, and he rightly gives credit to Sir Robert Jones and Dame Agnes Hunt for their pioneer work at Baschurch, in Shropshire—since transferred to Oswestry. On his way back from Dublin Dr. Henderson visited Liverpool, and saw how the torch dropped by Sir Robert Jones is being kept alight by his successors in that city. He sums up his experience in these words: "My visit to the British Isles convinced me that orthopaedic surgery is conducted on a highly satisfactory basis, both as to personnel and as to hospitals and equipment."

The war altered many things, and to it some of the changes of the last twenty years must no doubt be attributed; but most of the advance referred to by Dr. Melvin Henderson must be credited to the one man who was able and willing to seize the opportunity and raise orthopaedic practice in Britain to its present position. Sir Robert Jones's death is so recent that the world has not yet fully realized the magnitude of his achievement. After the great work which he accomplished for the wounded he was not content to rest under his laurels, but he set to work to organize the treatment and care of cripples throughout the country. The organization which he fostered and the surgeons whom he trained are doing every year more and more and better work in the treatment of deformities and disabilities. Sir Robert Jones was never a narrow specialist, and it must have rejoiced him in the last months of his life to see how widespread the influence of his teaching and example has been on many general surgeons and on the organization of general hospitals and medical schools. We have not the figures at hand to show how many orthopaedic departments have been added to general hospitals since the war, but there are now few schools of importance without them.

HAEMOGLOBIN STUDIES IN INFANCY

The establishment of a normal haemoglobin curve for infants and young children is an obvious preliminary to further work on the anaemias of childhood. In Great Britain the researches of Dr. Helen Mackay have been of great value in this respect, and a recent study from America[1] forms an interesting contrast both in the methods employed and in the results obtained. Drs. C. A. Elvehjem, W. H. Peterson, and Dorothy Reed Mendelhall have used the acid haematin method, and they urge that all results of such investigations should be expressed as so many grams of haemoglobin per 100 c.cm. of blood for each age period. All values for premature infants, twins, and children definitely anaemic or receiving treatment for anaemia were excluded from the final results, which are based upon about 2,000 determinations on 750 children varying in age from birth to 5 years. The same gross results were found as in Dr. Mackay's series—namely, a high value at birth falling rapidly to a low point between 8 and 12 weeks, a slight increase between 12 and 24 weeks, and a slight decrease thereafter. The curve obtained, however, showed higher values throughout than that obtained by Dr. Mackay. This is in part due to a difference in the methods used, but also, according to the American workers, because so many of the London babies were in reality suffering from a mild degree of anaemia. The American work is not presented in so much detail as that carried out in this country, for while the average values were calculated twice in the first four weeks of life, this was only done at four-weekly intervals over the next period up to 80 weeks. Changes are occurring very rapidly in early infancy, and details may be lost unless shorter time periods are used. If it be assumed that the results obtained do represent a normal haemoglobin level for normal children it becomes obvious that between six months and the third year of life the average haemoglobin value is about 4 grams per cent. less than for adult males. This is a considerable percentage of the total haemoglobin, and it is not yet determined whether such a decrease represents a real lack of haemoglobin—*that is, a pathological condition*—or whether in childhood such a level is optimal and physiological. An attempt to settle this was made by the American workers, who gave a selected group of children a diet designed to promote the best possible formation of haemoglobin. Even such children showed a level of haemoglobin 3 grams per cent. less than the adult normal standards, although their haemoglobin began to increase at an earlier age than in similar children on ordinary diet. Dr. Helen Mackay has also attempted to solve this aspect of the problem by a detailed study of the factors causing the variations in the level of haemoglobin with age in the first year of life, in the current issue of the *Archives of Disease in Childhood*.[2] It seems clear that the high haemoglobin level of the newborn infant is related to the low oxygen tension of the blood of the foetus *in utero*, and the drop in the first week of life is related to the increased oxygen tension brought about by pulmonary respiration. What is termed "physiological blood destruction" continues for some weeks, accompanied by an increase in the formation of red cells about the fifth to eighth weeks. Since the drop in haemoglobin in the first three months of life may be dangerous for the premature and underweight baby, in whom it tends to be excessive, it would be an advantage if such a decrease could be controlled or even arrested. So far no method of treatment has proved effective, but Dr. Mackay mentions an investigation now being carried out with regard to the prophylactic value of injections of adult blood. The fall in haemoglobin after six months is especially likely to happen in infants where the rate of growth has been rapid, and here it seems clear that an iron deficiency must be blamed. Even regular iron treatment will only keep a child's haemoglobin up to about 85 per cent. on the Haldane scale. This deficiency type of anaemia, however, is certainly in part due to an excessive degree of blood destruction in the first two months of life, and it will be of interest to see whether control of such haemolysis, if it can be effected, will produce even higher values for haemoglobin in late infancy. Until this is determined it still remains doubtful whether the levels obtained in London or in America are real "normals."

[1] *Amer. Journ. Dis. Child.*, 1933, xlvi, 105.

[2] August, 1933, p. 251.

BASAL NARCOTICS IN STRYCHNINE POISONING

New uses are continually being found for those barbituric acid derivatives which have been introduced in recent years as basal narcotics. One of their latest applications is in the treatment of strychnine poisoning. In a recent article Drs. S. Stalberg and H. S. Davidson[1] point out that the classical treatment of strychnine poisoning with chloral and bromides, reinforced with chloroform or ether, is associated with a mortality of 35 per cent., while intravenous injections of sodium amytal give immediate and prolonged relief, and have been used successfully in twelve cases. They conclude that sodium amytal is the ideal drug for the treatment of strychnine poisoning, from the pharmacological, physiological, and clinical standpoints, and they also mention tribromethanol as a useful adjuvant. These authors report the successful treatment of a case of strychnine poisoning which presented certain remarkable features. At 10.30 one morning a woman, whilst in charge of a motor car, took by mistake $1\frac{3}{4}$ grains of strychnine, an amount which is slightly more than the average lethal dose ($1\frac{1}{2}$ grains). About fifteen minutes later she became nervous and restless, and experienced stiffness of the limbs. As a result of this she crashed into a tree and was arrested on a charge of drunkenness. The police surgeon declared her to be drunk, but she was taken to the accident ward of the local hospital, where she was given apomorphine, and later chloral hydrate, bromide, and tannic acid. Her stomach was not washed out, and she was discharged after two and a half hours. She was then seen by Drs. Stalberg and Davidson, who treated her with sedatives. She showed some clonic twitchings of the head but no convulsions, and after twenty-four hours the danger of convulsions was deemed to be past. Forty-nine hours after taking the strychnine pills severe convulsions started: these were successfully controlled by sodium amytal, but recurred at intervals for the next four days. The first convulsion occurred two days, and the last five and a half days, after the taking of the strychnine. The next incident in the story was the patient's appearance in court on the original charge of drunkenness. The police surgeon, with a consistency and firmness worthy of a better cause, persisted in his original diagnosis, and the patient was convicted. Fortunately, this remarkable verdict was reversed in a higher court. The case may be fairly described as both surprising and interesting. The number and variety of intoxications that can be, and have been, confused with acute alcoholism is notorious, but few would think of including strychnine poisoning in the list of such possible errors. The extraordinary length of time before the appearance of convulsions in this case must have been due to delayed absorption. Probably the gastric movements were immobilized, first by the emotional excitement of the motor accident and later by the sedatives. The history of the case shows very clearly the importance of washing out the stomach thoroughly at the first opportunity. The fact that the patient survived, although convulsions continued over a period of four days, points very strongly to the efficacy of sodium amytal in the treatment of strychnine poisoning.

[1] Stalberg, Samuel, and Davidson, H. S.: The Newer Treatment of Strychnine Poisoning: Report of an Unusual Case. *Journ. Indiana State Med. Assoc.*, July 5th, 1933, p. 402.

VOLVULUS

Widely different aspects of volvulus are discussed in two recent articles. Ligat and Overend[1] deal with recurrent volvulus of the pelvic colon, a phase of the disease which has received but little general attention, although previously recognized as the probable cause of those attacks of colic, constipation, and distension which are known sometimes to precede the final attack of acute volvulus. The authors describe the anatomy and pathology, the essential factor in which is an excessive length of the pelvic colon, congenital or acquired. They present a series of twelve cases with which they have dealt in a little over a year—not a large number, but sufficient to support their main contention that this condition deserves a fuller consideration than it usually receives in the elucidation of obscure abdominal disorders. The symptoms are often indefinite, but, in general, consist of constipation, pain, which varies from discomfort to severe attacks of colic, abdominal distension, and occasionally a watery or blood-stained diarrhoea following the attack. By using a special radiological technique, based on Fischer's method of examination of the air-and-barium-filled colon, evidence of the condition was obtained in all the published cases, consisting usually of the presence of a potential axis of rotation in an elongated loop of colon with fixed and approximated ends; while in three cases direct evidence of volvulus was seen—a torsion of the mucous folds of the colon in two, and a twining over each other of coils of intestine in the third. Three of the cases were subjected to resection of the affected loop with complete relief of symptoms, a method of treatment which, although ideal, is of limited applicability. In a Finnish publication K. E. Kallio[2] gives a comprehensive survey of the world literature on the rare and remarkable condition of compound volvulus, the pathology of which consists, not of a torsion of a single loop of gut around its axes, but of an actual knot formation between two different coils. He has collected records of 161 cases, of which no fewer than 150 occurred in Finland and Russia, and only eleven in other countries, including three in England, making this a notable example of a geographically limited surgical disease. It appears to be confined to the poorest classes of manual labourers, generally males, and this is attributed to the large quantities of badly prepared and indigestible vegetable food which they eat. A relatively long colon occurs in Finnish men, in itself no doubt an adaptation to the prevalent diet, but not of importance in the hereditary sense, as the disease does not occur in the richer classes in Finland, nor among the not inconsiderable Finnish population of America. The onset occurs almost always at night, which is explained on the basis of the pathology; the elongated sigmoid undergoes flatulent distension and ascends to the upper abdomen, forming the fixed component of the knot, while a freely movable coil of small intestine crosses it, and, recrossing, completes the knot. An anatomical classification of the types of knot formation is given, the ileo-sigmoid type being by far the commonest and the ileal the next in frequency. The treatment is on orthodox lines, and the mortality of 65 per cent. is what might have been expected with a condition in which two loops of gut are often

[1] *British Medical Journal*, 1933, ii, 7.
[2] *Acta Chir. Scandinavica*, lxx, Supplementum xxi.

gangrenous. The author's statement that the majority of these patients were in hospital within twenty-four hours of the onset of the attack is worthy of special notice.

ENCEPHALITIS LETHARGICA IN MISSOURI

During the past two months references have appeared in the daily Press to a severe epidemic of encephalitis lethargica which is at present occurring in St. Louis, Missouri. A descriptive article and editorial appearing in the *Journal of the American Medical Association* for September 16th have provided the main source of information for the notes which follow. Reliable details are at present scanty, but it appears that the first case was notified on July 31st. By August 30th 129 cases were recorded, with twelve deaths, and up to the present there seems to have been a total of 741 cases, of which 126 were fatal. It is estimated that the height of the epidemic has not yet been reached, and that the case incidence will not be less than 30 per 100,000. It appears that the present epidemic differs from previous ones in the greater incidence of the disease among older age groups, 30 per cent. occurring in persons over 50. The case mortality is also higher in this group, reaching 30 per cent. The attack is heralded by the onset of headache, nausea, fever, neck rigidity, tremor of the hands and tongue, together with some pharyngitis. Coma and convulsions have occurred, but less commonly than lethargy. Disorientation, mental confusion, and aphasia are common, and a few cases of hyperexcitation are recorded. In contradistinction to previous epidemics, ptosis and oculomotor palsies are rare. Examination of the cerebro-spinal fluid has shown a marked lymphocytosis, averaging 100 per c.mm., but cell counts as high as 300 to 500 have been met with. The blood shows a leucocytosis with a lymphocytopenia. Mild cases have cleared up in one to two weeks, and at present no sequelae have been reported. Twelve cases have been submitted to post-mortem examination, and changes characteristic of lethargic encephalitis have been found. The changes involved the cortex cerebri more severely than the basal ganglia. It has been impossible to trace any contact among those affected, and in only one instance have two cases been recorded in the same family. There is no evidence available as to the mode of spread of the disease, but drinking-water as a possible infective agent has been excluded. Cases have been treated by protein shock and by convalescent serum with no evidence of benefit.

SIR E. SHARPEY-SCHAFER

Volume xxiii of the *Quarterly Journal of Experimental Physiology* has been dedicated to Sir Edward Sharpey-Schafer, who since 1908 has run it so successfully. The editorship of the volume has been entrusted to Dr. Argyll Campbell and Sir Leonard Hill, who deserve our congratulations on having succeeded in obtaining and editing over thirty contributions from past and present students of Sir Edward. The name of Emeritus Professor J. A. MacWilliam among them indicates how numerous and revered some of the past students are. The appearance of the volume, coinciding as it does with the resignation of Sir Edward from the chair at Edinburgh, naturally makes us think of the great place he has filled in British physiology for more than half a century. He is possibly best known for his original work on the suprarenal capsule, the pituitary body and artificial respiration, but he is much more. He is one of the fathers of British physiology. When William Sharpey came to University College in 1832 he brought with him from Edinburgh the spirit of the new science of physiology. Three of his pupils were Michael Foster, who went to Cambridge, Burdon-Sanderson, who went to Oxford, and Schafer. Around these three men it may truly be said that the whole new science of physiology has developed in the last half-century in this country. Often, it is true, the new science has appeared neglectful of the immediate need of medicine, but now medicine has begun to realize how much it must owe to physiology in the years to come. The scope of the volume is ample evidence of the width of the subject, and the names of those who have contributed from all over the world are a fitting tribute to him it seeks to honour.

THE MEDICAL REGISTER: UNTRACEABLE PRACTITIONERS

We publish in the *Supplement* this week (p. 189), at the request of the Registrar of the General Medical Council, a list of the names of those medical practitioners who have not replied to his inquiries as to the accuracy of their postal addresses. Any practitioner, wherever resident, whose name is included in this list should communicate at once with the Registrar of the General Medical Council, 44, Hallam Street, Portland Place, London, W.1, or, in certain specified cases, with the Registrar of the Scottish Branch Council, 12, Queen Street, Edinburgh.

DIRECT REPRESENTATIVES ON G.M.C.

As briefly announced in our *Supplement* last week, Dr. J. W. Bone, Dr. E. K. Le Fleming, and Dr. Christine Murrell have been elected unopposed as direct representatives of the profession in England and Wales upon the General Medical Council. Dr. Bone and Dr. Le Fleming have each served one term of five years in the same capacity; Dr. Murrell has the distinction of being the first woman practitioner to be elected to the Council. The other two representatives for England and Wales are Sir Henry Brackenbury, who was first elected in January, 1925, and Mr. N. Bishop Harman, elected in November, 1929. The representative for Scotland is Sir Norman Walker (1907), who succeeded Sir Donald MacAlister as President of the Council in November last; and Dr. Leonard Kidd has represented the profession in Ireland since 1906. From the formation of the General Medical Council in 1858 until the passing of the Medical Act of 1886 the registered medical practitioners in the three countries were without direct representation.

The British Association will hold its annual meeting in 1934 at Aberdeen, under the presidency of Sir William Hardy, F.R.S., director of food investigation in the Department of Scientific and Industrial Research.

BRISTOL UNIVERSITY: DEPARTMENT OF PREVENTIVE MEDICINE

OPENING BY THE MINISTER OF HEALTH

On Friday, September 29th, the Minister of Health, Sir Hilton Young, formally opened a new Department of Preventive Medicine at the University of Bristol. The department is housed in Canynge Hall (formerly the Imperial Hotel, Clifton), which has been adapted and equipped for the purpose. Under an agreement between the University and the city the bacteriology, pathology, and preventive medicine work of Bristol and its municipal hospitals will be carried out by this department, which will receive a grant from the city for its maintenance. In order to facilitate arrangements Professor Walker Hall resigned his professorship of pathology and was appointed Director of the new laboratories and Dr. R. H. Parry was appointed Honorary Professor of Preventive Medicine in the University. The vacant chair of pathology has been filled by the appointment of Professor G. Hadfield of the Royal Free Hospital (formerly pathologist to the Bristol General Hospital), who will devote himself to research and teaching. The promised co-operation of the pathologists at the Royal Infirmary and the General Hospital will enable Professor Hadfield to draw his material and give instruction to his classes in these two institutions. The association of the preventive medicine department with the municipal hospitals at Southmead, Ham Green, Frenchay, and elsewhere, will likewise serve to increase the material to which medical students and research workers in Bristol will have access. The professors of medicine, surgery, and obstetrics are also accommodated in Canynge Hall, so that for the present all academic lectures in the clinical subjects will be given there.

At the inauguration ceremony last week the Vice-Chancellor, Dr. Thomas Loveday, welcomed the Minister of Health in the large lecture theatre before a considerable assembly of guests, including the Lord Mayor of Bristol, the Sheriff (Dr. Kenneth Wills), Alderman Maggs (chairman of the Health Committee), Dr. Stanley Badock (chairman of the University Council), and Mr. Hiatt Baker (Pro-Chancellor).

Dr. Loveday described the steps by which the connexion between the city health services and the university pathological department had grown up during more than thirty years, until it had culminated in this complete union in the department of preventive medicine. It was, he said, a difficult experiment to start, but it would be easy to carry on when well started. Both parties to the agreement expected that it would work happily under the direction of Dr. Walker Hall, with the medical officer of health, Dr. Parry, in the chair of preventive medicine. Alderman Maggs, as chairman of the Health Committee, said he looked upon this development as a great step forward in the interests of the public health for the protection of food supplies, for the earlier recognition of disease and for its control and treatment.

Sir Hilton Young, declaring the new department open, referred to the tour of Bristol he had just made—viewing the new housing estates, the city's efforts at slum clearance, the homes for children, the nursery school, the municipal hospitals, particularly the orthopaedic hospital at Frenchay and Hortham Colony for Mental Defectives. He congratulated the city on feeling forward along the lines of development of the public health services and grasping at new opportunities. Bristol had its slum problem, a legacy of old days with lower standards, but it had also its legacy of traditional progress. "This department of preventive medicine will stand as an example of vigour and foresight adequate to your needs. It should give to everyone encouragement and high hope to continue the efforts of a great and honourable past."

Dr. Walker Hall and Dr. Parry also spoke, each paying tribute to the great preventive work carried out by the late Dr. D. S. Davies, who for many years was medical officer of health for Bristol. Dr. S. Badock proposed a vote of thanks to Sir Hilton and Lady Young, and, referring to Sir Hilton Young's remark that the present celebration was a marriage of the city of Bristol with the fair nymph of knowledge, said that it was a most modern type of marriage in that it was subject to revision from time to time, but this provision would probably achieve a lasting and happy union.

After the opening ceremony the Minister of Health was the guest of the University at lunch in the University Union. The Lord Mayor (Alderman Wise), in the course of his speech proposing the health of Sir Hilton and Lady Young, mentioned with pride that Bristol possessed an example of Lady Young's artistic handiwork in the cathedral. Sir Hilton Young, replying, said that he would not have asked for this opportunity of paying Bristol a visit if he had not been confident that he would find there a discharge of the services for which he was responsible that was in the best standard of national achievement. "I can confirm from my personal impressions and knowledge," he said, "that you need not fear comparison with other great cities of the country." Dr. Middleton Martin, medical officer of health for Gloucestershire, spoke of the value to the county in the past of the University's pathological department, and welcomed this extension as promising to be of even greater service in the future. He, like other speakers, referred to the splendid work of the late Dr. D. S. Davies.

Undoubtedly the occasion marks a further stage in the closer co-operation between the State and voluntary organizations, which is all to the good. It is perhaps singular that throughout the proceedings no speaker mentioned Bristol's greatest contribution to preventive medicine in the discovery by Dr. William Budd of the mode of transmission of typhoid fever. Dr. Budd's rules for nursing typhoid cases are to this day employed by the whole civilized world.

INTERNATIONAL UNION AGAINST TUBERCULOSIS

The annual meeting of the Council of the International Union against Tuberculosis, whose chairman is Professor Nolen (Netherlands), was held in Paris last July, when delegates from fourteen countries attended. At an administrative session at the headquarters of the Union, 66, Boulevard St. Michel, it was decided to hold the next conference of the Union in Warsaw on September 4th, 5th, and 6th, 1934, and that the three following subjects, selected from a list of questions submitted by the various countries, would be entered on the agenda:—Biological subject: Biological variations of the tubercle virus. Opening report by Professor Karwacki (Poland). Clinical subject: Medical and surgical forms of tuberculosis of the bones and joints and their treatment. Opening report by Professor Putti (Italy). Social subject: The utilization of dispensaries for the treatment of tuberculous patients. Opening report by Professor Léon Bernard (France). Mr. John A. Kingsbury of the United States will give a lecture on "Methods in Further Control of Tuberculosis—Report upon an Experiment in a Rural Area Characterized by a Low Tuberculosis Rate." According to the plan followed at Oslo and at The Hague, ten speakers, selected from different countries, will be designated to open the discussion on each of the three main subjects.

The scientific session which took place during the Paris meeting was devoted to a report by Dr. Saenz on "Tuberculous Bacillaemia." The report was followed by a discussion in which Professor Léon Bernard, secretary-general of the Union, Professor Valtis (Greece), Professor Bezançon (Paris), Professor Yevrem Nedelkovitch (Yugoslavia), and others took part.

OPENING OF THE WINTER SESSION

ST. BARTHOLOMEW'S HOSPITAL

THE NEW MEDICAL COLLEGE

At the annual dinner of the old students of the Medical College of St. Bartholomew's Hospital, held on October 2nd (see below), several of the speakers referred to the purchase by the college of the site and buildings of the old Merchant Taylors' School in Charterhouse Square. Such an event is an important landmark in the history of a hospital which has passed its eight hundredth anniversary, and which has on its roll more than 800 students. The hospital and the college, although inseparably connected, are in fact two separate institutions. During the last twenty-five years the hospital has been in the process of reconstruction, the new buildings erected including an out-patient department, a pathological block, a new nurses' home, and a surgical block; and it has for some time been evident that the hospital could not indefinitely accommodate on its already restricted site the medical college

The enlargement of the hospital itself, the post-war growth of the medical school, the necessity of bringing teaching equipment up to date, the deprivation of the college of its residential hostel, and the falling vacant of a suitable site have compelled the council of the college to incur expenditure at a time when appeals for money are not met as readily as in the past. But no one will deny that such expenditure is justifiable. It is essential that such a scheme should be carried through to completion if the hospital and the college are adequately to fulfil their obligations to the medical profession and the public.

It is estimated that about £200,000 is required to complete the scheme The cost of the site and the existing buildings is £130,000, and towards this about £65,000 has already been raised. Towards this sum the staff, and others closely connected with it, have generously contributed as much as £25,000. In addition to the remaining half of the purchase price (£65,000), £25,000 is needed for the erection of an anatomical department, £30,000 for a residential college, and £15,000 for necessary alterations at the outset: that is, about £135,000 has still to be found. The immediate need is £15,000 for structural alterations, which will enable the college to move into and use the new premises at an early date. Further help from old Bart's men is therefore much desired.

The old Merchant Taylors' School is situated at the junction of Old Street, Clerkenwell Road, Goswell Road, and Aldersgate Street, and buildings grouped round a grass court have already been marked off as suitable for housing departments of physiology, chemistry, physics, biology, and the warden's house and offices. The new buildings which will be erected will be the anatomy department and the residential college. Thus the students' quarters and the preliminary scientific departments will, so to speak, all come under one roof, and be geographically separate from the hospital, its lecture theatres and museum In this way both will be able to expand to their fullest capacity.

Old Students' Dinner

The Prime Minister, Mr. Ramsay MacDonald, was the guest of honour at the annual dinner of old students of the Medical College of St. Bartholomew's Hospital, held in the Great Hall on October 2nd, under the chairmanship of Lord Horder. The following message from the Prince of Wales was read by the chairman:

"Not only as President of St Bartholomew's Hospital, but as a 'perpetual student' of the Medical College, I send my best wishes to all present at to-night's dinner. I welcome the decision to take advantage of the opportunity of moving to the site of Merchant Taylors' School, thus providing for the needs of the college, while at the same time vacating space which will be required for the extension of the hospital. I am glad to hear of the amount already raised towards the cost of the new college buildings, and wish all success to the present appeal I hope that it will not be long before the students are settled in the residence that is to be provided for them and I feel confident that the college, in its new home will continue to play the great part for which, as the largest medical school in England, it is distinguished in the fields of medical education and research"

Lord Horder then read the reply to be sent to the Prince on behalf of the assembled company, and also messages received from Professor Harvey Cushing Professor Hugh Cabot, and Lord Macmillan, expressing their wishes for a successful issue to the appeal for funds for the medical college

The Prime Minister, in proposing the toast, The Medical College," said that he was very glad to be present on such an especial occasion He was one of those who worshipped the old things of great repute As he cast his mind back to 1123 (when the hospital was founded) and then to the present, he still found Bart's young and growing The Prime Minister congratulated Lord Horder, who "advised him with such sagacity and moral rectitude," upon his peerage He offered, he said, his congratulations, not for the title, but because Lord Horder had won it by his great service to the profession. This was the time, the Prime Minister continued, for the medical profession to go ahead In a warm tribute to the "old practitioner," he said that the inhabitants of small, remote villages owed much to the fine old village doctor. They were a wonderful lot of men Science and medicine were, however, now extending their field every day, and a new outlook was required Praising the doctor "who knows and understands," the Prime Minister said that he was very glad St. Bartholomew's had embarked on its new venture in purchasing the site of the old Merchant Taylors' School. He hoped with all his heart that it would meet with every success

Mr. W. Girling Ball, dean of the college, in reply to the toast, said that the hall they were dining in was built in 1729, and this was the first occasion on which it had been honoured by the presence of a Prime Minister of England. Reporting the events of the past year, Mr Ball graciously referred to Lord Horder's peerage Sir Holburt Waring had once more been elected President of the Royal College of Surgeons, and Professor Gask vice-president Sir Charles Gordon-Watson had come out at the top of the poll, and Mr R. C Elmslie had been made a member of council Dr. W Langdon Brown was now Regius Professor of Physic at Cambridge; Professor E D Adrian had won a half-share in the Nobel Prize; Sir Thomas Dunhill had been granted a knighthood The medical college, continued Mr Ball, was thriving During the last three years they had had to limit the entry of new students to 130 a year, and last year they had had to turn seventy away. At least 86 per cent of the 800 students in the college came from the Universities of Oxford, Cambridge, and London; the remainder were largely from the Dominions. It was because Bart's was determined to give the best it could to its students that the college had set out on its present venture It was now a hundred years since Abernethy had started the medical school. The preliminary sciences had advanced so far since Abernethy's time that the pre-clinical teaching had far outstripped what was once thought sufficient. The student had to have a thorough and accurate pre-clinical scientific training if he was to understand the basis of modern methods of diagnosis and treatment. For this the best men and the best equipment were required; and this needed space. It was fortunate that the college had been able to acquire the site and buildings of the old Merchant Taylors' School. The Merchant Taylors Company had shown the college great sympathy and had granted it many financial concessions. Mr. Ball announced that they could now see their way to £73,000 towards the figure required. For

the help they had received they were indebted, amongst others, to Mr. Vigers, the staff of the hospital, the University of London, numerous city companies, and the St. Bartholomew's Women's Guild. The college was making this an occasion to initiate an appeal to the general public. "We have a plan," Mr. Ball concluded, "which will make Bart's what it always has been—the foremost medical school in the country."

Mr. REGINALD VICK, proposing "The Guests," extended on behalf of the old students a cordial welcome to the Prime Minister, and expressed their gratitude for his inspiring speech. With felicitous phrase and apt biographical reference he welcomed by name the guests present, among whom were: Lord Stanmore, Lord Wakefield, Lord Moynihan, Lord Bearsted, the Dean of St. Paul's, the Right Rev. H. L. Paget, the heads of the medical services of the Navy, the Army, and the Air Force, the Regius Professor of Medicine at Oxford, the Regius Professor of Physic at Cambridge, the Presidents of the Royal College of Surgeons and of the Royal Society of Medicine, Professor G. Grey Turner, Professor A. H. Burgess, Professor D. P. D. Wilkie, Sir Frederick Menzies, the Master of Charterhouse, the head masters of St. Paul's and of Merchant Taylors', and representatives of the city. Lord MOTTISTONE and Sir GEORGE NEWMAN replied for the guests. The last toast, "The Chairman," was proposed by Dr. GEOFFREY EVANS in a eulogistic speech. Dr. Evans attributed the professional success attained by Lord Horder to his tireless energy and strength, to his sheer knowledge of facts, and to a mind which moved with ordered precision, quick to react to an atmosphere whilst remaining detached from it. After a witty and sympathetic reply to what he called Dr. Evans's "panegyric," Lord HORDER remarked that the present appeal of the college for funds was not a romantic appeal, but an appeal to the intelligence of the citizens of this country. He then announced the following donations to the medical school fund: £1,000 from Lord Wakefield; £100 a year for seven years from a friend in Scotland, with the corollary that "If you keep me alive after that I will see what more I can do"; £100 a year for ten years from a grateful patient; £200 from Lord Leverhulme; and a cheque for £300 from "An Old Friend."

CHARING CROSS HOSPITAL

PRIZE DISTRIBUTION

The annual presentation of prizes and certificates in connexion with Charing Cross Hospital Medical School took place on September 29th in the council room of the hospital. Dr. GORDON HOLMES, chairman of the Medical Committee, presided, and pointed out that at the close of the year just beginning the school would complete its centenary. It was established in 1834 as an integral part of Charing Cross Hospital by the founder of both institutions, Dr. Benjamin Golding, who from the first strove to provide adequate facilities for medical education as well as a hospital for the relief of the sick. This was a revolutionary policy, since at that time medical schools, though loosely attached to, were not incorporated with, the teaching hospitals. For the last ninety-nine years the council of the hospital had striven to maintain the high ideals of its founder, and had regarded the school as an integral part of the foundation; but in 1881, when extensions became necessary, the school had to be moved from the hospital buildings. The erection of a new medical school in Chandos Street was an expensive undertaking, and by the terms of King Edward's Hospital Fund the council of the hospital was precluded from bearing any of the expense. Four years ago, however, the chairman of the council, Mr. George Verity, arranged for the purchase of the freehold of all the school buildings. A considerable part of the mortgage had been repaid, and it was hoped that the school would start on its second hundred years free of the financial burdens which had weighed on it during the past forty. To celebrate the centenary it was proposed next year to make an appeal for a sum to redeem the outstanding portion of the mortgage, extend and remodel the buildings, provide a hostel for students, and establish a scholarship fund.

After the dean had reported on the year's work, the prizes and certificates were presented by Dr. W. LANGDON BROWN, Regius Professor of Physic in the University of Cambridge.

In the course of an interesting address, Professor Langdon Brown said that the school must be nearly as old as scientific medicine, because modern medicine, as we knew it, began with the nineteenth century. It had been said that before Laennec clinical observation, though never blind, had always been deaf. That was an exaggeration, but it was true that the first systematic work on percussion was that published by Auenbrugger in 1761, and it was not until a translation of this book was published by Corvisart in 1808 that the importance of percussion was generally admitted. In 1816 Laennec invented the stethoscope, and from that time the practice of auscultation and percussion did more than give information as to the contents of the chest; it systematized the whole method of examination. The second great advance was the introduction of anaesthetics. We could hardly imagine to-day the state of surgery before anaesthetics, but the increased activity of the surgeons brought in its train troubles due to sepsis, to combat which fresh defences were found in bacteriology and the introduction of antiseptics. Then came the decade when he himself embarked on the perilous voyage to qualification—a decade of great discoveries. It saw the association of the pancreas with diabetes proved, the first treatment of patients with thyroid extract, the use of diphtheria antitoxin, and the discovery of the secretion of the adrenal medulla and of the posterior pituitary, thus laying the foundations of endocrinology. Next came the discovery of x rays, and, before the close of the century, of radium, which was to revolutionize our conceptions of matter and affect the diagnosis and treatment of disease. Thus the stage was set for twentieth century medicine. With the exception of vitamins, perhaps nothing of quite such novel and far-reaching importance as endocrines, antitoxins, x rays, and radium had been discovered in this century, but the rate of advance all along the line had been accelerated. In Charing Cross Hospital it was fitting to recall the great advances in the study and treatment of the anaemias, since so much of the pioneer work was associated with the name of Dr. William Hunter, to whom, he believed, we were also indebted for the conception of focal sepsis. In addition to many advances in the material sphere, the greatly increased knowledge of the way in which the normal and abnormal mind worked must not be forgotten. It was of the highest value, enabling the patient to be regarded as an individual and not merely as a case. G. K. Chesterton had said that he hated natural science because it robbed the world of mystery and wonder, but personally Professor Langdon Brown wondered how such an idea could survive the reading of an elementary textbook of physics or biology. Natural science had, in fact, made the world a far more wonderful place than unaided imagination could possibly do. If Mr. Chesterton thought the claim was made that the mystery of life had been solved, he was greatly mistaken. As Sir Frederick Gowland Hopkins said recently, "Most biologists, having agreed that life's advent was at once the most improbable and the most significant event in the history of the universe, are content for the present to leave the matter there." Sir Gowland went on to state a fundamental attribute of life: whenever and wherever it appeared, the running down of energy displayed by all the rest of the universe was arrested. Life was the only thing which held the universe from running down, and which could maintain energy at a useful level. That was a profoundly interesting conception, and certainly a more cheerful one than that which Sir James Jeans recently put forward—that life might be a disease of the old age of matter. At any rate disease, as medical men knew it, was a reaction of the organism to abnormal stimuli in the external or internal environment. Medicine was a department of biology, and there was no line of demarcation between physiology and pathology. Michael Foster had expressed the view that the

two sciences were really one "What would you think," he asked, of a meteorologist who said he was only concerned with good weather and not with bad?' Doctors were pilots to steer the body through its spells of bad weather He would therefore congratulate the students, whether prize winners or not, on their choice of a career It was one which was full of appeal, both on the scientific and on the human sides It satisfied the detective instinct which most people possessed and the altruism which they also possessed, even though they might sometimes prefer to be without it! Its interest was sufficient to compensate for having "to scorn delights and live laborious days"

ANNUAL DINNER

The annual dinner of past and present students of Charing Cross Hospital Medical School was held at the Cafe Royal on September 30th, under the chairmanship of Dr WILLIAM HUNTER In proposing the health of the hospital and medical school Dr Hunter said that the occasion marked the beginning of the centenary year of the medical school, and he congratulated the officers of the school and the members of the staff on the excellent progress that was being made During the last three years the hospital had suffered a great loss in the deaths of Sir Herbert Waterhouse and Mr H S Clogg Dr Hunter said that Charing Cross was very proud of Dr Gordon Holmes's election to Fellowship of the Royal Society, and also wished success to Dr A B Rosher in his new appointment He concluded his speech by paying a tribute to the founder of the medical school, Dr Benjamin Golding Replying to the toast in a brief and charming speech, Mr ERIC CROOK, the dean, said that they looked upon this year as the beginning of the centenary year There were various plans for celebrating this, and among them the idea of forming a students hostel This would go a long way towards answering the question of every parent whose son entered Charing Cross as a medical student, "Where will he live?" Mr Crook said that on the prize giving day their chairman, Dr Hunter, had visited every department and room in the hospital except, he thought, one—the room with the bow window, where T H Huxley had worked The past year, he continued, had been a successful one, and there had been a very satisfactory entry of students The health of the chairman was proposed by Mr E D D DAVIS The pathological museum at Charing Cross, he said, owed its existence to the enthusiasm of Dr Hunter, who had come to Charing Cross as a pathologist from Edinburgh He referred to Dr Hunter's important work on pernicious anaemia and focal sepsis Among Dr Hunter's many services to Charing Cross was his successful deanship of the medical school Dr Hunter briefly replied Between the speeches Dr S Taylor Harris and Mr John Goss entertained the company with an excellent programme of songs, and a most enjoyable evening was continued at the hospital, where a dance was held

ST. THOMAS'S HOSPITAL

OLD STUDENTS' DINNER

The St Thomas's old students dinner was held on September 29th at the Dorchester Hotel, Park Lane Dr CHARLES RICHARD BOX being in the chair After the King's health had been drunk, the chairman proposed the toast of 'The Hospital and Medical School He recalled the fact, recently pointed out in Professor Parsons's *History* of the Hospital, that it was the custom two hundred years ago for eight stewards to stand the annual dinner, and at the dinner a collection was held to defray expenses for the ensuing year Turning to the hospital at the present day the chairman said that St Thomas's now occupied a particularly healthy site, for at every change of tide the Thames swept the air clean through all the wards and departments He then drew attention to the recent reconstruction of the wards and special departments, which had now resulted in an equipment second to none There had also been considerable improvements in the medical school, and they might boast that the new anatomical lecture theatre was magnificent In reply, Sir ARTHUR STANLEY (treasurer) said he was glad that Professor Parsons's *History* was progressing to a second volume In the earlier one he had shown what a good thing a treasurer could make out of the hospital by selling property to himself and reselling it at a higher price The speaker's own family had been connected with the hospital during the reign of Henry VIII, but its representative failed to get a job on the staff as it seemed that he was too much of a fool! In 1912 the hospital had received an anonymous gift of £20,000 to be devoted to the new out patient department the identity of the donor was only revealed four years ago This sum had not been spent and had now become £43,000 With the improvement in local loans at the time of the conversion a further increase had occurred which, with other assistance had brought the sum up to £56,000 The treasurer paid a tribute to the ingenuity of Colonel Irwin, who had evolved the plan which was now being carried out and was estimated to cost £70 000 They had already spent half that sum last year in providing a new dispensary tuberculosis department and ear, nose, and throat department Next year they would finish the work with the big waiting hall and surgical room The reconditioning of the wards was still in progress, and there were three more blocks to do The treasurer said that they had no money at all for this, but they proposed to continue with the work and let the next generation look after itself Professor LEONARD S DUDGEON, *dean of the medical school also replying said* that they had had two great losses during the year for two of the greatest men whom he had known in his time at St Thomas's had died—Mr J H Fisher ophthalmic surgeon good committeeman and sportsman and Sir Percy Sargent, one of the most brilliant surgeons St Thomas's had ever produced He had only one criticism of Sargent—namely that he wrote so little on his work on the central nervous system and that he trained so few men in the specialty in which he himself was an expert The dean also referred to the tragic death of Alaric Ballance at an early stage of his career Turning to the medical school he said that the buildings were now complete, the anatomy theatre was finished this week, thanks to the efforts of Professor Le Gros Clark The year had been of considerable importance in the linking of the hospital with the Lambeth (L C C) Hospital They were glad to be in touch with Dr Bayly *the director* and to have the municipal hospital so near He felt it appropriate at this point to disclose another fact—namely that the time had come for a much better co operation between the medical schools of the different London hospitals These had in the past been behaving rather like the Balkan States and it was time that they joined in some direct manner A lead had already been given but more co-operation was required Among the distinctions of the past year Sir Charles Ballance had been made Lister Memorial lecturer at the Royal College of Surgeons while Professor E Mellanby had obtained the coveted position of secretary to the Medical Research Council In the sphere of athletics Dr Gardiner Hill was to be congratulated on winning the Lord Warden Cup at Rye The medical school had won three rowing races, the fencing the golf the hockey and the cricket matches They had lost the athletics to St Bartholomew's it had seemed to the dean that the chief events had been won by St Thomas's men and the victory had gone to their opponents by the 'padding' events In Association football St Thomas's easily beat St Mary's Professor LANGDON BROWN briefly replied on behalf of the guests and Mr GIRLING BALL, dean of St Bartholomew's, who also spoke, expressed himself in favour of St Bartholomew's and St Thomas's co-operating Sir CUTHBERT WALLACE, proposing the toast of 'The Chairman," said that it was by Dr Box's slow, modest, and persistent work that the children's ward had come into being Study of the Registrar General's returns suggested that there would soon be no need for a children's department, and possibly a "senility department" would take its place Dr Box and he had been in close association for many years, since their meeting in 1893 when they entered for the Fellowship examination together Dr Box briefly replied

WESTMINSTER HOSPITAL

ANNUAL DINNER

The annual dinner of Westminster Hospital students past and present was held on Saturday, September 30th, at Grosvenor House, Park Lane, Mr. E. W. Gandy, senior anaesthetist to the hospital, occupying the chair. The chairman, who proposed the toast of "The Hospital and Medical School," said that perhaps the outstanding feature of the year was that they had got into the semi-final of the Rugby Cup. The work of the hospital was now almost bulging its walls; whereas in 1913 there were 2,660 in-patients, this year there were 4,576, while the number of out-patients had risen during the same period from 60,577 to 139,000. The students now numbered 128. Sir Cooper Perry had said that he knew of no hospital which had made such wonderful progress in the last ten years as Westminster Hospital. There was no truth, the chairman added, in the rumour that St. George's and Westminster Hospitals were to be amalgamated, or that Westminster Hospital was to be removed from its present dignified surroundings to Clapham. "Westminster spread her canvas 100 years ago, and will continue to sail under that canvas by herself."

Dr. A. E. Parker of Wisbech, and Mr. J. B. Neal, on behalf of the students of to-day, replied to the toast in humorous speeches, Mr. Neal characterizing the growth of the hospital in recent years as alarming, and suggesting that dressers had had to be turned out of the surgery to make room for patients.

The health of the visitors was proposed in sparkling terms by Dr. Adolphe Abrahams. Sir Squire Sprigge, Editor of the *Lancet*, in responding, said it was a great honour to medical journalism that Dr. Gerald Horner and himself should be asked to reply to the toast. The position of medical journalism was not exactly defined, and they both welcomed any definite recognition of it as an integral part of the medical profession, which it really was. The success of a medical journal depended on the intimate co-operation of every section of the medical profession, and its editor was really in the position of a ring-master in a circus: he stood in the middle and made gestures, but he could not himself bound through a hoop or perform feats on a trapeze. It might occasionally be his duty to say to a performer, "That trick has been done before, so I do not think we will have it again." Every day there arose problems in which the medical aspect had to be considered with due regard to what was the right of the medical profession as properly educated guides and advisers of the public. The public were curiously ill informed on medical matters, and it was their natural habit to assume generalities. That those who had had a long and careful education should be superseded by laymen in the control and conduct of medical affairs was a dangerous idea which had to be dispelled. Dr. Horner, Editor of the *British Medical Journal*, who also responded, said that though a guest he did not regard himself as a stranger among Westminster people; nearly thirty years ago he became a member of the resident staff of the hospital, and he always looked back with pleasure to the months he spent there. There were only a handful of students in those days, and they were treated like pets.

The chairman's health was proposed by Mr. Arthur Evans, who paid many compliments to Mr. Gandy's work and personality, and after a brief acknowledgement of this toast the company adjourned to another room for informal exchange of opinion and reminiscence.

INAUGURAL ADDRESS

The inaugural address of the new session was delivered in the board room of the hospital by Professor W. Langdon Brown on October 2nd, with Sir Henry Hadow in the chair. The dean of the medical school, Sir Stanley Woodwark, gave an inspiriting account of the progress made in all directions during the past year. In the course of his address Professor Langdon Brown brought out the striking way in which twentieth century medicine was returning to the cult of Aesculapius, with its emphasis on cleanliness, fresh air, suggestion, dream analysis, and psychological explanation. Since medicine was a branch of biology, an essential part of clinical investigation was the study of the patient as a whole—as a living organism reacting to changes of environment, external or internal. Both the practitioner of ordinary materialistic medicine and the psychotherapist tended to forget one aspect of the patient. It was by a combined attack on the physical side and on the psychological side that medicine in the future would advance. No aspect of a case should be neglected.

ST. MARY'S HOSPITAL

ANNUAL DINNER

The annual dinner of St. Mary's Hospital Medical School was held at the Trocadero Restaurant on September 30th, with Dr. Reginald Miller in the chair. An innovation was the holding of the dinner on Saturday, and the toasting of the chairman's health immediately after that of the King and members of the Royal Family, this being followed by the toast of "The Hospital Medical School." In proposing the chairman's health Dr. P. Montague Smith said that a strict limit had been fixed for the length of speeches, and he would endeavour not to exceed the record of fifty-five minutes held by an unnamed speaker on a previous occasion! He well remembered Dr. Miller's appointment to the staff: he had been introduced by Mivart, and had soon showed himself an expert in children's diseases. Dr. Miller's forebears were largely medical, and to his natural gifts he had added humour, authority, and world-wide experience. He would always be remembered for his deep researches into the origin of rheumatism following the work of Carey Coombs. In reply, Dr. Miller expressed sincere and cordial thanks. He mentioned the advantages of being no one in particular, the responsibilities of a dinner committee, and the organizing ability of Dr. Hope Gosse. Fewer and briefer speeches were, he realized, the order of the day; he offered his hearers a slogan in interpretation of this. Among the guests he welcomed the chairman of the St. Mary's Hospital Board, the Vice-Chancellor of London University, and the Mayor of Paddington. The dinner had been fixed for Saturday night for the benefit of those old Mary's men who were attending the post-graduate course over the week-end. It remained to be seen whether the change was a popular one or not. Everyone associated a certain pleasure with Saturdays, which reminded him that the new medical school was so nice, with its library and swimming bath, that perhaps all days would seem like Saturday! The school was now built, and as a building it was a tribute to the talents of their gifted architect. Parts of it were in use already, but it would be some months before the formal opening. Replying to the toast of "St. Mary's Hospital Medical School," the dean, Dr. C. M. Wilson, said that it was usually his job to give facts, but this had already been done by Dr. Montague Smith. Before the war it had been said that Mary's should become a post-graduate school, and the matter of clinical units had been discussed. Beds from the infirmary were suggested, and eventually they had got them. The Treasury had pointed out that this experiment with the unit system had already been tried by five large London schools, and it would take five years. They had, however, tried the experiment, for they ran a temporary unit for four years, and eventually a grant was forthcoming. This was the turning-point, and there had been no difficulties with the authorities since then. The unit system brought them all into close touch, and had been an immense asset to the hospital. Dr. Wilson then referred to the post-graduate course. People came up for it year after year, and it had proved extremely popular. Dealing with the "usual worries of finance," he said they now had a reserve fund of £11,000; students' fees had increased, and there was a £2,000 balance of income over expenditure. He had had to turn down many prospective students, as they could not go on taking too large an entry. As regards the medical school, the University of London had been most generous, and he was able to announce that the King hoped to open it in the near future.

England and Wales

King Edward VII Welsh National Memorial

The twenty first annual report of the King Edward VII Welsh National Memorial Association (Prevention, Treatment, and Abolition of Tuberculosis) covers the twelve months ended March 31st 1933, and contains information of general interest A table indicates the diminution in the tuberculosis death rate in Wales and Monmouthshire during the last thirty years, but elsewhere in the report it is mentioned that there were definite increases in the numbers of new cases examined for the first time, of contacts so examined and of attendances at dispensaries and visiting stations The number of *x* ray examinations made in connexion with dispensary work rose in the year under review to 10,520, as compared with 7,802 in 1931 As a deduction from these considerations, Dr D A Powell, principal medical officer of the National Memorial Association, records his conviction that one fact which is emerging more and more clearly with the greater use of radiography is the amount of gross disease which may be present in the lungs without giving rise to symptoms or signs that seriously arouse misgiving on the part of patient or medical practitioner Such a grave condition may, indeed, be quite compatible with the preservation of normal or almost normal working capacity In the past, it is added, patients have often been unfairly accused of an ostrich like incapacity to face facts, whereas the facts, so far as the patient was concerned, were really not there to be faced, and the medical adviser shared in the odium of the patient's undeserved reputation for stupidity or supineness Dr Powell points out that the whole tendency of modern clinical investigation is to antedate considerably the period when infection passes into declared disease—although silent disease from the point of view of the sufferer—and to emphasize the fact that tuberculosis must be unmasked by looking for it in unlikely places—namely, in persons exposed to risk but who do not yet realize that they are already definitely infected Reference is made to an exhaustive inquiry conducted by Dr Enid Williams, in conjunction with Dr Gilchrist, into thirty five families, comprising 125 persons, which showed that evident and even gross intrathoracic lesions could exist without impairment of the general health As regards contact cases, an interesting comparison is made between Wales and Lancashire, which have comparable administrative antituberculosis schemes The figures indicate that, assuming the same standards of diagnosis in each case, tuberculosis of all forms and at all ages is found twice as often in contacts in Wales as it is in Lancashire ; taking adults alone it is found two and a half times as often Pulmonary tuberculosis at all ages occurs two and a half times as often in contact cases referred for examination in Wales as in Lancashire in adults it occurs three times as often In child contacts the incidence of tuberculosis (all forms) is approximately the same in both areas, but pulmonary tuberculosis occurs twice as often in children in Wales Dr Powell remarks that, while the differences may be explained partly by different diagnostic standards, or by a varying application of these standards, they tend to confirm the higher susceptibility to tuberculosis of Celtic and rural Wales as compared with English and industrial Lancashire This comprehensive annual report contains also four noteworthy references to recent investigations conducted in connexion with the National Association Dr A Brownlie records a series of cases illustrating the essential part played by the modern tuberculosis institution in the diagnosis and treatment of general medical and surgical conditions which simulate tuberculosis, and showing how far progress has been made from the old conception that institutions for the tuberculous should be either convalescent homes or refuges for the dying Dr C W Burns, dealing with the after results of discharged surgical patients, shows that 70 per cent remain fit for six years or more His series brings out very clearly the retribution which follows premature stoppage of this treatment Dr T W Davies presents the result of an inquiry into the association in the same patient of pulmonary and non pulmonary tuberculous lesions The difference in the prognosis according to whether the surgical or the pulmonary lesion appears first is brought out very clearly Dr W Davies describes a case of tuberculous pericarditis which was treated by aspiration with air replacement , considerable alleviation of the symptoms followed Reference is made in the report to the small part played by the bovine bacillus of tuberculosis in Wales Dr Powell agrees that this would be a matter for congratulation if it could be traced to a greater purity of the milk supply as compared with that in England He fears, however, that an equally likely explanation is that the amount of milk consumed per head in Wales is even less than that consumed in England and Scotland, the records of which in this respect are far from enviable This annual report is a compendium of clinical and scientific information which well deserves careful study It indicates that the work of the Memorial Association is intensifying in vigour and in usefulness and should be watched carefully outside the confines of the Principality

Treatment of Verminous Houses

Dr C Killick Millard, medical officer of health for Leicester, includes in his annual report on the health of that city in 1932 a discussion of the problem of the infestation of houses by the bug *Cimex lectularius*—the subject of his presidential address last year at the annual conference of medical officers of health at Brighton in connexion with the Royal Sanitary Institute Congress Special attention was directed to this matter in Leicester in 1932, and the conclusion was reached that the majority of old cottages in the poorer parts of the city were probably infested. While the bed bug does not appear to be the carrier of any specific disease, it is quite possible that infections may be transmitted by it Apart from this Dr Millard believes that much of the wasting and anaemia observable in infants and young children living in poor homes is due to the nightly massed attacks made on them by these voracious blood suckers He points out that such house infestation does not always and necessarily reflect seriously on the character of the tenants for when bugs have once become established the efforts of a health department with all its varied resources may often fail to exterminate them Owing to the unsatisfactory results hitherto obtained from the old time method of fumigation with sulphur dioxide it was decided to try hydrocyanic acid gas and ten houses (seven in an area about to be cleared) were so dealt with The tenants in the occupied houses evacuated them for the day only, and returned at night after the presence of traces of the gas in the air had been definitely excluded The results were not very satisfactory, for in two out of the three houses the occupation of which was continued bugs reappeared in considerable numbers within a few weeks This failure was explained on the grounds that (1) the time of exposure to the gas was too short , (2) not enough gas was used to compensate for this shortage , and (3) the houses were so old and dilapidated that they could not be made gas tight Treatment with sulphur dioxide was consequently resumed as a routine, but in much greater concentration than before, gas masks and respirators being supplied to the men engaged in the work Dr Millard believes that this method is the most promising one at

present, but he adds that the disinfection must be repeated after an interval of two to three weeks, when the resistant eggs will have had time to hatch out but the bugs will not have developed maturity and laid more eggs. It would probably increase the likelihood of success if the process could be continued for twenty-four hours, but the provision of alternative accommodation for the tenants for the night presents certain obvious difficulties. Many chemical reagents on the market are advertised as destroyers of bugs, but the difficulty is to reach the insects hidden in cracks and crevices. Boiling water is effective, and there is a steam spray apparatus which serves the double purpose of removing old wallpaper and destroying the bugs with their eggs. Wallpaper, skirting boards, and picture rails act as harbourers of these pests, and Dr. Millard thinks that in new houses these, as well as door architraves, should always be made removable; for the crevices formed by the joints in bedsteads brushing over and spraying with ordinary paraffin is simple and quite effective. He would like to have every bug-infested house condemned as unfit for human habitation, and would throw the onus of its disinfection jointly upon the owner and the occupier.

Mental Treatment Act, 1930

Those medical practitioners whose approval for the purpose of signing recommendations under Sections 1(3) and 5(3) of the Mental Treatment Act, 1930, expires on December 31st next are being invited by the Board of Control to make application for renewal of the approval and are being furnished with forms of application for this purpose. Any other practitioner who may desire to seek approval under the Mental Treatment Act can obtain a form of application on writing to the Board of Control, Caxton House West, Tothill Street, Westminster, S.W.1.

Scotland

Public Health Reorganization in Dundee

Following the passing of the Local Government (Scotland) Act of 1929, a scheme of progressive improvement has been in operation in Dundee in the maternity services, the infant, pre-school, and school medical services, the control of infectious diseases (including tuberculosis and venereal diseases), and the outdoor nursing services. The various modifications had to be made with due discretion to avoid any interference with the smooth functioning of the services, but it is considered by Dr. W. I. Burgess, the medical officer of health, that the time is now ripe for a review of what has been achieved so far, and what is anticipated in the relatively near future. In his annual report for 1932 he considers how far the various units have been co-ordinated, and the point at once emerges that, if unnecessary duplication of work and visitation is to be avoided, more consideration must be given to the family as a unit than has hitherto been possible. The official link between the home and the public health department is the health visitor, and Dr. Burgess urges that she should be taught to consider the family as the unit over the health of which she must exercise constant supervision. She should not confine herself solely to those responsibilities which have become the statutory responsibilities of the health department, but should realize that other matters, such as a prolonged non-infectious illness, may eventually have a very direct bearing on the health of the family as a whole, and therefore require to be carefully noted. It is her duty to see that the various members of the family are placed in contact with the different services of the local authority, or of any other authority.

"The structure of the house must appeal to her as well as the health or ill-health of the inmates. She must be prepared to submit written reports to the executive medical officers working in the various schemes, and supplement such reports by verbal comments. From time to time she should make a comprehensive survey of the family circumstances, which survey will be submitted to all the officials in the health department concerned. Such an arrangement is very much more satisfactory from the householder's point of view, and leads to a great deal of saving in official time."

Dr. Burgess considers that the reorganization in Dundee has developed along sound and enduring lines, and that it will not only meet immediate needs, but will fit into any likely future expansion of public health activities in the country. He foresees that in the future the national health insurance scheme may be transferred to the public health department, in which event the health visitor's responsibilities would much increase, especially if the scheme covered wives and dependants. He adds:

"As pointed out in last year's annual report, an extension of the national health insurance scheme to children, provided it covers routine inspection of infants and children, would be a great advance, and would give a new orientation to the outlook of the private medical practitioner so badly needed these days, and which has been encouraged by the national health insurance scheme in the past. That scheme has certainly done a great deal for the health of all sections of the community, and has made it possible for medical practitioners to come in contact more and more with the beginnings of disease, the study of which is so important to preventive medicine. The wage earner, knowing that he can call in a doctor without cost to himself, is conscious of a great relief, which is reflected in his own health and that of his family. Nevertheless, the scheme has the weakness that the doctor is only called in when illness presents itself. It is to be hoped that the extension, which will one day cater for infants and children, will provide not only for the treatment of disease, but for the regular inspection of the young beneficiaries."

Progress is reported in the provision of buildings, including extended and better child welfare centres, and the establishment of a convalescent home for infants and young children, which is maintained entirely from voluntary sources. A scheme submitted by the city chamberlain, and a hospital reorganization scheme prepared by the corporation of the city of Dundee, have been passed to the Scottish Department of Health for consideration. It is proposed that Maryfield Hospital should become entirely a public health institution, and no longer be under the Poor Law. This would eventually free beds for members of the community who could not be described as paupers, and who would be expected to pay for the whole or a proportion of the cost of their treatment. In this way, it is thought, the hospital services would become much more flexible, and without the addition of a single bed the useful accommodation would be markedly increased.

Hospital Systems in Scotland

At a meeting of the Scottish Council of Women Citizens' Association, held in Dundee on September 24th, a paper was read by Dr. R. W. Craig, Scottish Medical Secretary of the British Medical Association, dealing with hospital systems in Scotland. Dr. Craig said that the position of local authorities was safeguarded by their support from public funds, but recent economic conditions had rendered the financial state of the voluntary hospitals somewhat precarious. Local authorities now had the power, except in cases of infectious disease, to charge patients in their hospitals for maintenance and treatment, but voluntary hospitals had generally no power to make such charges, and some were restricted by their charters from claiming any payment. If the voluntary hospitals were to survive, this obstacle would have to be overcome, by application to Parliament, Privy Council, or the Court of Session where necessary. Persons treated in

voluntary hospitals should be asked to pay—either directly or by means of some organized insurance scheme—charges appropriate to their financial status, for it was essential that the hospitals should be placed on a self-supporting basis. The sick poor would continue, at any rate for the present, to receive maintenance and treatment gratuitously in voluntary hospitals, while in local authority hospitals their treatment and upkeep would be chargeable to the rates. Dealing with State control of hospitals, Dr. Craig said that a considerable body of opinion believed that State support was inevitable, and he suggested a scheme of co-ordination between voluntary and local authority hospitals in each area for the avoidance of such support. For example, if in a given area a voluntary hospital had been established to deal chiefly with accidents and surgical conditions, the other hospitals in the area might make special provision for dealing with medical cases. With regard to out-patients, much saving could be effected if hospitals referred patients to the doctors who were already responsible for their treatment; the out-patient departments should be used mainly for consultative purposes and special forms of treatment. Up to the present time, Dr. Craig continued, the poorer members of the community had been able to get better medical treatment in institutions than those who were better off. In the future the efficient medical service enjoyed by the wage-earner under the National Health Insurance Acts would undoubtedly be extended to include his dependants, and consultant and specialist services would be added until a complete system of medical service became available for every member of the community. Lady Leslie Mackenzie, in proposing a vote of thanks to Dr. Craig, said that the day would probably come when all the necessitous poor would be provided with treatment at the expense of the ratepayers. The hospital should become the sick-room of the ordinary man's house, for dwellings were nowadays not built for the treatment of illness.

CORRESPONDENCE

Examination of Swimming-bath Water

SIR,—The interesting article on this subject by Drs. Braxton Hicks and Pulvertaft, and Mr. Chopping, in your issue of September 30th, contains the following statement:

"Although the Ministry of Health report states that a concentration of 1.3 parts per million of chlorine is innocuous, this is very far from true. . . . We regard the figure mentioned in the Ministry of Health report—namely, 1.3 parts per million—as being a proportion of chlorine quite intolerable in practice."

They do not mention anywhere that the Ministry's report definitely lays down that "The dosage shall be not less than 0.2 parts per million of water, or greater than 0.5 parts per million." The actual statement in the report to which Dr. Hicks and his colleagues refer is as follows:

"The maximum of 0.5 parts per million of free chlorine appears to us to leave a reasonable and sufficient margin of safety before complaints of smell of chlorine or smarting eyes begin. One of us has repeatedly bathed in water containing as much as 1.3 parts per million without detecting odour or smarting, and without hearing any complaints from fellow bathers. *Such a strength is, however, unnecessary and not to be recommended.*"

At the time that the work embodied in the report was done many bath superintendents were nervous as to complaints and, in consequence, were giving far too small a dosage of chlorine. These facts were given to show that they had a reasonable margin of safety between the proper maximum of 0.5 part per million and a concentration of free chlorine likely to cause complaints.

The full statement is true, but Dr. Hicks's misquotation and omission to give the Ministry's standard suggests that the report allows a maximum of 1.3 parts per million. On the contrary, the report states in the clearest possible manner that 0.5 part per million is the proper maximum, and that a strength of 1.3 parts per million is unnecessary and not to be recommended.

The isolation of haemolytic streptococcus from swimming-bath water by Dr. Griffith is recorded in the Ministry's report on page 14.—I am, etc.,

Ministry of Health, Sept. 29th. J. ALISON GLOVER.

Deaths from Pellagra

SIR,—In the *British Medical Journal* of September 30th Frederick L. Hoffman, LL.D., claims to correct my "serious misstatement" that "no fewer than 30,000 individuals died from pellagra in one year recently in the southern parts of the U.S.A."; he himself concludes that the mortality has "probably never been more than 7,000." The misunderstanding has arisen from a number of causes. In the first place, Dr. Hoffman has been considering only "the latest available figures," showing, as he would have it, an average death rate of no more than 6,000, whereas I, realizing that the more serious of the outbreaks occur at rather irregular intervals, and knowing that the last year or two have been officially recognized as relatively mild in comparison, was naturally interested in the case of "one year recently" when the epidemic was in fact relatively more severe. In the second place, the actual current figures which Dr. Hoffman cites are lower than those published by State authorities. In the third place, these figures of the *certificated* deaths from pellagra are in turn lower than (and sometimes, it is stated, only a fraction of) the real death rate from the disease.

Wheeler and Sebrell of the U.S. Public Health Service, in a paper published last year, gave, as the most recent figures available, 7,146 deaths *actually certified* as caused by pellagra in 1930—note that already we start above Dr. Hoffman's limit! Next it is officially recognized that a few years back pellagra was not only more prevalent but also more severe, both of which factors undoubtedly operated to cause a higher death rate. Thus, going back to 1915, Peterson cited the official returns of 10,663 fatal cases (again compare Hoffman's 7,000 maximum). But further, as Peterson, Lavinder, and many others have remarked, these statistics are notoriously on the low side, not only because they are based on incomplete returns from a number of States, but also because "vast numbers of deaths" actually due to pellagra were not diagnosed or entered up as such. In fact, Peterson concluded that the actual mortality must have been 50 to 75 per cent. greater than the official statistics—that is, *16,000 to 19,000 deaths in round numbers*. The number of pellagrins was estimated by the public health authorities to be 165,000 in 1917, or 157,000 in 1915. For 1927 the corresponding figures, as given by Goldberger of the Public Health Department, are "upwards of 120,000, as a conservative estimate." At one time Goldberger gave the average mortality rate in recognized cases of pellagra as about 40 per cent. It would certainly be incorrect to apply this rate direct to the morbidity figures we have just quoted, since these must undoubtedly be taken to include many mild cases; and such a calculation would in fact give a mortality greatly exceeding our own 30,000 limit. In the other direction, however, we may bear in mind that the morbidity figures in question are admittedly considerably underestimated, and, furthermore, that a pellagrous condition must have helped to accelerate death in many cases not attributed to the disease. Taking all these facts into consideration (and other statistical data which space

prevents our analysing here) I have no doubt that the evidence more than justifies the views of Peterson and of others with first-hand knowledge of the problem that the mortality has, from time to time recently, certainly reached levels of from 15,000 to 20,000, or, as I think, even 30,000, although I frankly admit I would regard the latter as a peak value.

In conclusion, however, I would suggest that it is after all a relatively minor point whether the death rate is 6,000, according to the "latest returns" as quoted by Dr. Hoffman, or 10,000 to 30,000 "in one year recently," according to the other evidence; public men might concentrate rather on the fact that pellagra is a preventable disease caused by inadequate diet at a time when production is being unnaturally restricted and foodstuffs burned and thrown into the sea.—I am, etc.,

Nutritional Laboratory, Cambridge, October 2nd. LESLIE J. HARRIS.

"Clinical Picture Galleries"

SIR,—In the *Journal* of September 30th (p. 617) you draw attention to Dr. Hawthorne's excellent advice that every medical school should possess a clinical picture gallery. I would venture a step further, and say that no medical museum can be regarded as complete that does not utilize photographs, drawings, models, temperature charts, graphs, and other methods of recording clinical phenomena, to complete the picture of which the specimens on the shelves are but a part. It is possible, for example, by this means to bring to the student's notice many conditions which, though rare in this country, are of outstanding importance in other parts of the world. A museum may also well include zoological specimens of reservoir hosts and carriers of disease. In short, the more nearly the collection covers the whole range of aetiology, morbid anatomy, symptomatology, treatment, and prevention the more valuable will it prove to the student. Inevitably, the scope of such a scheme must depend upon available space and money; but every museum, however humble, can progress to advantage along these lines. How much may be achieved is well shown at the London Hospital, where the "clinical gallery," collected and arranged by Dr. Donald Hunter, may be taken as a model of efficiency and economy. Such was the ideal of Jonathan Hutchinson; such was the ideal of Andrew Balfour; and gradually the seed sown by these great men is growing to maturity at the Wellcome Museum of Medical Science, where, thanks to the provision and foresight of its founder, Sir Henry Wellcome, the work is able to go forward, unhampered by many of the difficulties which face our teaching schools. This museum will shortly reopen at the Wellcome Research Institution, 183–193, Euston Road, and be at the disposal of all students of medicine, teachers for demonstration to their classes, and post-graduates for purposes of reference and revision.—I am, etc.,

London, N.W.1, Oct. 2nd. S. H. DAUKES, Director, Wellcome Museum of Medical Science.

The Toxaemias of Pregnancy

SIR,—I am sure those who have read Dr. Theobald's letter will endorse the opinion that "purely theoretical conjectures cannot be allowed to stand in the face of experimental evidence." He states this in respect of my conception; but how unfortunate for his own hypothesis that he should utter such a statement! In my previous letter I gave experimental evidence shaking, if not shattering, his view. In reply, he attributes the diminished incidence of eclampsia in Germany during the war to the women having eaten more vegetables and less meat—meat so necessary for the reaction of striated muscle and for what we call strength. It is clear the women were starved and weakened—that is why eclampsia among them was diminished.

Dr. Theobald complains that I have not reflected on what he means by an adequate diet: perhaps he will himself explain what he means by it. But has Dr. Theobald reflected on the consequences of his teaching? During pregnancy the appetite is increased; women who have plenty often state they cannot get enough. It is difficult as it is to persuade expectant mothers to eat less; to advise such women to eat generously, a reasonable interpretation of his statement "that the toxaemias of pregnancy can only be prevented if an adequate diet be given throughout the period of gestation" (p. 377), can only lead to an increase in the number of women who fall victims to this too often fatal disease.

On the other hand, I do not know of a single experiment Dr. Theobald has performed which supports, much less establishes, his hypothesis—unless it be the administration of "calcium, advita capsules, marmite, iron, and iodine" in eclamptic patients who have recovered from their fits. I confess all my ingenuity has been focused on the problem of dealing with patients still the subject of fits. In my small experience, when the fits have stopped the patients get well without the administration of the wonderful things Dr. Theobald has mentioned.

All Dr. Theobald's experiments seem to have been engineered to finish me off—and my mechanical conception. But the finding that "if a litre and a half of sterile liquid paraffin be introduced under local anaesthesia into the peritoneal cavity of a dog held in Pavlov's stand the intraperitoneal pressure returns to normal about two hours after the injection is finished," instead of negativing, rather supports my conception. The statement that the pressure returns to normal about two hours after—an appreciable time—can only mean that as a result of the injection the pressure increased, and that the increase tended to persist for the time mentioned. When we remember that in pregnancy the distension of the abdomen, however it may vary with the ingestion of foodstuffs and water and the ejection of excreta, is yet progressive, we see at once that a state of affairs may arise in which after any two hours the pressure may not have returned to normal. The child goes on growing: during the last two months of pregnancy it more than doubles in weight. Such a way of looking at this experiment may be disconcerting and conjectural; but surely Dr. Theobald must have had a shock when he found demonstrable changes in the liver produced by tightly constricting with dusters the abdomen, distended with saline, of unfortunate dogs.

The conception that the toxaemias of pregnancy are produced mechanically may be said to be based on conjecture: if so, it is a conjecture rooted in observation and inquiry, and I think has come to stay.—I am, etc.,

Rugby, Sept. 23rd. R. H. PARAMORE, F.R.C.S.

Pregnancy in Childhood

SIR,—Dr. Keane, in her memorandum on "A Case of Maternity at Seven Years of Age" (*Journal*, September 23rd, p. 567), invites opinions as to whether this is the earliest case of pregnancy going to full term. As I have a copy of Gould and Pyle's *Anomalies and Curiosities of Medicine*, a book which I believe is rapidly becoming a rarity in this country, I venture to quote from it. They devote four pages to the subject of precocious impregnation, but their youngest case is a child aged 8 (Molitor, *L'Art Médical*, Bruxelles, 1878–9); they mention that J. A. Mandelslo is quoted as having reported a child aged 6 (*Schreiben von Olearium*, Schlesswig, 1658), but a careful search in the British Museum failed to confirm this.

Gould and Pyle have made a careful survey of the literature up to 1900, and unless anything has been reported since this date Dr Keane's case is probably the youngest on record —I am, etc ,

Henley on-Thames, Sept 25th K NEVILLE IRVINE

Induction of Abortion

SIR,—Under the heading "Death after Operation to Terminate Pregnancy Verdict of 'Death by Misadventure,'" in the *Journal* of September 16th, you record the inquiry into the death of a patient following an operation to terminate pregnancy. This case is of considerable interest to men practising obstetrics first, for the reasons given to terminate the pregnancy, such as pendulous abdomen, increased weight, and shortness of breath Certainly pendulous abdomen has never been put forward as a cause for terminating pregnancy , neither has excessive stoutness Therefore we must come to the conclusion that it was the condition of her heart which determined her advisers as to the proper procedure

I have myself personally attended many women with pendulous abdomens and who were well over 16 stone Some of these patients during the latter months suffered a good deal and caused considerable anxiety from oedema of their legs In the present case, however, the husband stated that she was in good health and walked to the hospital The pathological report is not very complete it states that there were a number of adhesions in the lower part of the abdomen, and that these extended down to the uterus, but it does not state in what position the uterus was, or whether the adhesions had fixed it in some abnormal position

Reading this report one would attribute death to the condition of the heart I have seen many cases of perforation of the uterus, some occurring in hospitals and some in private, but unless perforation is followed by haemorrhage I have not noticed any shock Indeed, in some cases the women have perforated their own uterus without being aware of such One is led to surmise that if the abdomen had been opened, as the obstetric physician had suggested, instead of making another attempt per os, results might have been different

However, this case ought to stimulate some discussion What is the best means of the induction of abortion at the period mentioned—between three and four months? It is an operation which must never be lightly undertaken, and a practitioner should always have a consultation before he undertakes it It is to be regretted that on many occasions when such is necessary it has been postponed too late

The emptying of the uterus at the twelfth week or thereabouts is very often troublesome, especially in primiparae with rigidity of the cervix When this is overcome it is often difficult to get the uterus to contract What, therefore, is the best method of dealing with these cases? From a long experience of cases in hospital and in private, I consider that the best course to pursue when urgency is not marked is to insert laminaria tents The method of doing this is well known. The advantages are that the uterus is stimulated to contract and the cervix is dilated and softer It approximates more to a normal labour, and, if necessary, dilatation can be carried further with less risk, either with instruments or the fingers I should always advise young practitioners to use their gloved fingers in these cases, for the cavity can be explored safely by this means, and one is certain that no portion of the ovum is left behind One of the disadvantages of rupturing the membranes is that labour does not always come on the cervix remains undilated If severe bleeding should occur it is difficult to control, and portions of the ovum may be left behind Rapid dilatation, on the other hand, is liable to produce a considerable amount of shock, with the risk of laceration

The sympathy of the profession will be with these gentlemen, who, though the case ended disastrously advised for the best They have not been as in some previous cases, put to the discomfort and obloquy of having to stand their trial for manslaughter—the result of erroneous pathological reports If the case does not stimulate discussion on the best methods of performing legal abortions, it will be useful to refer to in cases where charges are made against doctors in similar mishaps —I am, etc ,

London, W , Sept 22nd JOHN ARMSTRONG

Payment of Medical Witnesses

SIR,—The article on this subject in your issue of September 30th is correct, but not exhaustive as far as the Old Bailey is dealt with Professional as distinguished from expert, witnesses are paid fees or allowances that are not mentioned by your correspondent and it is usual for the court to pay medical witnesses for the defence, who give evidence, as well as those for the prosecution Any of your readers who wish for more information on this subject will find it on page 72 *et seq* of my *Practical Forensic Medicine* (Lewis, third edition) I trust that I will be excused, under the circumstances, for advertising my own work, which can be borrowed or consulted in the British Medical Association Library free of charge but to buy it would mean an expenditure of 4s 6d —I am, etc ,

Central Criminal Court Old Bailey, E C 4, Oct 2nd GRAHAM GRANT

Humane Treatment of the Insane

SIR,—In doing honour to those who played a leading part in inculcating a new attitude towards the victims of insanity it would be only just to give credit to Samuel Hahnemann, who in this respect, as in so many other respects, was years ahead of his time In a footnote to an essay by him in the *Deutschen Monatsschrift* for February, 1796, is found the following

"I never allow an insane person to be punished by blows or other painful bodily chastisement because there can be no punishment for involuntary actions, and because these patients deserve nothing but pity and are always made worse and not better by such rough treatment The physician in charge of such unhappy people must indeed have at his command an attitude which inspires respect but also creates confidence he will never feel insulted by them because a being that cannot reason is incapable of insulting anyone"

In 1793 Hahnemann had established a nursing home for the treatment of insanity His practice corresponded in many respects with that of Weir Mitchell —I am, etc ,

Liverpool, Sept 28th F B JULIAN, M B

Massage and Medical Gymnastics

SIR,—In the *Journal* of September 30th is a report of the annual dinner of the Chartered Society of Massage and Medical Gymnastics Therein Dr Justina Wilson "recalled some of her experiences in the early days as a 'pilgrim and pioneer' in establishing a department of physiotherapy at St Bartholomew's Hospital" As a matter of interest, I claim to belong to the band of "pilgrims and pioneers" in this subject in having established such a department at the Northern Hospital, Liverpool, in 1905, which, if not the first, is among the earliest of such departments At the suggestion of the late Sir Robert Jones (whose remarkable prescience foresaw the development of this method of treatment), I took out a course of instruction at Stockholm in 1904 The

department above mentioned, which incidentally included manipulative treatment, was opened in May of the following year. As an instance of the striking advance of physiotherapeutic treatment I might mention that during the past year 57,000 treatments were given in the department.

I cannot conclude without remarking on the skill and assiduity with which the staff (all, of course, members of the C.S.M.M.G.) have carried out their arduous duties.—I am, etc.,

W. H. Broad, M.D., B.S.,
Honorary Surgeon in Charge, Physiotherapeutic Department, Northern Hospital, Liverpool.

September 30th.

Portraits for Identification

Sir,—The help of any of your readers in identifying two likenesses, of which I enclose photographs, will be much appreciated: (1) a bust found in the Manchester Medical School—it is not even known if this is of a medical man; (2) a water-colour portrait of a Dr.



Anderson reported to have died at the age of 99, apparently (from scanty figures given to me) about 1850 or 1860. He is said to have been head of a mental home in Manchester. I cannot corroborate these facts by a search either in the local records or in old editions of the *Medical Directory*.—I am, etc.,

E. Bosdin Leech.
Medical School, Manchester University, Sept. 24th.

Obituary

PHILIP EDWARD GLYNN, F.R.C.S.

We regret to announce the untimely death, on September 18th, at the age of 27, of Philip Edward Glynn at the Leeds Infirmary, where he occupied the post of resident orthopaedic officer. The son of Major E. F. Glynn of Ilkley, he was educated at Charterhouse, and at the School of Medicine, Leeds. He qualified with the Conjoint Diplomas in 1929, and gave an early indication of his abilities by winning prizes for surgical anatomy and clinical medicine. He held a house-surgeon's post in the Leeds Infirmary, and also the post of resident medical officer at the convalescent branch; following these he was casualty officer at the Beckett Hospital, Barnsley, and then house-surgeon at the Belgrave Hospital for Children, London. His interests turned to orthopaedic work during a short period at the Harlow Wood Orthopaedic Hospital, Nottingham; and on obtaining the F.R.C.S. in 1932 he became house-surgeon at the Royal National Orthopaedic Hospital, London, returning to Leeds towards the end of that year as resident orthopaedic officer.

A correspondent writes: Philip Glynn's death at such an early age cuts short a career of brilliant prospects. He had already revealed an unmistakable flair for his chosen subject, and his work showed on all sides the happy results of sound training allied to enthusiastic interest, which promised so much for his future and for the future of his department. What struck one most about him was his boundless energy and bright enthusiasm. Nothing was allowed to become between him and his work, for which he was prepared to make any sacrifice. His death leaves a gap in a large circle of friends who loved him for his gentle and kindly nature, and of colleagues who had the very highest regard for his abilities. When taken ill he was about to start on a holiday which—and this was typical of him—was to include visits to orthopaedic and physical training centres abroad. His outside interests were largely those of the open air; he was a keen fisherman and swimmer, and had done some rock-climbing. He was a member of the British Medical Association, of the British Orthopaedic Association, and Fellow of the Royal Society of Medicine.

A funeral service was held in the chapel of the General Infirmary, and was attended by most of the honorary and nursing staffs, by friends and colleagues, and by representatives of the British Orthopaedic Association, and the Harlow Wood and the Royal National Orthopaedic Hospitals.

Universities and Colleges

UNIVERSITY OF LONDON

Lecture Programme

Professor Cyril Burt, M.A., D.Sc., will give a course of five Heath Clark Lectures on the normal and subnormal mind, at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Wednesdays, October 18th to November 15th inclusive, at 5 p.m. Dr. C. S. Myers, F.R.S., will take the chair at the first lecture. The lectures are open to the public, admission free, without ticket.

A course of six lectures on the physiology of the sense organs will be given by Dr. R. J. Lythgoe at University College, Gower Street, W.C., on Mondays from October 9th to November 13th inclusive, at 5 p.m. Admission free, without ticket.

Dr. J. W. Pickering will give a course of four lectures on blood plasma and platelets at King's College, Strand, W.C., on Tuesdays, October 10th, 17th, 24th, and 31st, at 5 p.m. Admission free, without ticket.

On Thursdays, October 12th, 19th, 26th, and November 2nd, at 5 p.m., Dr. W. Robson will give a course of four lectures at King's College, Strand, W.C., on the metabolism of carbohydrates, fats, and proteins. Admission free, without ticket.

Dr. H. Burger, professor of oto-laryngology and dean of the Faculty of Medicine in the University of Amsterdam, will give the Semon Lecture on "The So-called Associated Paralyses of the Larynx (Multiple Cranial Nerve-palsy)," at the Royal Society of Medicine, 1, Wimpole Street, W., on Thursday, November 2nd, at 5 p.m.

A list of advanced lectures and practical courses in physiology to be given during the session may be obtained on application to the Academic Registrar.

University College

Professor Charles Singer, M.D., will deliver a public lecture on "The Development of the Study of Man" at University College, on Monday, October 23rd, at 5.30 p.m.

UNIVERSITY OF LEEDS

The following candidates have been approved at the examinations indicated:

M.D.—Rosie B. Becker, R. E. Tunbridge.

Final M.B., Ch.B.—(*Part I*): F. H. B. Fuller, L. Rabinovitch, E. Vining. (*Part II*): F. M. Brook, A. Cohen, P. Crann, T. A. Divine, R. W. Rutter, T. Simpson, Lydia A. Wilson. (*Part III*): (carrying degree) F. M. Brook, A. Cohen, P. Crann, T. A. Divine, R. W. Rutter, W. Sharp, T. Simpson, J. F. Warin, Lydia A. Wilson.

D.P.H.—Sarah N. S. Barker, G. M. Holliday, J. C. Knox.

The following awards have been made:—*Edward Ward Memorial Prize*: E. E. Blomfield. *West Riding Panel Practitioners' Prize*: K. O. Milner.

The Services

The King has granted the following officers of the Royal Navy authority to wear decorations conferred on them by the President of the Hellenic Republic in recognition of valuable services rendered by them on the occasion of the earthquake in Chalcidice as follows *Commander of the Order of the Phoenix* Surgeon Commander A C Anderson, *Officer of the Order of the Phoenix* Surgeon Lieutenants E J Mockler, F W Gayford, and T S Osborne

DEATHS IN THE SERVICES

Surgeon Captain Robert Hughes R N (ret) died at Southbourne, Bournemouth on September 28th He was educated at Owens College Manchester and took the L R C P Lond in 1898 after which he joined the Navy as surgeon He attained the rank of surgeon commander on May 15th, 1913 and retired with an honorary step of rank as surgeon captain on May 25th 1925 He served during the war of 1914-18 and received the medals therefor

Medical News

Sir Norman Walker, President of the General Medical Council, will give an inaugural address at the University of Durham College of Medicine, Newcastle upon Tyne, on Friday, October 13th, at 4 15 p m

Sir George Newman will deliver four lectures on the English hospital system, at Gresham College, Basinghall Street, E C 2, on Monday, Tuesday, Wednesday, and Thursday October 9th, 10th, 11th, and 12th, at 6 p m Admission free

The Schorstein Memorial Lecture will be given by Dr Otto Leyton in the anatomical theatre of the London Hospital Medical College on Thursday, October 12th, at 4 30 p m The subject is 'Multiglandular Disease, and members of the medical profession will be welcomed

A public lecture under the Chadwick Trust on 'Port of London Sanitary Administration will be given by Mr P W Coombe at the Royal Society of Arts, Adelphi, W C , on Monday, October 23rd, at 5 15 p m The chair will be taken by Sir George W Humphreys

The Harben Lectures will be delivered in the Lecture Hall of the Royal Institute of Public Health, 23, Queen Square, W C , at 4 p m on October 9th, 10th, and 11th, by Dr J C Drummond, professor of biochemistry, University of London The first lecture will be on recent studies of the chemical nature of the vitamins the second on the physiological function of the vitamins , and the third on the vitamins in relation to practical problems of human nutrition The lectures will be illustrated by lantern slides No tickets of admission are required

The annual old students dinner of the London Hospital Medical College will be held at the Trocadero Restaurant, on Thursday, October 12th, at 8 p m

The annual dinner of the Chelsea Clinical Society will be held at the Rembrandt Hotel, Thurloe Square, S W , on Wednesday, October 18th, at 8 p m

University College Hospital Medical School has arranged a programme of post graduate demonstrations for the benefit of old students on Thursday and Friday, October 12th and 13th, from 10 a m to 4 p m At 4 15 p m , on October 13th, the annual general meeting of the Old Students Club will be held in the Medical Society's Rooms in the Medical School, under the chairmanship of the president, Dr H Batty Shaw At 7 30 p m the same day the annual dinner (12s 6d , exclusive of wines) will be held at the Hotel Victoria, Northumberland Avenue, W C The annual dinner of the University College Hospital Women s Medical Association will be held at the Piccadilly Hotel on Friday, October 13th, at 7 45 p m

The Fellowship of Medicine (1, Wimpole Street, W 1) has arranged a whole day course in cardiology for advanced students at the National Hospital for Diseases of the Heart, from October 9th to 21st A week end course in clinical surgery will be given at the Royal Albert Dock Hospital on October 21st and 22nd Forthcoming courses include a course in gynaecology at the Chelsea Hospital, October 23rd to November 4th a course in neurology at the West End Hospital for Nervous Diseases , a week end course in diseases of the chest at the Hospital for Consumption Brompton ophthalmology at the Central London Ophthalmic Hospital , urology (advanced) at St Peter s Hospital for Stone A panel of teachers giving clinic instruction daily is available throughout the year Courses etc arranged by the Fellowship of Medicine are open only to members and associates

A post graduate course in urology will be given at St Paul s Hospital, Endell Street, W C on Wednesdays, from October 11th to November 29th (except October 25th), at 4 30 p m The lectures etc are free to medical practitioners and students, who are invited to attend any branch of the work in which they are interested Tea at 4 p m

On October 4th a service was held in the chapel of the Dreadnought Hospital, Greenwich, in memory of the late Lawrie McGavin, F R C S , and a tablet of appreciation was unveiled by Sir John Rose Bradford Mr McGavin became associated with the Seamen s Hospital Society in the late nineties when he joined the staff of the Albert Dock Hospital Subsequently he was appointed chief surgeon at the society s headquarters the Dreadnought Hospital, where he served with distinction until failing health compelled his retirement in 1921 On October 18th the Duke of Montrose will unveil a tablet over the bed endowed in memory of the late Captain Sir Arthur Wellesley Clarke, R N R

Dr H K Graham Hodgson, honorary radiologist to King s College Hospital has been appointed physician in-charge of the new department of *x* ray diagnosis at the Middlesex Hospital, the establishment and equipment of which is due to the generosity of Mr W H Collins (*British Medical Journal*, July 29th p 209)

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B M A. House Tavistock Square, W C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated Correspondents who wish notice to be taken of their communications should authenticate them with their names not necessarily for publication

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All communications with reference to ADVERTISEMENTS as well as orders for copies of the Journal should be addressed to the Financial Secretary and Business Manager

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QUERIES AND ANSWERS

Treatment of Deafness

"M B" asks for suggestions for the treatment of deafness due to otosclerosis or middle ear catarrh in a young female patient aged 29 The onset has been very gradual, and the condition has been noticeable for eight years Treatment has been the administration of calcium, removal of tonsils and adenoids and a course of treatment with the electrophonoride instrument six years ago The condition is gradually becoming worse

Thumb-sucking

"INTERESTED" would be glad to know of an effective remedy for thumb-sucking in a child 3½ years old. The habit has recurred after a lapse of eighteen months. Collodium (bitter aloes) paint, hitherto successful, now seems useless, as also does bandaging, finger-stalls, etc. The child has now reached the age when he can successfully undo every form of local application employed for the purpose. The lower teeth are receding markedly from continuous indulgence in the habit.

Snake Venom

"E. F." asks for information and references to literature on the treatment of inoperable tumours with snake venom. "Are these experiments carried on in this country, and, if so, where?"

Insulin for Undernourishment

Messrs. ALLEN AND HANBURYS LTD. write, with reference to the inquiry by "Embonpoint" (September 30th, p. 630): "An article on the effect of insulin in (healthy) thin persons appeared in the *Journal of the American Medical Association*, January 14th, 1933 (p. 88). The book on insulin therapy which we publish in conjunction with British Drug Houses Ltd. contains a section describing the use of insulin in malnutrition."

Dr. J. BATES (London, S.W.5) writes: In truly "constitutional" thinness the administration of insulin appears to work in two ways. In cases with anorexia it greatly improves the appetite. In patients whose appetite is normal it increases the fat reserves through its action on the liver. Bearing in mind that many authorities deprecate its use without preliminary blood sugar estimations, it may be given empirically, starting with three international units from three-quarters to one hour before the principal meal of the day. After a day or two this dose should be doubled, and also five units may be given half an hour before breakfast when an adequate meal is taken afterwards. To prevent hypoglycaemia 1/2 grain of ephedrine may be given by mouth at each injection.

Blood Sugar and Blood Urea

Wing Commander H. M. STANLEY TURNER (Abingdon) writes in reply to "A. G.'s" query (*Journal*, September 23rd, p. 590): I would recommend him to use the method of Crecelius and Seifert (*Munch. med. Woch.*, lxxv, No. 30, 1301), which is rapid, simple, and extremely accurate. It depends upon the conversion of picric into picramic acid in a hot alkaline solution in the presence of glucose. To 1.9 c.cm. of distilled water, 0.1 c.cm. of blood is added. To this is added 1 c.cm. of a 1.2 per cent. solution of picric acid. The mixture is well shaken and filtered. To the filtrate is added one volume of 20 per cent. sodium hydrate to ten volumes of filtrate. This is well shaken, and put into a water bath for exactly five minutes, then removed and cooled under the tap. The result is compared in a special but inexpensive colorimeter made by Zeiss, and a direct reading in milligrams per cent. is given. It should be remembered that colour-blind persons cannot use colorimetric methods. The whole process can be carried out in under fifteen minutes from the time the blood is taken. As regards blood urea, I do not think the ordinary urease method (soya bean) can be improved upon. It requires some time, and it is of extreme importance to verify the volumetric solutions used (N/100 NaHO and HCl) before carrying out the determination by titrating one with the other in the presence of methyl red as an indicator. Once the air pump has been started and is running at the full there is no need to watch the apparatus for the whole sixty minutes. This method is described in most textbooks—for example, Hutchinson and Hunter's *Clinical Methods*.

Deafness after Bathing

Mr. ALFRED MERRIN, F.R.C.S.I. (Dun Laoghaire, Co. Dublin), writes: I was interested to read the letter from Dr. B. Malaher under the heading "Wanted: A Drum Defender." As a sufferer from exostosis of the auditory meatus and a keen bather, I have tried all sorts of remedies to stop deafness after sea-bathing. This season I have been using fibrous plasticene, and have had no trouble with my ear whatsoever. The cost is trifling—so far I have used about twopennyworth. A piece about half an inch long, and shaped like a tack, should be used, and pressed firmly into the ear. To remove, pressure with the finger at the back of the external meatus will force the plug out sufficiently to be easily removed with the fingers.

Income Tax

Lecturer's Expenses

"UNIVERSITY" is a lecturer and research worker at a university, his duties being to lecture there and at an associated institution and to do research work at the medical school. Part of the research work necessitates travelling to another town (H) several times a week, and he receives a grant from another university in connexion with that work. Can he deduct as expenses (*a*) payments to his wife for secretarial work, and (*b*) the cost of travelling between the university town and "H"?

*** (*a*) The payments to the wife are deductible if they are made wholly, necessarily, and exclusively in the performance of his duties. If the university authorities require him to have assistance, that, of course, settles the question in his favour, but if he can show that the nature of his work is such that assistance is necessary, we consider that his claim should succeed, even without a specific requirement by the authorities. (*b*) If the duties entailed by the terms of his university appointment necessitate the visits to H, his claim is valid; but if it is optional to make such visits, or if they are severable from the duties of his university appointment (as, for instance, if they arise under the terms of the grant from the *other* university and not under his main appointment), then they are expenses of going elsewhere to perform his duties, and are not incurred in carrying out the duties—at more than one place—of the one appointment. In the former case the expenses are not legally deductible.

LETTERS, NOTES, ETC.

Treatment of Stump in Appendicectomy

Dr. E. G. JOSEPH (Jerusalem) writes: I read with interest Mr. Petty's article in the *Journal* of September 9th. He reports two deaths, and in each case a large hole was found in the caecum at the site of the "purse-string suture." This technique of "purse-string suture" has been completely discarded at many of the larger clinics in the United States of America, since it has been shown that the suture may give rise to post-operative faecal fistula due to gangrene of the enclosed area of bowel. A simpler, speedier, and infinitely safer method of appendicectomy is merely to tie off the appendix at its base with two sutures, and after removal to apply carbolic acid and alcohol to the stump. No crushing clamps are used before ligature, and no purse-string suture afterwards. In the last three years I have used this simple and easy method some hundreds of times, and always with the greatest satisfaction.

"Prophylaxis of Malaria"

Dr. A. E. FINCKH (Sydney, N.S.W.) writes: On reading of the above subject in the July and August numbers of the *Journal*, I was reminded of the lectures on this topic which I attended in 1907 at the Hamburg Institute for Tropical Diseases. We were told that if a medical man was in charge of a group of Europeans in a malarial district and malaria broke out among them, that medical man should be censured. He either had failed to give the necessary instructions or he neglected to insist on his instructions being carried out. Quinine hydrochloride gr. v was given daily either in wafers or in solution. Instructions were that it should never be given in tabloid form on account of the possible insolubility. The rolling up in cigarette paper was also condemned.

Medical Golf

The Sussex Medical and Dental Golfing Society held its fourth autumn meeting on the links of the East Brighton Golf Club on Sunday, October 1st. Thirty-two competed in the morning round, which was a singles against bogey, for the Captain's trophy. F. Heckford, with a score of 1 up, returned the best card, and H. M. Pimm was second with all square. In the afternoon a sweepstakes competition was held (foursomes against bogey), and the best card was returned by F. Heckford and K. C. McNaught with a score of all square; Muir-Smith and J. K. Raymond being second with a score of 2 down. The society holds two meetings a year, and membership is open to all medical men and dental surgeons practising or resident in Sussex. There is no subscription, but a small entrance fee is charged for all competitions to meet the cost of sending notices of meetings. The next meeting will be held in May, 1934. Notices will be sent on application to the honorary secretary, 40, Wilbury Road, Hove.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 48, 49, 50, 51, 54, and 55 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 52 and 53.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 195.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

236 Hepatic Insufficiency in Chronic Alcoholism

A Aldon (*These de Paris* 1933, No 311), who records twenty five illustrative cases in patients aged from 35 to 62, nine of whom were men and nineteen women, states that in chronic alcoholism accompanied by nervous symptoms disturbance of the hepatic functions is almost invariable In some cases the signs of hepatic insufficiency are obvious clinically, while in others clinical observation shows a close parallelism between the involvement of the hepatic functions and the course of the nervous changes In many instances the signs of hepatic change are very slight, and even latent, the insufficiency being detected only by special tests Whereas in cases in which clinical evidence of hepatic insufficiency was present the various tests (urobilinuria, bilirubinaemia, rose of Bengal and galactosuria) showed clear proof of the insufficiency, in others the results were above the normal figures In some cases the various tests yielded simultaneously high results But as a rule some tests showed a distinct hepatic insufficiency, while in others the results were normal These results justify the use of several methods of examination In alcoholic tuberculous polyneuritis definite hepatic insufficiency was always present

237 Aetiology of Primary Bronchial Carcinoma

A Marais Moll (*South African Med Journ*, May 27th, 1933, p 323) finds that attention has been focused on this disease owing to the remarkable increase in its incidence, the new pathological conception (as a result of the work of Barnard), and the advances in thoracic surgery A series of fifty nine cases has been investigated by the author, and the more important aetiological factors are analysed and discussed These are given as sex age occupation inhalation irritation, poison gas, influenza syphilis, trauma, and intrinsic predisposition No one factor is found to explain the causation nor the increased virulence of the condition A combination of various factors, mainly irritative—mechanical, chemical, bacterial fungoid, and radioactive—may be responsible Whatever they are, they have in common the ability to incite hyperplasia and metaplasia of certain cells, males are more affected by them than females It is thought that they have become more active and of greater concentration in the atmosphere within the last fifteen years The only proved occupational factor is in the case of the Schneeberg miners cancer, which is probably due to some inhaled irritant or irritants, the exact nature of which is unknown The probable incubation period of primary bronchial carcinoma is thought to be from five to fifteen years

238 Congenital Heart-block

W M Yater, J A Lyon and P E McNabb (*Journ Amer Med Assoc* June 10th, 1933, p 1831) briefly review forty three cases of congenital heart block recorded in the literature, and give details of another case which they themselves have investigated by means of serial sections through the conduction system In most of the cases so far reported the cause of this condition appears to have been a congenital defect of the bundle of His The most common clinical diagnosis was patent interventricular septum In the authors' case there was found a defect in the interventricular septum, with almost complete congenital absence of the bundle of His, one of the rarest forms of such septal defect In the electrocardiographic picture the QRS complex was of the supraventricular type, thereby indicating that the idioventricular impulses originated in the remnants of the bundle of His in the lower edge of the defect The notching of the R wave in lead III was the only abnormality of the QRS complex The large T waves, and their inversion in leads I and II were undoubtedly the result of the anatomical alterations in the conduction system The authors remark that it is impossible to be certain whether the inversion of the T waves in leads I and II was due to the absence of the main stem of the bundle of His or to the lack of development of the right bundle branch If due to the latter it would be evidence that right bundle branch block is associated with this alteration of the T wave since there was no reason to assume the presence of any left ventricular strain in the patient an infant aged 1 month It was not possible to define the events which led to the defect in the conduction system Since the portion of the conduction system existing in the heart was of the adult type, it might be assumed that the development of the system was normal except for some episode which had removed the main stem The membranous septum through which the bundle of His normally passes to become the left branch was also missing and the same episode was presumably responsible for both deficiencies it must have occurred after the conduction system had become a separate structure The authors add that this case lends support to Mall's conception of the conduction system being an embryonic rest which continues to develop independently and is not a new structure, as Retzer thought

Surgery

239 *Recto sigmoid Polypus*

R Bensaude P Hillemand and P Augier (*Ann de Med* June 1933, p 5) point out that the term recto sigmoid polypus includes all those tumours of the lower part of the large intestine which stalked or sessile project into the lumen of the bowel The chief histological feature is a hyperplasia of the epithelium and the cellular tissues of the mucous membrane lining of the bowel In the majority of cases there is only one polypus but occasionally several tumours may be found at the recto sigmoid junction The condition which is not rare may occur at any age It affects men more often than women In most cases no causative factor is discovered but it has sometimes been preceded by some inflammatory condition such as colitis or some parasitic affection, such as bilharzia Isolated polypi are most frequently found in the rectum, but may occur in any part of the large intestine The growth varies in size from the head of a pin to a strawberry Onset of symptoms is generally slow and insidious, with haemorrhage as the first and most common sign In children there is often constipation or, less frequently, diarrhoea Occasionally the polypus will appear outside the anus There may be secondary urinary symptoms such as frequency or retention Haemorrhage is less common in adults than in children Diagnosis should, the authors state, be made by inspection of the anus, rectal examination, and sigmoidoscopy whilst x rays may be useful where the polypus lies at a high level Complications are rare, and the condition in itself is extremely benign The possibility of malignant change, however, makes treatment advisable The only satisfactory treatment is removal of the polypus, the method employed depending on the position and character of the tumour When it is pedunculated and can easily be reached it is best dealt with by fulguration through the rectoscope Where it lies at a higher level it is

treated by diathermy through the sigmoidoscope ; if large and sessile it may have to be removed along with the segment of intestine from which it arises. The authors report seventeen cases.

240 Diverticulitis of the Colon

H. R. Huston (*Arch. of Surg.*, June, 1933, p. 1111) defines this condition as an inflammation of one or more diverticula, or accessory pouches, of the large bowel. He states that true diverticula of the colon are congenital, and extremely rare. The most common form of diverticulum is the acquired type, which appears to have its origin in a structural weakness of the muscularis that permits the mucosa to herniate through the divided muscular layer and form a pouch. The majority of diverticula occur in the sigmoid colon and may vary in number from one to several hundreds. In rare cases the colon may be studded with saccules. The disease occurs most commonly in obese persons over 40 years of age, and is much more frequent in men than in women. Diverticulitis may show itself as an acute or chronic disease. When chronic, acute exacerbations may occur, and there is usually vague intermittent pain in the lower left abdominal quadrant. Many patients complain of bladder symptoms, such as frequency and tenesmus. The sacculations usually become filled with faecal material, and these scybalous masses may cause pressure atrophy and erosion of the intestinal wall, with development of perforation, abscess, or localized or general peritonitis. Surgical treatment should be confined to acute diverticulitis, or to the complications of the chronic form. In the acute stage, if localized peritonitis or abscess is present, the area should be drained, and the affected loop of bowel drawn through a split-muscle excision until the infection has become inactive by the application of hot boric acid dressings. The bowel may then be released and placed beneath the abdominal muscles external to the peritoneum. Four cases are reported which occurred in women, and in three the symptoms simulated a gynaecological condition. Following operation the patients made a good recovery.

241 Operations on the Semilunar Cartilage

H. Abrahamsen (*Ugeskrift for Laeger*, June 22nd, 1933, p. 709) has operated on thirty-two cases of injured semilunar cartilages, all but four of which were median. Injuries of this kind figure more prominently now than they used to do, partly because they are actually more frequent owing to the growing vogue of athletics, and partly because the diagnosis of injury to a semilunar cartilage is no longer confined to the cases in which all the classical signs are present. Among the thirty-two cases there were only seventeen in which the characteristic "blocking" was observed, and only sixteen in which extension was restricted. There were only eight cases in which both these principal signs were demonstrable ; and there were as many as seven in which neither of these signs was present. In seven cases the only signs were pain and tenderness. In one of these cases this ailment had lasted nine years, and in five others it had lasted two to three years. In most cases the correct diagnosis had not been made at first. In a few cases the diagnosis had been correct, but the medical practitioner or the patient had been opposed to an operation. Abrahamsen says this is not necessary when fissures and minor lesions without displacement of the cartilage yield to rest, but that if there is "blocking" and limitation of extension, which persist in association with constant pain and definite tenderness, an operation should not be delayed. In such cases the longer the delay the less are the chances of complete post-operative recovery. In five of his cases it was necessary to supplement the original operation by a mobilization under brief anaesthesia in order to secure complete flexion. There were six patients who developed phlebitis in connexion with the operation ; this complication ran a benign course, but it delayed the post-operative treatment by some weeks. The lesson of a re-examination of twenty-nine of the thirty-two patients early in 1933 was that as much of the injured cartilage as possible should be removed at the operation.

Therapeutics

242 Acetylcholine in Secretory Insufficiency of the Stomach

G. Farov and R. Deron (*Rev. Méd. Franç.*, May, 1933, p. 455) enter a plea for the wider application of gastric analysis. Hypochlorhydria or achlorhydria is a common finding in many types of dyspepsia, functional disorders of the colon, cholecystitis, hepatic cirrhosis, hyperthyroidism, diabetes mellitus, and chronic nephritis. Hypochlorhydria may be defined as a total acidity of less than 2 per cent. in the one-hour fraction of a test meal, or a total acidity of less than 3 per cent. with less than 2.5 per cent. after injection of histamine. Since 1929 these authors have been treating hypochlorhydria with injections of acetylcholine, and studying the results by means of repeated test meals. The cases usually show an increased total acidity or a lengthening of the time during which acid is secreted, or both. Symptoms are markedly improved. In complete achlorhydria there is usually little change in the gastric juice. The doses used are 0.2 to 0.4 gram of acetylcholine daily for twelve to twenty-four days.

243 Mucin Therapy in Gastro-intestinal Conditions

R. H. Monceaux and R. Fontaine (*Presse Méd.*, June 10th, 1933, p. 927) review the literature relative to the protective power of the gastric mucus, and the employment of mucins in the treatment of certain gastro-intestinal ulcers. Mucin, an ideal antacid, is shown to be indicated in ulcerous and hyperacid conditions ; it also supplements the action of the normal mucus, which may be altered either in its secretion or in its physical state. It is doubly protective—mechanically, by protecting the mucosa from too close contact with food particles, and chemically, by fixing the excess of ions and preventing their corrosive action on the mucosa. The properties of mucins differ, so that specific ones should be employed —gastric mucins in gastric conditions, and those of the small intestine in intestinal affections. A good mucin must be pure, neutral, and sterile, and should possess a high content of nitrogen and a high combining power with acids ; it should not be contaminated with histamine, which causes hyperacidity and nullifies the results. American authors record good results from mucin therapy in gastric and intestinal disorders ; they report that pains were eased and haemorrhages arrested, and that symptoms progressively regressed. Fogelson noted that cases of ulcer remained symptom-free for more than twenty months after the commencement of treatment. The only disadvantage of mucin is its disagreeable taste, especially as large daily doses of 100 grams are necessary. Monceaux and Fontaine believe that this method merits an extensive trial. The results are favourable: the burning sensations of hyperchlorhydria are instantly relieved, and in ulcerated conditions complete relief, which lasts many days, is obtained either immediately or in ten minutes.

244 Carbarsone in Chronic Intestinal Amoebiasis

R. N. Chopra, B. Sen, and S. Sen (*Indian Med. Gaz.*, June, 1933, p. 315) commend carbarsone for chronic intestinal amoebiasis. This drug belongs to the original series of organic arsenicals prepared and tested by Ehrlich and Bertheim in 1909. It has the chemical formula $H_2O_3AsC_6H_4NHCONH_2$, being 4-carbamino-phenyl-arsinic acid. A white crystalline solid, without odour or taste, it is stable in air, and contains 28.85 per cent. of arsenic when anhydrous. It is almost insoluble in water, but dissolves in alkaline aqueous solutions. It is readily absorbed after oral administration, and is excreted in the urine at about the same rate as stovarsol. It is less toxic than stovarsol, and has eight times more powerful amoebicidal properties. Since it contains a substituted amino-group in the "para" position to the arsenic atom, its liability to injure the optic tract must

be borne in mind. A series of patients received the drug in doses of 0.25 gram (in gelatin capsules by the mouth) twice daily for ten consecutive days. They were kept on ordinary diet, and no other drug was given, except that a saline purgative was administered whenever it was necessary to relieve constipation. The criterion of cure was five or more negative examinations of the stools on different days after the cessation of all treatment. Out of thirty-one patients twenty-three (74.2 per cent.) were cured; in four (12.9 per cent.) the drug failed; in four others the result was inconclusive, though the symptoms were definitely ameliorated. Among the failures only one case had vegetative forms of *E. histolytica*; three had the cystic form. No untoward symptoms of any kind were observed. The drug is now being tried for longer periods in cases where the ten-day administration proved inadequate.

Radiology

245 Photo-electric Cell in Ultra-violet Light Dosage

Accurate estimation of dosage in ultra-violet light therapy would seem to be essential for control and comparison of results. De Vulpian (*Rev. d'Actinol. et de Physiothér.*, March, 1933, p. 119) has recently used as a dosimeter a photo-electric cell constructed for him by Solomon. This consists of a cylindrical copper box open on the side exposed to radiation, which forms the anode; a cadmium plaque within the box comprises the cathode. The cell is connected with an electroscope. Given constant experimental conditions, the intensity of irradiation received by the cathode is inversely proportional to the time taken by the electroscope to discharge. It was found that photo-electric fatigue set in rapidly, but that this could be obviated by removing the surface layer of the cadmium with a file after each reading. If this was done constant readings were obtained for any one lamp. Experimenting with different lamps, the author found that the erythema dose and the photo-electric index were proportionately related. From this he deduces that the photo-electric index of lamps of the same spectroscopic range is proportional to the physiological result. Finally he stresses the importance of this apparatus as a means of establishing a unit of dosage completely independent of the lamp used.

246 Radiographical Differentiation of Cardiac Lesions

L. G. Rigler (*Radiology*, June, 1933, p. 463) suggests that more attention might be paid to the possibility of distinguishing radiographically between abnormalities of the two sides of the heart. Clinical examination may fail to differentiate lesions causing exclusive enlargement of the right side of the heart from mitral valvular disease, and postero-anterior radiographs may be of little value; moreover, certain functional cardiac conditions may closely simulate mitral disease symptomatically, and in these the postero-anterior radiograph may resemble that of mitral disease. One of the most essential differences between the two groups of cases is that in right heart lesions the left auricle is never enlarged, whereas such enlargement is always present in mitral disease with cardiac embarrassment. Lateral examination of the thorax by screening or radiography may demonstrate a change in size of the left auricle, but the findings are often difficult to interpret because the auricle shadow may be simulated by that of some lateral-lying structure, and the vague shadow obtained is often not convincing. In such cases the observation of the barium-filled oesophagus is an effective method of demonstrating any displacement of this part of the alimentary canal by an abnormal left auricle which lies in close contact with it. A right lateral view is obtained with the patient in the true lateral position, the right side being against the film. There is then perceptible a definite distance of as much as 2 cm. between the spine and the oesophagus. In cardiac enlargement of mitral origin a posterior, and often right-sided, displacement of the oesophagus occurs very early, due to the auricular enlargement. Such a displacement is not to be seen in the absence of enlargement, or when the right side alone is affected. Certain possible errors have to be borne in mind. In cases of marked kyphosis of the thoracic spine the space between the spine and the oesophagus may still be present, even though the latter has been displaced by the left auricle. The contrary holds in the case of lordosis, when the space may be absent, even though the heart is normal. Occasionally a displacement is seen in diffuse cardiac dilatations, such as occur with pericarditis, toxic or fibrotic myocarditis, and in the last stages of hypertension or aortic valvular disease. In these cases, while the distinction from mitral disease may be difficult, there is usually no doubt that the heart is abnormal, and that the lesion is not one exclusively of the right side.

247 Measurements of High-voltage X Rays

The increasing desire to use in *x*-ray therapy higher voltages than 200 kV led W. V. Mayneord and J. E. Roberts (*Brit. Journ. of Radiol.*, June, 1933, p. 321) to undertake physical experiments with an apparatus providing up to 400 kV, in order to determine the properties of the radiations as they might appear in practical therapy. The water-cooled "pantix" tube was found to behave admirably for all voltages up to 370 kV, and currents up to 4 mA at this voltage. Special protection had to be arranged for the observer. Details are given of the apparatus and the investigations. A graph illustrates the very rapid rise in *x*-ray output with the increased voltages. Depth dosages could be obtained at a depth of 10 cm. of 50 per cent. or even more. The authors record the absorption of the rays in copper and the variation of the half-value layer. Measurements were made in a water phantom on "back scatter," distribution of radiation throughout the water mass, and the effects of variation of field size. It is shown that "back scatter" reaches a maximum for a given quality of radiation, and that the variation of percentage depth dose with change of average wave-length is small. It is suggested that the employment of such an apparatus would be immensely more economical than endeavouring to reach the same dosage by means of radium.

Obstetrics and Gynaecology

248 Pulmonary Ventilation in Pregnancy

Le Loirier, R. Goiffon, and R. Parent (*Gynécol. et Obstét.*, June 6th, 1933, p. 481) consider that more attention should be devoted to pulmonary ventilation during pregnancy. Following an investigation with a specially designed spirometer on 160 women, they found that towards the end of pregnancy pulmonary ventilation was generally inadequate. The normal individual shows a definite correlation between his vital capacity and his reflex vital capacity (that is, the amount to which he is capable of utilizing his thoracic expansion when necessity arises). This coefficient of utilization is generally 60 to 80 per cent. of the vital capacity. It was found that during pregnancy the vital capacity was low, an average of two litres. The coefficient of utilization was often from 40 to 70 per cent. Some women, however, showed more than 80 per cent. It thus appeared that a certain number suffered from the anatomical limitation of their thoracic capacity, but that they struggled effectually to overcome it. Some, on the contrary, did not know how to help themselves. Certain small, active women, with a small thoracic cavity, used it to the best advantage, while others with a large vital capacity had a feeble coefficient of utilization. The enforced increase in metabolism and the increased rate of the respiratory rhythm appeared to be the causes of the inadequacy of ventilation. It might be supposed that after delivery—that is, after the relief of abdominal compression—the lungs would freely dilate. However, an examination made one

or two days before the women were allowed up showed the same characters of vital capacity, rhythm, and coefficient of utilization. Probably a return to the active movements of a normal life would be necessary to re-establish normal conditions. The authors suggest that education in respiration during pregnancy is both possible and desirable.

249 Snake Venom in Metrorrhagia

S. M. Peck and M. A. Goldberger (*Amer. Journ. Obstet. and Gynecol.*, June, 1933, p. 887) record the results of treatment of twelve patients with snake venom (*Ancistrodon piscivorus*) for functional metrorrhagia. The venom was used in 1 in 3,000 dilution with sterile normal sodium chloride solution containing 1 in 10,000 merthiolate. The initial intradermal injection was 3.5 minims; subsequent injections of 7 minims were given twice weekly. Treatment was continued for three to six months. Patients should, it is stated, be treated for at least three months, even when definite clinical improvement occurs. For the first five or six injections widely separated sites should be chosen. Occasionally, after five or six injections a hypersensitivity reaction to snake-venom protein occurs. An oval erythematous swelling appears (in four to twelve hours) at the injection site, and may persist for two days. Anaphylaxis has not been observed. When local reaction occurs, treatment with diluted dosage (1 in 10,000) should be continued, the dose being then increased until the original maximum has been reached. In all these twelve cases previously prolonged ordinary treatment had failed. In one patient (aged 12 years), who had had irregular profuse haemorrhage for three months, two injections (3.5 minims of 1 in 3,000 dilution) were given, with an interval of two days. Haemorrhage ceased two days after and had not recurred seven weeks later. The majority of patients required approximately six injections during two or three weeks before definite improvement occurred. With the control of metrorrhagia, rapid improvement of the secondary anaemia usually followed. Ten of these patients responded well. One patient (aged 30 years) relapsed and died from "a peculiar type of generalized Hodgkin's disease." In another patient the result was only fair, though metrorrhagia was controlled. The period of observation was too short for any final conclusions to be drawn regarding permanence of results, though it is thought that the therapeutic effects obtained are sufficiently satisfactory to warrant clinical trial of venom therapy in cases of this type.

Pathology

250 Culture of Poliomyelitis Virus

E. Gildemeister (*Deut. med. Woch.*, June 9th, 1933, p. 877) describes interesting work on the growth and subculture of the virus of poliomyelitis, and recalls that Flexner was the first to present clear evidence of a successful culture, although subsequent workers had not had equal success. The author obtained the virus material from Flexner, and after three rhesus monkeys had been infected with it by intracerebral injection, they died in five, ten, and thirteen days respectively. The cord was removed from the animals with sterile precautions, and the lumbar region was ground up in a mortar with Tyrode's solution and then centrifuged. Only the supernatant fluid was used for the culture experiments. Two series of tissue-culture media were used: (1) chicken embryo heart plus chicken embryo extract plus monkey's plasma, and (2) rabbit testes plus rabbit spleen extract plus monkey's plasma. The tissue was immersed in the virus fluid for thirty minutes, and then worked up for drop culture in the above media. The author also used nutrient media containing living tissues. The medium was Tyrode's solution containing 10 per cent. monkey's serum, filtered through a Berkefeld N filter, and the tissues were ten-day to twelve-day chicken embryo brain in one series and rabbit testes in another. One drop of the finely divided semi-fluid tissue was taken in a Carrel's dish, and 2 c.cm. serum-Tyrode and then 0.2 c.cm. of the virus suspension were added. For subculture six capillary drops of the older culture were added to the fresh medium, provided evidence of virulent activity could still be obtained. Unequivocal evidence of the growth of the virus and its subcultures was, it is claimed, obtained. No obvious signs of growth could be found by mere visual examination of the media. The incubation periods of the disease produced in monkeys by this cultured virus is from four to six days (once nine days); death occurred in seven to nine days after infection. The virulence is maintained through even eighteen subcultures.

251 Normal Arneth Count in Man

W. P. Kennedy (*Quart. Journ. Exper. Physiol.*, June, 1933, p. 377) has carried out a modified Arneth count on ninety healthy male and female medical students. The subjects were carefully chosen, and any person who had suffered from colds or other minor illnesses in the previous two months was excluded. The teeth and tonsils were examined. The examination was restricted to native students, all foreigners being rejected. The smears were made from blood taken between 8 and 10 a.m. The average weighted mean was found to be 2.628, with a standard deviation of 0.19. The nearest count corresponding to this mean in the series was as follows: Group I, 13; Group II, 30; Group III, 43; Group IV, 10; Group V, 4. These results are compared with those recorded by Cooke and Ponder on ninety persons of both sexes between 12 and 55 years of age. Their average weighted mean was 2.74, with a standard deviation of 0.18. Working out the standard deviation of the difference between the two means it is found that there is a significant difference between the results in the two series. The author brings evidence for believing that this difference was due to the greater care exercised by Cooke and Ponder in the selection of absolutely healthy persons. In the author's series two subjects showed a definite deviation to the left, suggesting the presence of some focus of infection. If these two persons had been excluded the correspondence would have been much better. The author sees no reason to modify the standard laid down by Cooke and Ponder, and he would regard any weighted mean of less than 2.45 as outside the range of normal variation for healthy subjects.

252 Blood Cultures in Rheumatic Children

May G. Wilson and Helen Edmond (*Amer. Journ. Dis. Child.*, June, 1933, p. 1237) examined 389 blood cultures from children suffering from active and inactive manifestations of rheumatic disease, such as acute carditis, chorea, arthritis, joint pains, nodules, and chronic heart disease. Positive results were obtained in ninety-six, and the remaining 293 remained sterile for four weeks. The micro-organisms recovered were of three types: *Streptococcus viridans*, *S. anhaemolyticus*, and pleomorphic bacilli. About one-half of the cultivated bacteria proved to be streptococci. In a control series of blood cultures from normal children positive results were obtained in 33 per cent. The streptococci were similar to those isolated from numerous blood cultures from patients (usually adults) suffering from acute rheumatic polyarthritis. It is considered that some pathogenic significance may also have to be attributed to the pleomorphic bacilli, as being perhaps a phase in the life-cycle of streptococci. Yet the positive results in the control series would seem to indicate that bacteria may gain access to the blood stream of healthy and sick children, and be filtered off in various organs, where they are destroyed. During illness this transient bacteriaemia may be increased. The authors think it possible also that children may offer less successful barriers to the entrance of bacteria into the blood, or that the filter mechanisms are not so adequate as in adults. They conclude that no special aetiological significance can be attributed to the micro-organisms recovered from the blood cultures of children with rheumatic diseases.

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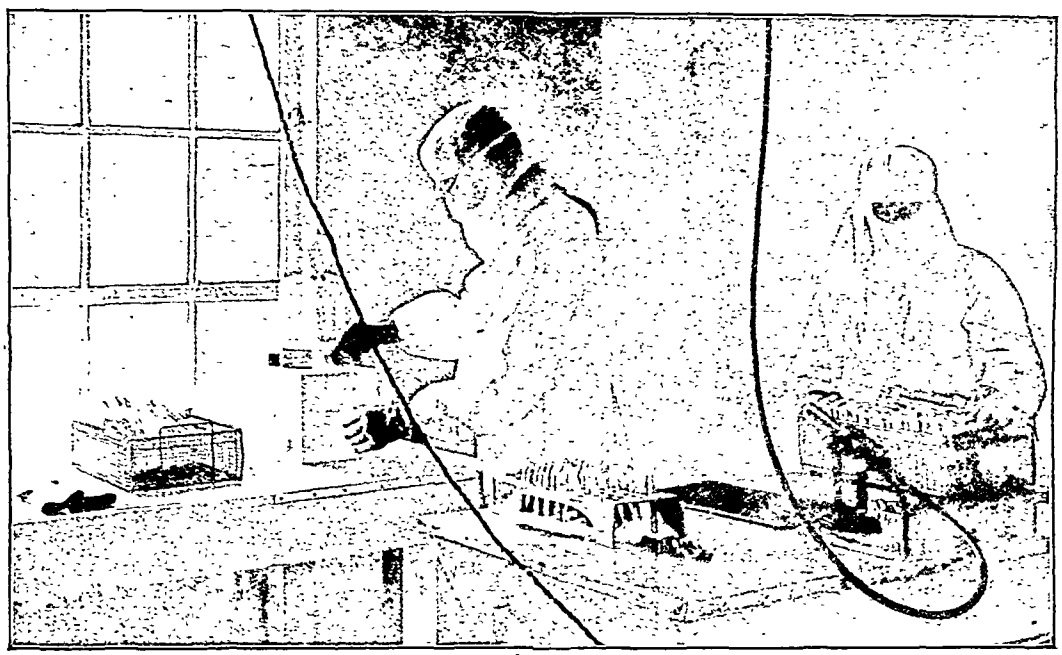
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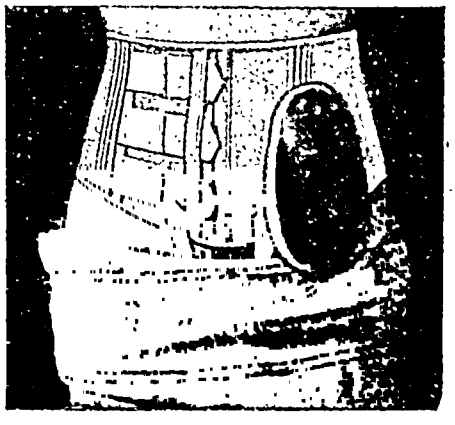
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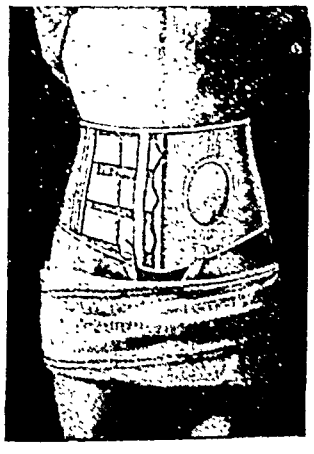
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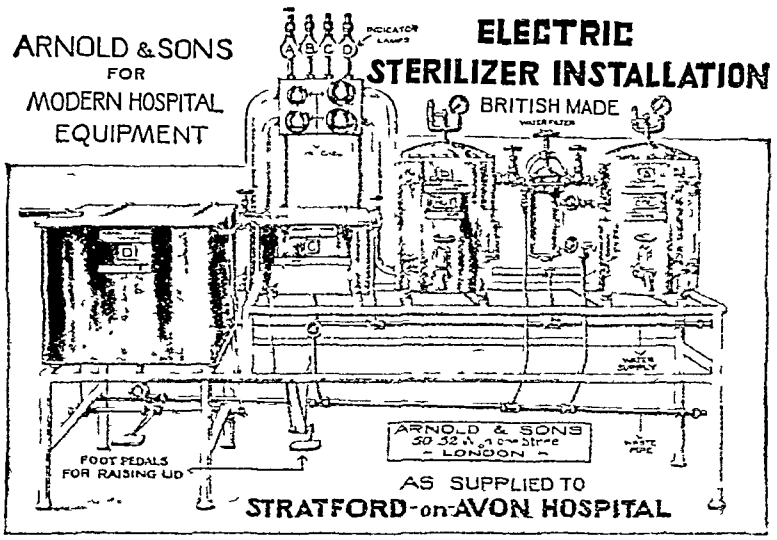


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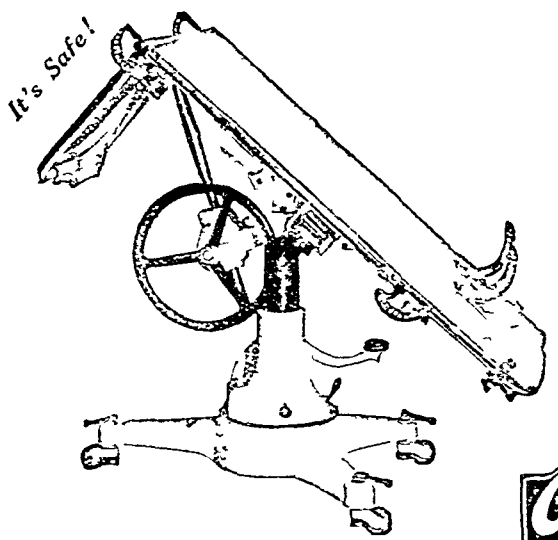
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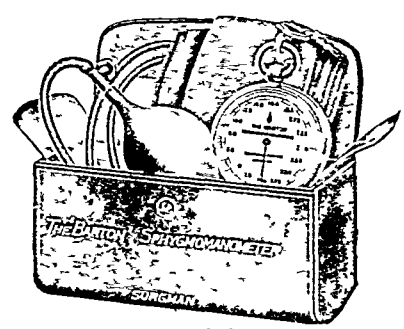
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The COMPTON-BURNETT LECTURES

A Course of Ten Lectures on HOMŒOPATHIC PHILOSOPHY AND PRESCRIBING, as illustrated from the writings of the Organon and Modern Developments therefrom, are given by Sir JOHN WEIR, K.C.V.O., M.B., Ch.B.Glasg., (Physician-in-Ordinary to H.R.H. the Prince of Wales), Physician to the London Homœopathic Hospital, are given at the Winter Session only on

Fridays, at 5 p.m., October to December—commencing Friday, October 13th.

AN INTRODUCTORY LECTURE TO THE WHOLE EDUCATION COURSE
will be delivered at the Hospital on **Thursday, October 12th, 1933, at 5 p.m.**
By JOHN PATERSON, M.B., Ch.B.Glas., D.P.H.Camb.

Subject: "A Modern Conception of Homœopathy." *All Medical Men and Women are invited to attend this Lecture.*

TUTORIAL CLASS.

A class for individual study of the Materia Medica by the Repertory and References to Patients are conducted by DOUGLAS M. BORLAND, M.B., Ch.B.Glasg., Physician to the London Homœopathic Hospital, on

Fridays, at 6.15 p.m., October to March—commencing October 13th.

CLINICAL TUTORIALS.

On Monday and Friday afternoons, at 2 o'clock throughout both the Winter and Summer Sessions, the Registrar Tutor to the Hospital, WILLIAM WILSON RORKE, M.B., Ch.B.Glasg., who is also Physician for Diseases of the Nervous System at the London Homœopathic Hospital, and conducts an Out-patient Clinic for the purpose of instruction in the application of Homœopathic principles.

THE SIR HENRY TYLER SCHOLARSHIP COMMITTEE
also offer SCHOLARSHIPS of £20 for Medical Men in the Provinces desirous of taking a Post-Graduate Course at the London Homœopathic Hospital during the Ten Compton-Burnett Lectures.—Apply to Secretary, London Homœopathic Hospital, Great Ormond St., Bloomsbury, W.C.1.

SCHOLARSHIPS.

All information as to Scholarships may be obtained on application to the Dean of the Education Course, London Homœopathic Hospital, W.C.1.

MAKE A MAN OF HIM!

Nautical Training combined with a Public School Education.

Thames Nautical Training College
H.M.S. WORCESTER
off Greenhithe, Kent,

offers a healthy School life, with an assured start in life, in training boys of 12-16 years of age to become Officers in the Merchant Service and Royal Navy (under a new Admiralty Cadetship Scheme).

Comdr. G. C. Steele, V.C., R.N., Captain-Superintendent, and F. T. Wynyard-Wright, M.A. (Cantab.), Headmaster, assisted by a large Naval and Scholastic Staff.

Illustrated Brochure on application to The Secretary, Room 12, Ingress Abbey, Greenhithe, Kent.

ST. PAUL'S HOSPITAL, ENDELL STREET (off Shaftesbury Avenue), W.C.2

POST-GRADUATE COURSE IN UROLOGY

(Free to Registered Medical Practitioners and Students)

Lecturer	Subject	On the following dates at 4.30 p.m. 1933
Mr W. K. IRWIN.	The Diagnosis and Treatment of some Important Bladder Condition	October 11th (Wednesday)
Mr H. P. WINSBURY WHITE	The Diagnosis of Urinary Tract Diseases in General Practice	October 18th (Wednesday)
Mr R. JOCELYN SWAN	NO LECTURE ON OCTOBER 25th	
Mr C. H. MILLS	Frequency of Micturition	November 1st (Wednesday)
	Some Interesting Urological Cases with Demonstration of same	November 8th (Wednesday)
	(Cinema)	November 15th (Wednesday)
Mr STANFORD CADE.		November 22nd (Wednesday)
		November 29th (Wednesday)

No fee will be charged for attendance at the Lectures etc. Registered Medical Practitioners and Students are invited to attend any branch of the work in which they are interested. Tea will be served at 4 p.m.

HIGHER MEDICAL QUALIFICATIONS

Why not add one of the following degrees or diplomas to your name?

Diploma in Phychological Medicine.
Diploma in Laryngology, etc.
Diploma in Ophthalmology.
Diploma in Radiology.
Diploma in Tropical Medicine.
Diploma in Bacteriology
Diploma in Public Health.
Master of Midwifery.

You can qualify for any of the above by our Courses of Combined Postal, Clinical and Practical Instruction

We specialise in Post-Graduate Coaching for all Examinations.

Special Preparation for all Surgical Qualifications—F.R.C.S.England, F.R.C.S.EDINBURGH, F.R.C.S.IRELAND, M.S.LONDON, M.C.C.M.T.A.B. AND ALL THE HIGHER SURGICAL DEGREES AND DIPLOMAS

You can ensure Success by taking a Course of Tuition for your Examination at the

MEDICAL CORRESPONDENCE COLLEGE

19, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.1.

Courses always in progress for all the above Examinations and also the 1st 2nd and Final M.B., B.S.London and all other Universities 1st, 2nd and Final Conjoint, Edinburgh Triple and L.M.S.S.A. D.P.H.(Cantab Lond., Viet Dublin etc.) M.D. London, M.R.C.P.London and Edinburgh M.D.Thesis (all Universities, British and Colonial) All Dental Examinations

WHY FAIL AT ANY MEDICAL OR SURGICAL EXAM?

VALUABLE BOOK FREE!

Write at once for our Guide to Medical Examinations,' stating in which Examination you are interested, and a copy will be sent post free by return

Medical Correspondence College, 19, Welbeck St., W.1. Welbeck 8901.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL

MARYLEBONE ROAD, N.W.1

Medical Students and Qualified Practitioners admitted to the Practice of this Hospital. Unusual opportunities are afforded of seeing Obstetrical Complications and Operative Midwifery (about one half of the total admission being primiparous cases). Over 2,700 patients are admitted to the Wards annually, and in the Ante-natal Department there are over 20,000 attendances per annum.

Certificates awarded as required by the various Examining Bodies.

For rules, fees, etc., apply, H. B. STOKES, Secretary Superintendent.

SEAMEN'S HOSPITAL SOCIETY.

POST GRADUATE COURSES FOR SHIP SURGEONS.

The Seamen's Hospital Society announces that Part 3 of these Courses—i.e., Refresher Course in Clinical Subjects, will be held from November 13th to December 2nd at the Dreadnought Hospital Greenwich, S.E.10. The course is essentially practical and will include as an additional feature instruction in Operative Surgery. All applications for this Course should be sent to the Secretary, Seamen's Hospital Greenwich, S.E.10, not later than October 23rd next.

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD Estab. 1882. Cases non-resident treated at 39, Earl's Court Square, S.W.5 and in residence, in the Summer holidays at Miss BEHNKE'S house on the Chilterns.

Pre-eminent success in the education and treatment of stammering and other speech defects.—*Times*.
Thoroughly physiological principles.—*Lancet*.
The method is scientifically correct and perfectly effective.—*Guy's Hospital Gazette*.

STAMMERING, CLEFT PALATE SPEECH, LISPING, 3/9 of Miss BEHNKE, 39, Earl's Court Sq., S.W.5.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE

(UNIVERSITY OF LIVERPOOL)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 2nd 1933, and January 3rd 1934 and for the Diploma in Tropical Hygiene on January 11th and April 20th, 1934. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars, apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

BRYN SCHOOL, DOLGELLEY, and PETTON HALL, BURLTON, SALOP,

Offers special care and tuition for **BACKWARD OR NERVOUS BOYS** of any age. Fees moderate.

For further particulars apply The Secretary.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

(University of London)

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE (Eng.)

Dates of the Courses, 1933-34.

(Each part can be taken separately but no concurrently.)

SECTION A (CLINICAL AND LABORATORY INSTRUCTION)—a 6 months Course

October 2nd—December 22nd 1933
January 8th—March 29th 1934,
April 9th—June 28th 1934

SECTION B (TROPICAL HYGIENE)—a 2 months Course

January 22nd—March 23rd 1934
April 23rd—June 22nd 1934

FEES (inclusive)

Section A, £25. Section B £15

In Section A students may enter for the whole Section at recognised intervals (4 or 8 weeks) after the beginning of the course. Short periods of laboratory or clinical instruction can also be taken at proportionate fees.

DIPLOMA IN PUBLIC HEALTH

(University of London)

Course of Study (nine months' whole-time or the equivalent during part-time) commencing on October 2nd. Inclusive fee £47 10s.

DIPLOMA IN BACTERIOLOGY

(University of London)

Course of Study (whole-time for one year) commencing on October 2nd. Inclusive fee £47 10s.

EPIDEMIOLOGY AND VITAL STATISTICS

Special three months' advanced course. Inclusive fee 7 guineas.

For Prospectuses and Syllabus of Lectures etc. apply to the SECRETARY, LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Keppel Street (Gower Street), London, W.C.1.

THE LONDON SCHOOL OF DERMATOLOGY.

St. John's Hospital for Diseases of the Skin,

49 Leicester Square, W.C.2.

Continues to the Honorary Staff of the Hospital together with the Physicians in charge of the Dermatological Departments of the London Teaching Hospitals. Lectures and Demonstrations every Tuesday and Thursday at 5 p.m. from October to March and for three weeks during May. General Practitioners attending any particular lecture or lectures can do so without paying a fee. Clinics daily at 2 p.m. and 6 p.m. Saturdays 2 p.m. only. Pathological Laboratory for Instruction or Research Work.

For further particulars, fees, etc., apply to J. E. M. WIGLEY, M.B., Dean.

NORTH-EAST LONDON POST-GRADUATE COLLEGE.

PRINCE OF WALES'S GENERAL HOSPITAL, N.15

The Practice of the Hospital is limited to Medical Practitioners. Particulars from BROWNING ALEXANDER, M.D., Dean.

D.O.M.S. EXAMINATION.

ROYAL EYE HOSPITAL.

Intensive evening revision course, covering all sections of the D.O.M.S. Examination for January, 1934, commencing:

Part II. October 16th, or soon after. Hours: 8—10 p.m.

Part I. October 16th. Hours: 5—7 p.m.

Fees: Part II, £12 12s. Part I, £5 5s.

Individual sections may be taken separately:

Part II. Clinical: £6 6s. Operative Surgery, Lectures in special subjects, and Pathology: £3 3s. each section.

Part I. Any one of the three subjects: £2 2s. each.

All particulars can be obtained from the Dean, The Royal Eye Hospital, St. George's Circus, S.E.1.

LONG FOX MEMORIAL LECTURE.

The Long Fox Memorial Lecture will be delivered by Mr. CECIL A. JOLL, M.D., Ch.M., F.R.C.S., on TUESDAY, NOVEMBER 7th, in the Physiological Lecture Theatre of the University of Bristol at 5.30 p.m. The Vice-Chancellor will preside.

Subject: "*Recent advances in the Aetiology, Diagnosis, and Treatment of Cancer.*"

THE UNIVERSITY OF LEEDS
in Association with
THE HARROGATE ROYAL BATH HOSPITAL.

The Council of the University will shortly proceed to the appointment of a RESEARCH FELLOW in connection with a scheme for the conduct of research into the cause and cure of Chronic Rheumatism. Salary to commence at £500 a year, with membership of the Federated Superannuation System. Candidates must possess a registrable medical qualification. Fuller particulars of the appointment may be obtained from the Registrar, the University, Leeds, who will receive applications up to October 28th.

UNIVERSITY OF BRISTOL.

The University invites applications for a LECTURESHIP IN PHYSIOLOGY. Salary £400 per annum.

Applications should reach the undersigned, from whom further particulars may be obtained, on or before October 20th.

WINIFRED SHAPLAND,
Secretary & Registrar.

FOUR LECTURES ON THE ENGLISH HOSPITAL SYSTEM, illustrated with lantern slides, will be delivered by SIR GEORGE NEWMAN, K.C.B., M.A., D.C.L., LL.D., on OCTOBER 9th, 10th, 11th, and 12th, at GRESHAM COLLEGE, Basinghall Street, E.C.2, at 6 o'clock. Admission free.

WAREHAM AND PURBECK RURAL DISTRICT COUNCIL.

APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

Applications are invited for the appointment of Medical Officer of Health for the above District.

The appointment is a part-time one, and, in the first instance, will be for the period ending March 31st, 1934, and subject to the approval of the Minister of Health.

Applicants should possess the qualifications required by Article 5 of the Sanitary Officers Order, 1926.

The salary will be at the rate of £140 per annum, and an allowance at the rate of £10 per annum will be paid for travelling expenses. The gentleman appointed will be appointed also as Medical Officer of the Council's Isolation Hospital at a salary at the rate of £15 per annum.

The salaries are subject to a temporary abatement of 2 per cent. in view of the national situation.

Applications, stating age, qualifications, and experience, accompanied by recent testimonials, should reach me not later than October 21st.

LIONEL H. WARD,
Clerk to the Council.

Council Offices,
West Street, Wareham.
October 4th, 1933.

COUNTY BOROUGH OF NEWPORT.

ASSISTANT RESIDENT MEDICAL OFFICER (Junior Appointment).

Applications are invited from registered Medical Practitioners for the above appointment at the PUBLIC ASSISTANCE INSTITUTIONS, Newport, Mon.

Salary £150, with usual residential emoluments (annual appointment).

Applications, stating age, experience, and qualifications, with copies of three recent testimonials, to be forwarded to the Public Assistance Officer, Town Hall, Newport, by October 16th.

O. TREHARNE MORGAN, Town Clerk.

COUNTY BOROUGH OF CROYDON.

PUBLIC HEALTH DEPARTMENT.

AN ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

Applications from qualified medical practitioners are invited for the appointment of an Assistant Medical Officer of Health and Assistant School Medical Officer.

Applicants must be Medical Men holding a special qualification in State Medicine or a Diploma in Public Health, and must have had three years' experience of the practice of medicine since obtaining their medical qualification.

Preference will be given to applicants who:

(i) Have had some definite experience of School Medical work;

(ii) Have enjoyed special opportunities for the Study of Diseases in Children;

(iii) Have had experience in Infectious Diseases; and

(iv) Have held one or more Resident Hospital appointments.

The candidate appointed will be required to produce a recent satisfactory medical certificate of health, and to devote the whole of his time to the duties of the office.

The salary will be £500 per annum, rising by annual increments of £25 to a maximum of £700 per annum, a condition being that the candidate appointed shall provide and use a car in connection with his duties, in return for board-residence at the Borough Fever Hospital, valued at £125 per annum. The salary is subject to a temporary deduction of 5 per cent. of the amount by which such salary exceeds £150.

Applications to be made on forms to be obtained by sending a stamped addressed foolscap envelope to the Medical Officer of Health, *Public Health Department, Town Hall, Croydon*, with copies (not originals) of not more than three testimonials of recent date, not later than 10 a.m. on Monday, October 16th, endorsed "Assistant Medical Officer of Health." Canvassing in any form is prohibited.

JOHN M. NEWNHAM,
Town Clerk.

Town Hall,
Croydon.
September 26th, 1933.

COUNTY COUNCIL OF MIDDLESEX.

MEDICAL OFFICER (NON-RESIDENT)
NORTH MIDDLESEX COUNTY HOSPITAL,
Edmonton.

The County Council invites applications for the above appointment. Applicants must be duly qualified medical practitioners, and should have had special experience in radium and deep x-ray therapy.

The officer appointed must devote the whole of his time to the duties of the post. He will work in the radium and deep x-ray departments of the hospital and will be a member of the staff of the hospital under the control of the Medical Superintendent. He will carry out his duties under the immediate direction of the Visiting Radiotherapeutist of the Hospital.

Salary £750 per annum (no emoluments).

The successful candidate will be required to pass such medical examination as the County Council may direct, and, unless subject to the Poor Law Officers Superannuation Act, 1896, to contribute to the County Council's Superannuation Fund.

The appointment will be held during the pleasure of the Council and subject to three months' notice on either side.

Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than October 14th. Special application forms are not provided. Envelopes must be endorsed "Medical Officer, North Middlesex County Hospital."

Canvassing, directly or indirectly, will be a disqualification. (C.D./18.)

ERNEST S. W. HART,
Clerk of the
County Council.

Middlesex Guildhall,
Westminster, S.W.1
September 20th, 1933.

CITY OF BIRMINGHAM.

DUDLEY ROAD HOSPITAL. (926 Beds.)

Applications are invited from fully qualified Medical Practitioners for whole-time appointment as JUNIOR MEDICAL OFFICERS (male) at the Dudley Road Hospital, Birmingham.

The appointment will be for a period of six months, but may be extended for a further period of not exceeding six months.

Salary at the rate of £200 per annum, and full residential emoluments, subject to any voluntary abatement in force from time to time.

Further [illegible] obtained from the Medical [illegible] Dudley Road Hospital, [illegible] stating age, experience [illegible] with copies of recent [illegible] forwarded not later than [illegible]

COUNTY BOROUGH OF CROYDON.

CROYDON MENTAL HOSPITAL,
UPPER WARLINGHAM, SURREY.

APPOINTMENT OF THIRD ASSISTANT MEDICAL OFFICER.

Notice is hereby given that the Visiting Committee of the Croydon Mental Hospital are prepared to receive applications from medical men for the appointment of Third Assistant Medical Officer at the Croydon Mental Hospital.

The salary will be at the rate of £350 per annum, increasing by annual increments of £25 to a maximum of £450 per annum, and the age of the candidate should not exceed 35. In the event of the medical practitioner appointed holding the D.P.M. an additional £50 per annum will be paid.

Furnished apartments will be provided, with board, laundry and other attendance which for the purpose of Superannuation will be valued at £150 per annum.

Candidates must be registered under the Medical Act and preference will be given to those candidates who have held the post of House Surgeon or House Physician at a General Hospital and who possess previous Mental Hospital experience.

The appointment will be subject to the provisions of the Asylum Officers Superannuation Act, 1909.

Applications to be made on forms to be obtained by sending a stamped addressed foolscap envelope to the undersigned with copies (not originals) of not more than three testimonials *of recent date, not later than eleven o'clock* in the forenoon of Monday, October 23rd, endorsed "Third Assistant Medical Officer, Croyden Mental Hospital."

Canvassing in any form is prohibited.

JOHN M. NEWNHAM,
Clerk to the Visiting
Committee.

Town Hall,
Croydon.
October 3rd, 1933.

CITY OF STOKE-ON-TRENT.

ASSISTANT MEDICAL OFFICER (Male).

Applications are invited for the appointment of Assistant Resident Medical Officer at the LONDON ROAD INSTITUTION, near Newcastle, Staffs.

The remuneration assigned to such office is £250 per annum, with board and residence. The period of the appointment will be limited to one year, subject to termination by one month's notice on either side. The Institution accommodates about 1,000 inmates, including 500 in hospital (which is recognised as a major training school for nurses), and 150 in mental wards. The medical service to the adjacent Children's Homes is performed by the Institution resident staff, who also are required to lecture to Nurses.

Applications, accompanied by copies of not more than three testimonials of recent date, should be delivered to the undersigned on or before October 13th. Applicants should state particulars of qualifications or degrees held, the date thereof, where taken and experience since qualifying. Preference will be given to those who have had experience in any of the following subjects, viz: Anaesthetics, Obstetrics, Pathology, and Radiography.

E. B. SHARPLEY,
Town Clerk.

Public Assistance Office,
Kingsway, Stoke-on-Trent.
October 2nd, 1933.

CITY OF PLYMOUTH.

Applications are invited from duly qualified and registered medical practitioners for the post of ANAESTHETIST to the Corporation Hospitals.

The remuneration will be by way of fees, at the rate of 2½ guineas per session of not more than two hours. Any further particulars may be obtained from the undersigned. Applications, endorsed "Anaesthetist," must be sent to the Medical Officer of Health, Town Hall, Stonehouse, by first post on Thursday, Oct. 12th.

T. PEIRSON, M.D.,
Medical Officer of Health.
Oct. 5th, 1933.

Town Hall,
Stonehouse,
Plymouth.

THE WEYMOUTH & DISTRICT HOSPITAL, WEYMOUTH. (86 Beds and Cots.)

Wanted October 26th, HOUSE SURGEON, male (European). Salary £180 per annum, with board, residence, and laundry. Applications, stating age, qualifications, and copies of testimonials, to be sent to the undersigned not later than October 10th.

MORRIS LODGE, Hon. Secretary.

THE INFANTS HOSPITAL,
Vincent Square, Westminster.

Applications are invited for the post of CLINICAL ASSISTANT in the Radiological Department. Applications should state qualifications, and should be received by the undersigned not later than October 21st.

ALFRED J. SMALL, Secretary.

BURY INFIRMARY, LANCS. (127 Beds)

Applications are invited for the post of SENIOR HOUSE SURGEON, who must have both Medical and Surgical qualifications. The appointment is for six months at a salary at the rate of £200 per annum, with board, residence, and laundry. The successful applicant will be required to commence duties on or about November 1st.

Applicants must have held a previous resident appointment.

Applications, stating age, qualifications, and nationality, with copies of three recent testimonials, to be sent to the undersigned not later than October 11th.

ALEX. W. MAITLAND, Hon. Secretary.

WESTERN OPHTHALMIC HOSPITAL, 155, Marylebone Road, N.W.1.

Applications are invited for the post of SENIOR and JUNIOR RESIDENT HOUSE SURGEONS. The salaries are at the rate of £150 and £100 per annum respectively, and the appointments are for six months.

Some previous Ophthalmic experience is required.

The selected candidate will be required to take up duty on November 1st.

Applications, accompanied by copies of three testimonials should reach me by October 18th. Candidates should state in their application whether they are prepared to accept either post.

H. W. BURLEIGH, Hon. Secretary.

WEST END HOSPITAL FOR NERVOUS DISEASES, In-patient Department, Gloucester Gate, Regent's Park, N.W.1.

The Committee of Management invites applications from British male candidates for the post of JUNIOR HOUSE PHYSICIAN. Duties to commence November 1st. Salary at the rate of £100 per annum, with board, residence, and laundry. Appointment in first instance for six months.

Candidates should send their applications, with copies of three recent testimonials, to the undersigned by Friday, October 20th.

J. P. WETENHALL, Secretary.

73, Welbeck Street, W.1.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

Applications are invited for the office of OPHTHALMIC SURGEON (Second) to the Hospital.

Candidates must possess the degree of M.D. or M.B. obtained by examination at a British University, and be Fellows of the Royal College of Surgeons of England.

Full particulars of the appointment, and details with regard to the submission of testimonials, etc., may be obtained from the undersigned, to whom applications should be made not later than October 23rd.

GILBERT G. PANTER, Secretary.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

Applications are invited for the post of MEDICAL REGISTRAR. Candidates will be required to attend at the Hospital from Monday to Friday inclusive. The appointment is for one year, with eligibility for re-election.

Honorarium £200 per annum, with luncheon and tea provided.

Applications, with copies of testimonials, should be sent by October 24th to the undersigned, from whom forms of application and rules can be obtained.

GILBERT G. PANTER, Secretary.

CORNELIA AND EAST DORSET HOSPITAL, POOLE, DORSET (107 Beds)

HOUSE SURGEON.

Applications are invited (from single men) for the post of House Surgeon. Salary £150 p.a., with usual emoluments. Duties to commence at the earliest possible moment. Period six months.

Applications, stating age, experience, and qualifications, together with copies of three recent testimonials (which will not be returned) should reach the undersigned at the Hospital as soon as possible.

E. S. FOLEY, Secretary.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, Marylebone Road, N.W.1.

RESIDENT MEDICAL OFFICER (male or female) required for the ISOLATION HOSPITAL (for puerperal fever) at Ravenscourt Square, Hammersmith, W.6, to commence duty on December 1st. Appointment for twelve months, which may be extended.

The salary is at the rate of £200 per annum, with board, residence, and washing.

Applications, with copies of testimonials, will be received by the undersigned up to Saturday, October 14th.

H. B. STOKES, Secretary Supt.

MONTAGU HOSPITAL, MEXBOROUGH, YORKS.

Applications are invited for the position of JUNIOR HOUSE SURGEON (Lady) at the above hospital. The commencing salary offered is at the rate of £100 per annum, with the usual residential allowances. One month's holiday is allowed yearly. The hospital has 84 beds, of which 64 are surgical, and 20 maternity.

Applications, giving fullest details as to experience, should be sent to the undersigned at the earliest possible moment, as it is desirable to fill the vacancy quickly. Applicants should state when they would be at liberty to commence duties, and should give their experience in the administering of anæsthetics.

DONALD WILSON, Secretary.

TYNEMOUTH VICTORIA JUBILEE INFIRMARY.

TWO HOUSE SURGEONS (male) required November 1st. Applicants must be doubly qualified and registered. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age and other essential particulars, and accompanied by copies of recent testimonials, to be addressed to the undersigned, from whom all particulars may be obtained.

The Hospital has two resident House Surgeons and contains 80 beds and cots, an X-ray department, and an Out-patient department where accident cases are received.

CHARLES ROWELL, Assistant Secretary.
1, Northumberland Place, North Shields.

WARNEFORD GENERAL HOSPITAL, LEAMINGTON SPA. (150 Beds)

RESIDENT CASUALTY HOUSE SURGEON AND HOUSE SURGEON to Special Departments (combined post) required. Special Departments include Ear, Nose, and Throat, Maternity, and V.D. Departments. Six months' appointment. Salary £150 per annum, with board and laundry.

Applications from qualified and registered medical practitioners (single men only), with copies of at least three testimonials, should be sent to the undersigned by October 7th.

EDWARD L. WIRGMAN,
House Governor & Secretary.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS, Victoria Park, E.2 ('Bus, Tram, and Rail, Cambridge Heath, L. & N.E. Railway.)

A vacancy for a HOUSE PHYSICIAN (male) will occur on November 1st. Six months' appointment. Salary at the rate of £100 per annum. Board, residence, and laundry provided.

Applications, with copies of three testimonials, should be sent to the undersigned on or before Friday, October 20th.

GEORGE WATTS, Secretary.

NORTH RIDING INFIRMARY, MIDDLESBROUGH (General Hospital—150 Beds)

Wanted at once, THIRD HOUSE SURGEON (male). Candidates must be unmarried and of British nationality.

Appointment will be for not less than six months and renewable. Salary £125 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should be sent to the undersigned forthwith.

GERALD A. KENYON, Secretary Supt.

HAMPSTEAD GENERAL AND NORTH WEST LONDON HOSPITAL, Haverstock Hill, N.W.3.

APPOINTMENT OF A HOUSE SURGEON.

Applications are invited from unmarried Medical Men for an appointment of House Surgeon, vacant on November 1st next. The salary will be at the rate of £100 per annum, together with board, residence, etc., and the term will be for six months.

Applications, to be made on a form which will be supplied by the Secretary, together with copies of not more than three testimonials, should reach the Secretary not later than noon on October 21st next.

THE NOTTINGHAM HOSPITAL FOR WOMEN.

HOUSE SURGEON (female or male) required to commence duties on October 15th or soon after. Appointment for period of not less than six months. Salary at the rate of £150 p.a., with board, residence, and laundry. Previous hospital experience essential.

Applications, stating age, experience, and qualifications, accompanied by copies of three recent testimonials, to be sent to the Secretary, Mr. A. L. MORELL, Burton Buildings, Parliament Street, Nottingham, not later than October 9th.

ST. MARY'S HOSPITALS, MANCHESTER.

TWO HOUSE SURGEONS for the WHITWORTH ST. WEST HOSPITAL (Maternity) and one for the WHITWORTH PARK HOSPITAL (Gynæcological Dept.) each for a period of six months from November 1st next. Salaries at the rate of £50 per annum, with board and *residence. Applications*, with copies of three testimonials, to be sent to the undersigned on or before October 13th.

R. RATCLIFFE, Secretary.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.13.

Applications are invited for the posts of RESIDENT and ASSISTANT RESIDENT MEDICAL OFFICERS (vacant October 31st) (male or female). The appointments are for six months and will expire on April 30th next. Board and residence are provided. Salaries at the rate of £175 and £120 per annum respectively, including £5 for washing and laundry. The duties of the M.O. are mainly surgical and those of the A.M.O. mainly medical. Personal canvassing of Governors disentitles. Applications, with *copies of* three recent testimonials to be sent to the undersigned not later than October 11th.

A. ERNEST WILKES, Secretary.

ANCOATS HOSPITAL, MANCHESTER.

RESIDENT MEDICAL OFFICER required to commence duty on November 1st next. One having held a previous appointment essential. Appointment for six months. Salary at the *rate of £150 per annum* with board, residence etc. The gentleman appointed will have charge of the Medical Beds. Applications stating age, qualifications, experience, etc., to be forwarded to the Secretary together with copies of three recent testimonials, on or *before Wednesday October 18th.*

THE MOUNT VERNON HOSPITAL, NORTHWOOD (For the Treatment of Cancer).

There will shortly be a vacancy for an ASSISTANT RADIOLOGIST, who will be required to attend on three half days in each week, and to undertake holiday duty in the absence of the Radiologist to the Hospital. Salary according to experience. Applications with copies of three testimonials, should reach the Secretary not later than Saturday, October 14th.

Offices, 32, Fitzroy Sq., W.1. W. J. MORTON, Secretary.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone Road, N.W.1.

Applications are invited for the post of *HOUSE SURGEON for a period of six months* commencing on November 1st next. Salary at the rate of £100 per annum with board, lodging, and washing. Previous experience as House Surgeon essential.

Applications, accompanied by copies only of three testimonials must reach the Secretary at the Hospital on or before Friday next, October 20th.

G. H. HAWKINS, Secretary.

SWANSEA GENERAL AND EYE HOSPITAL (316 Beds)

HOUSE PHYSICIAN wanted. Gentleman, single. Salary £150 per annum with board, residence, and laundry. Appointment for six months, commencing October 14th.

Applications, stating age, and full particulars, qualifications, and experience, together with copies of three recent testimonials, to be forwarded to the undersigned.

O. C. HOWELLS, Secretary Supt.

ROYAL BERKSHIRE HOSPITAL, READING.

CASUALTY OFFICER required immediately. Candidates (male) must be fully *qualified and* registered. Remuneration at rate of £150 per annum, with board, residence, laundry.

Applications, with copies of recent testimonials, to be sent to the undersigned.

F. A. LYON, Secretary.

MANCHESTER ROYAL EYE HOSPITAL.

JUNIOR HOUSE SURGEON required. Salary £120 per annum, with residence, board, etc. Application (with copies of testimonials), endorsed "House Surgeon," to be addressed to the Chairman of the Board of Management not later than October 14th.

H. R. NORTH, Gen. Supt. & Sec.

THE INFANTS HOSPITAL, Vincent Square, Westminster.

Applications are invited from qualified Medical Practitioners for the post of CLINICAL ASSISTANT, in out-patient department.

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WANTED. — ASSISTANT, SINGLE, FOR mixed Town and Country Practice, near Buxton; English or Scot. Experience essential. Preference given to Public School or University man.—Address, No. 7065, B.M.A. House, Tavistock Square, W.C.1.

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WANTED, LOYAL OUTDOOR ASSISTANT, married, £400 per annum, unfurnished house, good locality Monmouthshire. Own car (allowance £75 p.a.). State age and full essential particulars. Usual bond.—Address, No. 7086, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — OUTDOOR ASSISTANT IN County Town, Scotland. Rural area. Motorist. Must be sociable and of good appearance. Essential particulars and photo. if possible. — Address, No. 7162, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—OUTDOOR MALE ASSISTANT, Nov. 7th. Single, English or Scottish. Must have had hospital and G.P. experience. Surgeon preferred. View Partnership. Cheshire town. Good salary.—Address, No. 7165, B.M.A. House, Tavistock Square, W.C.1.

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WANTED.—JUNIOR INDOOR MALE ASSISTANT; Glamorgan; £300 p.a., all found. Usual bond. Dispenser kept. Car.—Address, with age and full particulars, No. 7082, B.M.A. House, Tavistock Square, W.C.1.

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WANTED, A SINGLE, MALE ASSISTANT for East London Practice. No midwifery or dispensing. Salary £300 indoor.—Address, No. 7072, B.M.A. House, Tavistock Sq., W.C.1.

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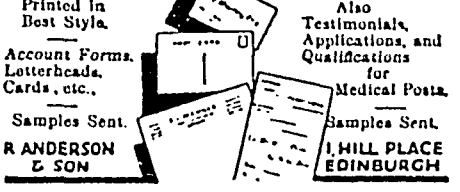
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APPOINTMENTS.—Contd.

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SECOND ASSISTANT MEDICAL OFFICER wanted. Commencing salary £350 per annum, rising by £25 per annum to £450, with an additional £50 per annum if in possession of the Diploma in Psychological Medicine, with board, apartments, attendance, and laundry. Candidates must be unmarried and registered under the Medical Act. The appointment is subject to 3 per cent. deduction on salary and emoluments under the Asylums Officers Superannuation Act, 1909. Apply not later than October 11th, stating age and full particulars together with copies of three recent testimonials, to the Medical Superintendent.

DAVID LEWIS NORTHERN HOSPITAL, LIVERPOOL.

Applications are invited for the post of CASUALTY OFFICER (male). The appointment will be tenable till March 31st next.

Salary attached to the post is at the rate of £120 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, with copies of testimonials, to be sent to the

October 21... ... Supt.

COUNTY OF DEVON.

MEDICAL DEPARTMENT.

ASSISTANT COUNTY MEDICAL OFFICER.

Applications are invited from duly qualified medical practitioners for the appointment of Assistant County Medical Officer under the Devon County Council (Torquay Area).

The officer appointed will act as non-resident Medical Officer in charge of Whitecliff Tuberculosis Hospital, as School Medical Inspector, and carry out such other duties as the County Medical Officer may assign.

Previous experience in the modern treatment of pulmonary tuberculosis is essential, and preference will be given to candidates who have recently held resident appointments in institutions for the treatment of pulmonary tuberculosis.

The salary will be at the rate of £500, rising by annual increments of £25 to £700 per annum, and in addition travelling and subsistence allowances in accordance with the County Council scale.

Application on the form provided to be received on or before October 19th, by the undersigned from whom particulars of and forms of application for the appointment may be obtained.

The County Medical Officer.
4, Barnfield Crescent, Exeter, Devon.

LONDON COUNTY COUNCIL.

Medical Practitioners of at least one year's standing who have held a resident appointment in a general hospital for at least six months required for appointment to the undermentioned positions. Remuneration and conditions subject to review. Duties assigned by Medical Superintendent and include, if necessary, assistance at other establishments under control of the Council.

1. ST. LEONARD'S HOSPITAL, Hoxton St., N.1.

*(a) SENIOR ASSISTANT MEDICAL OFFICER (Grade I). Salary £550, rising annually by £25 to £650, with board, lodging, and washing. Preference given to candidates with special experience in surgery and obstetrics.

*†(b) ASSISTANT MEDICAL OFFICER (Grade I). Duties mainly medical.

2. LEWISHAM HOSPITAL, High Street, Lewisham, S.E.13.

*†ASSISTANT MEDICAL OFFICER (Grade I). Experience in medicine and obstetrics desirable.

*No accommodation for a married man.

†Salary £350, rising annually by £25 to £425, with board, lodging, and washing.

Application forms obtainable (stamped, addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 3a), County Hall, S.E.1, returnable by October 13th. Canvassing disqualifies. Further inquiries should be addressed to medical superintendent at respective hospitals.

LONDON COUNTY COUNCIL.

Medical Practitioners of at least one year's standing and who have held a resident appointment in a general hospital for at least six months required at ST. JAMES' HOSPITAL, Ousely Road, Balham, S.W.12, as ASSISTANT MEDICAL OFFICER (Grade I) (duties mainly surgical), and at ST. OLAVE'S HOSPITAL, Lower Road, Rotherhithe, S.E.16. Salary £350, rising annually by £25 to £425, with board, lodging, and washing. Remuneration and conditions subject to review. Duties assigned by medical superintendents and include, if necessary, assistance at other establishments under Council's control.

No accommodation for a married man at either hospital.

Application forms obtainable (stamped, addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 3a), County Hall, S.E.1, returnable by October 20th. Canvassing disqualifies. Further inquiries should be addressed to medical superintendents.

QUEEN MARY'S HOSPITAL FOR THE EAST END, E.15.

Wanted, a full-time PATHOLOGIST at a salary of £750 per annum.

Applications, enclosing copies of three testimonials, to be sent to the undersigned on or before Friday, October 20th, at 12 noon.

Envelopes to be marked in left-hand top corner "Pathologist." This is essential.

RAPHAEL JACKSON (Major), Secretary.

THE ROYAL EYE & EAR HOSPITAL, BRADFORD.

Wanted, JUNIOR HOUSE SURGEON (male). Salary £150, with board, residence, and laundry. Applications, stating qualifications, age, etc., with copies of recent testimonials, to be forwarded to the undersigned on or before October 18th.

F. BRIGGS, Secretary-Supt.

BECKETT HOSPITAL AND DISPENSARY, BARNSLEY (153 Beds)

Applications are invited for the post of RESIDENT SURGICAL OFFICER (male) Fellowship degree of the Royal College of Surgeons England Edinburgh, or Dublin, will be deemed a recommendation

Salary attached to this appointment is at the rate of £300 per annum, together with board residence and laundry

The successful candidate must be prepared to take up duty November 1st

Application stating age qualifications and experience with copies of testimonials, should be addressed to the undersigned

ARTHUR L BOURNE
Sept. 20th 1933 Secretary Supt

HERTS COUNTY MENTAL HOSPITAL, HILL END, ST ALBANS

SECOND ASSISTANT MEDICAL OFFICER (male) required D P M or similar qualification essential Salary £550 per annum, rising by £25 per annum to £600 per annum, with, in addition, board, quarters attendance, and washing valued at £90 10s per annum A house will be available shortly The appointment is subject to the provisions of the Asylums Officers Superannuation Act, 1909, and at present to a temporary economy deduction of £30 on the commencing salary Application forms from the Medical Superintendent

ADDENBROOKE'S HOSPITAL, CAMBRIDGE

Applications are invited for the post of HOUSE PHYSICIAN The appointment will be for six months from October 23rd, but is terminable at an earlier date by one month's written notice on either side Salary at the rate of £150 per annum, with board, residence and laundry Candidates (male), who must be unmarried and duly registered, are requested to forward their applications stating age qualification et not more than four signed on or before

W H

THE CANCER HOSPITAL (FREE) (Incorporated under Royal Charter), Fulham Road, London S W 3

Applications are invited for the post of ASSISTANT RADIUM OFFICER at the Cancer Hospital (Free) Fulham Road, London, S W 3 The appointment will be for one year at a salary at the rate of £350 per annum

Applications, giving full particulars as to age, qualifications etc together with copies only of three recent testimonials should be sent to the undersigned on or before Saturday, October 14th

CLEMENT COBBOLD, Secretary

HEREFORDSHIRE GENERAL HOSPITAL (140 Beds)

Applications are invited for the post of HOUSE PHYSICIAN (male) Salary at the rate of £100 per annum, with board residence and laundry Appointment for a period of six months

Applications, stating age, qualifications and experience together with copies of three recent testimonials should reach the undersigned by October 14th

T W UPTON, Secretary

LONDON HOSPITAL, E 1

r the appointment of (Honorary) to the

Candidates must be Members of the Royal College of Physicians in London

Particulars of the appointment may be obtained on application to the House Governor

The latest date for receiving applications is November 11th

ARTHUR G ELLIOTT
Sept 1933 House Governor

MANCHESTER EAR HOSPITAL GROSVENOR SQUARE, ALL SAINTS

The Board invite of RESIDENT HOU £120 per annum be duly qualified and with copies of four recent testimonials to be forwarded to Mr REGINALD S MILFORD (Hon Secretary Manchester Ear Hospital) c/o Mr W J ELLAM 33 Brazennose Street Manchester, not later than October 28th

ROYAL NORTHERN HOSPITAL Holloway N 7

A vacancy occ SIST ANT in the on Friday afternoon be addressed to the Secretary

BATLEY AND DISTRICT HOSPITAL (General Hospital—84 Beds)

HOUSE SURGEON

The Committee require the services of a duly qualified Resident House Surgeon (male) Salary £175, with board, residence, and laundry Duties to commence as early as possible Applications, with copies of testimonials, to be sent to the undersigned

Batley, Yorks A W WESTERN, Secretary

EASTBOURNE PRINCESS ALICE MEMORIAL HOSPITAL (116 Beds)

RESIDENT HOUSE SURGEON required on November 1st next for six months Salary £150 per annum, with board lodging and laundry Candidates must be unmarried fully qualified and registered Applications stating age accompanied by copies of three testimonials (including one from Medical School), should reach the Secretary by October 18th

THE WEIR HOSPITAL, Grove Road, Balham, S W 10

JUNIOR RESIDENT MEDICAL OFFICER (male unmarried) required Candidates must be fully qualified and duly registered Salary £150 per annum, with board residence and laundry

Applications with copies of testimonials to be sent to the Secretary from whom further information may be obtained

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CHESHIRE —NON RESIDENTIAL PRACTICE in clean town £2 000 p a with scope for Surgeon Panel 1 150 Fees 3/6 to 20 Midwifery 3 to 7 gns Premium 1½ years purchase Surgery for sale at £800 partly lent Good society and part Practice would suit married man of some experience No 9214

EAST YORKS — OUTSKIRTS OF TOWN — PRACTICE estimated at £900 p a principally 18 months and increasing rapidly Panel 290 at present Visits 3 6 up Maternity £2 10 up Good house (8 bed 2 rec surgery etc) and garden Premium for good will £1 200 with house at £70 or £50 without house and practice Suit married man —No 9213

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SOUTH COAST.—Well-established select G.P. Excellent freehold house (3 reception rooms, 4 bedrooms, garage, etc.). Receipts approx. £800 p.a. Premium 2 years' purhase. For freehold house £1,750 (a suitable mortgage could be arranged).

MIDDLESEX, WEST.—NUCLEUS G.P. Excellent opportunity for experienced Practitioner to build up lucrative Practice. Suitable house available. Receipts approximately £200 p.a. Panel 130. Premium £200.

WARWICKSHIRE. — Old-established unopposed Country PRACTICE in pleasant surroundings. Excellent modern freehold house (especially built for Doctor), with large garden and garage. Receipts approximately £500. Panel nearly 500. One appointment. Premium £500. Freehold house £1,500 (part may remain on mortgage).

WEST COUNTRY. — Mixed Country PRACTICE. Attractive freehold house with large garden and garage. Receipts approximately £650 p.a. Panel nearly 300. Appointments. Scope for surgery. Premium 1½ years' purchase.

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MANCHESTER.—Mixed PRACTICE, averaging £1,000 p.a. Appointments (transferable) £200—£250 p.a. Panel 850. Good corner house, 2 reception, 3 bedrooms, 3 professional rooms; garage and small garden. *Premium*—Practice—1½ years' purchase.—No. 492.

LARGE LANCS TOWN, near Manchester.—Old-established mixed PRACTICE. Average cash receipts £1,080 p.a. Panel 1,060. Scope. Good house, 2 reception, 4 bedrooms, garage, and garden, to rent. Premium 1½ years' purchase.—No. 457.

SCOTLAND.—LARGE CITY.—Upper middle-class (non-dispensing) PRACTICE, averaging nearly £500 p.a. No panel, but scope for such work. Good house, 2 reception, 5 bedrooms, garden, and garage, for sale or may be rented. Premium 1½ years' purchase. —No. 498.

NORTH-WEST COAST.—Large residential and seaside town.—Old-established PRACTICE Cash receipts about £1,200 p.a. Panel 1,500. Excellent detached corner house (freehold), 3 professional rooms, 5 bedrooms, and 2 reception rooms, garage, and good garden for sale. Premium—Practice—1½ years' purchase.—No. 417.

MANCHESTER.—Old-established mixed PRACTICE. Cash receipts last year £660. Panel 788. Scope. Good corner house, 2 reception, 4 bedrooms, garage. Rent £60 p.a. Premium 1½ years' purchase. Could be worked *along with another small Practice* for sale, quite near, doing £300 p.a., with a panel of 350.—No. 437.

LANCS TOWN, eight miles from Manchester.—Old-established mixed PRACTICE, averaging £700 p.a. Panel 639. Scope for increase. *District* rapidly developing. Good house, 2 reception, 3 bedrooms, garage, and garden (separate entrance to Surgery) Premium—Practice and house—£1,500.—No. 493

WARWICKSHIRE.—Country PRACTICE in delightful district. Cash receipts approx. £500 p.a. Panel 479 Scope Modern house (built for doctor), 3 reception, 5 bedrooms, garage, and large garden with orchard, for sale. Sport of all kinds Premium £500. Vendor retiring.—No. 480

LARGE LANCS TOWN, near Manchester.—Small PRACTICE, capable of great increase. Cash receipts last year £442 Panel 150. Good corner house, 3 reception, 3 bedrooms garage Net *rent £30 p.a. Premium £400* Vendor retiring.—No 482

CHESHIRE. — MIDDLE CLASS PRACTICE in residential town near Manchester. Cash receipts last year £762 Panel 120 Scope for increase, district developing Excellent modern house, 2 reception, 4 bedrooms Garage and large garden Professional rooms separate Premium—Practice and house—£2,600.—No 503

DERBY. — Small old-established PRACTICE capable of considerable *increase* Average cash receipts £530 p.a Panel 309 Excellent house, 3 reception 5 bed and garden For sale or to rent Prem.—Practice—£500 Vendor retiring.—No 486

NEAR NORTH WEST COAST. — Country PRACTICE of over £800 p.a. *in beautiful district* Panel 329 Scope Good sport Premium best offer.—No 477

CO. DURHAM. — LARGE TOWN.—Old-established mixed PRACTICE, averaging over £800 p.a. Panel 600 Scope. Good house, 2 reception, 4 bedrooms, 3 *professional* rooms. Garage and garden Premium £950.—No 422

MANCHESTER.—Middle-class PRACTICE in residential suburb Cash receipts last year £1,300. Panel 625 Nice house, 3 reception, 6 bedrooms, billiard room, large garden, and garage.—Premium—Practice—1½ years' purchase.—No 322.

MEDICAL WOMAN'S PRACTICE.—MANCHESTER. Cash receipts over £600 p.a. Panel 450 Scope Good house to rent in main road, 3 recep., 6 bedrooms, garage Prem.—best offer.—No 330.

NR. LIVERPOOL.—Old-established PRACTICE. Cash receipts last year £500 No panel, but considerable scope for such work. Good house to rent. Premium, best offer.—No 495.

MANCHESTER.—Mixed PRACTICE in residential suburb. Average cash receipts £780 p.a. Panel 700 District developing. Scope. Good house, 2 reception, 5 bedrooms, garage, and garden. Pre*mium 1½ years' purchase*.—No. 485

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2. SOUTH-WEST OF ENGLAND.—PARTNERSHIP.—A one-fourth share (with increase later as arranged) is offered in a very old-established mixed general Practice, situated in very attractive district on Coast. Average gross cash receipts for the past three years £4,280, including appts. worth £900 p.a. and panel producing over £1,100 p.a. Fees from 2/6 to 7/6. Suitable house, with 2 reception, 4 bedrooms, etc., and separate professional rooms. Price for freehold £1,500, or might be rented. Premium for share 2 years' purchase.
3. MIDLANDS.—Old-established middle and better-class PRACTICE in clean and attractive manufacturing city. Cash receipts average over £1,600 p.a., including appointment worth £165 (transferable) and panel of 1,220. Visits 5/- to 2 gns. Midwifery discouraged, fees 5 to 15 gns. Exceptionally good house in own grounds, with ample accommodation, fitted with every labour-saving device and economically run. Situated in best residential part. Cottage in the grounds is let at £37 a year. Price, freehold, £5,000 (£3,500 on mortgage). Premium £3,500. Scope for active man.
4. LADY DOCTOR'S PRACTICE. — LONDON; SOUTH-EAST.—The half share is offered in a well-established middle and working class Practice averaging for the last three years £1,188 p.a. Panel of about 600. Two appointments worth about £130 a year. Fees from 2/6. Small house, containing 1 reception room, 3 bedrooms, bathroom, etc., and professional rooms. Price for freehold £750. Premium for share 2 years' purchase. Ill health reason for sale. Preliminary assistantship of one to two months offered.
5. WILTS.—Very old-established unopposed country PRACTICE, situated in very pretty agricultural district within 15 miles of large town. Average gross cash receipts for last three years £970. Panel of over 800 and appointments produce £249 p.a. Fees 2/6 to 7/6 with medicine extra. Very little midwifery from 2 to 5 guineas. House is an exceptionally nice one, very compact and in excellent repair, containing 4 professional rooms, 3 reception rooms, 6 bedrooms and dressing-room and maid's room. Bathroom etc., with h. and c. Walled-in garden, etc. Price freehold £1,600. Or smaller house available if preferred. Prem. 1½ years' purchase. Sport of all kinds.
6. BIRMINGHAM.—Rapidly increasing PRACTICE, situated in fast developing district, within easy reach of the centre of the town, offering large scope. Gross cash receipts for past twelve months £980, including panel of 1,220. Visits from 5/6. Midwifery from 3 gns. About 25 cases. Suitable house with dining room, lounge, 3 bedrooms, bathroom, etc. Surgery, waiting room and dispensary with separate entrance. Good garden and garage. Price for leasehold (with 97 years to run) £1,500. Premium £1,500. Sport of all kinds within easy reach.
7. SOUTH AFRICA.—Within eight hours of Durban.—Well-established PRACTICE, situated in very pretty Township, near sea coast and producing between £600 and £700 p.a. including appointments. The income was formerly much larger, but owing to world-wide depression it is now at its lowest ebb, but signs of improvement are already showing. Vendor is even now able to save money owing to the low cost of living. Opposition negligible. Bungalow residence with about an acre of garden. Rent £60 a year on lease. Premium only £500, to include furniture, drugs, instruments, etc., valued at about £200. Excellent climate and sport. Ill-health of Vendor's wife reason for sale.
8. YORKSHIRE UNIVERSITY TOWN. — Old-established middle and working-class PRACTICE, averaging for the past three years £1,132. Easily worked, and good scope for increase. Panel of over 1,000. Very light expenses. Good house with 2 reception, 5 bedrooms, etc., and separate surgery accommodation. Price for freehold £1,500. Premium, to include book debts, drugs, etc., £1,900.
9. EGYPT.—Well-established PRACTICE producing about £950 p.a., and offering scope for increase. Fees 10/6 to 2 gns. Excellent accommodation can be rented at £16 10s. monthly. Premium, to include all furniture, drugs, drug bottles, instruments, etc., £2,000.
10. MIDDLESEX.—RIVERSIDE SUBURB.—Old-established good mixed-class PRACTICE, averaging for the last three years £1,030, including panel bringing in about £340 and appts. worth nearly £100. Fees from 3/6. Detached house with good garden, and containing 4 reception, 6 bedrooms, etc. Price for leasehold £1,200. Premium £1,900, or near offer.
11. SOUTH WALES.—Pleasant Coast Town (pop. 40,000).—Old-established PRACTICE, held ten years by present incumbent, and averaging over £1,000 p.a., including panel of 1,375. Visits 5/- to 10/6. Good house, having charming views of English Channel, and surrounding country. Contains professional rooms, 3 reception, 6 bedrooms, 2 bathrooms. Garden, with tennis court. Garage. Rent on lease £85 a year. Premium 1½ years' purchase.
12. EASTERN COUNTIES.—ASSISTANTSHIP with view to Partnership (after a preliminary period of six months at a salary of £440 p.a., with free house) is offered in an old-established good mixed-class Practice, situated in pleasant residential and agricultural district within about 15 miles of the coast. Gross cash receipts approximately £3,000. A third share is for disposal at a premium of 2 years' purch.
13. EASTERN COUNTIES. — FAVOURITE SEASIDE AND HOLIDAY RESORT. — Good mixed-class PRACTICE, established many years, producing for last twelve months £1,600. Panel brings in £300 p.a. and appointment worth £100 p.a. Fees 3/6 to 7/6, with medicine extra. Nice house, with 2 reception, 5 bedrooms, etc. Garage. Garden. Price for freehold £2,250. Golf, shooting, and other sport. Premium 1½ years' purchase.
14. NORTH WALES.—ASSISTANTSHIP with view to Partnership (after a preliminary period of about six months at a salary of £300 p.a., all found) is offered in a better-class non-panel Practice, situated in attractive seaside resort. A one-third or three-sevenths share is for disposal (producing £800 to £900 p.a.) at a premium of 2 years' purch. Ingoing Partner should be English, and pref. London trained.
15. OPHTHALMIC PRACTICE.—Within eighty miles of London.—Practice is increasing, and offers good scope for further development. Average gross cash receipts for the past three years £554. Last year over £700. Fees 1 to 2 guineas. Opposition slight. Choice of houses. Premium £700.
16. LONDON, SOUTH-EAST.—Old-established better working-class PRACTICE, increasing, and situated in well-populated district. Gross cash receipts for last 12 months £1,263, including panel of 1,370. Suitable house, with 2 reception and 3 bedrooms. Garden. Price for freehold £1,000. Premium £2,500.
17. MANCHESTER.—Old-established middle and working-class PRACTICE, producing for the last twelve months about £650, including panel of 790. Fees from 3/6. Convenient house, with 2 reception, 4 to 5 bedrooms, bathroom, etc. Rent on lease £60. Premium £950, to include furniture.
18. RIVIERA.—Old-established PRACTICE, the receipts from which have averaged over £1,000 p.a., but have decreased recently owing to Vendor's ill health. Very good prospects of extension. Fees from £1 1s. Very easy work. Suitable flat can be rented at £160 p.a. Premium £3,000.

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2. LONDON OR MANCHESTER. — Well-established private and panel PRACTICE, producing £1,200 upwards, with nice house.
3. BUCKS, BERKS, or near locality.—Better-class PRACTICE, averaging about £1,500 p.a., with good scope. Panel not necessary. Ample capital for purchase of house and Practice.
4. SOUTH OF ENGLAND.—Good town, with educational facilities. Income £1,200 to £1,800, with substantial panel. Fair-sized house, with garden.
5. SOUTH COAST TOWN, or near locality.—PRACTICE averaging about £1,500 p.a., with panel of 1,000 or thereabouts. Small house, preferably on rental. Capital available.
6. LONDON OR SUBURBS.—PRACTICE, producing £1,400 to £1,600 p.a., with panel of 1,500. Good house, with garden.
7. GOOD LONDON SUBURB or RESIDENTIAL DISTRICT within 3 miles. Well-established PRACTICE producing about £1,500 p.a., with moderate panel. Small convenient house sufficient.
8. LONDON AREA.—ASSISTANTSHIP with view to Partnership. Share producing about £1,000 p.a. Applicant is well experienced.
9. RIVERSIDE SUBURB or DEVELOPING DISTRICT.—Within 20 miles, mixed private and panel PRACTICE, income about £1,500. Nice house essential. Ample capital available.
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Girl, aged 5 years, with advanced right hip-joint disease of $2\frac{9}{12}$ years standing. There was extensive bone destruction of acetabulum and of head of femur. She had had raw cow's milk from birth.

Boy, aged 11 years, with tuberculosis of the spine. He was fed from birth on raw milk. Two sisters died of meningitis, the nature of which was not ascertained.

★ *(Extracted from article "Human and Bovine Infections in Bone and Joint Tuberculosis," Griffiths and Summers, Lancet, April 22nd, 1933.)*

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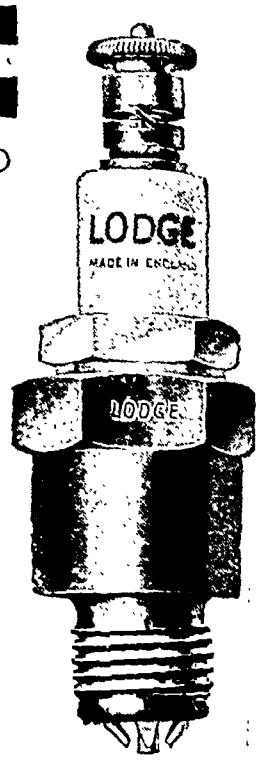
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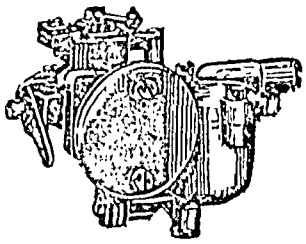
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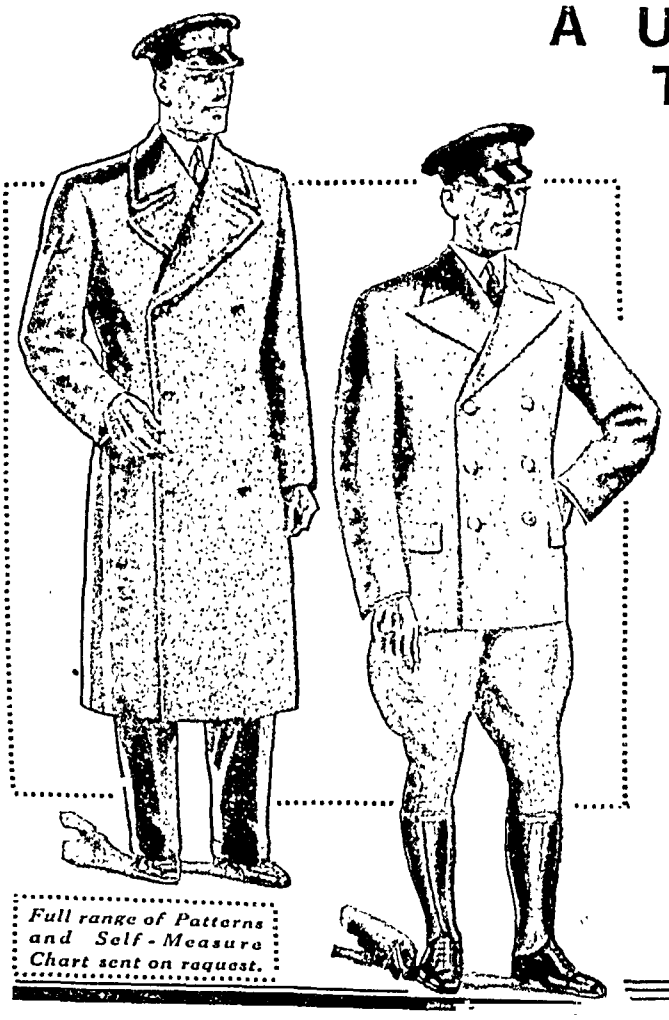
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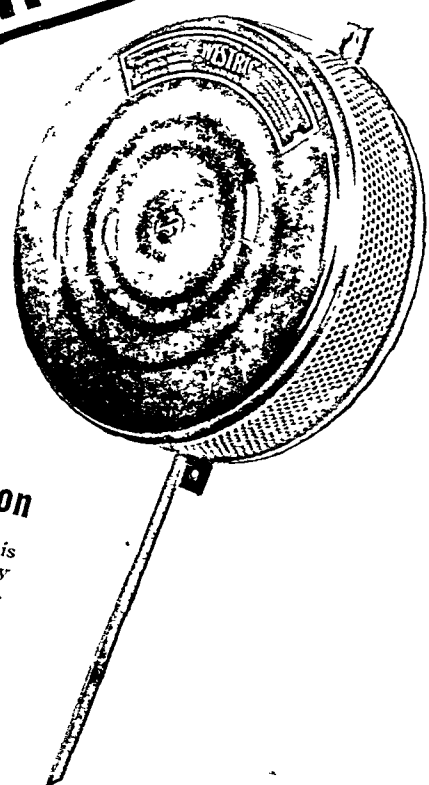
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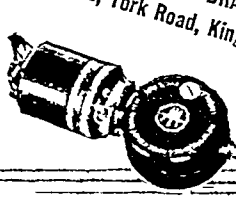
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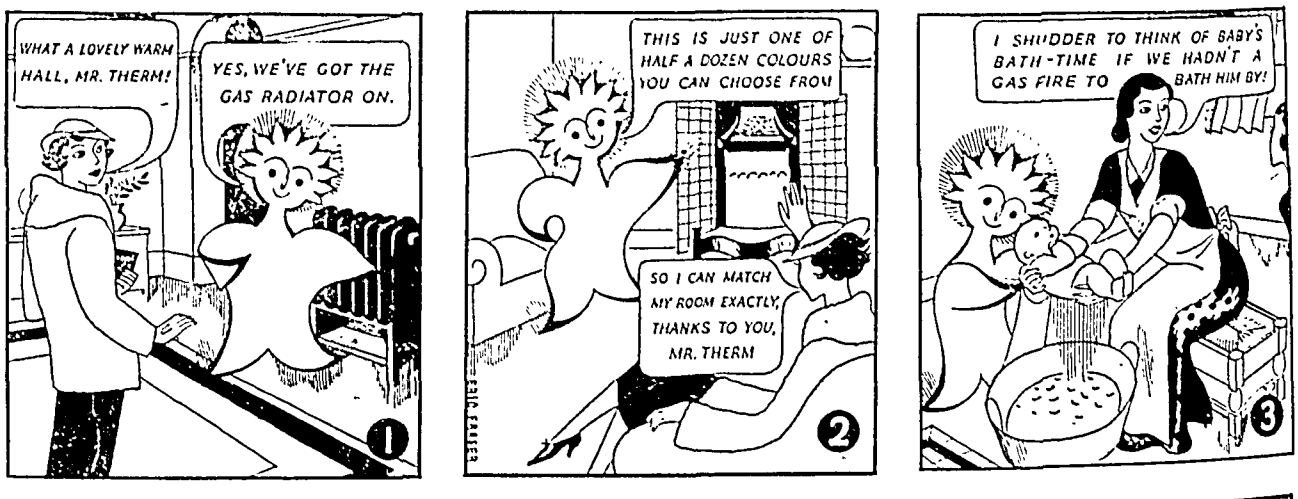
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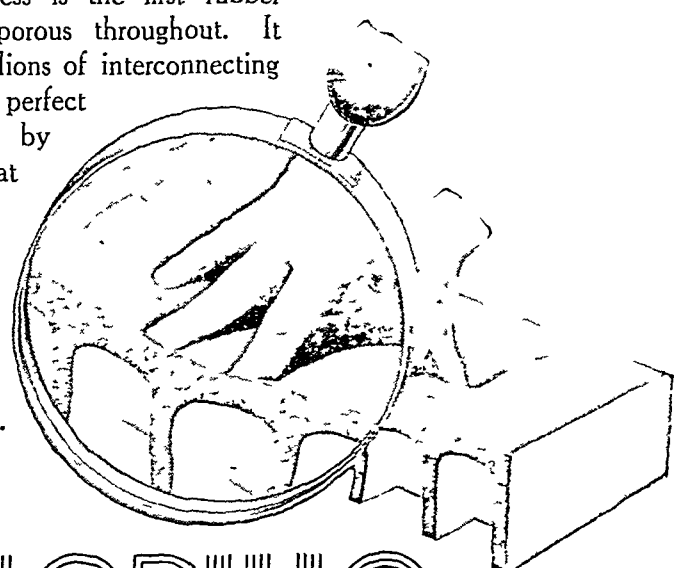
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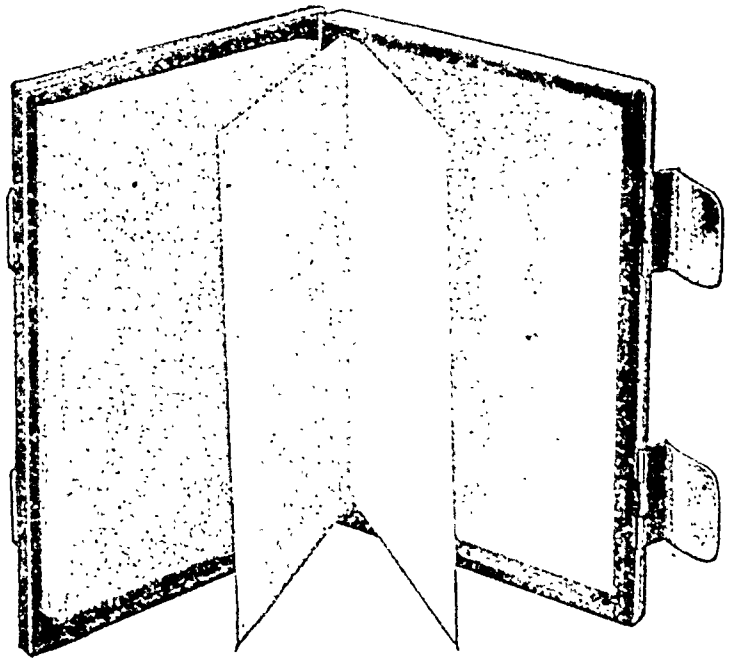
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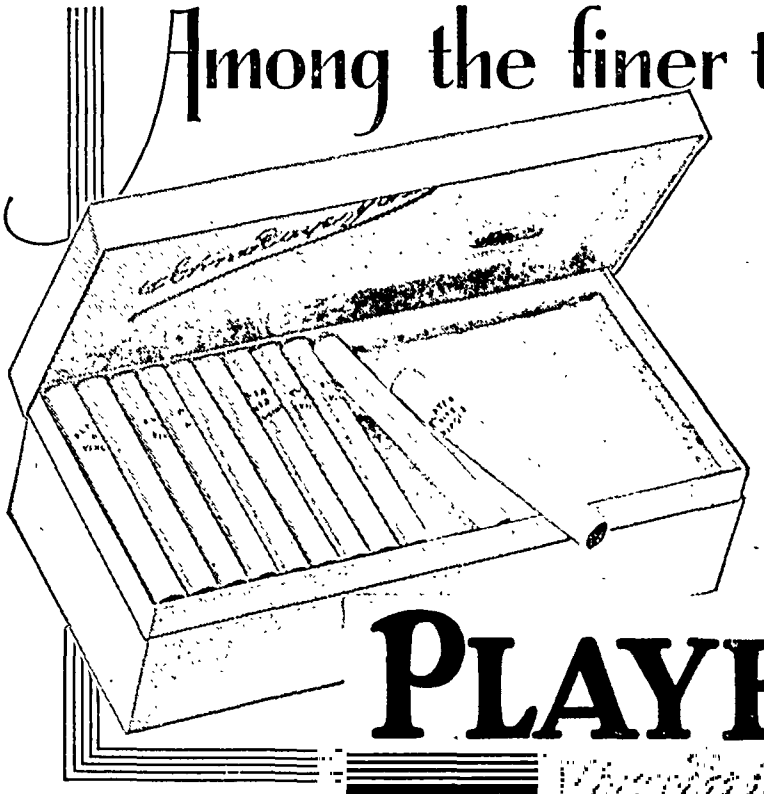
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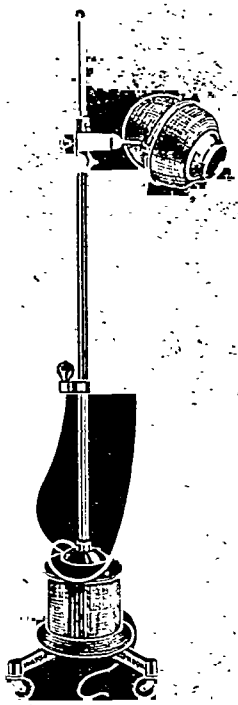


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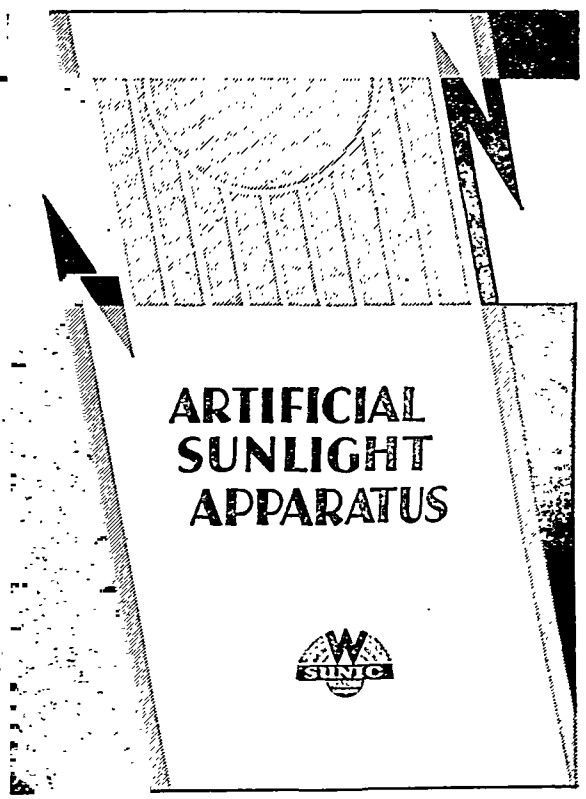
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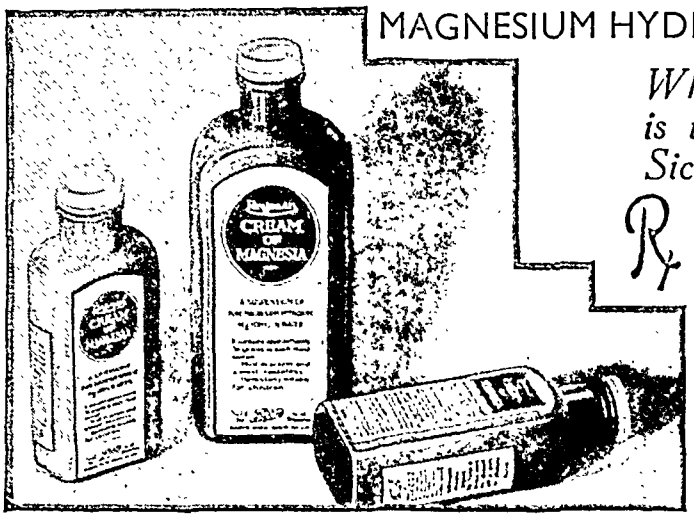
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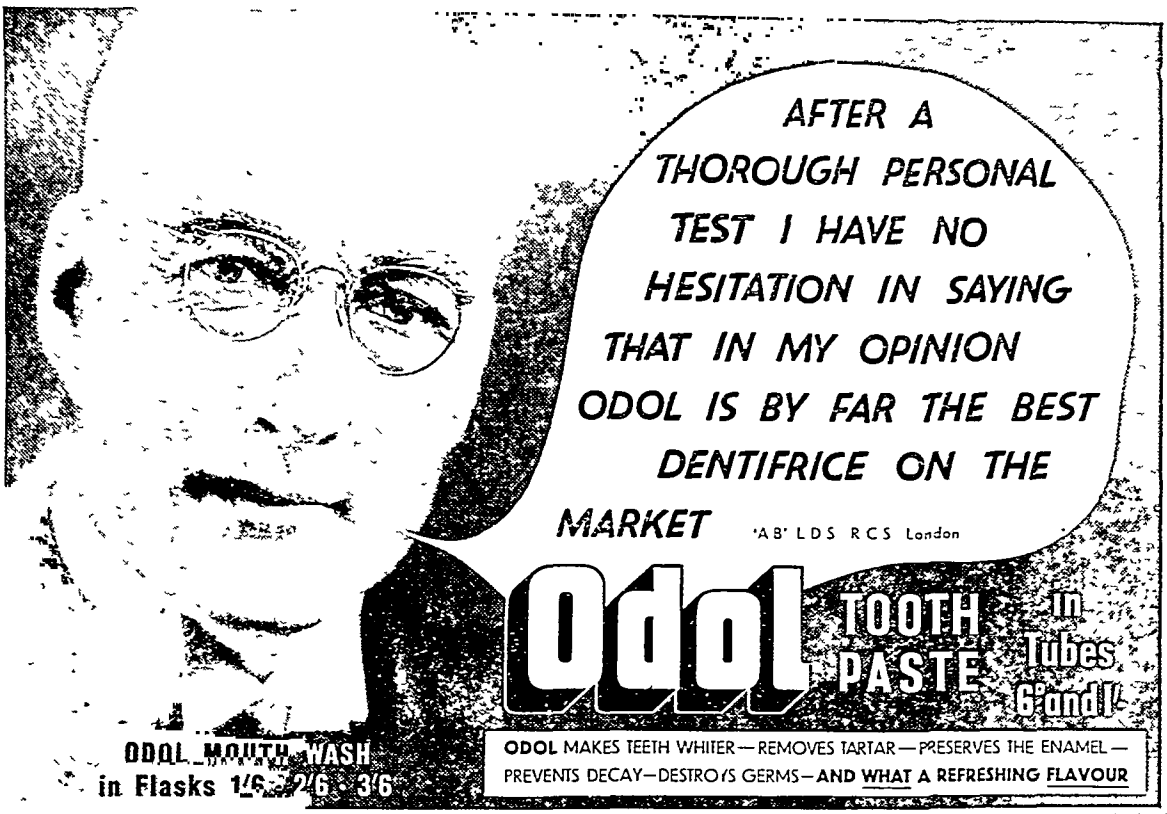
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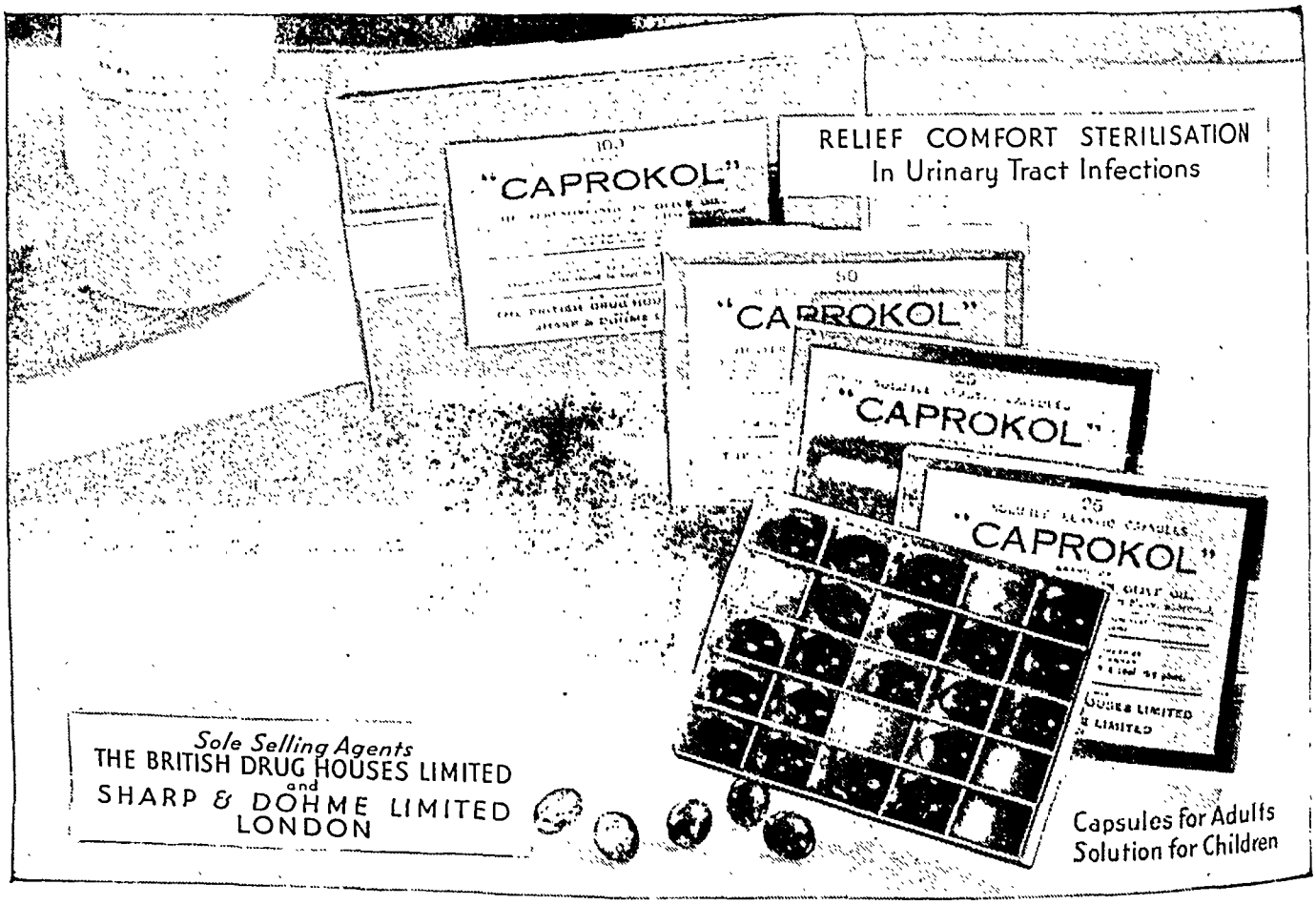
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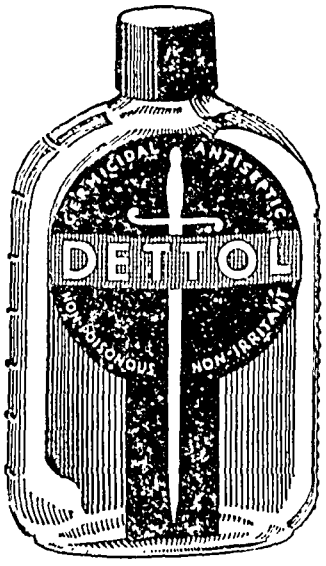
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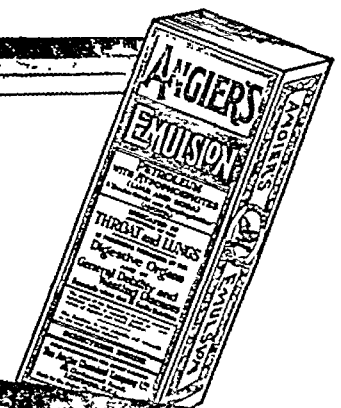
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A Paper
ON
FOOD AND GOITRE*

BY

SIR ROBERT McCARRISON, C.I.E., M.D., D.Sc., LL.D., F.R.C.P.

HONORARY PHYSICIAN TO THE KING; COLONEL, INDIAN MEDICAL SERVICE; DIRECTOR, NUTRITION RESEARCH LABORATORIES, PASTEUR INSTITUTE, COONOOR, S. INDIA

In some circumstances the thyroid gland is among the most, in others it is among the least, variable of all organs with respect to its weight and proportionate size in the body. There is no stable biometric constant of variability associated with thyroid glands under all conditions. It is not an organ whose size is unalterably fixed, but one designed to adapt itself to environmental conditions. Some latitude must therefore be allowed it, some arc through which the pendulum of its normal activities may swing without the charge of abnormality. These activities involve variations both in size of the gland and in its histological appearance, the latter varying with the phases of its activity. At one extreme its vesicles are filled with colloid; at the other its store of colloid is dispersed and active secretion predominates. It is essential to be aware of these extremes of histological variation, lest normal appearances be described as pathological.

Similarly, it is necessary to recognize that the gland has a normal range of size. Recent biometric studies have defined the limits of this range (McCarrison and Madhava, 1932).[1] It is demarcated by the formula: $M \pm 2.5$ times the standard deviation from M, where M is the mean size of the gland in a normal universe of animals or men, or in any section of that universe. Glands not exceeding the value given by the formula $M + 2.5\sigma$ are not abnormally large, however else they may be altered histologically. Supposing we take a sufficiently large number of thyroid glands from individuals comprised within a normal universe, estimate their weights or proportionate size in the body, and construct a frequency distribution diagram of these weights or sizes, then we find that this diagram can be fitted by a normal probability curve. But it is different when the universe is one in which goitre prevails; then the frequency distribution diagram exhibits positive "skewness" in proportion to the prevalence of thyroid enlargement.

The factors influencing the size of the thyroid gland are multiple and their interactions manifold. They include hereditary influences, individual idiosyncrasy, age, sex, sexual activity, psychic factors, season, locality, altitude, distance from the sea coast, sanitary condition, and diet. Of these diet is the most important. There are two aspects of the relation between food and the thyroid gland: the influence of the gland on the metabolism of food and the influence of food on the gland. The latter is my main theme, but brief mention may be made of certain known facts relating to the influence of the thyroid on the metabolism of the proximate principles of food—proteins, carbohydrates, fats, mineral salts, and water—since these have a practical interest for the physician.

Influence of the Thyroid Gland on the Metabolism of Food

The relation of the thyroid to the metabolism of nitrogen is exemplified by the increased urinary excretion of nitrogen as urea, which occurs in Graves's disease and experimental hyperthyroidism. This loss of nitrogen can, to some extent, be prevented by the increased ingestion of fats and sugars. As is well known, a meat diet is harmful in Graves's disease and other states of hyperthyroidism, but the casein of milk is definitely beneficial. Rats fed on a milk diet are resistant to hyperthyroidization: excessive increase in metabolism and the nervous symptoms, occasioned by thyroid administration to these animals, are markedly lessened (Abelin).

The mobilization of hepatic glycogen, consequent on hyperthyroidization, is evidence of the gland's relation to carbohydrate metabolism. Here also this mobilization can be prevented by the increased ingestion of animal fat, such as beef fat or cod-liver oil, although it is not prevented by the increased ingestion of carbohydrate; it can also be prevented by the increased consumption of casein (Abelin). Another evidence of this relation is afforded by the increased consumption of glucose by the perfused heart (cat) under the influence of hyperthyroidization.

One of the most important of the thyroid gland's metabolic relationships is that to the katabolism of fats. This is illustrated in the well-known effect of thyroid administration on obesity. There seems to be little doubt that an antagonism exists between thyroid activity and the metabolism of fats; an excess of thyroid hormone inhibits the anabolism of fats, and, inversely, the enrichment of the organism in fats diminishes the activity of the thyroid hormone. The favourable effect of fats in hyperthyroidism depends upon the phase of this condition; "so long as the cells have lost only in part the capability of using up the fat or of depositing the fat, just so long does the supply of fat act favourably" (Abelin). When the metabolism is already abnormally high the administration of fat is not beneficial and may be harmful (Abelin).

The gland's relation to mineral metabolism is also close, especially in regard to calcium and phosphorus. Witness the increased excretion of calcium consequent on hyperthyroidization, the negative calcium balance in Graves's disease when the diet is low in lime, and the effect of iodine administration in diminishing the excretion of calcium in this disease. The thyroid secretion appears to have a direct stimulating katabolic effect on the calcium deposits in the bones (Aub). The administration of inorganic phosphates intensifies the effect of thyroid medication, that of calcium diminishes thyroid action. Rats can consume much larger quantities of thyroid substances without an excessive increase in metabolism if they be given calcium at the same time; other symptoms of hyperthyroidization—nervous hyperexcitability, perspiration, disturbance of respiration, etc.—are also minimized (Abelin).

The gland's relation to iodine metabolism is likewise close, though still not fully understood. It controls the utilization of iodine in the body—an important function, since iodine, apart from the fact that it is an essential constituent of thyroxine, is an essential element in nutrition. The thyroid has also a concern with the metabolism of water; the diuresis produced in myxoedematous subjects by thyroid administration and the loss of water by the skin, bowels, and lungs in hyperthyroidism are examples of it. Thyroid administration diminishes the capacity of the tissues to retain water; thyroid deprivation augments it (Blanchard).

Influence of Food on the Thyroid Gland

With the possible exception of the thymus and adrenal glands no organ of the body is more sensitive to food conditions than the thyroid gland. Under varying conditions of diet its moods are as variable as the sea, being stirred to heights of activity by some and lulled to placidity by others. Its sensitivity is greatest in early life, when the gland is growing rapidly. At this period its rate of growth outstrips that of the body as

3757.

* Read in the Section of Physiology and Biochemistry at the Annual Meeting of the British Medical Association, Dublin, 1933.

a whole. The gland attains to its acme of size, relative to that of the body, about puberty. It is then that it is in greatest need of all those elements and complexes which are necessary for its normal nutrition and for the normal exercise of its functions.

There are two main directions in which food may influence the gland: it may impose upon the organ a burden of work greater than it can bear without undergoing hypertrophy and subsequent strain fibrosis, or, because of the food's improper constitution, the physiological efficiency of the gland may become impaired. In these circumstances retrograde changes may occur and the thyroid be less able to withstand the attacks of toxic agents. This aspect of the genesis of goitre—the nutrition of the gland itself—is, I think, sometimes forgotten. Food and function, faulty food and faulty function, faulty function and disease—these are sequences applicable as much to the thyroid as to the body as a whole.

The first principle to which I would direct attention is this: the more perfect the constitution of the diet the more normal and the less variable is the size of the thyroid gland, and the less the scope for the operation of individual idiosyncrasy as a factor causing variation in the size of the thyroid. The more normal also is the frequency distribution of thyroid weights or sizes in any given universe of animals and the less likely is goitre to occur. A diet that fulfils these requirements is one composed of freshly ground whole-wheat flour, milk, butter, sprouted legumes, root vegetables, green leafy vegetables, and water, with fresh meat occasionally. Starting with a universe of hygienically caged rats, fed in this way and therefore goitre-free, the size of the thyroid gland and the incidence of goitre can be altered at will by varying the composition and quality of the diet. The following table shows ten groups of rats taken from the same goitre-free stock and fed in different ways; they are arranged in order of increasing size of the thyroid gland and of increasing incidence of goitre:

	Mean Thyroid Size, mg.*	Percentage of Incidence of True Goitre†
(1) Complete synthetic diet, containing iodine as potassium iodide	6.63	0
(2) Well-balanced vegetarian diet with whole milk	6.69	0
(3) Well-balanced vegetarian diet without milk	7.13	0
(4) Synthetic diet, as in (1), containing 40 to 80 per cent. of protein	8.05	0
(5) The perfectly constituted diet described above	8.18	0
(6) Cabbage, oatmeal, and wheat diet (60 : 20 : 20)	8.45	2
(7) As in (5), but with much less milk	9.76	2
(8) Cabbage, sorghum, and wheat diet (60 : 20 : 20)	10.38	7
(9) As in (1), but with soya bean as the sole source of vitamins	17.20	33.3
(10) As in (1), but with ground-nut as the sole source of vitamins	21.69	

* Weight per 100 grams of body weight.
† By true goitre is meant an increase in size of the gland over that yielded by the formula $M + 2.5\sigma$.

These results are instructive. They illustrate clearly: (*a*) that the size of the thyroid gland is profoundly influenced by the composition and quality of the diet; (*b*) that true goitre can arise despite the adequate ingestion of iodine as potassium iodide; and (*c*) that vitamin insufficiency has an important relation to goitre.

The next most important principle relates to the balance of the diet: excesses in one direction or deficiencies in another. Of the excesses the chief are excess of fats, of lime, of iodine, and of certain unidentified substances contained in some vegetable foodstuffs. An excess of animal protein (in the form of a fat-free meat residue) in an otherwise complete diet does not cause thyroid enlargement. On the contrary, the gland tends to be smaller than normal, normal being taken as that of rats fed on the perfectly constituted diet. Deficiency of suitable protein is more likely to be associated with goitre than is its excess, especially if it be combined with vitamin deficiency.

An excess of fats is favourable to goitre production, but the thyroid enlargement so caused is preventable by the additional provision of iodine. Butter has different effects on the thyroid gland, depending on the composition and quality of the diet to which it is added. When added to diets deficient in fats and fat-soluble vitamins it makes good these deficiencies, and counteracts the tendency to increase in the size of the thyroid induced by such diets. But when it is added in excess to complete diets it has a definite goitrogenic action. There is, as I pointed out many years ago, a fat-iodine balance in nutrition, disturbance of which is reflected in the thyroid gland. This is well illustrated in tadpoles. When their diet is too rich in butter they fail to grow normally; so do their thyroids. When their diet is too rich in iodine they likewise fail to grow normally; so do their thyroids. But the addition to the diet of iodine in the one case and of butter in the other restores the fat-iodine balance, and growth both of the thyroid and of the body proceeds normally.

An excess of calcium has a definite goitrogenic action; this, too, is counteracted by the additional provision of iodine. On the other hand, an excess of iodine may also cause a 50 per cent. increase in the size of the thyroid gland (pigeons), and this can be counteracted by the additional provision of calcium. There is thus a calcium-iodine balance, the disturbance of which in either direction may affect the thyroid gland unfavourably.

There are certain unidentified substances contained in some vegetables whose action may be goitrogenic when ingested in excess. They are present in cabbage and other members of the Brassica family, as well as in some Cruciferae. Some rabbits when fed on an exclusive diet of cabbage develop goitre within a very short time; others do not, or the resultant goitres are small. Two factors are concerned in bringing about these different results: the varying content of the goitrogenic substance in the vegetable, which is certainly related to season and probably related to rainfall, and the varying susceptibility of the animals themselves. The goitres produced by the cabbage diet are of the work-hypertrophy or hyperplastic type, and, like all such types, are preventable by the additional provision of iodine. The administration of thyroxine also prevents them, so does the administration of manganese chloride or of thymol, but the latter is less constant in its action. Although the ingestion of additional iodine prevents these goitres, they are not due to deficiency of iodine in the vegetable. If iodine be administered to rabbits already suffering from "cabbage goitre," it may cause their death within a few days owing to the greatly enhanced metabolism it brings about (Webster). This is apparently due to the excessive production of thyroxine. It has been suggested (Marine) that the goitrogenic substance or substances in cabbage are such as depress cell oxidation, and are probably cyanides. Cyanogen, probably in the form of cyanogenetic glucoside, does occur in cabbage, but the amount of cyanide generated from it on enzyme hydrolysis is relatively small, far smaller than the amount needed to cause goitre in rabbits by the subcutaneous injection of methyl cyanide. The "cyanide goitres" produced in the latter way occur in only approximately 50 per cent. of these animals in Coonoor; the remaining 50 per cent. do not become goitrous, suggesting that to cause the goitre some other factor besides cyanide is

needed Further, I have not found (in Coonoor) that the subcutaneous injection of methyl cyanide in sub lethal doses for a period of thirty five days will cause goitre in well fed and hygienically housed albino rats During the past year evidence has accumulated in my laboratory which appears to suggest that the goitrogenic potency of these vegetable foods may be in inverse relation to the amount of sulpho-cyanides—substances much less toxic than cyanides—*which is generated, from* their cyanogen by enzyme action in the gastro intestinal tract In other words, the more sulpho-cyanide generated the less is the goitrogenic action of the vegetable, the more cyanide the greater the goitrogenic action There is thus much evidence tending to connect cyanide with "cabbage goitre," but not enough to incriminate it as the essential or direct cause of this type Nevertheless, it may possibly be ancillary to this cause

There is another aspect of this matter Among the ten diets scheduled above there are two into which soya bean or ground nut entered Both caused goitre, although the rats were ingesting large quantities of iodine in the form of potassium iodide, and both were deficient in vitamins A and C The goitres exhibited on section the characteristics of vitamin A deficiency (epithelial keratinization, etc) Soya bean and ground nut are relatively rich in cyanogen, and both yield considerable quantities of cyanide on enzyme hydrolysis The question therefore arises whether the vitamin deficiency favoured the action of the cyanide or whether the cyanide favoured the action of the vitamin deficiency Recently I have found that while well fed rats receiving daily injections of methyl cyanide, subcutaneously in sublethal amounts, did not develop thyroid enlargement, those fed on vitamin A deficient diets did, but the enlargement did not amount to true goitre

Cyanides are not the only substances that have come under suspicion in connexion with "cabbage goitre" It has been suggested (Stiner) that saponins—glucosides widely distributed throughout the vegetable kingdom—may be the goitrogenic factors The suggestion has attractions, but so far as I am aware no experimental evidence has yet been advanced in support of it Besides these positive goitrogenic substances present in certain foodstuffs there are others, also of an unknown nature, that are "anti goitrogenic," and whose anti goitrogenic action does not appear to depend on their iodine content Among them are milk, oatmeal, green grass, sprouted legumes, alfalfa, carrots, etc Here also is a new field for exploration, in which the hexuronic acids, vitamins enzymes, and other substances, probably not yet identified, obtrude themselves

Turning now to the effect of food deficiencies on the *thyroid gland, there are three to which* brief reference must be made oxygen deficiency, vitamin deficiency and iodine deficiency

Oxygen Deficiency and Goitre

Certain states of anoxemia produced by the injection of hydrocyanic acid, by diminution of the partial tension of the oxygen of the air, or by bleeding, give rise to hyperfunction of the thyroid gland (Mansfield and Muller) Twenty years ago Blauel and Reich showed that if the trachea of the rat be carefully constricted by means of a silk ligature the vesicles of the thyroid become distended with colloid This observation was subsequently confirmed by Breitner and others Some years ago I observed that rats fed on diets deficient in vitamin A bearing food materials developed adenoid like growths in the upper part of the trachea, sometimes so extensive as to reduce the lumen of the air passage by more than one half [2] Associated with these growths there was often much accumulation of colloid material in the vesicles of the gland, giving rise to their over distension and frequent distortion These observations are sufficient to indicate that anoxemia or restricted intake of air may cause goitrous changes in the thyroid gland

Vitamin Deficiency and Goitre

The vitamins whose deficiency is known to affect the thyroid gland unfavourably are vitamin A, vitamin B and vitamin C There is some evidence that vitamin D may not be without effect, but up to the present I have not been able to satisfy myself that deficiency either of *vitamin D or of sunlight* has any noteworthy effect on the gland Others have reported hyperplasia of the thyroid in rats which had been kept in the dark, an observation I have so far failed to confirm Deficiency of vitamin A, or, more properly, deficiency of vitamin A *bearing materials, in the diet is one of the* main dietetic factors concerned in the production of thyroid weights which are increased relative to that of the body A statistical explanation of this finding is the disparity in the adjustment of thyroid weight to body weight as a result of subsistence on such diets In these circumstances true goitre is likely to arise, and it seems not unlikely that it is related to the infections which are so commonly associated with this deficiency Like other epithelia throughout the body, that of the thyroid gland is likely to undergo degenerative change and functional impairment in consequence of deficiency of vitamin A The characteristic change is one of epithelial keratinization The epithelial degeneration may be associated with the aggregation of lymphocytes in the gland, and ultimate fibrosis may occur A condition—to which the term lymphadenoid goitre" has been applied—may thus be produced The round celled infiltration of the gland is not a constant feature, and when it does occur it seems to be due to the action of an additional factor probably of microbic or toxic nature Sometimes the enlarged glands are of the colloid type sometimes they are hyperplastic with areas of keratinization occurring here and here The final picture appears to depend on other factors dietetic and toxic, besides the actual vitamin deficiency itself *These changes and the goitres resulting from them can* occur despite the adequate ingestion of iodine as for example in Groups 9 and 10 of the above schedule Further, the administration of iodine to rats fed on such vitamin A deficient diets may actually favour the occurrence of goitre [3] Iodine is a thyroid stimulant and too much stimulation of a physiologically inefficient organ is bad practice

Guinea pigs fed on a scorbutic diet consisting of crushed oats and autoclaved milk) not infrequently exhibit thyroid enlargement (in Coonoor 6 000 feet above sea level) The goitre is of the colloid type and weight for weight, there is a fourfold increase in its iodine content over that of the normal organ—another example of the occurrence of goitre in the midst of iodine plenty Such a "scurvy goitre" is of great interest in view of the identity of vitamin C and hexuronic (or ascorbic) acid for the biological activity of this acid is probably due to its double function of oxidation and reduction (Cox et al., 1932) [4] Associated with this type of goitre there are characteristic changes in the adrenal cortex (McCarrison, 1919) A combination of vitamin deficiencies is more potent in favouring the development of goitre than deficiency of a single vitamin

Another matter of great interest may be referred to here The *p*H of "scurvy goitre," in which colloid accumulates in the gland, is significantly reduced The *p*H of "cabbage goitre," in which colloid is apparently from the gland, is significantly increased To what extent

is colloid storage or colloid dispersion related to variations in *p*H of the organ? Certain it is that its *p*H is related to diet, and that a perfectly constituted diet prevents both undue accumulation and undue dispersion of colloid.

Iodine Deficiency and Goitre

Enough has, I think, been said to show that there is more in goitre production than iodine deficiency. No one who has closely studied the question will wish to deny the part played by iodine deficiency; but it is *not* the whole orchestra, as some would have us believe. Here I must enter a protest in regard to the laxity with which use is made of such phrases as "iodine-free diets," "removal of all iodine from the diet," etc. There is no such thing as an iodine-free diet, and the removal of all iodine from the diet is an achievement incompatible with the existence of the diet as a source of sustenance. It surprised me also to read, as I did the other day in

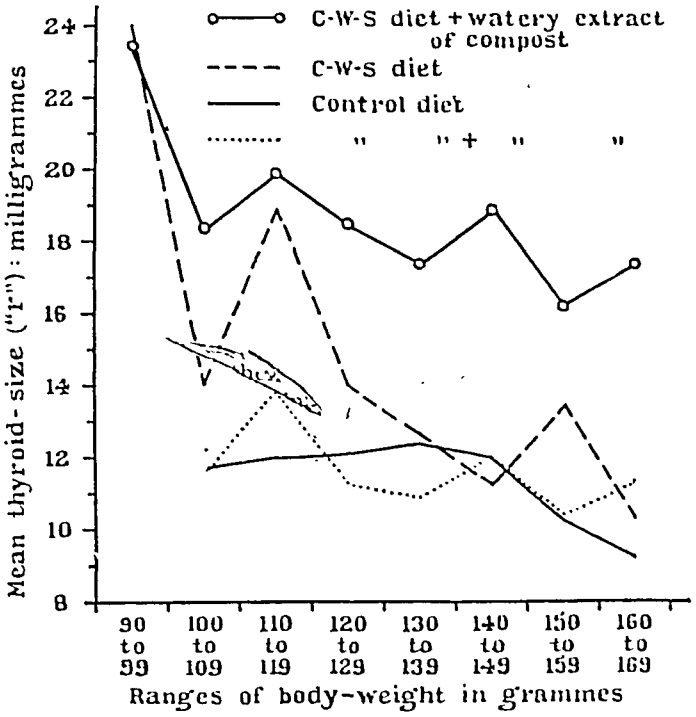


Fig. 1.—"r" curves of the thyroid gland in four groups of rats. One group was fed on a well-constituted (control) diet and distilled water; another on this (control) diet and a grossly polluted water; a third on a diet of cabbage, wheat, sorghum (C-W-S), and distilled water; and a fourth on this (C-W-S) diet and the same grossly polluted water. Note the high degree of protection afforded by the well-constituted diet against the goitrogenic action of the polluted water, and the summation of goitrogenic action of the C-W-S diet and the polluted water.

one of our leading medical journals, that "all types of experimental goitre are preventable by iodine"; this is not so.

Let us consider briefly what iodine deficiency does and what it does not do. There is no invariable association between the iodine content of drinking water, soil, or food and the endemic occurrence of goitre. In certain localities where there is an undoubted inverse relation between goitre incidence and soil iodine, this relation applies only to school children up to the age of 13 or 14 years; after that age the inverse relation does not apply. Further, the incidence of goitre in such localities is never *nil*, whatever the level of soil iodine may be. Side by side with localities in which this inverse relation exists there are others in which it does not: places where soil iodine is high and yet goitre prevails; places where it is low and yet goitre does not prevail or its incidence is low.

There is no incontrovertible evidence that iodine deficiency is, by itself, *the* cause of goitre. Both Hellwig (1931) and Jackson (1932) have failed to find that diets low in iodine do cause goitre under carefully controlled experimental conditions in rats. I reached a like conclusion some years ago. Nevertheless, a low intake of iodine may, in certain conditions of diet and of hygiene, predispose to the occurrence of goitre, and may even be a determining cause of its endemicity.

Iodine is a stimulant of the thyroid gland, both of its growth and of its metabolism. The cultivation of thyroid tissue *in vitro* makes this abundantly clear, apart altogether from the fundamental observations of Leo Loeb and his associates. This being so, it is difficult to credit a view which attributes to want of iodine a direct stimulating, or hyperplasia-producing, action on the thyroid gland. On the other hand, in all conditions giving rise to an unusual demand on the part of the body for thyroid products the additional provision of iodine in physiological amounts makes it easier for the thyroid to supply them.

Iodine will prevent all goitres which are of the work-hypertrophy type; such, for instance, as those caused

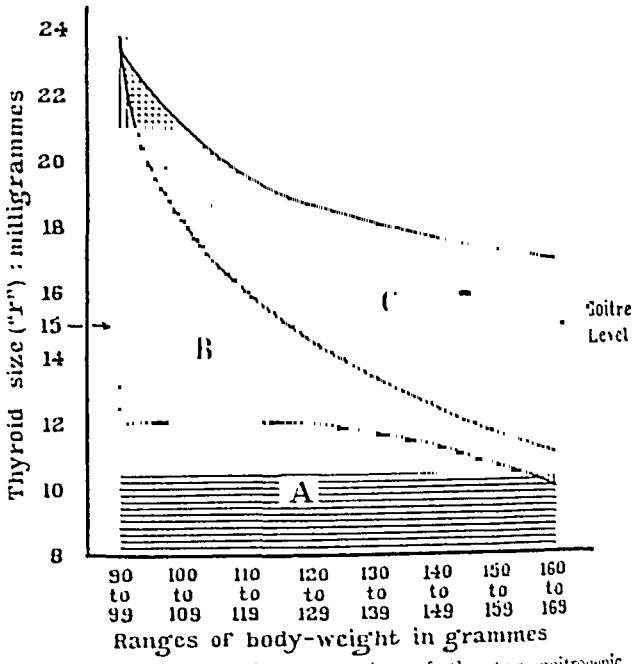


Fig. 2.—To show the summation of the two goitrogenic agencies: faulty food and grossly polluted water: "r"-values of the thyroid gland as in Fig. 1; fitted with smooth curves. Glands above 15 mg. in size are goitrous. A = thyroids of rats fed on the well-constituted diet and distilled water. B = thyroids of rats fed on the ill-constituted (C-W-S) diet and distilled water. C = thyroids of rats fed on the ill-constituted (C-W-S) diet and the grossly polluted water. Note that the goitrogenic action of C-W-S diet is exercised mainly in rats of the lighter body weights (or earlier ages), while that of the polluted water is exercised at all ages.

by insanitary condition, or by the excessive ingestion of fats, or by the unidentified substances contained in certain vegetable foods. It will prevent the hyperplasia that follows injection of alkaline extracts of the anterior pituitary lobe. It will not prevent, and may even favour, the occurrence of goitres arising in consequence of malnutrition and physiological inefficiency of the gland. Its fourfold increase in the gland does not prevent the occurrence of "scurvy goitre." It will not prevent the compensatory hypertrophy which follows partial thyroidectomy in guinea-pigs (Leo Loeb, 1929) nor the colloid goitre which results from ligation of the pancreatic duct in dogs (Sweet and Ellis, 1915).

Interaction between Faulty Food and Insanitary Condition in the Causation of Goitre

If rats be confined in roomy cages, admitting of free exercise and efficient ventilation, and fed on a perfectly constituted diet they rarely, or never, develop goitre when living under conditions of gross insanitation. But when fed on an ill-constituted diet, such as one composed of cabbage,

sorghum, and wheat, a high proportion of them become goitrous. The results of two recent experiments will suffice to illustrate these points.

Two groups of rats were fed on the latter diet during the summer months, when the goitrogenic potency of cabbage is *nil* in Coonoor. One group was caged under conditions of gross insanitation, the other under conditions of meticulous cleanliness. In the former the mean size of the thyroid gland was 15.74 mg. per 100 grams of body weight, in the latter it was 6.69 mg. The incidence of true goitre was 46.6 per cent. in the former group and *nil* in the latter. In the second experiment two groups of rats were caged under conditions of gross insanitation, one group being fed on a perfectly constituted diet, the other on the cabbage-sorghum-wheat diet referred to above. The mean size of the gland was 8.6 mg. in the former group and 16.7 mg. in the latter, the incidence of goitre being *nil* and 56.2 per cent. respectively.

The results of another experiment will serve to illustrate the way in which faulty food and polluted drinking water may combine to cause goitre.

During the winter months (in Coonoor) the goitrogenic potency of cabbage is at its highest. A diet composed of 60 parts of this vegetable with 20 parts of whole wheat and 20 parts of sorghum is then definitely goitrogenic. Two groups of rats were fed on this diet during the winter season. One was given distilled water to drink, the other an extract in distilled water of rat excreta and decaying food taken from certain insanitary rat cages. The first group exhibited the effects of the diet alone, the mean size of the thyroid gland being 14.4 mg. and the incidence of goitre 38.9 per cent. The second group exhibited the effects both of the food and of the impure water, the mean size of the gland being 17.8 mg. and the incidence of goitre 88.9 per cent. These results are illustrated graphically in the accompanying figures (1 and 2).

Conclusion

The facts I have laid before you are sufficient to indicate the intimate association which exists between food and the thyroid gland and the complexities of this association—how the organ influences the metabolism of food and how in its turn it is influenced by food. But great as these complexities are, and difficult as it is to maintain a right judgement in all things relating to them, this truth stands pre-eminent—the more perfect the constitution of the diet the more normal is the thyroid gland, both as to its size and as to its action.

References

1 *Indian Medical Research Memoirs*, No. 23, 1932.
2 *British Medical Journal*, 1931, i, 966.
3 Ibid., 1930, i, 989.
4 *Nature*, 1932, p. 888.

IRRADIATION THERAPY IN THE TREATMENT OF MALIGNANT DISEASE*

BY

E. PEARCE GOULD, M.D., M.Ch., F.R.C.S.

SURGEON TO THE MIDDLESEX HOSPITAL

It is now thirty-odd years since radium and *x* rays were first used in the treatment of malignant disease. It would appear that the war years mark a dividing line between the first and the later chapters in the history of this branch of therapeutics. Until the war the use of both agents was in the hands of a few pioneer enthusiasts, who, paying but scant attention to the comments of sceptical colleagues, succeeded in at last winning a general recognition of the fact that, in spite of many failures and disappointments, their successes were of a kind that could not be ignored. Radiation therapy had come to stay. Since the war the few have become the many, *x*-ray tubes have multiplied in number and potency, and radium is dealt with in grams rather than in milligrams. And yet we are still waiting for anything approaching general agreement throughout the profession as to the true place of radiation methods in the treatment of cancer. Some of us who are neither radium and *x*-ray enthusiasts nor brilliant cancer surgeons are a little tired of the partisan claims emanating from both sides, which in their narrow, immediate scope appear to lose sight of the larger problem.

The time has come when a serious attempt should be made to face the larger problem, and this joint discussion may prove of great moment if it succeeds in finding a working answer to the question: "What is the place of radiotherapy in the treatment of malignant disease?"

In passing it is worth noting that radiotherapist and surgeon have each had a share in postponing so long the day when this question may be answered. Radiotherapy came upon the scene at a time when the increasing safety of standardized major surgical procedures had given this line of attack a hopeful outlook, and encouraged surgeons to talk in terms of the "surgical cure of cancer." At such a time the radiotherapist was naturally denied access to early cases of the disease, the only type of case in which the surgeon was taking any interest. On the other hand, the technique of, and dosage in, radiotherapy has changed and developed with a rapidity that has been in one sense its own enemy. No sooner were the results of a particular method followed up for a sufficient time to be of any value than they lost their significance because the method by which they had been obtained was already out of date.

Scope of Radiation

It has been wisely said that "no patient is to be considered as cured of cancer until he is safely dead of some other disease." We shall do well, I think, if in this discussion we avoid the word "cure" and speak in terms of either "palliative" treatment, or treatment affording "lasting freedom" from the disease. If the former needs a definition I would suggest that we use the word to imply a temporary alleviation of a local condition with an addition to the expected period of tolerable life. By the latter I would suggest a period of freedom from demonstrable disease materially in excess of the known average duration of the *untreated* disease.

I would submit, therefore, that our discussion should endeavour to afford answers to the following four questions:

1. In what groups of clearly definable cases of malignant disease does radiation offer the best chance of prolonged freedom from the disease?
2. In what groups of cases does the combination of radiation with surgery offer the best chance of lasting freedom?
3. In what other groups of cases have radiation methods a purely palliative but none the less valuable effect?
4. In what groups of cases have radiation methods proved so far of negative value?

Clearly, with the science and practice of radiotherapy still in its infancy, and making notable advances almost every year, any answers we are able to formulate to-day can have but a temporary value. I would like to suggest that, even if temporary, their value would, none the less, be great in many directions. First, because—from a scientific point of view of the least importance—the lay public would welcome the news that the profession had

* Read in opening a discussion at a joint meeting of the Sections of Surgery and Radiology at the Annual Meeting of the British Medical Association, Dublin, 1933.

come to certain working conclusions in the matter, as a demonstration that the money it had expended in recent years—no small sum—in the equipment and support of centres of radiation throughout the British Isles was being used to afford the maximum relief to patients. Secondly, the answers to these questions would provide the general practitioner with the kind of knowledge he needs, if he is to give sound advice to his patients in a matter in which he is likely at present to be at sea, or swayed by the tone of the last article which he may happen to have read. Thirdly, surgeons—particularly the younger ones—would receive guidance on the problem as to whether they should seek to acquire, at some cost to life, perhaps, in their earlier cases, proficiency in all the recognized major operations for cancer, or in those for cancer in certain organs only. They would be encouraged also to become familiar with the surgical procedures required in cases where radium is the main agent—for example, preliminary diathermy, or the removal of post-radiation residual masses. Finally, the radiotherapist, together with those who are in a position to supply him with his cases, would receive clear indications as to the classes of cases whose treatment for the present should form his routine practice.

The answers to our questions must be found in a critical study of the data afforded by radiologists and radium workers of the results of their treatment of a sufficient number of cases, of clearly definable site and stage, whose diagnosis has been confirmed by histological examination, treated by a method in which the variables have been reduced to the minimum, and followed up for an adequate period. But a critical study means not chiefly a dissection of such figures to see how far they conform to these requirements, but their comparison with surgical data of a strictly comparable kind.

Through the courtesy of the board and medical staff of the Middlesex Hospital I am able to present certain figures of this kind, which emerge as the result of a follow-up investigation of all cases of malignant disease not treated by radium or *x* rays, to contrast with the statistics of our radium cases which we prepare year by year. It is the intention of the hospital authorities to publish the result of the inquiry in full in the autumn. I propose to give here only those, dealing with a few sites in the body, of cases treated in the three years 1925, 1926, and 1927—that is, cases dealt with five or more years ago. Such value as they may possess rests, in my judgement, upon two features: (1) that they represent the results not of an individual surgeon of perhaps special skill and extended experience, but of all members of the surgical staff of the hospital; (2) that figures good, bad, and indifferent are all there.

Results

Out of a grand total of over 1,100 cases of malignant disease of all kinds it appears that only 455 were considered fit for radical surgical treatment. Of these we have failed to trace forty-five only. The figures relating to cases of disease of individual organs and, in some sites, of different stages of the disease in the same organ, have all been plotted upon the same form as that used for the last two years in our radium reports. A blank specimen of this form is here presented.

MIDDLESEX HOSPITAL

Disease .....

Stage .....

Year	Total Applying for Treatment	Total Treated	Alive Years After Treatment					Untraced at 5 Years	Died of Operation	Died of Other Causes 0-5 Years	Died of Cancer					Total Died of Cancer 0-5 Years	Alive 1932	Died After 5 Years	
			1	2	3	4	5				0-1	1-2	2-3	3-4	4-5			Cancer	Other Causes
1925																			
1926																			
1927																			
1928																			
1929																			
1930																			
1931																			

As will appear, with one or two exceptions, the number of cases of disease in any one organ out of the above total is too few to be worth much, and far too few to justify quotation in percentages. It is to be hoped that other hospitals dealing with cancer cases in large numbers may be able to add comparable figures so that sufficient numbers are available in all groups upon which to base conclusions of weight.

Cancer of the Breast.—Of 151 cases operated upon with two operative deaths seventy-three were free from the disease after three years and fifty at the end of five years (48.3 per cent. and 33.1 per cent. respectively). Analysed into Stage 1 cases—that is, those with no palpable glands—and Stage 2—those with glands involved—the figures are: Stage 1. Operated upon, forty-seven—free at end of three years, thirty-one, at end of five years, twenty-seven (65.9 per cent. and 57.4 per cent. respectively). Stage 2. Operated upon, 104—free at end of three years, forty-one, at end of five years, twenty-three (39.4 per cent. and 22.1 per cent. respectively).

Carcinoma of Tongue.—Of thirty-eight cases operated upon eight died of the operation, eleven were free at the end of three years, and nine at the end of five years.

Carcinoma of Floor of Mouth and Mucosa of Lower Jaw.—Fourteen were operated upon; three died of the operation, five were free from the disease at the end of three years, and four at the end of five years. (The one death was due to "other diseases.")

Carcinoma of Lip.—Out of ten cases operated upon, with no death, seven were free at the end of three years, and five at the end of five years.

Carcinoma of Parotid.—Six were operated upon without operative death. Two were alive and well after three years, and also at the end of five years.

Carcinoma of Stomach.—Out of 132 cases only eighteen were found suitable for operation. Eight died of the operation, two were alive at the end of three years and also at the end of five years.

Carcinoma of Colon.—Out of seventy-eight cases thirty-eight were submitted to operation, of whom eleven died. Sixteen were free from the disease at the end of three years, and thirteen at the end of five years.

Carcinoma of Rectum.—Out of 123 cases twenty-eight only were submitted to operation, of whom nine died. Five were alive at the end of three years and two at the end of five years.

Squamous Carcinoma of the Skin.—Sixteen were operated upon with no deaths. Nine were alive at the end of three years and also at the end of five years.

Conclusion

I have chosen these figures from the complete investigation as affording some evidence of the results of surgery (1) in the field in which radium is making definite claims—namely, the skin, mouth, and breast—and (2) in organs in which radium has so far claimed but little—the stomach, colon, and rectum. It is a striking fact that it is in the first group that surgery can show encouraging results, and in the latter it is so disappointing. If a much larger collection of surgical results were examined I believe that the same would hold good. Evidence is so far lacking that either radium or *x* rays are more than local remedies. It would appear that anatomical and pathological considerations impose much the same limitations upon their usefulness as they do upon that of surgery. The great advantages they offer over operative treatment, in the way of complete freedom from risk to life, avoidance of a period of invalidism, of mutilation, and of the infliction of pain, are in these days of heavy dosage, prolonged treatment, marked local reactions, and complementary surgical procedures, less convincing.

Radium and *x* rays are unquestionably of service as "palliative" agents in the more advanced cases of malignant disease in those organs in which surgical treatment of the disease when less advanced is most hopeful. How far they are producing lasting freedom from the disease which equals or exceeds that resulting from surgical methods alone, subsequent speakers in this discussion will doubtless endeavour to make plain.

THE RADIATION TREATMENT OF MALIGNANT DISEASE*

BY

OLIVER CHANCE, B.A., M.B., D.M.R.E.

DUBLIN

As the other two openers of this discussion are a surgeon and an *x*-ray therapist, I will, as far as possible, confine my remarks to radium therapy. At the outset it may be well to stress the fact that radium is not a substitute for either surgery or *x* rays in the treatment of malignant disease. All three methods play their parts, and a correct choice can be made between them only if the principles underlying each are understood.

A study of cancer statistics shows that in the treatment of many forms of malignant disease there is little difference between the results obtained by surgery, by *x* rays, and by radium when each is in the hands of an expert. This is really not surprising, for success in medicine is obtained by the skill and judgement of the individual worker, and not by the media in which he works. On account of this, the treatment of cancer will never be standardized; for example, should a clinic be fortunate enough to possess an outstanding surgeon or *x*-ray therapist cases will naturally be referred to him which under ordinary circumstances would be treated with radium, and vice versa. Of course, when treatment is planned, material and equipment must be considered besides individual skill. Limitations in this direction often make it impossible to use an ideal technique.

Any consideration of radium therapy must begin with the all-important fact, so well demonstrated by Regaud and his fellow workers, that γ rays act on the dividing cell and not on the resting one. It would seem safe to assume from this that an actively mitotic tissue will be sterilized by a dose which will affect relatively stable tissue to a much lesser extent; it is on this assumption that modern radium therapy is based. While rapid cell division and malignancy are usually found in the same tumour, active mitosis does not necessarily connote malignancy. In general, the less complex the function of the cell and the more primitive the tissue from which it arises the shorter is its life, and consequently the higher its karyokinetic activity. Thus, in order to permit growth mitosis must be very active in a rodent ulcer, for it is composed of primitive basal cells which wear out rapidly. On the other hand, a tumour such as a gastric carcinoma is composed of complex cells which wear out slowly, so that, although as compared with a rodent ulcer the rate of cell division is usually low, the malignancy or rate of spread is very high. But we know that the effect of radium depends largely on the rate of cell division, and this explains why a rodent ulcer, which is relatively benign, is often more amenable to radium treatment than a malignant gastric carcinoma.

It is important to remember that γ rays merely sterilize, or partially sterilize, the tumour cells; they do not actually destroy the growth, but they so decrease the rate of cell production in it that the natural resistances of the body and the tissues of the tumour bed are able to effect its destruction. Bearing this in mind, it will be seen that a tumour is most easily destroyed by radium in healthy vascular tissue with good lymphatic drainage. To illustrate the importance of a good blood supply it may be stated that the application of radium to a growth involving bone should, if possible, be avoided, because the dose which sterilizes the malignant cells as a rule damages the blood supply of the bone, causing osteonecrosis.

Local sepsis and inflammation are unfavourable because they interfere with lymphatic drainage; hence radium should not be used to treat a cancer on a tongue which shows signs of severe chronic glossitis. Such tumours rarely respond well to irradiation, and other methods of treatment are preferable.

Another important consideration is the radio-sensitivity of the surrounding normal tissue. Such organs as the intestine and the liver are extremely sensitive to γ rays, and it is almost impossible to give an adequate dose to tumours arising in, or lying adjacent to, these organs without causing them permanent damage. Epidermis is particularly resistant, and even when destroyed by radium it regenerates, whereas other normal tissue becomes necrotic when heavily irradiated. The patient's general condition is also of great importance; to irradiate a patient who shows signs of general carcinomatosis or cachexia is merely to make matters worse.

The radium worker's difficulties do not end when he encounters a radio-sensitive tumour lying in healthy tissue. All parts of the growth must be given an adequate dose of γ rays, and at the same time permanent damage to surrounding healthy tissue must, as far as possible, be avoided. This is comparatively simple when the growth

* Read in opening a discussion at a combined meeting of the Sections of Radiology and Surgery at the Annual Meeting of the British Medical Association, Dublin, 1933.

is an accessible one, such as cancer of the skin, cervix uteri, mouth, or breast. In addition, ingenious operations have been devised by which laryngeal and rectal growths can be made accessible. In most other regions it is not possible to subject a tumour to an adequate homogeneous γ irradiation, unless perhaps in those few clinics which possess very large quantities of radium.

Radium may be placed against the surface of a growth, or needles containing it may be implanted into and around the tumour. Seeds are also used in this manner. In addition, in a few of the larger clinics teletherapy is available. In this method a large quantity of radium in the form of a bomb is held several centimetres from the body and used as a very powerful and inexhaustible *x*-ray tube. There is a fourth method of application—namely, cavitation, in which tubes containing radium are placed in the natural cavities of the body; but this is now little used, except in the treatment of cancer of the cervix uteri, when it is usually combined with surface therapy.

Implantation is the method which most concerns the surgeon, and the rest of radiotherapy (estimated by Forssell as about 75 per cent. of its entire scope) is of minor interest to him. It is peculiarly fitting that this method should be discussed in Dublin, for it was here that implantation originated. I refer to the work of Professor Joly and the late Dr. Stevenson, who were the first to introduce a tube of emanation into a metal needle. This marked one of the greatest advances in the treatment of cancer, and from it all modern implantation techniques have arisen. At present interstitial irradiation is a rather unscientific procedure, which is just as well carried out by a surgeon as by anyone else. Indeed, it can be argued that owing to his training a surgeon will insert needles with greater skill than a mere radiologist. It is likely, however, that as our knowledge of radiophysics and radiobiology increases, implantation will become just as exact a method of treatment as teletherapy or *x*-ray therapy, in which case only persons with special knowledge will be capable of using it properly. That these will be radiologists seems obvious. Radium is only implanted in a few sites, and it seems likely that a radiotherapist, working in a special clinic and seeing many more malignant cases than the average surgeon, will develop an excellent technique even if he does not possess special surgical knowledge. He will also know when implantation should not be used and when other methods of application or deep *x*-ray therapy are preferable. Hence we may conclude that radium therapy will be best developed if it is left in the hands of trained specialists who devote their whole time to it, and who have the necessary knowledge and training to keep abreast of the rapid advances which are taking place.

Poor results are frequently reported from the use of a technique which has been highly successful in other hands. This is because the result of treatment does not depend so much on the technique itself as on the intelligence with which it is employed. Not only must the treatment of each case be properly planned, but it must be carefully carried through with due regard to the reaction of the individual patient. In practice this is only possible in a properly organized and completely equipped clinic directed by an experienced radiotherapist.

The demand for a special radiotherapeutic clinic may seem extravagant, but if one pictures a surgeon who has to operate on patients sent from other departments without having the opportunity of first making a diagnosis or of following up the result of his surgical treatment, one has some idea of the difficulties of the radiologist who does not work in a special department. Radiotherapeutic technique is no easier than that of surgery, and the results obtained by it and the harm it may do are only apparent after a considerable time. Therefore, like any other specialist, the radiologist must follow up and study his cases. Each patient must be examined at regular and frequent intervals, not only for the good of the individual, but also so that the value of the treatment may be assessed. To do this, statistics must be carefully prepared and should be in such a form that they are not misleading and can be compared easily with those from other clinics. The following up of patients depends on careful internal organization of the clinic, and close co-operation between it, the patient himself, his doctor, the staff of other hospitals, and the state medical authorities.

The foregoing remarks have been made much more interestingly many times before. Indeed, they may be described in Mr. Punch's words as "blinding glimpses of the obvious." But until they are recognized and acted upon, the obvious cannot too often be repeated.

THE RADIATION TREATMENT OF MALIGNANT DISEASE*

BY

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The object of this discussion is, I suppose, to attempt to answer the question: When, and in what form, may radiations best be applied in the treatment of malignant disease? I propose, first of all, briefly to summarize the various methods of application of radiations, and then to consider the indications for their use.

Methods of Application of Radiations

Radiations are commonly used in the treatment of malignant disease as *x* rays or as the gamma rays of radium and radon: (*a*) by interstitial methods, the radium or radon being inserted into the tissues enclosed in needles or "seeds"; (*b*) by short-distance surface application, the radium being applied to the surface of the body on applicators or other apparatus moulded to the part; (*c*) intracavitary application, the radium being introduced in suitable containers into the natural body cavities; (*d*) by long-distance surface application, the so-called telecurie- or bomb-therapy, a large quantity of radium being massed in a single container, which is applied at a distance of several centimetres from the surface.

I would like to make it clear that wherever *x* rays are mentioned in this paper I refer to high-voltage, heavily filtered rays as used in modern deep *x*-ray therapy. While it is true that there are still one or two radiologists who cling to the use of soft, non-penetrating radiations, even in the treatment of malignant disease, agreement is practically universal that it is only by the use of the hardest radiations that the best results are to be obtained.

The broad principles of the use of all these methods are well known and do not need recapitulation; what concerns us here is the relative value of the methods in the treatment of cancer. If we compare these methods of application of radiations it will soon become apparent that their scope is very different. If we may make the reasonable assumption that it is essential in the irradiation of every malignant growth to apply an adequate dose of radiation throughout the whole extent of the growth, we find, for example, that the proportion of malignant tumours that can be adequately treated by interstitial methods is very limited, principally by anatomical considerations limiting the surgical access to the growth for the purpose of inserting the needles. Again, in the case of short-distance radiotherapy the depth at which the requisite dosage can be obtained is limited to a few centi-

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metres, and, accordingly, only comparatively superficial growths lend themselves to this form of treatment. Similarly, the limitations of the intracavitary method are at once apparent, and in practice this method is used principally for the treatment of carcinoma of the uterus, and occasionally for growths in the neighbourhood of the tonsils and oesophagus. Both the radium bomb (assuming that sufficient radium is available) and *x* rays of sufficient penetrating power theoretically permit of application by cross-fire methods of almost any desired dose to any region of the body, but in practice we find that where the disease is widespread the application of large doses is not possible.

We have now briefly examined the various methods of application of radiations from the point of view of technical efficiency or dosage. Before passing on to a consideration of their relative effectiveness in the treatment of malignant disease let us summarize the information we have obtained so far.

1. Interstitial radium.—Limited application to growths fairly localized and surgically accessible, but very intense local action obtainable.

2. Short-distance surface application of radium.—Intense local action for a limited depth only; can only be used, therefore, for comparatively superficial growths except when combined with other methods.

3. Intracavitary application of radium.—Use practically limited to vagina, mouth, and throat.

4. *X* rays and radium bomb.—Used in similar ways; intense action can be produced in any desired region, but heavy dosage not tolerated in very extensive disease.

If we wish to decide what should be the ideal form of radiological treatment for any growth (I am not now considering surgical treatment), it is obvious that at least equally important with the various methods of application available is the possession of certain special knowledge about the growth itself. The facts which we require to know are: (1) the origin and type of growth, as providing a guide to the probable radio-sensitivity; (2) the extent of the growth as determined clinically; (3) the common directions of spread in similar cases as indicating regions likely to be infected, even though such infection is not clinically appreciable.

Radio-Sensitivity of Malignant Growths

Although in recent years considerable progress has been made in the histological classification of growths in relation to radio-sensitivity, our knowledge in this direction still leaves much to be desired. In general, the main histological varieties of growth have their special characteristics as regards sensitivity, but *within* the main groupings histology is of little or no help. Thus, a group of histologically similar breast carcinomas may vary greatly in their individual sensitivity. In order to simplify the discussion of this aspect of the problem I shall try to arrange the commoner growths in three groups: highly radio-sensitive, moderately radio-sensitive, and radio-resistant.

1. *Highly Radio-sensitive.*—(*a*) Small, round-celled and lymphosarcoma; (*b*) seminoma; (*c*) some carcinomas of the breast; (*d*) some carcinomas of the ovary; (*e*) certain cerebral tumours—medulloblastoma.

2. *Moderately Radio-sensitive.*—(*a*) Round-celled sarcoma, (*b*) endosteal and chondrosarcoma; (*c*) some periosteal sarcomas; (*d*) most carcinomas of the breast; (*e*) carcinoma of the prostate; (*f*) carcinoma of the bladder; (*g*) certain palatal, pharyngeal, and laryngeal growths—lympho-epithelioma; (*h*) hypernephroma; (*i*) carcinoma of the cervix; (*j*) carcinoma of the corpus uteri; (*k*) carcinoma of the ovary; (*l*) carcinoma of the thyroid gland; (*m*) carcinoma of the lip; (*n*) carcinoma of the skin.

3. *Radio-resistant Growths.*—(*a*) Carcinoma of the rectum; (*b*) carcinoma of the oesophagus; (*c*) carcinoma of the tongue; (*d*) many pharyngeal carcinomas; (*e*) some carcinomas of the breast; (*f*) some carcinomas of the ovary; (*g*) carcinoma of the bronchi; (*h*) certain metastases in cervical glands, especially those arising from carcinomas of the tongue; (*i*) spindle-celled sarcoma and fibrosarcoma.

I would like to remind you, at this point, that radio-sensitivity and curability are by no means synonymous terms. Indeed, the most radio-sensitive growths are *frequently incurable*. This is because the attack by radiation methods on a malignant growth is essentially a local one, and although multiple growths may be dealt with in the same patient with local success in every case, when the disease becomes generalized it is beyond the aid of radiotherapy. The known tendencies of the growth with regard to the formation of metastases must therefore be taken into account in forming a prognosis.

Choice of Method of Irradiation

We may now consider the choice of method of irradiation in these three groups of tumours.

Highly Radio-sensitive Group

When we say that a tumour is highly radio-sensitive we simply mean that it can be made to disappear by a dose of radiations which produces little or no damaging effects on normal tissues, local or remote. In this group the small round-celled sarcomas and lymphosarcomas, wherever they occur and whatever their extent, should invariably be treated by external irradiation, *x* rays, or, perhaps, telecurietherapy. Of the two methods *x*-ray therapy is by far the more convenient and the more economical, and wide areas in the neighbourhood of the growth can be treated with ease and safety. The local results are entirely satisfactory, and unsatisfactory end-results in lymphosarcoma are due to generalization of the disease and not to failure to secure regression of local lesions. Moreover, in the absence of generalization, local recurrences are seldom encountered.

Interstitial methods should never be used in treating small round-celled sarcoma and lymphosarcoma. Their attack is much more local than that of *x* rays, and from the structure of the growth the trauma of the insertion of the needles into its substance can only increase the risk of generalization. Seminomas of the testis should be treated in the same way as lymphosarcomas, and in these cases also the local results are entirely satisfactory. Even advanced recurrences and metastatic deposits from testicular growths can often be made to disappear for long periods—even years.

The highly sensitive carcinomas of the breast and of the ovary form only a small proportion of all cases of these conditions, and it is impossible to distinguish them in advance. All cases are therefore treated as the less-sensitive variety.

Moderately Sensitive Group

It is probably true that there is no case of malignant disease which would fail to yield to a sufficiently large dose of *x* or gamma rays, and the limitations imposed on the success of our treatment are determined, therefore, by the vulnerability of the healthy tissues. By the term "moderately radio-sensitive" tumour we mean one which can only be destroyed by a dose of radiation which approaches fairly closely to the maximum tolerance dose of the healthy tissues. The treatment of these cases, by whatever method employed, therefore demands the exercise of great care and skill if severe damage to healthy tissues is to be avoided. For the moderately radio-sensitive group of tumours, with the exception of carcinoma of the skin, I consider that interstitial radium is the best method of radiological treatment wherever the growth can be adequately dealt with by this means. By this method the most intense local effect can be produced with a minimum exposure of healthy tissues. Not only the growth, however, should be treated, but also the regional lymph glands associated with the affected region.

If these can be adequately dealt with by interstitial radium also, this may be done. If, however, the glandular areas are not accessible to interstitial radium they should be irradiated by surface methods, either by *x* rays or by surface radium. Short-distance surface radium may be used if the region to be treated is comparatively superficial, as in the neck. For deeper regions *x* rays, or possibly telecurietherapy, should be employed.

Where growths in this group are too extensive to permit of adequate treatment by interstitial radium, treatment by *x* rays in the first instance will often succeed in reducing the growth sufficiently to permit of the insertion of radium subsequently. This is an important point, inasmuch as it is far better to employ the combined method of treatment than a doubtfully complete interstitial radium treatment.

For the cases in which, for anatomical and other reasons, interstitial radium cannot be applied *x* rays should be used. In a proportion of these cases very good primary results are obtained, although, unfortunately, recurrence is only too common after a period of freedom lasting for months or years. Among the growths in which good results are frequently obtained by *x* rays are certain pharyngeal and especially all palatal growths, carcinoma of the prostate, carcinoma of the cervix and corpus uteri, and carcinoma of the thyroid gland. In view of the tendency to recurrence sooner or later I would urge, however, that even when complete disappearance of the growth is effected by *x* rays, either radium or surgery should be subsequently employed in the attempt to make the result more permanent.

The exceptions to these methods of treatment in the moderately radio-sensitive group are the carcinomas of the skin, which are best treated by *x* rays. Surface radium may also be used, especially for the very small growths. The results obtained are entirely satisfactory when there is no involvement of bone or cartilage, even when the disease is extensive. When, however, bone or cartilage is involved the percentage of successes is very greatly reduced ; this is also the case when previous incorrect radiation treatment has been applied. Skin growths that have been treated by repeated doses of soft or low-voltage *x* rays for long periods may become quite radio-resistant.

Radio-Resistant Growths

The methods of treatment in this group are similar to those adopted in the moderately sensitive group, with the exception that the cases have to be more rigorously selected. Interstitial radium is the treatment of choice, but it is essential that the whole extent of the growth be thoroughly barraged and with full dosage. In cases in which this thorough irradiation cannot be effected *x* rays may afford some degree of palliation, but they rarely achieve more. Perhaps the most difficult problem in this group is the treatment of the resistant cervical gland metastases, the proximity of the skin negativing the application of the very high doses which are necessary to secure regression of the growth. There is a tendency to return to block dissection whenever possible in these cases, with pre- and post-operative irradiation, either by *x* rays or by surface radium.

Finally, a word about the combination of *x* rays and surgery. In comparing the results of surgery and radiotherapy it is often found that in certain groups the three- or five-year results do not differ greatly. I do not think, however, that it is sufficiently realized that the factors which determine the success of radiotherapy and those which determine the success of surgery differ very greatly. It is likely, therefore, that even though the percentage of three-year or five-year successes may be the same, the individual cases that survive are probably quite different. Thus, in a particular group of cases treated by surgery, Mrs. X might be the only survivor after five years, but if the same series of cases had been treated by radiotherapy the sole survivor might be quite a different person, Mrs. Y. In each case the percentage survival would be the same. The point I would urge is, can we by combining our radiotherapy with surgery save Mrs. X and Mrs. Y too? It seems to me that in dealing with this deadly disease we should not be content with using only one means of treatment. Every proved means that is applicable should be applied. For example, even though we can make a breast growth disappear by means of radium, the breast still remains a potential source of danger to the patient and should be removed. It is difficult, I know, to advise a patient, who to all outward evidence is rid of her disease, to submit herself to a major operation, or, if she has already had a major operation, to an intensive irradiation. But there is, as yet, no method of treatment of malignant disease so satisfactory that we can afford to be lulled into a sense of false security by the contemplation of a satisfactory primary result.

THE TREATMENT AND POST-OPERATIVE RESULTS OF PERFORATED PEPTIC ULCERS

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An investigation was made into the late results following operations performed for perforated peptic ulcers, and I wish to record, in some detail, all relevant facts of a series of cases operated on by me during the years I acted as assistant resident surgical officer (May, 1925, to December, 1929) and resident surgical officer (June, 1927, to May, 1929) to the Manchester Royal Infirmary.

In my series there are 131 duodenal ulcers, forty-five gastric ulcers, and five gastro-jejunal ulcers. One of the gastro-jejunal ulcers followed a posterior gastro-jejunostomy, performed eleven years previously for a perforated duodenal ulcer, which was treated by suture and gastro-jejunostomy ; three followed anterior gastro-jejunostomy for duodenal ulcer; and one an anterior Polya gastrectomy for a gastric ulcer.

SURVEY OF CASES

Sex Incidence and History

There were 170 males and eleven females—a proportion of over 15 to 1.

The usual large number of males as compared with the small number of females is evident in my survey.

Table I.—*Sex Incidence according to Type of Ulcer*

Sex	Duodenal	Gastric	Gastro-jejunal
Males	125	40	5
Females...	6	5	0
Total	131	45	5

This male sex preponderance, which is especially noticeable in the case of the duodenal ulcers, has been noted by Dineen,[5] Hinton,[8] Gilmour and Saint,[6] and many others, and presents no new features.

Length of History

This varied greatly ; in the case of the duodenal ulcers the length of history previous to the perforation of the ulcer ranged from one week to forty years—the average being:

Males	32.38 months
Females	85.17 "

while in the case of the gastric ulcers the length of symptoms was between two weeks and forty years—the average being

Males	..	...	...	32·47 months
Females				68·40

It will thus be noted that the average length of ulcer history prior to perforation was well over twice as long in the female sex as in the male and hence it may be assumed that perforation of a peptic ulcer is more likely to occur in a male than in a female subject

Age Incidence and Localization

It will be seen from the table that the maximum number of perforated duodenal ulcers in males occurred in the fifth decade whilst that of the gastric ulcers occurred in the sixth

Table II—*Incidence—Duodenal and Gastric Ulcer*

Age	Duodenal Ulcers		Gastric Ulcers	
	Males	Females	Males	Females
10-19	3	0	0	0
20-29	26	0	6	1
30-39	24	2	5	2
40-49	42	0	9	2
50-59	22	3	17	0
60-69	8	1	3	0
Total	125	6	40	5

In some cases it was difficult to state with certainty whether one was dealing with a perforated duodenal or pyloric ulcer The doubtful cases I classified as duodenal ulcers the other cases, when the ulcer seemed definitely on the gastric side of the pyloric vein, were of course classified as gastric ulcers Table III shows the distribution

Table III—*Site of Ulcers*

Sex	Duodenal	Pyloric	Lesser Curvature	Greater Curvature	Anterior Surface	Posterior Surface	Position not Stated
Males	125	14	13	2	3	2	6
Females	6	2	0	0	0	1	2
Total	131	16	13	2	3	3	8

The three ulcers on the posterior surface of the stomach had perforated into the lesser sac of peritoneum, and to expose them an opening was made through the transverse mesocolon

Symptomatology and Treatment

In nearly all cases there was the usual sudden onset, which could be fixed at a definite moment, of agonizing pain, with board like rigidity of the abdominal muscles In all cases the question of shoulder tip pain was inquired into and in doubtful cases reliance was placed on this in differentiating the case from acute perforative appendicitis In a few instances the physical signs of abdominal tenderness and rigidity were not definite and in these cases some reliance was placed on pelvic tenderness, elicited in rectal examination—the tenderness being due to escape of fluid from the perforation and tracking into the pelvis It was surprising, in one or two cases to find quite a large perforation in the duodenum with a fair collection of pelvic fluid but little or no fluid in the general abdominal cavity, and a corresponding lack of abdominal signs A few cases, unfortunately, were admitted with a distended abdomen, and suffering markedly from collapse, showing that peritonitis was present All patients who were obviously not *in extremis* were operated on but the few hopeless cases whose condition did not permit of operation, and who died shortly after admission, are not included in this survey

In all except a few extremely ill cases where local anaesthesia was employed, operation was performed under general anaesthesia A right rectus slide incision was made and the perforation sought and closed In the earlier cases linen thread of size 90 was used for this purpose, but later catgut was invariably employed, as I considered that an unabsorbable suture might prevent healing of the ulcer The ulcers were invaginated by Lembert sutures introduced parallel with the long axis of the bowel, and an omental graft was placed over this line, if a piece easily presented Personally, I did not consider this graft of much importance The abdomen was then gently cleansed with moist gauze swabs until it was fairly free from all the extravasated fluid Gastro-jejunostomy was performed in twenty nine cases This procedure I considered requisite in those cases in which the ulcer seemed unusually chronic or producing stenosis or if stenosis appeared to be present after the closure of the perforation In only a few cases in which there was frank peritonitis or gross soiling of the peritoneum with particles of food was a large suprapubic tube inserted through a stab incision into the pelvis The abdomen was then closed with a small tube drain to the abdominal wall in those cases where there appeared to be a probability of infection here

Mortality

Of the 181 patients thirty one died making a mortality of approximately 17 per cent Details according to localization are

Percentage mortality of duodenal ulcers	12·22
gastric ulcers	25·50
gastro-jejunal ulcers	40·00

Rayner[13] states that during the years 1925-8 the average number per year of all the perforated peptic ulcers admitted to the Manchester Royal Infirmary was 135 of which 75 per cent were duodenal The mortality rate for perforated duodenal ulcer cases was 12 per cent while that of gastric ulcer was 33 per cent These figures agree fairly closely with my series—some of which are included in those reported The mortality of the perforated gastric ulcers is seen to be much higher than that of the duodenal group and this fact is in accordance with the observations of most surgeons This increased mortality in the case of the gastric ulcers is probably accounted for by a number of factors—namely the likelihood of serious haemorrhage preceding perforation the generally larger size of the perforation and greater amount and infectivity of the extravasated contents and also the difficulty in many cases of making a satisfactory closure of the perforation in a large gastric ulcer Harries considers that the reduction of alkaline salts of the body due to neutralization of the escaping acid gastric content is an important factor in this regard

The following tables indicate the mortality according to type of ulcer time from perforation to operation, and type of operation performed

Table IV—*Duodenal Ulcer*

Hours Perforated	Treated by Suture			Treated by Suture and Gastro-jejunostomy		
	No. of Cases	Died	Mortality per cent	No. of Cases	Died	Mortality per cent
Twelve hours or less	48	4	8·33	12	0	nil
More than twelve hours	34	3	8·82	6	2	33·33
Time not stated	25	7	28·00	6	0	nil
Total	107	14	13·08	24	2	8·33

TABLE V.—*Gastric Ulcer*

Hours Perforated	Treated by Suture			Treated by Suture and Gastro-jejunostomy		
	No. of Cases	Died	Mortality per cent.	No. of Cases	Died	Mortality per cent.
Twelve hours or less ...	15	2	13.33	1	0	nil
More than twelve hours ...	12	3	25.00	—	—	—
Time not stated	13	8	61.54	4	0	nil
Total	40	13	32.50	5	0	nil

The total number of perforations (excluding five cases of gastro-jejunal ulcer) were thus:

Treated by suture... ... ... 147—mortality 18.36 per cent.
Treated by suture and gastro-jejunostomy ... ... 29—mortality 6.9 per cent.

AFTER-HISTORY

As the last of the above cases were operated on over three and a half years ago, we may assume that most of those who have had no symptoms of any sort since the operation may be regarded, with some justification, as clinically cured.

With Bryce's[2] series of forty-eight cases in which recurrent symptoms of ulceration took place, in only four was it more than one year and nine months after the time of operation. It would therefore seem unlikely that there would be any return of symptoms after three and a half years of absolute freedom. Gilmour and Saint,[6] however, found that recurrence of symptoms took place in two cases, out of their series of twenty-seven, in whom the after-history was known, three and a half and five years after perforation.

Below is given a classification of results in ninety-two cases in which information was obtained from the questionary sent to each patient, or personally seen by me, for the purpose of providing information for this paper. By "slight symptoms" is understood occasional dyspepsia, not severe enough at any time to cause the patient to be absent from work or household duties; and by "severe symptoms" is meant ulcer symptoms, sufficient to cause loss of work and medical or surgical treatment to be sought.

TABLE VI.—*After-Results Compared with Two Other Series*

	Bryce (100 Cases)	Gilmour and Saint (44 Cases)	Present Series (92 Cases)
	Per cent.	Per cent.	Per cent.
No symptoms	32.00	38.60	42.39
Slight symptoms	27.00	25.00	38.04
Severe symptoms, or had a further operation	41.00	36.40	19.57

In investigating the results of the after-history of the cases I made a special point of asking the patients whether or not they had followed out the dietary restrictions imposed on them when they left hospital—each patient being given the usual diet sheet when discharged. The preceding table classifies the replies received, according to whether the ulcers were duodenal or gastric, the type of operation performed in the former cases, and whether or not they had adhered strictly to the diet imposed on them.

TABLE VII.—*Replies to Questionary*

	Duodenal Ulcers				Gastric Ulcers	
	Prescribed Diet Followed		Prescribed Diet *not* Followed		Prescribed Diet Followed	Prescribed Diet *not* Followed
	Suture	Suture and Gastro-jejunostomy	Suture	Suture and Gastro-jejunostomy		
No symptoms	14	3	11	5	3	3
Slight ,,	7	4	16	2	3	3
Severe ,,	5	0	10	0	2	1
Total	26	7	37	7	8	7

TYPE OF OPERATION TO BE ADOPTED

The operation planned for any acute abdominal catastrophe should obviously be the one which will give the immediate lowest mortality, and if two procedures conform closely in this respect then that one should be chosen which will give the best ultimate results. In the hands of most surgeons this means: should the suture of the ulcer be combined with gastro-jejunostomy? It is plain that it would be unwise to subject patients who are in a very poor condition to a gastro-jejunostomy, however desirable it might otherwise be, as the added time for its performance might easily prove too much for the immediate resources of the patient.

Reviewing the mortality of the above cases of perforated duodenal ulcer, it will be seen that the cases where the period since perforation is known to be less than twelve hours, which were treated by suture and gastro-jejunostomy, had a lower mortality figure than those in which suture alone was used—namely, *nil* to 8.33 per cent.; in addition, there were no deaths in the group of perforated pyloric ulcers treated by the combined operation. The general mortality of all cases of perforated peptic ulcer (excluding gastro-jejunal) treated by the combined operation is much lower than those treated by suture alone—namely, 6.9 per cent. to 18.36 per cent. The only group in which the combined operation appeared to increase the mortality was in those cases of duodenal ulcer perforated for over twelve hours; in this, out of six cases so treated two died, giving a mortality of 33.33 per cent. Unfortunately, in the two tables (IV and V) the information as regards the interval elapsing between time of perforation and operation is in many cases incomplete, and so it has been impossible to give a correct percentage mortality, according to time elapsing since perforation, in those cases treated by simple suture; the mortality figures in the first two items in Tables IV and V are obviously too low. Gastro-jejunostomy was performed only on those patients whose general condition warranted the extra time required for its performance. Simple suture was reserved for all cases which did not appear to necessitate a gastro-jejunostomy for their immediate or ultimate cure, or whose condition warranted only the minimum amount of manipulation. Hence we cannot state definitely that gastro-jejunostomy reduces the mortality, but from the above figures we are justified in stating that gastro-jejunostomy can be safely undertaken in those cases which require the performance of a short circuit, have perforated less than twelve hours previously, and in which the general condition is good. In my series there were no deaths in patients so treated.

Many surgeons confine themselves entirely to simple suture; a few perform gastro-jejunostomy in nearly all cases, arguing that thereby the immediate mortality is lowered by this means; whilst a number adopt a course similar to the one followed here.

Grey Turner[15] records a series of 147 cases on which he operated with a mortality of 15.64 per cent. He is of opinion that it is best to rely on simple suture, and, if a gastro-jejunostomy is necessary for the cure of the ulcer, to do this before the patient leaves hospital. Cope,[3] in a survey

of all the cases of perforated peptic ulcer taken to St. Mary's Hospital during the years 1920–4, found a mortality rate of 25.3 per cent. in the sixty-seven patients so admitted, and he included in this percentage three moribund and unoperated cases. He states that in those cases where the time elapsing between perforation and operation was known, eight out of twenty-four died when simple suture was employed, while only three out of sixteen died when gastro-jejunostomy was combined with suture. In the former case the average lapse of time was thirteen hours, while in the second it was only five and a half hours. Thus, he considers that the time factor alone would be sufficient to account for the more favourable results. Cope finds that he is relying on simple suture alone more frequently than he did formerly. Mills[12] advocates the performance of gastro-jejunostomy with suture of the ulcer, and in this he is supported by Deaver,[4] who published a series of fifty-six perforated peptic ulcers with only two deaths. Luff[11] reports a series of 112 cases of perforated duodenal ulcer and twenty cases of perforated pyloric ulcer, all of which were treated by suture and gastro-jejunostomy, with a mortality of 13·6 per cent. In this series one case of gastro-jejunal ulcer occurred following the operation, and this perforated. This one recovered after closure of the perforation. Rayner[13] combined gastro-jejunostomy with suture of the perforation six times in thirty cases, for the same reasons as above, and in a further two cases had to do this operation within three weeks after simple suture on account of cumulative vomiting.

Apart from two cases of perforated gastric ulcer occurring in the anterior surface of the stomach—when I made a rapid excision of the ulcers with scissors before suturing—I have had no experience of excision of any perforated ulcer, either alone or combined with such procedures as pyloroplasty. The rapid excision of the friable edges of the perforation, in the case of a large gastric ulcer, would certainly assist in its closure by enabling the sutures to obtain a better hold, and bring healthier tissues into apposition. Such major procedures as duodenectomy and partial gastrectomy for perforated peptic ulcer would appear to be quite unjustifiable in the hands of the average surgeon, although in several clinics in Central and Eastern Europe this mode of treatment is advocated. Hoche and Marangos[9] describe eighteen cases treated by gastrectomy, using the Billroth II technique, with a mortality of 22.4 per cent., and they collected from the published records 405 cases of resection within twelve hours of perforation, with a mortality of only 9 per cent. Judine[10] has done ninety-eight resections with a death rate of 11 per cent. Boehm[1] has reduced his mortality from 29 to 21 per cent. by adopting partial gastrectomy as his routine treatment. The advantages claimed are that the death rate is low, other ulcers are removed, secondary operations are not needed, and recurrent ulcer is not likely to occur.

After-Results

From Table VI it is seen that in less than 20 per cent. of the patients from whom replies were received were there symptoms which can be described as severe, and that over 40 per cent. had no symptoms of any sort. Reference to Table VII shows that in the case of the duodenal ulcers treated by simple suture, 54 per cent. of patients who had adhered to the dietary restrictions had no symptoms, while of those who had not done so only about 30 per cent. were symptomless. In the former cases only 19 per cent. had severe symptoms, against 27 per cent. in the latter. It is to be noted that none of the duodenal ulcers treated by suture and short circuit had any severe post-operative symptoms. In the cases of the gastric ulcers the effect of dietary restrictions did not seem to reduce the onset of recurrent symptoms. In this connexion Shelley[14] quotes eighty-two cases treated at one hospital. Of those treated by simple inversion 43 per cent. were described as "cured"—in this group the mortality was 15 per cent., while of those treated by inversion and gastro-jejunostomy 61 per cent. remained cured, but the mortality in this group was 23 per cent. White and Patterson[16] found that two-thirds of the patients treated by simple suture remained well, while 10.15 per cent. required a subsequent gastro-jejunostomy.

Conclusions and Summary

1. In this series of 181 cases of perforated peptic ulcer there were five anastomotic ulcers. It is generally recognized that gastro-jejunal ulcer is more likely to occur in an anterior anastomosis than in a posterior one, and so it is not surprising that three of the cases followed anterior gastro-jejunostomy. It is interesting to note the occurrence of anastomotic ulcer following an anterior Polya gastrectomy: the ulcer in this case, which perforated and caused death, was on the anterior part of the anastomosis near the lesser curvature of the stomach.

2. Perforation of a duodenal or gastric ulcer is more likely to occur in a male than in a female, as judged by the average length of ulcer history prior to the perforation.

3. In most cases the symptoms and signs of a perforated peptic ulcer are obvious, but in a few the occurrence of shoulder-tip pain may help in a differentiation between that type of acute abdomen and one due to perforative appendicitis. Again, a rectal examination may help to decide that perforation of an ulcer has taken place with escape of fluid into the pelvis, when the abdominal signs are not definite.

4. The treatment of this condition has been discussed at some length. In this series the mortality of cases treated by the combined operation of suture and gastro-jejunostomy has been low, and if the case requires a short circuit, as judged by the foregoing criteria, this can be safely performed.

5. In the investigation of the after-results following simple suture, it will be seen that a large proportion have no further symptoms, and this number is definitely increased in those who adhere to the list of instructions regarding diet, hygiene, and alkaline powder, given to each patient for future guidance on discharge from hospital. Although there were several patients complaining of slight symptoms following the combined operation of suture and gastro-jejunostomy, none of these had any severe symptoms, or anything to make one suspect the onset of an anastomotic ulcer. Some surgeons maintain that this complication is especially liable to follow a gastro-jejunostomy performed for perforated duodenal ulcer.

Finally, I wish to thank the honorary surgeons of the Manchester Royal Infirmary under whose care all the above cases were admitted for their kind permission to make this investigation.

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Memoranda
MEDICAL, SURGICAL, OBSTETRICAL

INTRAPERITONEAL RUPTURE OF THE UTERUS IN A CASE OF INTRAMURAL PREGNANCY

The following report of an unusual case of intraperitoneal rupture of the uterus in a case of intramural pregnancy is, we consider, worth publishing.

A married woman, aged 33, was admitted to hospital as an emergency case on June 14th, 1933, complaining of "severe pain over the stomach." The history was that while working in her own home she broke into a cold sweat and felt rather faint. She had had one child nine years ago, the confinement, she stated, having been normal; she had had no miscarriages. There was nothing upon which to comment in the menstrual history; the last period had commenced on February 11th, 1933. She stated that she had had two attacks of mild abdominal pain, but she was not definite about the dates of their occurrence. The pain was generalized in the abdomen, and each attack made her feel rather faint. She had had no serious illnesses previously, and her family history was a healthy one.

On admission to hospital her pulse was 108, respiration 26, and temperature 97.8°. She was very pale and clammy. The abdomen was somewhat distended, and showed evidence of free fluid. Examination per vaginam revealed a uterus enlarged to the size of about a three and a half months pregnancy; it was extremely tender on bimanual palpation. A provisional diagnosis of ruptured ectopic pregnancy was made, and an operation was performed immediately. The abdominal cavity was opened through a midline subumbilical incision, and was found to contain a large quantity of recent blood clot. The uterus appeared to be enlarged asymmetrically, and presented a very thin uterine wall which had ruptured. Through the ruptured portion of the wall, what appeared to be a piece of placental tissue was protruding and bleeding steadily. A subtotal hysterectomy was performed, at the same time conserving the ovaries. The abdominal cavity was cleared of blood clot, but no attempt was made to perform auto-transfusion. intravenous gum saline being administered towards the conclusion of the operation. The abdomen was closed in layers, without drainage, the skin sutures were removed on the seventh day, and on June 23rd (nine days after operation) the wound was quite healed and the patient was fit for transfer to a convalescent home.

Pathological Report on Hysterectomy Specimen

The specimen received for examination represented the removed parts following subtotal hysterectomy at a stage of about fourteen weeks' gestation. The uterus, however, constituted only one-half of the entire mass and measured 9½ cm. by 6 cm., the equivalent of approximately seven weeks' gestation. The interior was filled with a soft and relatively avascular decidua, and was devoid of foetal tissues. Occupying the upper two-thirds of the right wall of the uterus, and extending half-way across the fundus, was a globular fluctuating tumour, measuring 8 cm. in diameter, which lay bulging into the right parametrial tissues immediately under the homolateral tube. The latter, indeed, was stretched in a sagittal plane over nearly two-thirds of its circumference, the ostium lying below the body of the tumour. The left tube was represented only by the stump left attached to the uterus. The surface of the tumour was coursed by many dilated vessels, and over an area the size of a half-crown on the posterior convexity a haemorrhagic necrosis had occurred, exposing a sloughing, bleeding, ulcerated patch of tissue in the floor of which lay a shining translucent membrane. The latter proved to be a portion of amnion composing a gestation sac of entirely normal appearances, containing a well-formed foetus measuring 11½ cm. from vertex to coccyx. The sac was not ruptured, and contained a normal fluid.

The site of the attachment of the placenta lay anteriorly, and extended only to the margin of the area of necrosis; it was a normal organ. The foetus lay with the breech anteriorly and the spine running across the anterior concavity, the head imprisoned under the constriction of the Fallopian tube outside and projecting into the portion of amnion exposed at the site of necrosis. Since the continuity of the right tube was undisturbed throughout its length, and since, in addition, the muscular tissues of the right wall of the uterus could be traced in section thinned out over the convexity of the tumour, it was clear that the position obtaining was of an intramural gestation. The interior of the uterus had no demonstrable continuity with the sac, and the decidual "cast" was still firmly adherent.

We are indebted to Mr. A. Gray Banks for permission to publish this case, and to Dr. C. Keith Simpson (senior demonstrator in pathology, Guy's Hospital) for his advice and assistance.

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A FATAL CASE OF PHRENIC AVULSION

Phrenic avulsion is usually regarded as being a trivial operation. This particular patient was told that, though we could not promise him that the operation would improve his condition, we thought that it would probably do so, and that in any case the procedure was devoid of risk. We feel bound to put this case on record, demonstrating as it does that phrenic avulsion is by no means devoid of risk. A preliminary postural drainage or bronchoscopic lavage would probably have saved this patient's life.

The patient, a lorry driver aged 23, suffered from bronchiectasis following a post-operative bronchopneumonia two years ago. He was expectorating about a pint of fetid sputum daily, and had lost 3 st. in weight. On admission on August 15th, 1932, he weighed 7 st. 5 lb. There was marked clubbing of the fingers, and the physical signs suggested a gross bronchiectasis at the base of the right lung, with some involvement also of the left base, though to a less degree. These findings were confirmed by x-ray examination after intratracheal lipiodol. He was treated by inhalations of creosote, by postural drainage, and by bronchoscopic lavage; but his condition slowly and steadily deteriorated. On January 16th, 1933, phrenic avulsion was attempted under local anaesthesia, the operating table being tilted up so as to elevate the head and chest. The nerve was exposed in the neck and clamped, whereon the patient hiccuped once, and immediately became acutely dyspnoeic. After an abortive attempt to cough he lost consciousness. A tracheal catheter was passed at once and a considerable quantity of pus was aspirated. Oxygen was then blown in via the trachea, and the patient's condition slowly improved. The skin incision was rapidly closed, no attempt being made to proceed further with the operation. The patient was sent back to the ward, where he again became acutely dyspnoeic, and died before further aid could be given. At the necropsy there was found complete collapse of the lower half of the right lung. The trachea and the main bronchi contained much pus. There was gross bronchiectasis, involving the right lower lobe, with cavities the size of a walnut. There was a much less marked degree of bronchiectasis involving the rest of both lungs. Death was evidently due to asphyxia consequent on the sudden flooding of the whole bronchial tree by pus squeezed out of the bronchiectatic cavities in the right base when the right dome of the diaphragm made its rapid ascent.

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Reports of Societies

ASTHMA: A PHARMACOLOGICAL STUDY

On October 10th Professor J H Burn gave his presidential address to the Section of Therapeutics of the Royal Society of Medicine, entitling it "A Pharmacological Approach to the Cause of Asthma"

Professor Burn said that about four years ago he began the investigation of an obscure pharmacological problem which, though interesting enough from a theoretical standpoint, offered no hope that any result of general importance would emerge from it The problem was first created by the observation of Tainter and Chang that after the injection of cocaine the power of the substance tyramine (the amine obtained by decarboxylation from the amino acid tyrosine) to raise the blood pressure was lost The action of tyramine was first investigated by Dale and Dixon about twenty five years ago They found it to be very similar in all respects to adrenaline, though having about one twentieth the potency The action of adrenaline in raising the blood pressure was shown by Frohlich and Loewi to be augmented by a previous injection of cocaine, and in view of the similarity between tyramine and adrenaline it was to be expected that the action of tyramine would be similarly augmented Then Tainter and Chang made the surprising observation that a previous injection of cocaine abolished the power of tyramine to raise the blood pressure An analysis of the action of tyramine on the blood vessels soon revealed a further complication of the view that tyramine and adrenaline were qualitatively similar when the effect of tyramine was tested on perfused vessels of the cat or the dog, only traces of vaso constriction were produced The constrictor action observed in the body was not seen in a perfused organ under conditions in which both the constrictor action of adrenaline and the dilator action of histamine were well displayed, and a lengthy investigation was made to determine the cause of the failure to observe it The final outcome of this investigation was surprising, for it was found that the constrictor action of tyramine on the blood vessels depended on the presence of adrenaline in the blood When adrenaline was added to the perfusing blood at a constant rate, so that the vessels were already partially constricted, the injection of tyramine then produced a further constriction of a size comparable with that seen in the body Incidentally it was found that there was the same necessity for the presence of adrenaline in order that the ordinary constrictor action of ephedrine might be observed in a perfused system

The next stage of the investigation was the discovery that the site of the action of tyramine and ephedrine differed from the site of action of adrenaline, inasmuch as tyramine and ephedrine were found to lose their effect in the body in organs to which the sympathetic fibres had degenerated In these organs adrenaline still produces its effect, and must act beyond the nerve ending It was evident that tyramine and ephedrine acted upon the sympathetic nerve ending itself, and a connexion was sought between this fact and the previous observation of the part played by circulating adrenaline in increasing their action Since the work of Loewi in 1921 the view had been gaining ground that the involuntary system of nerves acted by the liberation of a chemical substance at their terminations, it was now accepted that the parasympathetic nerves liberated acetylcholine, and it was widely believed that the sympathetic nerves liberated adrenaline or an adrenaline like substance Professor Burn sought to explain his observations of the action of tyramine in terms of this theory, he argued that if the sympathetic nerve released adrenaline there must be a store of adrenaline at the nerve ending to be released, he supposed that in the perfused preparation this store must have been destroyed, so that tyramine, acting on the nerve ending, very much like a nerve impulse, failed to exert an effect When the store was replenished by adding adrenaline to the circulating blood the action of tyramine was restored He was able to test this hypothesis by observing the effect of stimulating sympathetic nerves in a perfused preparation, and the results confirmed the hypothesis Sympathetic stimulation in a perfused preparation produced very slight change in the calibre of the blood vessels When adrenaline was added to the blood and allowed to act for a period of time the effects of sympathetic stimulation were increased

It was further found that in the presence of adrenaline both ephedrine and sympathetic stimulation produced vaso dilator effects which were not otherwise seen, while the part played by adrenaline in augmenting constrictor effects was noteworthy, the vaso dilator effects were completely absent when there was no adrenaline in the circulation From these observations the conclusion was drawn that the size of the response to sympathetic stimulation in the body probably depended on the amount of adrenaline in circulation Graham had recorded that asthmatics who needed much adrenaline did not respond to ephedrine, and this observation agreed very well with the suggestion that these patients contained in their blood a much smaller amount of circulating adrenaline than usual Clinicians classified patients into those with excess of thyroid secretion, those with an average quantity, and those with less than the average, variations were recognized again in the amount of insulin in different persons, and there were probably variations in the amount of circulating adrenaline Some evidence for this could, indeed, be found in cats Hence it was reasonable to suggest that those people who had the least amount of circulating adrenaline would be predisposed to asthma, and that asthma would occur because of the failure of their broncho dilator nerves to do their work efficiently Whenever the bronchioles were unduly constricted, either by vagus impulses or as the reflex effect of nasal inflammation, or because of a chronic catarrhal state of the bronchioles themselves, these patients, being unable to dilate their bronchioles, would suffer an asthmatic seizure It the precursors of adrenaline could be identified the formation of adrenaline might be increased in the body by the addition of one or other of these precursors to the diet

SOCIETY OF PUBLIC ANALYSTS

At the meeting of the Society of Public Analysts, held on October 4th, a paper on the "Occurrence and Origin of Lead in Canned Sardines" was presented by Dr L H Lampitt and Mr H S Rooke They said that canned sardines had been found to be seriously contaminated with lead Investigation of the origin of the lead had shown an apparent connexion between the amount of solder exposed in the can and the lead content of the sardines solder evidently caused some contamination with lead But this was not the only source for sardines packed in cans where no lead could be derived from the container had also shown contamination with lead It had been proved that sardines cooked on grills covered with so called tin containing appreciable quantities of lead were badly contaminated with this metal whereas if pure tin was used on these grills the lead content of the sardines fell to a negligibly low figure The metal of the grills, therefore was the chief source of contamination of sardines with lead In the authors opinion the lead content of canned sardines should not be substantially more than 5 to 8 parts per 1 000 000, figures above this indicated avoidable contamination during the preparation of the sardines before canning

In a further paper on the "Chemical Examination of Furs in Relation to Dermatitis," Mr H E Cox gave details of 216 furs suspected of having caused dermatitis, of these 37 were undyed, and it was thought they could not have caused the disease Chemical tests for differentiation of *p* phenylenediamine from Bandrowski's base were given, and also a colorimetric method for determining small quantities of the diamine Experiments were described showing that *p* phenylenediamine penetrated the dead skin readily, but did not pass through or into living skin under normal conditions Some of the reactions of *p* phenylenediamine with blood and serum were described, and it was shown that it coagulated the proteins and became oxidized at their expense, the oxidases present in blood sufficed to bring about certain reactions, and, if haemoglobin was present, these reactions proceeded further.

Reviews

SEX AND INTERNAL SECRETIONS

The important work which has been undertaken by the Committee for Research in Problems of Sex on behalf of the Division of Medical Science of the National Research Council has been reviewed in the volume by Dr. EDGAR ALLEN on *Sex and Internal Secretions*.[1] It is ten years since the committee started its work, and the tenth anniversary is celebrated in this way. The contributors include Allen, Doisy, Hartman, Hisaw, Smith, and Engle, among others of equal eminence, and each reviews a special aspect of the subject. Some of the articles are purely biological, and deal with genetics, sex inversions, and sex deviations. The biology of the testis is discussed very ably by Professor C. R. Moore, although here again the tendency is more biological than clinical. Allen's article on the ovarian follicular hormone forms a most valuable review of the subject, and all aspects are surveyed comprehensively, full attention being paid to work published in all countries of the world. We dislike "theelin" for the ovarian follicular hormone; Parkes's word "oestrin" is much more satisfactory. The biochemistry of oestrin is very accurately described by Doisy, although the recent attempts to suggest a constitutional formula are not mentioned in the text. Hisaw's article on the physiology of the corpus luteum is one of the most important contributions on this subject as yet published; it is a model of accuracy in review, and all the fundamental biological aspects are discussed. The omissions depend upon the fact that the article is written by a zoologist and not by a gynaecologist, for scant reference is paid to clinical work, and it should be remembered that the importance of the corpus luteum was first established by clinicians. Hartman's article is extremely interesting, and the very numerous papers on the subjects of ovulation and the transport of ova and spermatozoa in the genital tract are all examined in detail. The anterior pituitary is dealt with by Smith and by Engle, again very accurately, with full references and the proper emphasis on those contributions which should be regarded as fundamental. The chapter on "sexual drive" brings out the interest which has been taken in this aspect of sexual physiology in recent years.

This is a work which should be brought to the notice of all who are interested in endocrinology and in problems relating to sex. It is comprehensive, with full bibliographies, and will no doubt be required by all medical libraries.

PATHOLOGICAL ANATOMY

ROUSSY, LEROUX, and OBERLING'S *Précis of Pathological Anatomy*[2] is planned on somewhat different lines from those usually adopted in textbooks on that subject, and by many it will be considered an improvement on the old method. Instead of dividing the material into the two main sections of general and special anatomy, the entire subject is treated under the heading of general pathology, the lesions of individual organs being introduced in illustration of underlying principles. This seems to be a logical arrangement, since the study of general processes is immediately followed by its application in individual cases. Special pathological anatomy is not treated of in its entirety, only those lesions being included which are considered to be most suitable as illustrating general principles. As, however, the book is concisely written and contains more than thirteen hundred pages, it lacks little in the way of completeness. Certain subjects are omitted altogether, such as the pathology of the organs of sense.

The book is intended primarily for students, but for those desiring to become acquainted with modern advances it will be a useful work of reference. The latter will find many evidences that pathological anatomy is by no means a stationary science. Among these may be mentioned the tendency to discard the purely histological classification of tumours, and to refer them to their cell derivation—an ideal principle, although not always easy of application. Great advance has also been made in bone pathology, especially in relation to parathyroid secretion and vitamin action. Details of the process of cell division has long been familiar, but much new knowledge has recently been gained on the important subject of stimuli to cell division and proliferation. Very interesting observations have been made on the incorporation, into the living tissues, of dead but permeable tissue grafts. A more precise knowledge of the details of nerve regeneration has been obtained. The problem of the nature and origin of the little yellow tumours of the vermiform appendix and intestine, known as carcinoids, appears to have been solved by the discovery of the argentophil cells of the intestinal submucosa. The neuroglial origin of the characteristic tumours of the dura mater has recently been asserted by Oberling, and the lesions in Recklinghausen's disease are now held to have, in part, a similar derivation. These and many similar evidences of progress may be gathered from Roussy, Leroux, and Oberling's Précis.

UROLOGY IN AMERICA

As a special branch of surgery, urology is scarcely fifty years old in the United States, and the American Urological Association only had its humble origin in a winehouse in New York in 1902, on Washington's birthday—February 22nd. Since then progress has been very rapid, and the two volumes recording the *History of Urology*,[3] prepared under the auspices of the above association, is full of interest to the general reader as well as to the specialist. Many of the pioneers are still living, and of all there are personal memories which are here set down in detail. The stories are remarkable in many instances, and could only have been told of a virile nation which has not yet assimilated the various elements of its population. They give a wonderful picture of American medicine, whose practitioners range from highly cultivated gentlemen like Gross, Bigelow, and Cabot, to Chismore and Goodfellow. Chismore married, in Alaska, with full tribal honours, an Indian princess, practised, and made his reputation several years before he obtained a degree at San Francisco. He kept a store of jerked venison under the bed on which he used to spend his afternoons shooting at a mark on the wall until his friends were well salivated by the vapour from the exploded cartridges. Goodfellow graduated from Wooster, Cleveland, in 1878, was surgeon to a mining camp where, as coroner, and himself a good shot, he accepted a verdict on a man who was lynched in 1884:

> "We, the jury of inquest impanelled and sworn by the coroner of Cochise County, after viewing the body and hearing the testimony, find that the name of the deceased was John Heath, 32 years old, a native of Texas, and that he came to

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[1] *Sex and Internal Secretions.* Edited by E. Allen. With a foreword by R. M. Yerkes. London: Baillière, Tindall and Cox. 1932. (Pp. xxii + 952; 318 figures. 57s. 6d. net.)

[2] *Précis d'Anatomie Pathologique.* Deux volumes. Par G. Roussy, R. Leroux, et Ch. Oberling. Collection de précis médicaux. Paris: Masson et Cie. 1933. (Pp. 1,344; 582 figures, 4 plates. Broché 160 fr., relié toile 175 fr.)

[3] *History of Urology.* In two volumes. Prepared under the auspices of the American Urological Association. Editorial Committee: E. G. Ballenger, W. A. Frontz, H. G. Hamer, B. Lewis (chairman). London: Baillière, Tindall and Cox; Baltimore: The Williams and Wilkins Company. 1933. (Vol. i, pp. xii + 885, 46 figures; vol. ii, pp. vii + 362, 12 figures. 36s. net the two volumes.)

his death from emphysema of the lungs which might have been, and probably was, caused by strangulation, self-inflicted or otherwise, as in accordance with the medical evidence."

The man had been hanged by the mob, and the coroner had previously explained that emphysema was a swelling caused by air in the cellular tissues, and was due sometimes to strangulation and sometimes to the effects of high altitude!

But apart from these incidental stories of times not so long gone by, the book fulfils a serious purpose. Its production has been entrusted to a small committee, and it appears under the editorship of Dr. BRANSFORD LEWIS, Emeritus Professor of Urology in the medical department of St. Louis University. Dr. Lewis has performed his editorial duties successfully, and has gathered round him a distinguished band of contributors. They deal in the first volume with the history of urology in Baltimore, Boston, Chicago, the Middle West, New York, Philadelphia, and the West Coast. The remainder of the first volume and the whole of the second volume are devoted to technical problems connected with urology. The surgery of the kidneys, the ureters, the bladder, and the prostate is considered in detail, and there are sections—each with a sufficient bibliography—on the neuroses and functional diseases of the genito-urinary tract, on diseases of the urethra and penis, on urology in childhood, and upon the diagnostic tests and chemicals used in this branch of surgery. The last chapter gives a short account of the surgical instruments which have been invented for use in genito-urinary work. Their name is legion, for the early surgeons did not consider they were specialists until they had made or modified a catheter, a knife, or a cystoscope.

The publishers, Messrs. Williams and Wilkins Company of Baltimore, have reintroduced a pleasant custom of the old printers. They mention by name the various craftsmen who have taken part in the production of the book, the women who worked at the keyboards, the casters of the type, the compositors, the readers, the pressmen, the folders, and the cutter. This practice gives an individuality to the volumes, and teaches how large a number of persons go to the manufacture of the finished article.

PRACTICAL SANITATION

The increasing purpose of public health administration has raised the status of the sanitary inspector. In order to qualify for that position candidates nowadays are required not only to attend a prescribed course of training, but also to pass a comprehensive examination in the branches of hygiene concerned. Those preparing for such an examination will do well to study the handbook recently compiled by Mr. H. H. CLAY.[4] The work opens with a review of the evolution of public health law, and, after dealing with the duties and powers of the sanitary inspector, proceeds to the subjects of nuisance, smoke, and offensive trades. In the section on housing the hygiene of building is clearly presented, and useful solutions, including the Knapen siphon, are offered for the difficult problem of ground damp in old houses. The principles of lighting are explained, and the extensive subject of water supply is adequately summarized. In the section on drainage it is satisfactory to note a description of the one-pipe system for sanitary fittings. This plan omits the superfluous and obstructive disconnexion of waste pipes from house drains. A method is shown for the exclusion of petrol and oil from sewers, and the rules for the management of dry refuse are laid down.

The author's treatment of the subject of ventilation is up to date, no obsolete devices being permitted to linger on the stage. Vitiation of the air in crowded rooms is correctly attributed to rise of temperature and increased humidity. Importance is attached to floor space in air supply, given adequate height of the ceiling. In connexion with the conditioning of the air in buildings the katathermometer is figured and described, and directions are given for its use in determining the cooling power of the air and the velocity of its movement. The recent method of radiant heating by means of panels in the ceiling is illustrated. Among other subjects treated are workshops and work-places; dairies, cowsheds, and milkshops; the designated milks; the production of clean milk; slaughterhouses; meat inspection; food control; disinfection; disinfestation; and canal boats. The diagrams throughout are clear and informative. Memoranda of numerical equivalents, conversion tables, and a glossary of building terms complete this useful work, which Professor W. W. Jameson introduces with a few words of merited commendation.

[4] *The Sanitary Inspector's Handbook. A Manual for Sanitary Inspectors and other Executive Public Health Officers.* By Henry H. Clay, F.R.San.I., F.I.S.E. With an introduction by W. W. Jameson, M.A., M.D., F.R.C.P., D.P.H.Lond. London: H. K. Lewis and Co., Ltd. 1933. (Pp. xx + 286; 93 figures. 15s.)

CENTRAL EUROPEAN SPAS

The directory known as *Bader-Almanach*,[5] which first appeared in 1882 under the editorship of Dr. GEORGE THILENIUS, is the second of the triad of publications concerning the health resorts of Germany and other Central European countries, the *Bader-Buch* being strictly scientific and the *Kalender* largely for advertising purposes.

The first portion of the book is taken up with brief introductory chapters on the history and scope of medical hydrology (balneology), and on the methods of analysis. A clinical section deals with the various forms of disease amenable to hydrological and climatic treatment. In a chapter on the choice of spas a "dual indication" is suggested: the climate and situation should be chosen according to the patient's constitutional type, and the waters and other spa methods selected as suitable for his specific complaint. In the second portion, after the climatic inland resorts, come eleven sections devoted to resorts with medicinal waters. The seaside resorts appear after the saline and brine spas. To each of these sections is prefixed a medical explanation of their character and general action, but unfortunately the descriptions of the various resorts differ greatly in their form, content, and strict objectivity, so that there is little uniformity or possibility of comparison. Some of the resorts have been allowed to style themselves "most recommended" for certain disorders. The list of places includes most of the regular health resorts of German-speaking countries and of Czechoslovakia and Hungary, and a number of warm inland and marine resorts in Italy and on the Mediterranean, North Africa, and Adriatic coasts. Those of England and France are not mentioned

Notes on Books

Dr. HENRY T. GILLETT's book on *Vaccine Therapy in Acute and Chronic Respiratory Infections*[6] will be a useful guide to general practitioners interested in this subject. It is based on an extensive practical experience, as the case records show. Dr. Gillett has used vaccine treatment successfully in many different types of respiratory infection, and the reader gains the impression that this success is due, not to rule-of-thumb methods, but to the care with which the individual patients have been studied. As Professor Wynn says in his introduction, "Dr. Gillett's book should arouse interest in a valuable method of treatment which has been too much neglected."

[5] *Bader-Almanach.* Jubilee Edition. 1882–1932. Bd. 16. Berlin: Rudolf Mosse. (Pp. 560.)

[6] *Vaccine Therapy in Acute and Chronic Respiratory Infections.* By H. T. Gillett, M.D. London: H. K. Lewis and Co., Ltd. 1933. (Pp. xii + 104; 9 charts. 5s. net.)

Boyd's *Surgical Pathology*[7] has now reached a third edition. The first edition was issued in 1925, and the work was entirely revised and reset in 1929. Many additions and changes have been made in the present edition. Among the new material are sections on the metabolism of tumours, recent advances relating to the pathogenesis of goitre, lesions of the appendices epiploicae, the musculonervous complex of the appendix, autolytic peritonitis, proliferative cholecystitis, hyperpyrexia in cholecystectomy, obstruction of the common bile duct, non-obstructive hydronephrosis, injuries of the spleen, Cushing's syndrome, and bone absorption. Many of the sections have been altered or entirely rewritten, among the latter being the chapter on the thyroid and that on the relation of the surgeon to the laboratory.

Miss Evelyn C. Pearce's *Short Encyclopaedia for Nurses*[8] is a very comprehensive work of comparatively small dimensions. In just over six hundred pages she ranges from "abbreviations" to "xymotic disease," and random sampling has found "test" sections all very satisfactory, both in manner and in content. An exception might perhaps be made in regard to anaemia, and even the rapidity of modern discoveries is scarcely an excuse for giving over a third of a page to "chlorosis" with no mention of the simple achlorhydric anaemia of women or of nutritional anaemia in infancy and childhood. The nursing details are throughout excellent, and the definitions given of diseases or disease processes are clear and concise, to which generalization only a few exceptions have been found. For example, the dictum that "infection is the invasion of the body by disease" is rather confused, and to define epilepsy as a "functional nervous disease" may lead to misunderstanding when the nurse is introduced to the study of the neuroses. There are, however, very few such slips, and the book may be confidently recommended. The printing is excellent, and the use of a thin but opaque paper has resulted in a handy volume. In a *Pocket Medical Dictionary*[9] Miss Lois Oakes, assisted by Dr. T. B. Davie, has set herself a much less ambitious task, and this book succeeds in its own limited sphere quite as well as the bigger production mentioned above. An appendix contains a variety of useful information, including an interesting list of historical persons in medicine and a somewhat abbreviated section on diet in disease. It is doubtful whether medical students will use this type of booklet, despite the hope expressed in the preface, but it should be invaluable to doctors' secretaries and to junior nurses.

Just before the beginning of the century there arose the social and economic principle that an employer of workmen ought to compensate them for injury caused by accidents at work. The quickening pace and complexity of civilized life has imposed an increasing strain on the mind, and caused an infinite number of symptoms of illness without a corresponding physical lesion. The stress of the war produced large numbers of neuroses in combatants who could show little or no physical injury. A characteristic of a great many neuroses is that they are purposeful, being designed to remove the organism from the conditions which have produced them. When they also lead to personal advantage, such as freedom from responsibility, security, and a periodical payment of money, they tend to be perpetuated. This characteristic creates a widespread and important problem. After the war, when neurotic symptoms were taken into account in awarding disability pensions, it was found very difficult to distinguish between the neurosis really due to the injury and that which was added in order to perpetuate the situation of dependence. Similarly, now that neurotic disability is a ground for awarding compensation to an injured workman, there is an increasing number of claims for traumatic neurosis. The phrase includes hysteria, neurasthenia, mental depression, and a host of other mental twists and disabilities. This field is by far the most wearisome and baffling in the whole range of workmen's compensation, both to the medical man and to the lawyer, and Dr. James Huddleson's book[10] is a valuable guide to its intricacies. The fact that the book was written in America does not impair its usefulness, for the law in the United States is much the same as in this country, and the problem of traumatic neurosis is identical.

The fifteenth edition of Pye's *Elementary Bandaging and Surgical Dressing*[11] has been revised by Mr. A. J. Cokkinis, and has been brought up to date, conforming to the tenth edition of Pye's *Surgical Handicraft*. Many of the illustrations have been modernized, the section on plaster-of-Paris splints has been largely rewritten, and a new section added on blood transfusion. The chapter on poisoning, as revised by Sir William Willcox, remains a model of its kind.

The problem of the humane destruction of dogs and cats has recently attracted attention from the public, and Colonel Rainey has issued a pamphlet[12] embodying his own experiences on the matter. He believes that shooting is the most painless of all methods, and that prussic acid in expert hands is almost instantaneous, but not free from pain. He is emphatically against the use of chloroform or motor exhaust fumes in a closed box, and believes that the most humane and practicable method at present available is the use of coal gas and a glass lethal chamber. He believes that much humane effort is misdirected, and pleads for official control of all destructive apparatus. His pamphlet is a well-thought-out exposition of the situation as it exists to-day.

[7] *Surgical Pathology*. By W. Boyd, M.D. Third edition. London and Philadelphia: W. B. Saunders Company. 1933. (Pp. 866; 477 figures, 13 coloured plates. 50s. net.)

[8] *A Short Encyclopaedia for Nurses*. By E. C. Pearce, S.R.N. London: Faber and Faber, Ltd. 1933. (Pp. 625. 12s. 6d. net.)

[9] *A Pocket Medical Dictionary*. Compiled by L. Oakes, S.R.N., D.N., assisted by T. B. Davie, B.A., M.D. Edinburgh: E. and S. Livingstone. 1933. (Pp. xx + 350; illustrated. 3s. net.)

[10] *Accidents, Neuroses and Compensation*. By James H. Huddleson, M.D. London: Baillière, Tindall and Cox. (Pp. ix + 256. 21s.

[11] *Pye's Elementary Bandaging and Surgical Dressing*. Revised by A. J. Cokkinis, M.B., F.R.C.S. Fifteenth edition. Bristol: J. Wright and Sons, Ltd. 1933. (Pp. viii + 243; 87 figures. 3s. 6d. net.)

[12] *Euthanasia of Dogs and Cats*. By Wakefield Rainey, C.B.E., M.R.C.V.S. Foreword by Frances Countess of Warwick. London: Baillière, Tindall and Cox. 1933. (Pp. vii + 45. 1s. net.)

Preparations and Appliances

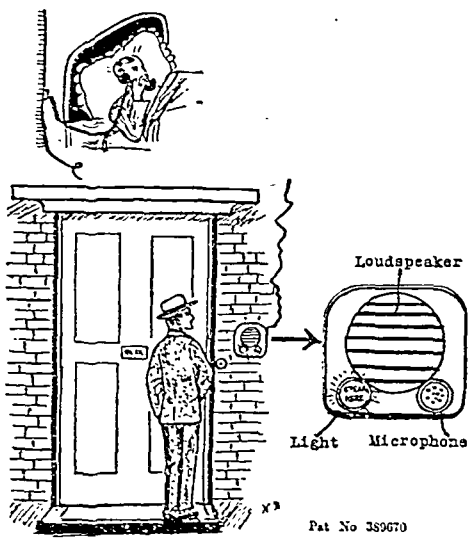
COMMUNICATION BETWEEN DOCTOR AND NIGHT CALLER

Dr. N. C. Hypher, B.Sc. (Slough, Bucks), writes: From time immemorial only three methods of communication have been in use between the doctor and the night caller on the doorstep: (1) the Hippocratic method of opening a front window and shouting down to the caller—with or without a jug of water at one's elbow; (2) running down to the front door and seeing the caller—a waste of energy if the call proves to be trivial or freakish; (3) the speaking tube, which must be built into the house, and which compels the doctor to sleep in one particular room for all the years of his practising life.

The apparatus described below is intended to remove the disadvantages attaching to all these three methods. The first two methods involve hopping out of a warm bed, partially clad, and running the risk of catching a chill, with all its possible sequelae. The speaking tube is a "one-way" system, which prevents reasonable discussion of the case with the caller, for if both are speaking at the same time or listening at the same time the intelligible result is *nil*; moreover, the mouthpiece at the front door is often not seen in the dark. Further, many callers are afraid to use it, which entails our running down to the front door, as in method (2). Finally, should we decide to remove to another house we cannot take our speaking tube with us.

During the past eighteen months I have experimented with a device of my invention employing a telephone "hand-set" at the bedside, with wires leading to a small box at the side of the front door, in which are placed a loud speaker, a microphone, and an electric light. There is a switch key in the telephone "hand-set" which, when depressed, energizes the

whole system, and the light in the box appears, revealing a small sign bearing the words "Speak Here." Ordinary bell batteries of a few volts are used to supply the necessary current. In my set the batteries, which are of the "dry" type, are used to ring the electric bell as well as operate the night-call device. *No valves are employed*, and there is nothing to interfere with communication. Should the electric bulb fuse, speech is absolutely unaffected. The speech system will work as long as the batteries have sufficient power to work the electric bell or light the lamp in the box. (The batteries should be renewed once a year.) The electric bulb is readily replaceable. The other parts should last for years, after the manner of the ordinary telephone instrument. When a caller rings the night bell, I lift my telephone hand-set and depress the key. This promptly illuminates the sign "Speak Here" on the box at the front door. This kindly light and message assures the caller that I am awake and taking notice. When I speak gently my voice issues from the loud



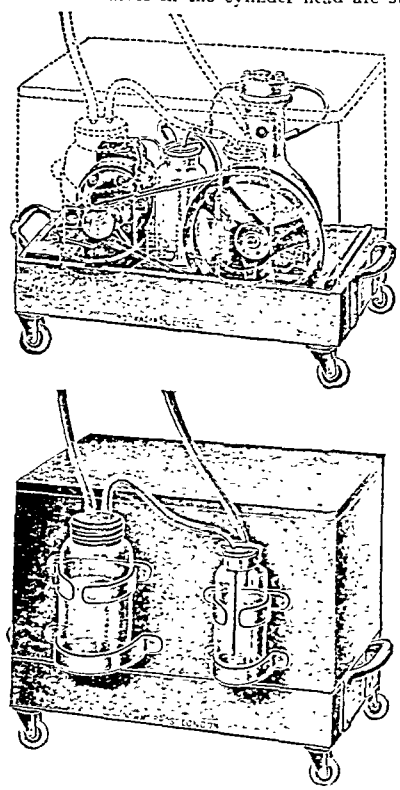
speaker to a range of about six feet. The microphone picks up his reply through an equivalent range. The caller has nothing to do other than converse in an ordinary voice, replying to my various questions. When conversation is ended I release the key, the light goes out, and all units are out of action. Communication is established, and also broken, at the doctor's will—a very important point.

The beauty of this system lies in the fact that the wires from the door can be led to plug sockets in any bedroom. I take around the telephone hand-set and "plug it" in the room I wish to use at night. During my eighteen months' experience I have on two occasions given complete instructions to the caller, obtained his acquiescence, and avoided unnecessary visits. On other occasions the caller has spoken in whispers to avoid being heard by passers-by. The microphone, as most people are aware, is an ideal instrument for picking up whispers. The complete set can be installed in any house within two hours. Unlike the speaking tube, which is permanently built into the house, the electrical device can be easily removed and set up in another dwelling. The front-door unit has been rendered weatherproof and the details camouflaged. A bell-push may be fitted on the box if desired. The complete set, including sufficient wire, extra sockets, batteries, and instructions for fitting, is made by McMichael Radio Ltd., Strand, London, and Slough, Bucks, at five guineas, under the title of the "Autocall."

GUY'S SUCTION AND AIR DELIVERY UNIT

Mr. W. M. Mollison, F.R.C.S. (London), writes: An efficient suction apparatus is essential in many throat investigations and operations, and indeed is used for many operations on other parts of the body. Messrs. Down Bros. have recently constructed an electrical suction apparatus which can rightly claim to be more efficient than the apparatus generally in use.

The suction is continuous, and so powerful that clots of blood and the most tenacious mucus are quickly removed. The apparatus is quiet, and can easily be moved about the operation theatre, and from one theatre to another. It is possible to use it for intratracheal insufflation at the same time as suction, since the pump delivers sixty litres of air per minute. The valves in the cylinder head are strong and



specially designed for silence in operation, and the sump of the machine carries enough oil for six months' continuous use. This ensures efficiency with the minimum of attention.

The entire unit is mounted in a robust mahogany case, which is fitted with four rubber-tyred castors. On the side of the case two large screw-necked bottles are mounted. These bottles are the commercial "Kilner" type, and can therefore be replaced with the minimum of expense. Blood and other fluids are removed from the operating field by the suction plant and find their way into the big bottle. The second bottle is a safety trap in the unlikely event of the first bottle becoming full at a moment when it is inconvenient to change it. There are no resistances to regulate the speed, and in order to use the apparatus it is only necessary to connect it to the main electrical supply.

BANDAGE FASTENER

To those who find fault with the traditional safety-pin as a means of securing a bandage the "rasco" lightning bandage fastener, "a time- and effort-saving device for fastening bandages securely and neatly," may prove attractive. It consists of a small strip of white elastic, to each end of which is attached a piece of metal carrying on its under surface a couple of small hooks. These hooks, which point inwards, grip the surface of the bandage. The fastener is sterilizable by boiling, and is stated by the makers to be "positively non-slipping." The cost is 4s. per gross, obtainable from most medical and surgical supply houses, or from the makers, Messrs. R. A. Smith and Co., 30, City Road, E.C.1.

T. J. Smith and Nephew, Ltd., of 42, Tavistock Square, London, W.C.1, have recently put on the market parigon zinc oxide plasters in snap spool cylinders. The plasters are made from the same ingredients as elastoplast, and the snap cylinder makes a convenient container for the spool.

produced. Reference is made in this chapter to the fact, previously noted by Stevenson and others, that the maternal death rate is definitely higher in the spring, autumn, and winter than in the summer, and on page 22 a graph is given showing the "seasonable [*sic*] distribution" of deaths from puerperal sepsis and other causes of maternal mortality. Reference is also made in another connexion (p. 86) to the work of King, who showed that in the Jessop Hospital at Sheffield the number of cases of sepsis due to *S. haemolyticus* admitted during the first and fourth quarters of the year represented 70 per cent. of the annual total. It seems clear that the effect of climatic conditions upon maternal mortality has not yet received the detailed consideration which it deserves.

Professor Munro Kerr's examination of international statistics has led him to the encouraging conclusion that our apparent failure to reduce maternal mortality in recent years is in reality to be explained by "a progressive advance to exactness in notification." He says, "It is inconceivable that there should have been no improvement." To cheer us up still further he points out that the unfavourable comparisons which have been drawn between ourselves and certain other European countries are fallacious in the case of all but Holland, by reason of dissimilarities in the statistical methods employed.

The causes of puerperal fever and puerperal pyrexia are exhaustively discussed, and this section will fully repay close attention. In dealing with the influence of obstetric operations upon mortality, the author makes the pertinent observation that "in the hospitals of many smaller cities and towns obstetric operations are being performed by members of the visiting staff . . . who have had little training in obstetrics." It is not only in such hospitals that obstetric operations are unskilfully performed, and reference is necessarily made to the results of misuse of the forceps in private practice. A table of "failed forceps cases" (from a number of large maternity hospitals) is given on page 51, showing an average case mortality of 12 per cent. It is to be regretted that the truly barbarous term "failed forceps case" should have been so universally accepted by obstetric writers in this country. The use as an adjective of the past participle of an intransitive verb is unpardonable; who would think of using the converse term, "succeeded forceps case"? As members of a learned profession obstetricians should recognize the necessity of observing grammatical principles when inventing new names.

Under "Prevention" the author deals very fully with ante-natal care and with the management of labour, rather in the manner of an advanced textbook. The views expressed with regard to the antiseptic ritual to be observed are in accordance with recent advances in this department of technique. It is of interest to note that while the use of gauze masks is insisted upon, the impermeable layer, so strongly advised by the Departmental Committee, is regarded as unnecessary. Further, we are told that it is "ludicrous to talk about masks for midwives" in view of their inadequate training and discipline. This statement may be expected to cause some heartburning at the Midwives' Institute. The sections dealing with services and organization take up about one-third of the book, and are packed with information which has clearly been collected with much care and labour. The results of his review of the available data with regard to domiciliary midwifery are formulated in a series of "conclusions" which are very clear and helpful. With regard to midwives the very sensible view is expressed that it is better for them to be attached to institutions than to practise privately, and in order to attract suitable women the following suggestions are made: (*a*) to restrict the supply of midwives; (*b*) not to insist on a general training; (*c*) to guarantee an adequate salary, comfortable quarters, and a pension. This may be expected to disperse the heartburn at the Midwives' Institute.

The last subject to be discussed is a national maternity service, but it is impossible within the space at our disposal to indicate the multifarious points of interest which are raised. We commend this section to the notice of all who are specially interested. In this connexion Professor Munro Kerr's article in the *British Medical Journal* of May 20th may be recalled, and the memorandum by the Glasgow Division of the British Medical Association, published in the *Supplement* of June 10th.

The outstanding feature of the whole book is the mass of statistical information, which has been compiled and arranged in fifty-one numbered tables and in a large number of unnumbered tables. These will prove invaluable to other workers, but is it not the case that to many readers a table acts as a stumbling-block? While a graph explains itself a table often needs to be explained. To the writer of this review the short table on page 221, presenting data published by Guggisberg, is frankly incomprehensible. Table XV gives the causes of death in the Glasgow Maternity Hospital during the period 1926–30; on the authority of this table it might be stated that 26.8 per cent. of the mortality in that hospital was due to sepsis. This would, in fact, grievously disparage the work of a famous institution, but if the cases had been divided into "booked" and "emergency" cases the results would appear in their true proportion. On a different point, it is perhaps legitimate to inquire: Is "contracted pelvis" a cause of death? (p. 49).

If in conclusion we point out that there are in this work certain internal evidences of hurried preparation, it is in no captious spirit, for the reviewer cannot fail to sympathize with an author who undertakes such a formidable literary task as this in addition to the onerous duties of a professorial chair. In the section on abortion, when dealing with its ethical aspects, one of the four methods by which it is stated that pregnancy may be prevented is "by a modification of the Act governing the induction of abortion." This is not a mere error of detail, but a conspicuous instance of confused thinking. Ungrammatical sentences can be picked out here and there—for example, a plural subject with a singular form of verb, or the converse. Such terms as "pituitarin" and "shaving the pubis" have slipped the attention of the proof-reader. A first edition is seldom free from such errors, and we can heartily congratulate the author on having rendered a conspicuous service to his subject.

The Eugenic Law, passed in Germany on July 14th and coming into force in the New Year, ordains that persons suffering from hereditary diseases, such as congenital mental deficiency, schizophrenia, manic-depressive insanity, hereditary epilepsy, Huntington's chorea, severe hereditary deafness, and severe alcoholism may undergo sterilization on application of the patient himself, or, if he is irresponsible, of his legal representatives. Sterilization may also be proposed by the official medical officer or the director of a prison hospital or other institution for the inmates. The operation of sterilization is authorized by a special court, whose sittings are held *in camera*. The court consists of a magistrate, an official doctor, and another practitioner who has made a special study of eugenics. The operation is carried out in a German hospital by a doctor registered in Germany, at the cost of the insurance office or public assistance. Secrecy is to be observed by all concerned in the operation under penalty of one year's imprisonment with a fine.

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SATURDAY, OCTOBER 14th, 1933

SURGERY OF THE SYMPATHETIC

The impetus given to the study of the anatomy and physiology of the sympathetic nervous system by the work of Leriche and, later, of Hunter and Royle, has led to a widespread revival of interest in the possibilities of interference with the activities of the autonomic nerves by means of surgery. The earlier lack of sufficient anatomical and physiological knowledge had led to such disappointing surgical results that interest waned and few investigators regarded the subject as one having any serious practical applications. The dearth of literature of the earlier part of this century reflects this attitude, but it has now been abundantly compensated for, and to judge from recent publications surgeons the world over have been devoting their attention to this comparatively new branch of their work. It is even possible that the pendulum of enthusiasm has swung too far, and that operative application has outstripped the limits of anatomical and physiological knowledge.

In this country a considerable number of papers have been published during the past year. Telford and Stopford [1] with admirable moderation, describe the results of lumbar sympathectomy in thrombo angiitis obliterans and make a plea for earlier operation in this condition. Ogilvie,[2] reporting four cases of poliomyelitis treated by sympathectomy, discusses the cause of the circulatory disturbance in this disease. Adamson and Aird [3] and Boggon[4] (the latter reporting upon Sargent's cases), record satisfactory results in Hirschsprung's disease, the former believing that megasigmoid is due to a direct sympathetic overaction. Gask[5] gives an account of the results obtained in cases of Raynaud's disease, thrombo angiitis obliterans, and Hirschsprung's disease; his report contains a good description of the anterior approach to the stellate ganglion. Ross[6] contributes an interesting paper in which he considers sympathectomy as an experiment in human physiology, and Woollard and Norrish give an account of the gross anatomy of the system. Lake [8] in a general review of the subject which is described as the surgery of function, makes the suggestion that the sympathetic system will prove to be the mechanism by which physical and psychical states are linked together, and also points out that the superimposition of definite organic changes upon primarily functional conditions may be accounted for upon this anatomical basis.

That the American point of view is very similar to our own is shown by the summary of Abbott[9] in the *Annals of Surgery*. In the same journal Stewart[10] discusses the operative technique from notes based upon no fewer than 273 operations. Since few surgeons can have had a wider experience of sympathetic surgery, it is of interest to note that he favours the anterior method of approach to the stellate ganglion, which, he states, carries with it very little shock. He has performed this operation ninety-nine times without fatality, and his conclusions are that the technique of all operations upon the sympathetic nervous system is well established, but that we are merely "standing on the borderland of possibilities so far as the indications for operation are concerned." Wetherell[11] reports the year-old results of sympathetic resection in a case of Hirschsprung's megacolon and in one of severe rectal constipation, the results were good, but he emphasizes the need for after care—especially on the psychical side—believing that the diversity of reported end results may be thus explained. Reichert,[12] following Flothow, discusses the treatment of intermittent claudication with alcohol injections of the sympathetic chain, twenty-five such cases having been "materially and occasionally strikingly benefited."

Continental literature is naturally affected by the work and views of Leriche, and here we find more consideration given to the method of periarterial sympathectomy. Baumgartner[13] gives an excellent summary of the anatomy, physiology, and surgery of the system in the *Revue Medicale*. In particular he discusses the differences between the views of Leriche and those of the English physiologists regarding the presence of true pain fibres in the sympathetic nervous system, and comes to the conclusion that sympathetic reflexes are not axon reflexes, but are true arc reflexes, obviously necessitating a sensory side within the system. Since no specific vaso-dilator fibres can be demonstrated the phenomenon of dilatation may be explained by antidromic conduction in the sensory fibres of the posterior nerve roots. It is interesting to observe that he does not recommend ganglionectomy except for certain specific indications on the ground that since we are ignorant of the functional value of these structures it would be unwise to interfere with what might prove to be an important organ. Since large numbers of ganglionectomies have been performed in this country and elsewhere without any observed ill effects it would appear that there is not much basis for this objection. This paper summarizes the results under three headings: (1) in painful conditions, (2) in vaso-spastic conditions, and (3) in trophic lesions. In all the results are said to be encouraging, although no actual case records are given. Certain types of arthritis are said to be alleviated, and this agrees with the experience of Adson and others at the Mayo Clinic. The author points out, however, that the cure of a

[1] Telford and Stopford. *British Medical Journal*, February 4th 1933.
[2] Ogilvie, W. H. *Proc. Roy. Soc. Med.*, February 1933.
[3] Adamson and Aird. *Brit. J. Surg.*, October, 1932.
[4] Boggon. *Brit. Med. J.*, August 1932.
[5] Gask. *Brit. J. Surg.*, July, 1933.
[6] Ross, P. R. July 1933.
[7] Woollard and Norrish. Ibid., July 1933.
[8] Lake, N. *Lancet*, October, 1932.
[9] Abbott. *Ann. of Surg.*, April, 1933.
[10] Stewart, J. I. Ibid., April 1933.
[11] Wetherell, F. S. Ibid., April, 1933.
[12] Reichert, F. L. Ibid., April, 1933.
[13] Baumgartner, J. *Rev. Med. de la Suisse Romande*, May 1933.

hyperaemic condition by the induction of a hyperaemia is certainly paradoxical, and for the moment incapable of explanation. As a commentary upon this it may be pointed out that Jeanneney[1] of Bordeaux claims equally good results in chronic rheumatism by the performance of a parathyroidectomy. The relation between two such diverse methods of treatment is possibly explained by the recent work of Leriche and Policard on the effects of blood supply and available calcium upon bone formation. Baumgartner discusses the effect of sympathectomy upon ossification and the repair of fractures also in the light of the same work. The *Revue Médicale* also contains an article by Montant[2] upon sympathetic surgery in the treatment of disturbances of muscular tonus and of angina pectoris. There is little new in the section upon muscular tonus, except the mention of superior cervical sympathectomy in the treatment of facial paralysis. In the surgical treatment of angina the well-known work and operation of Danielopolu are reviewed, but the conclusion is reached that a stellate ganglionectomy—either left-sided or bilateral—is the operation of choice, and may be expected to give 50 per cent. of good results with a mortality of 12 to 15 per cent. (Leriche). Although this mortality may be considered high, the author points out that the crises are often fatal, and that operation is reserved for cases which have failed to respond to medical treatment and in which the crises are particularly frequent and severe.

It is impossible in the present stage of experience to form any useful opinion as to the value or limits of interference with the sympathetic nervous system, and in view of the rather extreme differences of opinion between experienced observers it would be premature to make any attempt. That remarkable results are often seen is undoubted, but many express fears as to their permanency. The immediate improvement in the circulation of a limb following sympathectomy is very obvious, but in the course of time it shows a tendency to recede. Some explain this upon an anatomical basis, and allege that the operation was not extensive enough to include all the fibres going to the limb, others believe that a local compensatory mechanism comes into play, and yet others that this mechanism is generalized and perhaps hormonic in nature. Until the intimate anatomy and physiology of the system are still better known and the reactions to local ablations of ganglia, etc., have been further studied, it will remain difficult to estimate the ultimate effects of such operations, for the pre-operative tests already in use can only indicate what the immediate result is likely to be. There is, even at present, sufficient evidence that the final result may either exceed or fall short of this by a considerable degree. In the former case the result may be regarded as permanent, as is well shown in the case of Hirschsprung's and other visceral lesions. Here the symptoms continue to improve for long periods, and radiograms confirm the opinion formed clinically that a real cure has been accomplished. Thrombo-angiitis, if taken in the earlier stages, also appears to give permanent results, but in Raynaud's disease—especially of the upper extremities—many cases of partial recurrence have been noted. For the relief of pain of sympathetic and visceral origin such operations are certainly justified, but further studies are necessary before any degree of precision in this regard can be attained; the excellent work of Latarjet and Learmonth upon the hypogastric nerves needs repetition in other situations. In the treatment of angina it has been argued that to cut the sensory fibres is to remove a protective mechanism; on the other hand, it may well be that such interference may actually prevent the reflex spasm which determines the attack—certainly there is no record that any of the cases so treated suffered any harm on this account.

Despite the fact that English and American surgeons have abandoned periarterial sympathectomy as being unsound practically and established upon a false anatomical basis, it is interesting to note the persistence with which the successful use of this method is recorded, especially in Continental literature. Healing and relief of pain in ulcerative conditions are particularly frequent, and it is possible that we may have to modify our ideas as to the course taken by some of the fibres in the arterial sheaths, and this in face of the magnificent and accurate work of English anatomists, who in their field are worthily upholding the pioneer work of Langley and Gaskell on the physiological side.

[1] Jeanneney, G.: *Bordeaux Chir.*, April, 1933.
[2] Montant, R.: *Rev. Méd. de la Suisse Romande*, May, 1933.

PROBLEMS OF DIET

We publish this week the paper on food and goitre which Sir Robert McCarrison contributed to the Section of Physiology and Biochemistry at the Annual Meeting of the British Medical Association in Dublin. In this he reaffirms his view of the profound influence exercised by the thyroid gland on the metabolism of food and the corresponding sensitiveness of the thyroid to food conditions. McCarrison's work on goitre illustrates one of the fundamental points of scientific endeavour: that it is not possible to direct and therefore determine the values that emerge from research work.

From the earliest moment in his career McCarrison has focused his attention on goitre and its possible cause or causes. He was the first to associate polluted water with endemic goitre, and pursuing this line of inquiry he has followed up all implications as they arose. Such was the origin of his illuminating studies on the diets of India. He has shown beyond question that diet—in which one must include water and water supplies—is a potent cause of endemic and probably of the sporadic forms of goitre. The endemic form, the colloid goitre, is not merely an iodine question. Indeed, it may be useful to consider that iodine deficiency in any geographical zone is a symptom that the earth is suffering, like the goitre patient, in some way that affects the products of the earth as well as the progeny of the people. "There is no incontrovertible evidence," McCarrison says, "that iodine deficiency is, by itself, *the* cause of goitre." Iodine deficiency, he holds, is

not a determining factor so much as a symptom of some deeper-placed deficiency No deficiency should be considered as a deficiency of one essential For it is not the deficiency by itself that produces the effect, but the lack of balance between all elements in a diet that is fundamental in causative pathology Thus to attempt to fasten the cause on one factor alone is merely closing the eyes to the whole problem of causation , for the organism, so far as we are concerned, is a symptom index of the total environment of which it is itself a part

These points suggested by McCarrison's work in India gain further support from recent work elsewhere In America a " cabbage goitre " has been described in rabbits, and these findings have been confirmed and their significance emphasized by McCarrison It was at first supposed that cabbage must contain a goitrogenic agent, but cabbage given in this country has not this effect on the thyroid of rabbits Further investigation makes it clear that " cabbage " is an insufficient designation It is cabbage grown at a certain place and during a definite season that contains the agent, or, more probably, a food deficiency is at the bottom of the condition. That is to say that goitrogenicity of cabbages is a symptom of some deficiency in the geographical zone concerned and of seasonal influences in that zone , the environment is at fault These are important points in dietetics The conclusion they lead to is that a balanced diet, a vitamin full diet, cannot be achieved by a mere prescription of this or that or the other food in special proportions For it would seem that we must also know, among other things, where the vegetable constituents come from and at what season they were grown This further opens up the possibility that an animal in one area is very closely attuned to the physical conditions of that area, in that it is only susceptible to this or that or the other deficiency , that the Scotch oatmeal for Scotsmen in Scotland may, in fact, be a suitable diet, but in Sheffield the same foodstuff may be actually harmful to the local inhabitants According to this outlook upon dietetics, diet in daily life is a personal factor, differing with the specific susceptibility of the individual, which in turn may be acquired from his natural environment in childhood These seem to be reasonable conclusions suggested by the great body of experimental evidence accumulated by McCarrison in his presentation of a solution of the goitre problem

TUMOURS AND THE ENDOCRINE SYSTEM

It seems logical that the recognition of certain well-defined factors influencing the growth of the organism should be followed by research on the effects of these factors on the growth of tumours Study of vitamins in this connexion led Frankel and others to the conclusion that the growth of the Rous sarcoma could be definitely retarded if the animal were fed on a diet very low in these substances Again, the fact that the growth of tumours was greatly slowed in the pregnant animal seemed explicable on the grounds of a relative avitaminosis, brought about by the needs of the rapidly growing foetuses The further observation that the Jensen sarcoma in rats increased in size more quickly in actively growing than in matured animals led to the study of the effects of growth controlling glands on the rate of growth of tumours The pituitary gland was at once indicated as an object of inquiry It must, however, be remembered that results obtained by interfering with this gland are to be interpreted with more than ordinary caution, since it bears a complex and still little understood relation to the nuclei of the mid brain and to the whole endocrine system A recent contribution to this problem of tumours and the pituitary gland is that of Reiss, Druckrey, and Hochwald [1] The e workers extirpated the hypophysis in a large number of rats and implanted the animals with the Jensen sarcoma, both before and after the operation The growth of the tumour, they state, was strikingly influenced In the animals which had the tumours before the operation the growth was markedly retarded, and subsequent death occurred only if, at the time of hypophysectomy, the tumour was already of considerable size If the tumour was small, or if it was implanted at the time of removal of the gland, then death from the tumour was very rare, and its growth became slower and slower until, after about three weeks, it ceased growing altogether, and in many cases began to atrophy The later the tumour implantation occurred after the hypophysectomy, the more marked was this effect In all cases the tumour cells multiplied quite definitely and there was no question of failure of the tumour to " take " This phenomenon of retarded growth does not occur if the slightest trace of pituitary tissue is left behind As is well known, extirpation of the pituitary gland leads to a general failure of growth, with cachexia, and in these experiments it was found that the rate of growth of the tumours ran reasonably parallel with the rate of increase of weight of the rat as a whole Analysis of the effect of the adenohypophysis (anterior lobe) on the rate of tumour growth led to the finding that injections of the growth hormone into hypophysectomized cancerous rats not only increased the rate of growth of the animal but also that of the tumour this could be continued until the tumour killed the animal The effect of the sex hormone of the adenohypophysis on the growth of sarcomata in rats had previously been found to be of an inhibitory character Zondek and his co workers also observed a similar effect on mice *carcinomata* This inhibitory effect of the pituitary sex hormone is still recognizable in the castrated animal in which however, the rate of growth of tumours is in any case diminished It is of interest here to record the conclusions of Wiesner and Haddow,[2] who after two controlled experiments on the effect of bovine anterior lobe extract and a gonadotropic preparation of pregnancy urine in retarding the growth rate of implanted Jensen sarcoma in a number of rats, state

" It seems advisable to refrain from any definite interpretation [of the above experiments], but at present it appears that the views of Zondek, Zondek and Hartoch —implying that *gonadotropic* hormones are secreted in —are not supported by any defence against the tumour—are not supported by any data save those supplied by the authors themselves "

[1] *Klin Woch* July 8th 1933 p 1049
[2] *Nature* July 15th, 1933 p 97

To apply the conflicting evidence available to the problem of the aetiology of cancer in general is still far from possible, but there can be little doubt that hormonal balance has a definite effect on tumour growth. It is not surprising that factors accelerating or retarding growth in general should also so influence the growth of tumours. Possibly modifications of the *milieu* may so influence the effectiveness of whatever may be the cause of "spontaneous" malignant disease—chemical substance or virus-producing organism—that growth will become impossible. This would merely bring the cancer problem into line with nearly all the mechanisms by means of which we obtain what is called a normal organism.

POLYNEURITIS IN PREGNANCY

It has long been recognized that polyneuritis, or multiple neuritis, may be caused by such poisons as alcohol and lead, and may follow many of the acute infectious diseases, while in debilitated persons an attack may be precipitated by exposure to cold. During the last few years a great deal of evidence has been collected to show that beri-beri, a disease one form of which is essentially a polyneuritis, is due to deficiency of vitamin B_1 in the diet. In a recent paper, Dr. C. C. Ungley[1] has reported that three members of one family suffered from attacks of recurrent polyneuritis during pregnancy or the puerperium. The mother complained of severe pains in her left arm during the last three months of her fifth pregnancy, which was multiple. A few days after delivery she noticed loss of power in this arm, and there was a complete wrist-drop. Her third child had a very similar experience during her first pregnancy and puerperium, while her eldest daughter had an attack of polyneuritis chiefly affecting the right shoulder and arm, which recurred two and a half years later, a fortnight after delivery of her firstborn. Dr. Ungley points out that, apart from alcohol and lead poisoning, recurrent polyneuritis is not common, and that it very rarely attacks more than one member of a family. It is, however, open to doubt whether he is justified in assuming that a history of suffering from "rheumatic" pains in the left forearm for a fortnight is sufficient justification for a diagnosis of polyneuritis—especially when the history was obtained some twenty years after the event. It is well known that peripheral neuritis may occur during pregnancy, but inasmuch as it often follows or complicates hyperemesis gravidarum, it has been assumed that both conditions are caused by the same toxin. An attack of polyneuritis occurring after delivery and affecting the lower extremities is often attributed to pressure caused by the foetal head, or trauma occasioned by delivery, notwithstanding the fact that the arms may be involved. Other cases are associated with puerperal infection. Berkwitz and Lufkin[2] considered that up to 1932 there were fewer than sixty unequivocal cases of pregnancy polyneuritis recorded, but this low figure is probably due to the fact that the majority of cases never find their way into the literature. In their case, which came to necropsy, the nerves and spinal cord appeared almost normal to the naked eye, but sections revealed degenerative changes both in the nerves and in the anterior horn cells, and for the reason that the changes are not limited to the nerves some authorities prefer to use the term "toxic neuronitis of pregnancy." Dr. Ungley's paper is of particular value in that it draws attention to the fact that severe attacks of polyneuritis may occur during a normal pregnancy or puerperium. If the lesions cannot be attributed to a toxin it is reasonable to assume that they follow some disturbance of metabolism—possibly of the minerals of the body—or are associated with a deficiency of vitamin B in the diet. This view has been advanced by Theobald[3] in this country and by Strauss and Macdonald[4] in America. A close study of the milder cases of peripheral neuritis occurring during normal pregnancy might serve to throw light on the aetiology both of the toxaemias of pregnancy and of the neuritis. It may be that the manifold known causes all lead to some preventable metabolic change which is directly responsible for the nerve lesions.

[1] Ungley, C. C.: *Journ. of Neurol. and Psychopath.*, 1933, xiv, 5.
[2] *Surg., Gynecol. and Obstet.*, 1932, liv, 743.

THE SUPER-GREENGROCER

In an inaugural address to the School of Pharmacy of the Pharmaceutical Society on October 4th, Professor H. E. Armstrong, the senior honorary member of the society, expressed himself with characteristic vigour on many subjects related, more or less, to the pharmacist's calling. Sir William Willcox, in speaking afterwards to a vote of thanks, suggested that Professor Armstrong had been hardly serious in some of his animadversions and proposals, but the veteran orator stoutly repudiated any charge of leg-pulling. He was courageous enough to express his dislikes and forebodings regarding the internal combustion engine, the tyranny of oil, much modern advertisement, and other clamorous features of what he called our problematical civilization. He had a hit at nudism, while at the same time condemning the colourless respectability and timidity of to-day. He deplored the clerical mind in chemistry, which had in consequence suffered a neo-phlogistic outburst; also the disappearance of sulphur and other simples, and the impossibility nowadays of giving family instruction in the fundamentals of chemistry on materials derived from the kitchen, for the soda and the whitening and other things have gone, and the kitchen itself bids fair to follow suit. He fell foul of much food faddism, of modern bread which he described as a slow poison, and of pasteurization of milk on the ground that it would delay indefinitely the clearing up of "cattle slums." Incidentally he attacked Dr. Leslie J. Harris's article in the *British Medical Journal* of August 26th, on "The Significance of Vitamins in Practical Experience"—a communication made to the Dublin Meeting. Misrepresentation, said Professor Armstrong, could hardly be carried further than in the remark: "Correct nutrition cannot be left to instinct or to the use of natural unspoiled foods or to a varied diet or to a process of free selection." Evidence was not available, in Professor Armstrong's view, to justify any such opinion as Dr. Harris had advanced, and he thought it lamentable that statements of that kind should be issued under the aegis of the Medical Research Council. On the other hand, he warmly commended Sir Robert McCarrison's scientific work, which made

[3] Theobald, G. W.: *Lancet*, 1930, i, 1115; *British Medical Journal*, 1933, ii, 376.
[4] *Journ. Amer. Med. Assoc.*, 1933, c, 1303.

it plain that if people had a sound and well balanced diet, and were not placed under otherwise improper conditions, they would be able to lead healthy lives, almost free from infectious disease But the provision of natural, unspoiled, and varied foods, on this hypothesis, would be likely to take away the occupation of those to whom Professor Armstrong was speaking There would be little sale for manufactured drugs, of whose standards pharmacists have hitherto been the wardens He met this contingency by suggesting that if, instead of the production of drugs in the factory, they are grown, in the shape of wholesome food, on the farm, the pharmacist might still be the dispenser, and find his office magnified rather than diminished High service to the community, far above "the merely curative service of the medical profession," might be rendered by "vegetable salesmen," who should ensure to the people a supply of fresh vegetable food Trained pharmacists might be raised to the position of food and health counsellors, but to this end they must be thoroughly educated in common sense chemistry and physiology, and not only so, but be practical gardeners, with a complete knowledge of foodstuffs And so the one time pill roller might become the super greengrocer, the new herbalist, and—as chemistry increasingly rules the world—a king among men

CONTROL OF YELLOW FEVER

At the opening meeting of the Section of Tropical Diseases and Parasitology of the Royal Society of Medicine, held on October 5th, Professor E Hindle, in a paper on recent laboratory contributions to the control of yellow fever, directed attention to advances that have been made in three main directions—namely, diagnosis, transmission, and protection The development of improved methods of diagnosis, mainly dependent on immunity tests, has now made it possible to decide whether any patient has had the disease, for an attack of yellow fever, *no matter how slight* seems to leave a high degree of immunity, which generally persists for life Consequently, by the laboratory examination of a sufficient number of serums from any particular locality it is possible to determine what proportion of the population has been infected and also how long any particular district has been free from infection The application of immunity tests to the delimitation of endemic zones in both Africa and South America has shown that yellow fever has a much wider distribution than was ever suspected Although the total number of recorded cases is comparatively low, this gives no true indication of the prevalence of the disease since the native inhabitants of endemic areas generally acquire yellow fever in infancy, and show few if any of the ordinary clinical symptoms Thus in certain parts of Africa high percentages of the population have given positive protection tests in regions where the existence of the disease was not even suspected *The main factors in* the transmission of the disease by mosquitos have been elucidated, and it has been shown that many other species besides *Ædes aegypti* are capable of transmitting yellow fever, at least under experimental conditions Most of these species, however, either because of their limited distribution or as a result of their habits, can play little if any part in the epidemiology of the disease, and *Ædes aegypti* remains essentially the 'yellow fever mosquito" The view that the blood of a patient is infective only during the first three days of fever was evidently based on insufficient evidence, for laboratory experiments have shown that the blood becomes infective during the incubation period, before any clinical symptoms have developed The incubation period in the mosquito varies from eighteen days at 21° C to as little as four days at 37° C, whilst below 18° C it may be indefinitely prolonged The virus is not destroyed when mosquitos are cooled, and thus the infection may persist in these insects under seasonal conditions which prevent the appearance of the disease itself There is no evidence to support the view that a mosquito population continues to remain infective in the absence of yellow fever cases All attempts to find virus in the eggs laid by infected mosquitos or in the mosquitos developing from these eggs, have given uniformly negative results, and when colonies of infected mosquitos have been kept under conditions permitting the influx of new mosquitos the infection dies out within about sixteen weeks, which is the length of time a mosquito might be expected to survive Methods of protection now depend on the fact that when yellow fever virus is inoculated intracerebrally into mice it acquires neurotropic affinities after a few passages, and loses to a great extent its capacity for producing a general infection Such virus can be handled much more safely than the fully virulent material, and yet gives the same immunological reactions The inoculation of mouse virus and human immune serum[1] has been used with success for the vaccination of a considerable number of human subjects both in New York and in London The results of protection tests with the serum of these vaccinated persons have been so favourable that the efficacy of this method is beyond question Recently Dr G M Findlay has introduced a modification of the method consisting of the intradermal inoculation of 1 c.cm of human immune serum followed an hour later by an intradermal injection of mouse virus in the same part of the skin This intradermal method has now been tested on a number of human subjects with uniformly good results and has been shown to possess the great advantages of requiring a comparatively small quantity of immune serum and of reducing the danger of hypersensibility to the human serum or the mouse protein There are now precise methods of diagnosis applicable to the delimitation of endemic zones of the disease a more exact knowledge of its transmission, and finally methods of protection capable of application on a large scale With international co-operation in the use of these three weapons there is now every hope of the effective control and final eradication of yellow fever

The Manchester Lloyd Roberts Lecture will be given by Professor E Mellanby at St Mary's Hospital, Whitworth Street, on October 24th, at 4 15 p m His subject will be "Nutrition and Child bearing"

Mr G M Huggins, F R C S, consulting surgeon to the Salisbury Hospital, has been appointed Prime Minister of Southern Rhodesia

[1] *British Medical Journal* March 4th 1933 p 376

OPENING OF THE WINTER SESSION

MIDDLESEX HOSPITAL

ANNUAL DINNER

The annual dinner of past and present students of the Middlesex Hospital Medical School, which was held at the Savoy Hotel on October 3rd, under the chairmanship of Dr. Henry MacCormac, attracted a very large attendance, and blended the characteristics of a happy family party with those of the celebration of a year of outstanding progress. The menu card was rendered particularly attractive by the reproduction on it of an illustration of the hospital in 1745. Proposing the toast of "The Hospital and Medical School," the chairman remarked that the occasion coincided with the completion of the shell of the new hospital. Moreover, a very generous friend, Mr. W. H. Collins, had presented £25,000 for the equipping of a new department of radio-diagnosis, and it was hoped that some benefactor would see his way to follow this lead and to endow a department of radio-therapy. The hospital had a great reputation already in the world for its radium and radiological work, and the future was bright. Dr. MacCormac reviewed other achievements of the past year, including the "crowning gift of the new nurses' home." A paying patient's block of sixty beds was to be provided, and it seemed likely that this would have to be extended later on.

Mr. S. A. Courtauld, chairman of council of the medical school, the first of three responders to this toast, called attention to the great improvements that had been effected in the medical school during the preceding years, and made mention of the distinction gained by the great work of Professor E. C. Dodds in connexion with biochemistry. He expressed the hope that more financial assistance would now be received to complete the very satisfactory beginning which had been made in renovating the hospital. This speaker was followed by the dean of the medical school, Dr. T. Izod Bennett, who commented on the index of increasing prosperity furnished by the rise in the number of new medical student entries from thirty-five five years ago to sixty-eight last year, and to ninety in the present year. Such success was undoubtedly due to the energy, enterprise, and hard work of the honorary staff, and to the high reputation that the laboratories had won. Cancer research work at the Middlesex Hospital seemed now to be culminating, and it was hoped that results of great general importance and benefit would be made public before very long. The vision of Mr. Courtauld in enabling the hospital laboratory workers to visit the United States and elsewhere had been undoubtedly another factor in the success which had been attained. The dean ended with some sly digs at the nature of the dinner menu in view of the arguments of Professor Dodds in his address that afternoon on food values and dietetic fallacies. This gentle bantering tone was continued by the third responder, Dr. E. G. L. Bywaters, senior Broderip scholar, who dealt with matters more particularly of domestic interest in the hospital economy.

The toast of "The Guests" was proposed in characteristically happy style by Mr. A. E. Webb-Johnson, F.R.C.S., honorary treasurer of the medical school. He welcomed those who had come to honour the hospital's progress through difficult but stirring years, mentioning particularly, among others, the heads of the Navy, Army, and Air medical services, the President of the Royal College of Surgeons, the mayors of St. Pancras and St. Marylebone, Sir Louis Baron, and Mr. W. H. Collins. Replying on behalf of the guests, Sir Holburt Waring, P.R.C.S., congratulated the Middlesex Hospital on its long tradition of *esprit de corps*, and commended in this respect its athletic club. The inculcation of comradeship by such means had remoter sequels of very great importance, strengthening and energizing university institutions. The University of London, he added, had further realms to conquer, and looked to its component parts to play their part in rendering such new advances possible. The paying patients' bed scheme was a wise and useful recognition of one of the necessities of modern times. The great achievement as regards the acquisition of a department of radio-diagnosis would open the way for research and for still further progress along this and cognate lines. Mr. W. H. Collins thought that he represented many laymen in that his interest in hospitals and their work was constant and expanding. The debt of gratitude owed by the community to medical and surgical services was being increasingly realized, especially by employers of labour, many of whom were recognizing more and more clearly the duties incumbent upon them as regards the health of their employees. In industry as in medical science the essential for success was research, continuous and progressive, particularly in that it prevented the making of mistakes, and the losses consequent thereon.

The toast of "The Chairman" was proposed by Dr. G. E. Beaumont in a biographical appreciation, which at times approached the biological, and Dr. MacCormac briefly replied. Following the dinner there was a social gathering for the further knitting up of old friendships.

UNIVERSITY COLLEGE HOSPITAL

INAUGURAL CEREMONY

At the opening of the winter session of University College Hospital Medical School on October 3rd, the dean (Dr. A. M. H. Gray), who presided, said that the present year saw the centenary of the building of the original hospital, which was opened subsequently to the medical school, and he indicated that many of those present would be asked during the year to help in some form or other to improve and extend the hospital in view of this event. He also announced certain gifts to the medical school by Sir Buckston Browne, including a Tompion clock, 230 years old, and still keeping perfect time, and a number of pictures, self-portraits by Angelica Kauffmann and James Northcote, a Greuze, a copy of a Titian, and three of Sir Peter Lely's graceful portraits, one of them that of the Countess of Carlisle, one of the beauties of the Stuart period.

The opening address of the session was delivered by Professor A. E. Boycott, pathologist to the hospital. Taking as his text the remark of a mother who disdained the profession of medicine for her son, because, she said, "the body is such a nasty thing," Professor Boycott devoted himself to restoring a more friendly view of the body and its functions. We ought to be grateful, he said, for a body so complacent and flexible, and not be cross with it if it sometimes was unable to be the ready servant of the will, and as time went on balked more often than it used to do. He discussed in picturesque detail the code of conduct of the body in response to a simple injury, how it overcame the first emergency, how processes were set in motion whereby, with little or no outside assistance, the body healed itself, and how, even in more serious injuries, the body still responded in such ways as were appropriate for getting over the difficulties presented to it, so that all the surgeon did was really to help the body in its own fashion, and not in his. "No student of natural science abates one jot of the dignity of his occupation by a frank belief that the operations of nature are directed by God, though, of course, he has to realize that his own share in making things plain is perhaps more humble than he thought." When the body found itself in trouble it did the things which were helpful. There was a law of injury and disease which in its own field was as valid as the law of gravity. It was not merely that unexpected things happened which could not have been predicted from the bare incident that had occurred; it was that everything that happened

ran as it were into the one groove, which ended in restoration

Professor Boycott went on to say that in his long experience of post mortem examinations he was continually learning to wonder at the versatility and courage, the ingenuity and determination with which the body strove to keep the human house intact "I do not wonder that people die, that is easy enough What I marvel at is that they go on living with bodies so maimed, disordered, and worn out In the end, when it has done all it can, the body has to give in, and we have to fall out of this splendid procession of life, but it is not from idleness or wilfulness, and as I have come away from the post mortem room I have often felt inclined to say, 'Well done, good and faithful servant' He begged his hearers to think more kindly of this "vile flesh" When a painful accident happened, one should be grateful for the pain, because it was the best protection against permanent injury When one had influenza, one should be glad to feel ill, because the one thing undoubtedly to do was to lie quietly in bed for a few days, with plenty to drink, and attended by a cheerful nurse The body knew best, and one should respect one's symptoms "The body is ready enough to help itself" (Professor Boycott concluded), "and you cannot do it better service when it is ill than find out what it is trying to do and help it to do it Be friends with it, and love it, for it is your own best friend—patient, faithful, incredibly long suffering, and woefully misunderstood"

LONDON SCHOOL OF MEDICINE FOR WOMEN

ANNUAL PRIZE GIVING

The prizes for the session 1932 3 were presented to the successful students of the London (Royal Free Hospital) School of Medicine for Women by Sir E Farquhar Buzzard at the opening of the new session at the school in Hunter Street on October 2nd At the conclusion of his address, reported below, Sir Farquhar asked the school to accept as a token of his gratitude for the debt which he owed it for the help and encouragement he had received there in his early days, a letter written by Florence Nightingale in November, 1874 in which she enclosed her contribution to a fund raised in memory of Dr Frank Anstie, the first dean of the school and his (Sir Farquhar's) uncle by marriage In her tribute, in the letter, to the work of Dr Anstie, Florence Nightingale said

'Had he lived many thousands of deaths would not have died (if I may use such an expression) which now will fall victims to the want of Public Health measures of which he was such a devoted supporter When we were agitating to improve the new Sanitary Act by giving certain powers of inspection to local Boards we had in view such cases as the place where he laid down his valuable life to serve his country They would not follow our advice (though they will some day) And there are many many buildings where similar deaths are now taking place and will continue to take place from want of this inspection In our new Army buildings these calamities are provided against But the crying fault is that we have a great and costly sanitary organization which cannot touch the most powerful disease causes connected with houses and establishments And one of our very best men of this or of any age has been called on to pay the penalty I wish I could afford to send one hundred times more to his memorial than this petty £5

In the course of his address, Sir Farquhar Buzzard said that the present occasion gave him the opportunity of saying a few words of sympathy and encouragement to those of his audience who were launching an attack on one or other of the various obstacles on the rough and narrow road to medical qualification As they were probably aware, the medical curriculum was at the present time the subject of much violent criticism, some of which it thoroughly deserved It was said, with much truth, that the education of the medical student was broken up into a number of departments too rigidly separated by barriers of examinations, and that the student not unnaturally failed, therefore, to appreciate the value of what she had learned in one department when she passed on to the next It was perhaps easy for the student to think that each department in the curriculum was playing for its own hand, as it were, and had lost sight of the goal to which her education was directed The student might ask, and the questions were not really impertinent, "Why am I kept so long from seeing anything of living human beings and their ills? Why cannot I be shown at a much earlier stage how all these physical, chemical anatomical, and physiological facts and theories, which I am asked to absorb and memorize, are applicable to my future work and are to be of use to me when I am brought face to face with the problems of health and disease?" And when the student was qualified and had had a short experience of medical practice, she might ask, again with some justice, 'Why was so much of my time spent in studying disorders of the body and so little spent in studying disorders of the mind, seeing that half my patients need skilful understanding and wise inspiration rather than medicinal or surgical treatment?

These few questions indicated substantially the chief charges which could be laid against the present system of teaching medicine, but he was not going to suggest for a moment that the system was thoroughly bad While he, with others, was actively interested in seeing in what way the curriculum could be improved the last thing he wanted to do was to discourage those present at the outset of their medical careers, or to damp the enthusiasm with which they were preparing to overcome such obstacles as were placed in their path No curriculum could be perfectly adjusted to all needs and all times, and any curriculum was just as good or as bad as they and their teachers cared to make it There was something to be gained from all these years of work in the school and hospital far more important than success in examinations or a licence to practise—something which was very difficult to describe within the limits of a single word Perhaps scientific culture most nearly indicated what he had in mind Somebody had once defined culture as 'What is left over after you have forgotten all you have definitely set out to learn'—an admirable definition of the kind of culture one might look forward to possess when the final qualifying examination had been passed Such culture was within their reach if they made the best use of their opportunities and absorbed from their teachers a measure of their own spirit of scientific doubt and inquiry Many felt that although the student's burden of detailed knowledge both of physiology and of anatomy might well be lightened the actual time spent in the study of those subjects could be prolonged with advantage into the clinical period of the curriculum just as the clinical applications of physiology and anatomy could be introduced at an earlier stage In that way there might be brought about an overlapping and a cohesion of the pre clinical and clinical subjects and a breakdown of the sharply defined barriers which had hitherto tended to separate them

The real object of any educational curriculum was to cultivate in the student's mind a capacity for independent criticism based on a solid foundation of common knowledge The common knowledge that of accepted facts and theories could be adequately tested by examiners and examinations but a well developed critical faculty was only revealed when its possessor was brought up against the difficult problems of actual practice It was then that the influence of a physiological and anatomical background really counted, even though its details had lost any clear definition

It might well be asked how this very desirable state of mind could be acquired, a question which he would attempt to answer very shortly In the first place he would refrain from urging those present to throw all their energies into their work, as he had a shrewd suspicion that the conscientiousness characteristic of their sex might lead them to an excessive expenditure of effort without all the success it deserved He would rather suggest ways in which their routine work would be advantageously supplemented by other interests Referring recently to a memoir of Dr Anstie, the first dean of their medical school, he had found these words in the description of

his (Dr. Anstie's) student days: "He was not indisposed to stray from the clearly defined path of a particular study—to turn up, as it were, some byway of thought in company with a sympathetic friend, and discuss points of interest the bearing of which upon his work as a medical student was not quite evident." Dr. Anstie had had a short but brilliant career as a physician, and it might be that this habit of his as a student had been a factor in his subsequent success. Sir Farquhar Buzzard said that a great teacher of his, Hughlings Jackson, used to urge upon his students the value of sitting down in a comfortable chair at the end of a day's work, allowing their thoughts to wander around something which had aroused their interest during the day, and jotting down the ideas and suggestions to which it gave rise. It was a valuable habit: it encouraged independent criticism; and it prevented observations from being left isolated, giving them apt associations, and stimulating the student to turn up and explore the byways of thought.

His colleagues present would probably agree with him when he said that the most important difference between a good and an indifferent clinician lay largely in the amount of attention paid to the story of a patient. While the indifferent clinician was content to concentrate on what he could find out by various tests and methods of examination, the good clinician would devote time and energy to extracting all available information about the patient's life-history, in the belief that he would only thus be able to see the patient's present condition in right perspective. In the same way it was difficult to become "scientifically cultured" without at any rate a considerable acquaintance with the history of science and the history of medicine. It was not enough to know what science or medicine taught at the present day: without some insight into the evolution of that teaching, some familiarity with the work and lives of those who have contributed to it, there was grave danger of being unable to assess changing theories and new fashions at their true worth. Such hours as may be spent in historical research would not only show a profit, but bring pleasure and confidence.

Might he make one more suggestion? Their time was already fully enough occupied, but he would urge them to keep an hour or two now and then for the cultivation of at least one hobby. And by "hobby" he did not mean a form necessarily of athletic recreation so much as some pursuit which engaged their interest and involved a keen and certain amount of intellectual activity. It should be completely divorced from their professional studies, and, if possible, should lead them into association with men and women whose vocations and outlooks were different from their own. Anything from stamp collection to archaeology would answer the purpose, which was to preserve mental elasticity and to provide them with a handy and welcome respite from the strain of their life's work.

KING'S COLLEGE HOSPITAL

The annual dinner of King's College Hospital Medical School was held at the Connaught Rooms on Saturday, September 30th, with Mr. Arthur Edmunds, C.B., F.R.C.S., in the chair. The chairman, after welcoming the guests, amongst whom were Professor W. Langdon Brown, Regius Professor of Physic at Cambridge, Professor Blair and Professor MacDowall from King's College, and Judge Sturges, proposed the toast of "The Medical School and the Hospital." Dr. Alexander Drake, dean of the medical school, replied. He mentioned the fact that the school was now nearly six times bigger than it was in pre-war days. The new buildings, which were opened last July by H.R.H. Prince George, will furnish the extra accommodation needed, and will be a great asset to the medical school. A record number of old students were at the dinner.

During the afternoon an intensive post-graduate course was held at the hospital, and was very largely attended. This very successful course has now become an annual feature, and will be continued in future years.

ROYAL DENTAL HOSPITAL

The presentation of scholarships, prizes, and certificates awarded to students of the School of Dental Surgery of the Royal Dental Hospital of London during the winter and summer sessions, 1932–3, was made by Sir Holburt Waring, President of the Royal College of Surgeons, at the hospital on October 6th. A conversazione was also held, and there were exhibitions in various departments of the school.

In presenting his report and summarizing the progress made in the hospital and school during the past year, the dean (Mr. H. Stobie) said the outstanding committee work had been the consideration and introduction of the new by-laws. That had entailed a great amount of careful and painstaking work by members of the committee and the board of management, which had culminated in a co-operation between the hospital and the school such as had not previously been enjoyed. There had been certain resignations and new appointments in the staff. Last year the orthodontic department had been undergoing changes, and Sir Norman Bennett, under whose direction that department had been placed, had schemes in hand for up-to-date instruction. It had been felt that such was the importance of the advances made in oral surgery that a lectureship should be instituted in that subject, and Mr. Bowdler Henry had been appointed as the lecturer. All those connected with dentistry had been delighted to learn that Mr. W. H. Dolamore had been honoured by being elected a Fellow of the Royal College of Surgeons. Few men, if any, had given more service to the dental profession than Mr. Dolamore had rendered. With regard to radiology, Dr. Blackman had commenced a museum of radiology at the school, the work of honorary curator being carried out by Mr. Bradlaw.

Sir Holburt Waring then presented the awards and delivered an interesting address. He said he had been connected in many ways with the dental profession, which was now one of the closest professions in this country, only those who were qualified dental surgeons being allowed to practise. He was sorry that medicine was not as close a profession as dentistry, as he thought it would be an enormous advantage to the people of this country if that were the case. With regard to the question of the education and licensing of dentists, long before the creation of the Dental Board dental examinations were held by the medical faculties of universities and by the medical licensing corporations, one such corporation being the Royal College of Surgeons of England. It was interesting to note that, of the 12,319 dentists practising in England and Wales at the present time, 4,594 were licentiates of that College, being more than a third of the total number. A large number of dental qualifications were given by universities, one of the last to institute a Bachelorship of Dental Surgery being the University of London. It was curious that not a single Scottish university gave a degree in dentistry. At the present time it was not feasible to separate dentistry from medicine either in education or in practice. The natural position in a university was that the medical faculty should be divided into two parts—medicine and dentistry. With regard to the schools, the basic parts of medical and dental education were *similar*, and were taught by the same people, but, in the education of the dental student, he felt rather strongly that the courses in professional subjects should be different from those given to the medical student. There should be special courses in medicine, surgery, pathology, bacteriology, and so on, for the dental student. An interesting point was how far it was desirable or advisable for the qualifying bodies, the universities and licensing bodies, to have more than one level of qualification, as in the case of arts and science, where there were both a Bachelorship and a Mastership. The Royal College of Surgeons of England gave only a licence, but had been considering the advisability of giving a higher diploma. The discussions on the subject were in abeyance at the moment, and there did not seem

to be a sufficient demand for a higher diploma, but dentistry was a learned profession, and he thought a certain number of qualified dentists would want a higher qualification. He hoped the matter would be discussed a little more, because he felt very strongly that a corporation which had 4,594 licentiates in a particular subject ought to make provision for those who were particularly good in that subject to obtain a higher qualification. With regard to hospitals, in the case of Guy's Hospital, for instance, there were a medical school and a dental school and a medical hospital and a dental hospital, the dental hospital being part of the general hospital. That arrangement worked very satisfactorily at that particular hospital, and he thought it was a very desirable one to be aimed at. In the case of general hospitals with dental departments the dental work had had to be carried out entirely in the out-patients' department, but it was necessary for the dental staff to have a certain number of beds available in the hospital if the patients were to be treated in the best possible way and if the medical staff were to obtain the best advice they could from the dental staff. He thought that members of the medical profession and members of the dental profession should aim at a closer co-operation both in hospital work and in private work, that being very desirable from the point of view of medicine as well as from that of dentistry. In conclusion, Sir Holburt Waring mentioned that there were five undergraduate dental schools in London but no post-graduate dental school, and he thought that such a school might be instituted with advantage.

EXTENSIONS AT DROITWICH

REVIVING POPULARITY OF BRINE BATHS

Another evidence of the reawakening of British health resorts to their new opportunities was given at Droitwich Spa on Saturday, October 7th, when, in the presence of a large number of members of the medical profession from London and elsewhere, the official opening took place of certain extensions at St. Andrew's Brine Baths, also of a residential clinic and laboratory in association with the Royal Baths, and a new Winter Garden for music and other entertainment.

Droitwich is unlike most other spas in this country in that the baths are private property. In days gone by the corporation had certain rights in the famous brine, but by some means or other those rights passed into other hands, and for generations there was a certain amount of friction between the owners of the bathing establishment and those administering the affairs of the locality. Such conditions have now, however, passed away, and an enterprising company—Hesketh Estates, Southport, Limited—is developing the spa, in co-operation with the local authority.

The new extensions, upon which some £50,000 has been spent, are admirable. Regard has been paid not only to modern practice in design and equipment of the baths and auxiliary provisions, but also to those architectural and other amenities without which a spa must fall short of its function. The new frontage of St. Andrew's Baths and the Winter Garden is an attractive piece of work, of rustic brick, half-timbered with oak, suggestive of the fact that in this part of sylvan Worcestershire we are not far from Shakespeare's country. At the same time the many structural improvements in the reception room and lounges are all designed to meet the comfort of the patients, who, to the number of 700, are now being treated daily, chiefly for rheumatic disorders. The visitors were informed that at least 97 per cent. of the bath treatments are given under medical prescription, and a notice prominently displayed announces that the spa directors accept no responsibility for persons taking the baths without such prescription. The great feature of Droitwich is its brine water, which is pumped from the Triassic formations some 200 ft. below the surface. It is stated to have ten times the salinity of sea water, and to be nearly twice as concentrated as the Dead Sea. The usual treatments—spray, douche, vapour, needle, and Aix baths, and so forth—are available, while the big swimming bath (or, more properly, the floating bath, for the concentration is such that one cannot sink in it, and owing to the effect of the brine on the eyes and lips it is inadvisable to attempt any swimming strokes or to dive) is used for remedial exercises. The buoyancy of the water makes it possible for the weakest patient to undertake exercises calculated to improve the muscle tone or increase the range of movement in a way that would otherwise be impossible. Another new development at St. Andrew's Baths is the installation of an *x*-ray apparatus, for radiography and screen examination only, and the beginnings of a mechano-therapeutic department.

The guests were then conveyed to the other and older bathing establishment—namely, the Royal Baths—to which is attached the new residential clinic. This, formerly the Royal Hotel, is a pleasant house in large grounds, very comfortably furnished, with accommodation for twenty-one men and thirty-four women, sufferers from rheumatic affections. It is intended for patients of limited means, and the charges are four guineas a week if a room is shared with one other occupant, and three guineas if shared with two or three. These fees include full board, medical supervision, the use of the brine baths (to which the house is connected by a corridor), and massage. The patients are admitted only if their own doctors think the treatment advisable, and there is such a waiting list that admission cannot be expected within less than two months. In this building is installed the new bacteriological and biochemical laboratory, where, in addition to the analyses undertaken in connexion with patients in the clinic, routine examinations are made in private cases for the spa doctors, and research is carried on, particularly into the reactions to the brine baths, under the supervision of the honorary physicians of the clinic, who include the practising doctors of Droitwich.

OPENING CEREMONY

The new Winter Garden is a charming building, approached by a covered corridor from St. Andrew's Baths, and so decorated and illuminated as to give an impression of perpetual sunshine. It was here that, following a luncheon, the opening ceremony was performed by Lord MESTON, who described the virtues of the Droitwich springs as a household word. He said that although the peculiar properties of the waters had been known since the Romans, their adaptation to therapeutic practice was comparatively modern. It was barely a century since the Royal Baths were instituted, and less than half a century since the origin of St. Andrew's Baths. In recent years their development, like that of other baths in this country, had been stimulated by the economic inability or patriotic unwillingness of the British people to take foreign waters. Lord Meston joined in congratulations to the Hesketh Estates on their enterprise. The spa industry, he said, had been more or less a by-product up to the present, but those who were interested in the health and physique of the British people were convinced that the wider popular use of these natural resources called for the same care and attention as any great industry, and deserved the co-operation of the State, the local authorities, the medical profession, and the general public. Spa treatment, Lord Meston continued, was now being made available for the poor as well as for the well-to-do, and Droitwich in this respect was setting an example. Many a man or woman for whom Aix or Vichy was beyond even the imagination was being equally well treated, if not better, in this country. Across the Channel, however, it had been realized that the prosperity of the spa and the well-being of the adjoining municipality were closely interlinked, and the spa industry was regarded as worthy of State assistance and encouragement. In this country we were only on the threshold of what the State could do in this respect, and in the meantime private enterprise had to fill the gap. Lord Meston added a few words about the British Health Resorts Association, which, he said, under its secretary, Dr. Alfred Cox, had secured the co-operation of the health resorts in a remarkable way. Its purpose was not to pit British spas against those of the Continent, nor did the

Association pit one British spa against another, for it believed that each spa, seaside resort, and moorland retreat had its own special virtues, and its own resources for meeting particular forms of suffering.

The Mayor of Droitwich (Councillor A. Blake) mentioned that although the curative properties of the Droitwich brine were supposed to have been discovered only a hundred years ago, it might be conjectured that they were known to the Romans. Not long since a skeleton of the Roman period was discovered at Droitwich, and the vertebrae indicated severe crippling from rheumatism. It seemed quite possible that this man had been sent to Droitwich—the Saline of the Romans—for treatment. Mr. William Ivey, chairman of Hesketh Estates, mentioned some of the difficulties of spa management, arising from the strength and density of the Droitwich brine, which had a corrosive action on all timber and other material in its vicinity, so that a certain appearance of disrepair, which visitors must forgive, was inevitable in a brine baths spa. Mr. W. Nash, the chairman of the Droitwich Development Corporation Limited, suggested a still more ambitious development—namely, an open-air sea-water bath at Droitwich, the brine being broken down to sea-water density, so that Birmingham, twenty miles away, and other places in the Midlands might have the seaside within easy reach.

The thanks of the visitors for the hospitality received were voiced by Dr. R. A. Young, who, after touching on the ancient significance of salt as a sign of hospitality and of wit, said that he had inspected many spas, because he sent a patient with much more confidence to a spa which he had himself visited. At Droitwich he had formed the conclusion that the spa had unrivalled properties. Nowhere else in the world was saline found in such concentration, and the brine was applied effectively to the treatment of the rheumatic group of diseases. He had made it his business to ask his fellow medical guests what they thought about it, and he found that their ideas coincided with his own; they were impressed with the efficacy of the arrangements of Droitwich, and they felt that in its own line, while Droitwich might have competitors, it had no rival. He also praised the British Health Resorts Association, an organization started by a number of medical and lay persons, stimulated by the patriotic appeals of the Chancellor of the Exchequer, with a view to arousing the interest of British people in their own spas, and also of creating an increased interest on the part of the spas and health resorts themselves in their own possibilities. He was anxious that at least as much information should be in the hands of medical men with regard to British spas as was continually poured upon them from the Continental ones. A further speech was made by Mr. G. S. Ellison, M.P., who said how glad he was that the spa was doing something to offer its advantages to insured persons, and he suggested that some arrangement might be reached with the neighbouring universities of Oxford and Birmingham so that the clinics and bathing establishments of Droitwich might be available for extending a knowledge of disease and its treatment.

MOTOR CARS FOR 1934

THE OLYMPIA SHOW

[From our Motoring Correspondent]

In view of the publicity which it usually receives, medical men probably need no reminder that the twenty-seventh annual Motor Exhibition, held at Olympia, London, W., under the auspices of the Society of Motor Manufacturers and Traders, opened its doors on Thursday morning last, October 12th, and once again provides car users of all classes with an opportunity of inspecting the various new and improved models that the different manufacturers have introduced for the 1934 season. The show this year has exercised a greater attraction than for a long time past, since, by agreement between the various makers, no new models were announced until the middle of August, so that there has been little opportunity for motorists to become familiar with the latest productions.

While the international character of the display is fully maintained—cars from about six foreign countries being on view—the majority of the car stands are those of British manufacturers, who have attained a position second to none in the world's automobile industry. Again the exhibition is devoted, in addition to cars, to accessories, which will, as usual, be found in the galleries, and to service station equipment and motor boats, so that it may save time for some of our readers if it be mentioned that the car exhibits will all be found on the ground floor of the old Main Hall, while the special coach-builders' section is located in the adjoining National Hall.

Prices Slightly Higher

In these days of financial stringency one of the vital questions for most car users relates to the cost of motor vehicles, and in this connexion it may be stated that, as was foreshadowed by the heads of two of the largest car-manufacturing concerns during the past season, the rising cost of materials has brought about a slight general increase in car prices. This, however, is not very serious, and is actually more than counterbalanced by the improvements effected both in chassis and in bodywork, and in the provision of numerous additional conveniences to car users. Indeed, it may be said that even at their higher prices the 1934 British cars present better value than has ever been offered either in our own or any other country.

Mechanical Tendencies

Speaking generally, there is a noticeable all-round improvement in cars from both the mechanical and the bodywork aspects. In chassis frames the main development of the year is the almost universal adoption of cruciform, or X-shaped, centrally located members, which have the object of providing a stiffer structure, better adapted to the higher speeds which are now being attained. The "battle of the cylinders," though it still continues, has not resulted in the once-prophesied disappearance of the four-cylinder-engined car. Indeed, vehicles of this type are more numerous than ever, one of the most noticeable newcomers being the "Dawn" of the Sunbeam Company, a concern which has for many years confined its energies to the production of six-cylinder cars. At the same time it is only correct to state that many new light six-cylinder vehicles have been introduced—among them being the Morris "Ten-Six"—all of which are destined to become very popular. Engines, generally, without any striking new development having taken place, have been improved in detail, and cushioned mounting of the engine and gear-box by means of rubber is rapidly becoming universal.

Gear-box and Transmission Changes

Probably the most striking feature in connexion with 1934 cars is the great change that is taking place in the clutch and change-gear mechanism. The Daimler and its associated cars, the B.S.A. and Lanchester, stand out with what is known as their fluid flywheel and pre-selective change-speed gear, the only newcomer in this class of drive being a 14 h.p. six-cylinder Riley, equipped with the Salerni "flexoil" transmission. The Armstrong-Siddeley Company, which pioneered the pre-selective gear-box, retain this on all models, and it is noteworthy that in a modified form it has been adopted on the Talbot, the new 13 h.p. Sunbeam "Dawn," and one or two other cars. Apart from those with the pre-selective type of gear, the majority of makers have now adopted what has come to be known as the "synchro-mesh" gear-box, in which two or more of the pairs of pinions are of the helicoidal-tooth type, always in mesh, and brought into active engagement by special dog-clutches. In most instances the synchro-mesh arrangement, which is claimed to facilitate gear-changing, is only applied to the third and top speeds, but on one of the Alvis cars a gear-box with all four gears of synchro-mesh type has been developed.

Another 1934 feature is that free-wheel devices in connexion with car transmissions, after hanging fire, as it

were, for a year or two, have suddenly sprung into popularity These are claimed not only to facilitate gear changing, but also to result in fuel economy Where free wheels are installed it is usual to provide some method whereby the driver, by means of a lever on the dash, can put them out of action when desired, while they are also so arranged that they become automatically fixed when it is necessary to reverse Other evidences of the increasing attention devoted towards making gear changing easier are seen in several new forms of clutches, so arranged that there is no need to disengage the clutch when changing gear Although car manufacturers, before adopting these various new devices, have doubtless convinced themselves of their practicability and efficiency as compared with the older forms of change speed gears —which, although of the clash type, were relatively simple—it will be interesting to watch whether the much boomed clutchless gear change ' proves satisfactory to motorists in actual practice In view of these innovations in clutches, gear boxes, and free wheels, it is interesting to note that at this year s exhibition a separate small section of Olympia has been set apart for a display by various manufacturers of mechanically operated models of their new devices, so that motorists may have an opportunity of inspecting their method of operation

Brakes and other Details

Practically every car is now provided with a brake on each road wheel, and most of these are of the hydraulic type Many improvements in brake details have been effected, while for the drums special alloy metals are now being used As to road wheels, while here and there one still finds the easily cleaned disk type, wire wheels are now practically universally used Although tyre troubles are not so frequent as in the earlier days, the lower build of modern cars renders it by no means an easy task to get an ordinary jack under the axles Happily, however, there is a growing tendency to provide cars with permanently fitted jacks This new departure is to be found, among others, on A C , Alvis, Rolls Royce, the 16 h p and 20 h p Standard, and the 10 h p and 15 h p Triumph cars, and is one to be welcomed In other cases, too, one notes that special pads are being provided on the axles or springs to accommodate readily the ordinary type of jack Centralized, or grouped, chassis lubrication, the object of which is to reduce the work of owner drivers in keeping their cars in good running order, is making but slow headway, being found only on certain of the Armstrong Siddeley cars, the Riley, the Talbot, and one or two others Although still an extra on a few vehicles, bumpers at both front and rear are now a regular feature on the majority of cars, while owner drivers will no doubt welcome the increasing use of silent bloc spring shackles, which obviate the need for lubrication

Some Possible Future Developments

For some years past the Trojan Company has ploughed a lonely furrow in producing a car with the engine mounted at the rear instead of at the front The Crossley Company has, however, sprung a surprise by introducing a 15 7 h p six cylinder car with rear mounted engine, in accordance with the designs of Sir Dennis Burney Independent or separate front wheel springing, which has become quite general in France, is being studied by British makers, but so far has only been adopted by the builders of the Alvis cars and on the Sunbeam " Dawn " Although not entirely new practice, it is worthy of mention that for next year several makers have announced their readiness to supply chassis with a choice of two sizes of engine at the same price Thus, the Austin ' Twelve Six " can be had with either 13 9 or 15 9 h p engine, the Austin ' Sixteen with one of either 16 or 18 h p the Vauxhall with either a 12 or 14 h p unit , the Standard " Sixteen ' offers an option of 16 or 18 h p , while the same company s 12 h p four cylinder car can have a 14 h p ' six " at £10 extra

Bodywork Improvements

Passing to the bodywork of cars, one is glad to find that this feature has shared in the general improvement one indication of this being found in the fact that some makers who have hitherto used leather cloth for the upholstery of their popular priced cars are now using real leather Saloons with sliding, or ' sunshine, roofs continue to be far and away the most numerous, although there are many useful foursome ' coupes In the low and medium powered cars offered at popular prices an effort has been made to provide greater room for the passengers In view of the continued popularity of covered cars it is interesting to observe that many of the new vehicles embody special systems of ventilation by means of hinged portions of the side windows, or by well placed scuttle ventilators, which allow cool air to enter the front compartment In one model a ' double dash is being used, which is claimed to prevent any fumes or heat from the engine entering the car interior The problem of luggage accommodation—one of the chief difficulties of design—is also being tackled by many manufacturers and the unsightly grid is being replaced by cleverly designed lockers in harmony with the rest of the bodywork In some cases the lockers are also being used for the storage of the spare wheel and tyre It is also satisfactory to note that at long last—for they have been in common use on the Continent for some years—direction indicators are now beginning to form a standard feature on this year s cars, among them the Austin, Citroen Hillman, Humber Morris Rover and Singer and some of the Standards Double windscreen wipers are also being more widely used, so that the passenger as well as the driver can have the benefit of clear vision in rainy weather

Improved Electrical Details

In view of the ever increasing importance of the electrical equipment of cars which to day is called upon to perform a multiplicity of small but important services it is satisfactory to find that greater attention is being paid to its installation In some cars the various cables instead of being merely clipped to the frame, are being enclosed in protective casings It is also noticeable that as the result of the adoption of free wheels in the transmission, some car makers are providing larger batteries and dynamos to counterbalance the reduced charging period resulting from engines merely idling when they are being overrun through the free wheel by the car The electrical device known as startix which will so long as the ignition is switched on automatically restart the engine should it be accidentally stopped in traffic or when the car is free wheeling is also coming into more general use

In our next issue it is proposed to refer briefly to some of the new car models more particularly those which by reason of their cost and suitability are likely to appeal to the general body of medical men Finally for the benefit of those intending to visit the exhibition it may be mentioned that it will remain open daily from 10 a m till 10 p m until the evening of Saturday October 21st, and that the charge for admission on Tuesday, October 17th, and Thursday, October 19th, will be 5s up to 5 p m and 2s 6d after that hour On all other days it will be 2s 6d all day

C J W

In an article in the *Guy's Hospital Gazette* for September 30th, a correspondent describes medical features of a hop picking camp Nearly 800 patients were treated at the hospital and the huts, twenty eight were admitted, and twenty two transferred elsewhere Eczema, conjunctivitis due to rubbing the eyes with hop-soiled fingers, and " hop gout " seemed to constitute the chief occupational diseases, while diarrhoea and vomiting was frequent among the children The author strongly condemns the tendency of mothers to take their children " hopping " as a convalescence from illness

New Zealand

(From our Correspondent in Wellington)

Royal Australasian College of Surgeons

The designation of this College is usually followed by the words in brackets "which includes Australia and New Zealand." The word "Australasian" is never clearly defined and is objectionable, but in a sense is convenient. The journal of the College, of a very high standard, is called *The Australian and New Zealand Journal of Surgery*. The Australasian College, like the American College of Surgeons, is taking a very active part in raising the standards of staffing in public hospitals and in correlating surgical hospital practice and surgical private practice. An early number of the *Australian and New Zealand Journal of Surgery* is to be purely a New Zealand number. The educational value of the annual meeting of the New Zealand section of the College depends more on the demonstrating of cases than on the reading of papers, but two subjects at the meeting which was held on September 7th and 8th were open for discussion—namely, the surgery of prostatic obstruction, and the pathology and treatment of bronchiectasis and lung abscess.

Antimony and Enamel Ware

Following the receipt of a memorandum from the Ministry of Health in London, drawing attention to an outbreak of antimony poisoning at Newcastle-on-Tyne among persons who had consumed lemonade which had been standing in enamel vessels, tests were carried out at Auckland Hospital on every brand of enamel ware in use in that institution. All the vessels used in the experiments were new, and the lemon drink was the same in each case. It was found that a liquid consisting of the juice of a lemon in a pint of water dissolved antimony from the enamel in one particular make of vessel. In one instance the enamel came off both the inside and the outside of the vessel, while in another the liquid had eaten away the markings, and the enamel on the inside was yellow and puffed. Vessels of Swedish enamel withstood the test, the liquid having apparently no effect.

Tuberculosis

The Travis Bequest, in respect of a sum of about £30,000, was established in Christchurch for assistance toward research into the cause and cure of cancer and tuberculosis. The New Zealand branch of the British Empire Cancer Campaign established a cancer research laboratory in connexion with the medical school in Dunedin and cancer clinics in the large centres of population. As an outcome of discussions at the recent cancer conference at Canberra the New Zealand representatives have obtained the financial support of the Travis trustees for the appointment of a trained physicist to supervise and standardize the radium and radon and the deep *x*-ray apparatus used in New Zealand in the treatment of cancer. The New Zealand Sunlight League is now applying to the Travis trustees for funds to carry out research work in the treatment of tuberculosis by alpine heliotherapy. Various sites in New Zealand have been suggested for an alpine solarium, but it is intended to begin with meteorological recording. Two proposed sites may have excessive humidity on account of their proximity to large lakes, but a site on the eastern face of the Southern Alps at Castle Hill may prove most suitable for several reasons—namely, it is sheltered from the dominating north-west wind, the air is dry and clear, the subsoil is gravel or limestone, and the power of the sun there is great. It is not yet known if ultra-violet radiation is greater in the Southern Alps of New Zealand than in Switzerland, but various observers are at present inclined to believe that the Southern Alps are unexcelled in this respect. Certain parts inland in the province of Otago have already enjoyed a high reputation in the treatment of pulmonary tuberculosis, but a solarium established in the Southern Alps is likely to be of great benefit, not only to New Zealand patients, but to people from other countries in the Pacific. The death rate from tuberculous disease in New Zealand is the lowest in the world, being 4.9 per 10,000 in New Zealand, 5.2 in South Africa, 5.6 in Australia, 9.7 in England and Wales, and 14.1 in Switzerland.

Scotland

Health of Glasgow

The annual report of Dr. A. S. M. Macgregor, medical officer of health for the city of Glasgow, which was issued last week, states that the estimated population for the city of Glasgow in June, 1932, was 1,095,263, an indicated increase of nearly 7,000 over the census population of the previous year. The area of the city, 30,046 acres, showed an increase of 535 acres over the area in the previous year. The density of the population, which was thus thirty-six per acre, varied from 194 persons per acre in Woodside ward to six per acre in Pollokshields. The total number of inhabited houses was 263,321, or 2,142 more than in 1931; as the result of slum demolition the total number of one-apartment houses was reduced from 38,910 in 1931 to 38,363. The number of births in the city was 22,732, as against 22,926 in the previous year, the birth rate of 20.76 being the lowest recorded for Glasgow. The total number of deaths during the year was 17,269, giving a death rate of 14.7 per 1,000, as compared with 14.2 in the two previous years; this death rate, however, was higher than that of the other three large cities: Edinburgh 13.5, Dundee 13.8, and Aberdeen 13.4. As regards causes, infectious diseases were responsible for considerably fewer deaths than in 1931, the respective figures being 977 and 1,412 per million of the population; this reduction was due especially to a lower mortality from measles and whooping-cough. The death rates from scarlet fever and pulmonary tuberculosis, however, were slightly higher in 1932. The infant mortality rate was 112 per 1,000 births in the year under review, as against 105 in 1931, the chief cause being respiratory disorders, increased by the influenza epidemic which prevailed during the latter part of the year; the corresponding mortality rates for the other three large cities were: Edinburgh 73, Dundee 72, and Aberdeen 93. With regard to maternal mortality, the number of deaths was 179, giving a mortality rate of 7.87 per 1,000 births. This compares unfavourably with 6.37 in 1931, but was lower than the rates for the three preceding years. It was estimated that 65,000 gallons of milk were consumed daily in Glasgow, of which over two-thirds was pasteurized. The report points out that two main objections have been raised to the extension of the principle of pasteurization in Glasgow as a preventive policy: the first, that such a policy would withdraw from producers the incentive to produce clean milk; and secondly, that pasteurization impaired the nutritive qualities of the milk. Neither of these objections, however, was sustained by experience, and in practice the second one could be overcome by the addition to the diet of orange juice or, if necessary, of cod-liver oil. With regard to the general hospitals of the city, there was an increased demand for admission during the

year under review, largely in consequence of the economic situation, and the number of persons treated was 25 per cent. higher than in 1931. The difficulty of finding accommodation in mental hospitals was becoming increasingly acute, and the mental observation wards established at various hospitals had proved to be of great value. In these wards 1,954 patients had been treated during the year, of whom less than 22 per cent. had required to be sent to asylums. Malaria treatment for general paralysis had been carried out in thirty-four cases with successful results.

University of Edinburgh 350th Anniversary

The celebration of the three hundred and fiftieth anniversary of the foundation of the University of Edinburgh will take place on Friday and Saturday, October 27th and 28th. The programme includes a reception by the Lord Provost, magistrates, and City Council on Friday evening, and a graduation ceremony in the McEwan Hall on Saturday at 10.15 a.m., followed by a commemoration service in St. Giles's Cathedral at noon, when the sermon will be preached by the Very Rev. Sir George Adam Smith, principal of the University of Aberdeen. A lunch will be given by the Edinburgh University Graduates' Association at 1.30 p.m. in the hall of the University Union, and guests are invited to visit the Old College during the afternoon. At 9 p.m. the celebration will conclude with a reception by the University Court and Senatus in the McEwan Hall. Over forty representatives of learned societies and universities will attend the celebration in Edinburgh, while commemorative proceedings have been arranged in many places where Edinburgh University clubs and associations are established.

Cameron Lecture

The Cameron Prize Lecture at Edinburgh University was delivered on October 6th by Dr. George F. Dick, professor of medicine in the University of Chicago. Principal Sir Thomas Holland, who presided, said that the Cameron prize was founded in 1878 by the late Dr. Andrew Robertson Cameron, and was awarded each year by the Senatus of Edinburgh University to some person who, during the previous five years, had made some important and valuable contribution to practical therapeutics. In the past the prize had been awarded to many distinguished persons, as, for example, Louis Pasteur, von Behring, Lister, Sir Ronald Ross, and Madame Curie. On the present occasion it had been divided equally between Dr. George F. Dick and his wife, Dr. Gladys H. Dick, for their joint work on the cause, prevention, and cure of scarlet fever. In his lecture Dr. Dick first dealt with the control of scarlet fever, and said that a haemolytic streptococcus had now been found to satisfy Koch's postulates in regard to the identification of any organism as the cause of a given disease. It was true that scarlet fever was not communicable in a recognizable form to animals, but volunteers had been found who were willing to submit to infection with the organism, and they had developed the disease in an ordinary form. He described in detail the series of experiments which had led to the preparation of the scarlet fever toxin, and the development of the antitoxin by immunization of horses. He also gave an account of the methods that had been employed, by intradermal injection of a small quantity of toxin, to ascertain the susceptibility of individuals to scarlet fever infection, and the methods that had been devised for prophylactic and therapeutic inoculation. Dr. Dick said it was not possible exactly to state the proportion of persons in whom infection could be prevented by inoculation, because some of those inoculated might be persons who would be insusceptible to a mild degree of infection. It should, however, be possible, by the use of his therapeutic method, to bring an epidemic of scarlet fever in an institution under control within forty-eight hours.

Scottish Sanitary Congress

The fifty-ninth annual congress of the Royal Sanitary Association of Scotland was opened at St. Andrews on October 4th. Councillor W. Brownhill Smith of Glasgow, who presided, dealt with the evils of impure atmospheric to urban populations. During the fifty-nine years of its existence the association had, he said, dealt with many matters of public health, but the importance of the air we breathed on health, disease, and death was only just beginning to receive attention. However poisonous the air of a town might be, there were hardly any provisions in law for remedying it. Local authorities might proceed against excessive smoke emission from individual industrial chimneys, but no action could be taken against domestic chimneys, which were chiefly responsible for the impurity of the atmosphere. One of the worst examples of smoke pollution occurred in Glasgow in 1909, when in November and December there were three dense smoke fogs, and the death rate immediately rose from 13.4 to 32.7. In the seven other largest towns in Scotland, in which there had been no smoke fogs, the death rate rose at the same time from 12.2 only to 17.8. It was found that whenever these smoke fogs occurred the death rate from respiratory diseases increased, and the more severe the fog the greater the number of deaths. The same conditions were to be found in proportionate degree, even in small towns, wherever raw coal was burned. People continued to put up with this cause of ill-health because it had existed for generations. Any advance in public health was generally considered to involve further expenditure, but a change to a purer atmosphere would not add to the rates: it would actually reduce them, and would bring increased health. The amount of coal used in Great Britain was about 150,000,000 tons yearly, of which some 17,000,000 tons were used by gasworks. Most of the remainder was burned in a raw state. Perhaps the reason for this was that the gas industry had not kept itself abreast of the times as the electrical industry had done. Government action should be taken to break down the monopoly possessed by individual gas undertakings, so that coal could be carbonized at the pit-heads and gas carried to distant areas, where it could be sold at a price below what was possible when it was produced locally. Such a scheme would save money, reduce disease, and lead to less expenditure on public health. Dr. G. Matthew Fyfe, medical officer of health for St. Andrews, in a paper on water supplies, said that there was enough water in Great Britain to supply the population many times over, but there was great difficulty in securing its distribution, especially to small communities which could not afford to lay down lengthy mains. The situation could be helped if small communities were allowed to use water from passing mains or neighbouring reservoirs. It was suggested that a national survey, on the lines of the Thames Valley survey, should be made of the water flowing in the rivers and streams of the country generally. On October 6th the congress discussed the contribution that might be made to the housing problem by reconditioning and reconstructing houses. Dr. Macgregor, Glasgow, said that while reconditioning would not solve the problem of overcrowding it would be a help. Dr. W. C. Gunn, dealing with the question of verminous infestation of buildings, said that when new buildings were provided for displaced slum-dwellers the prevention of infestation must occupy the attention of the medical officer of health, especially as regarded the bed-bug. The presence of this insect was usually due to careless housekeeping, but it was very difficult to eradicate, because the breeding places in old houses were often deep in the stonework.

Ireland

Department of Local Government and Public Health

The annual report of the Department of Local Government and Public Health of the Irish Free State for the year ended March, 1932, states that in the eighteen counties in which county medical officers had been appointed the reorganization of the public health services was proceeding satisfactorily. The total number of children on the school rolls in areas where school medical service schemes were in operation was 331,087. The position in rural schools, the report states, left much to be desired, especially in regard to sanitation. The percentage of children having defective teeth was 36; diseased tonsils and adenoids, 37; eye defects, 17; and malnutrition, 8. The percentage of malnutrition in county boroughs was double that for the counties. The number of children receiving free meals in forty-one districts was 19,225, and the number of meals showed an increase of 151,807; in the Gaeltacht meals were provided in 310 out of a possible 336 schools. There were three open-air hospitals, but an additional institution for the southern counties was required. The number of new cases attended by dispensary officers was 757,501, being 45,170 more than in the previous year. Vaccinations dropped to 57,088, or 77.1 per cent. of the births registered. The number of persons in receipt of assistance at home or in institutions, or receiving treatment in Poor Law hospitals at the end of the year was 111,331, or 37 per 1,000 of the population. The number on home assistance was 90,724, an increase of 13,250. The largest increase was in the Dublin Union. The expenditure of Public Assistance Boards in 1930-1 was £1,785,426 (of which 30 per cent. was for home assistance).

Mental Hospitals in the Irish Free State

The annual report of the Inspector of Mental Hospitals for the year 1932 shows that the number of insane persons under care in the Free State up to December 31st was 20,187, excluding insane persons maintained at home by relatives. This figure is an increase of 104 on that of the previous year. The number of males was 10,564, and the number of females 9,623, giving a distribution of the sexes among the insane of 52.3 males and 47.7 females. The total expenditure for the year on district and auxiliary mental hospitals was £813,636, and the revenue £863,573, the latter including £765,084 contributions from county and county borough councils. The number of mental defectives in the three institutions for the care of such persons was 498, and there were 594 feeble-minded persons in Poor Law institutions. The proportion of recoveries to admissions in the district and auxiliary mental hospitals was 36.5 per cent., persons between the ages of 25 and 34 constituting the largest number of admissions (356). The figures for the total number of insane persons, idiots, and imbeciles in Poor Law institutions show Cork South, which includes Cork City, to have the highest (140); Limerick has 129, Galway 100, Clare 81, Wexford 80, and Leitrim 66. As Dublin's patients are sent to Grangegorman—which also admits patients from other parts of the country—no figures are given for the city.

Meath Hospital

Mr. Adrian Stokes, surgeon to Meath Hospital, in a paper which he read recently in Dublin, said that last year he had access to one of the first record books of the hospital. It was compiled by Mr. Arthur Guinness, and was now in the possession of Lord Iveagh. In its early days Meath Hospital was a very humble institution. It developed from a dispensary connected with St. Catherine's parish, and derived its name from Meath Street, where it was situated in 1760. It was moved four times in fifteen years, and not until 1770 was it properly established in a suitable building, newly built for the purpose, which was now part of the Coombe Lying-in Hospital. In 1822 the hospital again moved, this time to its present site in the "Dean's Vineyard," which was purchased from the Dean and Chapter of St. Patrick's Cathedral. The Guinness family had their origin in Ricard Guinness of Celbridge, whose son, Arthur Guinness, established the Meath Hospital. In 1766 the affairs of the institution were not satisfactory, and at a meeting it was resolved that Messrs. Arthur Guinness and Vance, and Dr. Patton, should wait on Mr. Pim to acquaint him with the day's meeting, and to beg him "to attend the next meeting with a state of the hospital affairs in his hand on Friday, the 14th March next." Mr. Pim, however, did not attend, and no business could therefore be done, but another meeting was called to nominate "a proper person to collect subscriptions." It was also resolved "that a dinner be bespoke at the Phoenix, in Werburg Street, for as many members as will subscribe two guineas." In the minutes Phoenix was spelt "Feniz" and Werburgh "Werber." The subscriptions were in multiples of a guinea, which was then worth £1 2s. 9d.; the money was paid in gold, and great care was taken to see that it was full weight. There were several references in these records to lotteries; an entry in 1772 read: "Received from Mr. Pike on account of Weaver's Lottery Ticket, £100." Money came from many curious sources: fines paid to the charity at the direction of a magistrate, one such being for keeping a dog without a log, 5s.; another from a baker, for thirty-three loaves of bread deficient in weight, 8s. 5d.; and a third for ale pots found in public houses to be under measure, 17s. 6d. There was also the gift of a reward "for apprehending a felon," £10.

England and Wales

Health Administration in Cardiff

The annual report for 1932 of the medical officer of health and school medical officer for the City and Port of Cardiff is the last to be presented by Dr. R. M. F. Picken, who has been appointed Mansell Talbot Professor of Preventive Medicine in the Welsh National School of Medicine. In a prefatory chapter Dr. Picken reviews the changes which are being brought about in consequence of the passage of the Local Government Act of 1929. The institutions bequeathed by the Poor Law guardians to the Cardiff City Council did not permit the immediate transference of such functions as treatment of the sick out of the Poor Law, and two large institutions remained under the pre-existing administration. In one case, however, a change was made in conformity with the new outlook. A vacancy occurred in the position of master at Ely Institution, which accommodates mainly persons of unsound mind of the less acute and violent type, and mental defectives. The occasion was taken to bring the administration into line with the almost entirely medical character of the work by appointing Dr. Payne to the dual capacity of medical officer and master. It was also decided in principle that such inmates as are described as infirm shall not ordinarily be sent to the Ely Institution in future, and that those there at present shall be transferred to the City Lodge institution when accommodation becomes available. The increasing congestion at the last-named centre has justified those who supported the late guardians' scheme for a new hospital. There is a heavy excess of inmates over and above the legitimate

accommodation A general municipal institution, Landough Hospital, is just approaching completion, and will provide 340 beds for acute diseases, approximately 255 of which will be available for Cardiff patients. With its opening, acute cases (including children) will cease to be treated at the City Lodge, this will enable the consequent freeing of accommodation to be utilized on lines in harmony with the new outlook on the treatment of the sick poor. Dr Picken adds that the future relations of these two institutions have given rise to very serious consideration It seems that the City Lodge must remain largely a centre for acute cases, and precautions will be necessary to obviate the further development of these two institutions along separate paths The Cardiff City Council has decided, accordingly, to apply to the General Nursing Council for the recognition of Landough Hospital and part of the City Lodge as one training school, to make the medical superintendent of the hospital also medical officer of the Lodge, to give the medical staffs of the two institutions responsibilities in both, to place the matron of Landough Hospital in charge of the nursing of all the sick in the City Lodge (whether by trained nurses and probationers or by attendants), and to appoint the master of the City Lodge to be the steward of Landough Hospital Arrangements are also being made for the admission to the City Lodge of certain maternity and venereal cases as part of the maternity and child welfare and venereal diseases schemes rather than through the Poor Law channel Dr Picken adds that it remains to preserve, and if possible to strengthen, the bond which has come to exist between the Welsh National School of Medicine and the hospitals of the Cardiff Corporation, as well as the spirit of co operation between the latter and the voluntary hospitals—especially Cardiff Royal Infirmary—which has been brought into being in recent years

Annual Reports of Medical Officers of Health

The Minister of Health has issued a circular (1346 England) indicating the lines on which medical officers of health are to draw up their reports for 1933 What is termed an "ordinary report" will be required for the current year It will comprise notes on the statistics and social conditions of the area reviewed, the general provision of health services, sanitary circumstances housing, the inspection and supervision of food, and the prevalence of, and control over, infectious and other diseases For the most part it will only be necessary to record changes, improvements, or developments which have taken place during the year under review It will not be necessary to repeat information which has appeared in previous reports, except where it is desired to call attention to old defects which have not yet been rectified Reference should be made to any causes of sickness or invalidity which have been specially noteworthy in the area during the year, to any conditions of occupation or environment which appear to have had a prejudicial effect on health, and to any evidence, statistical or otherwise, that unemployment has exercised any significant influence on the health or physique of children or adults Particulars will be supplied of any important extensions of public water supplies and of sewerage, and of any special action taken to improve the accommodation for infectious diseases, or to afford facilities for preventive immunization A statement should be made also of any noteworthy conditions prejudicial to the health of the area which have not been adequately dealt with in special reports previously Details are invited of any specific action taken during the year to arouse public interest in the prevention of ill health There should be appended a summary of any important special reports made during the year, including any that have been separately transmitted to the proper authorities The local council concerned may direct that the report shall be extended beyond these limits, for example, it may direct the medical officer of health to discuss a special subject of importance to the health of the area in the course of his annual report, rather than in a special report It is anticipated that the Registrar General will be able to furnish next February or March local and national statistics, with the exception of those relating to the county aggregates of urban and rural districts, which, as hitherto, will be distributed in April Medical officers of health of district councils are reminded that it is their duty to report specifically in their annual reports on the administration of the Factory Acts in workshops and workplaces

Infant Mortality in Paddington

The infant mortality curves for England and Wales, for London, and for Paddington all declined in a spectacular manner from the closing years of last century until the end of the quinquennium 1921–5 Thereafter the curves for England and Wales and for London have continued to decline, while Paddington's figures are rising reaching 107 per 1,000 live births in 1932 The recent annual report of the Chief Medical Officer of the Ministry of Health has shown how the rate for the country as a whole has declined yet another point to the low figure of 65 for 1932 This unfavourable position for Paddington has led Sir John Collie, as chairman of the Public Health Committee of the Paddington Borough Council, to carry out a preliminary examination of the variations in the infantile mortality rates in the metropolitan boroughs, the results of which he has issued as a small pamphlet [1] If the average experience of the four years 1928–31 is compared for the various boroughs it is found that the highest rates are in Paddington (88) Kensington (79), Stepney (79), and Bethnal Green (76) while the lowest infant mortality rates were experienced in Lewisham (47), Chelsea (50), Woolwich (53) and Stoke Newington (54) On the surface such results are somewhat surprising During these four years Paddington's rate was 88 compared with 68 in Southwark and yet the fact that the rate for St Marylebone was 71 approximately as high as that in Poplar (70) suggests that further investigation is needed before conclusions can be drawn Especially is it important to contrast the social and sanitary conditions of the streets and houses in which the infant deaths occurred Sir John Collie has attempted this task in so far as Paddington is concerned by comparing the results in the different wards of the borough and by showing on a map the actual houses where infantile deaths occurred during the last available year Here it is found that rates vary from 79 to 126 in different areas while there is definite crowding of red spots on the map in the well known slum area closely surrounding St Mary Magdalene's Church Another method of investigation has been to compare the death rates from diarrhoea and enteritis in the different boroughs for children under 2 years of age Here it is found that while the rate per 1,000 births for London as a whole was 9 7 it was as low as 5 5 in Southwark, slightly higher at 12 5 in Paddington, and 27 2 in Bethnal Green The cause of the high infantile mortality in Paddington cannot altogether be explained on the basis of this disorder, and, indeed, when the infant mortality rates at different periods of infancy are compared, it is found that Paddington has a highly excessive death rate during the first four weeks and during the first three months after birth, periods when infantile diarrhoea is not of such importance as a cause of death For the most part Sir John Collie

[1] *Infant Mortality in London* By Sir John Collie, C.M.G., M.D., D.L., J.P. 1933

leaves the facts to speak for themselves without suggesting any obvious explanation. One line of future investigation concerns the problem of the "migratory" parents—that is, those who have lived for less than a year in the borough. Certain preliminary figures suggest that the infant mortality rate for such a group is very much higher than for those members of the local population of more than a year's residence.

CORRESPONDENCE

Bronchiectasis

SIR,—In your issue of October 7th (p. 639) Drs. F. C. Roles and G. S. Todd have summarized the results of treatment of 106 cases of bronchiectasis at the Brompton Hospital.

The authors state that "the treatment of bronchiectasis by artificial pneumothorax has now been almost completely abandoned at the Brompton Hospital." As a member of the staff of this hospital I should like to dissociate myself from this opinion. In my experience an artificial pneumothorax, if performed sufficiently early, so that the lung can be adequately collapsed, can cure bronchiectasis, no sputum returning after the lung has been allowed to re-expand. In my experience also, even in long-standing cases, an artificial pneumothorax can completely relieve the patient of his symptoms in certain instances. The difficulty lies in seeing the patients in the early stages. I have further seen a case in which lipiodol injection after collapse by artificial pneumothorax indicated that the bronchiectatic cavity was obliterated, which differs from the opinion expressed by Drs. Roles and Todd that, "with the most complete collapse, the cavities are still invariably present," as shown by lipiodol injection.

Although the authors are enthusiastic about lobectomy as the "goal to be aimed at" in the treatment of bronchiectasis, the figures they quote are arresting: 40 per cent. of the patients treated by lobectomy died, presumably as the result of the operation. If the figures in Table II are analysed to show the mortality rate of the different forms of treatment the results are: lobectomy, 40 per cent.; artificial pneumothorax, 23 per cent.; medical treatment, 47 per cent. Of the 40 per cent. who died after lobectomy it can be assumed that one-half would have survived if they had been treated by medical means alone, in view of the fact that only 47 per cent. of the patients treated medically died.

They draw conclusions as regards the results of treatment by artificial pneumothorax which do not agree with the figures given in their Table II. Thus in Table II they state that of thirteen cases treated by artificial pneumothorax four patients are well and three died. In the text of their article the authors state that three are well and seven died.

It is difficult to understand why the authors consider that the cases which recovered with artificial pneumothorax treatment were "exceptional." The series of cases quoted is, of course, too small to give any real indication of the value of artificial pneumothorax or of lobectomy, but on the evidence given, from which alone the conclusions in the article can fairly be drawn, the results of lobectomy are worse than those of artificial pneumothorax.

While no one with experience of the operation will deny that brilliant results are obtained in certain cases specially selected for lobectomy, and while the technique of the operation is rapidly improving, it should only be advised in those cases in which a satisfactory collapse by artificial pneumothorax is not possible. Far from lobectomy, being the "goal" aimed at in the treatment of bronchiectasis, the ideal should be that no patient should be allowed to reach the stage in which a lobectomy is required. This implies early diagnosis and early treatment by artificial pneumothorax.—I am, etc.,

London, W.1, Oct. 9th. G. E. BEAUMONT.

SIR,—The paper on bronchiectasis by Drs. F. C. Roles and G. S. Todd in your issue of October 7th gives one something to think about.

Like most clinical tuberculosis officers, I am constantly meeting with cases of bronchiectasis, mainly in children. The types are: (1) the congenital and atelectatic; (2) those following whooping-cough; (3) those following pleuro- and broncho-pneumonias, whether diplococcal or streptococcal; and (4) the putrid, which are usually associated with fuso-spirochaetal infection, often follow mouth operations, and are difficult to distinguish from abscesses. Indeed, the lines dividing septic bronchitis, bronchiolectasis, bronchiectasis, and pulmonary abscess cannot be drawn very sharply, and the most important factor would appear to be the type of organism present, pneumococcal cases doing far better than those in which streptococci, pneumobacilli, moulds, fusiforms, and spirochaetes are present.

My impression has been that, with efficient and persevering postural drainage, the great majority of the mild bronchiectases of children belonging to types (2) and (3) above clear up before adult life is reached. Have I been deceiving myself? Providing no contraindication is present, I put my foot on a chair and invert my patients across my knee over a bowl or basin. The immediate result is usually excellent. I tell my patients or their parents that if this is done morning, noon, and night, before meals, the symptoms will probably disappear by the time adult life is reached. Have I been misleading them, and should I try to get them all admitted to Brompton or Victoria Park for lobectomy?

At the Toronto Children's Hospital we saw in 1930 "bronchiectasis beds," tilted at an angle of 30 or 35 degrees, each with an open panel through which the bronchial discharge drained into a vessel. The patients were slung, head downwards and face downwards, on these beds. Are these conservative methods useless? What of the bronchoscope? What of arsenicals for moulds and fuso—— But perhaps I had better stop. There are two things one must not mention in this country to-day—fuso-spirochaetes and B.C.G.—I am, etc.,

P. HEFFERNAN, M.D.,
Major I.M.S. (ret.),
Tuberculosis Officer, Derbyshire County Council.

Buxton, Oct. 7th.

Rupture of Uterus after Version

SIR,—Mr. McCullagh (*British Medical Journal*, October 7th) considers that there is a danger of rupture of the uterus during labour following the correction of a breech with extended legs by external version during the antenatal period, the legs remaining in the extended position. He quotes four cases which I referred to (*British Medical Journal*, July 1st, 1933) in support of his contention. These cases, as explained by the context, were multiparae with previously normal histories, who had transverse presentations and were dealt with by *internal version late in labour*. The rupture of the uterus was produced by the operator.

The point he has raised is a most interesting one, but my cases have no bearing on the matter.—I am, etc.,

E. FARQUHAR MURRAY, M.D.,
F.R.C.S., F.C.O.G.

Newcastle-on-Tyne, Oct. 9th.

Toxaemias of Pregnancy

SIR,—In the *Journal* of August 26th (p 376), Dr G W Theobald makes the extraordinarily bold statement that "there is not, in my opinion, the slightest justification for assuming that any case of hyperemesis gravidarum can be labelled neurotic." What does Dr Theobald want in the way of justification? He assumes, because he has cured cases of this condition with calcium gluconate injections, that these cases were due to some deficiency condition. Is that the sort of justification he requires in arriving at aetiological conclusions? If so, how does he account for the causation of hyperemesis gravidarum in cases that have been cured by (1) testicular extract, (2) artificially prepared antibody of human placental extract, (3) withholding of all food and water for two days, (4) replacing of a retroverted uterus, and (5) irrigation of the ureters? There are authenticated series of cases that have been successfully cured by all these means, and one man had a series of forty cases successfully treated with artificially prepared antibody of human placental extract! Does this mean that in one part of the world hyperemesis gravidarum is due to a lack of testicular extract, in another to the toxins of the placenta, in another to overeating, in another to *retroverted uterus*, and in yet another to the need of ureteric lavage? If it does mean this, then Dr Theobald is correct in assuming that he has justification for his faith in the calcium gluconate treatment. If it does not, he has no justification for stating that there is not "the slightest justification for assuming that any case of hyperemesis gravidarum can be labelled neurotic."

Perhaps Dr Theobald doesn't understand the implications of the word "neurotic." There are many in the profession who don't—and who won't until the study of psychopathology gets the place it deserves in the medical curriculum. But if these cases cannot be labelled neurotic, *how does Dr Theobald account for the fact* that a growing number of clinicians are successfully treating hyperemesis by purely psychological methods? Indeed, against such clinicians Dr Theobald stoops decidedly to innuendo. "*Those who have maintained that it is never* necessary to empty the uterus for this condition and that all such patients may be cured by suggestion either have had a very limited experience or possess short memories." In other words—and surely *that is his delicately worded* implication—we are either ignoramuses or liars. Yet, regard Dr Theobald's inconsistency! At the end of the very same paragraph he states: "In each and every case [of hyperemesis gravidarum] the intramuscular injection of calcium gluconate cleared up the symptom almost immediately and the change in the patient was remarkable." He accuses those of us who use psychotherapy of ignorance and forgetfulness if we never have to induce abortion, yet leaves us with the stirring clarion that sodium gluconate makes abortion unnecessary!

One has only to read Dr Theobald's article to realize that he is an enthusiast. He is enthusiastic, among other things, about sodium gluconate. Is it his enthusiasm or his gluconate that cures? It is a question I leave to any psychotherapeutist who will take time to read the pharmacology of this disease. I use suggestion in pernicious vomiting of pregnancy. In a series of thirty-two cases I have had to induce abortion only twice. I am sorry now that I was not more resolute with the two failures, since both patients stopped vomiting from the moment they came out of the nitrous oxide anaesthetic—and before there was time either for the placenta to separate (I simply packed a little gauze into the lower uterine segment) or for the calcium metabolism to reassert itself. These patients were cured (I feel I have "justification" for saying) by the *idea* of an operation.

It seems to me that the British College of Obstetricians and Gynaecologists might do considerable good by inviting Dr Theobald to present before it the proof upon which he bases *his opinion that* "there is not the slightest justification for assuming that any case of hyperemesis gravidarum can be labelled neurotic." It might then call upon some of the rest of us to present proof as to why sodium gluconate should be relegated to the category (with regard to this disease) of testicular extract, antiplacental extract, serum from the husband, ureteric lavage, *et al*.—I am, etc.,

Halifax, Nova Scotia, Sept 23rd H B ATLEE

Prevention of Tuberculosis

SIR,—Dr W H Steele (*Journal*, September 30th, p 626) is apparently impressed by Dr A G Newell's letter in your issue of September 9th on this question. *But is there any reason to be?*

Dr Newell's conclusions rest on a false premise. Tuberculosis in this country is not *mainly* disseminated by our milk supply. Dr Newell's experience in Lahore shows that bovine tuberculosis does not exist there and suggests that if the inhabitants lived in as hygienic a manner as the cattle the incidence of tubercle in the former would decrease. The tuberculosis problem in this country is twofold—namely, disease of bovine and of human origin—and until such time when we can control infection due to the human type bacillus by preventing the development of visceral disease and so removing the reservoir of infection, it would be folly to concentrate all our efforts in treating our cattle on sanatorium lines as proposed by Dr Newell.—I am, etc.,

Dundee, Sept 30th G WALKER

Treatment of Glaucoma

SIR,—Dr E G Recordon criticizes the use of retrobulbar anaesthesia in the surgical treatment of acute glaucoma. I indicated in my article by priority in text that subtenon injections were preferable.

Dr Edgar Cyriax makes the interesting suggestion that the production and persistence of glaucoma may be due to the venous and lymphatic congestion as a result of chronic contractions in the suboccipital muscles. I cannot appreciate any physiological basis for this suggestion for although experimentally ligature of the internal jugular veins modifies the intraocular pressure, clinically this does not occur. The venous drainage of the suboccipital region by way of the vertebral plexus is very efficient and it would have to be an extraordinary congestion in the suboccipital region to have any effect on the intraocular pressure. I quite agree with him that the use of mechanical massage of the eye in glaucoma is to be deprecated, but that digital massage is often of benefit.—I am, etc.,

London, W 1 Oct 2nd B W RYCROFT

Psychology in the Curriculum

SIR,—May I be allowed to reply to some of the points raised by Dr J S Manson and Professor Major Greenwood in your issue of September 9th? If I do not seek to retaliate in the customary vein of controversial irony it is because I do not wish the important issue to be sidetracked through needless personal justification.

I have already agreed with Dr Manson's contention that the physiological and biological approaches to psychology have afforded us valuable insight into certain aspects of reaction and behaviour, and I see no reason why this new knowledge should not be taught as belonging to the respective provinces of physiology and biology. But these

aspects, interesting though they are, do not cover the essential field of psychology of which Professor Greenwood and myself feel the lack in medical education—namely the study of "the historical development and the essential nature of the soul (*τῆς ψυχῆς*)."

The objective study of the psyche began, as Professor Greenwood rightly points out, with the Greek scientist-philosophers, but the need to objectify the unconscious—that is, that province of the mind where fate rules—has prevailed ever since the dawn of culture. The need to project the complex psychology of the unconscious created the constellations of astrology many centuries before the dawn of astronomy as an objective science, just as the projection of unconscious contents in the forms of myth, ritual, and demonology preceded an objective, scientific interest in natural phenomena.

The disciplined empiricism of natural science has gained for us a relatively firm detachment from the theriomorphic and anthropomorphic projections of which, in former times, man's relation with the universe consisted; but it has not yet achieved an adequate empirical account of the complex psychic functions and processes from which these world-creating and destroying projections arose.

That this hinterland of the mind is both a bogy and a seduction to the rational mind is illustrated by Dr. Manson, who seems to cling to the hope that the psyche may be, after all, no more than what the biologists and physiologists assert—namely, a rather complicated system of conditioned reflexes; only that and nothing more. For if we were to admit that the psyche had an existence in and for itself, demanding conceptions that are commensurate with its historical and actual significance, then "Heaven help medicine! It would be led into a morass of mysticism, where it would flounder in confusion."

I raised the issue because I believed that medical science has now reached the point where it is fitted to take up the study of the "essential nature of the soul," with a psychological technique of the unconscious and a trained empiricism which antique culture did not possess. This study is still in its infancy, and if students are taught what purports to be a science of the mind, but actually is no more than an extension of physiology and biology into the realm of human behaviour, their interest in a real psychology will be usurped by a surrogate. The situation is urgent, as the plan for pre-clinical as well as clinical courses in psychology is actually being considered.

My suggestion of the open seminar method was to provide an avenue in teaching hospitals where some instruction in practical psychological research and some discussion of clinical problems could be provided, without the danger—which in my opinion is formidable—of giving the student the notion that attendance at a course of lectures is an adequate equipment for psychological practice. No man is fitted, in my opinion, to undertake the treatment of the sick by psychological means who has not himself submitted to deep analysis, and even then the less he thinks he knows the better.—I am, etc.,

London, N.W.1, Sept. 27th. H. Godwin Baynes.

Pregnancy in Childhood

Sir,—In reply to the communications of Dr. Keane (September 23rd, p. 567) and Dr. Neville Irvine (October 7th, p. 666), I would like to call attention to a case of pregnancy in a girl 6 years of age (said to have been impregnated by her grandfather, aged 69) published by Chaschinsky and Jerschow in the *Zentralblatt für Gynäkologie* of September 23rd, 1933 (p. 2252), where a full description and excellent illustrations of the case are given. The child, delivered by craniotomy, weighed 3 kilos. The young mother was a case of *pubertas praecox*, the secondary sexual characters appearing at the age of 4. I have met with this precocious development in a girl of the same age (4 years), and the possibility of pregnancy should lead to especial care in guarding these children. So far as I know, the case cited above is the youngest patient in whom pregnancy is recorded, being only just over 6 years of age when it occurred.

In Western European countries pregnancy in young children is rare. The youngest I have personally attended was a healthy English girl, aged 11 (said to have been impregnated by her brother, aged 14), who was delivered naturally of a living child at term.

Mandelslo's case of pregnancy at the age of 6 is far from convincing. It is to be found in Olearius, *Voyage en Moscovie* (vol. i, p. 212), a copy of which is in the library of the Royal College of Physicians.—I am, etc.,

London, W.1, Oct. 5th. Herbert R. Spencer.

Beginnings of Anaesthesia

Sir,—I have read Mr. F. J. Morrin's paper on anaesthetics with much interest, as he gives the dates of the introduction of the use of ether and chloroform into Ireland; but the credit of the introduction into Europe belongs to Robert Liston, the Scottish surgeon to University Hospital, London, who, within three days of receiving the letter from Boston, amputated a thigh at the hospital under ether (December, 1846). It was Sir J. Y. Simpson of Edinburgh who, after numerous experiments on himself and assistants, introduced the use of chloroform, and it is on record that Liston came into the theatre at University College Hospital to see it administered within a few weeks of his death in December, 1847. I wrote a full account of Liston's operation in the *U.C.H. Magazine* (1911). A connexion of mine was the first woman to take chloroform in childbirth. It was given by Simpson. Queen Victoria submitted to its use *pour encourager les autres*.—I am, etc.,

F. William Cock, M.D., F.S.A.

Appledore, Kent, Oct. 8th.

Typhoid Fever, Paratyphoid Fever, and Food Poisoning

Sir,—You have allowed me to write to you twice recently upon the subject of typhoid fever, and I trust you will permit me still further space, because I believe that we are on the threshold of a new typhoid era, and that the main factor responsible for the same is not generally known. From the recent increase of references to typhoid fever in the medical press it would appear that others are apprehensive of its recrudescence. Further, the writings suggest surprise that the cases are so few, despite the ubiquity and persistence of the *B. typhosus* and *B. paratyphosus* in sewage and water. The number of existing "carriers" is held by most to account for this anomaly. But is this correct? And when epidemics arise, is it through the offending micro-organisms gaining access from the sewage, water, milk, infected person, carrier, contaminated article of food, etc., to the intestinal canal of the victim, and multiplying therein? I do not think so, and the following are my reasons.

In cases of food poisoning the pathogenic micro-organism in the excreta varies according to the severity of the case, and it is not necessarily the same as that, when found, in the contaminated article. Indeed, in most instances the supposedly infective article is bacillus-free. When the infective material does harbour the micro-organism held to be responsible for the epidemic, it is by no means certain that it invades the intestinal tract of the victim and multiplies therein. In the first place, it is very

difficult for any micro-organism to reach the small intestine, and still more so the large intestine, alive. In the second place, many subjects ingesting the infective material have no more than malaise, and in these persons micro-organisms less pathogenic than those of the Salmonella group are found. In the third place, those who ingest the infective material and go entirely free are found to harbour no pathogenic micro-organisms. In short, there is a definite relation between the grades of sickness and the constitution of the flora of the intestinal tract. Where the micro-organism found in the excreta is the same as the one found in the infective material such minor differences may be noted as to suggest that the former has not been derived directly from the latter. The micro-organisms responsible for epidemics when they arise first also differ in minor details from those found when they become fully established, and these again from those recoverable in the final stages. Moreover, in the beginning of an epidemic, and at the end of a cycle of epidemics, failure to find the pathogenic micro-organism in the excreta is the rule rather than the exception. In the former this is usually due to the micro-organism leaving the intestinal tract to invade another part of the body, and in the latter to its changing into another form (coccoid and ultra-microscopic phases). In both cases the micro-organism may reappear in the excreta when the acute stage is over or the epidemic has passed. Even during an epidemic an invasion of the blood stream, urogenital tract, lungs, etc., is not infrequently followed by a departure from the large intestine. The appearance of signs and symptoms so frequently coincides with the invasion of another part of the body as to suggest that the supposedly infective material is rather the precipitating factor than the actual cause. All these facts fit in with such a view, and to them must be added, perhaps, the most important one of all, which is that epidemics are seasonal and occur the world over at the same time. What could be more significant than the simultaneous appearance of typhoid in Yorkshire and the Balkan States between October and December, 1932? This last fact lessens the significance usually attached to sewage, water supply, carriers, etc., as sources of infection. I do not want to minimize the importance of proper drainage and a clean water and milk supply, because, once an epidemic has become established and the offending micro-organism has acquired the properties of micro-organisms able to cause infections from without, water and milk may become potent disseminators of infection. But prime sources of infection I do not believe them to be.

In my opinion typhoid fever, paratyphoid fever, and food poisoning are primarily cyclical infections from within. Certain micro-organisms in the excreta gain the ascendancy through the influence of climate and become pathogenic. They then cause epidemics. Outside factors may increase their pathogenicity, hasten on epidemics, and render them more severe. The severity increases as the epidemics are repeated, but as each epidemic carries with it the weapons which are ultimately to destroy it, the time comes when they vanish. This cycle of events enables other micro-organisms, meanwhile dormant, to reawake and to take over the reins from those which have had their day. This explains why epidemics are cyclical. The evidence always adduced against this reasoning is that one micro-organism cannot be converted into another. This is no evidence, because there is no process occurring naturally *in vitro* which can be repeated *in vitro*. No laboratory can ever hope to copy the machine of even the simplest plant body, and therefore still less of any animal body. In my opinion there will be epidemics of typhoid fever, paratyphoid fever, and food poisoning so long as the bacilli of epidemic jaundice, which have probably mutated from the *Bacillus coli communis*, are in power. They have held sway since May, 1930, when they took over the reins held by the *Bacillus faecalis alkaligenes*, the last cycle of which was responsible for the epidemic of so-called "psittacosis" in the winter 1929–30. From the manner in which these bacilli have behaved and are behaving we would appear to be on the threshold of another typhoid era, during which several epidemics of paratyphoid fever and food poisoning will occur. I hazarded this suggestion in 1931, and events since have fully confirmed it. Should my fears materialize still further, I am confident that the evils resulting can be reduced to the minimum only by training potential victims in the fundamental ways of living, and never by focusing attention upon sewage, water and milk supply, carriers, etc. I say this because the incidence of infection, to begin with, will be determined by whether the large intestines of the populace contain pathogenic micro-organisms or not. If this reasoning is correct, the suggestion of removing the gall-bladder in typhoid carriers will need no further consideration. The whole subject *is discussed in more detail in the Nature of Disease Journal*.—I am, etc.,

London, Sept. 25th. J. E. R. McDonagh.

Cysticercosis and Epilepsy

Sir,—An investigation at present in progress shows that cysticercosis is responsible for some considerable proportion of cases of epilepsy in the Army, particularly—though not exclusively—epilepsy commencing in previously normal adults who are serving, or have served, abroad.

At the date of writing, we have records of forty-nine proved cases of such infestation (with full case histories in thirty-five), but we know that this number is not complete for the period covered. Apart from other and more obvious reasons for failure to recognize cysticercosis, diagnosis as a practical matter may become possible only in course of time, perhaps long after the subject of the infestation has left the Army. For example, the onset of epileptic seizures may bring to notice the presence of pre-existing cysts in the tissues; or the appearance of palpable cysts may suggest the real nature of an epilepsy of some standing. Again, the death and subsequent calcification of encysted larvae not previously detectable may determine a diagnosis by radiological examinations.

It would be of very great assistance in this investigation if any medical man who makes a diagnosis of cysticercus infection in an ex-soldier, whether encountered in an institution or in the course of practice, could see his way to notify the professor of tropical medicine at this College. The information would be still more helpful if it were possible to include with the patient's name his Army number, regiment, etc., and the date of his leaving the Service, so that his medical history as a soldier could be traced.

It might be advisable to point out that in the great majority of these cases of cysticercosis there is no ascertainable history of infestation with an adult *Taenia solium* at any time; and also that there is no symptomatic feature of the type of epilepsy which may be caused to differentiate it from one or other of the various classical forms of that disorder.

The investigation in question is concerned with the prevalence of cysticercosis in the Army, but it is not inferred that the disease is in any way peculiar to soldiers.—I am, etc.,

W. P. MacArthur.

Royal Army Medical College, Millbank, S.W.1, Oct. 16th.

Purification of Swimming Baths

Sir,—It will, I feel sure, be very gratifying to many members of the general public to find that the state of the water in swimming baths has begun to receive medical attention.

I would like to suggest that a very simple alteration in the existing general arrangements of public swimming baths would make a considerable difference in the state of the water. The cost of admission to a public bath in London is approximately 8d., which, together with the bus or tram fare to and fro, forms a significant figure in the budget of a working girl. Unfortunately, in most swimming baths an extra penny is charged for lavatory accommodation. I think that the following commentary, which was reported to me recently by a patient as being heard on top of a bus, illustrates the point I would like to make: "Bertha, lend me a penny." "What do you want it for?" "W.C. at the baths." "Go on, you are a stupid! What's the matter with the baths?"!

It is a well-known fact that sudden immersion into water is apt to relax the bladder sphincter. Were lavatory accommodation provided free of charge in all public baths, I think that the natural good sense of the public could be trusted to make use of it.—I am, etc.,

London, W.1, Oct 5th. Margaret Lowenfeld.

The Services

R.N. Medical Compassionate Fund

At the quarterly meeting of the directors of the Naval Medical Compassionate Fund, held on October 6th, with Surgeon Vice-Admiral Sir Reginald Bond, K.C.B., K.H.P., Medical Director-General of the Navy, in the chair, the sum of £177 was distributed among the several applicants.

No. 14 Stationary Hospital

The fourteenth annual dinner of the medical officers of No. 14 Stationary Hospital will be held on Friday, November 24th, at the Trocadero Restaurant, Piccadilly, at 7.15 for 7.45 p.m. Colonel C. R. Evans, D.S.O., will be in the chair. Price of the dinner, 12s. 6d., exclusive of wines. The honorary secretaries are Colonel H. M. Perry and Dr. H. L. Tidy, 39, Devonshire Place, W.1.

Universities and Colleges

University of London

London School of Hygiene and Tropical Medicine

The following candidates have been approved at the examination indicated:

Academic Diploma in Public Health.—A. S. Arora, *N. V. Birrell, R. Dyal, Désirée M. B. Gross, J. G. Paley, Mary S. Stuart.

* Awarded a mark of distinction.

London Hospital Medical College

The following scholarships have been awarded at the London Hospital Medical College: *Price Entrance Science Scholarship* (£100), L. Grant; *Second Entrance Science Scholarship* (£50), W. H. J. Baker; *Price Scholarship in Anatomy and Physiology*, open to students of the Universities of Oxford and Cambridge (£100), J. W. Landells (St. John's College, Cambridge); *Open Entrance Scholarships* (£100), B. B. Hickey (University College, Oxford), J. F. Loutit (St. John's College, Oxford).

University of Liverpool

The following candidates have been approved at the examination indicated:

Diploma in Public Health.—Mary Coutts, G. A. C. Lynch

Royal Faculty of Physicians and Surgeons of Glasgow

At the monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on October 2nd, the following were admitted Fellows of the Faculty: J. W. S. Blacklock, J. F. Christie, E. G. Gerstenberg, W. S. W. Guthrie, J. A. A. Hunter, A. B. Kerr, F. T. Land, I. B. Thorburn.

FOOD-POISONING OUTBREAK IN ST. PANCRAS

A small outbreak of food poisoning occurred last Saturday (October 7th) in the boroughs of St. Pancras and Holborn. The source of the outbreak has been traced to pease-pudding, bought from a shop in the St. Pancras area. We understand that in one case an organism thought to be Flexner's bacillus has been isolated from the stools, and that the same organism has been found in a sample of the pease-pudding. Up to the time of going to press we are informed that ten people have been taken ill, two of whom (two boys aged 11 and 13) died within twenty-four hours of eating the pudding. The sudden death of these two boys indicates that the "poison" was remarkably virulent. The "epidemic" is limited and well under control, and it is not expected that further cases will arise.

The first cases were seen by Dr. Christina O'Brien, a general practitioner in St. Pancras, who immediately notified the medical officer of health. (It will be remembered that, in London, food poisoning was made notifiable under the London County Council (General Powers) Act of 1932.) On October 8th six cases were admitted to the L.C.C. Hospital at Highgate, where the two deaths occurred. The clinical features were diarrhoea, vomiting, abdominal pain, passage of blood and mucus in the stools, marked cyanosis and tachycardia, and high temperature. There was also a high leucocytosis (up to 76,000 per c.mm.). Another severe case was admitted to University College Hospital, and three mild cases are being treated at home.

The pease-pudding was made by boiling dried peas with sodium bicarbonate in an enamel saucepan; the peas were then beaten up with salt in a glazed earthenware vessel. The peas, in this instance, were taken from the same supply from which pease-puddings, prepared in the same way, had been made on the day preceding the outbreak (October 6th). This batch was sold out, and no ill effects were reported. Approximately 7 lb. of pudding were prepared on the Saturday, 5 lb. of which were sold in the evening—about 1s. 6d. worth. As ten people are known to have been "infected," this means that there may be about six people at large who either were not affected or had symptoms so mild as not to send them to the doctor. (Pease-pudding is sold in pennyworths, containing about five to six ounces.) We understand that samples from the stock of peas used, and of the sodium bicarbonate and salt, have been chemically analysed and found free from impurity. The post-mortem findings and the final results of the chemical and bacteriological investigation will be awaited with interest. Clinically, the course of the illness and the present bacteriological findings all point to infection. On the chemical side, the enamel saucepan in which the peas were boiled has probably been under suspicion, as cases of poisoning from the antimony now used in the manufacture of cheap enamel ware have been put on record, and were the subject of a recent official warning from the Ministry of Health (see *British Medical Journal*, March 11th, p. 423).

The last outbreak of food poisoning in the St. Pancras area occurred in 1928, when the Gaertner bacillus was isolated from the blood and faeces of patients infected. The source of this was thought to be junket, and in the establishment in which the junket had been eaten it was found that a rat "virus" had been employed. The rat "virus" in question contained organisms among which was the Gaertner bacillus. The Ministry of Agriculture is opposed to the use of this "virus" in the extermination of rats. In the last outbreak in the Holborn area (in 1926) there were six cases of poisoning from canned beef, thought to be due to bacterial toxins. It was suspected that the food had become contaminated at the

time of packing, and that the organisms had died, leaving, so to say, their toxins behind them

Although outbreaks of food poisoning cannot be said to be common, they present many problems of clinical and public health interest, and call for promptitude of action on the part of the authorities dealing with them The present episode at St Pancras was well under control at an early stage

Obituary

WILLIAM HOPE FOWLER, C V O, M B.

M R C P I R C S L D

Consulting Radiologist Edinburgh Royal Infirmary

The death occurred on October 4th, at his residence in Midmar Drive, Edinburgh, of Dr W Hope Fowler Dr Fowler had suffered during a long illness from the effects of exposure to x rays, which had involved several operations, culminating in the amputation of his right arm in June of last year

Born in 1876, William Hope Fowler received his early education at Daniel Stewart's College, and after completing his medical course at Edinburgh University graduated M B, Ch B in 1897 After graduation he acted as resident house surgeon at the Royal Infirmary to the late Mr C W Cathcart At this time Fowler was interesting himself especially in electrical methods in the treatment of disease, and Roentgen's discovery of *x* rays having taken place shortly before he graduated, he became one of the early pioneers of the use of *x* rays in diagnosis In 1901, while still engaged in general practice, he became assistant radiologist to the Royal Infirmary of Edinburgh, under the late Dr Dawson Turner, and in 1911 chief radiologist in association with Dr Archibald McKendrick On retiring from this post in 1926 he was made consulting radiologist to the institution Dr Fowler joined the Royal College of Surgeons of Edinburgh as a Fellow in 1924, and the Royal College of Physicians of Edinburgh as a Member in 1931 From 1911 to 1926 he was also honorary consulting radiologist to the Admiralty, and from 1914 to 1918 a member of the War Office *X* ray Commission He was lecturer in radiology in the Royal College of Surgeons, and examiner in radiology in the Royal College of Physicians of Edinburgh, and he also held the posts of honorary radiologist to the Royal (Dick) Veterinary College, Edinburgh, consulting radiologist to Perth Royal Infirmary, and radiologist to Bangour Mental Hospital From time to time he contributed to the literature on his own subject of radiology, as, for example, his paper on "Orthoradiography of the Heart and Aorta," which appeared in the *Edinburgh Medical Journal* (1912) He was keenly interested in many activities outside his professional work, and was an original member of the Rontgen Society, a member of the British Institute of Radiology, a Fellow of the Royal Scottish Society of Arts, a Fellow of the Zoological Society, and a Fellow of the Royal Society of Edinburgh He maintained an intimate connexion with his old school, and recently presented four bursaries for Stewartonians at Edinburgh University, for several years also he was president of Stewart's College Athletic Club, and president of the former pupils club of this school One of his favourite relaxations was travelling, and he paid many visits to the Continent to radiologists and radiological institutions He was noted for the celerity with which he procured and tested any new apparatus or method introduced in connexion with radiography or radiotherapy He was one of the founders of the Scottish Radiographic Society, and its first president Dr Fowler was vice president of the Section of Radiology and Electro-Therapeutics at the Annual Meeting of the British Medical Association at Newcastle on Tyne in 1921 His death will be deplored because of the painful circumstances attending his long illness, and because his unfailing cheerfulness and his ready help in medical work had greatly endeared him to the professional colleagues with whom he came into contact Dr Fowler was predeceased by his wife about a year ago

The interment took place at the Dean Cemetery, Edinburgh, on October 7th, after a funeral service held at St George's Church West, which was attended by representatives of the Royal Infirmary, the Royal College of Surgeons of Edinburgh, and other official medical bodies

Dr ARCHIBALD MCKENDRICK writes

Happy is the man who can go through life always making friends and never an enemy Such was the nature of Hope Fowler As one of these fortunate friends I pay token to his memory We started together in the Royal Infirmary, Edinburgh, in the days when our equipment was little more than a simple spark coil and a totally unprotected x ray tube, and the *x* ray department an old storeroom in the basement Up to the time of building the present magnificent *x* ray department we worked together as colleagues, and strong though his personality was it was impossible to quarrel with him Even in those early days, working in dismal surroundings, when most of us exhibited frayed nerves, he emanated a cheery optimism which was infectious Ambitious he certainly was, but it was not a personal ambition He did not strive to appear better than his fellow workers It was his ambition that his medical and surgical colleagues should be afforded the greatest help obtainable by improved *x* ray technique His private laboratory (and his lumber room) bear witness to this side of his ambition He was always keen to have the latest improvement, and he would purchase it, test it, and either add it to his already large equipment or relegate it to the lumber room It is questionable if a more complete history of the advancement of *x* ray technique could be found anywhere than in his private museum Perhaps one of his greatest assets was his phenomenal memory It was like a well-kept diary Old Edinburgh students returning to the Royal after many years of absence used to seek him out in the old department It was almost unbelievable the way he could recall the names of the students of any single year when they qualified where they had gone how they had progressed in their profession, and a host of details which would always appeal to the returned student He took all the happiness out of life and made his life a source of happiness to others Even in the more acute stages of his affliction he was never known to complain He has bequeathed to all who knew him nothing but the happiest of memories

W BICKERTON EDWARDS C B E, M B, C M

Lieutenant-Colonel I M S (R A)

The death of William Bickerton Edwards, at a comparatively early age, came as a great shock to his old medical friends and colleagues Of commanding appearance, and abounding in energy, he always gave an impression of great physical strength, but the war, and the strenuous years that followed it, took their inevitable toll The son of a rector and the nephew of an archbishop, it seemed likely that the Church would claim him, but his leanings were towards the natural sciences, and he proceeded to Glasgow University to qualify in medicine After graduating M B, C M in 1894, he joined the I M S for special duties, and distinguished himself as plague commissioner at Velore Thereafter he settled in practice in South Wales, and threw himself into the work of the British

Medical Association. For some years he sat on the Representative Body—1912 (Liverpool), 1913 (Brighton), 1914 (Aberdeen)—and did much useful work for the Association. At the outbreak of the great war he played a leading part in raising and training the medical units of the Welsh Army Corps. A keen member of the Order of St. John, he became second in command of the 130th Field Ambulance—which was composed entirely of St. John Ambulance men. Subsequently, after a brief period in the line, he was promoted lieutenant-colonel, and took over the command of the 129th Field Ambulance of the 38th (Welsh) Division. He was mentioned in dispatches for his services on the Somme and at Ypres.

A colleague, "F. T. R.," writes: Of untiring energy and unfaltering courage, resourceful in emergency, and calm in the midst of panic, he was an ideal commanding officer. His men were devoted to him, for they knew he would never ask them to go where he would not go himself. Towards the end of 1917 his health broke down under the strain, and he was invalided home to recuperate. Long before his convalescence was complete he was recalled to take over duty as Commissioner of Medical Services, Wales region, Ministry of National Service. On the termination of the war he accepted the office of Commissioner of Medical Services, Wales region, Ministry of Pensions, later becoming director of the region, and subsequently headquarters inspector in that Ministry. In these latter offices his great capacity for organization showed itself. A master of detail, he was yet able to detach himself sufficiently to maintain a true perspective. A man of high principle, and with a lofty conception of duty, he allowed no considerations of personal advantage to deflect him for one moment from a course of action that he conceived to be right. He gathered around him at Cardiff a loyal band of colleagues, in whose welfare he displayed a continuing interest. A great lover of nature, it was to the pursuits of the countryside that he devoted himself upon his retirement. He was an expert fisherman and an excellent shot. His knowledge of the wild life of the country was immense, and a day spent with him on the river was an education. He was ideally happy in his home life; and, with the cares of his office laid aside, he was a charming host to those whom he bade to his table. He was laid to rest at Manordeifi Church, in the heart of the countryside that he knew so well. Representative men of the Principality had gathered from near and far, but what he would have appreciated more was the concourse of men and women from the surrounding villages who had come to add their humble tribute not only to a distinguished Welshman, but also to a kindly friend. We took our leave of him with sorrow in our hearts, but yet with gratitude that we had been privileged to travel thus far along the road with him.

We regret to announce the death, at the age of 74, of Dr. Robert Morrison of Duffield, Derby. He was the son of James Morrison of Toberdoney, Dervock, co. Antrim, and was educated at Queen's College, Belfast, Queen's College, Galway, and the Royal Colleges at Edinburgh, taking the old "triple qua" in 1885. All his life he was a friend of horses and dogs, and, when he came to settle down in practice, the open-air life of a country doctor before the days of motors appealed to him irresistibly. Accordingly he settled, forty-two years ago, in Duffield, a village on the edge of the Derbyshire Hills, and soon acquired an extensive practice, his breezy manner, fine appearance, sound technical knowledge, and great kindliness appealing to every class of the community. In his younger days he was an admirable tennis player, good golfer, and an excellent shot, but hunting was his real joy. He was thus a well-known figure for over thirty years with the Meynell and Harrington Hunts, and whenever there was an accident in the field the first cry was, "Where's Morrison?" He never neglected his patients, but when the hounds were anywhere in his neighbourhood, and he had no anxious cases, he would often slip away in his hunting kit in the morning, before he was seen about cases that could easily be treated on the next day. For many years he was medical officer to the Belper Rural District Council, and held, in addition, all the usual local appointments. During the war he was medical officer to the Duffield V.A.D. Hospital. He married Mildred, only daughter of Alfred Pochin of Leicester, and had three children—a son, Dr. Gordon Morrison, who succeeds to the practice, and two daughters. His widow and children survive him.

The death occurred in Edinburgh, on October 5th, of Dr. Robert Henry Blaikie, a well-known practitioner of that city. Born in 1858, Dr. Blaikie was a son of the late Professor W. G. Blaikie of New College, Edinburgh, and received his early education at Edinburgh Academy. Proceeding to Edinburgh University he graduated M.A. in 1878 and M.B., C.M. in 1881. After a period of surgical residentship in the Royal Infirmary with the late Dr. Joseph Bell, he took up general practice, in which he was busily engaged until his retirement last July. He graduated M.D. in 1883, and joined the Royal College of Surgeons, Edinburgh, as a Fellow in 1884. For many years he was assistant medical officer to the Longmore Hospital for Incurables, and he also acted as medical officer to the Cripples' Home, Edinburgh. One of his chief recreations was golf, and he was an original member of Loughness Golf Club. He is survived by a widow and a married daughter.

The death occurred at Hankow, on October 4th, of Dr. Lilian Enid Watney, a medical missionary of the China Inland Mission since 1911. Dr. Watney, who was 50, was the daughter of the late Dr. Herbert Watney of Pangbourne, Berks. Both her brother, Dr. Martyn Watney (now one of the secretaries of the Mildmay Conference), and her sister became missionaries, the former in Africa, the latter in China. Lilian Watney received her medical training at the London School of Medicine for Women. In September, 1911, she sailed for China, and worked for some years at the C.I.M. Hospital at Paoning, in Sze-chwan Province. Later she moved to Liangshan, in the same province. But ill-health brought her home, and for several years she was too ill to return to medical work in China. Two years ago, however, she made a remarkable recovery, and went back, this time to Kaifeng, Honan Province.

Medical News

The Malcolm Morris Memorial Lecture will be delivered by Dr. R. O. Moon in the hall of the Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, W., on Tuesday, November 14th, at 5.30 p.m. His subject will be "Housing and Town Planning in Relation to Public Health," with Sir James Crichton-Browne in the chair.

An address, entitled "Some Points in the Philosophy of Physics: Time, Evolution, and Creation," will be given by Professor E. A. Milne, at University College, Gower Street, W.C., on Tuesday, October 17th, at 8.15 p.m. Tickets can be obtained from the Director of Studies, The British Institute of Philosophy, University Hall, 14, Gordon Square, W.C.1.

At the meeting of the North-West London Medical Society on Tuesday, October 17th, at 9 p.m., at the Regent Rooms, Regent Cinema, Finchley Road, Sir Harold Gillies will give his presidential address on "Plastic Surgery—General Scope and Some Modern Applications," illustrated by cinematograph and lantern slides.

A meeting of the Royal Microscopical Society will be held at B.M.A. House, Tavistock Square, W.C., on Wednesday, October 18th, at 5.30 p.m., when papers will be read by Mr. Harold Wrighton and Professor T. K. Koshy.

The annual general meeting of the Society of Medical Officers of Health will be held at 1, Upper Montague Street, W C, on Friday, October 20th, at 5 p m, when Dr Charles Porter will be installed president of the society and will deliver his inaugural address on "Presidents and Prophecies"

The annual dinner of the Surgical Instrument Manufacturers' Association will be held at the Criterion Restaurant, Piccadilly, on Friday, October 20th, at 7 p m, when the principal guest will be Sir William de Courcy Wheeler

The South West London Medical Society announces a new series of lectures beginning on October 18th, when Dr L S T Burrell will speak on artificial pneumothorax. Other lectures will be given as follows November 8th, Dr Ulysses Williams "Will an X Ray Examination be Helpful?" December 13th, Mr P H Mitchiner "When to 'Wait and See' in Acute Appendicitis" January 17th, 1934, Dr Jacques Forestier (Paris) "Early Diagnosis of the Various Forms of Arthritis and Their Treatment" February 14th, Dr G Slot "Drunkenness" April 11th, Dr T C Hunt "Recent Advances in Treatment" May 9th, Mr C P G Wakeley "Head Injuries" The session will conclude with the Bolingbroke Lecture, on June 13th, by Mr Comyns Berkeley, entitled "Carcinoma of the Cervix Uteri" Meetings are held at the Bolingbroke Hospital, Wandsworth Common, S W

The Royal Institute of Public Health has arranged a course of lectures on "Citizenship in Relation to Personal and Public Health," to be delivered in the lecture hall of the Institute, 23, Queen Square, W C, on Wednesdays at 4 p m, from October 18th to December 13th No tickets of admission are required

At the annual meeting of the Geneva Society for the History of Medicine, Natural Sciences, and Technique, recently held at Erfurt, Professor Karl Sudhoff, the founder of the society, was presented with the Goethe medal on the occasion of his 80th birthday, together with an autograph letter from President Hindenburg It was decided that at all future annual meetings a Sudhoff lecture should be given in honour of the founder The first lecture was given by Professor Diepgen, president of the society, on the development of medical history in the last eighty years

The Fellowship of Medicine, 1, Wimpole Street W 1 has arranged a week end course in clinical surgery at the Royal Albert Dock Hospital, on October 21st and 22nd from 9 30 a m to 6 30 p m A course in gynaecology will be given at the Chelsea Hospital for Women, from October 23rd to November 4th A course in diseases of the nervous system, especially suitable for the general practitioner, will be held at the West End Hospital for Nervous Diseases from October 30th to November 4th There will be a course in urology for advanced post-graduates, at St Peter's Hospital, from November 6th to 18th Other forthcoming courses are diseases of the chest, October 28th to 29th, at the Brompton Hospital, ophthalmology, October 30th to November 18th, at the Central London Ophthalmic Hospital (afternoons only), obstetrics, November 4th and 5th, at the City of London Maternity Hospital gynaecology, November 18th and 19th, at the Samaritan Hospital A panel of teachers giving individual clinical instruction is available daily

A post graduate course on diseases of children will be held at the Great Ormond Street Hospital, W C, from October 23rd to November 4th, from 10 a m to 1 p m and 2 p m to 4 p m, Saturdays 10 a m to 1 p m The course, the fee for which is £6 6s, will consist of fifty clinical lectures and demonstrations and six laboratory demonstrations Applications to take the whole course, or any part thereof, to the secretary of the hospital

The Hampshire Federation of Townswomen's Guilds is holding a conference on food reform on Wednesday, October 18th, at the Watts Memorial Hall, Above Bar Street, Southampton It will be opened by the Mayor of Southampton at 10 45 a m, and Professor V. H Mottram will give a lecture on food values and diet at 11 o'clock This will be followed by a talk from the practical housewife's point of view by Miss Abrahams, dietitian at St Bartholomew's Hospital Under her direction the Southampton Gas Light and Coke Company will demonstrate the cooking of a perfectly planned menu Medical practitioners interested in food questions are cordially invited to the conference

The first French Congress of Therapeutics will be held in Paris under the presidency of Dr Loeper professor of therapeutics in the Paris Medical Faculty, from October 23rd to 25th, when the following subjects will be discussed parenteral treatment of gastro duodenal ulcer, treatment of *B coli* infections, treatment of radiodermatoses, and electrical and chemical pyretotherapy Further information can be obtained from the Bureau of the Congress, 8, Place de l'Odeon, Paris

The second European Congress of Mental Hygiene will be held at Rome under the presidency of Professor Sante de Sanctis on October 27th and 28th, when the following subjects will be discussed mental hygiene and the school, introduced by Professor Eugenio Medea of Milan extra-hospital public assistance for those predisposed to mental disease, introduced by Professor Auguste Lev of Brussels, and the importance of the family for mental hygiene, introduced by Dr H Roemer of Illenau, Germany Further information can be obtained from the general secretary, Professor C Tumiati Via Masaccio 119, Florence

The thirteenth German Congress for Psychology will be held in Leipzig from October 15th to 19th

The Industrial Welfare Society through its advisory medical committee has arranged a conference at the Hotel Victoria, London, on Tuesday, October 17th, at 4 p m, when Dr W J O Donovan will read a paper on dermatitis, and a discussion will follow About 150 well-known firms will be represented

The *New English Dictionary on Historical Principles*, of which the publication was begun in 1884 and completed in 1928, has for some time been virtually out of print The Oxford University Press will publish this autumn, a reissue of the complete work as edited by James A H Murray, Henry Bradley, W A Craigie and C T Onions, in twelve volumes (as compared with the original ten) and a supplement volume, at £21 net

The October issue of the *Prescriber* contains a review of the literature dealing with all aspects of dermatology and the treatment of skin diseases during the preceding twelve months with complete bibliography

The Vienna Faculty of Medicine has published a booklet programme of the various post graduate courses which will be held in that city during the twelve months terminating August 31st 1934 It is announced that the international courses will be as follows modern therapeutics November 27th to December 8th diseases of the stomach and intestines and metabolism February 12th to 25th skin and venereal diseases May 28th to June 12th and recent advances in medicine with special reference to therapeutics September 24th to October 8th 1934 Copies of the programme and details of the various courses and other instruction available can be obtained from the secretarial office of the International Courses Porzellengasse 22, Vienna IX

The French Ministry of Health has recently published the warnings against the dangers of gonorrhœa, drawn up in a recent congress on the subject

Dr W J O Donovan has accepted the presidency of the London branch of the Chartered Society of Massage and Medical Gymnastics for 1934

Dr J B Magennis of Dublin has recently received the decoration of the Cross of the Legion of Honour

Dr Chevassu has been nominated professor of surgical pathology in the Paris Faculty of Medicine in succession to Professor Marion, and Dr Legueu professor of clinical urology, and Dr Maucla re, professor without a chair, have been nominated honorary professors

Professor Franz Volhard of Frankfurt is to succeed Professor His in the chair of internal medicine at Berlin University

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

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QUERIES AND ANSWERS

Hyperidrosis

"UNCOMFORTABLE" writes: Could any reader suggest treatment for very excessive axillary perspiration, equally bad on warm or cold days, and infinitely more unpleasant and chilling on the latter. No abnormal perspiration elsewhere, and general health very good.

Pigmentation of Scalp and Hair

"B.D.V." writes: I have a male patient, aged 60, whose scalp and part of his hair have assumed a brown colour like a nitric acid stain. I have been unable to ascertain the cause, either external or internal, and would welcome any suggestion as to cause and treatment.

Aphthae

"J. D." asks for suggestions in the treatment and prevention of recurring aphthous patches in the mouth.

Winter Underwear

"NORTH LONDON" inquires about the best material for winter underwear. Recently he saw a copy of instructions given to a mother whose small son was attending the asthma clinic at Great Ormond Street Hospital. Under the head of clothing, it said that silk, or silk-and-cotton mixture, was preferable to wool for the vests of these children. He wonders if the same holds good for the ordinary individual, who would like to minimize as much as possible the risk of contracting colds, coughs, etc.

"Pulex ubiquitus"

"TRAINED NURSE" suggests that if "Hopeful" will sprinkle turpentine on his underwear and bedclothes (including the mattress) daily, he will find within a week that he provides "a less attractive meal" for the fleas.

Income Tax

Various Expenses

"W.W." has, during the past financial year, acted as house physician, ship surgeon, and resident medical officer at a convalescent home. He inquires whether he can deduct (*a*) cost of uniform (£28 10s.) as ship surgeon, (*b*) entrance fee for Final M.B. examination, and (*c*) fee for correspondence tuition.

*** (*a*) We understand that there is an agreed annual rate of allowance for cost of uniforms worn by ship surgeons. It is apparently intended to cover extra rather than total cost, but we believe there is no bar to a claim for the first year's outlay. We suggest that "W. W." might call the attention of the inspector of taxes to this special arrangement—no doubt it applies to mercantile marine officers generally—and ask him to reconsider his views. (*b*) and (*c*) These are not allowable; they are expenses incurred to obtain a qualification, and not actually in the performance of the duties of the office or employment.

LETTERS, NOTES, ETC.

"Hair-drill," an Adjunct to "Deep Breathing"

Sir JAMES DUNDAS-GRANT (London, W.) writes: As an adjunct to "deep breathing" I would recommend the practice of what was once boomed as "hair-drill." In this the arms are raised above the head while the tips of the fingers exercise discreet massage of the scalp, rubbing in some form of emollient such as diluted lanoline. The late Sir Hermann Weber insisted on the value of exercises with the arms raised above the head, and this hair-drill may be found a not unattractive method of putting this principle into practice. I am sure my fellow-practitioners must have realized the value of Sir Hermann's recommendation, and I hope they will find my suggestion helpful in inducing their patients to adopt it.

"Drawing the Pillow"

Dr. MARK R. TAYLOR (Southampton) writes: Dr. David Rorie, whose "Nova et Vetera" article under the title "Hastening the Death of the Aged, Infirm, and Sick," appeared in your issue of September 30th (p. 611), might like to know that such a custom existed in mid-Norfolk in recent times. A doctor, who is still in practice there, told me he had met with two instances of the hastening of the death of old people who lay too long adying. The method employed was to draw away the pillow and allow the sick person's head to fall back. In one case my friend remonstrated with an old woman who he believed had just helped a sufferer out of the world, and told her it was murder. Her reply was: "Oh no, Sir, it's not murder; it's what we call 'drawing the pillow.'" He was also told by a district nurse that she had come across a similar case in South Lancashire. The practice seems to be used only in the case of persons who take an unconscionable time to die, and have worn out the patience of all around them. Dr. Rorie's illustrations are based on tribal traditions—mine only on impatience.

"WING COMMANDER R.A.F.M.S." writes from Malta: I was much interested in Dr. D. Rorie's article under "Nova et Vetera" in the *Journal* of September 30th. Some nations still carry on similar customs to the present day. I well remember, during the second Balkan war in 1912, an aged Montenegrin staggering into my dressing station late one night and telling us that he was just about to place a bomb under the Turkish wire prior to an attack in the morning. We asked him why he had been selected for such dangerous work, and he said, "Oh, old man, life no use." Discussing the incident afterwards we thought it was rather brutal, but that in a nation whose man power was limited it was sound common sense.

Nucleotide

MENLEY AND JAMES, LTD. (64, Hatton Garden, E.C.1), write: On pages 577–8 of the *Journal* of September 23rd you refer to the treatment of agranulocytosis by means of "nucleotide K-96." To save confusion, we think we should explain that, at the request of the American Medical Association, the name of this preparation was changed to pentnucleotide. We hold the only stocks in Europe of this preparation, on behalf of its manufacturers, Messrs. Smith, Kline, and French Laboratories of Philadelphia.

A Testimonial

Dr. J. S. CRONE (High Sheriff of Middlesex) informs us of an influential movement now afoot among music lovers to present a testimonial to Alicia Adélaide Needham, the distinguished Irish composer. Mrs. Needham is the widow of Dr. Joseph Needham, a well-known practitioner in London, who died in 1920. For many years she occupied a high position in the musical world, as a composer of some 700 Irish songs, song-cycles, marches, hymns, etc. Contributions may be sent to Dr. Crone at the Irish Literary Society (39, Grosvenor Place, S.W.1).

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 49, 50, 51, 52, 53, and 56 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 54 and 55.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 297.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

253 Chronic Suprarenal Insufficiency

M PACKARD and H F WECHSLER (*Ame. Journ Med Sci*, July, 1933, p 66) report a case of malnutritional oedema, in which there was an unusual clinical syndrome, and degenerative lesions were found in the suprarenal glands There was a history of inanition, and the patient, a man aged 50, showed marked anasarca of the extremities and the torso, most pronounced in the lateral thoracic region The face and neck were not involved No specific causes were found for the oedema, but the patient reacted at once to a high calorie diet rich in vitamin B After ten days, however, the marked clinical amelioration ceased and the voracious appetite was replaced by profound anorexia with rapid emaciation He became very tremulous, and involuntary athetoid movements in the fingers were noticed The superficial and deep reflexes disappeared entirely, with the exception of the left plantar one Joint sensation was universally impaired, but severe burning pains were felt in the extremities and their muscles and nerves became very tender The *panniculus adiposus* entirely disappeared, but the skin retained its elasticity, and accommodated itself to the complete loss of fat There was no pigmentation Bed sores developed The non protein nitrogen figure of the blood rose to 61 mg per cent and this fluid became dark and viscid There was no hypertension at any time Bronchopneumonia ensued and terminated fatally At the necropsy the suprarenal glands were found to be enlarged relatively to the marked atrophy of the other organs the right gland weighed 9 2 grams, and the left one 8 7 On section the right gland exhibited a grey grumous mass about 1 cm in diameter which occupied the region of the medulla and the inner layer of the cortex The normal lipoid of the remaining portion of the cortex was replaced by greyish homogeneous tissue The left gland was similar in appearance, except that the cheesy area was much smaller, and portions of the medulla were still discernible The clinical features closely resembled those produced experimentally in animals by bilateral suprarenalectomy, and the authors conclude that this clinical syndrome, hitherto undescribed, is one of chronic suprarenal insufficiency, due to the glandular degeneration occasioned by malnutrition

254 Pulmonary Tuberculosis and Social Conditions

In a survey of the position in the anti tuberculosis campaign, H CURSCHMANN (*Med Welt*, June 10th, 1933, p 797) observes that it is indisputable that the progress of any disease depends not only upon the patient's constitutional resistance but on certain accidental factors (bacterial, toxic, mechanical, climatic, etc), and also on the patient's environment It is no longer entirely true that "the prognosis lies in the patient's purse but poverty and its attendant evils play an important part Viennese statistics show a rapidly increasing incidence in positive tuberculin reactions as age advances Whereas in the first year of life 5 per cent are positive cases among children aged from 11 to 14 years no less than 94 per cent are positive Among children in a better social and hygienic environment (Groningen) it was found that from the first to the fourteenth year 57 per cent were positive Curschmann's statistics (Rostock) for the same age period give the figure of 57 5 per cent The incidence of tuberculosis varies greatly in different trades metal, stone, and glass workers show a high figure, while coopers brewers, and others engaged in the liquor trade show a still higher rate On the other hand, social and hygienic conditions have improved so that in recent years *the* tuberculosis death rate has diminished by approximately 40 per cent, although after the war an increase occurred The present reduction is not the result of new conditions, but is a continuation of the accelerating reduction in tuberculosis mortality observed during the last thirty to forty years in healthy highly civilized countries—for example, Prussia, Bavaria and England This is said to be due to an intensive anti tuberculosis campaign Whether the progressive fall in tuberculosis mortality keeps pace with a simultaneous reduction in tuberculous infections is uncertain Curschmann anticipates that present world conditions by increasing unemployment and diminishing wage earning capacity, will have a very prejudicial influence in the future, since a general reduction in the standard of living must diminish the power of the State to pursue the anti tuberculosis campaign on any extensive scale

255 Weil's Disease

P H KRAMER (*Nederl Tijdschr v Geneesk* June 10th 1933, p 2652) states that during the epidemic of Weil's disease at Rotterdam in the summer of 1932 twenty eight of the seventy five cases notified had jaundice and forty five had none Six of the first group died while all the second group recovered The most important clinical signs in cases without jaundice are conjunctival and episcleral injection, and pain in the muscles—especially the calves Other indications of Weil's disease are tenderness of the eyeballs photophobia herpes the simultaneous occurrence of typical cases, and the occupation of the patient (slaughterhouse man or navvy) The cases without jaundice were divided into the four following groups (1) Eight cases in which the disease ran its course as a severe general infection without localization in any special organ (In four of these cases there was a well marked relapse) (2) Five cases in which the disease was a general infection though milder than in the first group (Three of these had relapses) (3) Seven cases in which the symptoms were those of acute nephritis (4 Four cases in which the symptoms were those of meningitis One had a relapse) A meningeal form of Weil's disease has also recently been described by French writers such as Bloch and Hebert

256 Temperature of Expired Air

R DI NUNNO (*Il Morgagni* June 25th 1933 p 749) examined by thermopile the temperature of the expired air of ninety subjects who were classified in the following groups (*a*) persons in normal health or without respiratory disease twenty five cases (*b*) pulmonary tuberculosis forty cases (*c*) chronic bronchitis thirteen cases and (*d*) heart disease twelve cases The results were as follows in the first group the temperature of the expired air was 2 56° C below the axillary temperature In chronic bronchitis the temperature of the expired air was above normal but did not reach the high values present in tuberculosis In cardiac disease without obvious circulatory disturbance the high temperature of the expired air indicated commencing stasis in the lesser circulation In the first stage of tuberculosis the difference between the highest temperature in the axillae and that of the expired air ranged from 2 31° to 2 20° C in cases of moderate severity from 1 25 to 0 75° and in severe cases from 1 19° to 0 19° On the other hand in chronic cases showing a tendency to recovery the difference ranged from 1 92° to 2 68° C Lastly, it was possible to ascertain an improvement or aggravation of the disease according to the rise or fall of the temperature of the expired air in comparison with the axillary temperature

Surgery

257 Traumatic Luxation of the Hip

M. Voncken (*Bull. et Mém. Soc. Nat. de Chir.*, June 24th, 1933, p. 987) reports a case of luxation of the hip which occurred in a man of 45 years, as the result of a fall. The right hip was in a position of abduction and external rotation, and the dislocation was confirmed by *x* rays. Reduction was attempted under local anaesthesia, but was not successful, and a skiagram showed that the luxation still existed, but had become iliac. Further attempts only succeeded in moving the head of the femur from the obturator position to the iliac, and vice versa. As reduction by manipulation was unsuccessful, it was decided to expose the joint. Under general anaesthesia an incision was made to the fascia lata, which was found to be tightly stretched like a cord. This was divided, and the hip-joint was instantly reduced. The author quotes this case as showing the importance of the periarticular muscles and the tension of the fascia lata, which hindered the reduction of the hip-joint. Since this case the author has carried out the reduction of a similar luxation under spinal anaesthesia, and was struck by the facility with which the reduction was obtained. Nevertheless, in the case reported, it was a simple matter, after the fascia lata had been divided, to bring about a spontaneous reduction.

258 Operation for Aortic Embolus

H. Schmorell (*Zentralbl. f. Chir.*, June 30th, 1933, p. 1509) describes a successful, if atypical, operation for embolus at the bifurcation of the aorta. The patient, aged 66, was seized, thirteen days after operation for acute appendicitis, with sudden pain in both legs, accompanied by disappearance of pulsation in the femoral arteries. Abdominal operation was rejected on account of the foul wound and poor general condition ; a bilateral extraperitoneal approach was inadvisable because of a chronic purulent dermatitis in the right groin. Accordingly, the left femoral and iliac arteries were freed by blunt dissection in the groin and retroperitoneal tissue, in the hope of squeezing the whole embolus into the left iliac artery, and thence into the left femoral artery for extraction. The embolus, however, which was three inches long, slipped from the left internal iliac into the left internal pudic artery. Circulation in the legs was at once re-established and the patient was discharged cured three weeks later, having suffered no inconvenience from the deposit of the embolus in the internal pudic artery. In the case described by C. Rohde (ibid., July 8th, 1933, p. 1583) the patient was aged 52, and arterial obstruction of both egs was noted suddenly fourteen days after removal of a kidney stone. Equally suddenly the circulation was restored to the left leg seven hours later. The right femoral artery was incised and clots 45 and 115 cm. long were removed from the central and peripheral ends respectively. Sensation and pulsation were restored, but not motility. A cerebral embolus occurred three days later.

259 Urethral Stricture following Trypaflavine Treatment for Gonorrhoea

Trypaflavine has been recommended as being a safe and reliable remedy in the " abortive " treatment of gonorrhoea in the male. The technique employed is as follows. The urethra is irrigated freely for five minutes with a 1 in 3,000 trypaflavine solution, followed by instillation of a 0.25 per cent. solution of the same drug. It is claimed that gonococci will have disappeared in two days, and that the treatment causes very little, if any, irritation of the mucosa. F. Gáspár (*Zeit. f. Urol.*, No. 7, 1933, p. 474) records two cases of urethral stricture, each occurring within three weeks of trypaflavine " abortive" treatment, which had been successful in removing all trace of gonococci (although scattered epithelial cells, leucocytes, and erythrocytes were present in the urethral mucus). In both instances the strictures were situated in the anterior urethra. These were treated by dilatation with metal sounds for six and five weeks respectively. Nine other cases were cured by trypaflavine treatment, which produced a rapid and definite diminution of the urethral discharge. One patient was cured in ten days, others in four, six, and eight weeks. In five cases invasion of the posterior urethra could not be prevented. In the cases that were cured in four to eight weeks, the trypaflavine treatment, after eight or ten days, was combined with silver nitrate instillations and treatment with sounds. The patients complained frequently of interrupted, painful micturition, occurring one or two days after treatment. Gáspár concludes that trypaflavine treatment offers the advantage that the discharge is dried up quickly and the gonococci are destroyed. In view of the occurrence of early and obstinate stricture in two cases, he cannot recommend " abortive " trypaflavine treatment. Daily irrigations with dilute trypaflavine solutions (1 in 3,000, 1 in 5,000), with omission of the concentrated solution, appears, however, to be safe, and worthy of a more extensive trial.

Therapeutics

260 Treatment of Syphilitic Aortitis

E. Doumer (*Rev. Méd. Franç.*, May, 1933, p. 465) discusses the treatment of syphilitic aortitis. He insists that arsenobenzol should only be used with great care; dangerous reactions cannot be foretold, and frequently occur when the heart appears normal. Two types of reaction are common: first, cardiac pain, which varies from a severe angina of effort to a dull retrosternal ache; and, secondly, heart failure, as shown by dyspnoea, tachycardia, alterations in rhythm, and attacks of acute pulmonary oedema. The second type of reaction is of grave prognosis as the response to treatment is poor. Such reactions have become relatively common since the introduction of the organic arsenicals ; their mechanism is imperfectly understood, though some are undoubtedly of the nature of Herxheimer phenomena. In view of this, Doumer considers that arsenobenzol is best not used in aortitis, and stresses the value of mercury. Thoroughness is essential. He gives 0.01 gram of benzoate or biniodide of mercury intramuscularly or 0.01 gram of the cyanide intravenously daily for about thirty days. This course is repeated after an interval of six weeks as many times as necessary. He claims as good results by this method as are obtained with arsenic, with the added advantage that reactions do not occur. Cases resistant to mercury are, he finds, almost invariably intolerant of arsenic. As an alternative he suggests a preliminary course of mercury, followed, if no unpleasant reactions occur, by arsenic and bismuth.

261 Emetine Therapy in Alcoholism

Paton and others have recorded beneficial effects on the nervous system in morpho- and dipso-mania, especially in delirium tremens, by emetine administration. A. Bodart (*Bruxelles-Médical*, June 18th, 1933, p. 906) presents a further study on this subject. The mode of action of emetine on the nervous system is unknown, though Pécholier has noted that, in large doses, it diminishes muscular contractility and abolishes the reflexes. By exciting all the secretions the drug facilitates elimination of toxins, especially from the nervous system. In alcoholism, Bodart employs the pharmacopoeial preparation in ampoules of 2 cg. per c.cm., or haemometine Cusi of double the strength. The latter permits of large doses and is less nauseating, but it is expensive and gives no better results. The drug is given subcutaneously, and, as it is rapidly cumulative, the patient must be carefully watched ; its use is contraindicated in the aged and in cardiopathics. In delirium tremens, two or three injections of 2 cg. are given on the first day, on the following five days 2 cg. every twelve hours,

and on the succeeding six days 2 cg daily—a total of 0·38 gram; if haemometine be employed, this dosage is doubled. As adjuvants sedatives (except chloral), hot baths, and cardiac tonics may be given. Bodart follows this treatment with a series of strychnine nitrate injections (1 mg.). The good results, equally as marked in alcoholic dementia, are cessation of the cerebral conditions, delirium and hallucinations. In dipsomania, 2 cg. are given on the first, third, fifth, eighth, twelfth, seventeenth, twenty-third, and thirtieth days, followed by a similar dose weekly. The daily amount of alcohol should be gradually diminished, the patient's co-operation being necessary; careful attention must be paid to the heart. Bodart states that the results in cases of periodic crises due to a cyclic psychosis are the less encouraging. Short notes of five cases in which this treatment was employed are given.

262 Menthol in Influenza

F. Schnapek (*Wien. klin. Woch.*, September 8th, 1933, p. 1107), who has found that the drugs usually recommended for this disease are unreliable, recommends menthol in large doses in the early treatment of cases of influenza. He claims that, given in doses of 7½ grains every two hours, menthol reduces the temperature in eighteen to twenty-four hours, relieves pain and prevents the usual post-influenzal debility. At first he prescribed menthol dissolved in a 'large quantity' of olive oil, but as some patients were unable to take it in this form he tried it subsequently in powder. He now prescribes it dissolved in olive oil in gelatin capsules. Schnapek affirms that this treatment also lessens the incidence of complications such as tonsillitis and pneumonia. Should such complications follow, menthol is less efficacious but if it be prescribed in the earliest stage, before the onset of fever, it is said to be very reliable.

Dermatology

263 Erysipelas and Mycosis Fungoides

H. MacCormac (*Brit. Journ. Derm. and Syph.* June 1933, p. 237) records two cases of mycosis fungoides in a woman aged 60 and a man aged 52, in which remarkable improvement followed an attack of erysipelas. Similar results had been obtained in the case of sarcoma by Coley, who had endeavoured to imitate the natural reaction by injection of his fluid, which is a sterilized broth culture of the *Streptococcus erysipelatosus* and *Bacillus prodigiosus*.

264 Emotional Factors and the Skin

Though the effect of emotion on certain cutaneous manifestations has long been recognized, it is only of recent years that emotion has been considered as a factor in physico-chemical humoral disequilibrium. E. Joltrain (*Bruxelles Medical*, July 2nd, 1933, p. 970) maintains that emotions in certain individuals cause sudden blood changes (haemoclastic crises) which are important causative factors in various conditions, such as urticaria and whitening of the hair. Cases reported by numerous authorities are cited in support of this belief. It is well known that such emotions as fear, anger, joy, excitement, etc., can cause various symptoms—namely, pallor or redness of the face, and other physiological phenomena. It was amply demonstrated during the war that fear (as during bombardments) produced in certain individuals gastro-intestinal symptoms, palpitation, dyspnoea, etc. This condition of shock, however, only exists in subjects with an endocrino-neurotonic disequilibrium termed by Widal and Abrami the colloidoclasic diathesis. Dreyfus-Brisac and Pascal consider the emotion as being an antigen, and believe that it is capable both of producing a dermatitis in colloidoclasic subjects and of creating the diathesis, the shock, and clinical phenomena. Joltrain cites illustrative cases of emotion, especially fear, causing whitening of the hair. The chief characters of haemoclasic shock are a fall in blood-pressure, leucopenia, a lowering of the refractometric index, alkaline reserve, and *p*H, together with changes in the coagulation of the blood. Joltrain concludes that certain affections of the skin and scalp and pigmentary phenomena of the skin and hair occur which are clearly influenced by emotional shock and the psychic state of the subject.

265 Soda Baths in Psoriasis

O. Steiner (*Derm. Woch.* June 30th, 1933, p. 909) recommends hot soda baths in acute or chronic cases of this disease. He uses commercial sodium carbonate as traces of H₂S and of other sulphur compounds are beneficial. The hydrotherapeutic action of soda is due to the absorptive power of the skin and consequent dialytic action in the body fluids. In psoriasis the uric acid content of the skin and blood is increased. The soda bath neutralizes the feeble acidity of uric acid. A definite increase of uric acid may thus be rendered innocuous. Steiner affirms that sulphur-free sodium carbonate is less active than the commercial salt in destroying the psoriasis micro-organism. The patient should be immersed up to the level of the neck or shoulders. In acute cases 14½ oz. of carbonate should be dissolved in 115 gallons of hot water, while in chronic cases Steiner uses 8½ oz. in a similar quantity of water. The salt is dissolved in the bath at a temperature of 90·5° F. Boiling water for the solution is inadvisable. When the patient has been immersed for ten minutes the temperature of the bath should be raised to 104° F. The patient remains in the bath for thirty minutes or longer. On entering the bath the epidermal scales should be removed by light massage. Scratching must be avoided lest irritating particles of soda should be rubbed in. Baths should be given on alternate days, and should not produce any change in weight. The patient should urinate before the bath or vesical tenesmus may occur. If fatigued the patient should rest after the bath. Robust patients may have a hot pack for thirty minutes afterwards; this stimulates the sympathetic and parasympathetic nervous systems. There is a generally recognized connexion between rheumatism and dermatoses; the beneficial action of soda baths in rheumatism is taken to confirm this.

266 Splenotherapy in Pruriginous Dermatoses

Von Zumbusch, Mayr, and Moncorps were the first to employ splenotherapy in dermatoses, especially those with pruritus, believed that in certain dermatites a splenic meiopragia might exist from the fact that eczematous cases show a blood eosinophilia as do splenectomized subjects, and that splenic radiotherapy benefits certain eczemas. J. Gate, J. Charpy, and J. Menard (*Journ. de Méd. de Lyon*, May 20th, 1933, p. 313) record the results obtained in forty-three cases of dermatitis following this treatment. Proper hygiene and dieting were also instituted, but were not believed to have influenced the results. The cases comprised thirty eczemas, four prurigos, three of the dermatitis of Duhring-Brocq, and one each of lichen planus, post-scabietic pruritus, anal pruritus, neurodermatitis, leprosy, and psoriasis. Of the eczemas there were eleven complete cures or considerable improvements with six recurrences, seven partial improvements, and twelve failures; the pruritus was benefited in eight. The prurigo cases showed one cure, two improved, and one failure. Of the three cases of Duhring-Brocq dermatitis one was completely cured in three weeks with no recurrence for a year, one in twenty days, and one showed improvement. In the other conditions the results were negative. The authors believe that splenotherapy presents no marked advantage over other treatments such as autohaemotherapy and sodium hyposulphite injections, but they consider that it should be tried when these measures fail. They give at each injection from 1 to 20 grams of the extract (1 gram corresponding to 5 grams of fresh spleen). If at the end of five or six injections no result is obtained the treatment is abandoned. Should the injections cause pain the acidity may be neutralized with sodium bicarbonate solution, or two-thirds c.cm. of 1 per cent. novocain can be added. The blood changes noted were a high leucocytosis and marked polycythaemia. Hypoleucocytosis was noted. Mayr and Moncorps have observed a raised [illegible]

the eosinophils. The cause of these blood changes is as yet conjectural ; they may be due to the prolonged contraction and exaggerated movements of the spleen caused by the injections. Two hypotheses have been advanced as to the mechanism of their action on the dermatitis. Mayr and Moncorps attribute it to the diminution of the eosinophils which they have constantly noted ; Paul suggests that the spleen furnishes to the blood an enzyme which changes the pancreatic prototrypsin into trypsin. While each hypothesis may explain certain cases, neither is true in all.

Obstetrics and Gynaecology

267 Constitutional Factors in Puerperal Eclampsia

Lévy-Solal and De Pariente (*Presse Méd.*, June 24th, 1933, p. 1013) believe that the convulsive seizure does not constitute the whole of eclampsia, but that premonitory symptoms occur, and thus that an eclamptic diathesis, a veritable expression of pregnancy intolerance, exists. Such a condition is evinced by glandular, sympathetic, vascular, and humoral reactions. Glandular changes (thyroid and parathyroid insufficiency, etc.) have been noted by various authorities at the end of pregnancy. This disturbance marks a constitutional weakness, capable of creating an organic intolerance conducive to eclampsia. These changes are associated with sympathetic disorders: the susceptibility of certain subjects seems conditional on the state of the vago-sympathetic tonus. Arterial hypertension as a factor in eclamptic conditions is better understood if the disturbed return circulation during pregnancy and the vasomotor influences, governed by the individual glandular and humoral changes and psychism of the patient, be considered. These changes—more marked in syphilitic cases—have a certain reaction on the heart and circulation. They cause increased pulmonary circulation, and a peripheral oedematous tendency, which may extend even to the cerebral centres. Besides these tissue reactions, there exists a humoral instability, marked by hypocalcaemia, hyperphosphataemia, and decompensated acidosis. The premonitory symptoms (hypertension, cerebral oedema, and pre-eclamptic albuminuria) termed eclampsism, can thus be explained. These factors alone cannot cause the pre-eclamptic state, which is essentially a function of individual predisposition leading to actual pregnancy intolerance. Reference is made to another factor in the convulsive seizures—anaphylaxis or anaphylactic shock. This has been fully discussed in a previous paper. Renal and hepatic lesions are not causative factors in eclampsia ; though only secondary, they can, however, together with the subsequent acidosis, determine new crises.

268 Osteomalacia in Algeria

Laffont and Lavallée (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, April, 1933, p. 339) describe four cases of osteomalacia seen recently in Algeria, and state that this disease was noted in 1.3 per cent. of 1,132 confinements at a maternity hospital in 1930. It is entirely confined to natives, and in its incidence—probably much greater than the figures indicate—picks out chiefly certain districts which are of medium altitude, moist, and goitrous. As seen in Algeria osteomalacia has certain unusual features. It is rarely lethal, and generally evolves in the course of five or six years: it is seen as often in primiparae as in multiparae, and most commonly in young women. It affects the pelvic more than other bones, but the pelvis retains a considerable degree of malleability, so that spontaneous delivery may occur in spite of gross diminution of the bony outlet. Apart from pain, impossibility of walking, and dystocia, patients with osteomalacia are led to seek treatment by the impossibility of coitus due to narrowing of the pubic arch. In some cases the power of walking is regained after intensive calcium therapy—including intramuscular injections of the chloride—and ultra-violet irradiations.

Pathology

269 Blood Cultures in Typhoid Fever

P. T. Lantin (*Amer. Journ. Med. Sci.*, June, 1933, p. 768) remarks that while all authorities emphasize the importance of complications in the prognosis of typhoid fever no mention has yet been made of the prognostic significance of blood cultures taken at different periods of the disease. Out of a total of 5,373 typhoid cases admitted to two hospitals in Manila only 1,962 (36.52 per cent.) had a single blood culture taken during the course of the disease, for diagnostic purposes only. Of these, 544 (27.72 per cent.) were positive. The fatality among the cases with positive cultures was 32.35 per cent., as compared with 13.05 per cent. among those with negative blood cultures. The prognosis, therefore, in a typhoid case with a negative blood culture is likely to be more favourable than in a case with organisms in the blood stream, especially after the first week of the disease. The longer the typhoid bacilli persist in the blood stream the more likely is the case to end fatally.

270 Allergy and Immunity in Tuberculosis

Florence B. Seibert (*Proc. Soc. Exp. Biol. and Med.*, June, 1933, p. 1274) sensitized seventeen guinea-pigs with a tuberculin protein fraction, T.P.T., by weekly intracutaneous injections of 10 mm. At first there was little response to the injections, but as these increased in number the reaction caused by them became more and more perceptible. After the seventh to tenth injection most of the animals gave reactions that were red, intensely indurated, and with a necrotic centre—very similar to those obtained with tuberculin in tuberculous animals. One week after the twelfth injection the seventeen treated, together with seventeen untreated, guinea-pigs, were inoculated with 0.001 mg. of a live virulent strain of tubercle bacillus of human type ; half of them were inoculated subcutaneously and half intracutaneously. Subsequently, whenever a sensitized animal died, a control animal was killed too. The experiment terminated six months after infection, when the survivors were killed. Six animals in the sensitized group died of intercurrent disease before marked tuberculous changes had developed, and these were omitted from consideration. In general, the sensitized animals died sooner than the controls. Post mortem, these animals showed much more severe lesions. There was extensive haemorrhage and oedema of the spleen, with diffuse caseation and necrosis, and almost entire destruction of the normal tissue. This was in marked contrast to the controls, which showed discrete, raised fibroblastic lesions. The spleen was also much larger in the treated animals. The animals inoculated subcutaneously died sooner than those inoculated intracutaneously. These results suggest that a high degree of hypersensitiveness to tuberculin protein confers no immunity to subsequent tuberculous infection. On the contrary, it seems to hasten and extend the lesion, and to favour the development of extensive necrosis and caseation.

271 Teratoma Testis and Gynaecomastia

G. H. W. Jordans (*Nederl. Tijdschr. v. Geneesk.*, June 24th, 1933, p. 2915) records a fatal case in a man, aged 27, in whom malignant teratoma of the right testis was accompanied by hypertrophy of both mammary glands. The testicular tumour proved to be composed mainly of cartilage and epidermal formations, while the metastases were partly of a chorio-epitheliomatous and partly of a sarcomatous type. The urine contained a large quantity of female hormones, which accounted for the mammary hypertrophy. The urine was also very rich in hormones of the anterior lobe of the hypophysis, and the Aschheim-Zondek reaction was strongly positive. Jordans suggests that the neoplastic tissue and the chorio-epitheliomatous elements gave rise to these hormones.

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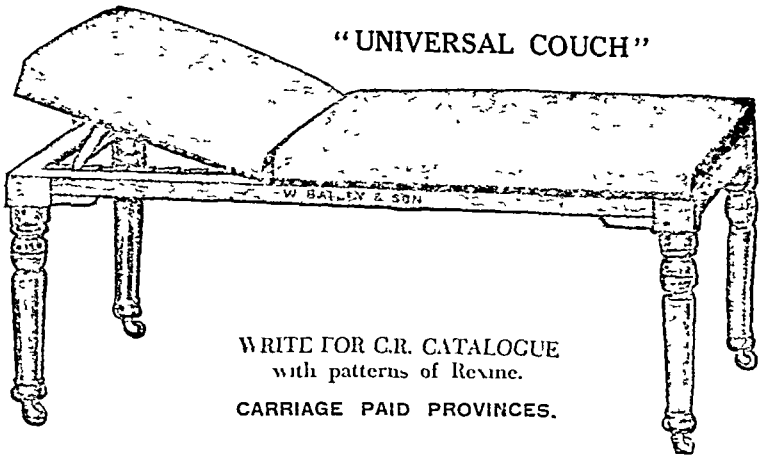
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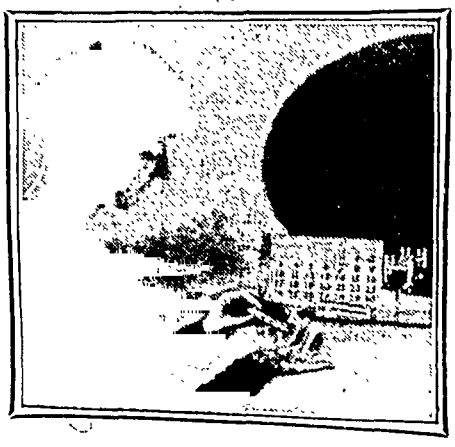
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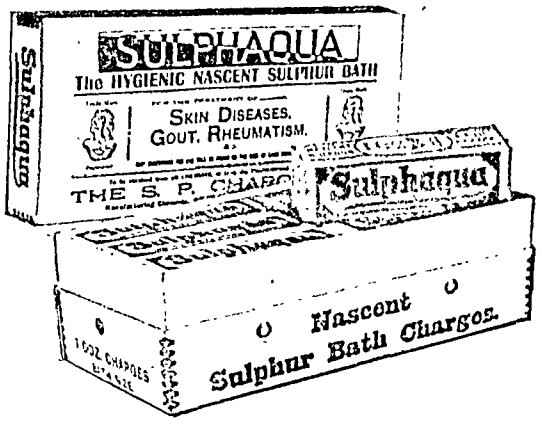
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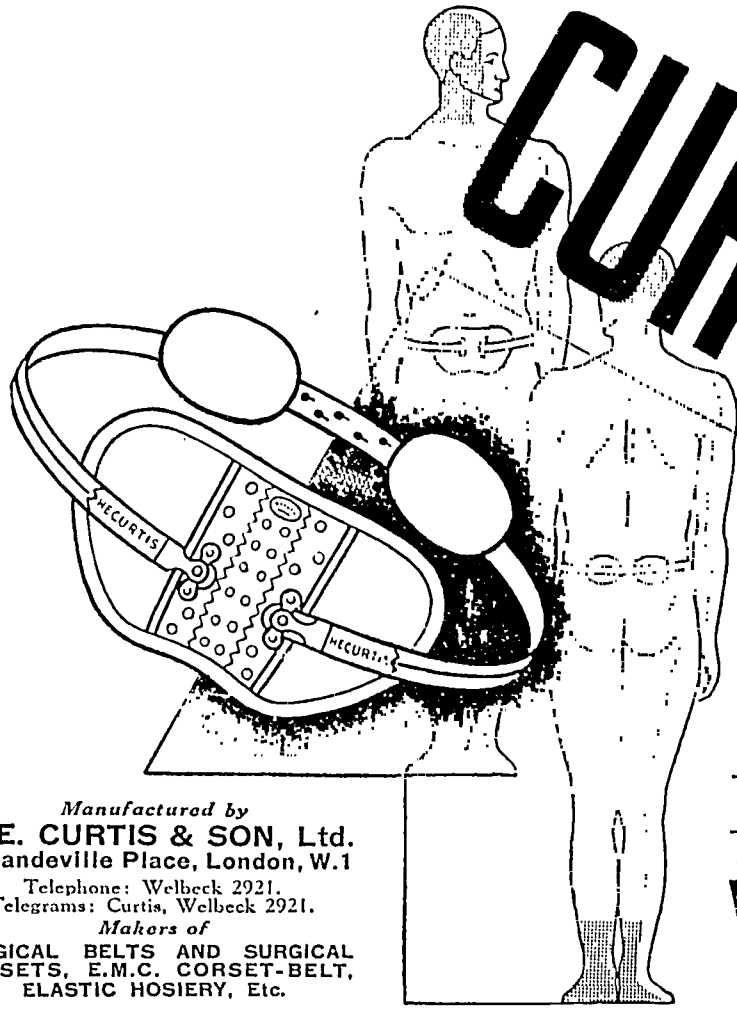
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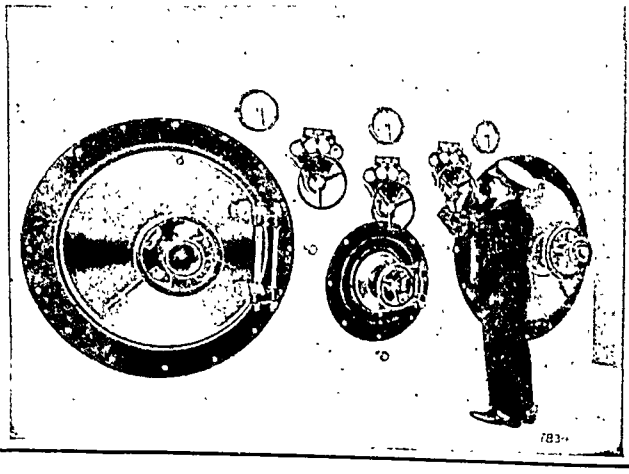
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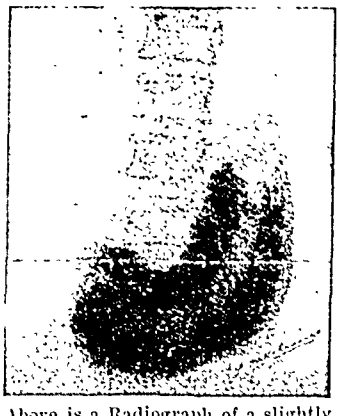
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"We guarantee to alter exchange or accept the return of any appliance without cost ordered by the Medical Profession, if not found Suitable within fourteen days from date of supply."
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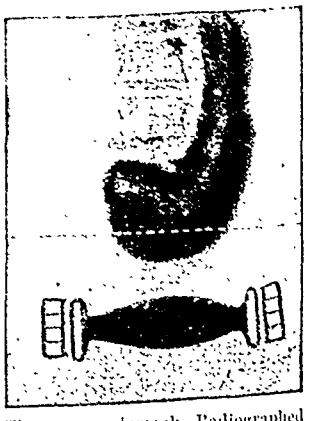
Definitely corrects Ptosis . . . and strengthens the Abdominal wall

The concensus of present-day Medical Opinion favours support rather than operation for the correction of displaced abdominal viscera. Salt's patent Gastroptosis Belt, used in conjunction with suitable dietetic and medicinal measures, is the routine treatment of a large and increasing number of practitioners for ptosed stomach. Its skilful design provides firm, equable pressure which gives effective support without interfering with proper functioning of the abdominal organs. Radiological examination shows that it definitely retains the stomach in correct position, while clinical experience testifies to the prompt and continued relief of symptoms afforded by its use. May we send you a copy of our Corset and Belt Book, which gives further details of this Support, and provides convenient measurement forms?

London Consulting Rooms:
"OAKLEY HOUSE,"
14-18, Bloomsbury St., W.C.1.
Female Fitters in attendance Monday to Friday.
Orthopaedic Mechanician Wednesdays only.
By Appointment.



Above is a Radiograph of a slightly dilated and much dropped stomach in the upright position immediately after partaking of a Barium (6 oz.) Umbrose meal. The greater curvature projects 3½ in. below a line drawn between the iliac crests.



The same stomach Radiographed 15 mins. later, the patient having lain upon a couch, the bottom feet of which were raised 9 in. The belt was then applied, the patient allowed to walk about 5 or 6 mins., and the Radiograph taken in upright position.

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IN THIS AND KINDRED INFLAMMATORY CONDITIONS OF THE THROAT

MONSOL THROAT PASTILLES

are of proved value. Actively germicidal, but also soothing and demulcent, they are of particular value as a prophylactic during INFLUENZA epidemics and in the treatment of all infective throat affections.

A NEW VEST-POCKET TIN has been introduced at the special request of physicians who habitually carry Monsol Pastilles when on their rounds.

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DRESS SUITS *from* £10 : 10 : 0

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OVER-COATS for immediate wear or to measure at moderate prices

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MINERAL WATERS with high Calcium, Iodine and Bromine Content. Indicated in Rheumatism, Gastric Complaints, Asthma, Bronchitis, Debility, etc. Hydrotherapy, Electrotherapy, Massage, Inhalation, Intestinal Lavage.

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Great Britain's Greatest Hydro

Unrivalled suites of Baths for Ladies and Gentlemen, including Turkish and Russian Baths, Nix and Vichy Douches, Massage and Plombières Treatment, and Electric Installation for Baths and other Medical Purposes, Dowsing Radiant Heat, Infra-red Light, Artificial Sunlight, D'Arsonval High Frequency, Diathermy, Nauheim Baths, Soapless Foam Baths, etc. Certified " Milk from own farm of 300 acres. Large Winter Garden. Permanent Orchestra. Special provision for Invalids. Night Attendance Rooms well ventilated and all bedrooms warmed in Winter. A large Staff (upwards of 60) of trained Male and Female Nurses, Masseurs, and Attendants. *Resident Physicians*
G. C. R. HARBINSON, M.B., B.Ch., B.A.O., (R.U.I.); R. MacLELLAND, M.D., C.M.(Ed.).
Terms 13/- to 18/6 per day inclusive board.
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BOURNEMOUTH HYDRO,

with Vita glass Sun-lounge and Marine Balcony.
Pyrexia and
Every kind of Bath. Plombière Lavage.
Every kind of Massage. Ultra violet Light.
Every kind of Electricity. Diathermy.
Every kind of Diet. Exsell Inhaler.
High Frequency. Electric Lift.
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Resident Physicians: W. JOHNSTON SMYTH, M.D. L. T. ROSE-HUTCHINSON, M.D.

LANGHORNE NURSING HOME, POLWORTH ROAD, STREATHAM.

Maternity, Medical, Convalescent, and Aged. Inclusive terms. Every care, comfort, and consideration. Inspection invited. Diet studied.—Apply, MATRON. Telephone: Streatham 3104.

MALLING PLACE, KENT

For LADIES and GENTLEMEN of Unsound Mind, with or without certificates. Terms moderate. Apply Resident Physician.
Telegrams: Adam, West Malling.
Telephone: No. 2 Malling.

Among the Pine-clad Border Hills.

Peebles Hydro

In the sun, 600
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tered swimming
bath, heated
Moder Turkish
sage, electrical treatment, ultra violet radiation.
Physician in attendance. Write for prospectus.
PEEBLES HYDRO, PEEBLES, SCOTLAND

CITY OF LONDON MENTAL HOSPITAL, DARTFORD, KENT.

Ladies and Gentlemen received for treatment under certificates, and without certification, as either VOLUNTARY or TEMPORARY PATIENTS, at a weekly fee of TWO GUINEAS and upwards.

Tel and Telegrams: "Haynes, Brentwood, 45."

Littleton Hall, Brentwood, Essex.

Large grounds, 400 ft. above sea. HOME for ladies Mentally afflicted. Voluntary Boarders received. Station: Brentwood and Shenfield 1 mile. Liverp'l St. 26 min. Apply, Dr. HAINES.

NORMANSFIELD

For Mental Defectives of either sex.
Under private management.
Apply to Dr. Langdon-Down.
Normansfield, Teddington.

THE MOAT HOUSE,

TAMWORTH, STAFFS.

Established 1816. For the TREATMENT of a few LADIES suffering from NERVOUS and MENTAL DISORDERS. Voluntary patients received. For terms apply to the Resident Medical Attendant. Telephone: Tamworth 103.

THE GROVE HOUSE, CHURCH STRETTON, SHROPSHIRE.

A private Home for the care of and treatment of a limited number of Ladies, mentally afflicted. Voluntary and Temporary Patients received under the New Mental Treatment Act, 1930. —Medical Superintendent, Dr. MCCLINTOCK.

ST. ANDREW'S HOSPITAL

FOR MENTAL DISORDERS,

NORTHAMPTON.

FOR THE UPPER AND MIDDLE CLASSES ONLY.

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary patients, who are suffering from incipient mental disorders or who wish to prevent recurrent attacks of mental trouble, temporary patients, and certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms, with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE.

This is a Reception Hospital in detached grounds, with a separate entrance, to which patients can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical bath, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an *X-ray room, an Ultra-violet Apparatus, and a Department for Diathermy and High Frequency* treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK.

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.

BRYN-Y-NEUADD HALL.

The seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, Llantarrtechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (*Telephone No. 2350* and 2357 Northampton), who can be seen in London by appointment.

HAYDOCK LODGE,

NEWTON-LE-WILLOWS, LANCASHIRE.

Phone: 11 Ashton-in-Makerfield.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES suffering from mental and nervous diseases, either voluntarily or under Certificate. *Patients are classified in separate buildings according to their mental condition.*

Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

THE COPPICE, NOTTINGHAM.

HOSPITAL FOR MENTAL DISEASES.

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary and Temporary Patients received.

Tel. 64117. *For terms, etc., apply to the Medical Superintendent.*

COURT HALL, KENTON, EXETER,

SOUTH DEVON.

For the care and treatment of Ladies suffering from Mental Diseases. Limited to eight patients. Telephone: Starcross 59.

CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for early and convalescent cases. *Cliffden is a large well-appointed house, with lovely views of the South Devon Coast.* It is beautifully situated in grounds of 24 acres. The gardens are very attractive, and there is a private road to the beach.

Resident Physicians: BERTHA M. MULES, M.D., B.S.; ANNIE S. MULES, M.R.C.S., L.R.C.P. *Telephone*: Teignmouth 289.

TYKEFORD ABBEY, NEWPORT PAGNELL,

BUCKS.

FUNCTIONAL NERVOUS DISORDERS, MEDICAL & CONVALESCENT CASES.

An Approved Nursing Home for reception of Female Cases under the Mental Treatment Act.

The Home is a Mansion of Historical interest, standing in 9 acres of garden and grounds, and is situated 14 miles from Northampton, and 12 miles from Bedford on the main London to Northampton Road, fifty miles from London. Both sexes are accommodated. Psycho-therapeutic Treatment is used extensively in suitable cases. Radiant Heat, X-Ray, and Ultra-violet Light. Diathermy and Foam Baths. Billiards, tennis, etc. Fees from five gns. per week.

Apply, Dr. D. E. M. DOUGLAS-MORRIS. Telephone: Newport Pagnell 121.

CHISWICK HOUSE

A Private Mental Hospital for the Treatment and Care of Mental and Nervous Disorders in both Sexes.

Now removed to

CHISWICK HOUSE, PINNER, MIDDLESEX

Telephone: PINNER 234

A modern country house, 12 miles from Marble Arch, in beautiful *secluded grounds*. Fees from 10 guineas per week, inclusive. Cases under certificate and Voluntary Patients received for treatment. Special provision for "Temporary" patients under the new Mental Treatment Act.

Douglas Macaulay, M.D., D.P.M.

BARNWOOD HOUSE,

GLOUCESTER.

A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L.M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary Boarders of both sexes are also received for treatment.

Special accommodation for Lady Voluntary Boarders is also provided at the MANOR HOUSE, which has its own private grounds and is entirely *separate from the main Hospital*.

For particulars as to terms, etc., apply to ARTHUR TOWNSEND, M.D., Medical Supt. Telephone: No. 6207, Barnwood.

HILL END HOSPITAL

FOR MENTAL AND NERVOUS DISORDERS

(20 miles from London).

Ladies suffering from all forms of MENTAL ILLNESS are received for treatment, on modern lines, as Voluntary, Temporary, or Certified Private Patients at the Hill End Mental Hospital. Convalescent or mild cases can be treated in a delightful country mansion, with extensive grounds, known as

HIGHFIELD HALL,

situate about a mile away from the Hospital.

FEES: TWO TO THREE GUINEAS PER WEEK.

For further particulars apply to the Medical Supt., W. J. T. KIMMER, L.R.C.P., D.P.M.,

ST. ALBANS, HERTS.

HOME FOR EPILEPTICS,

MAGHULL (near LIVERPOOL).

Chairman: Brig.-Gen. G. Kyffin-Taylor, C.B.E., V.D., D.L.

FARMING and OPEN-AIR OCCUPATION for PATIENTS.

A few vacancies in 1st and 2nd Class Houses.

FEES: 1st Class (men only) from £3 p.w. upwards. 2nd Class (men and women) 33/- p.w.

For further particulars apply:

C. EDGAR GRISEWOOD, Secretary, 20, Exchange Street East, Liverpool.

BAILBROOK HOUSE,

BATH.

A PRIVATE HOSPITAL for the care and treatment of persons with mental and nervous disorders.

Voluntary Patients received in the Villas Large Mansion on outskirts of Bath, with 21 acres of grounds (see *Medical Directory*, page 2300).

For terms apply S. J. GILFILLAN, O.B.E., M.B., C.M.Edin., Resident Physician. Telephone No.: Bathaston 3189.

SPRINGFIELD HOUSE,

Near BEDFORD. (Phone 3417.)

For Mental Disorders with or without Certificates.

Resident Physician: CEDRIC W. ROWER.

Ordinary Terms: Five Guineas per week.

(Including Separate Bedrooms where suitable) Interviews in London by appointment.

WYE HOUSE, BUXTON.

For the treatment of Ladies and Gentlemen mentally afflicted. Voluntary Boarders received. Situated 1,300 ft. above sea-level, facing S. 14 acres of grounds. For terms, apply to the Resident Medical Superintendent, Nat. Tel. 130.

W. W. HORTON, M.D.

THE RESIDENTIAL TREATMENT OF ALCOHOLISM & DRUG ADDICTION

RENDLESHAM HALL

(Postal Address)—**WOODBRIDGE, SUFFOLK**

Rendlesham Hall which is open to receive patients, is essentially a Sanatorium. Its daily life and routine are that of an ordinary comfortable holiday or health resort, or of a large country house. Each patient has all the privileges of a guest consistent with the prescribed medical treatment.

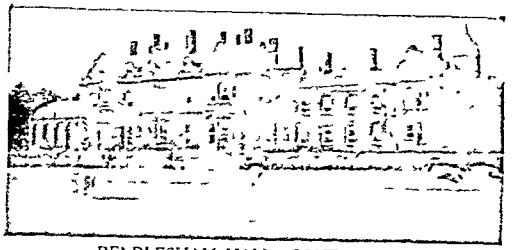
Rendlesham Hall has 45 bedrooms, and about 450 acres of gardens and park. It has also a private nine-hole golf course, tennis and croquet lawns, and bowling green.

Illustrated booklet giving particulars as to terms, etc., can be had on application to the

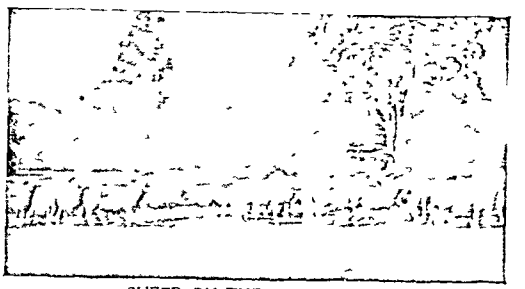
RESIDENT MEDICAL SUPERINTENDENT.

Telegrams and Telephone: Wickham Market 16.
(Toll Call from London)

Proprietors The Norwood Sanatorium, Limited.



RENDLESHAM HALL—SOUTH VIEW.



SHEEP ON THE GOLF LINKS

CALDECOTE HALL

Nr. NUNEATON, WARWICKSHIRE.

'Phone: NUNEATON 241.

Particulars may also be had from the Secretary, 40, Marsham Street, London, S.W.1.

ALCOHOLISM, NEURASTHENIA, Etc.
(For Men)

At this beautifully situated country mansion in Warwickshire (2 hrs from London on L.M.S.R.), the residential treatment of Alcoholism, Neurasthenia, Insomnia, and Nervous breakdown is carried out on the most modern principles under the supervision of the Res. Med. Supt. Recreation and graduated occupational therapy are available in the extensive secluded grounds. Prospectus from A. E. CARVER, M.D., D.P.M., Resident Medical Superintendent

ALCOHOLISM, DRUG HABIT, NEURASTHENIA, etc.

BAY MOUNT, PAIGNTON.

ESTABLISHED 1922. *Phone*, PAIGNTON 5110

A comfortable private HOME, charmingly situated overlooking Torbay, near Torquay. Main line 3½ hours from Paddington. Both Ladies and Gentlemen admitted as voluntary patients. The treatment is the outcome of many years' experience, and besides removing all craving for drink and drugs, it has a tonic action on the system, and the general health is improved. Alcohol and drugs reduced gradually, without suffering. FUNCTIONAL NERVOUS DISEASES AND NEURASTHENIA are also treated with excellent results. Cases with insomnia, depression, etc., do especially well. Exceptionally good climate and ample and varied amusement. Moderate inclusive terms. Prospectus, etc., from STANFORD PARR, M.B., Ch.B., Res. Med. Supt., Bay Mount, Paignton.

CLARENCE LODGE,

CLAPHAM PARK, LONDON.

Situated in 3½ acres of secluded gardens.

HOME FOR TWELVE MENTAL PATIENTS (LADIES).

Well appointed private house. Home comforts and Trained Nursing Staff. Eminent Mental Specialist Visiting Physician. *Station*. *Telephone* Tulse Hill 4913. Clapham Common Tube. Apply, MISS TRWAITES.

FENSTANTON,

CHRISTCHURCH ROAD,

STREATHAM HILL, S.W.2.

A Private Home for the Care and Treatment of a limited number of Ladies with Mental and Nervous Disorders. Separate accommodation for Voluntary Patients. Large Mansion with 12 acres of ground. (See *Medical Directory*, p. 2294.) Apply, J. H. EARLS, M.D., Resident Physician. Telephone: Tulse Hill 7181.

THE GRANGE,

near ROTHERHAM.

A HOUSE Licensed for the reception of a limited number of Ladies suffering from Nervous and Mental disorders. Both certified and voluntary patients received. Approved for temporary Patients. This is a large country house, with beautiful grounds and park, five miles from Sheffield. Tel. No. 40030 Ecclesfield. Res. Phys. GILBERT E. MOULD, L.R.C.P., M.R.C.S., Sheffield Station Grange Lane, L. & N.E. Rly.

STRETTON HOUSE,

Church Stretton, Shropshire.

A PRIVATE HOME for the treatment of Gentlemen suffering from Mental or Nervous Illness, including the allied disorders of Alcoholism and the Drug Habit. All types of early Mental and Nervous cases are received without certificates as Voluntary Patients under the provisions of the Mental Treatment Act, 1930. Bracing Hill country. See *Medical Directory*, p. 2314.—Apply to Medical Superintendent. 'Phone: 10 P.O. Church Stretton.

The MAUDSLEY HOSPITAL

DENMARK HILL, S.E.5

Telephone RODNEY 2101—4.

A CLINIC instituted by the London County Council for Treatment of NERVOUS and CURABLE MENTAL DISORDER. Voluntary patients ONLY received.

NEW OUT PATIENTS. MEN.—Mondays and Thursdays 2 p.m. WOMEN—Tuesdays and Fridays 2 p.m. CHILDREN—Mondays and Fridays 10 a.m.

IN PATIENTS. (a) 229 beds (each sex) in wards or separate rooms including 30 beds in a ward of King's College Hospital which is in use as a temporary annex to the Maudsley Hospital. (b) 13 private rooms (for ladies) with special sitting room, garden and dietary.

TERMS

(a) **£5 a week, but in case of patients with a legal settlement in the County of London a less sum may be charged according to means.**

(b) **£6 6s a week.**

Terms include (with rare exceptions) all forms of treatment for which the facilities exist—there being a staff of consultant specialists, and the central laboratory of London County Mental Hospitals being attached to the Hospital.

Inquiries of EDWARD MAPOTHER, M.D., F.R.C.P., F.R.C.S., Medical Superintendent.

ALCOHOLISM & OTHER DRUG HABITS.

THE HARE NURSING HOME.

As founded and established by the late Dr. FRANCIS HARE, for 20 years Med. Supt. of the Norwood Sanatorium, and author of "Alcoholism," etc.; for the treatment of ALCOHOLISM, other Drug Habits, Insomnia, Neurasthenia, Functional Nervous Disorders.

"THE OLD HILL HOUSE," CHISLEHURST, KENT.

Fees 5—10 guineas. Ample amusements. 25 bedrooms. Annexe for mild cases. Quiet and pleasant situation.

Ladies and gentlemen admitted for treatment.

For prospectus, etc., write or 'phone: WALTER E. MASTERS, M.D., M.R.C.S., D.P.H., Barrister-at-Law (Res. Med. Supt.), Author of "The Alcohol Habit."

'Phone: Chislehurst 451. *Telegrams*: "Masters," Chislehurst.

RUTHIN CASTLE, NORTH WALES

REDUCTION OF FEES

In view of the present economic position, the inclusive fees at Ruthin Castle, formerly from 17 guineas a week, have been reduced to from 15 guineas a week.

The fees include medical attendance, all scientific investigations that may be needed, such as analyses, bacteriological cultures, the ordinary x-ray examinations, and electrocardiograph readings; all treatment that may be prescribed, such as special diets, insulin, artificial sunlight, electrical treatment, baths, massage, nursing; medicines or vaccines, board, and lodging.

The only extra charge is that for a complete alimentary x-ray examination, or for x-ray therapy.

All the usual forms of treatment are given at Ruthin Castle. The climate is mild. The annual rainfall is 30.5 inches, that is, less than the average for England. There is central heating throughout. Should the accommodation in the Castle not prove sufficient, comfortable rooms can be obtained near by for those undergoing treatment.

Address—THE SECRETARY, Ruthin Castle, North Wales. Telegrams: CASTLE, RUTHIN. Telephone: RUTHIN 66.

WOODSIDE HOSPITAL

WOODSIDE AVENUE, MUSWELL HILL, LONDON, N.10

President: THE RT. HON. THE EARL OF ATHLONE, K.G., P.C.

Fully equipped with every modern appliance for the diagnosis and treatment of

FUNCTIONAL NERVOUS DISORDERS

Private Rooms, Broad Verandahs, Physiotherapy and Psychotherapy, X-ray and Dental departments, Laboratories for investigation and research. For terms and particulars apply to the Physician in charge at the Hospital. Telephone: Tudor 4211.

THE OLD MANOR SALISBURY

A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds. Detached Villas. Chapel. Garden and dairy produce from own farm. Terms very moderate.

CONVALESCENT HOME at BOURNEMOUTH.

Detached Villas standing in 12 acres of ornamental grounds, with tennis courts, etc., which Voluntary, Temporary or Certified Patients may visit, by arrangement, for long or short periods.

Illustrated Brochure on application to the Medical Superintendent, The Old Manor, Salisbury. Telephone 51.

CHEADLE ROYAL MENTAL HOSPITAL,

CHEADLE, CHESHIRE.

This REGISTERED HOSPITAL, with a SEASIDE BRANCH at Colwyn Bay, N. Wales, is for the treatment and care of those of the Upper and Middle Classes suffering from MENTAL and NERVOUS DISEASES.

The Hospital is governed by a COMMITTEE, appointed by the TRUSTEES of the Manchester Royal Infirmary.

In addition to the Main Building there are separate villas. Extensive grounds. Hard and grass tennis courts, cricket and croquet grounds, and a court for badminton. There are also wireless installations. Golf may be had within easy distance. Occupational Therapy.

VOLUNTARY, TEMPORARY, AND CERTIFIED PATIENTS received.

The Hospital is nine miles from Manchester, 50 minutes by rail from Liverpool, and 3½ hours from London.

For terms and further particulars apply to the Medical Superintendent, J. A. C. ROY, M.B., who may be seen in Manchester by APPOINTMENT.

Telephone: GATLEY 2231 (3 lines).

CAMBERWELL HOUSE, 33, Peckham Road, London, S.E.5.

Telegrams: "PSYCHOLIA, LONDON." *Telephone*: RODNEY 4731—4732.

FOR THE TREATMENT OF MENTAL DISORDERS.

Also completely detached Villas for mild cases, with private suites if desired. Voluntary patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Putting Greens, Bowls, Croquet, Squash Rackets, and all indoor amusements, including Wireless and other Concerts. Occupational Therapy, Callisthenics, and Dancing Classes, X-ray and Actino-therapy, Prolonged Immersion Baths, Operating Theatre, Pathological Laboratory, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician: Dr. HUBERT JAMES NORMAN, assisted by three Medical Officers, also resident and visiting Consultants.

An illustrated Prospectus, giving fees which are strictly moderate, may be obtained upon application to the Secretary.

The Convalescent Branch is HOVE VILLA, BRIGHTON, and is 200 feet above sea-level.

NORTHUMBERLAND HOUSE,

GREEN LANES, FINSBURY PARK, N.4.

Telegrams: "SUBSIDIARY, LONDON." *Telephone*: NORTH 0888.

A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses. Conveniently situated four miles from Charing Cross. Easy access from all parts. Six acres of ground highly situated, facing Finsbury Park. Private Suites. Voluntary Patients and Temporary Patients received without Certification.

Convalescent Home, **Kearsney Court, Dover.** For further particulars, apply to the **Medical Superintendent.**

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." Telephone: Rodney 4741-4742.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Certified voluntary and temporary patients are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis Courts. Entertainments, dances, and indoor amusements held throughout the year. Terms from £3 3s. per week.

Illustrated prospectus and further particulars can be obtained from the MEDICAL SUPERINTENDENT.

The MUNDESLEY SANATORIUM

The newly opened central building makes the Mundesley Sanatorium the best equipped building in England for the cure of Tuberculosis. All the bedrooms have hot and cold running water, electric light, and wireless headphones. The new public rooms are spacious and comfortable.

Resident Physicians:
S. VERE PEARSON, M.D. (Cantab.), M.R.C.P. (Lond.).
ANDREW MORLAND, M.D. (Lond.), M.R.C.P.
E. C. WYNNE-EDWARDS, M.B. (Cantab.).

For all information apply:
THE SANATORIUM, MUNDESLEY, NORFOLK.
(Telephone: Mundesley 94)

The buildings face S.S.W. and are sheltered from the sea by a pine-clad ridge. The sunshine record and dry air complete a perfect site. The medical equipment is of the latest kind, and there is a day and night nursing staff.

TERMS FROM 7½ GUINEAS WEEKLY.

TOR-NA-DEE SANATORIUM
MURTLE DEESIDE ABERDEENSHIRE
FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS

Managing Director: DAVID LAWSON, M.D., F.R.S.E.

Southern aspect. Low rainfall. Pure bracing air. Sheltered grounds. Beautiful surroundings. All modern equipment for diagnosis and treatment, including operating theatre. No extra charge for X Rays, Artificial Pneumothorax, Ultra-Violet Light, or other special treatment.

Day and night Nursing Staff. All bedrooms have central heating, electric light, hot and cold running water, and wireless (headphones). Comfortable and airy public rooms.

Medical Superintendent: J. M. JOHNSTON, M.B., M.R.C.S., D.P.H. For full particulars and prospectus apply to the Secretary.

Inclusive Terms: SEVEN GUINEAS A WEEK.

THE COTSWOLD SANATORIUM
First opened in 1898 and rebuilt in 1925. On the Cotswold Hills, seven miles from Cheltenham, for the treatment of Pulmonary and all other forms of Tuberculosis. Aspect S.S.W., sheltered from North and East, elevation 800 feet. Pure bracing air. Special Treatment by artificial Pneumothorax (X-ray controlled), Tuberculins and Ultra-violet Rays is available, when necessary, without extra charge. X-ray plant. Electric light. Radiators, hot and cold basins, and Wireless in all rooms.

Full day and night Nursing Staff.
Medical Superintendent: GEOFFREY A. HOFFMAN, B.A., M.B., T.C.Dub. *Assistant Physician:* MARGARET A. HARRISON, M.B., B.S.Lond.
Consulting Laryngologist: SIDNEY BERNSTEIN, M.R.C.S.Eng., L.R.C.P.Lond. (Attends Regularly.)
Apply: The Secretary, The Cotswold Sanatorium, Cranham, Gloucester. *Telephone* 42 WITCOMBE. *Telegrams* HOFFMAN BIRDLIP.

NORDRACH-UPON-MENDIP SANATORIUM
FOR THE TREATMENT OF TUBERCULOSIS, was opened in January, 1899, by ROWLAND THURNAM, M.D.

All modern forms of treatment are available. There are X-ray and ultra-violet ray installations. Full day and night nursing staff. The Sanatorium stands in gardens and private grounds of 65 acres at an altitude of 800 feet above sea-level, surrounded by woods and moorland. All rooms are heated by hot-water pipes and electrically lighted.

Fees 4, 5, and 6 guineas per week.

CYRIL FRANCIS ASHBY, M.R.C.S., L.R.C.P., *Certificate of Sanatorium Stephani, Switzerland, Resident Medical Supt.*
For full particulars apply to *The Secretary*, Nordrach upon Mendip, Blagdon, Bristol. *Telegrams* Nordrach Blagdon. *Telephone* Blagdon 25.

LINFORD SANATORIUM,
RINGWOOD, NEW FOREST, HANTS.

Established 1898 for the treatment of Tuberculosis. Radiators and Electric Light throughout. Hot and cold water and shower bath in nearly all rooms. Powerful X-ray Plant. Ultra-violet Rays. Full Nursing Staff. All forms of treatment available. Farm of 120 acres, including 40 acres of wood. Herd of Tuberculin-tested Guernsey cows kept. Resident Physicians—ARTHUR DE W. SNOWDEN, M.D., B.Ch.(Cantab.), A. G. E. WILCOCK, M.R.C.S., L.R.C.P., COLIN CASSIDY, M.B., B.Ch.(Cantab.)

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Built 1929-30.

THE ONLY SANATORIUM IN SWITZERLAND UNDER BRITISH OWNERSHIP AND CONTROL, AND WITH A DAY AND NIGHT STAFF OF BRITISH TRAINED NURSING SISTERS.

REDUCED INCLUSIVE TERMS——QUOTED IN STERLING.

Med. Supt.: HILARY ROCHE, M.D.(Melb.), M.R.C.P. (Lond.), Tuberc. Dis. Dip. (Wales)

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KINGUSSIE, INVERNESS-SHIRE.

Specially built for the Open air Treatment of Tuberculosis, and opened in 1901. Bracing mountain air. Elevation 860 ft. above sea level. Sheltered situation in pine wood. Graduated walks. Electric light throughout building and in shelters. Central heating. Fully equipped X-ray Plant. Inoculation Treatment available for patients—24 beds. Trained Nurse on duty all night. Terms £4 7s. 6d. to £6 6s. per week inclusive. No extras. Med. Supt.—FELIX SALT, M.D.
For particulars apply to the Secretary.

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For the Treatment of

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RHEUMATISM, ARTHRITIS, FIBROSITIS, NEURITIS,
ARTERIO-SCLEROSIS and HYPERPIESIS,
DISEASES OF THE
LIVER and GALL BLADDER, GASTRIC CATARRH and COLITIS,
SKIN DISEASES, ANAEMIA, and Convalescence from Acute Illness,

Members of the Medical Profession are asked to write for particulars of Complimentary Facilities to F. J. C. BROOME, General Manager, 3, The Royal Baths, Harrogate.

A comfortable London Hotel, convenient for Harley Street and Nursing Homes.

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WELBECK STREET, LONDON, W.1,

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M.R.C.P. LONDON
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Short Intensive Oral and Postal Revision Courses in preparation for these qualifications.

Apply SECRETARY, Medical Correspondence College, 19, Welbeck Street, W.1.

Free booklet "The M.R.C.P. and How to Obtain It," on application.

MASTERY OF MIDWIFERY.

Examinations for the Diploma of the Mastery of Midwifery of the Society of Apothecaries of London will be held beginning Monday, November 20th, 1933, and Monday, May 21st, 1934.

For regulations, apply to the Registrar of the Society, Water Lane, E.C.4.

Preliminary Examinations.

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

F.R.C.S.(Edin.).

PREP. COURSE with daily Lecture-Demonstrations of Museum Specimens of Surg., Path., for next Exam., will commence shortly. POSTAL TUITION at any time.—Further parties., H. C. ORRIN, F.R.C.S., Surgeons' Hall, Edinburgh.

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Diploma in Psychological Medicine.
Diploma in Ophthalmology.
Diploma in Radiology.
Diploma in Laryngology, Otology, and Rhinology.
Diploma in Public Health.
Diploma in Tropical Medicine.
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M.R.C.P.Lond., and all higher Medical Examinations.
M.D. Thesis of all Universities.

You can qualify for any of the above by our Courses of Combined Postal and Practical Courses.

Write at once stating your requirements to the Secretary, MEDICAL CORRESPONDENCE COLLEGE, 19, Welbeck Street, W.1.

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LIVERPOOL SCHOOL OF TROPICAL MEDICINE

(UNIVERSITY OF LIVERPOOL.)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 2nd, 1933, and January 3rd, 1934, and for the Diploma in Tropical Hygiene on January 11th and April 26th, 1934. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars, apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

SCHOOLS for BOYS and GIRLS

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Messrs. J. & J. PATON having an up-to-date Knowledge of the BEST SCHOOLS and TUTORS in this Country and on the Continent, will be pleased to AID PARENTS in their choice by sending (free of charge) prospectuses and TRUSTWORTHY INFORMATION and ADVICE.

The age of the pupil, district preferred, and rough idea of fees should be given.

J. & J. PATON, Educational Agents, 143, Cannon St., London, E.C.4. Tel.: Mansion House 5053.

M.R.C.P. COURSE

A Course in Preparation for the January Examination for MEMBERSHIP OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON will be held, commencing on Monday, October 30th.

The Course will extend over ten weeks and will comprise daily instruction, including SPECIAL LECTURES AND DEMONSTRATIONS.

The course will be conducted by the Honorary Staff of the Hospital.

FEE: TWENTY GUINEAS.

Further particulars may be obtained from the Dean, The Charing Cross Hospital Medical School, London, W.C.2, to whom applications should be submitted.

UNIVERSITY OF LONDON.

HEATH CLARK LECTURES.

A COURSE OF FIVE LECTURES on "*The Normal and Subnormal Mind (Some Contributions of Modern Psychology to Problems of Social Medicine)*" will be given by Prof. CYRIL BURT, M.A., D.Sc. (Professor of Psychology in the University) at the LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE (Keppel Street, Gower Street, W.C.1) on WEDNESDAYS, OCTOBER 18th and 25th, NOVEMBER 1st, 8th, and 15th, at 5 p.m. At the First Lecture the Chair will be taken by Dr. C. S. MYERS, C.B.E., F.R.S. (Principal of the National Institute of Industrial Psychology).

Admission free, without ticket.

S. J. WORSLEY, Academic Registrar.

THE GROCERS' COMPANY RESEARCH SCHOLARSHIPS

With the object of encouraging Original Research in Sanitary Science, the Grocers' Company offer Scholarships, each of £300 a year, with an allowance to meet the cost of apparatus and other expenses in connection with the work, tenable for one year, but renewable for a second or third year, subject to the conditions of the scheme under which they are established.

The next election will take place in May, 1934.

Applications must be sent in before the end of April to the Clerk to the Grocers' Company, Grocers' Hall, London, E.C.2, from whom a form of application and further information may be obtained.

D.O.M.S. EXAMINATION.

ROYAL EYE HOSPITAL.

Intensive evening revision course, covering all sections of the D.O.M.S. Examination for January, 1934, commencing:

Part II. October 16th, or soon after. Hours: 8—10 p.m.

Part I. October 16th. Hours: 5—7 p.m.

Fees: Part II. £12 12s. Part I. £6 6s.

Individual sections may be taken separately: Part II. Clinical: £6 6s. Operative Surgery, Lectures in special subjects, and Pathology: £3 3s. each section.

Part I. Any one of the three subjects: £2 2s. each.

All particulars can be obtained from the Dean, The Royal Eye Hospital, St. George's Circus, S.E.1.

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A COMPLETE LABORATORY SERVICE.

The Consulting Rooms and Laboratories of this Association (established in 1894) are available for all Medical Practitioners desiring Laboratory assistance in the investigation and diagnosis of cases under their care. All necessary apparatus and full instructions for collecting pathogenic material, or for the personal attendance of Patients at the Consulting Rooms of the Association will be forwarded immediately on application.

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POST-GRADUATE COURSES:

Open only to Members of the Fellowship of Medicine. Annual Subscription, £1 1s.

Clinical Surgery (Royal Albert Dock Hospital, week-end Saturday and Sunday, October 21st and 22nd), Gynaecology (Chelsea Hospital for Women, October 23rd to November 4th all day), Neurology (West End Hospital for Nervous Diseases, October 30th to November 4th, all day), Chest Diseases (Brompton Hospital, week-end Saturday and Sunday, October 28th and 29th), Ophthalmology (Central London Ophthalmic Hospital, October 30th to November 25th, afternoons).

Panel of Teachers available for daily instruction.

Apply—FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.1. (Langham 4200)

Post-Graduate Teaching, West London Hospital.

Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave," and for those wishing to take a course under the "Grant-aided Scheme for Post-Graduate Study by Insurance Practitioners."—Anaesthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

Prospectus from the DEAN, West London Hospital, Hammersmith, W.6.

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Final	165
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Preparation for the above, also for Medical Preliminary, and all examinations leading up to M.R.C.S., L.R.C.P., or M.B. of various Universities, also for M.R.C.P.(Edin.), D.P.M., D.O.M.S., D.T.M. & H., D.L.O., D.G.O., D.M.R.E., M.M.S.A., L.M.S.S.A., etc. Many successes.

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CONTENTS.—The method and the cost of entering the Medical Profession. *Particulars of all Medical Examinations*, Postal Courses, and Oral Classes. Suggestions for the Higher Medical Examinations. Suggestions for the Higher Surgical Examinations. Suggestions for the Special Diploma Examinations. Refresher Courses. Openings for Women. Hints for writing theses.

Medical Prospectus *gratis* along with list of Tutors, etc., on application to the Principal, Mr E. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6313.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND

ANNUAL MEETING OF FELLOWS AND MEMBERS

Notice is hereby given that it is proposed to hold a MEETING OF FELLOWS AND MEMBERS at the College in Lincoln's Inn Fields on THURSDAY, NOVEMBER 16th, 1933, at 3 o'clock p.m., and that a Report from the Council will be laid before the Meeting.

Fellows and Members can obtain copies of the Report on application to the Secretary, and can, if they so desire, have their names placed on the List of those to whom the Report is sent annually.

Motions to be brought forward at the Meeting must be signed by the mover or by the mover and other Fellows and Members, and must be received by the Secretary not later than November 6th.

A copy of the Agenda will be issued on or after November 10th to any Fellow or Member who may apply for one.

S. FERREST COWELL
October 14th 1933 Secretary

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1880. Cases now in residence, treated at 39, Earl's Court Square, S.W.5, and in residence in the Summer holidays at Miss BEHNKE'S house on the Chilterns.

Pre-eminent success in the education and treatment.
—*Times.*
—*Lancet* and passim.

STAMMERING, CLEFT PALATE SPEECH, LISPING, 3/9 of Miss BEHNKE, 39, Earl's Court Sq., S.W.5.

THE UNIVERSITY OF SHEFFIELD

FACULTY OF MEDICINE.

The Council of the University and the Board of Management of the Royal Hospital, Sheffield, acting conjointly, are about to make an appointment to the post of ASSISTANT PATHOLOGIST to the Hospital and DEMONSTRATOR OF PATHOLOGY in the University. The salary offered is £500 per annum. Applications, accompanied by the names of three referees, should be sent on or before November 2nd to the undersigned from whom further details may be obtained.

W. M. GIBBONS, Registrar.

THE SHEFFIELD ROYAL HOSPITAL.

Applications are invited for a full-time CLINICAL ASSISTANT in the Ophthalmic Department for a period of six months. Salary at the rate of £400 per annum, non-resident. The successful candidate will be required to commence duty at once.

W. H. BOOTH, Supt. & Secretary.

COUNTY BOROUGH OF NEWPORT

ASSISTANT RESIDENT MEDICAL OFFICER.
(Junior Appointment.)

Applications are invited from registered Medical Practitioners for the above appointment at the PUBLIC ASSISTANCE INSTITUTIONS, Newport, Mon.

Salary £150, with usual residential emoluments (annual appointment).

Application, stating age, experience and qualifications, with copies of three recent testimonials, to be forwarded to the Public Assistance Officer, Town Hall, Newport, by October 16th.

O. TREHARNE MORGAN, Town Clerk.

CITY OF SALFORD

INFECTIOUS DISEASES HOSPITAL.

Applications are invited for the post of JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER (male). Salary £200 per annum, plus board, residence and laundry. The appointment will be for one year. Forms of application may be obtained from the Medical Officer of Health, 1953 Regent Road, Salford 5, and must be returned together with copies of three recent testimonials to the undersigned not later than October 28th.

H. H. TOMSON, Town Clerk.

THE ROYAL EARLSWOOD INSTITUTION FOR IDIOTIC CHILDREN

(Under Mental Deficiency Act, 1913.)

JUNIOR ASSISTANT MEDICAL OFFICER required. Applicants must be registered practitioners under British Medical Acts, and should be willing to undertake anæsthetics.

The appointment is for one year. In addition to salary at the rate of £250 per annum, with board, lodging, and laundry, the successful candidate will be required to pass the examination for the Diploma in Public Health.

Applications, stating age, qualifications, and experience, with copies of two recent testimonials, and two references to be sent at once to the Medical Superintendent, at the Institution. The duties to be undertaken as Assistant Medical Officer.

H. STEPHENS,
September 28th 1933 Secretary.

THE ROPER JONES AND AGNES HUNT ORTHOPAEDIC HOSPITAL, OSWESTRY.

(Beds: Adults 210—Children 110.)

HOUSE SURGEON (male) required on January 1st 1934. Appointment of six months, with possibility of extension. Salary at the rate of £200 per annum, with board, residence and laundry. Two weeks' holiday for each six months' service.

Applications, stating age, qualifications, and experience, with copies of three recent testimonials, should be in the hands of the undersigned, by November 15th.

Secretary-Superintendent.

COUNTY BOROUGH OF DARLINGTON.

RESIDENT ASSISTANT MEDICAL OFFICER, MATERNITY HOSPITAL.

Applications are invited from qualified and registered Medical Practitioners (unmarried, female) for the post of Resident Assistant Medical Officer for Maternity and Child Welfare. Applicants must have had not less than three years' post-graduate experience, including experience in general Medicine and Surgery, and particularly in Maternity and Child Welfare Clinics, in Ante-natal Work, and in Practical Midwifery and Vaccination.

Preference will be given to candidates possessing the Diploma in Public Health.

The salary offered is £350 per annum, rising by annual increments of £25 to £450 per annum, with board, residence, and laundry.

The person appointed will be required to act under the direction of the Medical Officer of Health, to pass a medical examination, to contribute to the Superannuation Fund, established under the Local Government and Other Officers Superannuation Act, 1922, and to retire on marriage. The appointment will be terminable by one month's notice on either side.

Application forms and particulars as to duties may be obtained from the Medical Officer of Health, Feethams, Darlington, to whom applications, endorsed "Resident Assistant Medical Officer, Maternity Hospital," together with copies of three recent testimonials, must be delivered not later than Tuesday, October 24th.

H. HOPKINS, Town Clerk.

COUNTY OF DEVON.

MEDICAL DEPARTMENT.

ASSISTANT COUNTY MEDICAL OFFICER.

Applications are invited from duly qualified medical practitioners for the appointment of Assistant County Medical Officer under the Devon County Council (Torquay Area).

The officer appointed will act as non-resident Medical Officer in charge of Whiteliff Tuberculosis Hospital, as School Medical Inspector, and carry out such other duties as the County Medical Officer may assign.

Previous experience in the modern treatment of pulmonary tuberculosis is essential, and preference will be given to candidates who have recently held resident appointments in institutions for the treatment of pulmonary tuberculosis.

The salary will be at the rate of £500, rising by annual increments of £25 to £700 per annum, and in addition travelling and subsistence allowances in accordance with the County Council scale.

Application on the form provided to be received on or before October 19th, by the undersigned from whom particulars of and forms of application for the appointment may be obtained.

The County Medical Officer.

4, Barnfield Crescent, Exeter, Devon.

COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE.

PUBLIC HEALTH LABORATORY.

ASSISTANT BACTERIOLOGIST.

The County Council of the West Riding of Yorkshire invite applications for the appointment of Assistant Bacteriologist.

Applicants must be registered Medical Practitioners with experience of Public Health, Bacteriology, and Clinical Pathology.

The salary will be £500 per annum, rising by annual increments of £25 to £700 per annum. This salary is subject to a temporary deduction.

Further particulars and form of application may be obtained from the undersigned, by whom all applications, with copies of not more than three recent testimonials, must be received not later than October 30th.

County Hall, J. CHARLES McGRATH,
Wakefield. Clerk of the County Council.
October, 1933.

CITY OF BIRMINGHAM.

DUDLEY ROAD HOSPITAL. (926 Beds.)

Applications are invited from fully qualified Medical Practitioners for whole-time appointment as JUNIOR MEDICAL OFFICERS (male) at the Dudley Road Hospital, Birmingham.

The appointment will be for a period of six months, but may be extended for a further period of not exceeding six months.

Salary at the rate of £200 per annum, and full residential emoluments, subject to any voluntary abatement in force from time to time.

Further particulars may be obtained from the Medical Superintendent at Dudley Road Hospital, to whom applications, stating age, experience, and qualifications, with copies of recent testimonials, should be forwarded not later than October 19th.

COUNTY BOROUGH OF DEWSBURY

APPOINTMENT OF MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

The Dewsbury Corporation invite applications from duly qualified and registered Medical Practitioners, holding the Diploma in Public Health, for the position of Medical Officer of Health and School Medical Officer at a commencing salary of £900 per annum, subject to a temporary reduction of 7½ per cent.

The gentleman appointed will be required to devote the whole of his time to the duties of the office, to reside in the Borough, and will not be allowed to engage in private practice. All emoluments or fees which may be payable to or received by him must be paid over to the Corporation.

The appointment will be made in accordance with and subject to the Public Health Officers Act, 1921, and the Sanitary Officers Order, 1926.

Canvassing, either directly or indirectly, is prohibited. Applicants may, if they desire, forward 15 copies of their application and testimonials for the use of the members of the Committee.

Applications, with copies of not more than three recent testimonials attached, to be sent to me, endorsed "Medical Officer of Health," not later than October 19th.

Town Hall, HOLLAND BOOTH,
Dewsbury. Town Clerk.
October 5th, 1933.

COUNTY BOROUGH OF ROTHERHAM.

PUBLIC ASSISTANCE COMMITTEE.

ASSISTANT RESIDENT MEDICAL OFFICER.

Applications are invited from fully qualified Medical Practitioners, with the necessary knowledge and experience of Hospital work, for the appointment of a full-time resident Assistant Medical Officer at the ALMA ROAD HOSPITAL, Rotherham, at a commencing salary of £200 per annum, together with the usual emoluments (subject to a temporary deduction authorised by the Council).

The Hospital accommodates acute medical, surgical, and maternity patients, with approximately 370 beds.

The Hospital is a Training School recognised by the General Nursing Council and the Central Midwives Board.

The appointment will be made for a period not exceeding twelve months.

Applications, with copies of three recent testimonials, endorsed "Assistant Medical Officer," to be sent in to the Public Assistance Officer, Effingham Street, Rotherham, not later than October 27th.

CHAS. L. DES FORGES, Town Clerk.
Municipal Offices, Rotherham.
October 9th, 1933.

BOROUGH OF HENDON.

APPOINTMENT OF WHOLE-TIME DENTAL SURGEON.

Applications are invited from qualified registered Dental Surgeons for the above appointment.

Candidates must be not more than 40 years of age and have had previous experience in a similar capacity.

The salary will commence at £550 per annum, rising by annual increments of £25 to a maximum of £650 per annum. The appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

Applications, stating age, qualifications, and experience (especially with regard to children), together with copies of not more than three recent testimonials and a copy of applicant's birth certificate, to be sent to the undersigned not later than October 25th.

Canvassing, either directly or indirectly, will be deemed a disqualification.

Dated this 4th day of October, 1933.

Town Hall, LEONARD WORDEN,
Hendon, N.W.4. Town Clerk.

COUNTY BOROUGH OF WALLASEY.

MEDICAL OFFICER OF HEALTH.

Applications for the above appointment are invited before November 4th, from registered Medical Practitioners, with previous Municipal experience, holding a Diploma in Public Health or a similar qualification.

Salary £1,000 per annum, rising by annual increments of £50 to £1,250 maximum, with superannuation rights.

Further particulars and application form will be sent on receipt of a stamped addressed foolscap envelope.

Canvassing is prohibited.

Town Hall, EMRYS EVANS,
Wallasey. Town Clerk.
October 5th, 1933.

ADMINISTRATIVE COUNTY OF ESSEX.

APPOINTMENT OF ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH.

The County Council of the Administrative County of Essex invite applications for the above appointment from persons duly qualified, holding a Diploma of Public Health, and not over 45 years of age.

The salary, which will be subject to economy abatement according to the scale approved by the County Council, will be at the rate of £500 per annum, and will rise, subject to satisfactory service, by annual increments of £25 to £700 per annum. The appointment will be subject to three months' notice on either side.

Travelling expenses, in accordance with the County Council's Scale, will be allowed to the successful candidate.

The person appointed will be required to pass a medical examination, and to contribute to the fund established by the County Council under the Local Government and Other Officers Superannuation Act, 1922.

The appointment will be subject to the Council's Sick Pay Rules and Regulations, a copy of which will be forwarded on application.

Applications on the prescribed form, obtainable from the undersigned, accompanied by copies of not more than three testimonials (which will not be returned) should be addressed to me and delivered at the Shire Hall, Chelmsford, not later than 10 a.m. on Monday, October 30th.

Shire Hall, JOHN H. GOOLD,
Chelmsford. Clerk of the County
October 12th, 1933. Council.

LONDON COUNTY COUNCIL.

Medical Practitioners of at least one year's standing who have held a resident appointment in a General Hospital for at least six months required for appointment as ASSISTANT MEDICAL OFFICER (Grade II) at each of the under-mentioned Hospitals. Salary in each case £250 a year, with board, lodging, and washing. Appointments for one year only and not renewable. Remuneration and conditions subject to review. Duties assigned by medical superintendents and include, if necessary, assistance at other establishments under Council's control. No accommodation for a married man or for a woman.

1. ST. PANCRAS HOSPITAL, Pancras Road, N.W.1.

2. ST. GEORGE-IN-THE-EAST HOSPITAL, Raine Street, Wapping, E.1. (Duties mainly Medical.)

3. QUEEN MARY'S HOSPITAL (for Convalescent Patients), Sidcup, Kent. (Duties mainly Medical.)

4. CONSTANCE ROAD INSTITUTION, East Dulwich, S.E.22.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 3a), County Hall, S.E.1, returnable by October 27th. Canvassing disqualifies. Inquiries should be addressed to Medical Superintendents at respective Hospitals.

LONDON COUNTY COUNCIL.

Medical Practitioners of at least one year's standing and who have held a resident appointment in a general hospital for at least six months required at ST. JAMES' HOSPITAL, Ousely Road, Balham, S.W.12, as ASSISTANT MEDICAL OFFICER (Grade I) (duties mainly surgical), and at ST. OLAVE'S HOSPITAL, Lower Road, Rotherhithe, S.E.16. Salary £350, rising annually by £25 to £425, with board, lodging, and washing. Remuneration and conditions subject to review. Duties assigned by medical superintendents and include, if necessary, assistance at other establishments under Council's control.

No accommodation for a married man at either hospital.

Application forms obtainable (stamped, addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 3a), County Hall, S.E.1, returnable by October 20th. Canvassing disqualifies. Further inquiries should be addressed to medical superintendents.

CITY OF SHEFFIELD.

NETHER EDGE HOSPITAL.

Applications are invited from fully qualified Medical Women for the appointment of TEMPORARY ASSISTANT MEDICAL OFFICER at the above Hospital.

The appointment will be for six months.

The Medical Officer appointed will take duty in the Maternity and General Medical Section of the Hospital and, in addition, will be required to assist in the Maternity and Child Welfare Department of the City.

The salary will be at the rate of £150 per annum, with full residential allowances.

Applications should be made by letter to the Medical Superintendent, City General Hospital, Sheffield, and should state age, qualifications, and experience

ROYAL BERKSHIRE HOSPITAL.

The Board of Management invite applications for the appointment of an HONORARY OPHTHALMIC SURGEON. Candidates must be Fellows of one of the Royal Colleges of Surgeons of the British Empire or Surgical Graduates of one of the Universities of the British Empire and their names entered on the *Medical Register*.

The elected candidate will be appointed for the period ending on the third Tuesday in January, 1934, and will be eligible for re-election.

Canvassing on the part of a candidate or on his behalf will disqualify him.

Candidates are required to provide 65 copies of their applications and testimonials, which must include evidence of their special qualifications for the post, and must be addressed to the Secretary and reach him not later than November 3rd.

The election will be held on November 21st.

By Order,
F. A. LYON,
Reading. Secretary.
October 12th, 1933

MANCHESTER ROYAL INFIRMARY.

ASSISTANT SURGICAL OFFICER (PART-TIME) IN THE NEURO-SURGICAL DEPARTMENT.

The Board of Management invite applications from registered Medical Practitioners for the above appointment.

The appointment (non resident) is for twelve months, renewable for a further period of twelve months, subject to the provision of the bye laws as to notice. Salary £350 per annum. Applicants must state age, and send twelve copies of their application and testimonials, to the undersigned by Wednesday, Nov. 1st.

By Order,
FRANK G. HAZELL, General Supt.

THE GENERAL HOSPITAL, BIRMINGHAM.

MEDICAL REGISTRAR AND RESIDENT MEDICAL OFFICER.

Applications are invited for the above post from Graduates in Medicine of a University of the United Kingdom. Salary £155 per annum, with residence, board, and laundry.

The appointment will be made for one year in the first instance, and will date from November 1st next.

Applications, with certificates of registration and copies of testimonials, should be sent by October 21st, to the undersigned from whom a list of duties should be obtained.

A. H. LEANEY,
October 9th, 1933. House Governor

WESTERN OPHTHALMIC HOSPITAL, 155, Marylebone Road, N.W.1.

Applications are invited for the post of SENIOR and JUNIOR RESIDENT HOUSE SURGEONS. The salaries are at the rate of £150 and £100 per annum respectively, and the appointments are for six months.

Some previous Ophthalmic experience is required.

The selected candidate will be required to take up duty on November 1st.

Applications, accompanied by copies of three testimonials should reach me by October 18th. Candidates should state in their application whether they are prepared to accept either post.

H. W. BURLEIGH, Hon Secretary.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, Haverstock Hill, N.W.3.

APPOINTMENT OF A HOUSE SURGEON.

Applications are invited from unmarried Medical Men for an appointment of House Surgeon, vacant on November 1st next. The salary will be at the rate of £100 per annum, together with board, residence, etc., and the term will be for six months.

Applications to be made on a form which will be supplied by the Secretary, together with copies of not more than three testimonials, should reach the Secretary not later than noon on October 21st next.

WEST END HOSPITAL FOR NERVOUS DISEASES, In-patient Department, *Gloucester Gate, Regent's Park, N.W.1.*

The Committee of Management invites applications from British male candidates for the post of JUNIOR HOUSE PHYSICIAN. Duties to commence November 1st. Salary at the rate of £100 per annum, with board, residence, and laundry. Appointment in first instance for six months.

Candidates should send their applications, with copies of three recent testimonials, to the undersigned by Friday, October 20th.

I. P. WETENHALL, Secretary.
73, Welbeck Street, W.1.

KING GEORGE HOSPITAL, ILFORD. (8 miles from London.)

Wanted, a HOUSE PHYSICIAN, to commence duty on November 1st, for a period of ten months; eight months as House Physician and two months as Deputy Resident Medical Officer in charge of the Casualty Department. Salary £100 per annum; £10 bonus on completion of appointment and two weeks' holiday.

Wanted, a HOUSE SURGEON, to commence on November 1st, for a period of eight months, six months as House Surgeon and two months as Deputy Resident Medical Officer in charge of the Casualty Department. Salary £100 per annum; £10 bonus on completion of appointment and two weeks' holiday.

Candidates should send their applications, with three recent testimonials, and call on the members of the Honorary Medical Staff indicated by the Secretary as soon as possible.

G. AUSTIN HEPWORTH, Secretary.

DORSET COUNTY HOSPITAL, DORCHESTER.

APPOINTMENT OF HOUSE SURGEON.

The Committee of Management are open to receive applications for the position of House Surgeon, to take up his duties on or about November 1st.

Every candidate must be unmarried and possess a registered qualification to practise medicine and surgery from some recognised body in Great Britain or Ireland. Salary £160 per annum, with board and lodging. The appointment is for a period of not less than six months. All applications, accompanied by copies of three recent testimonials, should be sent to the Secretary, Dorset County Hospital, on or before Saturday, October 21st.

Candidates must be of British nationality.

MONTAGU HOSPITAL, MEXBOROUGH, YORKS.

Applications are invited for the position of JUNIOR HOUSE SURGEON (Lady) at the above hospital. The commencing salary offered is at the rate of £100 per annum, with the usual residential allowances. One month's holiday is allowed yearly. The hospital has 84 beds, of which 64 are surgical, and 20 maternity.

Applications, giving fullest details as to experience, should be sent to the undersigned at the earliest possible moment, as it is desirable to fill the vacancy quickly. Applicants should state when they would be at liberty to commence duties, and should give their experience in the administering of anaesthetics.

DONALD WILSON, Secretary.

ROYAL WEST SUSSEX HOSPITAL, CHICHESTER. (114 Beds, including Private Patients Block.)

Applications are invited for the post of JUNIOR HOUSE SURGEON for six months from November 1st. Salary at the rate of £125 per annum, with board, residence and laundry. Applications, stating nationality, age, experience, and qualifications, accompanied by copies of not less than three recent testimonials, should be sent to the undersigned at once from whom rules and other particulars can be obtained.

By Order of the Board of Management
ALAN RUDDLE, A.H.A.
October 2nd, 1933

THE VICTORIA HOSPITAL FOR CHILDREN, Tite Street, Chelsea, S.W.3. (138 Beds.)

The Committee of Management invite applications for the post of SENIOR RESIDENT MEDICAL OFFICER (male). The appointment is for one year as from November 1st. Salary £200 per annum, with board, lodging and washing and certain fees from the Private Wards.

Candidates must have previously held a Hospital appointment.

Applications, with copies of three recent testimonials, should be sent to the Secretary not later than the first post on Tuesday, October 24th.

By Order,
D. ST. JOHN BAMFORD, Secretary.

EASTBOURNE: PRINCESS ALICE MEMORIAL HOSPITAL. (116 Beds.)

RESIDENT HOUSE SURGEON required on November 1st next for six months. Salary £150 per annum, with board, lodging, and laundry. Candidates must be unmarried, fully qualified and registered. Applications, stating age, accompanied by copies of three testimonials (including one from Medical School), should reach the Secretary by October 18th.

LOWESTOFT & NORTH SUFFOLK HOSPITAL.

HOUSE SURGEON (*Woman*) *required*. Commencing salary £120 per annum, with board, residence, and laundry.

Applications, together with copies of three recent testimonials, to be sent to the Honorary Medical Superintendent.

EDENBRIDGE DISTRICT HOSPITAL, KENT.

The Medical Committee invites applications for the post of HONORARY SURGEON to the Ear, Nose, and Throat Department of the above Hospital.

Candidates should be Masters in Surgery of a British University, or Fellows of a Royal College of Surgeons exclusively practising in this branch of Surgery, and already holding an appointment on the staff of a regular London Hospital.

Applications stating age, qualifications, and experience, and accompanied by two recent testimonials, should reach the Honorary Secretary of the Medical Committee by Thursday, October 19th. No personal interview is required unless special asked for.

The present acting surgeon of the department is a candidate for the post.

ST. BARTHOLOMEW'S HOSPITAL, ROCHESTER. (126 Beds.) (Rochester, Chatham, Gillingham and District.)

The House and Finance Committee invite applications for the post of HOUSE PHYSICIAN (vacant December 1st).

Candidates must be unmarried, qualified and registered Medical Men. The appointment is for six months. Salary at the rate of £175 per annum, with board, residence, and laundry. The officer appointed will have charge of the Medical beds. Some knowledge of Ophthalmic work is desirable.

Applications stating age, qualifications, and experience, accompanied by copies of three recent testimonials to be sent to the Secretary not later than October 25th.

Canvassing the Honorary Staff will disqualify.

THE HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.9.

A RESIDENT MEDICAL OFFICER required November 1st.

HOUSE PHYSICIAN required November 1st.

Applications are invited for two posts. The salaries are at the rate of £150 and £120 per annum respectively and the appointments are for six months. Candidates for the post of Resident Medical Officer should state if they are willing to take that of House Physician and applications, accompanied by copies of three recent testimonials, should reach me by October 20th.

The accommodation at the hospital does not permit of women graduates holding these appointments.

H. W. BURLEIGH,
Secretary and General Supt.

THE HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.9.

TWO HONORARY ASSISTANT SURGEONS REQUIRED.

Applications are invited for the posts of Two Honorary Assistant Surgeons, one primarily for neurological surgery and the other primarily for general and orthopædic surgery.

Candidates must possess the F.R.C.S. England, and applications accompanied by copies of not more than three testimonials, should reach me by the 20th instant.

H. W. BURLEIGH,
Secretary and General Supt.

TORBAY HOSPITAL, TORQUAY.

Notice is hereby given in accordance with Rule 8 that the Court of Governors will meet on Friday, November 24th next:

(a) An HONORARY PHYSICIAN.
(b) An HONORARY SURGEON.
(c) An HONORARY RADIOLOGIST.

Candidates are required to be registered under the Medical Act.

Applications, sixteen copies, accompanied by sixteen copies of not more than three testimonials, should be sent to the undersigned not later than Thursday, November 9th.

E. L. GILST,
October 7th 1933 Secretary.

SOUTHPORT GENERAL INFIRMARY. (150 Beds.)

Special Departments for Eye, Ear, Nose, and Throat, X Rays, Massage, Skin, Pathology, etc.

Wanted to take up duties on November 1st, a JUNIOR HOUSE SURGEON, fully qualified and registered, unmarried. Salary £150 per annum. Plus residence, board, and laundry. Applications, stating age, nationality, and experience, with copies of testimonials to be sent in by October 23rd, to the Secretary, Infirmary Office, Pilkington Road, Southport.

THE KIDDERMINSTER AND DISTRICT GENERAL HOSPITAL. (120 Beds.)

HOUSE SURGEON (male) required. Salary £150 p.a., with residence, board, and laundry. Applications, with not more than three testimonials, to be sent to the Secretary, Miss SUSAN SMITH, South Cliff, Kidderminster.

CITY OF PORTSMOUTH.

MEDICAL OFFICER OF HEALTH.

The Corporation invite applications for the position of Medical Officer of Health to the City and Port of Portsmouth and chief Administrative Medical Officer for all the Medical Services of the Council. Candidates must be registered medical practitioners, have had experience in the duties of Medical Officer of Health or Deputy Medical Officer of Health to a large town or hold the qualifications laid down by the Ministry of Health, and must be under the age of 45 years.

Salary at the rate of £1,250 per annum, rising by increments to £1,500 per annum.

The duties will be those prescribed by statute and such other duties as the City Council may from time to time direct.

The gentleman appointed will be required to reside in the City and to devote the whole of his time to the duties of the office. He will not be allowed to engage in private practice. He will also be required to pass a satisfactory medical examination and to contribute 5 per cent. of his salary under the provisions of the Local Government and Other Officers Superannuation Act, 1922. The appointment will be terminable at three months' notice on either side.

Forms of application may be obtained from the Medical Officer of Health, and should be delivered endorsed "Medical Officer of Health," accompanied by copies of three recent testimonials, at the Town Clerk's Office, Guildhall, Portsmouth, not later than 10 a.m. on Saturday, October 21st.

Canvassing, either directly or indirectly, will be deemed a disqualification.

The Guildhall, Portsmouth. F. J. SPARKS, Town Clerk.
September 27th, 1933.

LONDON JEWISH HOSPITAL,

Stepney Green, E.1.
(General Hospital—108 Beds.)

Applications are invited for the following posts:

RESIDENT MEDICAL OFFICER AND HOUSE PHYSICIAN. Salary at the rate of £150 per annum, with board and residence. Appointment for six months.

HOUSE SURGEON. Salary at the rate of £100 per annum, with board and residence. Appointment for six months.

CASUALTY OFFICER (non-resident). Salary at the rate of £150 per annum, with *luncheon and tea*. Appointment for six months. The holder will be required to attend the Out-patient Department from 9 a.m. to 5 p.m.

Applications, with copies of three recent testimonials, to be sent to the Secretary on or before Friday, October 27th. The successful candidates will be required to take up their duties on December 1st.

SAMARITAN FREE HOSPITAL FOR WOMEN,

Marylebone Road, N.W.1.

Applications are invited for the post of HOUSE SURGEON for a period of six months commencing on November 1st next. Salary at the rate of £100 per annum, with board, *lodging, and washing*. Previous experience as House Surgeon essential.

Applications, accompanied by copies only of three testimonials must reach the Secretary at the Hospital on or before Friday, noon, October 20th.

G. H. HAWKINS, Secretary.

KING EDWARD VII SANATORIUM,

MIDHURST, SUSSEX.

The Council invite applications for the post of MEDICAL SUPERINTENDENT to the Institution. Candidates must be duly qualified and registered and have had experience in Tuberculosis work.

Salary £1,000 per annum, rising to £1,200, with house. Applications (with 12 copies of not more than three recent testimonials) to be sent on or before Monday, November 6th, to the Secretary, 31, Davies Street, London, W.1.

OLDHAM ROYAL INFIRMARY.

CASUALTY OFFICER AND HOUSE PHYSICIAN required for a period of six months.

Salary at the rate of £175 per annum, with board, residence, and laundry.

Applications, stating age, experience, and qualifications, together with copies of three recent testimonials, must be forwarded to the undersigned not later than October 21st.

H. J. CLOUT, Gen. Supt.

THE SHEFFIELD ROYAL HOSPITAL.

(340 Beds.)

Applications are invited for the post of SENIOR CASUALTY OFFICER. Salary £150 per annum, with board, residence, and laundry. Applications should be forwarded at once to—

W. H. BOOTH, Supt. & Secretary.

THE HOSPITAL FOR SICK CHILDREN,

Great Ormond Street, London, W.C.1.

There is a vacancy for a HOUSE SURGEON, duties to commence as early as possible in November.

Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock, on Saturday, October 28th, with copies of not more than three testimonials given specially for the purpose, and also evidence of their having held a responsible Hospital appointment.

The appointment is made for six months. Salary at the rate of £100 per annum, laundry allowance £5, board and residence in the Hospital.

Candidates must be unmarried and possess a legal qualification to practise.

All candidates must appear before the Joint Committee at their Meeting on Wednesday, November 1st, at 5 p.m. precisely.

Further particulars, with forms of application and copies of the rules, may be obtained from the Secretary.

By Order of the Board of Management,
HERBERT F. RUTHERFORD,
October, 1933. Secretary.

THE CHRISTIE CANCER HOSPITAL AND HOLT RADIUM INSTITUTE, WITHINGTON, MANCHESTER.

Applications are invited for the post of RESIDENT MEDICAL OFFICER to the above Hospital and Institute for duty with the Radium Therapy Department. Appointment is for six months in the first instance, but is renewable. Salary £150, plus residence, board, etc. The appointment offers an excellent opportunity of obtaining experience in Radium Therapy. Candidates must have had previous medical and surgical experience. Applications, stating qualifications (D.M.R.E. would receive preference) and previous experience to be submitted to the Secretary at the above address not later than October 25th.

BRADFORD ROYAL INFIRMARY.

ONE HOUSE PHYSICIAN (male) and TWO HOUSE SURGEONS (male) wanted for six months from December 1st.

Candidates must be single and legally qualified.

Salary £135 per annum, with board, residence, and washing.

There are 215 beds and six resident officers.

Applications, stating age, qualifications, and previous experience, with copies of recent testimonials, to be received by the undersigned not later than first post October 24th.

J. J. BARRON,
October 10th, 1933. Secretary-Supt.

ANCOATS HOSPITAL, MANCHESTER.

Applications are invited for the post of Full-time RADIOLOGICAL OFFICER, to commence duty early in November. Salary is at the rate of £300 per annum, and the appointment is for twelve months and is renewable. Candidates must hold the D.M.R.E. Diploma. Applications, stating age and particulars of qualifications and experience, to be forwarded to the undersigned on or before Wednesday, October 25th, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

MINEHEAD AND WEST SOMERSET HOSPITAL, MINEHEAD, SOMERSET.

(58 Beds.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male or female) to this Hospital.

Duty to commence on November 21st. Appointment for a period of six months. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, nationality, experience, and qualifications, accompanied by copies of three recent testimonials, to be sent to the undersigned not later than November 3rd.

W. H. P. RODDA, Secretary.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn Rd., W.C.1.

ASSISTANTS IN THE OUT-PATIENT DEPT.

There are the following vacancies:
SECOND ASSISTANT—Wednesdays, 2 p.m.
SECOND AND THIRD ASSISTANTS—Fridays, 2 p.m.
THIRD ASSISTANT—Saturdays, 2 p.m.

The duties are to assist the Surgeons in seeing the patients, and the posts are honorary ones.

Applications, which may be for periods of three, six, or twelve months, should be sent to the undersigned immediately.

JOHN H. YOUNG, Secretary-Supt.

ROYAL LONDON OPHTHALMIC HOSPITAL (MOORFIELDS EYE HOSPITAL),

City Road, E.C.1.

REFRACTION ASSISTANT. L.C.C. SCHOOL DEPARTMENT.

Applications are invited for the post of Refraction Assistant to the L.C.C. SCHOOL DEPARTMENT to attend on Mondays and Thursdays at 1.30 p.m.

Candidates must be registered medical practitioners. Salary will be at the rate of £150 per annum.

The Refraction Assistant will be appointed for a period of one year, and will be eligible for re-appointment.

Copy of regulations governing the appointment can be obtained on application.

Applications, with testimonials, stating age and qualifications, must be received not later than November 10th by—

A. J. M. TARRANT, Secretary.

THE ROYAL HOSPITAL, WOLVERHAMPTON.

(Incorporated under Charter.)

HOUSE SURGEON required. Duties to commence November 1st, include Casualty work.

The Hospital contains 300 beds, includes the usual special departments, and is recognised by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice.

Candidates must be registered under the Medical Acts, and unmarried.

The appointment is for *six months. Salary* at the rate of £100 per annum, board, furnished rooms, and laundry provided.

Applications, with copies of testimonials, to be forwarded to the undersigned.

Wolverhampton. W. H. HARPER.
October 10th, 1933. House Governor.

THE ROYAL HOSPITAL, WOLVERHAMPTON.

(Incorporated under Charter.)

HOUSE SURGEON required for Orthopædic and Fracture Department, duties to commence on November 1st. The Hospital contains 300 beds, includes the usual special departments, and is recognised by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice.

Candidates must be registered under the Medical Acts, and unmarried.

The appointment is for six months. Salary at the rate of £100 per annum. Board, furnished rooms, and laundry provided.

Applications, with copies of testimonials, to be forwarded to the undersigned.

Wolverhampton. W. H. HARPER.
October 10th, 1933. House Governor.

QUEEN MARY'S HOSPITAL FOR THE EAST END, E.15.

Wanted, a full-time PATHOLOGIST at a salary of £750 per annum.

Applications, enclosing copies of three testimonials, to be sent to the undersigned on or before Friday, October 20th, at 12 noon.

Envelopes to be marked in left-hand top corner "Pathologist." This is essential.

Applications and communications must be marked as above, as they will only be opened by the Committee.

RAPHAEL JACKSON (Major), Secretary.

ANCOATS HOSPITAL, MANCHESTER.

RESIDENT MEDICAL OFFICER required to commence duty on *November 1st* next. One having held a previous appointment essential. Appointment for six months. Salary at the rate of £150 per annum, with board, residence, etc. The gentleman appointed will have charge of the Medical Beds. Applications, stating age, qualifications, *experience*, etc., to be forwarded to the Secretary, together with copies of three recent testimonials, on or before Wednesday, October 18th.

MANCHESTER EAR HOSPITAL, GROSVENOR SQUARE, ALL SAINTS.

The Board invite applications for the post of RESIDENT HOUSE SURGEON. Salary £120 per annum. Candidates must be duly qualified. Applications, with copies of testimonials, to be forwarded to [illegible] HILFORD (Hon. Secretary, Manchester Ear Hospital), c/o Mr. W. J. ELLAM, 33, Brazennose Street, Manchester, not later than October 28th.

THE ROYAL DENTAL HOSPITAL OF LONDON, 32, Leicester Square, W.C.2.

Two Part-time HOUSE ANAESTHETISTS required for In-patient and Out-patient duties at this Institution on January 1st, 1934. The posts are non-resident. Honorarium 10 6 per session. Candidates are requested to send in forty copies of applications and testimonials, on or before October 25th, to the Secretary-Superintendent, from whom further particulars may be obtained.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B M A House, Tavistock Square, W C 1 (in the case of Scottish appointments, with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh)

(a) British Islands.

Town or District	Town or District	Town or District
CONTRACT PRACTICE	**CONTRACT PRACTICE** *(cont'd)*	**PUBLIC HEALTH**
FFRW VALE MON *(Workmen's Medical Society)*	MARDY, GLAMORGAN *(Workmen's Medical Scheme)*	DORSET COUNTY COUNCIL *(County Medical Officer of Health)*
GILFACH GOCH, GLAMORGAN *(Workmen's Medical Scheme)*	NEATH AND DISTRICT *(Medical Aid Association)*	HERTFORDSHIRE COUNTY COUNCIL WARE SANATORIUM *(Assistant Medical Officer)*
LLWYNPIA CLYDACH VALE PENYGRAIG GLAMORGAN *(Workmen's Medical Scheme)*	OAKDALE MON *(Medical Officer for Medical Aid Association)*	COUNTY BOROUGH OF SOUTH SHIELDS *(Assistant School Medical Officer)* HARTON INSTITUTION AND LEADON COTTAGE HOMES *(Medical Officer)*
LOWESTOFT MEDICAL INSTITUTE *(Medical Officer)*	OGMORE VALLEY GLAMORGAN *(Wyndham Colliery Medical Aid Society)* *(Workmen's Medical Scheme)*	NORTH RIDING OF YORKSHIRE COUNTY COUNCIL *(Temporary Maternity and Child Welfare Medical Officer—Woman)*

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B M A House, Tavistock Square W C 1

Town or District.	Hon Sec of Division or Branch	Town or District	Hon Sec of Division or Branch	Town or District	Hon Sec. of Division or Branch
NEW SOUTH WALES. *(All Friendly Society Appointments)*	Dr J G HUNTER (Medical Secretary, New South Wales Branch) 155, Macquarie St Sydney, N S W	**QUEENSLAND.** *(Brisbane Associated Friendly Societies Institute)* *(Toowoomba Associated Friendly Societies Medical Institute, Toowoomba)*	The Hon Sec., Queensland Branch British Medical Association, B M A Building, Adelaide St, Brisbane.	**WELLINGTON, NEW ZEALAND.** *(Contract Practice Appointments)*	Dr G F V ANSON (Hon Sec New Zealand Branch), British Medical Association, P O Box 156 Wellington New Zealand
VICTORIA. *(All Institute or Medical Dispensaries)*	Dr J P MAJOR (Hon Sec., Victorian Branch British Medical Association Medical Society Hall East Melbourne Victoria.			**WESTERN AUSTRALIA.** *(Contract and Lodge Practices)*	Hon Sec., Western Australian Branch, British Medical Association No 6 Bank of N S W Chambers St. Georges Terr, Perth Western Australia.

October 11th, 1933. By Order of the Council G C ANDERSON, Medical Secretary

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VICTORIA HOSPITAL, BURNLEY (126 Beds)

HOUSE PHYSICIAN (Male)

Applications are invited for the above post, which will become vacant on November 1st next The duties include the giving of a certain number of anæsthetics The appointment is for six months in the first instance, at a salary of £150 per annum together with board residence and laundry At the end of this period re-appointment may be applied for and if confirmed the salary for the second six months will be at the rate of £200 per annum

Applications with full details of qualifications and experience and stating nationality together with copies of recent testimonials, should be addressed to the undersigned forthwith

J E WHEATCROFT Secretary

KENT COUNTY OPHTHALMIC AND AURAL HOSPITAL MAIDSTONE (109 Beds)

Applications are invited for the post of HOUSE SURGEON to the Ear Nose and Throat Department, which post becomes vacant on November 1st Candidates must be duly qualified and registered Medical Practitioners single and of British birth and nationality, and should have had some experience in the treatment of diseases of the Ear Nose and Throat The Hospital is recognised by the Examining Board for the D L O The appointment will be for six months but may be renewed for a second six months Salary at the rate of £200 per annum with board residence and laundry

Applications stating age together with copies of not more than three testimonials should be sent to the undersigned

JOHN W STRICKLAND, Secretary

TAUNTON AND SOMERSET HOSPITAL TAUNTON (104 Beds)

SENIOR HOUSE MEDICAL OFFICER required November 1st Charge of Surgical beds Three Residents on Staff Applicants must have held a resident Hospital appointment for six months Appointment (six months with option re-election) approved by University of London for purposes of M S exam

Salary £150 per annum with board residence and laundry, and the retention of certain fee

Applications, with copies of three recent testimonials by October 25th to F J J STACEY Secretary

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TAUNTON AND SOMERSET HOSPITAL, TAUNTON (104 Beds)

HOUSE PHYSICIAN and a HOUSE SURGEON required November 1st Three residents on staff Appointments (three months with option re-election) approved by University of London for purposes of M D exam Salaries £100 p.a., with board residence and laundry, and the retention of fees

Applications with copies of three recent testimonial, by October 25th, to F J J STACEY Secretary

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SOUTHEND ON SEA GENERAL HOSPITAL (250 Beds—Six Residents)

The post of HOUSE PHYSICIAN (male) will become vacant on November 1st, 1933 Salary £100 per annum, with board residence and laundry

Applications stating age and previous experience, together with copies of three recent testimonials to be sent to the Joint Secretaries not later than October 17th

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ADDENBROOKE'S HOSPITAL CAMBRIDGE

Applications are invited for the [illegible] of HOUSE PHYSICIAN The appointment is for six months from the commencement terminable at an earlier date by [illegible] written notice on either side Salary at the rate of £120 per annum with board residence and laundry Candidates must be unmarried and [illegible] requested to forward their applications [illegible] qualifications on or before [illegible] not more than four testimonials [illegible] signed on or before Thursday October 19th

W H HEAD Secretary Subscription

LONDON HOSPITAL E 1

There is a vacancy for the appointment of ASSISTANT PHYSICIAN (Honorary) to the Skin Department

Candidates must be Members of the Royal College of Physicians in London

Particulars of the appointment may be obtained on application to the House Governor

The latest date for receiving applications is November 11th.

ARTHUR G ELLIOTT House Governor

Sept 1933

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F BRIGGS Secretary Subscription

(Appointments continued on p. 56)

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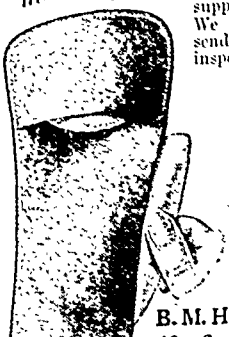
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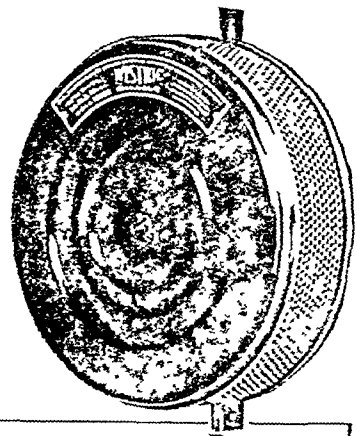


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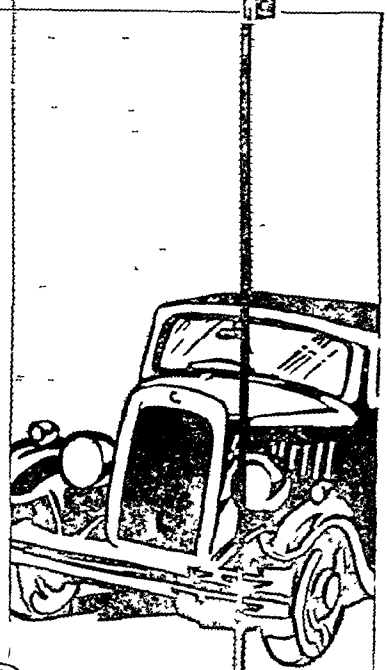
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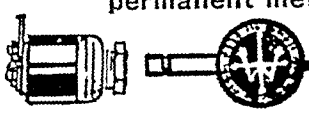
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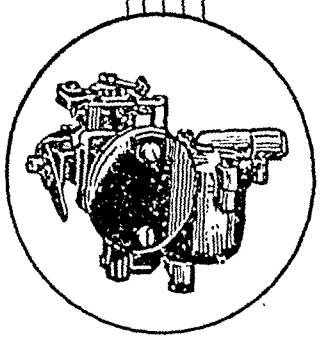
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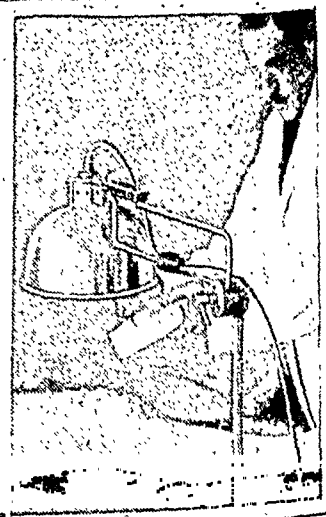
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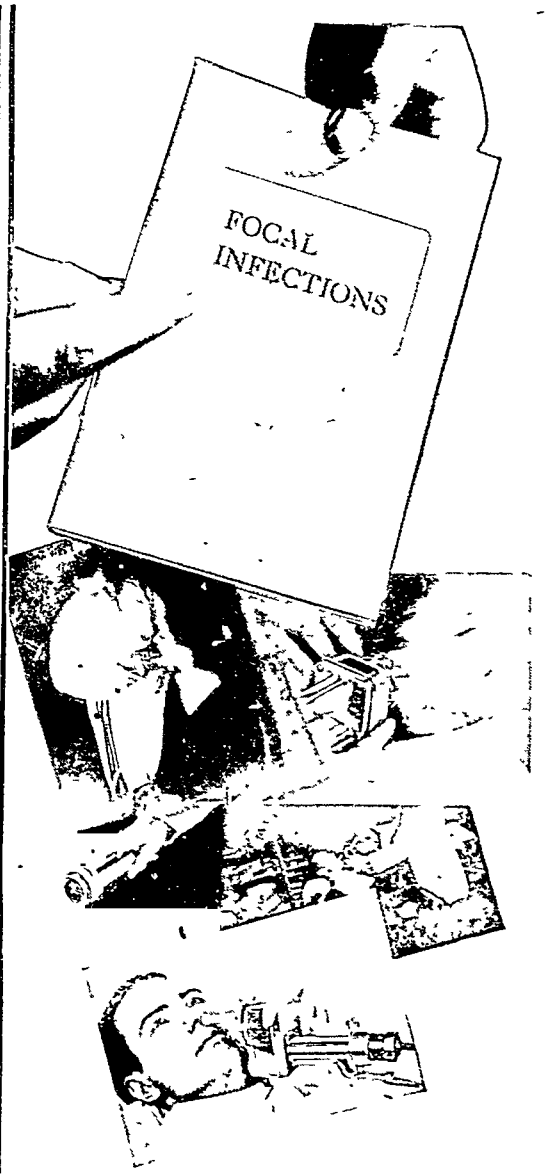
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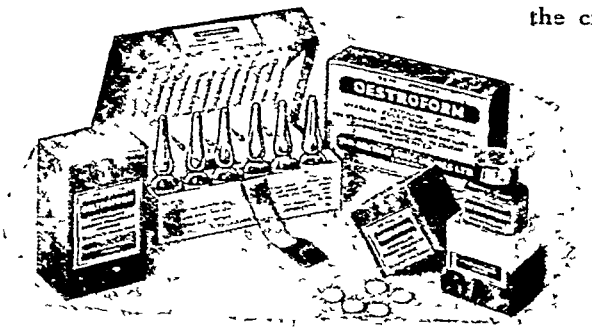
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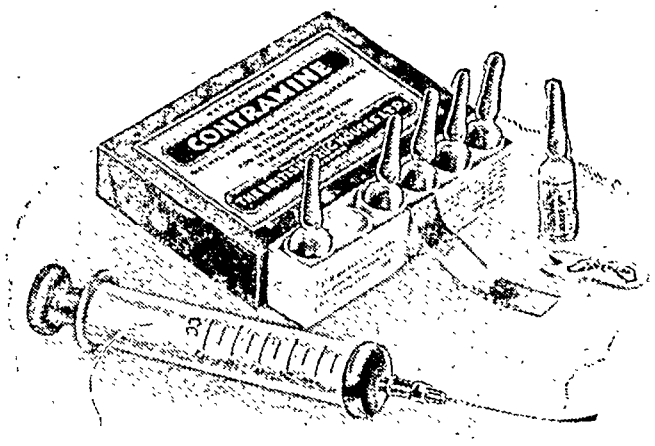
Vitamins A B_1 B_2 and D

hence its remarkable value to the physician for administration in those vague borderline states of ill-health where vitamin deficiency is general but not acute

Sample on request

THE BRITISH DRUG HOUSES LTD. **LONDON N.1**

RMJ184



The Treatment of Neuritis

A case report of interest

In the treatment of chronic stages of disease Contramine has been employed with signal success for a number of years, and its value in these conditions is well known.

The following case report of its use in neuritis, however, may be of interest to physicians who have not yet tried it for this condition:—

"Patient—Mrs. B., age 73—gave history that for some weeks had Neuritis in back and both arms. The pain was so severe that she could not sleep and some nights could not stay in bed.

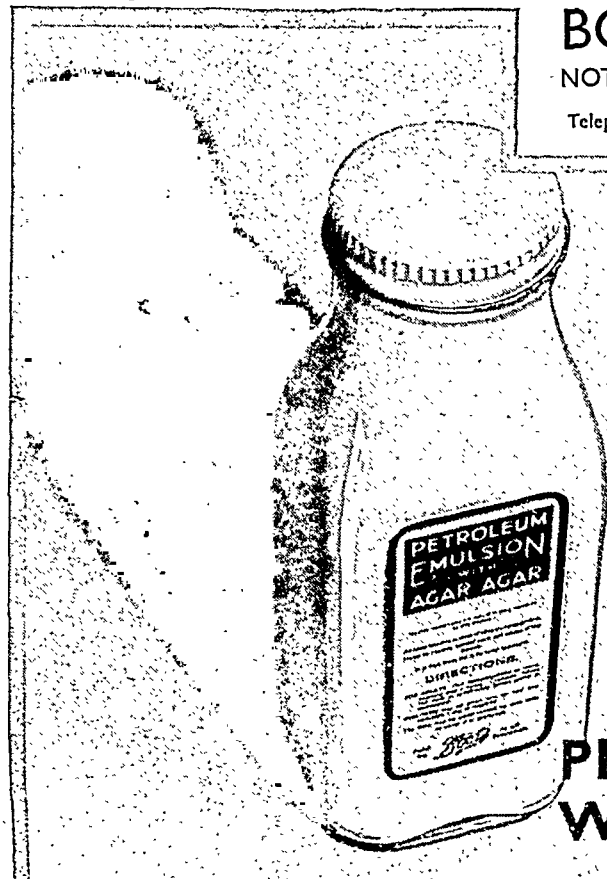
Treatment—Contramine 1 c.c. every third day until six were used—high colon lavage daily. At the end of ten days pain had absolutely disappeared. Has had no recurrence of pain, and no treatment for six weeks" — — —, *M.D.*

CONTRAMINE

Sample on request

THE BRITISH DRUG HOUSES LTD. **LONDON N-1**

Con/38



BOOTS PURE DRUG CO. LTD

NOTTINGHAM - - - ENGLAND

Telephone: Nottingham 45501 Telegrams: Drug Nottingham

A BLAND palatable emulsion of pure liquid paraffin and agar-agar. Acting as a mechanical non-habit forming lubricant, it renders the faecal mass soft and promotes comfortable elimination.

PETROLEUM EMULSION WITH AGAR-AGAR

Blue Label **1/6** Per Bottle

Also supplied with Phenolphthalein for the treatment of habitual constipation and for patients who have been addicted to purgatives.

PETROLEUM EMULSION WITH AGAR-AGAR AND PHENOLPHTHALEIN

Green Label **1/6** Per Bottle

DISCOUNT TO THE MEDICAL PROFESSION

Obtainable from all Branches of Boots

PETROLEUM EMULSION WITH AGAR-AGAR

For the Treatment of Constipation

Prostatic Hypertrophy

Extract from a doctor's letter:

With regard to my own case, my prostate was so enlarged when examined by a consultant two years ago after sudden haematuria from a chill, that he could scarcely get the cystoscope past the lateral lobes, and he was uncertain as to whether it was malignant or not, but strongly urged an operation within the next three months. It would have upset my plans so terribly to have to lie up then, that I took the suggestion of an old medical friend and put myself under "Opocaps" Prostatic (B.O.C.) with occasional Hexamine or Pyramidon.

There was no noticeable response until about the third month, by which time, unconsciously, I became slowly normal as to symptoms, and I have remained so ever since. It was interesting to note that when I remitted the gland treatment for a few months in the summer the symptoms recurred, but vanished after resuming the treatment.

Since my own experiences, I have put four patients on the treatment (including two doctor friends), and the results have been the same as in my own case.

I have proved that it is of no use to give just a few capsules, but that it is necessary to continue the treatment for at least three months before good results obtain, and it is essential to prescribe the correct preparation—"Opocaps" Prostatic (B.O.C.). M.D.

℞ "Opocaps" Prostatic (B.O.C.), gr. 3.
Mitte . . . . sig. 1 t.d.s., a.c.

(Supplied in boxes of 50 or 100)

BRITISH ORGANOTHERAPY CO., LTD.

Telephone Gerrard 7111. 22, GOLDEN SQUARE, LONDON, W.1 Telegrams 'Lymphoid, London'

MIL-SAN

the scientific contraceptive . . . its efficiency

In the advertisement in this journal of September 23rd, the non-injurious character of MIL SAN was examined In this one the basic principles on which its efficiency as a contraceptive depends are set out Its action is due to.

(a) A low pH caused by the reinforcing action of several acids which ensures the immediate immobilization and death of spermatozoa despite the buffering action of the seminal fluid.

(b) An extremely low surface tension which causes it to spread rapidly and to penetrate the rugae of the vaginal and cervical mucous membrane

(c) A degree of viscosity which ensures that it shall adhere to the cervix and upper vaginal tract and fornices forming a chemical barrier against the penetration of spermatozoa into the os uteri.

(d) A high degree of miscibility with the uterine secretions and seminal fluid which it renders fatal to all spermatozoa

It should be noted that no insoluble fats or oils are used Also that in manufacture, packing and application all contact with metal is avoided There is therefore no danger of contamination with metallic salts

MIL SAN is non injurious acts immediately and does not depend upon heat, moisture foaming or other variable conditions It is simple to use, hygienic, and designed to avoid damage to the vaginal flora Its NON-TOXIC character will be examined in an advertisement in this journal on November 25th Full information is sent on request to all interested members of the medical profession.

MIL-SAN Prices. Complete Outfit, 7/6. Refill Bottles, 5/- Special Offer. Complete Outfit and 3 Refill Bottles, 21/-. (12 applications in each bottle.) Post free in Great Britain.

MIL-SAN Reg'd Trade Mark

MENOSINE LIMITED

24, MAPLE STREET, LONDON, W.1. MUSEUM 6760.

VICHY-CÉLESTINS

THE WORLD-RENOWNED NATURAL MINERAL WATER.



This Natural Alkaline Mineral Water may be prescribed with absolute confidence with regard to its purity and natural condition. It is bottled at the Springs under the most careful supervision, and to ensure fresh supplies is imported with regular frequency.

NATURAL VICHY SALT for Drinking and Baths.

The VICHY WATERS, being almost devoid of Sulphates, are most agreeable to the taste, and are daily relied upon by Physicians the world over in the treatment of Gout and Rheumatism and for Affections of the Liver, Stomach, etc.

VICHY DIGESTIVE PASTILLES prepared with Natural Vichy Salt.

CAUTION.—Each bottle from the STATE SPRINGS bears a neck label with the word "VICHY-ETAT" and the name of the SOLE AGENTS:

INGRAM & ROYLE, Ltd.

Bangor Wharf, 45, Belvedere Rd., London, S.E.1 And at Liverpool & Bristol

Samples free to Members of the Medical Profession.

A Distinct Advance Over Preparations of Acetyl-Salicylic Acid

Acetyl-salicylic acid possesses a notable disadvantage. Physicians have proved that it cannot be tolerated by patients suffering with a delicate stomach. Consequently, the value of this medicament in the wide field in which it is indicated is very seriously reduced.

"Alasil" completely overcomes this objection. By combining calcium acetyl-salicylate with "Alocol," unfavourable secondary action upon the stomach is prevented. This beneficial influence is undoubtedly due to the presence of "Alocol" (Colloidol Hydroxide of Aluminium), which preparation has brilliantly stood the test of practice in the treatment of hyperacidity and other ill conditions of the gastric tract. "Alasil" is therefore a triumph over acetyl-salicylic acid. It enables higher doses to be administered and maintains the patient's system under its influence for a greater length of time. Analgesic, Antipyretic, and Sedative, "Alasil" is indicated in all cases where acetyl-salicylic acid has been used heretofore.

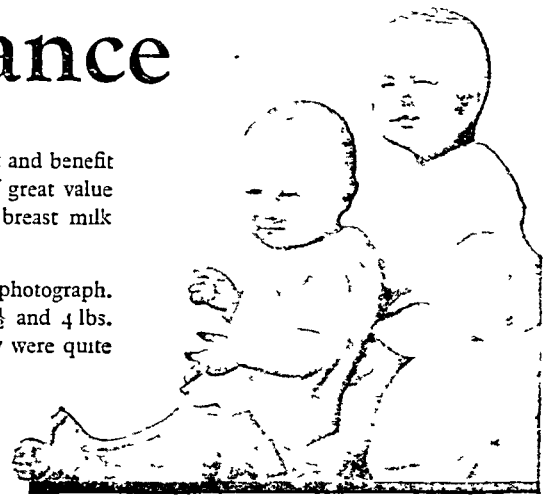
A supply for clinical trial with full descriptive literature sent free on request.

A. WANDER, Ltd., Manufacturing Chemists,
184, Queen's Gate, London, S.W.7.

Alasil

M 235

Milk Intolerance



In cases of bottle-fed babies who are unable to digest and benefit from ordinary cow's milk, Almata has been found of great value owing to its remarkably close approximation to the breast milk of healthy mothers.

An instance of this is illustrated in the accompanying photograph. The mother of prematurely born twins (weighing 4½ and 4 lbs. respectively) could not feed them herself, and they were quite unable to digest any other food, though several kinds were tried. At one month they were put on Almata, and from that time "they never looked back."

ALMATA

KEEN'S COMPLETE FOOD

A trial sample together with the Almata book will be gladly sent post free to doctors. Write to Keen, Robinson & Co., Ltd. (Dept. A 19), Carrow Works, Norwich

Sold by all Chemists. Price 2/1 and 4/- per tin.



INSULIN 'A.B.'

The world-wide supremacy of Insulin 'A.B.' is due to its unequivocal purity no less than to its well-known potency and stability under all conditions.

Insulin 'A.B.' contains the minute quantity of phenolic preservative originally recommended by the Medical Research Council and still considered necessary by bacteriologists (*Lancet* Sept. 12, 1931, pp. 582-584) as a complete safeguard against the development of bacteria that may be accidentally introduced during self-administration.

Supplied in three strengths:

20 units per c.c. Packed in bottles containing:
5 c.c. (100 units) - - 2/- each
10 c.c. (200 „) - - 4/- „
25 c.c. (500 „) - - 10/- „

40 units per c.c. Packed in bottles containing:
5 c.c. (200 units) - - 4/- each

80 units per c.c. Packed in bottles containing:
5 c.c. (400 units) - - 8/- each

Full particulars and the latest literature will be sent free to members of the Medical Profession.

Joint Licencees and Manufacturers:

The British Drug Houses Ltd. Allen & Hanburys Ltd.



LIQUOR PANCREATICUS (Benger)

An important aid in the preparation of Peptonised Milk, etc.

Liquor Pancrealicus Benger is an active solution of the digestive principles of the Pancreas; a really efficient agent for the digestion of milk, gruel and farinaceous or partly farinaceous foods. Odourless and tasteless. In 4, 8 and 16-oz. bottles. Prices: 3/-, 5/6 and 10/6.

BENGER'S Food
Regd. Trade Mark

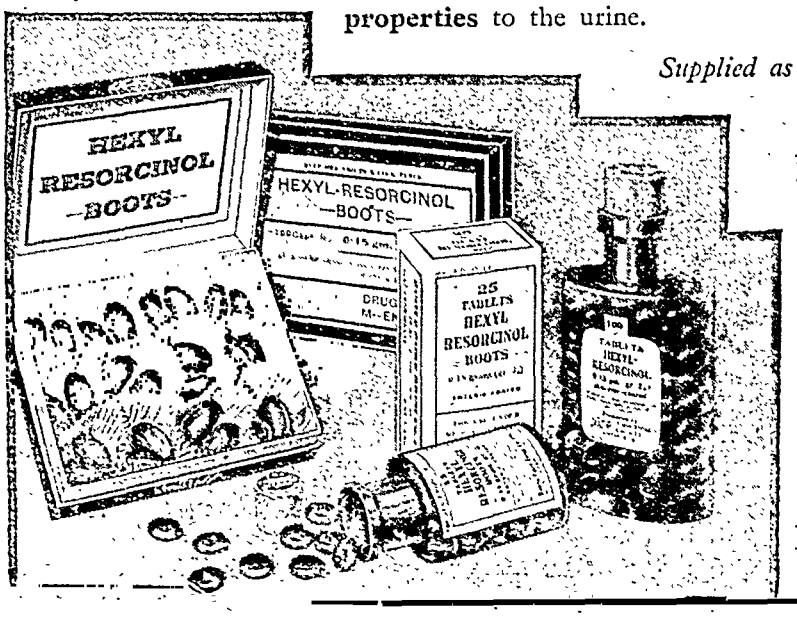
Physicians may obtain full particulars of Benger's preparations post free on request.

BENGER'S FOOD, LTD., Otter Works, MANCHESTER
NEW YORK (U.S.A.): 41 Maiden Lane SYDNEY (N.S.W.): 130 George St.
CAPE TOWN (S.A.): P.O. Box 732.

M.277b

HEXYL-RESORCINOL—BOOTS

A powerful urinary and **intestinal antiseptic** administered *per os* in specially prepared **Gelatin Capsules** and in **Enteric Coated Tablets.** Non-toxic in therapeutic doses. Non-irritating to the urinary tract. Excreted by the kidney unchanged in sufficient percentage to impart **active bactericidal properties** to the urine.



Supplied as follows:

SPECIAL GELATIN CAPSULES
Boxes of 24 and 100

ENTERIC COATED TABLETS
Bottles of 25 and 100

Literature sent on request.

WHOLESALE AND EXPORT DEPT.

BOOTS PURE DRUG COMPANY LIMITED

NOTTINGHAM - - - ENGLAND

TELEPHONE: NOTTINGHAM 45501
TELEGRAMS: DRUG NOTTINGHAM

VEINOTROPE

RADICAL TREATMENT of DISEASES of the VEINS and their COMPLICATIONS

In Tablets—
Formula M — for Men.
Formula F — for Women.

REDUCED PRICES NOW IN OPERATION.

Varicose veins, haemorrhoids, phlebitis, venous congestion at the menopause and disorders of menstruation.

A synergic medication based on organotherapeutic extracts irradiated with ultra-violet rays.

Clinical samples gladly sent on request.

CONTINENTAL LABORATORIES, Ltd., 30, Marsham Street, LONDON, S.W.1.
Victoria 2041. *"Taxolabs, Sowest, London."*

CONTAINS THE ESSENTIAL MINERALS
SODIUM
POTASSIUM
PHOSPHORUS
CALCIUM
IRON
MANGANESE

DURING PREGNANCY AND THE POSTPARTUM PERIOD

supporting treatment is essential. Compound Syrup of Hypophosphites "Fellows" is the most logically prepared tonic at the disposal of the physician.

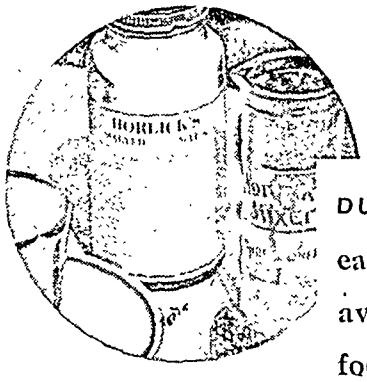
It contains all the required minerals in correct proportion and in an easily assimilable form. These are Manganese and Iron to renew the blood stream impoverished by continued loss; Calcium to replenish the constant calcium depletion; Potassium, Sodium, and Phosphorus to overcome the neural depression; Strychnine as a tonic to cell metabolism; and Quinine as a gastric stimulant

There is no better tonic than Compound Syrup of Hypophosphites "Fellows" to the parturient and post-parturient patient. During these trying periods, the suggested dose is one teaspoonful three times daily well mixed with water.

SAMPLES ON REQUEST

FELLOWS MEDICAL MFG. CO., LTD.
286 St. Paul Street, West, Montreal, Canada.

COMPOUND SYRUP OF HYPOPHOSPHITES
FELLOWS
(TRADE MARK)



DURING PREGNANCY the diet must be simple, nutritive and easily digested. Digestive disturbances and constipation must be avoided as far as possible, since they hinder the assimilation of food and lead to anxiety and exhaustion.

Horlick's Malted Milk—a modified milk providing the essential food elements—is an excellent food for the expectant mother. It is partly predigested and is ideal in cases where the digestive powers are impaired. It corrects any tendency to constipation and leads to regular bowel habits. It contains Vitamins A, B_1, B_2 and D and has been shown to stimulate blood regeneration in nutritional anaemia. Horlick's has a high anti-ketogenic value and, taken at bed-time or before rising, prevents and relieves morning sickness.

HORLICK'S MALTED MILK CO. LTD., SLOUGH, BUCKS. *British throughout*

EVANS' THROAT PASTILLES

Packed in tins 1/- each.



Also handy Pocket size 6d.

Evans' Throat Pastilles are prepared to a formula of the Liverpool Throat Hospital. Their action is soothing and demulcent, the formula being carefully balanced with both these objects in view. Evans' Throat Pastilles relieve harshness and irritation and maintain their effect for some time after the pastille has dissolved.

We will send with pleasure a physician's sample on request, in a neat vest-pocket tin.

EVANS SONS LESCHER & WEBB LTD.

LIVERPOOL LONDON DUBLIN

Marmite Therapy in Anæmias and in Vitamin B Deficiency

Anæmias

That Marmite therapy has gained a definite place in the treatment of certain types of anæmia is evident from the reports which continually appear describing the advantages of this form of treatment.

Remarks such as the following testify to the efficacy of Marmite—

"Further trials have confirmed my previous findings as to the curative action of this preparation." (*Ind. Med. Gaz., March*, 1933, *p.* 133.)

Vitamin B

Marmite is recognised as a potent source of the Vitamin B complex. This is clear from innumerable references to the subject in the medical press and from the Medical Research Council's Report on Vitamins, which recommends—

"Marmite for Vitamin B complex—a small quantity daily."

(*Vitamins: A Survey of Present Knowledge*, 1932, *p.* 276.)

MARMITE

(Registered Trade Mark)

In Jars: 1 oz. 6d., 2 oz. 10d., 4 oz. 1/6, 8 oz. 2/6, 16 oz. 4/5

Special quotations for supplies in bulk to hospitals and institutions.

Sample and literature on application to—

THE MARMITE FOOD EXTRACT CO., LTD., Walsingham House, Seething Lane, London, E.C.3

336

Direct Treatment of

INFLUENZA WITH VACCINES

FOR PROPHYLACTIC AND THERAPEUTIC USE.

ANTI-CATARRH VACCINE

Prophylactic

3 doses.

Duncan

THE VACCINE FOR COLDS

Curative

3 doses.

INFLUENZA VACCINE

2 doses.

Prepared by the Research Laboratory of the Royal College of Physicians, Edinburgh.

Issued by and full particulars from

DUNCAN, FLOCKHART & CO.,

EDINBURGH and LONDON

104, Holyrood Road. 155, Farringdon Road, E.C.1.

For Nervous and Physical Depression

℞ Bynin Amara

Sig. 3 p. ac. q. t.d.s. p.c.

COMPOSITION:

Quinine Phosphate 1½ gr.

Iron Phosphate 2 gr.

Nux Vomica Alkaloids equal to Strychnine 1/16 gr.

'Bynin' Liquid Malt 1 oz.

Further particulars and clinical trial sample will be sent on request.

ALLEN & HANBURYS LTD., LONDON

Telephone: 3201 (10 lines) Bishopsgate *Telegrams:* "Greenburys Beth London."

"IODOLYSIN"

TRADE MARK

Strikingly successful in Rheumatoid Arthritis

A therapeutic agent that gives really satisfactory results in a large percentage of cases of chronic rheumatism and allied conditions.

A distinct advance on uncombined thiosinamine, which was formerly advocated for the treatment of scar tissue, exudations, and chronic rheumatic disorders.



A chemical combination of iodine and thiosinamine with these special features:

It is readily soluble in water.
It is well tolerated.
It causes no local reaction on injection.
It contains, in iodine, an element well known for its action in promoting leucocytosis and helping absorption of inflammatory products.

"Iodolysin" is supplied in ampoules for hypodermic injection, in capsules for oral administration, or as an ointment or paint for local application.

Free Clinical Sample and Literature on request.

Allen & Hanburys Ltd., London, E.2

Telephone: Bishopsgate 3201 (12 lines) Telegrams: "Greenburys Beth London"

A BALANCED FORMULA

For the treatment of painful and febrile conditions

KEPHALDOL

BRAND

ANALGESIC, ANTIPYRETIC TABLETS

Acetphenetidin 2.15 gr.;- Sodium Salicylate 1.75 gr.; Quinine 0.45 gr.; Caffeine 0.25 gr., Salicylic Acid 0.15 gr., Citric Acid 0.25 gr., Amylum q.s.

Non-toxic ***Non-depressant*** ***Not habit-forming***

Samples free on request

Distributors: Sangers Ltd., 258 Euston Road, N.W.1

Vaccines for common colds

The logical treatment for the common cold is to support the anti-bacterial functions of the mucous membrane with a vaccine containing groups of bacteria associated with such respiratory infections.

Catarrh "Cold" Serobacterin Mixed (Mulford) is a sensitised bacterial vaccine containing such micro-organisms especially prepared for the prophylaxis and treatment of the various infections of the upper respiratory tract. Write for further particulars.

Supplied in packages containing:

M 104-00	Br. four	1 c.c. phials A B C D per package	18/-
M 104-9	Br. one	5 c.c. phials strength D " "	14/6
M 104-4	Br. one	20 c.c. phials strength D " "	31/3

Serobacterins are suspensions of killed pathogenic bacteria combined with antibodies freed from specific immune serum and standardised by bacterial count. Serobacterins not only combat the invading bacteria of disease but give a degree of immediate protection. The combination of antibodies with the antigens reduces the toxicity of the latter, and this, together with the absence of serum minimises local and general reactions. Larger doses may, therefore, be given.

Phials contain sensitised killed bacteria as follows:

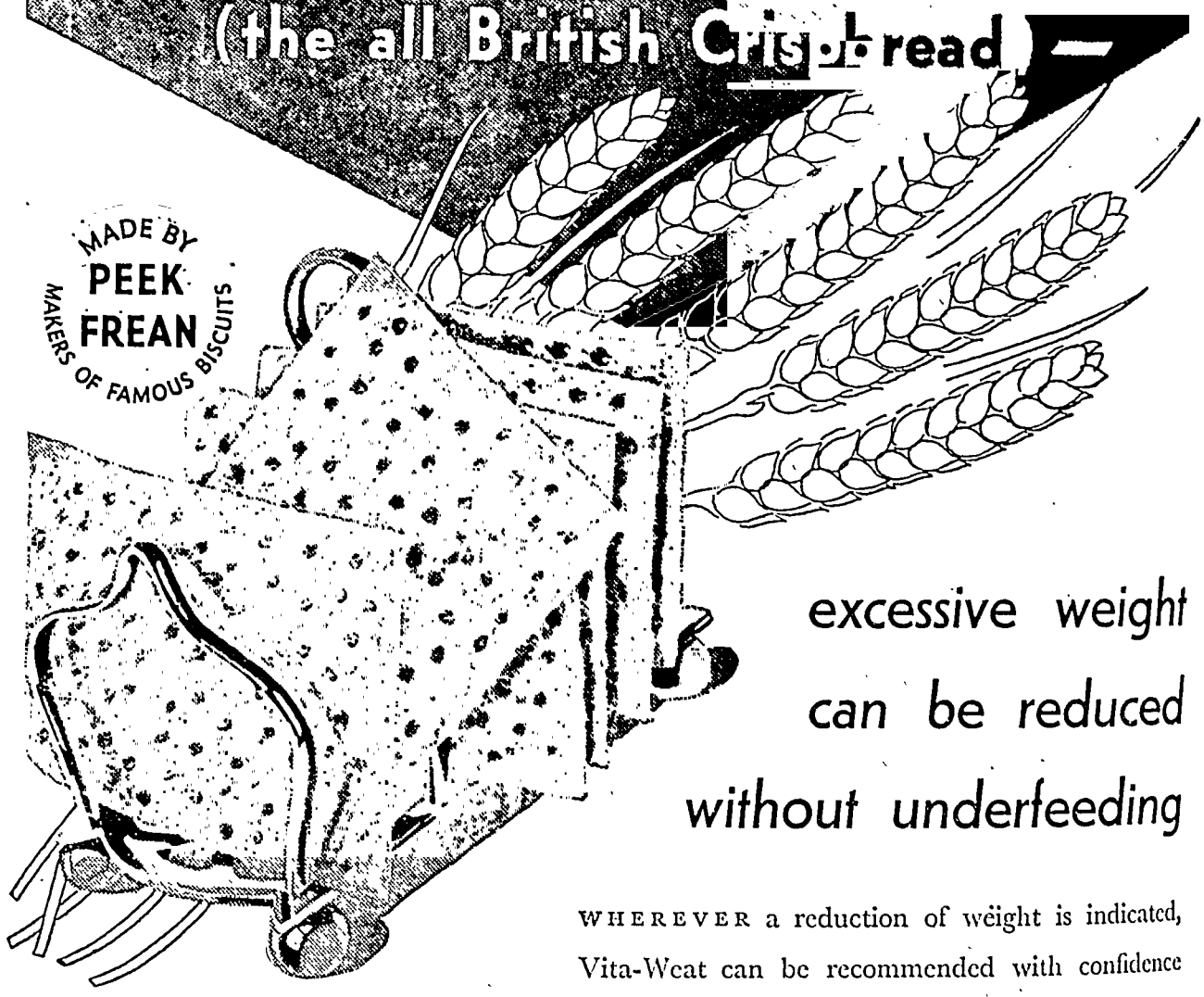
	A	B	C	D
Staphylococcus aureus	125	250	500	1.00 million
Staphylococcus albus	125	250	500	1.00 million
Streptococcus	125	250	500	1000 million
Pneumococcus	125	250	500	1000 million
M. catarrhal. (Group)	125	250	500	1000 million
B. Friedländer	125	250	500	1000 million

MULFORD BIOLOGICAL LABORATORIES

SHARP & DOHME LIMITED, 252 REGENT STREET, LONDON, W.1

Thanks to the whole wheat in Vita-Weat

(the all British Crisp-bread)



excessive weight can be reduced without underfeeding

WHEREVER a reduction of weight is indicated, Vita-Weat can be recommended with confidence instead of ordinary bread or toast. Vita-Weat offers all the nourishment of the whole wheat berry, with the vitamins intact and active, in readily assimilable form. It is 'crunchy' to tempt jaded appetite and encourage thorough mastication. It has the wheat starch completely broken up for ease of digestion and the bran reduced to the correct degree of fineness to ensure natural elimination. So it actively discourages any tendency towards obesity.

Analysis gives the following comparison with wholemeal bread

	Vita-Weat (*The Lancet*)	Wholemeal Bread (*The Practitioner*)
Moisture	4.90	45.00
Protein	10.32	6.30
Fat	7.90	1.20
Carbohydrates, etc.	74.28	46.30
Mineral matter, ash, etc.	2.60	1.20
	100%	100%
Calorific Value per lb.	1846	1105

M.1

Calcutta House
Goulston Street
London E1

To all doctors
in Great Britain.

Tea at wholesale price

Dear Sir,

In July last we made an offer to supply doctors with our Digestive Tea for their own use at wholesale price for thirteen weeks.

Thousands of doctors availed themselves of this offer. To these a further offer of tea at wholesale price for the next three months is being made. Voucher books are being posted in the course of a few days.

Other doctors who missed our previous offer, or who did not make use of it, are invited to avail themselves of this second offer. Put your professional card in an envelope and post it to the above address to arrive before 2nd December, 1933. We will then send you a book of vouchers and details of the offer.

Yours respectfully,

BROOKE BOND & CO. LTD.

NOTE:
We shall credit the grocer with the profit due to him on tea you purchase from him. Ours is the only scheme of this nature which justly gives the grocer his due.

WHEN a mother is unable to nurse her infant, an alternative supply of suitable food becomes an urgent necessity.

Cow's milk, in some form, is the only ordinarily available alternative. The predominating type of protein and the ratio of protein to fat and carbohydrate in cow's milk, though suited to the calf, differ markedly from those of human milk.

'Humanisation' of cow's milk is therefore necessary. How this is successfully achieved in the case of the 'Allenburys' Modified Milk Foods will be described in future announcements.

This announcement regarding the 'Allenburys' Foods is No. 1 of a series which will be continued.

TRADE MARK 'WELLCOME' BRAND

CONCENTRATED

ANTI-PNEUMOCOCCUS SERA



Important reduction in prices

'WELLCOME' BRAND CONCENTRATED ANTI PNEUMOCOCCUS SERUM, TYPE I
(Trade Mark)

Germ-proof containers of 20,000 Units in 12 c.c. or less, 30/- each
" " " " 50,000 " " 12 c.c. " " 60/- "

'WELLCOME' BRAND CONCENTRATED ANTI-PNEUMOCOCCUS SERUM, TYPE II
(Trade Mark)

Germ-proof containers of 20,000 Units in 12 c.c. or less, 30/- each
" " " " 50,000 " " 12 c.c. " " 60/- "

'WELLCOME' BRAND CONCENTRATED ANTI-PNEUMOCOCCUS SERUM, TYPES I + II
(Trade Mark)

Germ-proof containers of 10 000 Units of each, Types I and II, in 12 c.c. or less . 30/- each

TRADE MARK 'WELLCOME' BRAND

HIGH POTENCY ANTI-PNEUMOCOCCUS SERA. UNCONCENTRATED

Where the cost precludes or limits the use of the Concentrated Serum, High Potency Unconcentrated Serum may be used with confidence

Write for literature Post-free on request

'WELLCOME' BRAND HIGH POTENCY ANTI-PNEUMOCOCCUS SERUM, TYPE I, UNCONCENTRATED
(Trade Mark)
Germ-proof containers of 25 000 Units in 25 c.c. or less 20 each

'WELLCOME' BRAND HIGH POTENCY ANTI-PNEUMOCOCCUS SERUM, TYPE II, UNCONCENTRATED
(Trade Mark)
Germ-proof containers of 25,000 Units in 25 c.c. or less 20 - each

Prepared at
THE WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES
LANGLEY COURT, BECKENHAM, KENT (ENG.)

Distributed by
BURROUGHS WELLCOME & CO., LONDON
All orders should be sent to SNOW HILL BUILDINGS, E.C.1
Export Offices 10, Henrietta Street, Cavendish Square, W.1
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H 3-3

CALCIUM-SANDOZ

$(C_6H_{11}O_7)_2$ Ca.

Unique Advantages:

1.—It is effective. It supplies the physiologically active calcium ion.

2.—It shows distinct superiority in all modes of administration.

ORALLY: It is well absorbed. It is easily administered and does not upset the digestive tract.

INTRAVENOUSLY: It is better tolerated than calcium chloride. The acid-base factor is eliminated.

INTRAMUSCULARLY: It is painless and non-irritating. It is the only calcium salt which can be so administered in adequate doses.

3.—It enables physicians to adequately meet the requirements of any given case.

BY VEIN, for acute need.
BY MUSCLE, to secure intense and prolonged action.
BY MOUTH, for prolonged administration, to meet an increased demand by the organism.

4.—It is completely sufficient in itself as a therapeutic agent.

CALCIUM-SANDOZ is supplied in

Ampoules containing a 10% sterile solution for intravenous or intramuscular injection.
2 c.c. size: Boxes of 10 ampoules.
5 c.c. size: Boxes of 2 and 10 ampoules.
10 c.c. size: Boxes of 1, 5, and 20 ampoules.

Powder for oral administration.—Cartons of 2, 4, and 16 ounces.

Tablets for oral administration.—
Chocolate Flavoured (25 grains). Boxes of 30 and 150. Cartons of 12 boxes of 30.
Effervescent (60 grains). Tins of 12 and 66.

Full particulars from

J. FLINT, "SANDOZ" PRODUCTS, 5, Wigmore Street, LONDON, W.1

Wholesale—

BROOKS & WARBURTON, Ltd., 232, Vauxhall Bridge Road, LONDON, S.W.1

The Harveian Oration

ON

"CLINICAL SCIENCE"

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON ON OCTOBER 18th, 1933

BY

SIR THOMAS LEWIS, M.D., F.R.S., F.R.C.P.

PHYSICIAN IN CHARGE OF THE DEPARTMENT OF CLINICAL RESEARCH, UNIVERSITY COLLEGE HOSPITAL

All in this College know that William Harvey discovered the circulation of the blood. But the movement of blood through the lungs had already been suggested by his predecessors. Harvey discovered the systemic circulation, and realized that this and the pulmonary circulation are but integral parts of one continuous movement. When it is asked what we owe to Harvey this forms the almost constant answer. Yet I venture to state that it is not the achievement which should chiefly be acclaimed, or that it should not be acclaimed in this form. There is little doubt that Harvey's discovery could not long have been delayed. Other workers had come very near to suspecting the fact; with the microscope once introduced it could not remain concealed. How and when the first clear statement would have come, had Harvey remained silent, would be a matter of profitless conjecture. It actually came from Harvey, and we are content to rest on that fact. Revolutionary as was his discovery in its time, far-reaching in its subsequent developments, yet the conclusion was not the best that Harvey gave us. The outstanding quality of Harvey's work lies in his statement of a case, in the lucid nature of his argument, and the finality of his proof. He presents to us a train of methodical and exact observation and experiment, carried forward hand in hand with close and finished reasoning, brilliant for its simplicity and for its power of conviction. His book is a romantic example of scientific exposition, unsurpassed at his time and since his time. *De Motu Cordis* holds its reader entranced, while each stretch of the path brings a surer promise of the approaching vista; and when the path ends it ends on the hill-top, and there is unfolded to our gaze a land that is ours with certainty, ours for all time. This culmination brings with it a sense of security and accomplishment that fills us with profound and lasting emotion; and we go forward to hold what he has given us with a great thankfulness to this pioneer, who has not only led us to a new country, but has inspired us and taught us how farther to explore.

Harvey has been termed the Father of Physiology: he was much more than that, for his child was Clinical Science, out of which physiology and pathology were afterwards born. Prompted and inspired by clinical observation and by dissections of the dead body, he proceeded farther by the method of experiment, using both man and animals, and harvesting and binding into one whole his abundant evidences. He bequeathed his method to us in his immortal book.

Since his time knowledge has grown apace, and where there was one science there have sprung up many. Clinicians in the age following Harvey became largely absorbed in the description of disease; in the hands of men like Sydenham this fascinating branch of knowledge, derived from observation, rapidly expanded. Though prosecuted sporadically in this country among physicians, Harvey's method fell amongst them into relative disuse; until during the last century, being relegated, it was seized upon enthusiastically by a small band of devotees and shortly became the basis of the present science of physiology. The budding off of physiology is almost within memory. The process of disruption has continued. First physiology abandoned medicine, and in going took largely from medicine its function of studying the normal processes of the body; it also took something more important, for clinical medicine seemed to relax its claim to the use of the experimental method, which it had forged and which physiology, its offspring, now chose as its own chief weapon. Pathology has budded or is budding off, assuming for its part the study of the mechanism of disease, human or otherwise, and in almost all its aspects. This disruption of medicine, as it was originally constituted and as Harvey knew it, may be the inevitable outcome of its growth, may profit physiology, may profit general pathology, may even profit the medical sciences when these are viewed as one whole; but it is a process which can be carried too far, and it then becomes, is becoming, detrimental to the development of the clinical branches of work.

It is necessary for medicine, still the parent and still largely possessed of guiding authority, to call a check to this subdivision of her estate. It is necessary that steps should be retraced and that territory originally possessed should firmly be reclaimed, so that medicine should not be narrowly confined; it is requisite that medicine should renew its strength to wield its chief weapon, the experimental method. It is to the accomplishment of these ends that the establishment of Clinical Science in its full scope is to be regarded as so important. But if this science is to become established it must not be formed into a third unit, which shall presently detach itself and move off to a position of isolation; it must remain firmly within and develop as an integral part of the whole organization. And to secure this most desirable and permanent unity it must establish itself, not in laboratories of our medical schools, but actually within our hospitals, centring upon the wards and out-patient department, and using laboratories merely as adjuncts and storehouses of necessary equipment. Above all, we must guard ourselves against the obsession, tending to grow up in recent years, that useful discoveries are purely the prerogative of laboratories.

THE GENERAL SCOPE OF CLINICAL SCIENCE

The proper practice of medicine has been built up, and continues to be built up, on a complex basis. The general mass of our knowledge rests upon a tripod, the three limbs of which are each essential to the stability of the superstructure, these limbs are:—studies of living men in health and disease; studies of dead men; and correlated studies undertaken upon the lower animals.

The full scope of Clinical Science, as the work of Harvey first defined it, embraces all these three. The central and unique studies of Clinical Science, most fundamental of all studies pertaining to the practice of medicine, are those which deal with living men. But these cannot be divorced either from anatomy or from experimental work on animals without embarrassing all three, and without seriously weakening the whole edifice.

It is quite necessary to the proper progress of the clinical branches of study that they should be most strongly linked with physiology, with morbid anatomy, and with what has been called experimental pathology. The linkage can be an enduring one only if Clinical Science continues to command opportunities of studying both dead bodies and living animals.

It is essential that those who have held charge of patients and have studied phenomena in the living should themselves, and not through skilled deputies, explore the tissue changes which may underlie disturbed function;

for while the skilled deputy may more accurately describe and name those changes in the tissues upon which he chances, he cannot enjoy either full opportunity or the full inspiration to correlate function and structure. It is by these correlations that the meanings of many manifestations during life are explained ; it is by correlation rather than by simple study of the cadaver that the meaning of illness and the cause of death are often or usually to be explained.

It is essential that those who in studying human patients perceive opportunities of putting questions to the test of animal experimentation should themselves engage in such work ; that correlation should not be left to the chance meeting and union of clinical and laboratory studies ; that the spirit which moved the original inquiry should live, vitalizing and directing the whole work in its progress along a broad path towards a practical goal. To divide or attempt to divide medical research into ward research and laboratory research is narrow and mischievous ; it is a profound error to believe that there is any essential difference in general method, however different may be the technique.

The physicians and surgeons of our great teaching hospitals become more and more dependent upon technical experts. How easy, as the problems suggest themselves at the bedside, to accept the view that it is fitting that these highly trained and fully equipped men should undertake the investigation. But the result, so often, is that from the first the research is forced into a narrow channel of technicality from which it fails to emerge, and the work ends in one of those reports which, scientific though they may be in their cold logic, unfold no story, and remain uninspiring and lifeless. The fascination and importance of the problem in its wider and practical implications have been concealed, the inspiration that should drive to its solution has been lost, because the problem is no longer seen in its full perspective, a problem primarily concerning the living, in part concerning the dead, and in part deriving from the laboratory. It is just this integration that is of so much consequence to the vitality of medical research ; and this integration is, and always must remain, chiefly within the special province of Clinical Science. As there has been occasion to state previously,* knowledge that is applied usefully to the health of mankind will almost always come by a series of steps, the first of which is the recognition of the human need, the last of which is the application of a test directly to the human problem. It is therefore in the nature of things, however many steps may intervene, that the first and last shall be clinical. He who can see the source of the problem, who can appreciate the fittingness of its final solution, is uniquely fitted to guide the whole train of thought and of inquiry.

Harvey investigated the human body in health and disease, living and dead, and used animal experimentation to supplement his other studies. This is our birthright, derived from him, and we must not depute our proper tasks. A great need of the medical sciences in the present stage of their development and interrelation is a group of men, primarily clinicians, but fully accustomed by training and by daily experience to wrestle with scientific problems ; men who, in place of relatively complete and accurate knowledge of some purely laboratory science, hold as the first part of their equipment intimate acquaintance with the relevant diseases as these are seen in living men, who have also acquired sufficient knowledge of related physiology and of general pathology, who have the aptitude to acquire quickly and well the necessary technical knowledge and skill, thus to enable them to grapple with the problem both in its detail and in its wide aspects, and to drive successfully to a practical goal.

* *British Medical Journal*, December 10th, 1932.

But such work, it will be clear, requires not only ability, but it requires a man's full energy ; it is not the type of work to which those busily engaged in practice can give themselves in leisure hours with full prospect of success. Physicians do not now live as Harvey did in times of easy clinical activity, but in days of much heavier and more complex routine. So if the purpose in mind is to be brought to accomplishment it will be necessary to set free men having aptitude for the work outlined, to form a phalanx of trained clinicians who shall bring Clinical Science to a new pitch of scientific efficiency and hold it there.

From this statement of the general scope of Clinical Science and its aspirations we pass on to survey, not exhaustively, but selectively, certain studies upon which Clinical Science may profitably engage.

Directions of Investigation

Studies of the Disease

Description and Definition of Disease.—Coming down to us in part from remote times, chiefly from the great clinicians of the seventeenth, and especially the eighteenth and nineteenth, centuries, is this tradition, the discovery of new disease, consisting of the separate description and naming of recognizable diseases. This recognition of separate diseases originally based itself upon close resemblance between manifestations of ill-health in separate people, with or without the additional evidence of a common morbid lesion. At first such discovery was a matter of relatively simple observation, as was the identification of biological species ; but it would very naturally become less simple as those of most constant form were eliminated, and the number of those to be recognized consequently diminished. While requiring freshness of sight and mind, so that the opportunity might be seized when it occurred, nevertheless, progressive work of this kind has been and must continue to be a matter largely of good fortune, as when several patients of one type present themselves for examination in quick succession. To-day work along these lines could not be a planned investigation ; it has become incidental to a long routine directed to other purposes. There may be many forms of disease yet to describe, but it is manifest that most diseases of simple types have been named ; there is evidently work still to do in recognizing the less obvious types. Moreover, there is very important new work to do, if one may express the matter a little differently but more clearly, in *defining* conditions of disease. This defining, which is no more than accurate naming, is quite fundamental to many studies that must be undertaken in the future. The very attempt to define often fires a dormant spark of inquiry. This method of working towards precise definitions, and ultimately from them, is both instructive and prolific ; it leads to the belief that diseases are named much too often upon a simple, and perhaps loose, grouping of symptoms, and that closer analysis of mechanism will lead in the future to much revision of terms. Definitions cannot be made satisfactorily in terms of grouped symptoms ; definition brings us quickly to intimate questions of causation. When it comes ultimately, as it comes inevitably, to questions of causation, then it is found, as the history of medicine abundantly illustrates, that on the one hand distinct diseases have superficial resemblances, bringing them to be confused, and that on the other hand conditions thought to be quite unconnected have proved to have a common pathological basis. Instances of both kinds of reshuffling will no doubt often occur again. Our understanding of disease is incomplete, so, and in the measure, our classification remains artificial and lacks in finality. There are, in fact, few clear-cut discover-

relating to the mechanism of disease which have not called for some change of nomenclature; there are probably none that do not render close revision of parts of it advisable. While the progress of nomenclature directly and importantly affects investigation of mechanism, the latter often affects the former. There is an interplay between the two; they should move forward together; in investigation the nomenclature of disease, until based firmly on cause, should usually be regarded as unstable. Briefly, there are two points to realize. Firstly, that the useful nomenclature of disease is becoming less a matter of simple and casual observation, and more and more dependent upon a close understanding of the mechanism of disease, and therefore upon concentrated and intensive study. Secondly, that the attempt to reach accuracy of definition is itself a strong stimulus and powerful guide to investigational work.

Search for Cause.—There is no special method of investigating the cause of disease; knowledge of cause may be derived from one of many sources. The disease may prove to be hereditary; it may be acquired. The ultimate cause may become revealed after a characteristic group of symptoms is seen to be associated with some definite morbid change. It may be found to result from a specific bacterium or protozoon, from a fault in diet, from contagion, or from exposure to a poisonous environment. Causation has far more aspects than can be dealt with here. But one point of view peculiarly relevant to this discourse may be considered. Although it is manifest that the cause of disease may be found by bacteriological, protozoological, dietetic, or epidemiological study, it is also manifest that such studies depend for success upon relevant clinical discoveries. The cause of human disease never has been, and never can be, found purely within the walls of a laboratory; there must be at least some association, direct or indirect, with patients. This association has grown, especially in the case of bacteriology, to be too loose; it is quite necessary to the proper study of many diseases that the association should develop the intimacy which has proved so successful in investigation of tropical disease. Let us remember that Lister was his own bacteriologist. The solution is not usually to be found in what has been termed team work. Can it not be hoped that skilled clinicians will be found in this country who will devote their lives in studying the origin of disease, and who will fit themselves by special and appropriate training for this particular task; or is reliance still to be placed on casual contacts between pure clinicians and specialists in laboratory technique or pathological method?

Studying the Course of Disease.—Apart from those diseases which run short courses to death or to recovery, work of this kind can be undertaken satisfactorily only by those in long-continued contact with given patients; it is essentially work for the co-operation of the family doctor. Whether the course of the disease studied is modified by treatment or not, these investigations are fundamental to prognosis. Sound prognosis bases itself wholly and inevitably upon experience, a statement which needs emphasis. Much further information than we possess has still to be obtained, even in so far as relatively simple conditions of disease are concerned. Where close definition of disease is impossible, where in arriving at a prognosis several factors must be considered, the precise significance of the different factors has usually been insufficiently analysed. It is often work of a most tedious kind, and involves highly critical and sound statistical treatment. A most notable, I would say unique, example of such work is that carried out over a ten-year period upon 1,000 cases of chronic heart disease by Dr. Ronald Grant. His contribution will form the basis of sound prognosis in cases of this kind for very many years to come; I point to it for this reason, but especially because it is an illustration of scientific method in establishing prognosis.

Therapeutics.—The basis of all new treatment is, and always will be, critical experiment. Therapeutics is a purely experimental science, and its methods should, but unhappily do not, always correspond. There are a few drugs such as thyroxine and insulin, mercury and iron, digitoxin and morphine, the beneficial effects of which, when given to appropriate patients, are so rapid and so obvious that they are universally acclaimed as sovereign remedies. For the rest, a large proportion of the drugs in daily use are without scientific sanction, and no attempt has been made or is being made to obtain this sanction for them. There are many forms of treatment—electrical, balneological, and I would also add surgical—to which the last statement equally applies. Let me not be misunderstood. I do not mean that they are unsupported by a train of academic reasoning. There is in my view only one good reason why a remedy should continue to be used—namely, that it has been found to be of service; this standpoint is empirical, but that does not prevent it being fully scientific. Neither do I mean, in saying that many remedies are without scientific sanction, that they are useless, but that there is no properly recorded evidence of their usefulness. One of the more obvious tasks of clinical science is to compile clean and readily available records of properly controlled observations proving the effects of such remedies. It seems unbelievable that the profession can long continue tolerant of a system under which drugs and other remedial measures are vaunted on an inadequate basis of recorded experience, or that doctors should be almost forced by popular clamour to give and to transfer allegiance, an allegiance stimulated by report or advertisement and not by proved worth, temporarily to this remedy or to that. It is not through easy, but often fallacious, general impressions that full progress is to be expected, but mainly through deliberate, unbiased, and untiring study of the reactions of patients to given remedies. It is the duty of clinical science, in this branch of its activity, to maintain close linkage with pharmacology; but it is equally its duty clearly to recognize that, in so far as both manner and intensity are concerned, the action of a drug on man is not necessarily the same as the action on an animal, and that the action on the diseased is not necessarily the same as on the healthy man. The proof or disproof of a drug's efficacy rests finally on the test in patients.

We have been dealing with methods in which the disease itself is the focal point of study, the isolation and recognition of entities, the inquiry into the cause of and treatment of disease. There are other important forms of investigation.

Study of Special Manifestations of Disease

A very profitable line of study is that which inquires into separate but various manifestations of disease, whether these are subjective or objective.

The study of subjective symptoms has a unique practical value in that it relates to manifestations directly affecting the patient's welfare; these manifestations of ill-health must be dealt with whether we know the cause of the disease producing them or not. But the study of subjective symptoms and other phenomena has a much wider importance, because it frequently throws a flood of light upon the processes and nature of disease, leading up to closer definition and to more intimate understanding. It was inquiry into the meaning of the symptom "palpitation" and to a closely related phenomenon common to many different diseases—namely, irregular heart action—which led to the volume of productive work upon the mechanism of the heart beat. And it is to be particularly

Medical Research Committee (now the Medical Research Council). This council has the power, and has repeatedly stated its eagerness, to establish units of clinical research in this country, paying adequate salaries and defraying all reasonable expenses. Since its inauguration it has gladly welcomed the chance to finance all reasonably promising schemes of clinical research submitted to it. Its influence upon medicine in this country has been an ever-growing one, not only because of the increasing importance and volume of the work done under its guidance, not only because its resources, financial and otherwise, have increased, but for a further reason which is perhaps the most important of all. Within a short time of its institution, and remarkably, it established in the minds of those working under it a feeling of security that they were free to pursue their work without other cares. Workers under this council have enjoyed an unusual measure of freedom from direction and from restraint, and a sense that both their present and their future interests are closely guarded for them. When the war was over the educational authorities began to take a part in this progressive movement, and there became established in London alone a number of professorial chairs in medicine, surgery, and gynaecology, with establishments that now provide full-time work for a much larger number of junior workers. Other benefactors have begun to found additional senior posts specifically intended for the prosecution of research in Clinical Science within the wards and laboratories of hospitals. One of the first of these was the permanent endowment by the Rockefeller Foundation of such a post at University College Hospital. It is being followed by the creation of a similar post by the Beit Memorial Trust. The Medical Research Council has established a neurological unit of a similar kind at the National Hospital, Queen Square. I would ask you not to forget that two Foulerton professorships have been established by the Royal Society in recent years, under a bequest " for original research in medicine for the discovery of disease, the causes of it, and the relief therefrom of human suffering," stipulations which clearly open these posts to purely clinical candidates, possessing appropriate qualities. The instances given are by no means exhaustive ; but enough has been said to show how profoundly the position has changed within the space of a few years and how rapidly the movement is gathering force. It is most encouraging to see this College possessed of its own special research funds for the direct help of progressive work. The formation of a Science Committee within this College is another and important sign of a general trend of events and of the awareness of the College of the spirit of these times. Apart from their potential importance such innovations can hardly fail to form important and necessary links between the more purely academic and the practical activities of our profession. It would be gratuitous for me, in speaking before this College, to dwell upon the importance of such linkage. Every pathway between those who have new knowledge to impart and those who can apply it must be maintained ; and though it is necessary that investigators should enjoy that measure of seclusion which is necessary to the full development of their powers, it is vital to our profession that there should be no sharp distinctions, no subdivisions into a camp of investigators and a camp of doctors.

But of all the developments happening in recent times none is so important as the lively awakening and steadily growing interest among young and able men in the clinical field. This change in spirit and in intention has now been in progress for a sufficient time for us to be assured that it is not transient, but has behind it a fixed and deep enthusiasm based on gathered courage and confidence, which now can hardly fail to carry the movement forward to ultimate success. The activity and fruitful work of many new recruits has enabled the formation of a new society, now in the fourth year of its vigorous growth. The gatherings of the society, formed around a nucleus of full-time workers, but closely linked with the practising profession, are already notable for the original quality of the communications which it welcomes and informally but thoroughly discusses. Simultaneously, among those men, and they are now many, who are steadily pressing this movement forward, there has developed a spirit of mutual interest, help, and encouragement, founded upon a common purpose in work ; there has come to clinical workers in the great schools a far closer community of feeling and of sympathy, not only with each other, but with workers in physiological, pathological, and other fields of scientific endeavour, connecting links of the utmost promise for the future. Clinical workers are beginning to acquire their share of that subtle atmosphere which is common to university life, and is well recognized to exercise profound influences upon the spirit and method of work and of thought.

Concluding Remarks

A little more than three hundred years ago the clinician Harvey, inspired by the desire to understand the motion of the heart, set himself to discover its meaning. He did not concentrate upon such of its motions as he might see in his patients ; but starting from these, in his wisdom, let his gaze roam. He searched widely, gathering with his own hands and with his own brain all such information as he might find pertinent to the furtherance of his studies. It was because he possessed breadth of vision that he brought these studies to a conclusion that has proved fundamental to all medical science. In doing so he gave us an exposition of method of unique force and significance. He established for us a tradition, a tradition that Clinical Science shall not be confined narrowly or by artificial boundaries, but shall be free to search how and where it will: a tradition which will not countenance attempts to separate the study of health from that of disease, or the study of animals from that of man, or work at the bedside from that of laboratories. These are among the lessons of *De Motu Cordis*, and this is Harvey's leadership. As your chosen Orator to his memory to-day I recall to you as Fellows and Members of this College his exhortation to search and study out the secrets of nature by way of experiment. I am moved to ask here and in his name that this College should allow its gaze to rest with earnest pride on this gift of Harvey's, the Clinical Science which he founded ; that, visualizing the special needs of this science under the strain of modern conditions, the College may offer full encouragement and sympathy to its appropriate development: I ask that it should couple Harvey's name particularly with this science so that it may stand to him in this College for his most lasting monument, and that it may form a bond within this College between those who live to gather knowledge and those who live to apply it to the needs of the sick, a bond bringing mutual affection and respect.

To you, Mr. President, I desire to express my humble thanks that you have afforded me opportunity of promulgating these ideas, at this time, in this place, and on this occasion. For in respect of time, the signs of its ripeness are abundant ; in respect of place, this great College has for centuries formed a chief centre, not only within Great Britain, but in the world at large, of progressive clinical thought ; and in respect of occasion, we are here to offer tribute to the most illustrious son of this house, to him who gave us his noble example of the Science of a Clinician.

PUERPERAL FEVER: ITS AETIOLOGY AND PREVENTION *

BY

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The Final Report of the Departmental Committee on Maternal Mortality and Morbidity (1932) showed that nearly 20 per cent. of all the deaths due to child-bearing follow normal labours. What is the significance of this? If it can be proved, as I think it will, that most of these fatal infections are due to the transfer of haemolytic streptococci to the genital tract of the woman in labour from some outside source, it means that these infections are preventable. Since the labours are normal we cannot hope to prevent these disasters to any appreciable extent by improvements in ante-natal services or in the better teaching of obstetric manœuvres, but we can hope to avert them by excluding the dangerous type of streptococci from the woman in labour. How can this be done?

Up till now the preventive measures adopted have been largely founded on guesswork. We have assumed that the infecting cocci either are derived from the mother's vagina or are transferred to it by the doctor or nurse from another septic case. Occasionally the circumstances suggest such a transfer; more often they do not. In the future we must frame our preventive measures on definite knowledge as to where the danger lies. And so we come back to the central problem of puerperal sepsis: Why do the women become infected with haemolytic streptococci? Is it because they are particularly susceptible to infection by that organism by lack of an immunity which other women possess, or by reason of some particular dietetic deficiency? Such deficiencies may play a part in allowing the infection to occur in certain cases, and probably they do affect the course of the disease in many, but I think the evidence available does not suggest that these factors usually decide the issue of infection or no infection. More probable is it that that issue is usually decided by the chance encounter of the mother, during or after labour, with a streptococcus which happens to have at that moment the capacity for infecting human tissues, or, to put it in another way, the capacity for repelling the defensive mechanisms of the human body. It will be profitable now to review what progress has been made in tracking down to their origins these streptococci which infect puerperal fever cases.

The Sources of Infection

First, there is satisfactory evidence that haemolytic streptococci, when present in the vagina at the onset of labour, are usually not able to initiate a puerperal infection. The careful investigation of Taylor and Wright (1930) showed that in a group of 1,123 women about 3 per cent. had *Streptococcus pyogenes* in the vagina (usually in quite small numbers) during labour, but that less than 1 in 10 of these developed any fever. The same thing was found in Edinburgh (Rose, 1933) in an examination of 3,774 women, and our experience at Queen Charlotte's, although not yet on so large a scale, points in the same direction. The reason why these women carrying haemolytic streptococci in the vagina do not become infected cannot be stated with certainty at present, but it is probable that the cocci are devoid of the capacity for infecting human tissues. My colleague Dr. Hare is investigating this question just now. The only *direct* evidence we have at present as to whether the haemolytic streptococci causing puerperal infections had been present in the mother's vagina before delivery is that of the Elsie Inglis Hospital (personal communication from Dr. Rose). In a group of eighteen cases of puerperal infection by haemolytic streptococci thirteen (62 per cent.) had been found to be free from that organism (vaginal swab) during labour. In view of the findings of Taylor and Wright it would be rash to assume, without confirmatory serological evidence, that the remaining five cases were actually infected by the streptococci which had been isolated from the vagina during labour. Lastly, there is no bacteriological support for the idea that the non-haemolytic streptococci which are so often present in the normal vagina become transformed into the haemolytic variety after labour.

The Mother's Respiratory Tract

In my opinion all this evidence, although not absolutely conclusive, warrants the tentative conclusion that in the majority of cases the *Streptococcus pyogenes* causing puerperal infection was not present in the genital tract at the time of labour. If that conclusion is correct we are obliged to assume that they reached it from outside—that is, either from some other part of the mother's body or from another source. What evidence is there about these possible sources? As to the transfer from some other part of the mother's body we may say this: careful bacteriological surveys have shown that these organisms are rarely found in any part of the body except the respiratory tract. On the normal skin of the hands they cannot persist for any length of time (Colebrook, 1930), but they are sometimes found in very trivial foci of infection on the fingers. They have been isolated from faeces, but so seldom as to make it very improbable that transfer from the rectum can be a frequent source of genital infection. (It is, however, possible that future refinements of bacteriological technique may necessitate some modification of this view.) *Streptococcus pyogenes* is found in the throat, nose, or gums in about 5 to 30 per cent. of adults in England chosen at random. It may be assumed, therefore, that not less than 5 per cent. of parturient women—and probably more—have these cocci at the time of their confinement. The figure actually found among 3,774 women examined in Edinburgh (Rose, 1933) was 10 per cent.

That haemolytic streptococci will be conveyed from the respiratory to the genital tract in some of these women is evidently a possibility that should be borne in mind. How often it occurs we do not yet know, but it is significant that in a group of fifty-seven women admitted to Queen Charlotte's with a puerperal infection by haemolytic streptococci no fewer than twenty-four (42 per cent.) had these organisms either in the throat or nose or gums, the throat being much the most common. We cannot say, of course, in how many of them the haemolytic streptococci had been present in the respiratory tract before they acquired their puerperal infection. It is unlikely, but possible, that haemolytic streptococci are conveyed to the genital tract by way of the blood stream; much more probable is it that infection occurs, when it does occur, by the agency of the mother's fingers. And I shall show later that this seems much more likely to happen in the case of the mother who is a nose carrier than in the case of the mother who is a throat carrier. It will not be possible to decide how great is this danger of infection from the

* Read in opening a discussion in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Dublin, 1933.

mother's respiratory tract until a very arduous and difficult investigation has been carried out. It will be necessary to examine bacteriologically some thousands of women at the time of labour, taking swabs from the vagina, throat, and nose, in order to identify any streptococcal strains obtained at that time with those causing puerperal infection later. This has never been attempted until the last few months, but my colleagues Dr. Fry and Dr. Dora Colebrook have now embarked on it.

The Respiratory Tract of a Contact

We now come to the possible transfer of haemolytic streptococci to the mother from those attending her during or after labour. There is little doubt that in earlier days transfer of infection from another septic case by way of the hands or clothing of doctor or nurse was a common event, but I think there is not much evidence that it is so to-day. Better understanding of the danger and of antiseptic technique has to a large extent eliminated it. It will, however, always remain a danger, a danger proportional to the number of unconscientious doctors and nurses practising midwifery. The part played by *Streptococcus pyogenes* carried in the throat or nose of doctors and nurses has been more debated than any other issue in recent years, and rightly so, because a decision on this point must affect our policy in regard to preventive measures. It is a most difficult question, and one which we shall not be able to settle finally for some time to come. We have, however, learned during the last five years some important facts bearing upon it. There is now no doubt that about 5 to 30 per cent. of persons attending midwifery cases do harbour haemolytic streptococci in the throat or nose. There is no doubt, too, that a very much higher carrier rate is frequently found among the staff of a maternity hospital in association with an outbreak of puerperal sepsis. The work of Hedley Wright and Miss Nixon (1929), of Smith in Aberdeen (1931), and of Paine in Sheffield (1931), has made it almost certain that fifteen of the cases investigated by them were actually infected by the organisms present in the throat or nose of someone attending the confinement. These workers were not content with finding microbes of similar cultural characters in the mother and the carrier who had attended her; they identified the strains by the most rigorous serological tests at our disposal.

It may be said that this is a very small group of cases on which to base the generalization that the streptococci carried in the respiratory tract constitute a serious danger to the woman in labour: that is true. It is small because investigations of this kind have only recently been attempted. Dr. Dora Colebrook is now carrying out a similar investigation on a larger scale at Queen Charlotte's, working with the support of the Medical Research Council and the Ministry of Health. Her work is not yet completed, but the results obtained so far show even more conclusively than those of the authors cited that: (*a*) certain puerperal fever cases were infected by a strain of *Streptococcus pyogenes* identical with that obtained from the respiratory tract of the doctor or nurse attending them; (*b*) in other cases the infecting (uterine) strain was identical with that obtained from the patient's respiratory tract (and not from a "contact"); and (*c*) in other cases the infecting (uterine) strain was identical with those obtained from the respiratory tract both of the patient and of a "contact." Cases of this last type, which are not very uncommon, allow of no decision as to the source of the infecting strain: it may have passed from the "contact" to the patient, or vice versa. In order to rule out this ambiguity and make the evidence as to the source of infection still more conclusive we have recently undertaken the further investigation already referred to, taking swabs from vagina, throat, and nose at the onset of labour. Only in this way can we hope eventually to solve the riddle of puerperal infection.

Before leaving this aspect of the subject I should like to call attention to one point. It is an old observation that puerperal fever is apt to follow delivery by a doctor or nurse who has, or is developing, or has recently had, an acute tonsillitis. Our experience at Queen Charlotte's confirms it. It is not quite clear to me how the infection is conveyed in such cases. We have always assumed that the streptococci on the fauces will readily find their way into the saliva and be transferred by droplet spray on coughing, etc. That may be the case when there is an acute infection of the tonsils, but there is reason to doubt whether it is true of the streptococcus carrier who has no acute inflammation. Such a carrier rarely has any haemolytic streptococci in his or her saliva and seldom on the gums; and if he is asked to cough vigorously at a blood plate held only three or four inches from the mouth it is exceptional to find any haemolytic streptococci on the plate after incubation. In a series of nine such tests on five throat carriers only once was a positive result obtained. It seems to me, therefore, that while infection certainly is conveyed in some manner from tonsillitis cases, it will not very readily be conveyed *through the mouth* of the healthy throat carrier. I am inclined to think that the nose carrier may prove to be a greater danger than the healthy throat carrier, since in his case infection by way of handkerchiefs must be conveyed very frequently to the fingers, and, being dried upon the skin in the tenacious nasal secretion or pus, will not easily be removed by anything but the most conscientious antiseptic toilet.

We do not yet know how many people are nose carriers of haemolytic streptococci, but such data as are available indicate that the figure is not less than 4 per cent. for normal individuals in London during the spring. In a group of fifty-seven women admitted for puerperal infection by *Streptococcus pyogenes* 12.3 per cent. were carrying these cocci in the nose only. The definite association of nose carriers with cases of puerperal sepsis is not uncommon. Among Smith's thirteen cases, in which the infection was traced by identification of the cocci, two were of this kind. A recent case in my own experience was as follows. A nurse working in a maternity hospital where cases of puerperal sepsis had been occurring sporadically for two years was found to have a slight discharge from her nose; this had persisted from an operation on her antrum two years before, and was full of haemolytic streptococci. The last case of puerperal infection was sent to Queen Charlotte's and was found to have a strain of streptococcus identical with that from the nurse's nose.

Summarizing the evidence as to the sources of infection by *Streptococcus pyogenes* I would say that there are many sources, not one, and it would be premature at the present time to state that so many cases are infected in this way and so many in that. Infection may come from the mother herself, from another septic case, or from the nose or throat of someone attending her. And I ought to add, since it is too often overlooked, infection may also come from some member of the mother's household who is not present at the confinement—the husband with a sore throat or a septic wound of his hand; the child with impetigo, a discharging ear, or a post-scarlatinal nose infection. Infective material from one of these sources may easily have contaminated a towel used by the mother or become dried upon the family hand-basin, which the midwife usually employs (without preliminary sterilization) for washing her hands.

Preventive Measures

I can deal with only one or two points, and very briefly First, I would advocate that mothers should be strictly warned both before and at the time of labour, as to the danger of conveying infection by the fingers to the vulva , and, if necessary, their hands should be treated with an antiseptic such as iodine or dettol, which remains bactericidally active on the skin for several hours Secondly a definite policy should now be adopted by every maternity organization with regard to the danger of throat and nose carried streptococci Since it is not practicable, and probably quite unnecessary, to exclude every nurse and doctor from participation in midwifery who is quite well but happens to have a few haemolytic streptococci in the respiratory tract, I do not suggest the routine swabbing of all those engaged in maternity work If we were able to distinguish between the carriers of potentially dangerous strains and those which are not capable of causing infection, such a routine swabbing—say once a month—would probably be worth while This differentiation may be possible in the future, but is not at present What I do suggest is that we ought to be constantly on the watch for the dangerous carrier, so that she or he may be dealt with before much harm is done To that end it should be insisted upon that every nurse or doctor who develops a sore throat, a definite tonsillitis, laryngitis or an antral infection, should be temporarily excluded from all contact with parturient women, and a swab taken to ascertain whether or not that infection is due to haemolytic streptococci In any case such an individual should on no account be allowed to return to duty until the inflammatory condition has subsided If bacteriological examination has shown that it was due to *Streptococcus pyogenes,* return to duty is not justifiable until those organisms have disappeared or become very few If such an individual is found to be a chronic carrier, yielding an abundant culture of haemolytic streptococci, his or her continuance in maternity work cannot be justified

With the same object in view every case of fever in the *puerperium* if it is not manifestly due to some extra genital cause should have a vaginal swab taken without delay for bacteriological examination If haemolytic streptococci are found it will give warning of the possible existence of a dangerous carrier among the maternity staff before the lives of other women have become endangered it will give warning that such a patient ought at *once to* be isolated from other lying in women , and it will give warning that the patient's infection is a serious one which ought whenever possible to be treated in a special puerperal fever hospital All these precautionary measures will entail a certain amount of bacteriological work and arrangements should be made for this with a laboratory of good repute The work could easily be organized in existing laboratories and much of it could be done by trained technical assistants under supervision In that way it might be done quite inexpensively After all, is it not cheaper to spend £20 a year on a bacteriological control of this kind than to lose lives and have a number of women seriously ill for several weeks?

In continuation of this policy the question of masks would have to be faced I am not a fanatic about masks I recognize that a mask, if handled by the wearer, may actually be a source of danger but are our doctors and nurses so stupid that they cannot appreciate such a simple idea as this? Dr Solomons believes that in paying attention to the mask they will neglect everything else If that is really the case we may well despair of getting any progress I recognize, too, that in some centres of maternity work where neither masks nor gloves are used there is very little infection by haemolytic streptococci We cannot ignore that fact, but we must also not ignore *the fact that infections* are occurring in many other centres where apparently similar methods are employed The explanation seems to me to be this Where you have a perfectly organized small unit of maternity work, in which the danger of acute respiratory infection among the staff is definitely recognized, in which the nursing staff is completely subordinated to a dominant personality, and in which deliveries are carried out with a minimum of interference, the chances of infection are greatly diminished In such a unit the unconscientious nurse who in other circumstances would not wash her hands properly is *simply eliminated* by the all prevailing spirit of strict discipline If all our maternity services could be organized in such perfect units masks might not be necessary but unfortunately, perfect organization is usually dependent upon personality The use of masks is only one of the safeguards which, in my opinion should be adopted in dealing with this insidious danger of the throat and nose carried streptococci Handkerchiefs should be eliminated and our antiseptic toilet should be made as effective as possible

With this latter object in view I have carried out a *large number of experiments during the last two years* Haemolytic streptococci were dried upon the skin of the hands in a sticky medium such as pus or blood or saliva and the efficacy of various antiseptic procedures tested These and other experiments on the same subject will shortly be published They have shown that

1 Thorough washing with a brush for the nail it is removes the great majority of the streptococci thus dried on the skin but leaves many staphylococci A perfunctory wash leaves many streptococci as well

2 Soap has a powerful bactericidal effect on haemolytic *streptococci The solution made by working up a piece of* yellow soap in a pint of warm water for two minutes kills these cocci more efficiently and more quickly than lysol (1 in 160) or perchloride of mercury (1 in 1 000) Rubbed toilet soaps are not nearly so effective

3 If the hands are heavily infected even a thorough wash (three minutes) followed by soaking in perchloride lysol (three minutes) cannot be relied upon to remove or kill all the streptococci

4 The most reliable procedure for the complete elimination of streptococci from the naked hands is as follows Wash for one to two minutes in a pint of warm water containing a yellow bar soap a nail brush to the nail after each case, and into the palm a small handful of soft soap or a thin tragacanth paste containing 30 per cent soap Work into the skin of the hands till lather forms (A 2 per cent watery solution is as good as more efficient than dettol but the stinging and susceptibility of a few people to its toxic effects is undesirable for this purpose

5 Skin so treated with nail brush for 2 per cent soap remains bactericidally active for several hours although haemolytic streptococci that can survive efficient subsequent disinfection by lysol perchloride of mercury or dettol* The period of protection is less than an hour After soap and water alone it is only a few minutes

6 Rubber gloves are easily sterilized on the hands even if pathogenic organisms have become dried on them in pus and blood by washing for one to two minutes and then

* Dettol is the proprietary name given to an antiseptic recently put on the market by Messrs Reckitt of Hull It is a balanced combination of xylol (a coal tar product) which is dissolved in aromatic essential oils and is miscible with water in a permanently stable emulsion It differs from most of the antiseptics in common use in that its use in concentrated form is not prohibited by toxic effects—for example, it is well tolerated on the intact vaginal mucous membrane, and yet a 1 per cent solution very rapidly kills haemolytic streptococci and *B. coli* even in the presence of pus Its bactericidal activity is very little diminished by mixture with soap It has a pleasant smell Our experience with it at Queen Charlotte's, both in the labour wards and in the isolation block, has been very satisfactory

soaking for two minutes in a strong antiseptic, such as a 2 per cent. solution of lysol or dettol or iodine, or a 0.2 per cent. solution of biniodide of mercury in spirit. (This statement is not intended to apply to spore-bearing bacteria, although in most cases these also would be completely eliminated.)

These results seem to me to promise a substantially greater margin of safety than heretofore, since the hands of the doctor and midwife (and also the vulva) treated with dettol or iodine will be provided with a lasting chemical barrier against infection. By tightening up our protective network in this way, and by minimizing the opportunities for infection from the respiratory tract—either of the mother herself or a "contact"—I believe we may legitimately hope to save a large proportion of the tragic deaths following normal labour, many also of those following abnormal labour, and an immense amount of serious illness.

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DIAGNOSIS OF PUERPERAL SEPSIS *

BY

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The actual diagnosis of puerperal sepsis presents very little difficulty, since it is exceptional for sepsis to be unaccompanied by pyrexia. It is of course possible for pyrexia occurring in the puerperium to be due to some cause other than sepsis, particularly to chest complications, but in most of these the diagnosis is easy and obvious. There is, however, one group of infection that frequently occurs which is not strictly genital sepsis—I refer to pyelitis—but which is so closely allied to genital infection that I am going to include it in my contribution to this discussion. My remarks are based, as Dr. Colebrook's have been, on the collected records of nearly three years' work at Queen Charlotte's Isolation Block, and our experience and a critical examination of our records lead us to suggest that the different types of sepsis should be classified as follows:

(*a*) Local sepsis in the genital tract.

(*b*) Spread of infection to the blood stream—septicaemia.

(*c*) Spread of infection to the peritoneal cavity—peritonitis.

(*d*) Infection spreading into clots in thrombosed veins.

(*e*) Direct extension along the Fallopian tubes or lymphatic spread to the cellular tissue at the base of the broad ligament—salpingitis and pelvic cellulitis.

(*f*) Infection of the urinary tract, usually with *Bacillus coli*.

It is my aim to-day to point out the very great difficulties in arriving at a correct differential diagnosis of these conditions. These difficulties have often been demonstrated by post-mortem findings totally at variance with what was expected. It may surprise many people in this room to hear that on several occasions we have found at post-mortem examination as much as three pints of pus in the general peritoneal cavity in a case which, during life, gave rise to no suspicious whatsoever of peritonitis. It has been even more common to find septic thrombosed veins in cases in which no suspicion of their existence had arisen.

Local Sepsis in the Genital Tract

In this group we include not only the infection of the placental site, but the infection of severe lacerations of the cervix, vagina, and perineum. Presumably all cases start as local infection, and in some, due of course to the resistance of the patient, or perhaps to the low virulence of the infecting organism, the infection does not spread further. These cases are generally characterized by moderate pyrexia—up to 102° F.—with a pulse rate raised but usually lower than 120. Frequently there is a copious offensive discharge. Constitutional signs include headache, constipation, and, occasionally, inability to empty the bladder. Examination usually reveals a dirty tongue. Abdominally the uterus is larger than would be expected at this stage of the puerperium. It is not tender either on palpation or manipulation, and on vaginal examination is mobile. There is no infiltration in the fornices, and the cervix is patulous. When there is an infected laceration of the perineum all these signs are usually present, and in addition there is oedema of the vulva. The temperature often oscillates between fairly wide margins, and a swinging temperature is no particular indication of a blood stream infection. I have described this group at some length as it is the basis particularly of Groups (*b*), (*c*), and (*d*).

Septicaemia

Precisely the same signs and symptoms are present in septicaemia. In some cases rigors occur occasionally, but by no means always, and the diagnosis of septicaemia is only made on obtaining growth of organisms in a blood culture. In many cases we have taken repeated blood cultures, and the variation in the number of organisms per cubic centimetre day by day has, on many occasions, been most striking, although it has been very rare for us to find a negative blood culture occurring on one day's examination in a case which before and after has given a positive result. Sometimes the obtaining of a reliable blood culture presents definite difficulties. At Queen Charlotte's we are lucky in that our laboratories are in close contact with the wards, and whenever a blood culture is required the pathologist studies the temperature chart of the patient with a view to catching her when her temperature is rising: we have found that that is definitely the time to take a sample of blood for culture. Secondly, as a routine we always culture the blood aerobically and anaerobically, and we have found that the anaerobic infection is comparatively common. The importance of diagnosing septicaemia is largely one of prognosis. The mortality in cases infected with *Streptococcus haemolyticus* is, in our hands, well over 80 per cent., whereas if the infection of the blood stream is an anaerobic streptococcus the mortality has been 20 per cent. We have so far had very few cases of any other organisms in the blood stream, so I am unable to give a percentage mortality, but it is interesting to note that in only two patients have we found staphylococcus, and both died. We are quite convinced that the diagnosis of septicaemia needs the closest co-operation between clinical and laboratory staffs, and that it can only be efficiently carried out in an institution where all facilities are available.

* Read in opening a discussion in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Dublin, 1933.

Peritonitis

The classical symptoms and signs of peritonitis are entirely absent in the unlocalized general peritonitis of acute puerperal sepsis. I do not think this extremely important variety of puerperal sepsis is generally recognized. Oldfield and Pyrah recently read an account of fifty-six cases of peritonitis associated with puerperal sepsis, but their cases were totally different from those I am about to describe. During the first fifteen months of our work at Queen Charlotte's Isolation Block we had thirty deaths due to general peritonitis. In all these cases sepsis had occurred early in the puerperium, as the following table will show:

	Number of Days after Delivery							Undiagnosed
	1st	2nd	3rd	4th	5th	6th	Later than the 6th (one case as late as the 28th day)	
No. of cases	1	2	1	5	6	3	10	2

Two cases undiagnosed were found to have peritonitis on post-mortem examination, and the onset of infection in both cases was about the fourth day of the puerperium. In 60 per cent. peritonitis developed before the sixth day of the puerperium. For the last eighteen months we have endeavoured to diagnose peritonitis at its onset, and we find that an entirely new picture is presented from what have been considered the classical signs and symptoms of peritonitis. First of all we usually have a typical picture of local infection of the genital tract as already described, except that in many cases the tongue is not markedly furred, but may appear fairly clean and moist. The general expression of the patient sometimes gives a hint; she is anxious-looking, whereas in septicaemia it is not uncommon to find the patient cheerful. Abdominal examination usually reveals only a very few of a large variety of possible symptoms. Pain is rare; it occurs in, roughly, less than one-third of the patients. Abdominal tenderness may be elicited, not on pressure but rather on releasing pressure, and it is frequently noticed that if a patient complains of no pain or tenderness on comparatively deep palpation she winces visibly when the examining hand is lifted off the abdomen. The abdomen often moves well on respiration. On other occasions pain is elicited on moving the uterus from side to side of the abdomen over the promontory of the sacrum. I particularly remember one case admitted to the Isolation Block three days after delivery and some six hours after the onset of pyrexia. The only abdominal sign I found was this definite pain on moving the uterus. I opened the abdomen the same day, and found free pus in the peritoneal cavity which grew haemolytic streptococci. The patient recovered.

Rigidity has been present in only a very small percentage—about 12 per cent.; in the rest there has been no rigidity or guarding of the abdominal muscles. Vomiting has occurred in about the same percentage; it is by no means a common feature. More often the patient has diarrhoea; in fact, we look upon diarrhoea that occurs after two or three days' pyrexia as conveying the strongest suspicion of early peritonitis. By far the commonest sign is distension of the abdomen, and a markedly tympanitic note, with no other symptoms, is almost sufficient to make a diagnosis of early peritonitis. Distensions and tympanites have been present in over 70 per cent. of our cases of early peritonitis. By the time free fluid could be demonstrated on clinical examination the case was beyond hope.

To complete my picture of peritonitis I must transgress on to treatment, since the treatment of early peritonitis is very definitely early drainage; and we have adopted the principle that the patient is desperately ill, and the smallest possible operative procedure must be undertaken. I make an incision 1 in. to 1½ in. long, just above the level of the fundus. Through this I insert a special perforated tube, guided by two fingers into Douglas's pouch, and aspirate any fluid which may be present, usually only a few cubic centimetres. This fluid has always been examined in direct films, and cultured anaerobically and aerobically. On opening the abdomen in this manner in a case of early peritonitis in which free pus has been found containing haemolytic streptococci it is most striking to observe the peritoneum of the abdominal wall and covering the intestines and omentum. It is almost always clear, smooth, and not injected, while there is free purulent fluid, with no signs of any attempt to shut off the pelvis by adhesions. I think this is one of the most important features of early general peritonitis in the puerperium, since it demonstrates the complete absence of any reaction on the part of the peritoneum. There is not even hyperaemia of the intestines, although purulent fluid containing virulent living organisms is free in the peritoneal cavity.

Infected Thrombosed Veins

Septic thrombosis of the ovarian veins is even more difficult to diagnose clinically than peritonitis. At post-mortem examination we have found septic clots in the veins of women who had a blood infection with an anaerobic streptococcus, and more frequently in those cases in which two different organisms were grown from blood. Usually these cases have repeated rigors, with a markedly swinging temperature, and often the number of organisms in the blood varies greatly from day to day.

Salpingitis and Pelvic Cellulitis

The diagnosis of these conditions is usually fairly easy, as a very definite tender mass is felt on one or other side of the lower abdomen; it is even more easily detected on pelvic examination. The temperature in these cases is usually steady—between 101° and 102°. Pain is often complained of on the affected side, and in our experience these cases are best left with local treatment only, in the hope that the acute inflammation will subside.

Urinary Infections

Infections of the urinary tract are most commonly characterized by a very sudden and unexpected rise in temperature—to as high as 104° F—frequently accompanied by a rigor. This high temperature often falls, initially at any rate, just as rapidly to normal, only to be followed after a short interval by a further sudden rise and rigor in the course of twenty-four hours or so. Pyelitis during the puerperium rarely gives rise to pain, frequency, or dysuria; in fact, the diagnosis is often made on the temperature chart in the absence of any further findings. The diagnosis is, of course, confirmed by bacteriological examination, and to get a reliable report it is necessary that a culture should be made within half an hour of withdrawing the urine; it is extremely difficult to obtain a catheter specimen entirely free from contaminations, and contaminating organisms multiply with amazing rapidity in the urine. At Queen Charlotte's we like to make our cultures from the urine at the bedside immediately after withdrawal.

I cannot claim that this contribution has done very much to make a differential diagnosis of the various types of puerperal sepsis any clearer, but it points out the great difficulties that are present, and the extreme need for all laboratory assistance in endeavouring to save these disastrous cases.

doctor any anxiety. Obviously, if a doctor or a nurse has a severe cold or a bad throat they are a danger to everyone with whom they come in contact, whether pregnant or non-pregnant. There are also elementary rules regarding coughing and sneezing which it is hoped need not be laid down as exclusively obstetrical.

Conclusion

1. The obvious lack in the present system is good nursing, and the carrying out of those antiseptic and aseptic principles which good nursing implies.

2. Next in order comes lack of ante-natal care, which is bound to persist until doctors, and especially those keen on the work, are called in by their patients in the first instance, and not by midwives.

Lastly, until Items 1 and 2 above are corrected, errors of judgement and technique are bound to be made, which in print seem so regrettable, but which to anyone with a practical knowledge of obstetrics, especially in industrial practice, are, under present-day conditions, in many cases not only understandable, but even excusable.

THE CONTROL OF SCHOOL MYOPIA*

BY

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As a descriptive term the name "school myopia" leaves little to be desired. It well conveys the fact that in a large group of children myopia makes its appearance in school life, generally at about the age of 11, and steadily progresses for a few years. The implication that the school is responsible for this process is, however, an assumption of considerable antiquity, for over 300 years ago Kepler first pointed out that short sight is more common among students and others who use their eyes excessively. Attempts to control school myopia have been largely based on some theory or other as to the origin of myopia. On conflicting views as to the role of accommodation in the development of myopia, undercorrection and full correction of the refractive error, as also treatment by atropine or eserine, have found their exponents. Tenotomy of the internal recti has been practised by those who see excessive convergence as the responsible factor, and even tenotomy of the oblique muscles has been advocated by those to whom the myopic eye is an eye compressed by a low orbit. Iridectomy to obviate a hypothetical increased intraocular tension causing myopia has been carried out, as also has repeated paracentesis of the anterior chamber. Complete bodily rest has had its advocates, but so too have general exercises and massage of the globe. All sorts of postures to be adopted when doing near work, and all sorts of appliances to aid these postures, have been in fashion at one time or other. Subconjunctival injections of salt solutions of varying concentration, dionine, and adrenaline have all been employed, whilst of recent years radium has been brought forward as a means of cure. But it is mainly along the lines laid down by Hermann Cohn in 1867, and subsequently, that attempts at controlling myopia have been carried out. Cohn and his successor saw myopia as the result of too much close work, and they advocated hygienic measures to minimize the evils induced by excessive use of the eyes. Good illumination was needed in order to avoid unnecessary close application, with its consequent excessive accommodation and convergence; furthermore, stooping over work, which was held to produce congestion of the eyes and raised intraocular tension, could also be thus obviated, especially if the light was suitably distributed over specially constructed desks and benches. The elimination of Gothic script and the use of well-printed books was likewise a corollary of these views. At the same time the advocates of these opinions stressed the necessity of general hygienic measures. Cohn pleaded for school medical services, and, whatever be the ultimate value of his ideas on the causation of myopia, his work will always remain as a pioneer effort in school hygiene.

* Read in opening a discussion in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Dublin, 1933.

Fifty Years of Attempted Control of Myopia

Over half a century has now elapsed since Cohn's advocacy has become effective. One thing is clear: myopia has not been banished, and no unequivocal answer can be given to the question whether myopia has become less frequent. Many factors have to be considered in any comparison in the frequency of the myopia fifty years ago and to-day. The data are not always strictly comparable, and the great social changes that have occurred in the interval have brought with them a readjustment in the strata of society and changes in the environment of children that are not to be lightly dismissed in any such consideration. Even so, available data are scanty and their interpretation open to dispute.

Seggel, reporting on the changes that have occurred at Munich, holds that the incidence of myopia has decreased by 10 per cent. in the case of boys and by 30 per cent. in the case of girls during twenty years. Ask, likewise, reports a decrease in Sweden: in 1906 he found the incidence of myopia in schoolboys to be 25 per cent., whereas in 1883 A. Key had found it to be about 40 to 50 per cent. Ask's conclusions were questioned by Heinonen, who could find no difference in incidence in 10,000 cases examined in Finland between 1910 and 1927; on the basis of a more detailed examination of Ask's figures he doubts their validity. Holm, reporting on Denmark, agrees with Heinonen: comparing data collected by Tscherning in 1881 with the data for 1924, he could not find any difference in the incidence of myopia. A decrease in the incidence of myopia in Portugal is ascribed by Moutinho and Mattos to general hygienic improvement. It should be noted that the problem of school hygiene and elimination of excessive close work in its bearing on the causation of myopia is quite distinct from that of myope classes for progressive myopia. Myope schools, as Harman, who is largely responsible for them, points out, are not based on any particular theory of myopia, but are intended for the child handicapped by defective vision. The evidence brought forward by Harman and others as to their beneficial influence on the course of progressive myopia is concerned with a distinctly different problem—the influence of too much close work on existing myopia.

The Growing Eye

The eye of the newborn infant is generally said to have an axial length of 16 millimetres; by the age of 8 the eye is held to have grown to its adult dimensions (Weiss). These are anatomical observations not based on any large series. The validity of these figures apart, it is a common experience that the eye grows during childhood. If one assumes that the anterior segment of the eye undergoes no change in its refractive power during this process, it is clear that the elongation of the eye by 8 millimetres must be accompanied by vast changes in its refraction—somewhere between 30 and 40 or more dioptres. This is hardly the case. While no unquestioned mean of refraction has been established for newborn infants, the available evidence all goes to show that the

majority have hypermetropia of about 3 dioptres (Herrnheiser, Schleich, Horstmann, de Vries, Dunstan) Presumably, therefore, changes of no mean order must occur in the anterior segment if, in spite of the elongation of the eye, no radical change takes place in its refractive power According to Holm the cornea gains 4 D in refractive power during childhood Priestley Smith found the same diameter for the cornea during the ages 5 to 9 and 10 to 19, and but a slight variation later on, while in the more recent work of Kaiser the cornea was found to reach its full diameter by the age of 6

Rates of increase in refraction during childhood have been published by different observers Whatever statistical merit they possess, they tend to mask the fact that all eyes do not behave alike Not all hypermetropic eyes in childhood show increase of refraction in fact, about 76 per cent are stationary, according to the findings of the Special Vision Committee of the Board of Education, and 66 per cent according to other investigations carried out over a longer period of years (Sorsby) Nor do all myopic eyes exhibit progression, 35 per cent are stationary, 15 per cent show slight progression, and 50 per cent marked progression Furthermore, as Dunstan points out large series of investigations demonstrate that in a certain number of cases there is an increase in hypermetropia and there is no reason to assume that these are errors of observation Dunstan puts it We may classify early hypermetropes from the growth standpoint into 5 per cent showing increase, 70 per cent remaining stationary, and the remainder undergoing reductions—these figures having reference to the school period only ' According to Tron, great variations occur in the power of the components of total refraction in emmetropia in the adult He gives these figures

Refraction of cornea	37 00–48 14 D
,, lens	20 19–34 09 D
eye	57 47–72 10 D
Axial length	20 46–25 46 D

The above figures raise the questions as to whether similarly wide excursions are to be found in the growing eye, and as to what exactly are the changes that take place in these different components during the process of growth Obviously there must be some correlation in these changes if an increase of 8 millimetres in the axial length of the eye is not to lead to myopia of high degree in every case The problem of the growing eye with its relatively little disturbance in the total refraction resolves itself into (1) What is the value of each of the various components of the total refraction at birth? Do they show the same wide excursions as are seen in the adult? (2) What changes take place in each of these components during the growth of the eye? (3) What is the mechanism which correlates these changes in such a manner that the total refraction remains relatively undisturbed?

If one assumes that the eye has ceased to grow by the age of 8, then the solution of these problems hardly solves the problem of myopia for myopia begins to manifest itself after this period In such a view myopia becomes an uncontrolled continuation of the growth process and until it is definitely known to the contrary one can hardly be justified in the assumption that the aberration is confined to the axial length Obviously, an increase in refraction in the cornea and lens and a decrease in the depth of the anterior chamber may each produce myopia while still remaining within the limit of normal variation, and while the axial length has not increased

The Myopic Eye

If myopia is to be regarded merely as an upset in the correlation of the various components of the total refraction of the eye, it should become manifest during the period of the growth of the eye—that is, before the age of 8 and not, as is common experience, after this age Moreover, the myopic eye is much more actively progressive in its refraction than the emmetropic or hypermetropic eye A real difference in behaviour is operative here, even though, as has been shown, a large percentage of myopic eyes are stationary in childhood, and a not inconsiderable percentage of hypermetropic eyes show the same rapid rate of progression as the progressively myopic eye It may well be, as has been argued elsewhere, that myopia represents a process of rapid increase in refraction supervening on the normal adjustment which aims at the theoretically emmetropic eye The reason why progression is seen in myopia is not that it produces this progression, but that progression leads to a myopic eye, as any but markedly hypermetropic eyes soon become myopic as a result of this process Myopia no more produces progression than a glaucomatous cup produces raised intraocular tension ' (Sorsby)

It is usual to assume that the source of increase in refraction is axial elongation, a view which can be substantiated anatomically in the case of high myopia and is held to be supported in the case of low myopia by the presence of fundus changes That the anterior segment of the eye has nothing to do with this increase of refraction is held to be proved by the fact that in the majority the corneal curvature falls within normal limits But since normal limits show an excursion of about 20 D it would be of greater value to know any *changes* that take place in the cornea and lens during the time the myopic process is active It must be recognized that many cases of myopia do not show any fundus changes in fact they are the exception rather than the rule in myopia under 3 D in adults Furthermore there is the contention not altogether devoid of proof that the more marked crescents and staphylomata at the posterior pole are congenital defects (von Szilly), and if as Vogt says they are regarded as abiotrophic manifestations their absence in childhood and appearance later on does not invalidate their being considered as congenital defects Be this as it may it is clear that much is to be gained by analysis of the factors operative during myopic progression Knowledge of changes in the refractive value of the various components of total refraction is as urgently needed in progressive myopia as it is in the process of growth of the eye

Variability Curve of Refraction

The work of Steiger has emphasized the unity of refractive errors Instead of regarding myopia as a [illegible] process Steiger considered it as a physiological [illegible] on a curve of frequency which could be constructed a means Several such curves have been constructed and they show a peak consisting of refraction approaching emmetropia and a dwindling frequency of errors the greater the deviation from this peak refraction [illegible] In the original view of Steiger it was held that myopia is simply the antithesis of hypermetropia and that individuals are myopic or hypermetropic by the same chance variations as people are tall or short Steiger held that the corneal refraction and axial length are distinctly freely variable components of total refraction, that the components are determined by heredity, and that the chance union of these freely variable factors would produce the whole gamut of refractive errors In support of such a view is, of course, the fact that an axial length which would produce emmetropia with a cornea within normal range of corneal refractions would produce myopia or hypermetropia with a cornea of different refractive power, but still within the normal range To Steiger myopia was therefore a physiological variation. Steiger's view in its original form is hardly tenable Quite apart from a host of clinical observations which prevent one from regarding

at least some myopic eyes as healthy eyes, and apart from the fact that during the active phase the myopic eye is of a different behaviour from the non-myopic, difficulties arise in the statistical interpretation of curves of frequency. There is also the fact that Steiger did not appreciate that the lens too, like the cornea and axial length, is not a constant but a variable. If, as he believed, errors of refraction are nothing but variables on a curve of frequency, they should plot out on a theoretically derived binomial curve, constructed on the assumption that the three main components are free variables. Such a curve is rather broad and flat, but the curves of frequency of refractive errors show two important departures from this theoretical curve, one being that there is considerable elongation of the myopic limb of the curve, with no counterpart on the hypermetropic side (Fig. 2), and the other that the peak, showing refractions approaching emmetropia, is distinctly steep (Fig. 1). As regards the elongation of the myopic limb of the curve, it has been shown

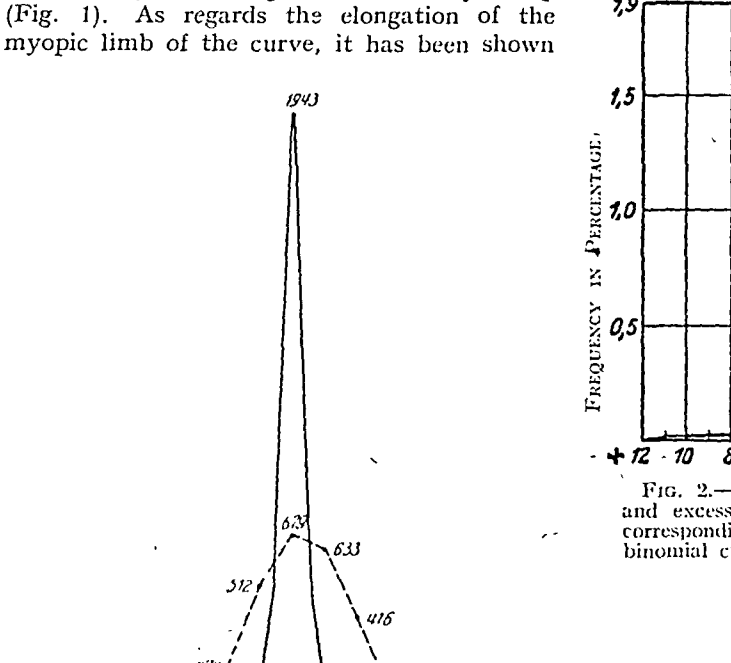


FIG. 1.—Distribution of refractive errors seen in 2,920 secondary school pupils. Negative values = hypermetropia; positive values = myopia in dioptres. Continuous curve = actual distribution; broken curve = theoretical binomial curve (Wibaut).

that a much more symmetrical curve is obtained if myopic eyes showing crescents and other fundus changes are excluded from it (Scheerer and Betsch), or, alternatively, if eyes with myopia of over 6 D are excluded (Tron). On the basis of this it is being argued that there are two types of myopia—one a physiological variation, the other a pathological process. This argument is of significance not so much in stressing pathological myopia as in its insistence on a physiological type of myopia.

Attempts to explain the peak towards emmetropia have been fruitful in bringing forward the illuminating conception of correlation. Obviously the different components of the total refraction are not free variables, but some process of correlation must take place to bring about the excess of refractions approaching emmetropia. Wibaut, Tron, and Berg have contributed to this aspect, and various positive correlations have been suggested; indeed, Wibaut has gone as far as to suggest that the correlations in the child's eye are different from those in the adult. Berg has shown that if a curve based not on free variables but on correlated ones is constructed, a curve approaching in form to those actually found for the distribution of refractive errors is obtained. This view of a process of correlation is in reality a more emphatic statement of the older conception of emmetropization (Straubl), which explained the great prevalence of refractions approaching emmetropia by a regulating process that aims to produce theoretically emmetropic eyes in every child.

In considering curves of frequency of refraction and their relation to binomial curves, enough attention does not appear to have been given to curves of frequency in childhood. Obviously, if myopia is a pathological process which disturbs the symmetry of the curve, symmetry should be seen in a curve before the myopic process becomes effective in late childhood. Likewise, if post

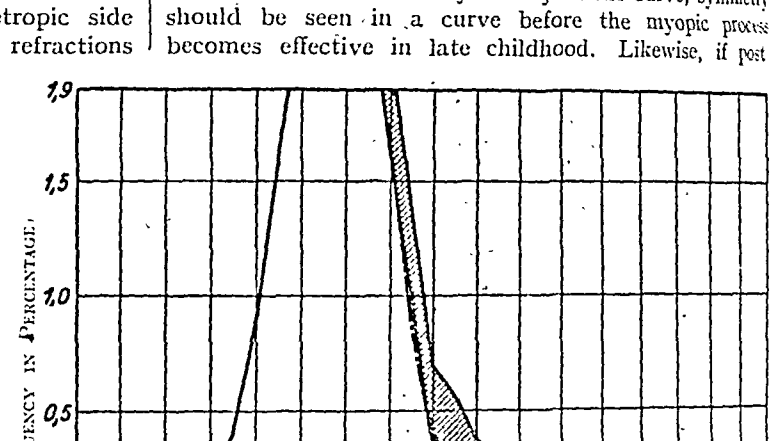


FIG. 2.—Base of a refraction curve showing elongation of myopic limb and excessive incidence of myopia. Refraction indicated in dioptres of corresponding value. The broken line shows the theoretically deduced binomial curve (Scheerer and Betsch).

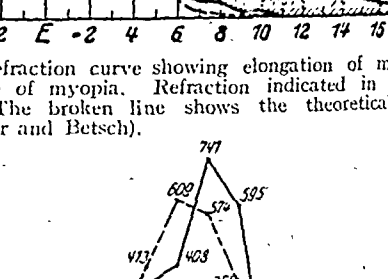


FIG. 3.—Distribution of the refractive errors under atropine cycloplegia in a composite series of 2,398 newborn infants. Explanation as in Fig. 1 (Wibaut).

natal correlation is a process of emmetropization, the curve in newborn infants should be more truly binomial. As regards a curve of frequency in the newborn infant, Wibaut has constructed one on the rather conflicting and mainly German data of four different observers, and finds that it does indeed assume a more typically binomial form (Fig. 3). Incidentally the peak of the refraction is 2 D of hypermetropia. For children in London of the ages 3 to 8 years, a curve of frequency will be published later in the year; the peak in that series is refraction between 2.25 and 3 D. As things stand at present Steiger's work is of significance, not so much because of his views on the binomial distribution of refractive errors, but because of the attention it focused on the two disturbing factors which prevent the acceptance of his view. The excess of myopes with eyes showing myopic fundus changes, and the excess of refractions approaching emmetropia, are problems which respectively go down to the very fundamentals of pathology and physiology of refractive conditions.

Heredity in Relation to Refractive Errors

That heredity plays a part in refractive errors can hardly be doubted. Not only is there the evidence of many published pedigrees, but every clinician is constantly seeing it for himself. But while heredity has previously been considered as one of the factors concerned in the development of myopia, there is a modern school which regards it as the sole factor, to the exclusion of all environmental considerations. In Steiger's view the components of refraction were hereditarily determined, free variation taking place within these limits. Extreme variations would have little chance of survival under natural conditions, and it was on this basis that he explained the greater incidence of marked refractive errors in civilized communities and in domestic animals. Racial differences were likewise to be explained, on the basis of differing environmental conditions favouring, or at least not hindering, the transmission of variations. In this unmodified form Steiger's view leaves too many questions unanswered.

The view that the myopic eye is caused by excessive elongation of the sclerotic and is a physical condition transmitted from generation to generation, much in the same way as the tallness is transmitted, hardly solves the problem. Apart from the fact that the myopic eye shows a distinct behaviour of its own during the process of development, there is the anatomical evidence that the sclerotic is thinner posteriorly. This is not exactly normal growth. In Vogt's view it is the retina which determines the length of the eye. He has shown that the thinning in the posterior pole in myopia does not affect the retina; the sclerotic adapts itself to the size of the retina and becomes thinned when the retina is too large. Experimentally, damage to the posterior pole of the retina will stop the axial growth of the eye: the retina is a sort of master-tissue controlling the sclerotic, and myopia is a hereditary condition depending upon the inheritance of large retinae. Vogt further holds that the fundus changes in myopia are hereditarily determined characteristics. He regards them as an abiotrophic manifestation, on the ground that they show considerable similarity to senile degeneration around the disk and macula.

There are thus authorities who would deny any dualistic conception of the aetiology of myopia. To them environment is of no consequence in the production of refractive error: they view the whole process as an expression of predetermined inheritable characteristics. Low myopia is to them a physiological variation in a curve of frequency; the components of total refraction are hereditary characters, and this type of myopia is not necessarily due to axial elongation. High myopia, the so-called pathological type, is likewise a hereditary condition, and in the vast majority of cases is due to a long axis consequent on an inherited posterior staphyloma, which is either manifest at birth or becomes manifest later on. Those who adopt this extreme point of view see, of course, no therapeutic value in myope classes, though they would not deny their educational and general hygienic value.

Control of School Myopia: Conclusions

Though the strictly rational control of school myopia is not yet, it is surely premature to assume an attitude of fatalism. The monistic view of the causation of myopia held by those who see myopia as a hereditary abnormality totally uninfluenced by extraneous conditions is hardly warranted by fact. If the eye is indeed fully grown by the age of 8, and for all practical purposes the variables entering into its total refraction are fully correlated and consolidated, then myopia is a process which is outside physiological variation, and such a thing as physiological myopia, which this school presupposes in the case of low myopia, is non-existent. Far too many problems press for solution before the theory that heredity is the basis of all myopia can be accepted. For one thing it is of paramount importance to know whether school myopia really develops in an eye that has completed its normal development, or whether it is an exaggerated and excessive final adjustment in the various components of refraction. In other words, when does the eye normally reach its full development? Other problems have been indicated before. It is imperative to know the range of values of the components of total refraction in infancy and childhood, and to understand the process of correlation of these changing values. More attention, too, is needed for those cases known as congenital myopia. In some of these the myopia is obviously part of widespread deformation of the eye, but in others no obvious deformity is seen. Are these cases an early failure in correlation? Are they cases of anterior segment or index myopia, or cases of myopia due to a congenital or congenitally determined long antero-posterior diameter? More, too, should be known of their behaviour so far as progression is concerned.

Galen and the copyists who followed him recognized myopia as the process in which distant objects are not seen clearly, but near objects are. They further held that this defect is due to weakness of the visual spirits secreted by the brain and supplied to the eye. If the definition is still true, we have, at any rate, passed beyond the explanation; we have learnt to recognize more than one cause and more than one variety of myopia. We appreciate the existence of a symptomatic myopia such as is seen in diabetes and trauma, and a secondary myopia as in buphthalmos and staphylomata of congenital syphilis. The main mass of myopia is, however, still eluding us, largely because our attention has been focused on the abnormalities of refraction rather than on the normal development which precedes them. When we have learnt the physiology of the growing eye we may be able "to look into the seeds of time and say which will grow and which will not." For the present it is enough to realize that all theories of myopia have led to a blind alley. If the optimism of those who regarded myopia as a product of controllable environmental conditions has not proved altogether justified, neither is there any reason for believing that the ultra-modern fatalism will prove nearer the truth. For the present, while recognizing the problems and their formidable nature, one cannot go far wrong by paying attention to measures of general and ocular hygiene in our treatment of the low myope, and by giving special considerations, such as are supplied by the myope classes, to our more advanced myopes

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Memoranda
MEDICAL, SURGICAL, OBSTETRICAL

ENCEPHALOMYELITIS OF MEASLES

Cerebral complications in the acute exanthemata are rare, measles probably having the highest incidence. Boenheim states that in 5,940 cases of measles in Berlin nervous complication occurred in 0.4 per cent. Ford, in a summary of the literature, reports only 125 cases of measles encephalomyelitis.

Case Record

A male, aged 16, a pupil at a residential school, was admitted to the school sanatorium on February 2nd suffering from a moderately severe attack of measles. The rash attained its full development the following day. On February 4th, when the rash showed early fading, the patient vomited twice after food, but nothing abnormal was found on examination. No untoward symptoms developed during the day, but at 3.30 a.m. on February 5th the nurse, becoming anxious on account of his marked restlessness and clouded mental condition, called one of us (C. C. E.) to see him. On arrival at 3.45 a.m. the patient was unconscious and in a state of great restlessness, showing athetoid movements of the limbs, more marked on the right side. There was incontinence of urine. The pupils were equal, fully dilated, and fixed; head retraction and nuchal rigidity were absent. The abdominal reflexes were absent. The right knee-jerk was present and the left absent; the ankle-jerks were absent; plantar reflexes extensor. Kernig's sign was present. Physical examination of the chest revealed no abnormal signs. There was no evidence of ear disease, and ophthalmoscopic examination showed nothing beyond slight retinal hyperaemia. Temperature was 101°, pulse 74, and respiration 20. The patient was later seen in consultation with Dr. Donald Hall of Brighton, and lumbar puncture was performed at about 6.30 a.m. The cerebro-spinal fluid was clear, under greatly increased pressure, and had the following characteristics: total cells, 74 per c.mm.; lymphocytes, 99 per cent.; chlorides, 698 mg. per cent.; protein, 105 mg. per cent.; sugar, 100 mg. per cent.; globulin considerably increased. No organisms seen; sterile on culture.

On the afternoon of February 5th the patient was admitted to the Royal Sussex County Hospital under the care of Dr. Hall, to whom we are indebted for further details of the case. On the morning following admission his temperature rose to 106°, but towards evening it fell to 101°; he became less restless and slept fairly quietly. He gradually improved during the following day, and on February 8th the mental condition was apparently normal. An uneventful convalescence ensued. Lumbar puncture on February 15th showed clear fluid under normal pressure, with the following characteristics: total cells, 12 per c.mm.; chlorides, 700 mg. per cent.; protein, 65 mg. per cent.; sugar, 90 mg. per cent.; globulin, excess; Wassermann reaction negative. He returned to school in April, and appears to be in good health, excepting that he shows mental fatigue much more readily than before his illness.

Commentary

The pathology of the condition is essentially a degenerative process occurring in foci round the small veins of the hemispheres, cerebellum, and brain stem. These foci show thickening of the vessel wall and endothelium, a perivascular infiltration of both lymphocytes and cells of the granular series, and destruction of the myelin sheaths with partial preservation of the axis cylinders. Lesions may be found under the ependyma of the ventricles and the round margins of the cord. The cerebro-spinal fluid changes, in common with other forms of encephalitis, are not very characteristic. There is an increase of protein and a variable lymphocytic pleocytosis. Chlorides are little affected, and sugar is normal or slightly increased. It is considered that these changes are due to a blood-borne toxin, and not to the presence of the measles virus. The case mortality is 10 per cent., but in 65 per cent. of cases some permanent injury to the central nervous system results. Of these some 20 per cent. show changes in the mental state, usually a limitation of the mental horizon rather than the changes in personality associated with encephalitis lethargica.

Our thanks are due to Dr. Donald Hall for allowing us access to the hospital records of the case.

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PROPERITONEAL HAEMATOCELE

The following case is rare enough to be put on record. A similar case is recorded by Holmes (*Brit. Journ. Surg.*, 1932, xx, 78), who also referred to some other cases in the literature. The extent of the sac in Holmes's case was demonstrated by a radiogram following the injection of a saturated solution of sodium iodide into the scrotal portion of the swelling; in the case recorded below the presence of blood clot in the sac rendered this impossible.

A man, aged 42, was admitted to Leeds General Infirmary with swellings in the scrotum and in the abdomen, both of which had developed simultaneously during the last three years. Two years ago he had a fall, which resulted in a rapid increase in the size of the scrotal swelling, and in much subcutaneous bruising, which disappeared only after some weeks. Since that time the swelling had given no trouble beyond some mechanical inconvenience until a week before admission to hospital, when the patient complained of pain and swelling, which became worse toward the end of the day, first in the right leg and after a day or two in both legs.

Examination showed a large cystic swelling, about the size of a coco-nut, occupying the right half of the scrotum. A transverse groove, indicating loculation, crossed the front of the swelling, which was fluctuant, but did not transilluminate. In the lower half of the scrotum several firm, dense masses could be felt, which suggested old blood clot. The inguinal canal was occupied by an upward extension of the scrotal cyst, two or three inches wide; this extension was continuous above with a large cystic swelling, as big as a melon, occupying the lower abdomen. The abdominal swelling extended into both iliac fossae; below, it passed downwards into the pelvis so that its lower border could not be felt, while above it reached a point two inches above the umbilicus, the upper border being rounded and definite. The abdominal swelling did not move on respiration, while pressure over it enabled a fluctuating impulse to be detected in the scrotum. The legs, especially the right, were moderately swollen and oedematous. There was normal pulsation in the arteries of the legs, and no nervous disturbance could be detected. On rectal examination the cyst could be felt bulging backward into the pelvis. A diagnosis of bilocular properitoneal haematocele was made. It was thought that the recent sudden increase in size had caused pressure upon the inferior vena cava.

The large sac was removed under spinal anaesthesia (spinocaine) by Mr. E. R. Flint. The abdominal and scrotal sacs were dissected out completely through a long inguinal incision, and the wound was drained and closed. Normal healing followed. The sac contained old blood clots and fluid discoloured by altered blood pigment. It measured thirteen inches in its longitudinal diameter; the transverse diameter of the abdominal portion was eight and a half inches, while that of the scrotal portion was seven inches and of the isthmus three inches. The sac was bilocular. Subsequent progress has been satisfactory, but six weeks after the operation there was still swelling of both feet after much exertion; the pain in the legs had disappeared completely.

Leeds. Leslie N. Pyrah, Ch.M., F.R.C.S.

Reviews

ATLAS OF OTOLOGY

Dr Albert Gray has supplemented his *Atlas of Otology*[1] by a second lordly volume which more than maintains the exacting standard of the first Both normal and pathological anatomy are illustrated by photographs, of which a large number are stereoscopic, and the author draws attention in preliminary notes to particular points which his preparations have made clear or he has observed in his researches In the anatomical section the true structure and relationship of the tectorial membrane can now be seen by the method of fixation adopted which eliminates appearance due to dehydration and the production of artificial lines of tension In this section the exquisite stereoscopic photographs showing the fibres of the basilar membrane of the guinea pig call for notice Such a demonstration must dispel any doubt concerning the existence of radiating fibres

The pathological section includes specimens showing the conditions found in the temporal bone in rapidly fatal meningitis and in deaf mutism The specimens of acoustic tumour are of special interest, and the demonstration by the author of areas of otosclerotic bone at the seat of predilection in front of the oval window in three consecutive cases can scarcely be a coincidence The time required for such histological investigations, the rare opportunities for obtaining this kind of material in suitable condition and a worker possessing the capacity to use them are three factors which can but seldom be found together, and these volumes will long remain not only a treasured but a unique possession of those fortunate enough to own them The two volumes of the Atlas contain illustrations the careful study of which is in itself an education in otology The preparation of such specimens from the temporal bone presents difficulties which are scarcely equalled by those encountered in the examination of any other organ or tissue, and not only otology but the science of biology stands under an ever growing obligation to the researches of Dr Gray

A SURVEY OF ARTERIOSCLEROSIS

The medical practitioner, whether clinician or pathologist who desires to learn the present state of our knowledge of arterial disease can turn with confidence to the handsome and impressive volume entitled *Arteriosclerosis*[2] edited by Dr Edmund V Cowdry of Washington University, St Louis, and published by the Macmillan Company The contributors, twenty three in number, range over a geographic area extending from Leningrad to San Francisco they include many names having the note of authority and each in his individual sphere does something to define what is known, to indicate the problems still unsolved, and to suggest the lines along which advance may be attempted The motive professed is a practical one, for the book is offered, not as a resting place but as a starting point It owes its origin to the Josiah Macy, jun, Foundation and the hope is expressed that its publication will lead to the organization of research, to the discovery of the nature and cause of arterial disease, and to the establishment of a rational and confident prophylaxis How many areas of ignorance and of uncertainty have to be crossed before these ends are attained Dr Cowdry and his colleagues are not slow to describe, and indeed the first impression of the ordinary reader may well be, not of the extent of our knowledge but of its limitations A recital of the numerous speculations and hypotheses which each after a brief brave day have disappeared from view and of the sharp differences of the experts in relation both to observation and to interpretation is not quite an encouraging experience, but a ruthless cleaning of the ground is a necessary preliminary to a sure foundation, and to this end the present volume is devoted

The building up process is going to be a slow and difficult one, for, as a biological problem, the study of arteriosclerosis is beset with obstacles Not the least of these is its insidious onset and chronic course Laboratory experiment has so far not yielded much help but is not without promise, and the clinical situation where the ultimate appeal must lie has difficulties hard to overcome The claim clearly is for systematic observations and records continued on individual patients over years while the study of controls and the establishment of identity of conditions are positions hard to attain when dealing with men and women engaged, as many of these patients are, in active life and naturally concerned with their personal interests rather than with the establishment of clinical or pathological truth Yet the record of our knowledge of arteriosclerosis owes much to the clinician and the chapter in the present volume dealing with this aspect of the subject, and written by Dr Esmond R Long is of very high interest It records the individual contributions of many physicians with names familiar to English readers—such, for example as Bright, Gull Sutton Mahomed George Johnson and Clifford Allbutt—together with others from overseas not less famous Indeed this historical chapter might well be used as an argument by those who plead for a more prominent position for history in the medical curriculum for it shows well how ideas originate develop, and undergo modification under the pressure of time and the event, the chapter has a distinct educational value for it gives to the story life and movement and continuity

The chapter on treatment is written by Dr John H Wyckoff of New York, and the first sentence reads At present no evidence exists that there is any specific mode of therapy which can either cure or affect the progress of arteriosclerosis and the author quotes somewhat mournfully perhaps numerous mutually contradictory opinions on the value or uselessness of various drugs and of various forms of electricity even on the possibility of exercise towards incredulity and in an earlier chapter Dr Fritz Lange of Munich writes in so many words as others have written before him If the patient suffering from hypertonia is put on a strictly vegetable diet his blood pressure remains much the same as when he was on a mixed diet These are it must be admitted hardly inspiring utterances yet we doubt whether they can be controverted By their side however may be set two qualifications First it does not follow from either of these conclusions that the practitioner is helpless and without resource from which he may afford guidance and help to his arteriosclerotic patient No doubt a knowledge of the nature of the pathological process is a necessary preliminary to any treatment of the disease that can be claimed as rational Yet here as elsewhere, empirical direction based upon a thorough study of the individual patient is not without reward and value Efforts to secure a more ordered and reasoned therapeutic position are, of course, to be encouraged and this is the essential aim of the present volume In the meantime the acting practitioner, while recognizing his limitations, will make the best of the situation, and can find help to this end in some of the studies here considered, if in his turn he can add to the body of positive knowledge his co operation will be

[1] *Atlas of Otology*. By A A Gray M D F R S E Vol II Glasgow Jackson Wylie and Co 1933 (Pp 72, 92 figures £6 6s net)

[2] *Arteriosclerosis* A Survey of the Problem A Publication of the Josiah Macy jun Foundation Edited by Professor E V Cowdry Ph D London Macmillan and Co, Ltd 1933 (Pp xvii + 617, 88 figures 25s net)

welcomed. A second qualification of an outlook turned towards despair is that while it may be true that neither the sphygmometric measurement nor the arteriosclerotic process is substantially affected by food restrictions or adjustments, a similar statement will hardly be made of the prophylactic values of diet. Indeed, is there not good reason to expect and even to affirm the contrary? The recent work of McCarrison in India is emphatic in illustrating the far-reaching effects of food influences in relation to disease, and when schemes of prevention are under discussion these and similar studies will call for careful consideration.

Within the limits of a brief review it is impossible to do anything like justice to a work planned and executed on the scale of the present volume. It must suffice to say that the book is of the first order as a scientific presentation and discussion of the subject it professes to cover; that no trouble or expense has been spared to attain the highest level of efficiency; and that to the editor and his contributors are due the sincere thanks of all those interested in a department of medicine of ever-growing practical importance. The accurate and candid statement of the facts may destroy many cherished hypotheses and speculations, but all will admit that it is the first step to progress so far as this is possible. Such a secure position in relation to arteriosclerosis is here provided for us by Dr. Cowdry and his learned colleagues.

RADIOLOGY—GENERAL AND SPECIAL

We have received the sixth volume of the *Ergebnisse der medizinischen Strahlenforschung*[3] (or "Radiological Reviews"), and it in every way maintains the high standard of its predecessors. Of the nine papers which it contains the majority are mainly of interest to radiologists, but there is one which will certainly appeal to every reader, and that is a contribution on the *x*-ray treatment of osteoarthritis, by Dr. von Pannewitz. After a survey of the different views on its aetiology and pathology, the author proceeds to an account of the results of *x*-ray treatment of this condition, and as his statistics are based on an analysis of 1,167 cases he speaks from a large experience. It is in the relief of pain that the most striking results of *x*-ray treatment have been manifested. In all but some 4 to 6 per cent. of the total patients suffering pain there was alleviation of this symptom to a greater or less degree, and generally the relief was pronounced. Taking all cases together, there was marked improvement in 85 per cent., while no less than 30.4 per cent. were free of symptoms after treatment. The article is illustrated by skiagrams which show how the treatment gradually improves the anatomical lesions, indicating that *x*-ray therapy is not merely an empirical method for the relief of symptoms, but has a rational basis. Dr. von Pannewitz regards it as the method of choice.

Dr. Schumacher gives the latest methods for the diagnostic use of *x* rays in midwifery. After a historical survey of the subject, he first considers radiological methods of pelvimetry; then the diagnosis of early and late pregnancy, extrauterine gestation, rupture of the uterus, and the *x*-ray investigation of the placenta. He closes with a section upon radiological examination of the newborn infant. It may be added here that in skilled hands the amount of exposure to the rays which these examinations entail is without any ill effect upon the foetus. Repeated exposures in inexperienced hands are, on the contrary, extremely dangerous. Dr. Zuppinger contributes a monograph on malignant tumours of the mouth, their pathology, and their treatment by *x* rays and radium. The remaining six papers, of excellent quality, are mainly of interest to radiological specialists. Full bibliographies are appended to the various articles.

[3] *Ergebnisse der medizinischen Strahlenforschung.* Band VI. Herausgegeben von H. Holfelder, H. Holthusen, O. Jüngling, H. Martius, H. R. Schinz. Leipzig: G. Thieme. 1933. (Pp. 666; 469 figures. M. 72; Geb. M.74.50.)

THE STUDY OF ANATOMY

Teachers who see men as second-year students and again as post-graduates are never likely to feel flattered at discovering the amount of useful knowledge their pupils have retained. On the other hand, the graduate himself, with his clinical experience behind him, often feels that he is only now in the position to appreciate the real value of his early studies. In *The Study of Anatomy*,[4] by emphasizing the relation of anatomy to physiology and to other cognate subjects, as well as to future clinical work, Professor S. E. Whitnall aims at giving the student something of this maturer perspective at the outset of his work. This necessitates a somewhat broad treatment of the subject, and leads to the inclusion of a good deal that is not purely anatomical.

Professor Whitnall would like to see his pupils become not only good practical anatomists, but good doctors, and he would have them interested in the history of medicine, in psychology, and in classical literature. The sections dealing with methods of practical work and study, and those on the craft of passing examinations, contain much helpful advice; but they form only a small part of the volume. There is a tendency to wander up any attractive side-path that presents itself, as on page 31, where an ophthalmological classification of diseases is given, based on their degrees of urgency; and on page 40, where, after exhorting the student as to the care of his hands and nails, the author asks why it is that the conventional rite of washing the face does not include finger-and-soap attention to the nostrils. It says much for his versatility that these pleasant excursions are not noticed as irrelevancies. We do not think that the student who follows the advice given—to start the day with a book open on the dressing table and to end it by reading for half an hour from the classics, and, finally, before dropping off to sleep, diligently to palpate his own ribs, knee, foot, elbow, wrist, coracoid process, head of fibula, and tubercle of navicular bone—will need to count many sheep before oblivion mercifully overtakes him.

Professor Whitnall's book will appeal as much to the teacher as to the student, and the reader will find in it much to stimulate, interest, and amuse him. The bibliography of over a hundred books includes works for general reading, classified under appropriate headings. The suggestions for the nucleus of a bedside library are excellent.

[4] *The Study of Anatomy.* By S. E. Whitnall, M.A., M.D. Second edition. London: E. Arnold and Co. 1933. (Pp. [illegible] 4s. net.)

DeLEE'S OBSTETRICS

DeLee's *Principles and Practice of Obstetrics*[5] has become recognized as one of the standard treatises on obstetrics in the English tongue. Professor DeLee has a wide personal experience of midwifery and, in addition, he keeps himself completely conversant with current literature. It is, indeed, this familiarity with current work which gives this book a place by itself among the leading works of reference. For example, if anyone wants to know the weight of the uterus at different stages of the puerperium he can find the figures in DeLee. Similarly, such details as the quantity of the lochia passed during the puerperium is also given in this text-

[5] *The Principles and Practice of Obstetrics.* By J. B. DeLee, A.M., M.D. Sixth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company. (Pp. 1,165; 1,221 figures, 265 in colour. 60s. net.)

book In addition to these virtues DeLee has a forceful literary style, and he is as all good teachers should be, dogmatic For example, in discussing the effect of drugs taken by mouth on the secretion of milk he says, The only drug which has any effect on the amount of the milk secreted is iodid of potash ' This may or may not be true, but it illustrates the manner in which the book is written

Some of the previous criticisms can be levelled against this new edition The section dealing with accidental haemorrhage is poor, and it should be enlarged with much more emphasis on the practical side Similar remarks apply to the chapter on placenta praevia, and in this country we do not place so much reliance on the use of a bag as does DeLee in America Nor do we in this country advise our patients, as does DeLee (page 242), to knead the abdomen for a few minutes daily after the seventh month in the hope that the child will be moved out of a cramped position In the new edition the Aschheim Zondek test is described and beautifully illustrated, but other more recent tests are not included The section on anaesthesia in childbirth is a very valuable contribution It is interesting to note that DeLee favours the administration of morphine and scopolamine in cases of weak pains, and employs ethylene during the second stage Similarly, a very valuable section is that which deals with septic abortion, for DeLee sums up very carefully the case for expectant treatment in cases of incomplete septic abortion Again, there is much to be said for his contention that Caesarean section is indicated in cases of eclampsia in primiparae when the cervix is closed A tendency is growing up to prefer Caesarean section for cases of this kind rather than to employ the Dublin or Stroganoff methods

The new edition worthily maintains the high standard of the last two editions and Professor DeLee is to be congratulated on the skill with which the present volume has been prepared

Notes on Books

Melioidosis is a disease which very closely resembles glanders but it is primarily found in rodents not in horses It is transmissible to man in whom it is almost always fatal It has been most extensively studied in the Malay States, and an excellently produced monograph written by Drs STANTON and FLETCHER has just been issued by the Institute for Medical Research at Kuala Lumpur[6] The authors estimate that it is responsible for about 200 deaths there annually, but its symptoms are so varied that it is seldom diagnosed except on necropsy It is not confined to rodents and human beings and has been found in dogs, cats and horses as well The monograph describes the symptoms and morbid anatomy of the condition in man and animals, its bacteriology, mode of dissemination, diagnosis and immunization This profusely illustrated book forms an excellent contribution to our knowledge of an obscure but very important tropical disease

Professor LAROCHE'S textbook on Laboratory Tests in Medical Practice has reached a third edition It sets out to describe the different laboratory examinations carried out by a clinical pathologist, and also discusses the significance of the results of these tests The book seems to have been useful both to practising doctors and to laboratory workers For the majority of tests the laboratory technique described corresponds very closely with that adopted in this country

The Lister Memorial Lecture this year was delivered by Sir CHARLES BALLANCE on April 5th and a summary appeared in the *Journal* of April 15th (p 669) It has now been published,[8] together with a series of illustrations many excellently coloured, and presents in convenient form an interesting record of one line of research for which Lister had paved the way—namely the histology of nerve degeneration, anastomosis, and repair The lecture describes also studies of the contractile tissue of the iris of the results of applying ligatures to arteries, and of the incubation of carcinomatous growths In two appendices Sir Charles Ballance deals with pre Listerian surgery, and his own memories of the years 1880 to 890 In addition to these personal reminiscences, which are of historical importance, the present volume is not worthy for its copious histological and other illustrations these are carefully annotated, and indicate clearly the evolution of knowledge concerning the immediate and remote sequelæ of nerve trauma and repair as well as of embryological processes and physiological mechanisms

Dr LUDWIG POPPER, in the introduction to Clinical and Therapeutic Studies of Acute Poisoning ' points out that toxicology is usually treated from a theoretical standpoint because clinical experience is so scattered and scanty and for this reason he has thought it worth while to set down the information he has acquired from first hand experience at the General Hospital of Vienna during the past decade The material dealt with is tabulated at the end of the book and a study of these tables reveals many interesting facts The total number of cases treated was 1 454, and there were three outstanding poisons—namely carbon monoxide (485 cases) lysol (354 cases) and the barbiturates (180 cases) There were however only 123 deaths out of the 1 454 cases though the great majority of these latter (1,125) represented suicidal attempts The death rate from suicidal poisoning was indeed, only 9 4 per cent These figures show that treatment of poisoning is a fairly successful branch of therapeutics and the author expresses his belief that it owes more to animal experiment than does almost any other branch of therapy He gives a full description of the symptomatology and treatment of all the common forms of poisoning and these accounts have the special merit of being written for the most part from personal experience This monograph will be found of great value by all who are interested in toxicology

British science and the school of physics in particular has suffered much of late years at the hands of its popular exponents The attractions associated with a best seller and the speculative indulgences of age have to answer for much and particularly for departure from the traditional austerity of statement which once was characteristically maintained In his book *The Outlook of Science* [9] Dr R L WORRALL exposes effectively the disloyalties within the gates of British science and the distorted accounts of scientific attitude which have been connected by certain British philosophers in order to support their favourite speculations Dr Worrall shows himself an acute critic and much that he has said needed to be said in the forceful and outspoken manner which he adopts For this he deserves gratitude But he has not been content with such an achievement He has fallen a victim to the very vices which he condemns in that much of his book is written in support of a theoretical scheme within which he would like to see and which is to have the label dialectic materialism and on the other hand he would be sorry to find board of a particular form of political creed T just the kind of thing his book purports to condemn others and it robs his efforts of what value might otherwise have exercised

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[6] *Melioidosis* By A J Stanton C M G M D and William Fletcher M D Studies from the Institute for Medical Research Federated Malay States London John Bale Sons and Danielsson Ltd (Pp xi + 137 figures)

[7] *Lehrbuch der klinischen Laboratoriumsdiagnostik in Einzeldarstellungen* Par Guy Laroche Troisième edition Paris Masson et Cie 1933 (Pp 432 151 figures 90 fr)

[8] *The Lister Memorial Lecture* By Sir Charles Ballance K C M G C B I L D F R C S London Henry Frowde and Hodder and Stoughton 1933 (Pp 77 44 illustrations)

[9] *The Outlook of Science* By R L Worrall Ph D Foreword by Professor J Arthur Thomson Franz Deuticke 1933 (Pp 253 Vienna and London J Lane The Bodley Head Ltd 25s net)

When a scientific worker has completed his work on one aspect of a problem the results are published in a scientific journal. He then moves on to other aspects, and in this way a series of papers appears. At the end of some years of work he may write a book presenting the whole subject in a readable form. Mr. Byrne's *Studies on the Physiology of the Eye*[11] has the appearance of being a collection of papers with very little intimation of the problems at issue. The title of the book is misleading, since the bulk of the material deals with only a limited aspect of the physiology of the eye—namely, the pupil reactions to drugs, nerve section, and so forth. Sandwiched between these chapters is a large section concerning sleep and coma, bearing no relation to the eye. The most important contribution appears to be that dealing with the antagonism between the sympathetic and parasympathetic nerve supplies and their analogous actions in narrowing the palpebral fissure, contracting the pupil, and "narrowing the lens" (accommodation). As a record of the complicated actions and interactions of drugs on the eye the book will be valuable. It is profusely illustrated with excellent photographs of the pupils.

[11] *Studies on the Physiology of the Eye.* By J. Grandson Byrne. London: H. K. Lewis and Co., Ltd. 1933. (Pp. xii + 416. 40s. net.)

Preparations and Appliances

A CHEST STAMP

Dr. Philip Ellman (London, W.1) writes: I have been urged by several colleagues to bring to the notice of your readers the chest stamp (Fig. 1) which I have been using in clinical practice for some time with great satisfaction, so that, knowing its advantages, it may be brought into general use. The normal outline of the heart, lungs, and trachea is indicated, and deviations from the normal can be readily illustrated. Radioscopy and radiography in a routine examination of the chest are now beginning to share with auscultation equal significance, and as a result of this the old existing chest stamps obviously require modification.

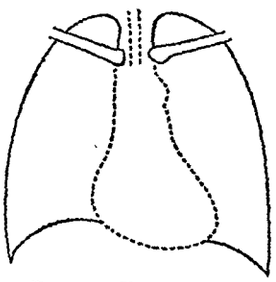


Fig. 1.—Chest stamp.

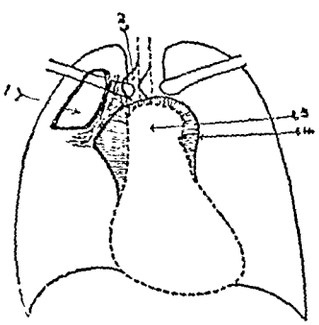


Fig. 2.—The use of the chest stamp to illustrate the principal features of a skiagram from a case of syphilitic aortitis and chronic pulmonary tuberculosis. (1) Large tuberculous cavity. (2) Displacement of the trachea. (3) Normal width of aorta. (4) Width of aorta in this case.

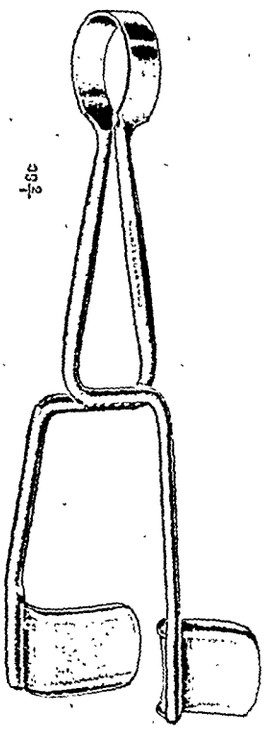
The advantages in favour of this particular diagram are as follows: (1) It is equally useful in heart and lung work. (2) In lung work, not only can the usual clinical findings be defined as hitherto (percussion, auscultation, etc.), but the radiological findings also. (3) The correct interpretation of chest radiograms is generally recognized as a specialized study, and the diagram can be used as a line drawing to illustrate the essential features (Fig. 2). The stamp can therefore be used by both radiologist and physician, and may be particularly helpful to the general practitioner as an accompaniment to a radiogram, since it enables him vividly to interpret the deviations from the normal. (4) Finally, in cardiological practice, where radioscopic examination of the heart plays a prominent part, a line diagram showing the deviations from the normal outline of heart or aorta serves as an inexpensive and valuable permanent record.

The chest stamp, with box, pad, brush, and ink, has been made for me by Messrs. H. K. Lewis and Co., Ltd., Gower Street, from whom it can be obtained at a small cost.

SELF-RETAINING ABDOMINAL RETRACTOR

Mr. Walter Salisbury, M.S., F.R.C.S. (Northampton), writes:

The self-retaining abdominal retractor shown in the accompanying illustration gives wide and powerful retraction of the abdominal wall. The special advantages claimed for it are: (1) Simplicity of design: it does not require to be taken to pieces like some otherwise excellent retractors in order to go into the ordinary nursing home sterilizer, with subsequent waste of the surgeon's time in reassembling the parts. (2) Ease of manipulation: the blades are separated by compressing the handle with the *right hand only*, and the ratch is easily released, when desired, by gentle pressure with the right index finger on the under shank. This leaves the left hand free to manipulate the abdominal wall. (3) Smoothness of outline: it is entirely free from projecting angles, knobs, and thumb-screws, which may entangle ligatures.



The retractor is useful for gynaecological operations and abdomino-perineal excision of the rectum. A special and unexpected use for the retractor is in performing a cholecystectomy through a paramedian incision. Lord Moynihan has pointed out that the placing of the left hand of the assistant "in the exact position necessary to secure gentle traction of all the viscera away from the common duct is in many respects the most important single detail of the operation." I find that most assistants are apt to remove that hand at the critical moment of the operation, when admittedly it is useful elsewhere. After the hollow viscera have been drawn to the left and covered with a moist gauze pack, the insertion of this self-retaining retractor will keep them out of the way as long as required, and greatly facilitate the exposure of the common duct. I acknowledge my indebtedness to Dartigue and Comyns Berkeley for points suggested by their retractors.

The instrument is made in stainless steel by Messrs. Down Bros., Ltd., London, S.E.1.

A FOOT ELEVATOR

Seven advantages are claimed by the vendors of "incelcas" (16, Cosway Street, N.W.1) for their product as a substitute for the long-used "high cork." Chief among these are immunity from detection, so that the appliance can be worn with an ordinary shoe, lightness, and rigidity. The specimen submitted to us is meant to take the place of a platform cork sole compensating for two inches of shortening of the leg and maintaining the foot in the position of talipes equinus. The material of which the appliance is made appears to be of a plastic nature such as "certalmid," but we have no information as to its composition, except that we are told that it is modelled on a plaster cast of the foot. The specimen submitted is certainly light and well modelled, and should be useful for certain cases.

BISMUTH OXYCHLORIDE

Bismuth oxychloride is a water-soluble salt which has been recommended for the injection treatment of syphilis. "Hygroloid" brand bismuth oxychloride, suspended in a sterile isotonic saline solution, is prepared by Burroughs Wellcome and Co. for this purpose, and is issued in rubber-capped bottles of 25 c.cm. containing 0.1 gram of the medicament per cubic centimetre. It is stated to be well tolerated in respect of pain and nodosities, and is absorbed at a uniform rate without causing toxic symptoms.

MATERNAL MORTALITY IN NEW ZEALAND

BY

T L PAGET, M R C S, L R C P

INSPECTOR OF MATERNITY AND PRIVATE HOSPITALS (DEPARTMENT OF HEALTH NEW ZEALAND)

The vexed question of how to bring about improvement in maternal welfare, as measured by the reduction in the maternal mortality rate, continues to occupy the minds of a large number of doctors and the public, and much space in medical journals Meanwhile, in spite of extensive and interesting research into causes, and considerable expenditure, the maternal mortality in most countries, including England and Wales, is not materially falling

The chief cause of maternal deaths, I think, in all countries, is puerperal sepsis following childbirth This condition accounts for approximately one third of the maternal deaths in the principal countries These cases of infection have been from time to time attributed to different causes A few years ago the occurrence of sepsis was attributed mainly to 'trauma," though how any woman can be delivered without "trauma"—in which the separation of the placenta and small tears and ecchymoses of the cervix, vagina, and perineum, must be included—in my opinion is inconceivable The fashion of the moment is to exploit the "droplet" theory, while Dr Kathleen Vaughan (*British Medical Journal*, October 22nd, 1932) attributes the failure to adopt a squatting position as the prime cause of most maternal deaths, and states, I regret to say quite erroneously, that the Maoris in New Zealand have a very low mortality rate because they adopt this position Dr Vaughan appears not to be acquainted with the fact that the Maori maternal mortality rate, though falling, due to the gradual adoption of European methods, in 1932 was 7 29 per 1,000 live births, against 4 06 for Europeans while if deaths from septic abortion—to the causes of which the Maoris do not subject themselves, and which caused no deaths—are excluded the comparative figures are 7 29 for Maoris and 3 02 for Europeans Meanwhile, New Zealand's experience in the reduction of the total maternal mortality of Europeans (Maoris are not included), and particularly the reduction of deaths from puerperal sepsis as shown by the accompanying graph, is apparently unknown or believed to be inexplicable The latter is certainly not the case The results have been brought about by the general adoption of the practice of asepsis, including the sterilization of the immediate surroundings of the field of operation during labour, and of all dressings and swabs, utensils, etc, used at that time and during the puerperium By sterilization of these dressings and guards I mean sterilized by high-pressure steam or boiling It is important to differentiate, as Keetley pointed out in about 1890, when asepsis as opposed to antisepsis was being introduced into surgical practice, 'between the cleanliness of the washerwoman and sterilization," thus eliminating those traps for the unwary—the "perfectly clean or 'freshly laundered" napkin, guard, towel etc

I adopted aseptic midwifery twenty five to thirty years ago in my own practice, basing it upon the results of my observations—at that time necessarily limited—that the sources of infection were usually one of three—namely (1) unsterilized napkins, swabs and the immediate surroundings of the obstetrical field of operation (2) nurses' hands, and (3) doctors hands My appointment to the position of inspector of maternity hospitals in 1924 enabled me to get it tested over a field extending to practically the whole of New Zealand, including 250 to 300 maternity hospitals and nursing homes

PRACTICE IN NEW ZEALAND

The following is a brief account of the measures taken by the Department of Health to extend this practice generally, and of the results obtained The main work began in 1924, following the inquiry by a commission into the causes of New Zealand's maternal mortality rate Three officers were appointed to advise the New Zealand Department of Health, and to institute methods to promote maternal welfare.

Briefly, the initial work consisted of

1 The registration of all maternity nurses, in addition to the registration of midwives which was already in force Also making it illegal for unregistered and untrained women to act as maternity nurses except in cases of emergency or with the express permission of the doctor This necessitated obtaining legislative sanction (Nurses and Midwives Registration Act 1925)

2 The adoption of a higher standard of training of midwives and maternity nurses under the control of the Nurses and Midwives Registration Board acting with the advice of the consulting obstetrician Dr Henry Jellett and the director Division of Nursing

3 The adoption of a standard aseptic technique as applied to the conduct of labour and the puerperium to be taught to all registered midwives and maternity nurses and used in all maternity hospitals

4 The introduction of a system for the more efficient inspection of all private and public maternity hospitals and all practising midwives by the medical officers of health and specially qualified nurse inspectors acting under their direction—the whole being under the direction and supervision of the inspector of maternity and private hospitals and the director Division of Nursing of the Department of Health

5 The establishment of a number of free public ante natal clinics by the Department's officer Dr Elaine Gurr each clinic being in charge of specially trained nurses acting under the direction of the medical officer of the hospital to which the clinic was attached or in the case of private patients the patient's own medical attendant Many of these were established by the Royal New Zealand Society for the Health of Women and Children in connexion with their infant clinics

The above outlines the main activities undertaken by the New Zealand Health Department and as it would occupy too much space to go into the many details such as the provision in all the hospitals of sterilizing appliances, which have, of necessity, to be low in both capital cost and cost of operation, etc I will pass on to the results

ITS RESULTS

As might be expected no results were shown for a couple of years, as it is necessarily a slow process to get entirely new methods adopted by some hundreds of doctors and nurses practically all of whom had practised other methods for many years Those who can remember the introduction of asepsis—as opposed to antisepsis—into surgical practice in about the year 1890 will appreciate the difficulty of introducing new methods and getting them generally accepted However the accompanying graph which is drawn from thoroughly reliable figures provided by the Government statistician after the most careful scrutiny of all death certificates, to ensure that no maternal deaths are missed and that the classification is correct shows the results ultimately obtained

It will be seen that from 1927 there has been a continual decrease in the number of deaths from sepsis following childbirth In 1927 there were fifty six deaths from this cause, equal to a rate of 2 01 per 1 000 live births in 1928 forty two 1929 thirty 1930 twenty seven 1931 eighteen and in 1932 the number of deaths from this cause was thirteen, giving a rate of 0 52—a fall of 75 per cent in five years I think it must be conceded that this continued fall in the deaths from puerperal sepsis for 5 years has been caused by the increasingly large number of medical practitioners adopting the practice of asepsis which was introduced for that purpose I wish here to emphasize the fact that maternity nurses or midwives trained in asepsis are necessary assistants to the medical practitioner if asepsis is to be effectual on an extensive scale This I know, since for years I had to train my own staff As has been shown, efficiently trained maternity nurses have been provided The training includes provision for fresher courses The benefit of the training is reflected in the gradual decrease of sepsis since 1927

The technique advocated was set out in detail in a pamphlet entitled *The Aseptic Technique in the Management of Labour and the Puerperium* The use of [illegible] was not included in this technique

workers in England and assuring them of a life's career. The means have now been granted, though in no overwhelming abundance, and the opportunities lie before them. The permanent endowment in 1932 by the Rockefeller Foundation of a senior whole-time post, akin to a professorship, at University College Hospital, has been followed in July of this year by the decision of the Beit Trustees to create another and similar senior position in clinical research as soon as the occasion may arise. The Medical Research Council is naturally eager to continue the policy which it originated in 1916 by its first appointment of Sir Thomas Lewis himself to a whole-time clinical post. Younger men who choose to devote their powers to "clinical science" have not only the hope now of a certain career if their work prospers, but they have at once the intellectual sympathy and encouragement of a group which will value their researches in that intermediate field which is neither pure physiology nor practical medicine, and will await with quiet confidence the gains that in time must follow for the treatment of the sick. The work will often seem to lean more towards science for its own sake, but that is no misdirection. Eager workers in the field of practical medicine will never be lacking among physicians and surgeons of this country and elsewhere. The great advances of the last twenty years in knowledge of means for the diagnosis and treatment of diseases of the lung—by direct or lipiodol radiography, by the bronchoscope, by pneumothorax, and by other forms of surgery—have, for example, come almost entirely through the labours of the latter group of men. But side by side with them, in friendly co-operation towards the common end of mastering the riddles of ill-health, will be a small group of clinicians whose first and constant aim is to establish knowledge of disease on a clearer and more certain basis. Every step that carries Medicine on to surer foothold as a science will, directly or indirectly, increase her power to heal. Such has been the unvarying lesson of the past, and this new group of scientific workers will therefore be welcomed gladly by all who hope for progress.

POSSIBILITIES OF THE INTRADERMAL TUBERCULIN TEST

Tuberculosis in man may be due either to the human or the bovine type of bacillus. So far as prevention of the disease is concerned, we are in a better position to deal with infection of bovine than with that of human origin. The data summarized in the People's League of Health report (reviewed in our columns of April 2nd, 1932, p. 618) and the recent work of Price at Toronto, render it increasingly clear that a large proportion of infections with the bovine type are due to the consumption of raw milk or cream, and that the adequate pasteurization of the milk supply can be trusted to eliminate more or less completely infection caused by this type of bacillus. It is important, however, to remember that the bovine tubercle bacillus accounts, in this country, for only about 6 to 7 per cent. of the total tuberculosis mortality, and that even if the whole of the milk supply could be satisfactorily heat-treated we should still be left face to face with the remaining 93 to 94 per cent. of tuberculosis which is due to infection with the human type.

In the development of clinical tuberculosis two main factors are concerned—infection by the tubercle bacillus, and the resisting power of the patient. How little we know of their relative importance was evident to those who attended the recent annual conference at Cardiff of the National Association for the Prevention of Tuberculosis, when entirely diverse opinions were expressed by different speakers. That the balance is often delicately adjusted, and that environmental factors such as undernutrition and overcrowding may disturb it to the disadvantage of the human host is suggested by Dr. F. C. S. Bradbury's[1] inquiry into the undue prevalence of tuberculosis among the Tyneside workers. But whether environmental conditions are of the paramount importance that some observers are prepared to ascribe to them is doubtful, and far more survey work of the type just mentioned will have to be done before sufficient evidence will accumulate to enable sound conclusions to be drawn. With infections of the bovine type we are in a position, if we choose to translate our knowledge into practice, to eliminate infection almost entirely by insisting that all liquid milk for human consumption shall be derived from tuberculin-tested herds or shall be adequately treated by heat. With infections due to the human type, on the other hand, we are on much less certain ground, and it is here, if we wish to intervene intelligently in the combat between the invading micro-organism and the resisting host, that we require so much more information than that which we already possess.

The possibilities of the Schick reaction were quickly realized, and in combination with bacteriological examination of a throat swab, it was soon found possible to exercise a considerable measure of control over the spread of diphtheria in closed communities. By these two methods information can be obtained that enables the exposed population to be divided into four classes, each of which can be appropriately dealt with. The possibilities, however, of the intradermal tuberculin test, either alone or combined with radiological examination of the lungs, do not seem to have been generally realized. While the analogy between the two cases is not strict in detail, and while at the moment we have no such immunizing agent in tuberculosis as we have in diphtheria for dealing with the non-infected susceptible group, it is sufficiently close to enable us to predict that the extended use of the tuberculin reaction and of radiological examination would furnish us with the very type of information which might well prove to be invaluable in the future control of tuberculosis. It is therefore with real satisfaction that we have received from the Joint Tuberculosis Council a note on the graded intradermal tuberculin test, drawn up by Professor S. Lyle Cummins, and designed for routine use

[1] F. C. S. Bradbury: *Causal Factors in Tuberculosis.* National Association for the Prevention of Tuberculosis. 1933.

in an investigation of the survey type over a wide field. The admirable monograph of Dr. D'Arcy Hart[1] drew attention to the value of the tuberculin test in diagnosis. What we want even more urgently, and what presumably the aim of the Joint Tuberculosis Council is to provide us with, is knowledge of its value in prognosis—prognosis not of the clinically tuberculous patient, but of the latently infected clinically healthy subject. Only by estimating the cutaneous sensitivity of the individual for tuberculin at regular and frequent intervals, and by following up each subject from childhood to adult life, shall we learn how to interpret the results of the reaction. Just as the value of the Schick reaction is amplified by a concurrent bacteriological examination of the throat for diphtheria bacilli, so will the value of the tuberculin reaction be increased by a concurrent radiological examination of the chest. The combination of these two methods might quite possibly enable us to divide our population into groups, one of which, for example, might safely be left alone, another of which, suffering from latent infection rapidly progressing towards clinical disease, might require immediate treatment in a preventorium. We earnestly trust that, so far as economic and other factors permit, the Joint Tuberculosis Council will endeavour to combine radiological examination with intradermal tuberculin testing, and so to obtain evidence which, when carefully analysed, will enable us to take a further step forward in the prevention of human tuberculosis.

AUSTRALIAN CANCER CONFERENCE

The fourth Australian Cancer Conference, convened by the Commonwealth Director-General of Health, met at Canberra in March, and a report of its transactions has now been received. It was announced that the rise in the cancer mortality curve showed no slackening, and a plea was made for the inauguration of a definite anti-cancer organization in each State so that all available forces might be marshalled against this disease. Dr. M. J. Holmes reviewed the statistics relating to cancer mortality, and pointed out two important factors: (1) a continuous increase in the proportion of the population living into the later age groups; and (2) a very marked rise in the cancer mortality in the population in the later age groups, including that of 65 years and over. In age groups under 65, he added, the death rate for this disease was actually declining. This diminution might be attributed to the improved facilities for diagnosis, the efficacy of modern treatment, and the efforts made to induce patients to seek treatment early. Dr. T. Cherry of Melbourne gave an outline of research work which had indicated the likelihood that the tumours in the mouse originated by tubercle bacilli were in some ways more suggestive of human neoplasms than were the spontaneous tumours of mice. It had been found that these bacilli might remain in the mouse tissues for long periods, producing little apparent ill-health, but acting as a chronic irritant, whose influence might be traced in the blood, lymph glands, marrow, and other tissues and organs. Ulcers surrounded by polymorphic leucocytes tended to heal, while those surrounded by lymphocytes tended to become malignant. Papers contributed by delegates emphasized the difficulties of pathological classification, and the Conference reappointed a committee to continue the study of cancer classification and to make recommendations. It was announced that the University of Sydney had instituted a diploma in radiology, and that proposals were being considered by the University of Melbourne for diplomas in radio-diagnosis and radiotherapy. The Conference was impressed by the evidence brought forward in respect of the influence of skin irritation by sunburn as a potent factor in the production of precancerous conditions and actual cancer on exposed parts of the body surface. It agreed that the public ought to be warned by health departments and other authorities to keep constantly in mind the necessity of taking reasonable steps to avoid unnecessary sunburn. This applied to exposures during recreation and out-of-door work, especially in the drier districts of the interior of Australia. A resolution was also adopted expressing the view that the admission into the country of apparatus and proprietary preparations for use in the so-called mild radium therapy was inimical to the treatment of cancer and to the health of the community. It was thought that a scheme of Federal organization might well be brought into being for educating the public about the occurrence of cancer, care being taken to avoid causing undue alarm. A strong appeal was made by different parts of the Commonwealth for the provision of a much larger supply of radium. A clinical symposium on gynaecological cancer occupied the last day of the Conference.

[1] P. D'Arcy Hart: Medical Research Council, Special Report Series, No. 164, 1933.

ARACHNIDISM

It is probable that all spiders kill and partly digest their prey by the secretion of glands connected with their mouths. The vast majority of these creatures are harmless to man, but in many parts of the world spiders exist which can inflict a painful or even fatal bite.[1] Dr. W. Wilson Ingram, a physician in Sydney, and Mr. A. Musgrave, the entomologist of the Australian Museum in the same city, have recently published a record of spider-bite in Australia.[2] It appears that in that country the majority of bites are from the spider *Latrodectus*, immediate relations of which cause trouble to man in many warm climates. These spiders generally attack people when they are sitting on earth-closets. Though the bite is very painful and the pain intractable and prolonged, the case mortality is low. Drs. G. Walsh and W. G. Morgan of the Employees Hospital, Fairfield, Alabama, have recently reported a series of twenty-nine cases[3] of poisoning from *Latrodectus mactans*, the so-called "black widow" or "shoe-button" spider. Symptoms are, they find, readily confusible with those produced by an acute intra-abdominal lesion—for example, a ruptured gastric ulcer. In addition to the intense muscular cramps and generalized pain, without any dermal eruption, there is often an associated mental confusion, rendering it difficult to obtain diagnostic assistance from

[1] Cases of severe spider bite are described in the *Epitome* of 1931, ii, para. 441, and 1932, ii, para. 460.
[2] *Med. Journ. of Australia*, July 1st, 1933, p. 10.
[3] *Amer. Journ. Med. Sci.*, September, 1933, p. 413.

the patient's account of the onset of his condition. The serum of convalescents is used in California in treating the bite of a related spider, apparently with excellent results. But in Australia, or at least in parts of New South Wales, man is occasionally bitten by spiders of the genus *Atrax*. These creatures are not closely related to *Latrodectus*, and the symptoms which follow their bites are quite different. The venom of *Atrax* is neurotoxic, and produces no local oedema and little pain at the site of the bite, but within an hour the patient may be acutely ill, with a rapid pulse, cyanosis, and pulmonary oedema. Sweating and vomiting increase the cardiac embarrassment, and death frequently follows within twelve hours of the injury. Recovery, if it occurs, is rapid and complete, though death from secondary infection and especially from malignant oedema has been known. It must be a matter of great difficulty to deal with an emergency so grave and urgent, and also so rare. The British practitioner may congratulate himself that these accidents do not occur in this country. We understand that the large and terrifying spiders which are often imported with bananas are harmless, though dock hands occasionally present themselves at hospitals in London claiming that they have been bitten by them.

STERILIZATION IN SWITZERLAND

We know that the law in Switzerland permits sterilization of the feeble-minded, but it is somewhat surprising to learn that practical experience of the procedure in that country goes back fifty years. According to Professor Hans Maier, director of the Zürich Mental Hospital at Burghölzli, who gave a lecture on the subject at the Royal College of Surgeons on September 28th, the operation of sterilization may be performed when two medical men, one a psychiatrist, declare in writing that the patient is a fit subject for the operation, or, more precisely, that sterilization is necessary in the interests either of the individual or of social and racial hygiene. The law in Switzerland argues that since its purpose is to protect society it may not act as a hindrance to "racial hygienic prophylaxis." The operation cannot, however, be performed without consent. On the other hand, an institutional authority may in some cases decree that the patient can only be discharged provided she is first sterilized. An example of this is the case of the schizophrenic who kills her child and is committed to an asylum; if the danger exists that she may kill another child the authorities decide that before she is liberated the operation of sterilization must be performed. The same procedure is carried out in the case of a feeble-minded girl who, after discharge, runs the risk of bearing further illegitimate children. Sterilization is not undertaken, however, in cases where no psychic or physical defect exists to justify it. It has been known for authorities to attempt to force girls who have had one or two illegitimate children to undergo the operation in order that they may not be the cause of further expense in subsequent pregnancies; in such cases, unless there is an accompanying psychosis, the surgeon refuses to perform the operation. Thus sterilization cannot be secured in Switzerland by the wealthy patient as "an easy way out." At the same time the married woman in miserable circumstances, who already has a family but who is not in a position, economically, to have further children and to bring them up, is considered a fit subject for sterilization. In such cases the written consent of both husband and wife is required, and it must be established that further pregnancies would cause serious injury to the woman's health and that the usual means of contraception would fail. Feebleмindedness in the unmarried mother is required to be of such a degree that the possibility of marriage is out of the question. Moreover, since intellectual development is often only retarded, sterilization is not undertaken before the age of 20. Until that time the individual receives education in an institution for the feeble-minded. Even greater care is exercised in the case of people having psychopathic tendencies, since among them there are often those who, as they grow older, can fit into society. No hard-and-fast rule has been formulated with regard to the schizophrenic. Every case is judged on its merits, and a decision given only after consideration of its individual characteristics. Indeed, in some patients, it is stated, the operation is of no practical value, and if carried out might influence the course of the psychosis unfavourably. In reply to questions which were put to Professor Maier at the end of the address, he said it was still a theoretical point whether a vasectomy at puberty did or did not affect development. He had never encountered any case in which normal development was adversely affected. Eugenic results in the population of Switzerland could not be expected to be as yet demonstrable, for only 200 to 300 persons are sterilized each year. As Dr. Mapother said at the close of the meeting, the Swiss plan of sterilization as indicated by Professor Maier might well serve as a model for this country should the operation ever be legalized.

PATHOGENESIS OF VASCULAR HYPERTONIA

H. Marx and K. Hefke[1] present interesting results on the extraction of pressor principles from the blood of hypertonic subjects (arteriosclerosis, acute nephritis, interstitial nephritis, essential hypertonia, etc.). Dogs were used as indicators of the effectiveness of the extracts. The animals were trained to lie still for several hours, and the blood pressure could be measured by the auscultation method with a Riva-Rocci apparatus and a special armlet, before and after intravenous injection of the extract. The method of extraction is as follows. The blood (100 c.cm.) is oxalated and extracted in the ice chest for twelve to twenty-four hours with three volumes of 96 per cent. alcohol; this is filtered, and to the filtrate are added two volumes of absolute alcohol. After a second filtration the alcohol is distilled off *in vacuo* at 40° C. and the residual fluid concentrated to 10 to 15 c.cm. The precipitate which separates out in this final process seems to be inactive, and the active principle (when present) in the supernatant fluid seems to be stable for weeks at a low temperature. Sixty-two extractions were performed in this way on the blood of thirty-seven cases of hypertonia. Control experiments on the dogs showed that injections of normal saline produced no noteworthy rise in pressure other than that incident to venepuncture. The extracts from patients with essential hypertension or arteriosclerosis had practically no effect on the blood

[1] *Klin. Woch.*, August 26th, 1933.

pressure of the dogs, thus confirming the findings of Bohn. The depressor effect described by the latter author in these cases was not confirmed. The extracts from the blood of cases with acute nephritis or secondary contracted kidney, on the other hand, regularly produced a great rise in the blood pressure in these animals (maximum, 45 mm. Hg), and the pressor effect was still present after two hours. These rises in pressure are definitely greater than those observed originally by Bohn. In two cases of acute haemorrhagic nephritis it was found that the pressor principle disappeared from the blood when the clinical condition had improved. No regular quantitative relation could be demonstrated in this series of cases between the degree of hypertension of the patient and the pressor effect of the extract—for example, patients with a blood pressure of only 140 mm. Hg sometimes gave a more active extract than others with a blood pressure of 250 mm. Hg. In almost all cases in which a pressor effect was found there were positive urinary findings (casts, blood, albumin). In three cases with prostatic hypertrophy and urinary stasis a pressor effect was observed, although in two cases of these there was no hypertension. A similar pressor effect was obtained with extracts of blood from cases of true epilepsy during or immediately before an attack.

AETIOLOGY OF PELLAGRA

The aetiology of pellagra has been arousing fresh interest of late. Just over a year ago the Medical Research Council published an exhaustive survey of the then current knowledge of vitamins, and marshalled an impressive amount of evidence that pellagra was associated with deficiency of one of the water-soluble vitamins known variously as B_2, G, and P-P (pellagra preventing). The Italian officials hold the theory, first introduced by Lombroso, that maize contains a toxin which is the direct cause of the disease. An extension of this theory is that maize contains a substance which renders the skin more sensitive to light. This view has been particularly expounded by Sabry,[1] who identifies the maize toxin with dioxyphenylalanine, the "dopa" of Bloch. The excessive pigmentation is, he holds, a defence reaction of the skin, an attempt to convert the "dopa" into harmless melanin by means of the oxidase found in the deeper layers of the skin. He points out that maize grains are often pigmented, and that the pigment is related to "dopa." On the other hand, "dopa" may be found occasionally in any food material, and, although pellagra seems to have followed maize across the world, and is endemic only in maize-eating countries, nevertheless there can be no inseparable association with this grain because there are a number of cases on record in people who have never eaten maize in their lives. Dr. Sabry cannot accept the vitamin theory because his peasant patients consume plenty of vitamins, taking abundant supplies of milk during the winter. Roberts[2] moreover, has reported twenty-five cases in wealthy persons, whose tables contained every variety of foodstuff, but who skimped themselves of food either because they thought they had indigestion or because of the "slimming" fashion. Pellagra symptoms have been noticed in the "bread line" queues in America. They have also been recorded in patients suffering from many intestinal diseases that involve starvation. When Goldberger was first appointed, in 1913, by the U.S.A. Bureau of Public Health to investigate the alarming outbreak of pellagra in the Southern States he formulated the theory that the condition was due to shortage of proteins of high biological value—that is, those containing the more important amino-acids. Zein, the main protein of maize, is known to be deficient in lysine and tryptophane. He found that complete protection from pellagra was given by yeast, milk, and meat, tomato juice, canned salmon, and wheat germ were also useful, but substances containing a high proportion of vegetable protein were of no value. On the other hand, Voegtlin, Neill, and Hunter[3] claimed good therapeutic effects from extract of ox-liver, which is almost free from amino-nitrogens. Amidst this conflicting mass of evidence it is difficult to follow any one theory. The most recent attempt to supply an aetiology is that made by Dr. Harriette Chick in her De Lamar Lecture delivered in America, and published in the *Lancet* of August 12th. She disposes of the amino-acid deficiency theory by quoting Voegtlin, and also other experiments by Goldberger and Tanner, who found that caseinogen was not curative, while an almost protein-free yeast extract could be relied upon. She endeavours to harmonize the other evidence by formulating a theory as follows: "Pellagra is caused by a toxic substance derived from the maize diet, which can be corrected by sufficient 'good' protein, or perhaps by sufficient vitamin B_2 (which is found to accompany the 'good' proteins)." She includes in this formula yet another theory which has been put forward that alcoholism is an aetiological factor. Klauder and Winkelman[4] described 100 cases developing after a debauch, and Sabry found cases in non-maize-eating Alexandrians who had drunk cheap beers. Dr. Chick suggests that pellagra-producing alcohol might be brewed from maize as corn whisky was common during Prohibition days. Yet another theory is that of iron deficiency. Several workers have been interested in the similarity between pellagra and pernicious anaemia. Subacute combined degeneration of the cord occurs in both, and Guthrie[5] has pointed out the frequency of achlorhydria in pellagra.

MEMORIAL TO SIR ROBERT JONES

A fortnight ago we commented on the progress made in orthopaedic practice in this country to which Dr. Melvin S. Henderson had testified in a report to the Mayo Clinic and we ascribed this progress mainly to one man—the late Sir Robert Jones. A leading article and a letter in the *Times* of October 14th bear witness that we are by no means singular in our belief. The letter is signed by the Earl of Athlone, the Earl of Derby, Lord Dawson of Penn, P.R.C.P., Lord Moynihan, Sir Holburt Waring, P.R.C.S., and Sir Harold Faweus, D.G.A.M.S. It records the progress that has been made with the appeal for contributions to a national memorial to Sir Robert Jones, and after

[1] *Journ. Trop. Med. and Hyg.*, 1932, xxxv, 164.
[2] *Journ. Amer. Med. Assoc.*, 1930, lxxv, 21.
[3] Thaysen, Hans. *Hospitalst. Tid.*, March 30th, 1933, p. 1925; *Acta M. et Scand.*, 1932, lxxvii, 513.
[4] *Bull. U.S. Pub. Health Lab.*, 1920, No. 116.
[5] *Journ. Amer. Med. Assoc.*, February 4th, 1928, p. 363.
[6] *Journ. Trop. Med. and Hyg.*, 1932, xxxv, 71. *Lancet*, 1932, i, 311.

recalling his achievements in orthopaedic surgery, both curative and preventive, the signatories announce the measures which they have in view and ask for funds to enable them to carry them into execution. These measures are (*a*) the foundation of a Robert Jones Lectureship in the Royal College of Surgeons of England and (*b*) the institution of a travelling research Fellowship in orthopaedics to be awarded alternately by the Royal College of Surgeons of England and by the University of Liverpool "in order that those who follow after him be fully equipped to carry on his work in the service of humanity." To unite the two principles of surgical scholarship and social service for which Sir Robert Jones was distinguished the executive committee now invites donations from all parts to the "Robert Jones National Trust Fund." Donations may be forwarded to the Honorary Treasurers, the Robert Jones National Memorial, Quadrant House, 55, Pall Mall, S.W.1.

BEQUESTS FOR MEDICAL CHARITIES

Several times in the past attention has been drawn in these pages to the infrequency with which medical men and women who can spare money for charitable bequests remember the urgent needs of Epsom College and of the Royal Medical Benevolent Fund. For the first time a really practical suggestion has been made towards a remedy. A correspondent, whose letter appears on page 755, offers to leave a legacy of £100 to a medical charity if nineteen other people will do the same. It should not be difficult to find this number of co-operators, more especially as they are allowed their choice of the two charities above named and also of the Charities Committee of the British Medical Association as beneficiaries of their bequests. So far as this *Journal* is concerned, we have nothing but the most cordial appreciation to express. The Association has for several years past identified itself wholeheartedly with the raising of funds for these admirable charities. It has been emphasized over and over again at the Annual Representative Meetings and at other gatherings of members of the Association that both of them are seriously hampered by want of money. Yet even still there are members of the profession who do not subscribe to either of them because they are under the comfortable impression that there are ample funds available for the work of relief. No more erroneous idea could possibly be held: but the fact that it exists is indubitable, and is certainly one of the reasons for the failure of the profession as a whole to fulfil its responsibilities. In supporting very strongly the appeal which our correspondent makes to all medical men and women, we suggest that a model form of codicil should be drawn up so that intending testators may see how simple the procedure is and how inexpensively it can be carried out; and if our correspondent, or the chairman of the Charities Committee, will forward one, we shall be happy to publish it.

The Lloyd Roberts Lecture, 1933, will be delivered at the house of the Medical Society of London, 11, Chandos Street, Cavendish Square, W., on Thursday, November 16th, by Sir Humphry Rolleston. His subject is "Association of Medical Men with Literature."

NATIONAL RADIUM

THE ANNUAL REPORTS

The publication together this week of the fourth annual reports of the National Radium Trust and of the Radium Commission[1] permits a general survey of the available national supply of radium in Great Britain and of the uses to which it is being put. The functions of the Trust relate mainly to the purchase and disposal of radium, and its fourth report covers the twelve months ending March 31st, 1933. The report of the Radium Commission is dated July 31st, 1933, and it covers the preceding twelve months, but the financial statement in it relates to the financial year which terminated on March 31st, 1933.

The Royal Charter of 1929 authorized and instructed the Radium Commission to "make arrangements for the proper custody, equitable distribution, and full use of the radium entrusted to it, with the object of promoting the treatment of the sick throughout Great Britain, and the advancement of knowledge of the best methods of rendering such treatment, and of securing due economy in the use of radium for the purposes of such treatment." It is remarked in the present report that during the last four years the initial stages of this national policy have, broadly speaking, been completed, and that the results are clearly apparent in the network of seventeen fully equipped radium centres which have been established throughout the country under the aegis of the Commission. These results are reviewed in the report. It is added that the remaining tasks which lie ahead of the Commission are mainly those of consolidating and supervising the national structure which it has created, of controlling the stock of radium which it has issued on loan, and of compiling and collating its five-year plan of clinical statistics, which are desired to evaluate the efficacy or otherwise of radium therapy in the treatment of malignant growths.

Changes in the membership of the Radium Trust during the year under review include the replacement of Lord Moynihan by Sir Holburt Waring, P.R.C.S.; of Dr. T. Watts Eden by Mr. V. Warren Low, President of the Royal Society of Medicine; and of Dr. W. G. Willoughby by Lord Dawson of Penn. Lord Dawson thus represented on the Trust both the Royal College of Physicians of London and the British Medical Association. Upon the Radium Commission Professor Gask, Mr. G. W. C. Kaye, Mr. Ernest Miles, Professor Woodburn Morison, and Mr. Carlton Oldfield have been succeeded by Mr. J. J. M. Shaw, Dr. G. F. Stebbing, Sir Cuthbert Wallace, Professor Beckwith Whitehouse, and a representative of the Department of Scientific and Industrial Research. Viscount Lee of Fareham, who presided over the Commission from its inception in 1929, has found himself compelled by pressure of other work to decline re-election, and is succeeded by the Earl of Donoughmore.

The total amount of radium purchased by the Trust to date is about 19 grams. Of this total just over 17 grams are on loan to centres, including the gram loaned to the Medical Research Council and the 186 mg. loaned to the National Physics Laboratory for research purposes, while 1.7 grams have been allocated partly to the recently organized regional centres and partly to the proposed second national centre at the Royal Infirmary, Glasgow. The Commission also, by arrangement with the King's Fund, exercises control over the three 1-gram units, the property of the Fund, which have been lent to three London hospitals (the Cancer Hospital, the Middlesex Hospital, and University College Hospital) for the experimental "1-gram unit therapy." It may be noted here

[1] Cmd. 4427. H.M. Stationery Office. (6d.)

that the Standing Clinical Committee, which supervises this special employment of radium, has concluded that this form of treatment seems most likely to prove beneficial in cases of epithelioma liable to give rise to metastases in the neck, epithelioma liable to give rise to metastases in the groin, and carcinoma of the breast.

Since the commencement of the work of the Radium Trust a sum of £9,966 has been derived from investments, including £1,634 in respect of the year 1932-3. Against this the total administrative expenses of the Trust, including £169 for 1932-3, and of the Commission (in so far as the expenses of the latter have been defrayed by the Trust) amount to £3,910, leaving a balance of £6,056. The credit balance of the Commission at the end of its financial year was £1,240. Radium rentals and other receipts amounted to £3,979. A loan of £1,000 was repaid to the Trust.

Precautions Against Loss

What are considered to be unduly heavy losses of radium sustained in respect of national radium containers have occurred at certain centres. In the report of the Radium Commission it is stated that, apart from the frequent acts of carelessness which have been the direct cause of most of these losses, there has been in many cases a neglect to observe the rules laid down by the Commission, which require that all casualties of every kind should be reported to it at once, a copy of the report being also sent to the National Physical Laboratory. If local facilities are not adequate the laboratory is prepared to send, on request, a representative to the centre to assist in the search for the missing radium containers. A neglect of, or delay in, this procedure may easily result in a total loss of the radium concerned. In the view of the Commission radium losses can be avoided, or reduced to a minimum, only by the strict observance of a complete checking system of exchange signatures or tallies at every stage in the cycle of events, which begins with a container leaving the radium safe for use in the theatre or the ward, and which ends with its return to the safe. Vagaries of patients may sometimes prove insurmountable, it is added, but lapses on the part of those in responsible charge can be tracked down, and a recurrence avoided, if an appropriate system of checking is in existence, and is rigidly enforced. Damages to containers are considered to be more frequent than they should be. Centres which have good records in this respect explain their freedom from accidents as due either to the use of thicker-walled needles or to a proper appreciation by the surgeon of the mechanical weakness of a needle if subjected to rough handling. Experience now suggests that there would be no clinical disadvantage in increasing the average platinum screenage of 0.5 mm. to 0.7 or 0.8 mm., by which the mechanical strength can be very greatly enhanced. At one centre thirteen containers were lost, representing 110 mg. It was found that some clinker from the hospital furnace was radio-active, and this led to the recovery of approximately 57 mg. The loss was covered by insurance.

Work at the Centres

Co-operation of the medical faculties at the universities with the national radium centres has resulted in a general agreement that radium treatment must be conducted by experts. Only those clinical methods can be approved which have a large measure of statistical warrants behind them ; there must be adherence to specified and uniform means of recording the details of such treatment ; and its results must be followed up over a period of years. It is hoped that the statistical data which will be available in about three years from now will afford some justifiable preliminary conclusions as to the value of radium in the treatment of cancer. To attain this stage of progress has meant for some centres the creation of entirely new organizations, and the attendant expense has in some cases presented real difficulties to the governing bodies of hospitals already hard pressed to find the ways and means for carrying on their normal services. It was pointed out in last year's report that certain important sections of the country did not share sufficiently in the facilities for radium treatment provided by the existing national centres, and, consequently, supplementary regional centres were formed at the North Staffordshire Royal Infirmary, the Norfolk and Norwich Hospital, the Royal South Hants and Southampton Hospital, and the South Devon and East Cornwall Hospital. Certain hospitals in the country, moreover, have for a long time been providing radium treatment outside the sphere of influence of the Commission. Recognition is now proposed for these, provided that representatives of the Commission are able to approve the local standards of equipment, staffing, and efficiency, including the keeping of full records of cases, which will be at the service of the Commission. There is no possibility, however, of the local supplies of radium at these institutions being augmented by the Commission, which has still inadequate supplies for such a purpose.

In Birmingham, Aberdeen, and Cardiff radium therapy has long been conducted under the scheme of clinical research initiated by the Medical Research Council, and the Commission commends them as efficient organizations, dealing satisfactorily with every aspect of the problem. Similarly, in Leeds and Sheffield there is full co-operation with the Commission. In Bristol, however, serious administrative difficulties have been encountered ; the work has not developed, a diminishing number of patients are seeking treatment there, and a proportion of the allocated radium has had to be returned to the Commission. Economic difficulties have gravely handicapped the work at the Dundee centre, but in Edinburgh, after some delay, an adequate national centre has come into being, and promises well. For local reasons Glasgow has two national centres, both progressing favourably. In Liverpool clinical treatment is regarded as satisfactory, but the local conditions have so far precluded certain important developments which prevent the centre from functioning to its full capacity, as regarded by the Commission. It is hoped to remedy this in the future. A new institute has come into being in Manchester—the Christie Hospital and Holt Radium Institute—this is well equipped for its purpose, and the arrangements for the protection of those engaged in radium work have been perfected, as have also those for the care and custody of the radium. Acute economic conditions have hampered the Newcastle-upon-Tyne Centre, but it is hoped that in the new radium institute there may be full [illegible] possibly with a special radon installation [illegible] effectively also. Certain administrative procedures at Nottingham in connexion with the carrying on of radium treatment at scattered hospitals in the county conflicted with the general concentration policy of the Commission. It was found necessary, therefore, to withdraw the provisional proposal to make Nottingham a regional centre under the Commission, and to embark on negotiations for the organization of a separate regional centre at Lincoln. The Mount Vernon Hospital and the Radium Institute in London continue to function as the post-graduate school of radiotherapy, which formed part of the original scheme of the Commission. In this school are provided general short courses of instruction, hospital practice, and clinical assistantships. About 306 persons have already received instruction at this Centre.

Co-operation with other Organizations

The loan of radium by the Commission to the Medical Research Council for experimental purposes has been the

means of extending its work in many directions, as was indicated at length in the Council's annual reports on the medical uses of radium. Systematic collaboration between the Commission and King Edward's Hospital Fund has continued. Most of the London hospitals to which radium has been allocated by the Commission are now practising uniform methods of treatment, as well as adopting forms of clinical record and follow-up methods similar to those in use throughout the national and regional centres. Moreover, the King's Fund is making arrangements for its own statistical data (commencing with the year 1930) to be made available for the general purposes of the Commission. The general lines of policy with regard to radium centres throughout the country have been discussed jointly by the Commission and the British Empire Cancer Campaign. Notably in the North the Campaign has raised considerable sums of money to support and organize radium therapy. At Nottingham this resulted in activities incompatible with the policy of the Commission, but there is now a complete understanding between the Campaign and the Commission with regard to the formation of new radium centres. The physics department of the National Physics Laboratory continues to be responsible for the custody of the Commission's supply of radium before issue, and for its reconditioning when necessary. The British Hospitals Association has given valuable aid in circularizing voluntary hospitals with regard to the facilities for radium treatment as they become available at newly organized national centres.

Concentration of Radium Treatment

It is urged in the report that the Commission's policy as regards concentration locally of patients for radium treatment should be adopted both for the Commission's allocated supply of radium and for any other radium which may be at the disposal of the hospitals receiving radium from the national supply. Pooling of all available radium should be effected whenever possible. It is pointed out that the character of this element, and its distribution in such a large variety of containers, necessitate the holding of a large stock if a centre is to be enabled to deal with different kinds of cancer efficiently and without delay. The proportion of cancer cases which can be treated by radium alone is, however, comparatively small; adjuvant procedures, such as surgery and *x* rays, are required frequently, and also pathological examinations. Adequately trained staffs are needed as well as apparatus and laboratory facilities, and this necessitates large and fully equipped hospitals. Treatment must be accompanied by research, involving the physical character and biological effects of radium, the assessment of the results obtained by treatment, and access to the technical literature on the subject—hence the importance of concentrating treatment at special centres. The Commission hopes that these implications may become more widely realized, and that hospitals may co-operate in order to overcome difficulties in connexion with the provision of bed accommodation. Only along these lines, it is urged, can full use be secured for the national stock of radium. Following the publication by the Presidents of the Royal Colleges of Physicians and Surgeons of their report last year on the technical problems of "bomb therapy," a new body—the Radium Beam Therapy Research Board—has now been set up, assisted by a special working committee of technical experts, to carry on intensive research at the London Radium Institute with a "bomb" of not less than 5 grams, which has been loaned by the Union Minière du Haut Katanga.

Statistics of Radium Therapy

A statistical inquiry on a comprehensive scale has been instituted with regard to all patients who are treated with radium at the centres, in order to determine the best method or methods of using the element in the treatment of cancer. Groups of non-cancerous patients have been included in the inquiry when their maladies were of a kind susceptible to the healing potentialities of radium. Statistics are being compiled yearly from the summary cards at the centres. An interim report on the results thence accruing is projected in three years' time, and it is hoped that in five years evidence of definite value concerning the use of radium may be forthcoming. For comparison, certain hospitals are to be invited to furnish statistics in an agreed form of the results obtained by surgery only. The number of cancer patients treated by radium at centres in 1930 was about 1,700. In the two following years the numbers increased considerably.

WORLD CONTROL OF DANGEROUS DRUGS

[From our Correspondent at Geneva]

It fell to Mr. Seán O'Kelly, Minister of Health and Local Government in the Irish Free State, to present to the Council of the League of Nations at Geneva a report on the present situation regarding the traffic in dangerous drugs. He announced that the convention for limiting the manufacture and restricting the distribution of narcotics (1931) had now obtained thirty-nine ratifications, a number exceeded only by two other opium conventions, that of The Hague in 1912, and of Geneva in 1925. Mr. O'Kelly went on to say that a study of the annual reports of Governments and the returns of seizures had brought out two essential facts: first, that there was an increasingly effective international control, which had led to a very considerable reduction in manufacture, and, secondly, that a new effort had been made by traffickers to transfer their centre of operations to other countries, such as Bulgaria and China. A statistical table, which he presented to the League Council, showed the total manufacture of morphine, diacetylmorphine, and cocaine, declared for 1931 by the countries concerned, to be by far the lowest on record, and not far from the quantities which, according to well-informed calculations, appear necessary for legitimate consumption. Without wishing to draw over-optimistic conclusions from these figures—for clandestine manufacture, he said, could not be ignored—he was sure that the Council would agree that the results emphatically justified the work of the League in this sphere.

With regard to Bulgaria, Mr. O'Kelly said that at a time when the situation in Europe appeared to be improving, thanks largely to the action of the Turkish Government in closing the Istanbul factories, it was learned that a well-known group of traffickers had transferred its centre of operations to Bulgaria, and that a drug factory had been established at Radomir, a few miles from Sofia, by a company styled the "Balkan Products Company." Immediately representations were made to the Bulgarian Government as to the dangers of this manufacture the factory was closed. The situation in China is more difficult. Already invaded by large quantities of morphine and heroin smuggled from abroad, China had been chosen as a centre for illicit manufacture, and the danger is aggravated by the fact that China already possesses the necessary raw material. A declaration was made by the Chinese delegate to the League of Nations that a careful inquiry into the situation was being undertaken by his Government, and that the Government would devise at the earliest moment a comprehensive plan for the effective enforcement of the existing law so as to bring about the suppression of poppy cultivation and the sale and use of opium and manufactured drugs. The Council of the League signified its appreciation of Turkey's simultaneous accession to the conventions of 1912, 1925, and 1931, and the other measures taken by that Government; also the ratification of the convention by Persia.

Mr. O'Kelly went on to say that during the last few years there has been a considerable falling off in the demand for manufactured drugs for medical purposes and for the requirements of State monopolies in countries in

which the use of opium is temporarily authorized This decline, which is accompanied by a drop in the price of raw opium, is due in part to the economic depression, and also to the tightening up of the national and international control of drugs The consequence is that production greatly exceeds demand, and the accumulation of large stocks is reported In outlining the work of the Permanent Central Opium Board for 1932 Mr O Kelly said that a comparison of the figures for that year with those for 1929—the first year for which the Board received statistics—showed that during that period the manufacture of drugs had declined by 31 per cent in the case of morphine, 29 per cent in the case of heroin, and 58 per cent in the case of cocaine The stocks of morphine in the manufacturing countries at the end of 1932 were about the same as those at the end of 1929, while the heroin and cocaine stocks were respectively 32 per cent and 85 per cent of those of the earlier year Exports from manufacturing countries for 1932 represent a decrease of 25 per cent for morphine, 34 per cent for heroin, and 56 per cent for cocaine as compared with 1929 The great improvement in the situation is regarded as due mainly to the application of the Geneva convention of 1925 and the spirit of co operation by countries which have applied the convention without being bound to do so

MOTOR CARS FOR 1934

THE OLYMPIA SHOW

[From our Motoring Correspondent]

(Concluded from page 703)

A year ago reference was made to the tendency for motorists to purchase less powerful and costly cars than was formerly the case, a tendency which appears to be increasing Evidence of this is afforded by a return issued by the Ministry of Transport, which shows that of the new vehicles sold in a recent month over 50 per cent were of an annual tax rating of £10 and under—10 h p cars being actually the most numerous—followed closely by those of 8 h p, with 12 h p vehicles taking the third place An interesting analysis of 1934 cars compiled by the *Autocar* shows that, while vehicles fitted with six cylinder engines remain the most popular, their percentage proportion of the total models available has declined during the past two years from 52 2 to 51 8, while, on the other hand, the figures for four cylinder vehicles has increased from 21 3 to 26 6 per cent, the balance appertaining to cars with engines comprising two, eight, and twelve cylinders The same analysis also shows that 83 per cent of all cars are now provided with battery and coil ignition, and that overhead valves, although still the most numerous, show a slight falling off, with a corresponding increase in side valves Four speeds are now provided on 72 7 per cent of all cars as against only 67 5 per cent a year ago Lastly, although the centrally located change speed lever is still mostly used, there is a slight reversion to right hand control

A Price Analysis

An analysis of car prices would tend to indicate that the vehicles most suitable for medical men fall within the £250 £350 category This is not to say that cheaper and quite reliable vehicles are not available, for even up to £135 there is a choice of four small covered cars—the Austin "Seven," the Morris 'Minor,' Ford "Eight," and the new Standard "Nine" Between £151 and £200 there is a selection of nearly twenty different models, ranging from the 7 h p Jowett at £151 to the 12 h p Wolseley "Hornet" at £198 10s and the Singer "Twelve" at £199, and including, of course, the popular Morris Cowley Again, between £201 and £250 there are numerous well tried vehicles, notably the Austin "Twelve Six" at £205, the Cowley "Six" at £215, and the Rover "Ten" at £238 Noteworthy cars in the £250 £350 group include the Citroën "Big Twelve," the Humber "Twelve," the 12 h p Armstrong-Siddeley, with its self changing gear, the Lanchester "Ten," with fluid fly wheel transmission, and the Morris Oxford, the latter being a favourite with many doctors In the following brief notes on new cars 16 horse power has been taken as the limit of power appealing to medical men

Austin and Armstrong Siddeley

For the 1934 season the Austin Company has an attractive series of no fewer than fifty cars—when the various body styles and horse powers are taken into account They range from the well known 'Seven" to the 20 h p six cylinder New features of all models include the adoption of direct on ind cators, cross braced chassis frames, and synchro mesh gear boxes which more than counterbalance the slight increase in prices A car that has sprung into popularity is the Austin "Ten Four," which is now provided with a 12 volt lighting and starting installation The standard fixed head saloon sells at £158, and the *de luxe* model, with sliding roof, at £172 10s In this series there is a new four seated two-door cabriolet at £178 To the "Light Twelve Four" and "Light Twelve Six" range there has been added a new *de luxe* saloon known as the 'Ascot," listed at £218 and £235 It may be added that the "Twelve Six can be obtained with either 13 9 h p or 15 9 h p engine at the same price Similarly, the 'Sixteen is available with either 16 or 18 h p engine Despite the popularity of six cylinder cars, it is interesting to note that the Austin Company is continuing to produce the 12 h p four cylinder car, an old favourite with many doctors A show surprise on the part of this company was the display of a 'Sixteen" with a new form of infinitely variable transmission, known as the 'Hayes' This entirely replaces the ordinary form of gear box, and can be supplied at an extra charge on this model only

Only detail improvements have been found necessary in the Armstrong Siddeley six cylinder cars, the feature of which is the pre selective change speed gear One of the most popular models is the 12 h p, which as a saloon is now priced at £300, while for those requiring a more powerful car with greater passenger room there is a 15 h p saloon at £368 The B S A 10 h p car, which has the distinction of being, with the Lanchester, the lowest powered vehicle available with the Daimler fluid fly wheel and pre selective change gear shows but few mechanical changes To the standard saloon, however, several new bodywork styles have been added, notably the Varsity saloon, with sliding roof and luggage roof, priced at £275, and a 'Tickford Foursome at £290 Of the five models offered by the Citroen Company those which probably make the strongest appeal to professional men are the Ten,' "Light Twelve,' and the Big Twelve the *de luxe* saloon prices of which range from £218 to £245 The "Ten has a four cylinder engine while the power units of the other two are both six cylinder Detail improvements in the *de luxe* cars include a synchro mesh four speed gear box combined with a free wheel

A Rear engined Crossley, Fiat and Hillman

Reference has already been made to the new Crossley 15 7 h p streamlined car, with its engine at the rear, built in accordance with the Burney patents The Crossley Company is continuing its 10 h p four cylinder model, supplied with either of two forms of saloon bodies at £278 and £305 respectively, while for £20 extra the ordinary four speed gear box can be replaced by one of the pre selective type The Fiat Company, in addition to continuing the *10 h p "Balilla" model*, which includes a two door saloon at £210, has introduced a 15 h p four-cylinder series known as the "Ardita," at prices ranging from £375 Numerous detail improvements have been made in the popular Hillman "Minx" car, the prices of which range from £159 for the "Family" saloon to £179 for the *de luxe model* The latter now has a free-wheel in addition to the four speed gear-box The body-work has been made more roomy, a "crossbow curved" radiator is now used, while the headlights are of a "long beam" pattern to facilitate night driving The Hillman Company has also introduced two new six cylinder cars

of respectively 16 and 21 h.p. Prices of either model range from £269 for the "Family" saloon to £374 for the "Foursome" drop-head coupé.

Daimler, Ford, Humber, Jowett, and Lanchester

The Daimler 15 h.p. six-cylinder car, the price of which remains at £450, is unchanged mechanically, but has been provided with improved bodywork. The Ford cars, which are not shown at Olympia, but at the maker's own exhibition at the Royal Albert Hall, again comprise the 8 and 14 h.p. four-cylinder models and the more powerful eight-cylinder type. Various improvements have been introduced, while the prices have been fixed at £120 and £145 for 8 h.p. two- and four-door saloons respectively, and at £178 and £215 for the 14 h.p. Introduced a year ago, the 12 h.p. four-cylinder Humber, which as a saloon sells at £265, has been improved in detail, a controllable free-wheel being now included in the change-speed gear; concealed or built-in direction indicators are also provided, as well as the "startix" automatic engine-starting device. The 7 h.p. Jowett, which continues as the only car having a two-cylinder engine, has been improved both as regards the provision of a four-speed gear-box with silent third, and also in general appearance. Mechanically, only detail changes have been made in the Lanchester "Ten," features of which are the Daimler fluid fly-wheel and pre-selective gear-box. In addition to the standard saloon, two additional types of bodywork are now being offered.

Morris and Riley

Quite a number of interesting changes have been made in the popular Morris range of cars, notably the adoption of cross-braced chassis frames, a synchro-mesh four-speed gear-box, and improved bodywork, with real leather upholstery on all models in place of the leather cloth formerly used on some of the lower-priced cars. With the exception of the "Major," all the previous types are retained—namely, the "Minor," the "Ten," the "Cowley," "Oxford," "Isis," and "25." Two entirely new models have also been introduced—a "Ten-Six," built on the lines of the "Ten-Four," but having a 12 h.p. six-cylinder engine and six inches longer wheelbase, and a Cowley "Six," with 15 h.p. power unit and 8 ft. 10 in. wheelbase, the latter taking the place of last year's "Major." The Morris Company has slightly increased its prices, but this is more than outweighed by the improvements effected in the chassis and bodywork—the "Oxford" cars, for example, now having an automatic clutch and free-wheel. For the benefit of the younger members of the medical profession to whom the sports type of vehicle has its appeal, it may be mentioned that, in addition to detail improvements, the Riley 9 h.p. four-cylinder and 12 h.p. six-cylinder cars are now being supplied either with a four-speed gear-box on orthodox lines or with a Wilson type pre-selective change-speed gear, combined with which is a new automatic centrifugally acting clutch, the alternative gear being offered, however, at an extra charge.

Rover and Singer

There are many interesting features in the 1934 cars of the Rover Company, which claims to be the pioneer of the free-wheel and clutchless gear change. Half a dozen types of chassis are being offered for the coming season, three of which are likely to appeal to medical men—the 10 and 12 h.p. four-cylinder and a "Fourteen-Six," the saloons of which are priced respectively at £238, £268, and £288. Among the features of the Rover cars to which attention may be drawn are an increase in the wheelbase, which, combined with a low floor-line, allows more roomy bodies with ample head room to be mounted on the chassis. Other points worthy of mention include built-in direction indicators and a new form of front bumper having comprised with it what is known as a harmonic stabilizer, its purpose being to limit the movement of the forward portion of the chassis frame when travelling over rough roads. The Singer Company is another Coventry concern having an interesting series of cars, ranging from a 9 h.p. four-cylinder, with a saloon *de luxe* at £185, to an 18 h.p. "Silent Six" at £395. While an extra charge is therefore made in the popular—that is, the lowest-priced—cars, a feature of all the vehicles is a "preselected clutchless gear change," which is obtained by the provision of a roller type free-wheel behind the gear-box. Embracing this modification in the transmission with many other detail improvements the Singer 12 h.p. four-cylinder and 14 h.p. six-cylinder cars, at respectively £225 and £259, should meet the requirements of many doctors.

Standard and Sunbeam

The Standard Company has made quite a number of changes in its programme, which now comprises five types of chassis. First, there is a four-cylinder "Nine," a small but comfortable two-door saloon available in popular form at £135, or as a *de luxe* model at £152; next, a "Ten-Four" at £168 or £179; then comes the "Twelve-Four" at £215 or £235, which for £10 extra can be provided with a 14 h.p. six-cylinder engine; these being supplemented by two six-cylinder cars—a "Sixteen" at £275 and a "Twenty" at £395. Features of the *de luxe* models are a special gear-box, having synchro-mesh gears for the second as well as the third and top speeds, the "startix" automatic restarting device, cross-braced frames, direction indicators, and "silent bloc" spring shackles, which obviate the need for lubrication. The fact that the Sunbeam Company, after having confined its attention for some years to six-cylinder cars, has introduced a 13 h.p. four-cylinder model known as the "Dawn" indicates the trend of the times. As compared with other cars of approximately similar horse-power, its price (£485) appears somewhat high, but its workmanship throughout is of the highest grade. Notable features of the vehicle, apart from the engine, are the cross-braced frame, the independent front-wheel springing, the Wilson type pre-selective gear-box, and the grouped chassis lubrication.

Triumph, Vauxhall, and Wolseley

For the coming season the Triumph Company has greatly extended its range of cars, as, in addition to detail changes in the Triumph "Super-Eight" and "Ten" models, a new series of 10 h.p. and 13 h.p. six-cylinder cars, known as the "Gloria," has been introduced, with saloons at £285 for the lower-powered of these and £325 for the other. Free-wheels to facilitate gear-changing are provided on all models except the "Popular Ten." The Vauxhall Company is continuing in practically unchanged form the "Light Six" car introduced during the past season; it is available with either a 12 or 14 h.p. engine, the standard saloon being priced at £195, with an additional £20 for the *de luxe* model. In addition, there are two new "sixes," one of 19.8 h.p., the other of 26.3 h.p.; the lower-powered one sells at £325. Features of the Vauxhall cars worthy of note include the synchro-mesh gear and the special "no draught" ventilation for saloon interiors. The Wolseley Company, while retaining the standard "Hornet" 12 h.p. six-cylinder saloon at £198 10s., has introduced a *de luxe* model with free-wheel at £215. An entirely new Wolseley production is a "Nine," having a four-cylinder engine, which, with a neat saloon body, sells at £179. The larger 16 h.p. and 21/60 h.p. six-cylinder models have been improved in various directions, and they now have a vacuum-operated clutch as well as free-wheel and synchro-mesh gear-box. The 16 h.p. saloon is priced at £330.

Special Bodywork, etc.

While the majority of medical men nowadays find that the standard saloon or coupé bodies as supplied by the manufacturers fully meet their requirements, there is still a section of the motoring community which prefers to have a chassis fitted with coachwork more in accord with their individual preference. As a result of this, carriage builders again have their own separate section at Olympia, where numerous examples of high-grade car bodies suitable for doctors' use are to be seen, among others, at the stand of Salmon and Sons, whose Tickford bodies, which can be used either entirely closed or open

merely by the turning of a handle, are steadily increasing in popularity, and at those of Martin Walter, Ltd., and Mann Egerton and Co. Ltd. The last-mentioned firm, which acts as the official consulting engineers to the Medical Insurance Agency, has again issued under the title of *1934 Cars at a Glance*, a booklet giving details and prices of all the leading vehicles on the market. A feature of the exhibition—referred to here merely because it is a feature, and not for any real interest to medical motorists—is the increasing popularity of speedy "sports" cars, these being now supplied by practically all the leading makers. This vogue for cars which are openly declared to be capable of travelling at speeds of seventy, eighty, and even more miles an hour is causing some anxiety among older motorists, not because they are dangerous when properly and carefully driven, but because there is a possibility of their getting into the hands of young, inexperienced drivers, prone to take risks and thus to become a danger, not merely to themselves, but to other road users.

Accessories

As usual, the galleries at Olympia are devoted to an almost bewildering display of ingenious motor accessories, calculated to provide greater convenience for car users. Space does not permit of any detailed reference to this section of the exhibition, but, particularly at this time of the year, when severe weather conditions may be experienced, attention may be drawn to the display of radiator muffs and cosies to keep the engine warm when cars have to be left standing in the street, and to non-freezing preparations for radiators and garage-heating lamps and stoves, which prevent freezing-up and possible bursting of engine cylinders and radiators during nights of keen frost. There is again a big variety of such motoring adjuncts as sparking plugs and carburettors. Notable among the latter is the "solex," which has been adopted as a standard on a number of 1934 cars, and a feature of which is an auxiliary unit designed to give a perfect starting mixture without surplus of petrol, the operation of which, and its effect in reducing cylinder wear, is described in a booklet entitled *Something the Motorist Should Know*, lately issued by the Solex firm. In view of the growing prevalence of thefts of cars which have to be left unattended, it is a matter of regret that manufacturers do not appear to have responded to the suggestion put forward early in the year by the Commissioner of Police for the metropolis, that they should provide some means of securely locking cars. Detachable ignition keys and door locks are, of course, generally provided, but it cannot be said that these are thief-proof. As far as can be seen, the only cars whose specification comprises a device that comes under this heading are the Humbers. This consists of a combination device, mounted on the steering column, and so arranged that when the ignition has been switched off the steering can be locked; conversely, the ignition cannot be switched on until the steering has been unlocked. Another car-locking device, acting on the ignition and bonnet simultaneously, was described in the *Journal* of June 3rd, 1933 (p. 966).

New Departure in Tyres

Keeping up with the progress in automobile engineering, tyre manufacturers have, since the war, improved their productions enormously, and it is not too much to say that, if they are given a modicum of regular attention, tyres nowadays give little or no trouble and reliable service for many thousands of miles. This year the only radical departure is a new tyre introduced by the Avon Company, the feature of which is that not only has it a double tread, but it is so made that the first (or outer) tread is automatically cooled during the running of the car, a series of transverse holes about half an inch below the outer tread acting as suckers to draw in cool and eject heated air. When the top tread wears down, the lower halves of the transverse holes become semicircular recesses from side to side of the second tread, so that although the first non-skid pattern may ultimately disappear owing to wear, the tyre in contact with the road is never smooth.

C. J. W.

Scotland

New Professor of Physiology at Edinburgh

In his inaugural lecture on October 11th Professor Ivan de Burgh Daly, who has succeeded Sir Edward Sharpey-Schafer in the chair of physiology at Edinburgh University, said that two problems required to be solved for the continued existence of physiology as a whole—the problems of organized teaching and organized research. It might be assumed that the ideal solution of these two problems to-day would not be the ideal of the future, because constantly increasing knowledge demanded adaptations in the methods used for its acquisition and for its dissemination. Professor Daly said he was deeply sensible of the honour of succeeding to a chair which had been held in the past by men whose collective efforts throughout many generations had built up the famous traditions of the university, and it was in itself an honour to be the immediate successor of one who was the present father of physiology in this country, and whose researches over half a century had been responsible for revolutionizing physiological thought in all parts of the globe. He felt a satisfaction also in continuing the intimate relationship that had existed in the past between physiologists at Edinburgh and at University College, London. This relationship had begun with the transfer of William Sharpey from Edinburgh to University College in 1836, and had been continued by the exchange of men between these two seats of learning right up to the present day. It was of fundamental importance, Professor Daly continued, to realize the methods and influences by which present-day knowledge of vital phenomena had been acquired, for it was only by realization of these things that a true perspective could be obtained of the guiding principles which would maintain and improve upon the traditions and conditions of teaching and research necessary for the growth of physiological knowledge. It might be said that the development of physiology had been due, chiefly, to those who had given rise to new schools of thought or to new methods of experimental approach, to those who had recognized new biological principles, and finally to those who, having torches, had passed them on to others.

Royal Medical Society of Edinburgh

The inaugural address for the session 1933–4 of the Royal Medical Society of Edinburgh was delivered on October 13th by Professor J. S. Haldane, F.R.S., with Dr. R. L. Cormie, president of the Society, in the chair. Taking as his subject "Vision of Brightness and Colour," Professor Haldane said the common conception was that the sense organs, including those of vision, were simply receptive to various kinds of impressions coming from the surrounding physical world. This idea, however, failed to cover the facts, for the visual relations between an organism and its environment involved the organic unity of life. Weber's law was an expression of the fact that we ourselves, as living organisms, were always actively making or maintaining our own combination of brightness and darkness, and a standard of illumination was really maintained by the organ of vision itself, which made its own standard for the time being. The eye was said to be a bad photometer, but the truth was that, except under certain artificial conditions, it was not a photometer at all, having no fixed standard of illumination but a marvellous capacity for detecting differences in illumination over a range not equalled by any physical apparatus, however delicate. The essential point in considering darkness or brightness was that what looked

dark or bright was only so in relation to the illumination of the surrounding field, and an objective measure of brightness by itself constantly eluded us. The illumination by which coal miners ordinarily saw to do their work was only a one-hundred-thousandth part of that commonly existing in shade daylight. The same principles were broadly true of the vision of colour. For example, light coming exclusively from a candle or ordinary electric lamp or diffused daylight appeared white, and even if the exclusive light was that from a red, green, or blue electric lamp, it appeared when generally diffused in sufficient intensity as white. With even deeply coloured blue spectacles a white surface was white as soon as the spectacles covered the whole field of vision, though when they covered only a small part of it the same surface was intensely blue. When viewed through a blackened tube, a patch of clear blue sky or deep blue sea faded rapidly into pure white. At first the blue was still visible owing to the influence of successive contrast, but the change rapidly took place. What was true of vision was true of the other senses. Experiences of the senses were all relative, and throughout all of them we could discover the maintenance of normal co-ordination similar to that of brightness and colour. Sense experiences and the surrounding universe which they revealed embodied life just as much as did the phenomena observed within the bodies of living organisms, and this principle might be applied to the associated emotional effects. These effects were neglected in mere physical descriptions, and still more in purely mathematical descriptions, which were only partial or abstract interpretations. We were thus, as Berkeley pointed out, driven back on our sense experiences, and all that they implied, for a criterion of reality.

Gift to Glasgow University for Medical Research

At a meeting of Glasgow University Court on October 12th Principal Sir Robert S. Rait intimated that a gift of £20,000 had been received from Miss Rankin of Greenock for the purpose of endowing medical research in the university. The donor had expressed a wish that the claims of cancer research should be specially considered, and the gift was definitely for research work and not for teaching. If the Court so decided, it was provided that one-quarter of the capital might be used in building and equipping premises for the purpose of this research. At the same meeting it was intimated that a bequest of £8,000 had been made to the university by the late Miss B. A. Gray for the endowment of a travelling scholarship in engineering.

Glasgow Post-Graduate Courses

The winter session of the Glasgow Post-Graduate Medical Association opens next month. Special lectures will be given at the Royal Faculty of Physicians and Surgeons' Hall dealing with some of the practical medicine in the light of recent observations e series of lectures starts on November or Andrew Hunter will discuss the They will be open free to all A series of weekly demonstrations day afternoons will commence on November 1st, when treatment of fractures practitioners advances in a of diagnosis tutions. The fee for the course is three guineas. Special courses have been arranged at the Glasgow Eye Infirmary for those interested in ophthalmology, and facilities for the study of clinical obstetrics and ante-natal work are offered at the Royal Maternity and Women's Hospital. The staff of the Ear, Nose, and Throat Hospital has arranged demonstrations on ear, nose, and throat affections, and a course in radium therapy is offered at the Glasgow and West of Scotland Radium Institute and in the Glasgow Royal Cancer Hospital. Clinical assistantships are available at most of the Institutions taking part in the work of the Association during the winter months as well as at other times of the year. These assistantships are limited in number and are designed to make provision for graduates who desire opportunities for the detailed study of one or other of the specialties. Full particulars can be obtained on application to the secretary, Post-Graduate Medical Association, the University, Glasgow.

Glasgow Health Exhibition

Opening the eleventh Housing and Health Exhibition, organized by the corporation of Glasgow, at the Kelvin Hall on October 4th, Lord Provost A. B. Swan said that there were three important exhibits from the housing department: a slum house which demonstrated the deplorable conditions under which some people lived; an example of the new hostel type of building intended for single persons, having a room and kitchenette for each person, and a communal bath for every six persons; and a two-room and kitchenette dwelling such as was now being provided for slum clearance areas. He pointed out that 8d. out of every 20s. paid in rates was going towards slum clearance and rehousing, but progress must necessarily be slow. The exhibition includes displays of house furnishing, labour-saving devices, cooking and heating systems, and a model dairy farm, and will continue daily until October 28th.

England and Wales

Retirement of Sir Alexander Houston

Sir Alexander Houston, D.Sc., M.B., F.R.S., director of water examination for the Metropolitan Water Board, is retiring from the service of the Board at the end of the present year. Sir Alexander, who is 68 years of age, was retained after the age for compulsory retirement, owing to special circumstances which made such retention in the interests of the public service, and it was the hope of the Board that he would continue in office for some years. On the ground of health, however, he has had to reconsider the matter, and, after consultation with his medical adviser, he has asked the Board to retire him as from the end of 1933. Sir Alexander Houston entered the service of the Metropolitan Water Board in 1905, following upon the Board's decision to establish a central laboratory for chemical and bacteriological examinations of the water supplied, and for experiments as to its condition. During the twenty-eight years which have followed, the water examination department, under its able head, has played an important part in securing the health of the vast population supplied with water by the Board, and many difficult problems relating to the protection of water-supply sources and water purification have been solved with advantage not only to the Metropolitan Water Board but to other water authorities throughout the world. In a report to the Board the Water Examination Committee states: "It may be safely said that Sir Alexander is pre-eminent in water-purification matters, and there can be little doubt that

his world-wide reputation as an expert has lightened the grave responsibilities of the Board as regards the safety of the metropolitan water supply and tended to create a sense of security amongst those who watch over the health of the metropolis." The annual reports of Sir Alexander Houston have often been reviewed at length in these columns, when occasion has been taken to refer to his gifts as a scientist and his devotion to the public health. The Metropolitan Water Board, at its meeting on October 6th, placed on record its high appreciation of the eminent, zealous, and devoted services rendered by him to the cause of London's water supply, and its sincere hope that relief from his arduous duties and responsibilities may result in such an improvement in his health as will enable him to enjoy for many years the rest he has so abundantly merited. A copy of this resolution, inscribed on vellum, and under the seal of the Board, is to be presented to Sir Alexander Houston.

Royal Southern Hospital, Liverpool

The Royal Southern Hospital passed through a very anxious time in 1932 owing to the exhaustion of its financial assets, and an Appeal Committee was brought into existence in May of that year. Its activities resulted in the raising of a net sum of £20,000. The annual report states, however, that the institution must still be considered to be in peril, for there was a deficit of not far short of £5,000 on the year's working. Despite this handicap, and the necessary curtailment of the much-needed expansion of some of the hospital accommodation, the work achieved compared favourably with that of previous years. There was a considerable drop in the number of out-patient attendances. This is attributed to the fact that only patients bringing letters of recommendation from a private or panel practitioner are accepted for treatment, apart from cases of emergency. A teaching and research fund had been established in 1931, and the benefit of its working became apparent in the year under review. The rebuilding of the pathological laboratory has proved of great value to the hospital. The new accommodation provides house-room for the biochemical laboratory, and enables a weekly demonstration in pathology to be given to students. Progress has also been made in the taking of electrocardiograms of normal hearts, and cancer research has been advanced. When finances permit, the enlargement of the present very inadequate operating theatre accommodation will be effected.

Certification of Blindness

In consultation with the Board of Education, the Minister of Health has been considering a report by a committee appointed by the Union of Counties Associations for the Blind on the certification of blindness, and has taken note of the views expressed by a number of professional and other organizations. The committee recommended the general adoption of a form of certificate, based on one which has been used for some time now by some Scottish authorities and by a number of local authorities in England and Wales more recently. This form of certification was accepted by the County Councils Association and the Association of Municipal Corporations, and the Minister of Health has now issued a circular (1353), recommending its general adoption in England and Wales, subject to a few slight modifications. Copies of this form (B.D.8) have been sent to county and county borough councils, the Common Council of the City of London, and to voluntary associations for the blind; further supplies can be obtained from the Ministry. While its primary function is the certification of the individual, this form provides also for the recording of particulars essential for the compiling of statistics, which should ultimately be of scientific value in the prevention of blindness. The Minister and the Board of Education have authorized the Prevention of Blindness Committee to collate such statistics, and it is understood that the committee will be prepared to set up a specialist sub-committee to examine and classify the information and, with the approval of the Minister, to undertake in consultation with any other specialist body (should this appear to be desirable) the tabulation of statistics for the use of local authorities. The information so received will be treated as confidential, and the Minister regards it as important that copies of each certificate given in the form proposed should be sent periodically to the Secretary of the Prevention of Blindness Committee, 66, Victoria Street, S.W.1. Medical practitioners with special experience in ophthalmology will fill up the forms in the first instance, their qualification for this being that they are devoting their whole time to the practice of ophthalmology in all its branches, or are in charge of the ophthalmic department of a general hospital of not less than 100 beds, or, failing such a practitioner, one would be acceptable who held a diploma in ophthalmology issued by an examining body approved by the General Medical Council. In the case of the certification of children under the Education Act of 1921 there is already a form of certificate (Form 40 D) in general use, for deafness as well as blindness. In future this certificate will be restricted for cases of deafness, and a new form (37 D) similar to the one to be employed henceforth in the case of adults, as indicated above, will take its place for blind children. A circular (1431) announcing this has accordingly been forwarded to local education authorities.

Central Midwives Board

At the October meeting of the Central Midwives Board for England and Wales the Standing Committee reported that the Ministry of Health had forwarded copies of correspondence from the Association of Municipal Corporations in which the Minister was requested to take steps to secure a change in the constitution of the Central Midwives Board by substantially increasing the representation thereon of local authorities. It was resolved to ask the Minister of Health to ascertain what measure of further representation of local authorities the association suggested, and through what bodies it should be effected, because if the Board possessed such information it would be in a better position to deal with the matter. Arising out of correspondence with the Minister on the use of masks by midwives in stated circumstances, the Board agreed to reply that, having regard to the divided opinions existing at present among the officers of training schools as to the desirability of the use of rubber gloves and masks, the Board does not see its way to compel the use of these articles by midwives, and cannot do more than include in the subjects of examination their use and the conditions under which they could be used. A letter had been received from the medical officer of health for Denbighshire asking whether: (1) the instruction given by him to midwives not to respond to a summons for an abortion was in order, and (2) a claim by the doctor for attendance on cases of abortion or threatened miscarriage could be paid under Section 14 of the Midwives Act, 1918. It was agreed to reply: (1) that, in the Board's opinion, if a midwife was summoned for an abortion or threatened miscarriage, she was perfectly justified in answering the summons, although it would be her duty, under the rules, to summon medical aid in respect of the abnormality; and (2) that the question of payment of fees to medical practitioners by local supervising authorities under Section 14 of the Midwives Act, 1918, is not a matter within the jurisdiction of the Board, but should, if necessary, be referred to the Ministry of Health. Approval as lecturer was granted to Mr. E. S. Page, F.R.C.S., St. Mary Abbots Hospital.

Ireland

University Representation in the Dail

Dr. Robert J. Rowlette, King's Professor of Materia Medica and Pharmacy at Trinity College, Dublin, and physician to Mercer's Hospital, has been elected unopposed to fill the vacant seat for Dublin University in Dail Eireann, caused by the death of Sir James Craig on July 12th. He will sit as an Independent member. Dr. Rowlette is a past president of the Leinster Branch of the British Medical Association, and presided over the Section of Pharmacology and Therapeutics at the Annual Meeting in Dublin last July. During the war he served as lieut.-colonel in the R.A.M.C., and was mentioned in dispatches. He is keenly interested in sporting matters, having been president of the Irish Amateur Athletic Association from 1908 to 1920, while he was honorary physician to the British Olympic team in 1920, and to the Irish Olympic team in 1924.

Maintenance Funds of Dublin Hospitals

At the recent annual meeting of the Meath Hospital the report of the governors stated that, having received £95,932 from the sweepstakes, it had been decided to bring the institution up to date before embarking on any scheme involving a heavy annual expenditure. The hospital would not be enlarged until they could set aside a sum to secure from investment an income sufficient to maintain the extra beds. During the year the number of patients admitted was 1,663, of whom 822 received free treatment. There were 5,524 accident cases, and 18,648 were treated in the dispensary. The balance sheet showed an excess of ordinary expenditure over ordinary income of £8,507. The chairman of the Committee of Management said that the financial position of the hospital was causing great concern. Within the past four years the income had fallen from £15,792 to £13,099, and the expenditure had increased from £15,182 to £21,606. The hospital no longer received a Government grant, the County Council had reduced its contribution from £2,000 to £1,000, and the payments by patients had fallen off, probably from the idea that the hospital had plenty of money. Dr. Boxwell, moving the resolution asking for financial support for the hospital, said the cost of running the institution was treble what it was ten years ago, mainly because their policy was to give patients the best treatment available, no matter how expensive that might be. As far as he could see the only way to carry on the hospital was to cut down the number of beds from 150 to 100.

Medical Education in Belfast

At the opening of the winter session in the Royal Victoria Hospital Mr. H. L. H. Greer referred to certain outstanding events which he believed would increase Belfast's reputation and worth as a centre of medical education. The first event, he said, was the closer linking up of Queen's University and the hospital by the erection in the hospital grounds of a pathological institute in which the teaching of pathology, bacteriology, and biochemistry would be carried on in association with research. The other event was the amalgamation of the Royal Victoria Hospital and the Belfast Maternity Hospital, as a result of which they now had a maternity hospital built and equipped on the most modern lines, and second to none. This would be opened by Mrs. Baldwin, and the first chairman would be Professor R. J. Johnstone. They were entering into the possession of their new maternity hospital, Mr. Greer continued, in the hope and belief that it would contribute to further improvement in the teaching and practice of midwifery in Ulster. In the course of an interesting survey of the progress of medical science Mr. Greer said that at the time of Hippocrates midwives were definitely recognized. The teachings of Hippocrates led to great improvements in the practice of midwifery, which remained unsurpassed for over six centuries. With the decline of the Roman Empire, Greek medicine fell into decay, and rational treatment was replaced by superstition. For fourteen centuries, until 1529, Christendom was left in ignorance, and such hospitals as existed were vile places. The renaissance began with Ambroise Paré, whose teachings led to a great advance in midwifery practice.

Health of School Children in County Carlow

In his annual report Dr. A. D. MacMahon, county medical officer of health, states that school medical inspection was begun in County Carlow in January, 1932. The number of children examined was 1,268, or about one-fifth of the total child population, and of these only thirty-six were found free from any defect. This meant that out of every hundred children examined less than three were perfectly healthy. It would be unreasonable, the report states, to lay the whole of the blame at the door of the Carlow schools. Home environment had much to do with the ill-health of the children, but where both the school and the home environment were to be condemned it was difficult to apportion the blame. Such a bad condition of affairs, however, should not be allowed to persist in a civilized community. Referring to the grants in aid of the building of new schools in the Free State, Dr. MacMahon suggests that it would be a good national investment to release money at once up to the amount of the present estimate to replace the worst type of schools, and to set aside a further sum annually to deal with the less pressing cases.

County Galway Health Report

In his annual report Dr. B. O'Beirne, county medical officer of health, referred to a scheme for the inspection and supervision of midwives in County Galway which came into operation in 1931. The early inspections were carried out, he stated, more for the purpose of giving information and instruction, but the necessity for regular inspection was in some cases only too evident. He therefore obtained the permission of the Health Board and the sanction of the Local Government Department for his assistant and the two public health nurses to act as deputy inspectors of midwives. During the year information was received to the effect that handywomen were operating in certain areas in the county. The matter was fully investigated, but there was not sufficient proof to justify a prosecution. In all cases there was what might be termed a valid excuse, the most frequent being that the case was sudden or urgent, that the nurse was living too far away, or that she was not available. Ignorance of the law was also pleaded. To secure a conviction under the 1918 Act habitual attendance or attendance for gain must be proved. The 1931 Act is in advance of this, in so far as it acknowledges no excuse except urgent necessity. As both Acts may easily be evaded, especially in isolated districts, the most effective way of putting a check to the activities of handywomen is by strict enforcement of the Notification of Births Acts, 1907 and 1915. Periodic inspections were carried out during the year, and the results were satisfactory. Dr. Conor O'Malley, in his ophthalmic report, gave a brief classification of the morbid conditions met with during the year under review. He stated that, in addition to the cases examined and treated at the various clinics, a considerable number of children were treated in the eye wards of the Central Hospital, the majority for phlyctenular ophthalmia.

This disease was prevalent, and did not often respond well to home treatment, it was frequently accompanied by a vitamin deficiency, excessive carbohydrate diet, and focal infection On the other hand, trachoma appeared to be comparatively rare among the children Squint was common, about 20 per cent of the cases examined had this defect In Dr O'Malley's experience the parents showed an unreasoning, and indeed callous, indifference towards the treatment of squint in their children, only seven cases turned up for treatment in the hospital in 1932 Myopia was found in about 25 per cent of the cases examined The treatment of low and medium myopia was satisfactorily accomplished by glasses following the accurate estimation of the amount of stretching of the eye ball under atropine, together with instructions for near work and a re inspection at intervals to guard against progressive disease In the treatment of high myopia, or rapidly advancing choroidal disease, Dr O Malley stated, something more was required than they could yet accomplish These children, with only 50 per cent of normal sight or less, were sadly handicapped in the ordinary school curriculum, where they ran the risk of ultimate blindness They were generally studious and often intelligent, and it was a pity that sight saving classes could not be provided, where they could receive a normal education at the minimum risk to their eyes

CORRESPONDENCE

Bequests for Medical Charities: An Offer

SIR,—You have drawn attention in the past to the tendency of medical men to make bequests to all kinds of institutions except those medical charities which, it may be suggested, ought to be the first objects of their consideration No one, of course expects a member of the medical profession to bequeath money to charity unless he has also made due provision for his dependants but there are many in this position who overlook the pressing needs of Epsom College and of the Royal Medical Benevolent Fund when making their wills With a view to creating a wider interest in these two charities, I make the following offer to all my colleagues

If nineteen others will engage to do as much (or more) I will add a codicil to my will bequeathing £100 to a medical charity Those who accept may leave the money to Epsom College (which is my own choice), or to the Royal Medical Benevolent Fund, or to the Charities Committee of the British Medical Association They are free to name a sum larger than £100, but £200 in one legacy shall not count as two legacies of £100 for the purposes of this offer Two at £50 shall, however, count as equal to one of £100 because the creation of a wider interest is part of the plan An existing bequest of £100 or more shall not be deemed to be one of the nineteen, but if a testator adds a further £100 to his existing bequest he shall be reckoned in Non members of the profession are to be regarded as eligible for inclusion among the nineteen

It is to be understood that any testator is at liberty to revoke his bequest if changed circumstances appear to him to justify such action All that is asked is an honourable understanding that there is at the present time a genuine intention to let the bequest stand good

It is suggested that those who may be willing to join in this scheme should forward their names to you, Sir, or to the chairman of the Medical Charities Committee at B M A House, Tavistock Square, W C 1 When the nineteen names have been received a letter will be sent to each asking that the necessary codicil (or will) may be executed, and that when this has been done a notification of it may be forwarded The names will be kept strictly confidential, and as my own personality has nothing to do with any merits the idea may possess, I would ask to remain anonymous under the pseudonym of

Your obedient servant,

October 13th BICKBENCHER

Infantile Scurvy

SIR,—I should like to record an interesting event concerned with infantile scurvy On former occasions I have alluded to my belief that this condition seemed to me to be on the increase Now, for the first time in my years of hospital life, I have had three cases at the same time in my ward at the Hospital for Sick Children, Great Ormond Street This seems remarkable when we realize the great work that has been done on vitamins and when we perhaps look upon the position of vitamin C as one of the best understood among them These cases have been severe, and one of them recalls in the severity of the affection of the gums, the periosteal swellings, and the haemorrhages into the eyelids the classical paintings made of such cases in the days of Dr Cheadle and Sir Thomas Barlow, some originals of which were left in my possession on Dr Cheadle's death Further, in spite of active treatment, new periosteal swellings have appeared in one case Though we know there may be difficulties in feeding these children, the scurvy symptoms at least are as a rule arrested It would be interesting to know whether others have met with this increase in scurvy

Curiously enough, though it may have not the least bearing or connexion, I have met recently with numerous cases in adults of mysterious purpura upon the four extremities This purpura has been accompanied by a little discomfort, and the lesions vary in degree up to bruises of the size of the palm of one's hand They have not been associated with arthritis, but in some instances have appeared at irregular intervals over many weeks and have attracted attention by a slight tenderness followed by the appearance of the bruising

As regards infantile scurvy I am not prepared to do more than direct attention to the vast quantities of dried milk now in use and to raise a question which I have raised before whether such foods even given with precautions make for the best constitutions in years to come We know that some children do not take fruit juices well or are thought not to take them well and these are then discarded and should infantile scurvy really be on the increase and my experience not be only a hospital coincidence it is clear to me that many diets must touch the borderline of a pathological metabolism —I am etc,

London W 1 Oct 16th F JOHN POYNTON.

Experimental Physiology

SIR,—In the kindly notice (*British Medical Journal*, October 7th) of the volume of the *Quarterly Journal of Experimental Physiology*, which has been dedicated to me in honour of my eighty third year, there are two not unimportant errors—namely, (1) That the articles contained in it are contributed by my past and present "students", this should read my past and present "assistants" (2) That William Sharpey came to University College from Edinburgh in 1832, whereas the date of his migration was 1836 —I am, etc,

E SHARPEY SCHAFER

North Berwick, Oct 13th

Bronchiectasis

SIR,—The interest which has recently been accorded to bronchiectasis is an index of the neglect with which this condition has been treated in the past, and it would appear that in the evolution of treatment such discrepancies of opinion, as expressed in your correspondents' letters, are bound to arise. We would like to congratulate Drs. F. C. Roles and G. S. Todd on their excellent article published in the *Journal* of October 7th (p. 639). Their findings in the main confirm the view which we put forward at the Oxford meeting of the Tuberculosis Association in April, 1932—namely, that artificial pneumothorax, phrenic evulsion, and thoracoplastic operations are of practically no value in the treatment of bronchiectasis, and that the only rational treatment is a lobectomy. But we would differ from them as to when this operation should be performed, and are not surprised that Dr. Beaumont (October 14th, p. 708) looks on lobectomy, as a curative measure, with some misgiving, for the death rate from this operation is too high to satisfy the physician. That better results are being obtained by operating on clean cases or atelectatic lobes we do not doubt, but we are of the opinion, as physicians, that one is not justified in recommending a patient with a dry, early, clean or atelectatic bronchiectasis to submit to the risk at the present time. It is true, as pointed out by the authors, that some of these cases become heavily infected, with spread of disease and death in a few years, but such is by no means true of all cases, and, indeed, is rather the exception.

The surgical figures given are certainly not encouraging: lobectomy, 40 per cent. deaths; whilst, with all surgical procedures, of fifty-six cases 30 per cent. are reported dry, 38 per cent. septic, and 32 per cent. dead—a total of 70 per cent. who submitted to surgical procedure were not obviously better off than if medical treatment only had been adopted.

In a foul bronchiectasis confined to one lobe the high mortality risk might be considered justifiable, although it is almost impossible to be sure that neighbouring lung has not been involved; but to subject an otherwise healthy individual with an atelectatic lung or dry bronchiectasis who has probably many years' expectation of life to even a 10 per cent. risk of death needs grave consideration. We were surprised that the authors made no mention of bronchoscopic drainage as a mode of treatment; surely, before a very serious operation such as lobectomy, this should be considered. We have experience of this method in over a hundred cases within a period of three years, and, although it is not curative, we have been able in most to render the patient free of offensive sputum, sometimes reducing the sputum from twenty ounces to two or three, sometimes rendering the patients "dry" for long periods, and in the majority of cases restoring them to their work; further, we have had no cases in which the disease has progressed extensively during treatment. We do not suggest that this line of treatment is an alternative cure to lobectomy, but we do maintain that this treatment renders the prognosis less serious and tragic than is suggested by the authors.

Unless regrettable accidents such as that recorded by Dr. Cassidy and Mr. Lee (*Journal*, October 14th, p. 684) are to occur, it is essential that before a collapse or a phrenic evulsion a bronchoscopic investigation be made to exclude the possibility of a foreign body, new growth, or a dilatable stricture; further repeated bronchoscopic lavage should be undertaken for some days before, and also immediately before, the operation to empty and cleanse the diseased area and avoid the dangers of a spill-over.

We should certainly advise Dr. Heffernan (October 14th, p. 708) to continue his good work of postural drainage on these earlier cases of bronchiectasis, especially those occurring after pertussis and the streptococcal infections, because they are probably the type of case in which cure may also be obtained by artificial pneumothorax, as there is probably at this stage no thickening of the walls and no occlusion.—We are, etc.,

A. J. SCOTT PINCHIN.
H. V. MORLOCK.

London, W.1, Oct. 16th.

SIR,—Dr. G. E. Beaumont (October 14th, p. 708) takes us up on the controversial question of the value of artificial pneumothorax treatment in bronchiectasis. Let us say at the outset that he and we are aiming in essentially the same direction—namely, earlier diagnosis. He claims that cases can be sent up so early that the cavities can be obliterated by collapse. This is a matter of personal experience, and he mentions having seen one case where it has been actually achieved. We feel that the recognition of cases of established disease confined to one lobe is a first practical objective which, in our experience, has proved difficult enough. Our ultimate object is, of course, the avoidance of any operation at all; our immediate one, the substitution in earlier cases of a radical cure such as that offered by lobectomy for the more extensive plastic operations of the chest which become necessary later on.

Dr. Beaumont dissociates himself from our statement that this treatment has seldom been adopted in recent years at the Brompton Hospital. The reason it has been so infrequently performed might be not a matter of policy so much as a lack of suitable material. It suffices to state that the type of case admitted there apparently does not allow of this treatment in more than three instances a year out of a total admission of 3,500 of all diseases. We were careful to say that the figures in Table II give no idea of the present mortality rate of lobectomy since a new technique was adopted. We have to admit that, while our 106 cases were used to show prognosis, we have discussed the treatment from the point of view of more recent results. Mr. Tudor Edwards allows us to quote his latest figures, which out of twenty-eight cases show an operative mortality of 7.1 per cent. A total of four deaths occurred, two of which cannot be called operative. Thus, one patient died three months later of a spontaneous pneumothorax on the opposite side, which necropsy showed to be due to tubercle. Another died of a cerebral abscess eight weeks after operation. With regard to the modern figures for lobectomy, may we refer to the current number of the *British Journal of Surgery*, notably to the paper by J. H. Roberts and H. P. Nelson. We plead guilty to the discrepancy between Table II and the text; the latter should read "four out of thirteen treated with artificial pneumothorax alone are well, and three of the remainder are dead."

We are grateful to Dr. Heffernan (October 14th, p. 708) for showing us that we have not made our attitude clear. Postural drainage is an admirable and essential treatment, both as an adjuvant and as a palliative. It does not, we believe, result in the *cure* of an established case. Were we able to diagnose these cases with lipiodol sufficiently early there would doubtless be no need for lobectomy at all. We are certainly not advocating mass lobectomy on all cases. The indications are well defined. We are advocating the adoption of a clear-cut policy in each case, and not a perpetual postponement of the issue. In the Toronto Children's Hospital, we have been informed, the experiments with prolonged posture, which Dr.

Hefferman quotes, have not given the promising result expected; recently more and more cases have had lobectomy. He states that his impressions have been that the great majority of the mild bronchiectases in children clear up before adult life is reached. Has he followed these cases carefully with lipiodol in these subsequent stages? We feel that clinical impressions have been misleading in this disease, and we have wanted to place the matter on a more exact basis. Provided the cavities are still present, though the clinical condition may remain good, the dangers of fresh infection and stasis remain. We have purposely avoided the question of bronchoscopy, which forms a full subject for discussion in itself. —We are, etc.,

FRANCIS C. ROLES.
G. S. TODD.

London, S.W.3, Oct. 14th.

Toxaemias of Pregnancy

SIR,—In the *Lancet* (1930, i, 1115) I adduced in favour of my hypothesis the fact that there was a decline in the incidence of eclampsia in Germany during the latter years of the great war. In the *Journal* of October 7th Mr. Paramore adduces the same evidence, but elevates these incomplete statistical observations into "experimental evidence shaking if not shattering" my view. He has for a number of years asserted, without any experimental evidence, that the intra-abdominal pressure is raised during pregnancy, and that this increase of pressure is the cause of the toxaemias of pregnancy. I have published reasons for concluding that the intra-abdominal pressure is not significantly raised during pregnancy. I am prepared to demonstrate the experimental methods I used to any competent judges, and I submit, with respect, that it is time Mr. Paramore either proved his assertion or withdrew his hypothesis. I will not trespass on your valuable space by replying to other misconceptions introduced by Mr. Paramore into his letter.

In your issue of October 14th Professor Atlee falls into the elementary but fundamental error of assuming that because a symptom is improved or cured by suggestion it was necessarily of neurotic origin. I have successfully treated many more than thirty-two cases of hyperemesis gravidarum by suggestion alone, and at one time firmly believed that, if the environment were satisfactory, all such cases could be similarly cured. The death of four patients, in no way differing from the others clinically or by any known tests, changed my view. The real question is, Why do more than 50 per cent. of women who desire to have babies suffer from morning sickness? If its origin were purely neurotic I do not see why some young husbands should not suffer from the same trouble, and yet, outside the pages of Boccaccio, such cases have not been reported. I believe that changes in the "internal environment" associated with pregnancy lower the threshold of vomiting and are responsible for morning sickness, which may progress into hyperemesis gravidarum. This position is surely more logical than that which assumes all cases to be neurotic unless and until they cannot be cured by suggestion. I hope on another occasion to develop this thesis more fully, but I am convinced that if men had been privileged to bear children the neurotic hypothesis would never have been advanced. I believe that the toxaemias of pregnancy will one day be as rare in England as is typhus. My desire is that the hypothesis should be subjected to the most rigorous test by an adequate number of clinicians in charge of antenatal clinics.—I am, etc.,

G. W. THEOBALD.

London, W., Oct. 14th.

SIR,—I have long been under the impression that hyperemesis gravidarum can be classified under three headings, not least of these being the heading "neurotic." In support of Dr. H. B. Atlee's letter in your issue of October 14th, I would like to tell of a case I had in 1927 of hyperemesis, the patient being so bad that even water by the mouth was not retained. This case was "cured" by two injections of sterile water, given intramuscularly with a blunt needle. Had I known of the efficacy of sodium gluconate at the time, I might have "cured" the patient with that. (Particulars of this case can be given on request.)—I am, etc.,

Bradford, Oct. 16th. JAMES MORRISSEY.

Asthma and Adrenaline

SIR,—Professor J. H. Burn's address on "A Pharmacological Approach to the Cause of Asthma," as reported in the *Journal* of October 14th, is very interesting, and valuable in showing that adrenaline, tyramine, and ephedrine act upon the sympathetic system, and that the mode of action of these drugs is different. Professor Burn explains that those people who have the least amount of circulating adrenaline are predisposed to asthma. He also shows that adrenaline, tyramine, and ephedrine have a profound effect upon blood pressure, and that the presence of adrenaline in the blood is necessary before tyramine or ephedrine can have their constrictor effect upon the blood vessels. Then arises his difficulty of explaining how adrenaline overcomes the failure of the bronchodilator nerves to do their work efficiently, necessitating as it does transferring the recognized action of adrenaline on the blood vessels to the muscular system. If only he could for a moment forget the time-honoured tradition that asthma is the result of muscular spasm of the bronchioles, how satisfactory the action of adrenaline in relieving asthma would appear! If one takes the blood pressure of a patient in an attack of asthma before giving an injection of adrenaline, and then takes it again a few minutes after the injection, it will be found that there has been a rise of from 5 to 10 mm., during which time the patient has felt no relief in breathing. If the pressure is taken again ten minutes later it will probably be found that it has come down to several millimetres *below* the level at which it stood before the adrenaline was given. The pallor due to the systemic vaso-constriction resulting from the adrenaline will have been replaced by colour, and then only does the patient feel relief.

In my opinion an injection of adrenaline produces a splanchnic and cutaneous vaso-constriction, which is replaced by a general vaso-dilatation as soon as reaction, which is a characteristic feature of the use of adrenaline, sets in. This *general* vaso-dilatation relieves the *localized* bronchial vaso-dilatation which is responsible for the asthmatic attack. If anyone wants to test the importance of general vaso-dilatation in relieving an attack of asthma, let him, after stopping an attack by an injection of adrenaline, place the patient's feet in cold water, thereby causing a localized vaso-constriction, and note how quickly a compensatory vaso-dilatation occurs in the bronchial area, with a return of the asthma.—I am, etc.,

London, W., Oct. 14th. ALEXANDER FRANCIS.

The Medical Curriculum

SIR,—The recent correspondence on the medical curriculum reminds me of the invitation in the song of the Gryphon and the Mock-turtle in *Alice in Wonderland*: "Will you, won't you, will you, won't you, won't you join the dance?" When one thinks of all the things

that some people consider should be included in the curriculum, unwillingness to join the dance may well be excused in the prospective medical student.

"'Will you walk a little faster?' said a whiting to the snail; 'there's a porpoise close behind me and he's treading on my tail.'" If the consultant, stated to be so sadly behind the times, represents the snail and the general practitioner the sorely harassed whiting, then I would suggest that the porpoise is the unqualified practitioner, who, carrying out much-needed but neglected work, will continue to tread on the general practitioner's tail until the latter recognizes that there are large fields for him to enter that he at the present time never thinks of working in. "As we can't all be consultants, let us all be trained as general practitioners" seems to be the present attitude. I doubt whether thereby we shall attain what should be our object—the greatest good of the greatest number.

The present system produces overlapping and consequent jealousy. I would submit that a great deal of this overlapping is unnecessary, and that the training of the consultant should differ from that of the general practitioner. I have long felt that the latter should be well instructed in the common diseases, have such knowledge of the rarer diseases as is necessary to understand the principles of medicine as expounded by his teachers, and an extensive knowledge of such general matters as diet, climatology, balneology, and physico-therapeutics. He should know, further, something about the conditions in which various bodies of the population work, so as to be able to advise on employment suitable for the employee. A doctor so educated would not be one whit inferior to the consultant, only he would be developing another field of work. Such a man would be doing much more than the average general practitioner of the present day to carry out what Lord Dawson has stated is one of the duties of the doctor—to maintain the health of the community. "Will you, won't you, will you, won't you, will you join the dance?"—I am, etc.,

London, W.8, Oct. 12th. HAROLD H. SANGUINETTI.

Psychology in the Curriculum

SIR,—The closing sentence in Dr. Godwin Baynes's letter in to-day's issue of the *Journal* gives food for thought. No man, he says, is fitted to undertake the treatment of the sick by psychological means who has not himself submitted to deep analysis. And yet many masters of scientific, not haphazard, psychotherapy have treated the sick by these means, with a success probably as great as that which obtains now, long before analysis had been heard of. The great names of Du Bois, Janet, Prince, Sidis, Déjerine, and many others should have prevented Dr. Baynes from recording so sweeping an opinion.

Let us, however, consider the analysts, for when he talks of treating the sick by psychological means Dr. Baynes evidently recognizes no psychotherapy save the analytic. Who, then, analysed Freud, even superficially? The answer is that he analysed himself; possibly Dr. Baynes holds that that is why he fell into so many errors. But many have been analysed by Freud's technique, and we are told on the best authority that all who have been deeply analysed in this way agree that what Freud has said is true. Many of us have heard Dr. Baynes dissent from this view, but then his own deep analysis was carried out in a different school. Who analysed his master? I do not think that anyone did either—not at least for any length of time.

We have two great schools of analysis whose tenets are very different. The pupils of each agree among themselves that they have the true faith; and I have frequently heard them assert that the two systems cannot be mixed. Is it not possible, therefore, that what Dr. Baynes calls deep analysis is really thorough instruction in the doctrines of a particular cult, instruction, as it seems to some of us, which has as one of its results a diminution of the faculty of criticism so far as these doctrines are concerned in the minds of those who have gone through the course?

With regard to the question whether medical students can or cannot be taught psychotherapy by teachers, it may be granted that by lectures no one can be taught to be a psychotherapist, just as no one can be taught to be a surgeon by listening to lectures on surgery. If, however, a man wishes to learn to be a surgeon, a course of lectures on the subject will probably help him. One might even say that they are an essential part of the complicated processes by which his desire will be attained.—I am, etc.,

Penshurst, Kent, Oct. 14th. T. A. ROSS.

Thrombosis of Axillary Vein

SIR,—Mr. J. Cosbie Ross's article (*Journal*, September 16th, p. 525) prompts me to send you the following notes:

December 26th, 1931: Mrs. H., aged 40, woke up with a swelling of the right arm. Blue appearance, and cold. The swelling extended from fingers to axilla. No rise of temperature, no enlarged glands, no abrasions, no cuts, no history of knocks or injury or of undue exertion. Carved for nine people on Christmas Day and felt tired. *Nil* in urine. Arm kept warm and elevated. Patient kept in bed. No superficial veins seen. December 27th: Blue colour disappearing, swelling not quite so tense. December 29th: Superficial veins showing on chest under clavicle. Some pain present, especially upper arm, inner and posterior surfaces. Chest *x*-rayed, normal picture. December 31st: Discoloration appeared round anterior fold of axilla. January 2nd, 1932: Swelling subsiding. Colour normal. Pain in upper arm. January 5th: Single vesicle appeared on right upper arm. Patient had been vaccinated, and revaccinated six years before. January 6th: Several more vesicles on right breast, right arm, and left thigh. Several spots scattered over body. Backache. Temperature 100°. January 7th: Further crop of vesicles, all over body; several looked purulent. Temperature 102°. January 8th: temperature 101°. Profuse crop of vesicles and spots on face, trunk, and limbs. Afterwards temperature dropped to normal. Attack so severe that I called in my partner and the medical officer of health, who agreed that it was a very severe attack of varicella. Normal convalescence.

Up to the present there has been no recurrence of the swelling. Complete function of the arm took several *months to return*.—I am, etc.,

London, N.W.2, Oct. 1st. JAMES FETTES.

Post-operative Heat Loss

Compensation by High-frequency Power

SIR,—For many years past we have been working on the subject of producing high-frequency electric power, which we have adapted to industrial applications. Some time ago our attention was directed to the possible medical applications of apparatus of this type, since we have watched with interest the literature on such medical applications. Apart from nervous and muscular reactions to electricity, with which high-frequency electricity of this type appears to have little or no connexion, we have been interested in the various claims put forward that electrical effects, as such, are observable. We have been unable to find any experimental evidence to support this view, which is contrary to what we should expect from

the work we have already done in connexion with many materials, which work inclines us strongly to the view that any clinical result obtained with high frequency power is due to thermal effects alone—a view we believe to be one which is widely shared by the medical profession in this country.

We are aware of the work which has been done in the production of artificial fevers and of the local treatment which is now beginning to be widely used, particularly since the introduction of valve generators for high frequency power, in which we are naturally chiefly interested. More latterly our attention has been drawn to the possibility of using valve generated high frequency power on wavelengths of the order of about 5 metres to give immediate post-operation electrodeless treatment, with a view to minimizing the possibility of complications arising due to the thermal losses which the patient must of necessity have suffered.

It is clear that during a major operation of any time duration the patient must suffer considerable thermal loss which loss is in the normal way replenished by the patient's natural reaction and the automatic attempts on the part of the body to re-attain normal temperature. It has been suggested that by the means I have mentioned above this thermal loss could be countered by placing the patient in an ultra high frequency field immediately after the operation in order to bring the body up to normal temperature without effort on the part of the patient.

As we have naturally no experience in this matter we should be pleased to have the views of your readers on this suggestion.—I am, etc.,

A. P. M. Fleming,
Director and Manager of Research and Education Departments, Metropolitan Vickers Electrical Co. Ltd.

Trafford Park, Manchester.
October 9th.

Insurance for the Middle Classes

Sir,—I am gratified that my letter, published in your issue of September 16th, has aroused so much interest. The great majority of those who were kind enough to write expressed approval of the outlines of the scheme, and made valuable suggestions as to its working details.

In reply to Dr. Keenan's letter of September 30th (p. 625), I agree that any plan is predestined to fail unless the full approval and co-operation of the medical profession have been obtained. I disagree with Dr. Keenan's conclusions that the remedy for the present unsatisfactory state of private practice lies in excluding expert business men, and I deem close co-operation with them to be absolutely essential. The fact that serious encroachment upon private practice is so prevalent surely indicates our lack of business acumen, and it will take more than a few enlightened and experienced practitioners to stem the tide.

The London Public Medical Service is an outstanding example of a scheme initiated and controlled solely by medical men. This excellent scheme crippled at the outset by lack of capital, high administrative costs, restriction of publicity, and by the inherent diffidence of practitioners to acting as "salesmen," cannot be extended unless further capital is obtained. In my opinion its administrators have done well, in the face of such obstacles to secure 17,000 members in seven years. The Hospital Saving Association, conceived and administered by business and publicity experts, has, I understand, nearly two million members. A comparison between the rates and benefits of the London Public Medical Service and the insurers whom I advise is at least suggestive. A man under the former scheme pays 4d. a week and receives ordinary medical attention; under the latter, by paying 8d. a week, he can receive the cost of general medical attention up to £25 (the patient pays the first 30s.) in any one year, consultant fees up to 10 guineas, x rays, etc., up to 6 guineas, operation fees up to 25 guineas, anaesthetist's fee 2 guineas, nursing home and hospital charges after operation, 4 guineas a week up to six weeks, and surgical appliances up to 10 guineas.

I am convinced that Dr. Keenan and his associates will court disaster if they attempt to provide a medical service except by way of insurance administered by experts. There is no reason why medical practitioners should not form their own insurance company, always providing that underwriting and publicity can be arranged. In my original letter I placed the general practitioner as the pivot, or key man, who would have at his command, on the one hand consultant and additional services and on the other expert financial advisers and business administrators, and I feel that this conception must be kept well to the fore to ensure success. I think that the Duke of Atholl has a unique opportunity to benefit for all time his middle class subscribers by earmarking a sum of money to provide the basis of an adequate medical service for them.—I am, etc.,

London, N.5, Oct. 1st. D. D. Rosewarne.

Pregnancy in Childhood

Sir,—With reference to Dr. Keane's memorandum (September 23rd, p. 567) about a case of childbirth, the mother being 7 years old, I saw one case of the same kind in Kashmir. The child, a Mohammedan, was brought from a distance, and her age was stated as 8. Judging from her tiny hands and feet, her childish piping voice, and from her teeth, she could not have been more. The result was not so fortunate, for both she and her baby died. On questioning the mother she said she was very poor and left a widow with a number of children and could not help it as she had an offer of marriage for her. This was true as in the circumstances girl children would not be safe unmarried and without a father. The husband did not appear. One now understands why girl children in Kashmir are put in purdah (seclusion) at 8 years old. I mentioned this in *The Purdah System and its Effect on Motherhood*. The want of light during growth is a direct cause of pelvic deformity from which the purdah women *all* suffer to a greater or less degree.—I am, etc.

Beauville, Calvados, Oct. 8th. Kathleen Vaughan.

History of Anaesthetics

Sir,—In the paper on anaesthetics, read at the Annual Meeting in Dublin by Mr. F. J. Morrin, and printed in your issue of October 7th, there occurs the extraordinary error of ascribing the first use of chloroform in an operation to "Sir John Simpson." This would pass as a careless lapse of memory were it not for the remainder of the paragraph. I hold no brief for chloroform, but anyone conversant with the history of it in Edinburgh at least, and in most of Scotland, in the last half of the nineteenth century, to come no nearer to the present day, will regard Mr. Morrin's lurid and untrue description of the manner of using it, and the results, as totally uninformed and historically false.—I am, etc.,

R. O. Adamson.

Glasgow, W.2, Oct. 14th.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

In his valedictory address to the Senate the outgoing Vice-Chancellor, Mr. Will Spens, Master of Corpus Christi College, referred to the death of Sir Walter Morley Fletcher. "Much as he did, while he was here, for the University and for his College, both the country and the University owe him a still greater debt for his work as the first secretary of the Medical Research Council." Referring to Sir Walter Fletcher's successor, Mr. Spens said: "Dr. Mellanby, for whom the Sheild Professorship of Pharmacology was created, is now unable to occupy this chair because of his appointment as secretary of the Medical Research Council. In expressing our regret that he will not return to Cambridge, I convey also our good wishes to him in a position of the importance of which the University has much reason to be aware." Congratulations were also offered to Dr. Joseph Needham on his appointment as Sir William Dunn reader in biochemistry, in succession to Professor J. B. S. Haldane, and to Dr. F. R. Winton on his appointment as reader in physiology. At the conclusion of the address Mr. J. F. Cameron, Master of Gonville and Caius College, was admitted to the office of Vice-Chancellor for the year 1933–4

UNIVERSITY OF LONDON

At its meeting on October 11th, with Lord Macmillan in the chair, the University Court learnt with gratification of grants made by eight more of the City Companies towards the Ceremonial Hall to be built on the University's new site in Bloomsbury.

UNIVERSITY OF MANCHESTER

Dr. D. L. Griffiths has been appointed demonstrator in human physiology.

UNIVERSITY OF SHEFFIELD

The University Council has appointed Dr. J. B. Leathes, F.R.S. (late professor of physiology), as emeritus professor, and Mr. E. J. G. Bradford, M.Sc., as lecturer in normal psychology in the faculty of medicine.

UNIVERSITY OF GLASGOW

The following candidates have been approved at the examination indicated:

Final M.B., Ch.B.—A. Allan, Margaret H. G. Anderson, T. G. Anderson, J. N. Balaskas, H. Baytch, Moira S. Beaton, J. A. Bentham, Agnes W. Black, N. B. Bluestone, W. L. Broadfoot, A. F. Brown, J. T. Brown, W. T. Buckle, J. Campbell, Christina A. Crawford, F. E Crawley, J. A. Crocket, W. M. Cross, J. C. Dick, Edith M. Dickson, J. B. Donald, Barbara T. M. Douglas, I. A. El Korashy, E. J. Emery, D. Fairley, J. Finegan, May E. M. Fleming, N. Frank, J. D. Fraser, T. N. Fraser, Jane D. French, H. A. Gibb, J. Gilchrist, Agnes R. S. Glover, W. I. Gordon, J. M. Henderson, H. L. Henriques, J. C. Hogarth, J. S. Hogg, R. J. G. Hogg, J. Hutchison, D. F. Irvine, J. A. D. Johnston, J. S. Judge, J. A. Kilpatrick, W. Lamont, S. Lazarus, D. K. Lennox, E. P. Lynas, J. P. M'K. M'Carey, D. A. McCracken, J. B. Macdonald, F. C. M'Elwee, J. M. M'Ewan, W. M'Farlane, O. Macfeat, D. L. Mackenzie, A. M'Laren, H. M'L. McLaren, Margaret B. Maclean, R. M'Millan, Mary M. Macphail, J. Marshall, W. E. Masbie, A. L. R. Mayer, A. G. Miller, T. C. M'D. Morrison, A. J. Muir, W. R. Muirhead, H. S. Murray, J. M. Naftalin, A. Osofsky, J. P. J. Paton, W. W. Pollok, W. Reid, Mary M'L. Richmond, A. P. Robertson, J. Ryder, A. L. Schofield, T. Scott, J. Shafar, J. Sluglett, R. A. Strang, W. C. Templeton, J. G. Thomson, G. B. Wallace, G. L. Webster, Catherine H. Wright, J. B. Young, A. C. Stevenson.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Lectures

The Bradshaw Lecture will be delivered by Dr. C. S. Myers on Thursday, November 2nd, at 5 p.m. His subject will be "A Psychological Regard for Medical Education." Sir Humphry Rolleston will deliver the FitzPatrick Lectures on "The History of the Endocrine Organs" on Tuesday and Thursday, November 7th and 9th, at 5 p.m. On Tuesday, November 14th, at 5 p.m., Dr. William G. Savage will deliver the Mitchell Lecture on "Human Tuberculosis of Bovine Origin."

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A quarterly council meeting was held on October 12th, when the president, Sir Holburt Waring, was in the chair.

Dr. F. G. Banting, professor of medical research, University of Toronto, was admitted an Honorary Fellow.

Mr. Frank Philip Powell, late of Monmouth School, was admitted the fourth Macloghlin Scholar.

The Council adopted the annual report to Fellows and Members, which will be presented at the annual meeting on Thursday, November 16th, at 3 p.m.

Museum Demonstrations

The autumn course of museum demonstrations in the theatre of the College will commence on Friday, October 27th, when Mr. Cecil P. G. Wakeley will explain specimens illustrating gunshot injuries of the long bones. On October 30th he will discuss specimens of long bones showing the processes of infection and repair, and on November 3rd specimens illustrating gunshot wounds of the skull and brain. Mr. R. Davies-Colley will discuss specimens illustrating diseases of the breast on November 6th, and on November 10th he will show specimens illustrating fibrocystic disease and innocent tumours of bone, and on November 13th he will demonstrate specimens illustrating diseases of muscles.

Medico-Legal

DUSTMAN'S DEATH: WIDOW'S CLAIM FOR DAMAGES

In the King's Bench Division, before Mr. Justice Horridge and a special jury on October 3rd and 4th, an unusual case was heard when Mrs. Ada Edith Pattenden of Keston, Kent, sued Dr. Charles Beney for damages in respect of the death of her husband, a dust collector, aged 53, alleged to have been caused by the exploding of a gas cylinder.

Mr. J. D. Cassels, K.C., for the widow, said that on August 23rd, 1932, her husband and another man were dust collecting in Keston. They called at Dr. Beney's house in Westerham Road, and, in addition to the refuse, took away some metal cylinders with caps, which were put in a pail in the trailer. While Pattenden's mate was at another house he heard an explosion "like a gun going off," and, returning to the dust van, saw Pattenden sitting on the back of the trailer holding his stomach and apparently in great pain. Near him was a cylinder without a cap. Pattenden was taken to hospital, where he died next day.

Albert Woolf, a dustman, said that Dr. Beney's wife asked him to take away the cylinders; and, when cross-examined by Mr. Henry Dickens, he agreed that it was contrary to instructions of the contractor employing them to remove such things. "We did it to oblige the lady," he added. Mr. Croom-Johnson, K.C., opening the defence, said the cylinders were old ones, and when Dr. Beney opened the valve of one of them some time ago he could obtain no gas from it. Dr. Beney said he was under the impression that the cylinders were more or less empty when they were put into the loft of his house at Keston. Subsequently they were placed in his child's play-room. The defence denied negligence and any knowledge that the cylinder contained any gas so as to be dangerous.

Expert evidence for the defence had been given by Mr. J H. Mann, an engineer, who said the cylinders had contained carbon dioxide. The valves were screwed on so tightly with a special spanner that, without the use of the spanner, a very heavy blow would be required to remove them. The gas itself was not dangerous.

After an absence of over an hour the jury found there was insufficient evidence to prove that Pattenden met his death as the result of an explosion of the cylinder, but they expressed the opinion that the handling of the cylinder in some way or other was the cause of death. The jury also found that Pattenden was not guilty of *contributory* negligence, and awarded the widow and her three children £600 damages.

Mr. Justice Horridge postponed entering judgement until he had heard legal arguments on the jury's findings. These were submitted on October 6th, when Mr. Cassels, on behalf of the widow, applied to amend the pleadings by deleting the word "explosion."

Mr. Justice Horridge: The case has been conducted on one footing, and I am not going to allow you to have an amendment to try to meet the jury's rider. Giving judgement for Dr. Beney, with costs, he said it was clear that plaintiff's case was that the cylinder was dangerous, and the exploding of it caused the man's death. The jury's finding on that issue was clear, and their rider did not involve defendant in any liability at all. His lordship also held that there was no danger in handing over the cylinder to the dustmen. The evidence, he said, was that there could not have been very much gas in it; in fact, it might have been empty.

Obituary

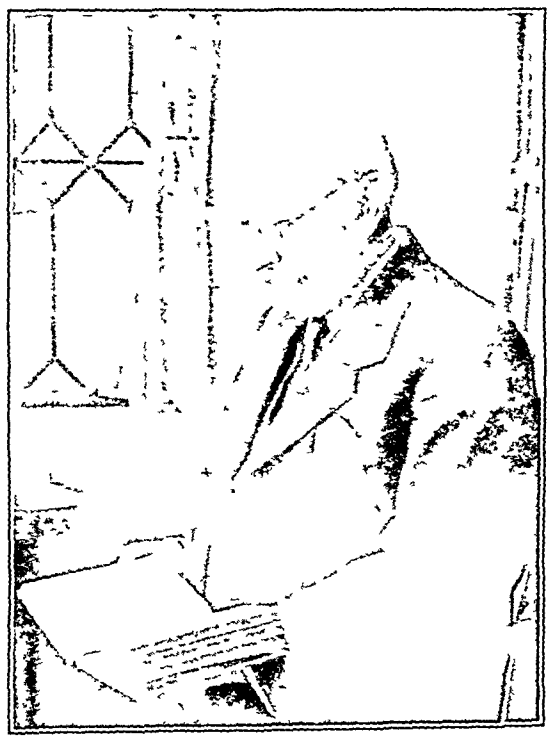
SIR ARTHUR MAYO ROBSON, K B E , C B

D Sc , F R C S

Emeritus Professor of Surgery University of Leeds

The death of Sir Arthur Mayo Robson in a London nursing home on October 12th, at the age of 80, removes a pioneer in the field of abdominal surgery who was for many years closely associated with the Leeds School of Medicine, and did much to enhance its fame

Arthur William Mayo Robson was born on April 17th, 1853, at Filey, Yorkshire, and was educated first at Wesley College, Sheffield He began his medical studies at Leeds at the age of 17 and obtained the diploma of M R C S in 1874 and the L R C P in the following year Soon afterwards he became demonstrator of anatomy in the Leeds School of Medicine and was for ten years lecturer in that subject He was admitted a Fellow of the Royal College of Surgeons of England in December, 1879 Election to the visiting surgical staff of the General Infirmary at Leeds followed in 1884 After two years as lecturer in pathology and two more as lecturer in operative surgery, he was appointed to the chair of surgery in the Yorkshire College, and the emeritus professorship bestowed on him in 1899 continued when the University of Leeds was set up by Royal Charter in 1904 In 1902, when he left Leeds for London, and resigned from the active staff of the General Infirmary, the governors elected him a consulting surgeon By that time his name was known far beyond Yorkshire, and indeed beyond England, as that of a singularly gifted surgeon, resourceful, ingenious, and dexterous to an astonishing degree



Mayo Robson served on the Council of the Royal College of Surgeons from 1893 to 1909, he twice held office as vice president, was Hunterian professor on three occasions, and delivered the Bradshaw Lecture in 1905 He was for many years a member of the British Medical Association, and acted as secretary of the Section of Anatomy and Physiology at the Annual Meeting in 1883, and of the Section of Surgery in 1889 becoming vice president of the latter Section in 1895 At the Swansea Meeting in 1903 he gave the Address in Surgery, taking as his subject "Observations on the Evolution of Abdominal Surgery from Personal Reminiscences Extending over a Third of a Century and the Performance of 2,000 Operations In 1896 he was president of the British Gynaecological Society (now merged in the Royal Society of Medicine) and of the Leeds and West Riding Medico Chirurgical Society

During the early part of the war Mayo Robson went out to France with a field ambulance, but was soon detached at the request of the French authorities in order to organize a hospital on English lines Later he served in Egypt and Gallipoli as consulting surgeon to the Mediterranean Expeditionary Force, with the temporary rank of colonel A M S On returning to England in 1917 he was appointed consultant to the Southern Command, and in 1918 inspector of military orthopaedic hospitals He also acted for some time as a member of the Medical Consultative Council at the War Office Many of his opinions and experiences of military surgery appeared in these columns In 1911 he was created C V O , and in 1916 C B (Military), he received the honour of knighthood in 1918 and the K B E in 1919

In 1925, on the fifty fifth anniversary of his entering as a student, he delivered the inaugural address for the new session at the Leeds Medical School, and last year he attended a special meeting of the board of the Leeds General Infirmary at which his portrait, the gift of his three daughters, was formally presented to that institution

His chief recreations were travel, fishing, and big game shooting Twenty five years ago he explored Vancouver Island and lived for a time with Red Indians in the Rocky Mountains Early in 1914, when hunting buffalo in East Africa he was accidentally shot in both thighs by his carrier, and had to be carried through the bush to Nairobi After his retirement from practice he went to live at Seale, in Surrey

The photograph reproduced is by Lafayette Ltd

Appreciation by Lord Moynihan

We are indebted to Lord Moynihan for the following tribute

Mayo Robson's career was from the outset one of great promise At the Leeds School of Medicine he was a consistent winner of prizes In almost every subject he was at the head of the list of students winning medals and certificates as though by consecrated right and with an ease that was all the more surprising when it was realized that much of his spare time was engaged in his work as assistant to a general practitioner in Leeds When the Board of the Infirmary decided to appoint two assistant surgeons to relieve the surgeons of some of their increasing duties, McGill and Mayo Robson were elected I should doubt whether any hospital has ever appointed, on the same day two men who could be considered their equal McGill was my first chief at the Leeds General Infirmary, and it is impossible to exaggerate my good fortune in falling into such hands for the moulding of my career McGill was perhaps the greatest genius in surgery I have ever known, and my debt to him is beyond all calculation

Mayo-Robson had nothing but a brilliant, indeed unequalled, academic career to commend him He had never been a hospital resident, and had therefore never learnt those invaluable lessons which come to one who has the chance

> to watch the Master work and catch
> Hints of the proper craft, tricks of the tool's true play

But to his aid came great gifts He was a skilful fisherman, he had hands magical in their suppleness,

to organize this hospital, to which he soon gave up the whole of his time, ceasing to practise except as a consultant. In 1916, as a memorial to Mrs. Hedley, the hospital was completely reconstructed, remodelled, and equipped as an orthopaedic hospital for British officers, and attached as an auxiliary unit to the Second Western General Hospital (Manchester). In 1919 the need for such accommodation came to an end, and for a time the Ethel Hedley Hospital seemed likely to disappear. Sir Robert Jones was then engaged in launching the national scheme for the better treatment of the crippled child. The Ethel Hedley Hospital was obviously an ideal centre for an orthopaedic scheme covering the Lakeland counties. Once more Mr. Hedley gave carte-blanche for the necessary reconstruction, and in 1920 the Ethel Hedley Hospital for Crippled Children was opened as an active surgical centre and recognized by the Board of Education as a special hospital school. At first the in-patient accommodation consisted of twenty beds, but in 1924 this was increased to fifty beds, necessitating the building of a new wing containing plaster rooms, gymnasium, treatment rooms, and quarters for the nursing staff. In 1921 an after-care organization was established on the Shropshire model, to serve the counties of Cumberland, Westmorland, and Lancashire (north of the Sands). From 1920 to within a few weeks before his death Mr. Hough worked untiringly in the administration of the hospital and for the welfare of cripples. In April of this year the diploma of F.R.C.S.Eng. was conferred upon him, a welcome recognition of his work for orthopaedic surgery and for the crippled child.

The passing of Charles Henry Hough will be mourned far and wide. It is of such men in our profession that Robert Louis Stevenson wrote when he described the physician as the flower of our civilization. The deep and abiding faith which ordered all his actions was there for everyone to see. In the last few years, as his body became more frail, the spirit of serenity shone forth with undying vigour. To see him sitting amidst a blaze of colour, high up in his rock garden, gazing across the lake to the distant mountain peaks, was a moving scene. For in truth he lived his days in the spirit of the words of the Psalmist; "I will lift up mine eyes unto the hills; from whence cometh my help." He was buried in Brathay Churchyard on St. Luke's Day.

H. P.

We regret to announce the death, whilst on holiday, of Dr. Robert Robertson Young of Leicester, at the age of 76. Dr. Young received his medical education at Glasgow University, where he graduated M.B., C.M. in 1885, and proceeded M.D. in 1896. He was a member of the Leicester Medical Society and had been surgeon to the Leicester Provident Dispensary. He was a member of the British Medical Association for forty-four years, and acted as representative of the Leicester and Rutland constituency at the Annual Representative Meetings of the Association held at Brighton (1913), Aberdeen (1914), and London (1915 and 1918). He was a captain in the Royal Army Medical Corps, Territorial Army.

Dr. Alfred James Barnes of Savernake Road, Hampstead, who died on October 3rd, qualified as L.A.H.Dub. in 1900, after completing his studies at the Catholic University School of Medicine, Dublin, the Adelaide Hospital of that city, and the Royal Infirmary, Edinburgh. Five years previously he had passed his pharmaceutical examinations, and until 1928 he practised in Dublin. In March of that year he settled in London, and became a member of the Hampstead Division of the British Medical Association. Dr. Barnes was for some years an examiner for the Pharmaceutical Society of Ireland, and had held office as its president.

Medical News

Dr. Wilfred Harris will deliver the Savill Oration on "The Traumatic Factor in Organic Nervous Disease" at the Royal Society of Medicine, 1, Wimpole Street, W., on Wednesday, October 25th, at 8.30 p.m., when Dr. W. Aldren Turner will occupy the chair. Members of the profession are invited to attend.

Mr. Cecil A. Joll will deliver the Long Fox Memorial Lecture on "Recent Advances in the Aetiology, Diagnosis, and Treatment of Cancer," in the Physiological Lecture Theatre of Bristol University on Tuesday, November 7th, at 5.30 p.m., when the Vice-Chancellor will preside.

A public lecture under the Chadwick Trust on "Sanitary Arrangements in Mediaeval Monasteries" will be given by Dr. Percy Flemming in the Hall of the Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, W., on Thursday, November 2nd, at 5.30 p.m.

On Friday, October 27th, at 8.45 p.m., at the Princess Elizabeth of York Children's Hospital, Shadwell, E., Mr. Warren Dawson, honorary librarian to the Corporation of Lloyd's, will give a lantern lecture on "The Bells of St. Clement's: Customs of Old London." *Chairman*: Sir Humphry Rolleston, Bt. Visitors welcome.

The Glasgow University Club, London, will dine at the Trocadero Restaurant, Piccadilly, on Friday, November 10th, at 7.30 p.m., with Sir Robert Bruce in the chair. Any Glasgow University men who, though not members of the club, desire to attend, should communicate with the honorary secretaries, 62, Harley House, N.W.1.

A meeting of the Medico-Legal Society will be held at 11, Chandos Street, W., on Thursday, October 26th, at 8.30 p.m., when Sir Bernard H. Spilsbury will deliver his presidential address, entitled "Some Medico-Legal Aspects of Shock." Members may introduce guests to the meeting on production of the member's card.

At the next meeting of the London Association of the Medical Women's Federation, to be held at B.M.A. House, Tavistock Square, in the Members' Lounge on Tuesday, October 24th, at 8.30 p.m., Professor D. P. D. Wilkie of Edinburgh University will speak on the surgery of the colon. The paper will be illustrated by lantern slides. This meeting is open to all medical men and women. Tea and coffee at 8 o'clock.

The annual general meeting of the Guild of St. Luke, St. Cosmas, and St. Damian will be held in the Cathedral Hall, Archbishop's House, Westminster, by permission of the Cardinal, on Sunday, October 22nd, immediately after the High Mass at Westminster Cathedral, which will be celebrated at 10.30 a.m. Front seats will be reserved on the Epistle side.

At a sessional meeting of the Royal Sanitary Institute, in the Town Hall, Cheltenham, on Friday, October 27th, a paper on "The Water Supply of Cheltenham" will be contributed by Mr. J. S. Pickering, with a note on chlorination by Dr. Donald Morley. This will be followed by a discussion on "Reconditioning," to be opened by Dr. Wyndham Parker.

On Wednesday, October 25th, the Minister of Health will open the premises at 57, Lower Belgrave Street, S.W., which have been secured for the joint headquarters of the National Birthday Trust Fund (for extension of maternity services), the Queen's Institute of District Nursing, and the Midwives Institute.

The Llandough Hospital, Penarth, will be formally opened by Alderman John Donovan (chairman of the Cardiff Health Committee) on Wednesday, October 25th, at 3 p.m.

A post-graduate course in obstetrics and gynaecology, for women practitioners, will be held jointly at the Elsie Inglis Memorial Maternity Hospital and the Edinburgh Hospital for Women, Whitehouse Loan, from November 13th to 24th inclusive. Board and residence can be obtained at the Elsie Inglis Maternity Hospital, and all inquiries should be addressed to Miss Margaret Martin, M.B., F.R.C.P.Ed., at the Edinburgh Hospital for Women.

The Fellowship of Medicine, 1, Wimpole Street, W., has arranged a course in gynaecology at the Chelsea Hospital for Women from October 23rd to November 4th. A course in diseases of the nervous system, especially suitable for the general practitioner, will be held at the West End Hospital for Nervous Diseases from October 30th to November 4th. A course in urology, for advanced postgraduates, will be given at St. Peter's Hospital from November 6th to 18th. Another week-end course in diseases of the chest has been arranged at the Brompton Hospital, occupying the whole of October 28th and 29th. A week-end course in gynaecology will be given at the Samaritan Hospital for Women on November 18th and 19th. Other forthcoming courses include ophthalmology at the Central London Ophthalmic Hospital, October 30th to November 18th; obstetrics at the City of London Maternity Hospital (week-end), November 4th and 5th; medicine, surgery, and gynaecology at the Royal Waterloo Hospital, November 6th to 25th; diseases of the chest at the City of London Hospital, Victoria Park, November 13th to 25th; venereal disease at the London Lock Hospital, November 13th to December 9th.

The Royal Institution of Great Britain, 21, Albemarle Street, W., has arranged a course of lectures on "The Nervous System," to be delivered by Professor G. Elliot Smith, F.R.S., on Tuesdays, October 24th, 31st, and November 7th and 14th, at 5.15 p.m.

At the next scientific meeting of the Zoological Society of London, on Tuesday, October 24th, at 5.30 p.m., Dr. S. Monckton Copeman, F.R.S., will exhibit cinematograph films showing the killing of cells (protozoa) by invisible ultra-violet light.

The three main subjects dealt with by the forty-second French Congress of Surgery, held from October 9th to 14th, were: the surgery of the parathyroids, the immediate treatment of fractures of the base of the skull, and the surgical treatment of severe haemorrhages due to gastric and duodenal ulcers.

The fiftieth anniversary of the discovery of the cholera bacillus by Robert Koch in 1883 is commemorated by Professor Bruno Lange in the issue of *Forschungen und Fortschritte* for October 18th.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

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QUERIES AND ANSWERS

Distended Parotid Duct

"FIFTY" (Cape Province) writes: I would be grateful for information regarding the cause and cure of retention of saliva in, and distension of, the parotid duct, which occurs in my own case when I concentrate on any particular work for half to three-quarters of an hour. The distension is easily dissipated by slight pressure with consequent flow of saliva into the mouth on that side. It is the right side which is affected. It first came on some time after the fitting of a new set of artificial teeth, in which the bite had been raised slightly. It does not occur at all at meals. Radiographic examination does not reveal the presence of any calculus. I am a moderate pipe smoker. I have not heard of any similar case, and, thinking it may be due to the raised bite, I have lately had the dentures altered.

Snake Venom

Dr. FRANK BODMAN (Bristol) writes in answer to "E. F." (October 7th, p. 670), who asked for references to treatment of inoperable tumours by snake venom: An English translation of Monallesser and Taguet's paper on the use of cobra venom in the treatment of tumours (published in the *Bulletin de l'Academie de Médecine*, March, 1933) will be found in the July number of the *British Homoeopathic Journal*.

Dr. H. FERGIE WOODS (London, W.1) writes: Work on the use of the snake venoms in malignant disease has been done recently in the Pasteur Institute in Paris.

Thumb-sucking

Dr. J. LEWIN PAYNE (London, W.1) writes in reply to "Interested" (*Journal*, October 7th, p. 670): I have found that the insertion of a small orthodontic appliance attached to the upper teeth is the most effective method of curing thumb-sucking and finger-sucking in children. The presence of such an appliance destroys the satisfaction which children seem to derive from this habit. At the same time, it may be used for the correction of the irregularities of the teeth which the habit has caused.

Treatment of Deafness

"J. H. D. W" replies to "M.B." (October 7th, p. 669) that he has written about promising results in the treatment of otosclerosis by *x* rays (*British Medical Journal*, October 8th, 1932, p. 665). Some early cases have been improved, and later ones arrested, when observed over long periods of time.

Aphthae

Dr. DAVID H. HALER (Infants Hospital, Vincent Square, S.W.) writes: In reference to "J. D.'s" query in the *Journal* of October 14th (p. 716) may I suggest the following points, and also raise the accompanying queries. What is the age and sex of the patient? Is there any obvious anaemia present? Is there any digestive or excretory upset? Is there any predilection of site for the aphthae? Usually these cases show a moderate degree of secondary anaemia, with leucopenia and relative lymphocytosis. Direct films from the aphthae show a very mixed infection, but spirochaetal organisms are invariably present therein in large numbers. There is often a very slightly positive blood Wassermann reaction. In addition to these points the teeth should receive attention. In mild cases arsenical pigments may be applied to the mouth—for example, a drachm each of liquor arsenicalis and vinum ipecacuanhae, and in severe cases 0.3 gram N.A.B. may be given intravenously. Any anaemia present should be treated on general lines, and thereafter the general oral hygiene should be attended to.

"G. H. W." writes: I was cured of this complaint by the touching of each ulcer with silver nitrate stick; one application was sufficient.

Hyperidrosis

Dr. D. M. MACDONALD (Alloa) writes: When a student at the Middlesex Hospital I was struck by the success in treating hyperidrosis limited to the axillary region with one or two applications of the constant current. Dr. Pringle, at that time in charge of the skin department, hardly ever employed anything else, and the results were uniformly satisfactory. These have been fully confirmed since by me in general practice. The use of either external or internal remedies is almost consistently futile.

"Pulex ubiquitus"

Dr. W. M. M. JACKSON (Folkestone) writes: With regard to the query which appeared a few weeks ago in your columns from a member who is worried by fleas, I suggest that he tries taking sulphur orally, either tablets or collosol. This being excreted by the skin is very effective in the prevention of flea bites. Another method which may be used, either alone or in conjunction with the above, is to wipe the body with a rag or small sponge moistened with refined paraffin.

Income Tax

Appointment: Absence from Home: Expenses

"J. H." is a school medical officer, and has been allowed a deduction of £30 per annum for income tax purposes as representing the cost of daily absences from home. The

after the termination of the third stage of labour, followed after ten hours by a tablet every three hours for three doses. This keeps the uterus in a state of tonic contraction for twenty-four hours after delivery. Ergotamine tartrate proved quite efficient in incomplete abortion. Only three of the twenty-five cases required curetting, which operation was performed with greater facility because the uterus had already been rendered hard and firm by the drug. The five cases of subinvolution also reacted well, the process of involution being arrested on the third day in two cases, and on the fifth in three. In ten cases of haemorrhage due to fibroids the drug stopped the profuse bleeding by increasing the uterine tonus. The same result was obtained in the five cases of climacteric bleeding. Ergotamine controlled effectively the active bleeding in gonorrhoeal adnexitis, and prevented menorrhagia at the subsequent catamenia.

287 The Aschheim-Zondek Reaction in Early Pregnancy

J. Snoeck (*Bruxelles-Médical*, July 9th, 1933, p. 1008), using the Brouha-Friedmann modification of the Aschheim-Zondek reaction (in which the virgin rabbit replaces the virgin mouse), has obtained positive results in two very early cases of pregnancy. In both women the reaction was positive on the first day of missed menstruation. If it is accepted that in the majority of women ovulation occurs between the fourteenth and sixteenth days following the onset of menstruation, and that fecundation is possible only between the eleventh and seventeenth days following its commencement, some interesting deductions may be drawn. Analysis of the evidence shows that in the first woman the urine reaction became positive seventeen days after coitus. In all probability fecundation occurred on the day after coitus, and, allowing ten days for the fertilized ovum to reach the uterus, implantation occurred six days before the next menstrual period was due. In the second woman the reaction became positive probably twelve days after coitus, and only one day after implantation of the fertilized ovum in the uterine mucosa had occurred. Discussing the evidence obtained from the examination of very young embryos, the author is of the opinion that the enormous production of anterior pituitary hormone occurs at the actual time of implantation, before the placental villi have started to develop. It is known that the corpus luteum undergoes retrogression unless fecundation and implantation occur. Since the fertilized ovum does not become implanted in the uterus till between the twenty-fourth and twenty-sixth days of the menstrual cycle, it follows that there are only two days in which the " periodic " corpus luteum can become transformed into the " gravid " corpus luteum. If implantation does not occur, then the role of the " periodic " corpus luteum is over, and menstruation commences. The author asks whether, in this transformation of the corpus luteum from the " periodic " to the " gravid " type, the anterior pituitary hormone does not play an important part.

Pathology

288 Quantitative Wassermann Reaction in Syphilis

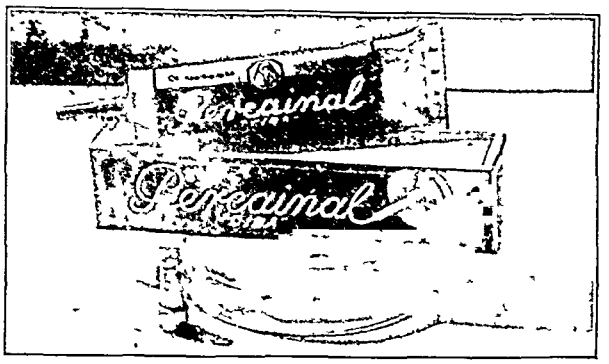
Joseph Love and Hildred M. Butler (*Med. Journ. of Australia*, June 17th, 1933, p. 727), feeling that an indication of the " degree of syphilization " in the course of treatment would show how the case was responding to treatment, use as a routine in the Wassermann test dilutions ranging from 1 in 5 to 1 in 160. A chart similar to a Vernes chart is prepared on which the Wassermann index is plotted against time, the date and amount of treatment given being also shown. A Wassermann test is carried out at monthly intervals and the effect of the treatment on the reaction is thus graphically represented. Copies of ten typical charts are given, showing the progress of the Wassermann reaction when treatment is instituted at the various stages of the disease. One of these charts is that of a case of parasyphilis, and demonstrates a steady decline in the blood Wassermann strength from 1 in 160 to 1 in 30 over a period of twelve months' treatment. The effect on the Wassermann reaction of the cerebro-spinal fluid is not shown. The treatment given at the clinic where these patients were treated does not consist of the concurrent administration of neoarsphenamine and bismuth. This possibly accounts for the fact that a sero-negative primary case in June, 1931, treated with neoarsphenamine and mercury from June until November, was shown to be Wassermann-positive (1 in 60) at the end of December in the same year.

289 Blood Cultures in Prognosis of Pneumonia and Septicaemia

E. Schiödt (*Acta Med. Scand.*, 1933, Fasc. I-II, p. 1) discusses the results of bacteriological examinations in cases of pneumonia and septicaemia treated in the Blegdams Hospital in the period January 1st, 1929, to October 1st, 1930. Blood cultures were taken in eighty-seven cases, growth resulting in 15 per cent. In seventy-four patients without growth in blood cultures, or with growth or staphylococci only (7), the mortality was 26 per cent. The presence of bacteria in the blood was demonstrated in thirteen cases of pneumonia; seven patients died (54 per cent.). Eight of these pneumonia patients yielded growths of streptococci, and five of these died. In the remaining five cases, with growths of pneumococci, two patients died. Growth of bacteria in cultures of the pleural exudate was obtained in thirty-five cases, streptococci in fifteen (ten patients died), pneumococci in nineteen (six died), and paratyphoid bacilli from one patient who died. Blood cultures were also made in nineteen cases of septicaemia. Of seven patients with negative cultures, three died; of twelve with positive cultures, ten died. In this group streptococci were recovered from six patients, of whom five died. Pneumococci were found in one patient who died. Cultures were also made of the sputum in forty-seven cases of pneumonia, a series partly independent of that already considered. Streptococci were recovered from twenty-nine patients, of whom eight died. Growths of pneumococci were obtained from seventeen patients, of whom two died. The author concludes that his findings show that bacterial growth in cultures from the blood or pleural exudate indicates a very bad prognosis, the outlook being most grave when streptococci are recovered. The blood culture findings afforded an even more definite guidance for prognosis in septicaemia than in pneumonia.

290 The " Takata-Ara Reaction " in Liver Diseases

E. Skouge (*Klin. Woch.*, June 10th, 1933, p. 905) has employed this test in 318 selected hospital patients. Of forty cases of hepatic cirrhosis the reaction was positive in thirty-seven. Diagnosis was confirmed by necropsy in twenty-seven cases. Six patients suffering from very severe acute hepatitis showed a strongly positive reaction. A week after recovery the reactions became negative. The results of the Takata-Ara reaction and the estimation of the increase of blood globulin coincide completely. In hepatic cirrhosis a positive reaction is associated invariably with this globulin increase. Nevertheless the reaction failed in a large series of cases, unaccompanied by cirrhotic changes in the liver. In all cases of acute hepatic disease the " coagulation-band " (K.B.) was either of normal breadth or, frequently, it was narrowed. In all cases of chronic disease, and in a large number of cases of hepatic disease, it was widened. The general consensus of opinion appears to be that any positive " T-A-R " in the blood is the expression of a serious liver deficiency, which may result from acute or chronic diffuse parenchymatous changes. When this deficiency is compensated the " T-A-R " becomes negative subsequently. Any prolonged positive reaction indicates irreparable parenchymatous damage of cirrhotic type. For the surgeon this test is important, as it provides a new aspect of the question of surgical intervention.



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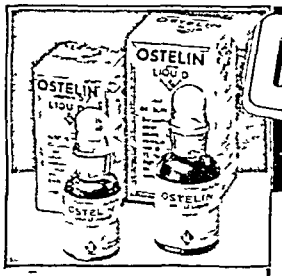
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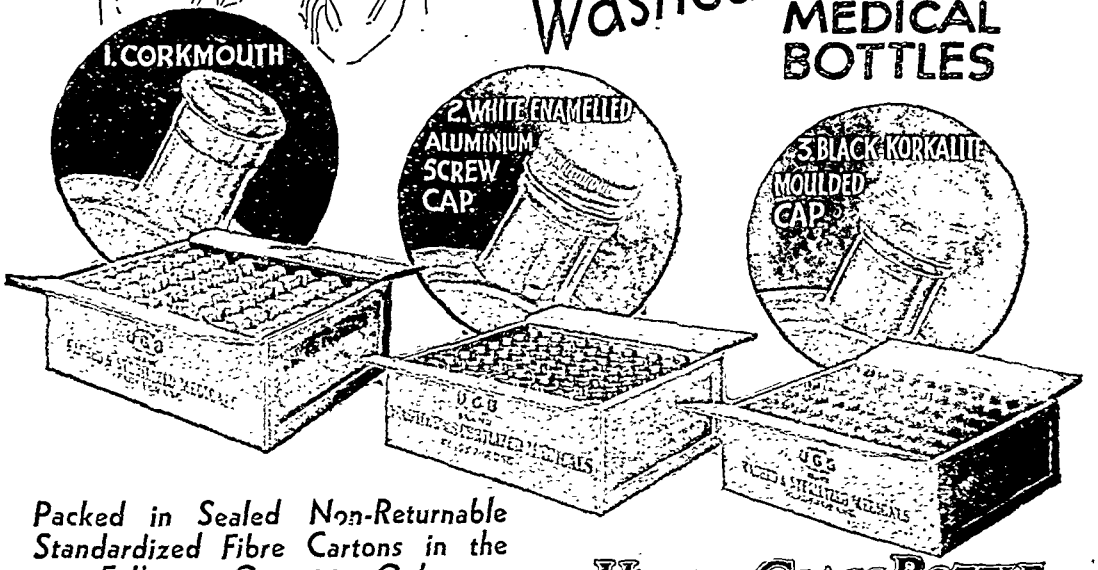
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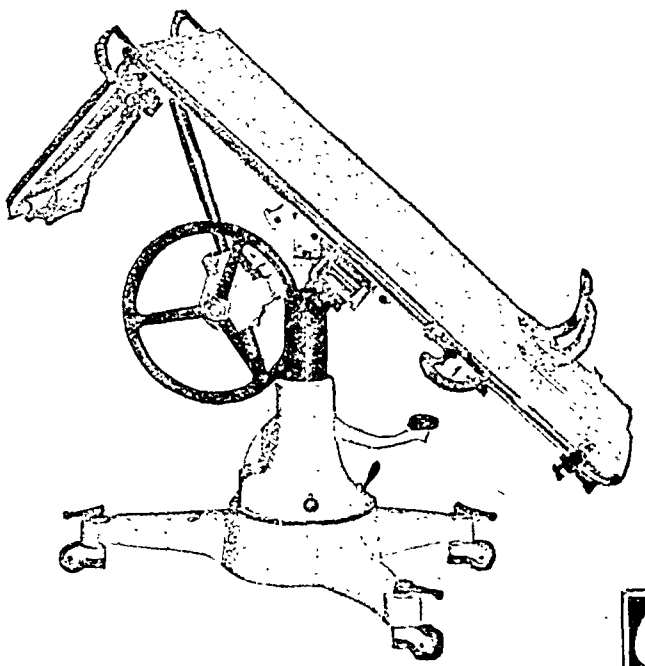
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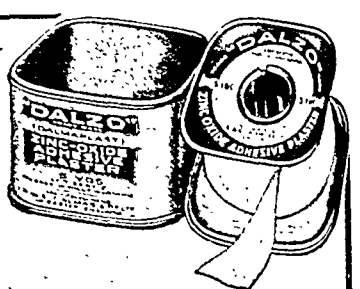


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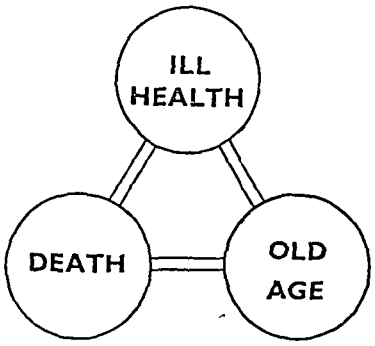
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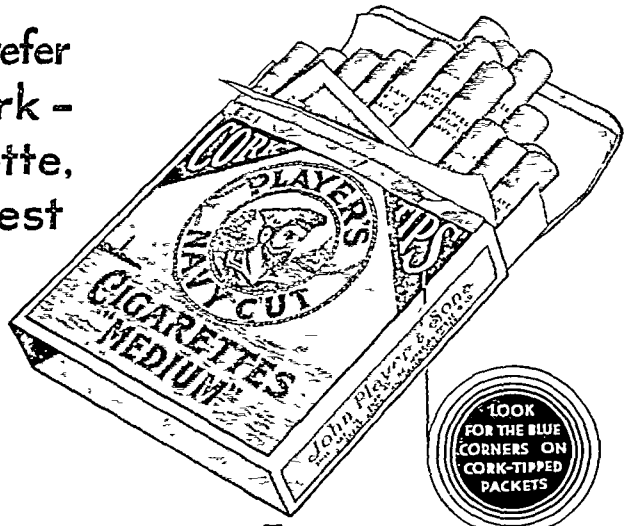
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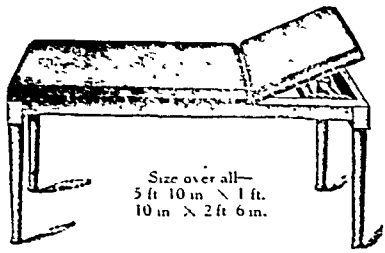
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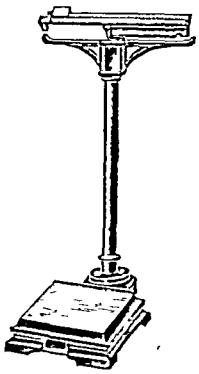
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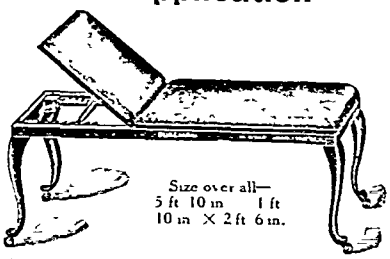


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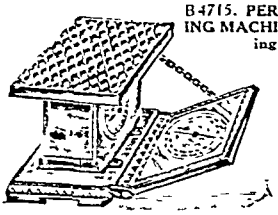


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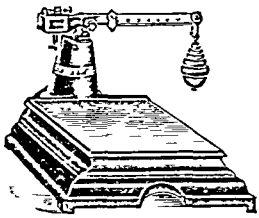
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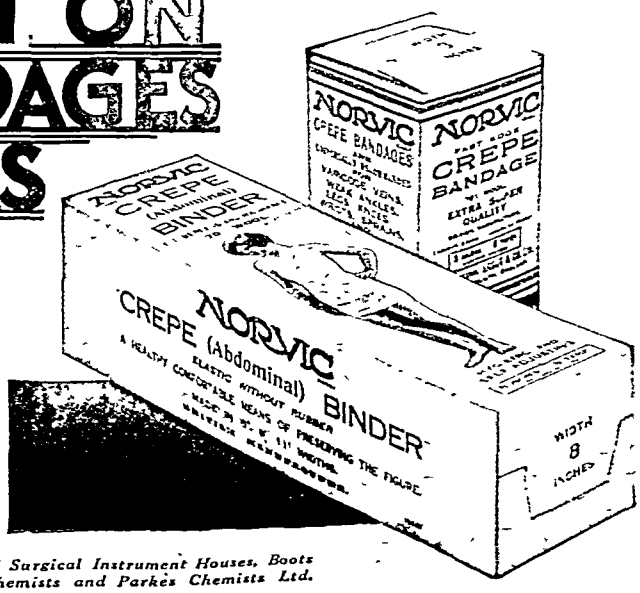
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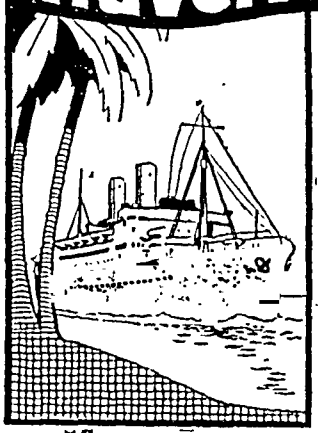
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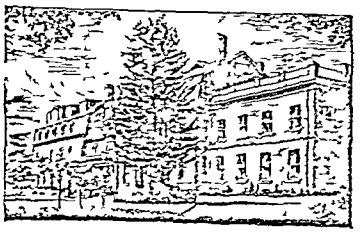
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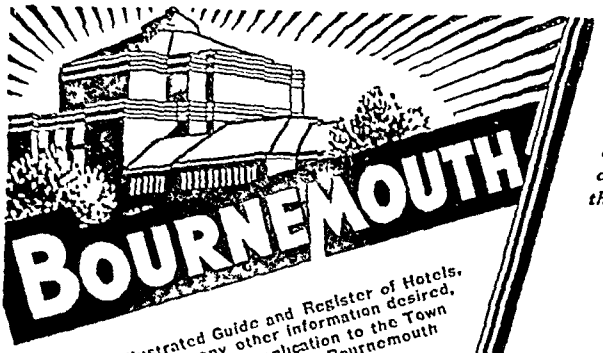
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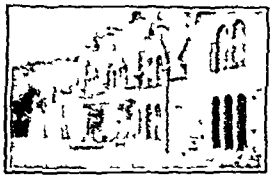
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.....
Examination in which interested {.....

UNIVERSITY OF LONDON.

The Senate invite applications for the Sir William Dunn CHAIR OF PATHOLOGY, tenable at Guy's Hospital Medical School. Salary the whole income of Dunn Trust at present about £1,400 a year. Applications (12 copies) must be received not later than first post on Friday, December 1st, 1933, by the Academic Registrar, University of London, S.W.7, from whom further particulars may be obtained.

THE UNIVERSITY OF SHEFFIELD.

FACULTY OF MEDICINE.

The Council of the University and the Board of Management of the Royal Hospital, Sheffield, acting conjointly, are about to make an appointment to the post of ASSISTANT PATHOLOGIST to the Hospital and DEMONSTRATOR OF PATHOLOGY in the University. The salary offered is £500 per annum. Applications, accompanied by the names of three referees, should be sent on or before November 2nd to the undersigned, from whom further details may be obtained.

W. M. GIBBONS, Registrar.

THE UNIVERSITY OF SHEFFIELD.

The University invites applications for the CHAIR OF PHARMACOLOGY, which has become vacant owing to the resignation of Professor E. Mellanby, F.R.S. The primary duty of the person appointed will be to carry out investigations in clinical and experimental medicine.

Applications should be sent to the undersigned (from whom further particulars may be obtained) not later than November 10th.

W. M. GIBBONS, Registrar.

THE ROWETT RESEARCH INSTITUTE.

Applications are invited for the post of PHYSIOLOGIST on the staff of the Rowett Research Institute, Aberdeen. The post is included within the Federated Superannuation Scheme for Universities, and the salary will be from £600—£800 per annum depending upon the qualifications and experience of the person appointed.

Applications, giving age, qualification, and experience, should be lodged on or before October 31st, with Mr. E. G. BRUCE, Secretary, Rowett Research Institute, Bucksburn, Aberdeen.

F.R.C.S. ENGLAND
F.R.C.S. EDINBURGH
F.R.C.S. IRELAND
M.S. LONDON M.C. CANTAB.
and all Higher Surgical Examinations

For particulars of short Intensive Postal and Oral Revision Courses apply SECRETARY, Medical Correspondence College, 19, Welbeck Street, W.1.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE

(UNIVERSITY OF LIVERPOOL.)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 2nd, 1933, and January 3rd, 1934, and for the Diploma in Tropical Hygiene on January 11th and April 26th, 1934. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars, apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1880. Cases, non-resident, treated at 39, Earl's Court Square, S.W.5, and in residence, in the Summer holidays, at Miss BEHNKE'S house on the Chilterns.

"Pre-eminent success in the education and treatment of [illegible] ts."—"Times."
[illegible] les."—"Lancet."
[illegible] ect and perfectly eff [illegible]"

STAMMERING, CLEFT PALATE SPEECH, LISPING, 3/9 of Miss BEHNKE, 39, Earl's Court Sq., S.W.5.

NORTH-EAST LONDON POST-GRADUATE COLLEGE.

PRINCE OF WALES'S GENERAL HOSPITAL, N.15.

The Practice of the Hospital is limited to Medical Practitioners. Particulars from J. BROWNING ALEXANDER, M.D., Dean.

F.R.C.S.(Edin.).

PREP. COURSE with daily Lecture-Demonstrations of Museum Specimens of Surg., Path., for next Exam., will commence shortly. POSTAL TUITION at any time.—Further partics., H. C. ORRIN, F.R.C.S., Surgeons' Hall, Edinburgh.

METROPOLITAN BOROUGH OF FINSBURY.

APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

Applications are invited for the post of Medical Officer of Health who as such will be required to act also as Chief Administrative Tuberculosis Officer of the Borough, and to devote the whole of his time to his official duties.

Candidates must not substantially exceed the age of 40 years, and must possess the qualifications prescribed by the Public Health (London) Act, 1891, and the Sanitary Officers Order, 1926. The appointment will be subject to the approval of the Minister of Health.

The salary (commencing about March 31st next) will be at the rate of £1,000 per annum, rising by annual increments of £50 to a maximum of £1,100, subject to deductions under the Council's Superannuation Scheme.

The successful candidate will be required to pass a medical examination as to a physical fitness.

Applications must be made upon the form to be obtained at this office and reach me not later than first post on Monday, November 6th.

Canvassing in any manner whatsoever will be held to disqualify candidates.

Finsbury Town Hall, D. E. RICHARDS,
Roseberry Avenue, E.C.1. Town Clerk.
October 11th, 1933.

COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE.

PUBLIC HEALTH LABORATORY.

ASSISTANT BACTERIOLOGIST.

The County Council of the West Riding of Yorkshire invite applications for the appointment of Assistant Bacteriologist.

Applicants must be registered Medical Practitioners with experience of Public Health, Bacteriology, and Clinical Pathology.

The salary will be £500 per annum, rising by annual increments of £25 to £700 per annum. This salary is subject to a temporary deduction.

Further particulars and form of application may be obtained from the undersigned, by whom all applications, with copies of not more than three recent testimonials, must be received not later than October 30th.

County Hall, J. CHARLES MCGRATH,
Wakefield. Clerk of the County Council.
October, 1933.

COUNTY BOROUGH OF CROYDON.

CROYDON MENTAL HOSPITAL, UPPER WARLINGHAM, SURREY.

APPOINTMENT OF THIRD ASSISTANT MEDICAL OFFICER.

Notice is hereby given that the Visiting Committee of the Croydon Mental Hospital are prepared to receive applications from Medical Men for the appointment of Third Assistant Medical Officer at the Croydon Mental Hospital.

The salary will be at the rate of £350 per annum, increasing by annual increments of £25 to a maximum of £450 per annum, and the age of the candidate should not exceed 35.

In the event of the Medical Practitioner appointed holding the D.P.M. an additional £50 per annum will be paid.

Furnished apartments will be provided, with board, laundry, and other attendance, which for the purpose of Superannuation will be valued at £150 per annum.

Candidates must be registered under the Medical Act, and preference will be given to those candidates who have held the post of house surgeon or house physician at a general hospital, and who possess previous mental hospital experience.

The appointment will be subject to the provisions of the Asylum Officers Superannuation Act, 1909.

Applications, to be made on forms to be obtained by sending a stamped addressed foolscap envelope to the undersigned, with copies (not originals) of not more than three testimonials of recent date, not later than 11 o'clock in the forenoon of Monday, October 30th, endorsed "Third Assistant Medical Officer, Croydon Mental Hospital."

Canvassing in any form is prohibited.

Town Hall, JOHN M. NEWNHAM,
Croydon. Clerk to the Visiting
October 12th, 1933. Committee.

COUNTY BOROUGH OF DARLINGTON.

RESIDENT ASSISTANT MEDICAL OFFICER. MATERNITY HOSPITAL.

Applications are invited from qualified and registered Medical Practitioners (unmarried, female) for the post of Resident Assistant Medical Officer for Maternity and Child Welfare. Applicants must have had not less than five years' post-graduate experience, including experience in general Medicine and Surgery, and particularly in Maternity and Child Welfare Clinics, in Ante-natal Work, and in Practical Midwifery and Vaccination.

Preference will be given to candidates possessing the Diploma in Public Health.

The salary offered is £350 per annum, rising by annual increments of £25 to £450 per annum, with board, residence, and laundry.

The person appointed will be required to act under the direction of the Medical Officer of Health, to pass a medical examination, to contribute to the Superannuation Fund, established under the Local Government and Other Officers Superannuation Act, 1922, and to retire on marriage. The appointment will be terminable by one month's notice on either side.

Application forms and particulars as to duties may be obtained from the Medical Officer of Health, Feethams, Darlington, to whom applications, endorsed "Resident Assistant Medical Officer, Maternity Hospital," together with copies of three recent testimonials, must be delivered not later than Tuesday, October 24th.

H. HOPKINS, Town Clerk.

CITY OF PORTSMOUTH.

ASSISTANT RESIDENT MEDICAL OFFICERS.

The Corporation invite applications for the [illegible] of Two Senior and Two Junior [illegible] cal Officers for Surgical appointments [illegible] belonging to the City Council that may be required. The Senior appointments will be limited to a term not exceeding two years. Salary for the first year £350 and for the second year £375.

The Junior appointments will be limited to a term of one year. Salary £250 per annum.

The residential emoluments are valued at £125 per annum and the appointments will be subject to termination on one month's notice on either side.

Candidates must be single gentlemen, and duly registered. Age not exceeding 30 years. Preference will be given to those having knowledge of, and experience in, surgical work and anaesthetics. A Resident Medical Superintendent is in attendance.

Applications, to be made on printed forms to be obtained from the Medical Officer of Health, The Guildhall, Portsmouth, accompanied by copies of not more than three recent testimonials, must be returned to the undersigned endorsed "Assistant Resident Medical Officer," not later than 10 a.m. on Saturday, Nov. 4th.

The Guildhall, F. J. SPARKS,
Portsmouth. Town Clerk.
October 11th, 1933.

CHARTERED SOCIETY of MASSAGE & MEDICAL GYMNASTICS

President LORD MOYNIHAN OF LEEDS KCMG, CB MS FRCS

Those requiring the services of

CHARTERED MASSEUSES & CHARTERED MASSEURS

can obtain full information from the Society's Bureau.

Hours 10 6

Or from the—

Secretary (Dept. B), C.S.M.M.G., Tavistock House (North), Tavistock Square, London, W.C.1. 'Phone: Euston 1676-7-8.

BRACEBRIDGE MENTAL HOSPITAL, near LINCOLN

FOURTH ASSISTANT MEDICAL OFFICER

The Committee of Visitors invite applications for the above whole time appointment from ladies under 35 years of age, who are duly qualified and registered medical practitioner

The commencing salary will be £350 per annum plus the usual residential emoluments of board lodging, laundry, and attendance valued for Superannuation purposes at £125 per annum Subject to 12 months service satisfactory to the Committee, an increase of £25 will be granted and thereafter increases of £25 per annum up to a maximum salary of £450 per annum An additional £50 per annum will be paid on obtaining the D P M

The successful candidate will be required to pass satisfactorily a medical examination and to join the scheme under the Asylum Officers Superannuation Act 1909 The appointment is subject to one months notice on either side

Preference will be given to a candidat who is interested in and has had previous experience of Pathology.

Application stating full particulars of qualification experience, and appointments held accompanied by copies of three recent testimonials must be addressed to the Medical Superintendent Bracebridge Mental Hospital, near Lincoln so as to be received not later than November 6th

THE ROYAL HOSPITAL, WOLVERHAMPTON
(Incorporated under Charter)

HOUSE SURGEON required Duties to commence November 1st include Casualty work

The Hospital contains 300 beds includes the usual special departments and is recognised by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice

Candidate must be registered under the Medical Act and unmarried

The appointment is for six months Salary at the rate of £100 per annum board, furnished room, and laundry provided

Application with copies of testimonials, to be forwarded to the undersigned

Wolverhampton W H HARPER,
October 10th 1933 House Governor.

THE ROYAL HOSPITAL, WOLVERHAMPTON
(Incorporated under Charter)

HOUSE SURGEON required for Orthopaedic and Fracture Department duties to commence on November 1st The Hospital contains 300 beds includes the usual special departments and is recognised by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice

Candidates must be registered under the Medical Acts and unmarried

The appointment is for six months Salary at the rate of £100 per annum Board, furnished rooms and laundry provided

Applications with copies of testimonials, to be forwarded to the undersigned

Wolverhampton W H HARPER,
October 10th 1933 House Governor

GREAT WESTERN RAILWAY MEDICAL FUND SOCIETY HOSPITAL, SWINDON

Applications are invited for the post of a SECOND MALE HOUSE SURGEON (42 Surgical Beds and Out patients) Salary £220 per annum, together with board residence The appointment is for six months and may be for a second six age, nationality ial reference to ether with copie of three testimonial to be sent to the undersigned not later than Wednesday, Oct 25th

ROYAL CHEST HOSPITAL
City Road EC1
(Royal Northern Group of Hospitals)

Applications are invited for the following posts

RESIDENT MEDICAL OFFICER This post will be vacant on December 1st The appointment is for six months when re election is required Salary at the rate of £150 per annum with board residence, and laundry

HOUSE PHYSICIAN This post will be vacant on December 1st The appointment is for six months Salary at the rate of £100 per annum with board residence and laundry

Applications with copies of testimonials should be sent on or before November 3rd to the undersigned from whom forms of application rules, and further particulars can be obtained

GILBERT G PANTER
Royal Northern Hospital, Secretary
Holloway Road N

ROYAL CHEST HOSPITAL
City Road EC1
(Royal Northern Group of Hospitals)

The post of MEDICAL REGISTRAR (Part time) is now vacant

Candidates will be required to attend at the Hospital at least three half days a week The appointment is for one year, with eligibility for annual re election for a further period not exceeding two years Honorarium £50 per annum

Applications, with copies of testimonial should be sent on or before November 4th to the undersigned from whom rules of the post can be obtained

GILBERT G PANTER
Royal Northern Hospital Secretary
Holloway Road N

THE ROYAL INFIRMARY SHEFFIELD
(500 Beds)

OPEN APPOINTMENT

The Weekly Board of Management invite applications for the post of HOUSE SURGEON Salary £80 per annum with board and residence, rising after six months service to £100 per annum

This appointment will terminate on December 31st next but the officer elected then will be eligible for this or one of the other thirteen H estimonial, to be FCIS
Board Room, Gen Supt & Secretary
October 11th 1933

BOROUGH MENTAL HOSPITAL
ROWDITCH DERBY

SENIOR ASSISTANT MEDICAL OFFICER wanted Commencing salary £520 per annum rising by £25 per annum to £570 with an additional £50 per annum if in possession of the Diploma in Psychological Medicine with unfurnished house valued for Superannuation purposes at £50 per annum Candidates must be registered under the Medical Act The appointment is subject to 3 per cent deduction on salary and emolument under the Asylum Officers Superannuation Act 1909 Apply, not later than October 31st, stating age and full particulars together with copies of three recent testimonials, to the Medical Superintendent

THE KIDDERMINSTER AND DISTRICT GENERAL HOSPITAL (120 Bed)

HOUSE SURGEON (male) required Salary £150 per annum with residence board, and laundry Applications with not more than three testimonials to be sent to the Secretary, Miss SUSAN SMITH, South Cliff, Kidderminster

THE VICTORIA HOSPITAL FOR CHILDREN
Tite Street Chelsea S W 3 (128 Beds)

The Committee of Management invite application for the post of HONORARY PHYSICIAN to the Out patient Department

Candidates must be Fellows or Members of the Royal College of Physicians of London, and Graduates in Medicine of a University recognised by the Medical Council

Candidates are expected to call on the Medical Staff and should send in their applications with testimonial to the Secretary at the Hospital on or before the first post on Tuesday, October 24th.

By Order
D ST JOHN BAMFORD, Secretary

THE VICTORIA HOSPITAL FOR CHILDREN
Tite Street, Chelsea, S W 3 (138 Bed)

The Committee of Management invite applications for the post of SENIOR RESIDENT MEDICAL OFFICER (male) The appointment is for one year as from November 1st Salary £200 per annum with board lodging and washing and certain fees from the Private Wards

Candidates must have previously held a Hospital appointment

Applications with copies of three recent testimonials should be sent to the Secretary not later than the first post on Tuesday, October 24th By Order
D ST JOHN BAMFORD Secretary

KING GEORGE HOSPITAL ILFORD
(8 miles from London)

Wanted a HOUSE PHYSICIAN to commence duty on November 1st for a period of ten months eight months as House Physician and two months a Deputy Resident Medical Officer in charge of the Casualty Department Salary £100 per annum £10 bonus on completion of appointment and two weeks holiday

Wanted a HOUSE SURGEON to commence on November 1st for a period of six months six month as House Surgeon and two month as Deputy Resident Medical Officer in charge of the Casualty Department Salary £100 per annum £10 bonus on completion of appointment and two weeks holiday

Candidates should send their application with three recent testimonials and all on the members of the Honorary Medical Staff indicated by the Secretary as soon as possible
G AUSTIN HEPWORTH Secretary

KING GEORGE HOSPITAL, ILFORD

Applications are invited for the appointment of ASSISTANT OPHTHALMIC SURGEON to this Hospital Further particulars may be obtained from the undersigned to whom applications should be sent not later than Nov 13th
G AUSTIN HEPWORTH Secretary

EAST SUFFOLK AND IPSWICH HOSPITAL
(282 Beds—Seven Residents)

Wanted immediately, HOUSE SURGEON (British male) Salary at the rate of £120 per annum

Application stating age, qualifications and experience to be sent to the undersigned together with copies of three recent testimonials
The Hospital, ARTHUR GRIFFITHS
Ipswich Secretary

DURHAM COUNTY HOSPITAL
(100 Beds)

TWO HOUSE SURGEONS are required to commence duties on November 16th Salary £150 per annum with board and lodging Applications, with copies of testimonial to be sent to Wm R WILSON, Secretary, 79, Saddler Street, Durham

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners of at least one year's standing for appointment to the undermentioned positions. Duties assigned by Medical Superintendents and include, if necessary, assistance at other establishments under Council's control. Remuneration and conditions of service are subject to review. No accommodation for a married man or for a woman.

1. ST. LUKE'S HOSPITAL, LOWESTOFT.—ASSISTANT MEDICAL OFFICER (GRADE I). Salary £350, rising annually by £25 to £425, with board, lodging, and washing. Experience in a resident appointment in a general hospital and of the treatment of non-pulmonary tuberculosis desirable.

2. ASSISTANT MEDICAL OFFICERS (GRADE II).—Salary in each case £250 a year, with board, lodging, and washing. Candidates must have held a resident appointment in a general hospital for at least six months. Appointments are for one year only and not renewable.

(a) ST. PANCRAS HOSPITAL, Pancras Road, N.W.1.

(b) ST. GEORGE-IN-THE-EAST HOSPITAL, Raine Street, Wapping, E.1. (Duties mainly Medical.)

(c) QUEEN MARY'S HOSPITAL (for Convalescent patients), Sidcup, Kent. (Duties mainly Medical.)

(d) CONSTANCE ROAD INSTITUTION, East Dulwich, S.E.22.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 3a), County Hall, S.E.1, returnable by November 3rd (October 27th in the case of Assistant Medical Officers (Grade II) appointments). Canvassing disqualifies. Further enquiries should be addressed to Medical Superintendent at respective hospitals.

ADMINISTRATIVE COUNTY OF ESSEX.

APPOINTMENT OF ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH.

The County Council of the Administrative County of Essex invite applications for the above appointment from persons duly qualified, holding a Diploma of Public Health, and not over 45 years of age.

The salary, which will be subject to economy abatement according to the scale approved by the County Council, will be at the rate of £500 per annum, and will rise, subject to satisfactory service, by annual increments of £25 to £700 per annum. The appointment will be subject to three months' notice on either side.

Travelling expenses, in accordance with the County Council's Scale, will be allowed to the successful candidate.

The person appointed will be required to pass a medical examination, and to contribute to the fund established by the County Council under the Local Government and Other Officers Superannuation Act, 1922.

The appointment will be subject to the Council's Sick Pay Rules and Regulations, a copy of which will be forwarded on application.

Applications on the prescribed form, obtainable from the undersigned, accompanied by copies of not more than three testimonials (which will not be returned) should be addressed to me and delivered at the Shire Hall, Chelmsford, not later than 10 a.m. on Monday, October 30th.

Shire Hall, Chelmsford. October 12th, 1933. JOHN H. GOOLD, Clerk of the County Council.

ROYAL BOROUGH OF KINGSTON-UPON-THAMES.

ANTE-NATAL CLINIC.

Applications are invited for the post of LADY MEDICAL OFFICER to the Ante-Natal Clinic, Kingston-upon-Thames.

Candidates should possess special experience in ante-natal work, and the remuneration will be at the rate of £1 11s. 6d. per session.

There are two sessions per month, held on the second and fourth Wednesday afternoons.

Applications, stating age, qualifications, experience, etc., accompanied by copies of three recent [illegible] be sent to the Medical [illegible] alth Department, Grange [illegible] hames, not later than Monday, November 6th.

October 16th, 1933. A. W. FORSDIKE, Town Clerk.

MANCHESTER EAR HOSPITAL, Grosvenor Square, All Saints'.

The Board invite applications for the post of RESIDENT HOUSE SURGEON. Salary £120 per annum. (24 beds.) [illegible] duly qualified and [illegible] with copies of four [illegible] forwarded to Mr. REG W. J. ELLAM, 33, Brazennose Street, Manchester, 2. Secretary, Manchester Ear Hospital, c/o Mr.

LANCASHIRE COUNTY COUNCIL.

PUBLIC ASSISTANCE COMMITTEE.

LAKE HOSPITAL AND DARNTON HOUSE, Ashton-under-Lyne, nr. MANCHESTER.

APPOINTMENT OF SENIOR RESIDENT MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners for the appointment of Senior Resident Medical Officer at the above Hospital and Institution, comprising 300 and 525 beds respectively.

Candidates must be unmarried.

Preference will be given to applicants having previous Hospital experience, especially in Midwifery, and in the administration of Anaesthetics.

Salary, subject at the present time to an emergency abatement, at the rate of £250 per annum, together with the usual residential emoluments.

The appointment will, in the first instance, be for a period of six months, the successful applicant being eligible for re-appointment for a further period of six months at the end of that period.

Forms of application may be obtained from the County Medical Officer of Health, Public Assistance (Hospital and Medical) Department, County Offices, Preston, to whom all applications, accompanied by copies of not more than two recent testimonials, must be forwarded not later than Monday, November 6th.

County Offices, Preston. October 17th, 1933. GEORGE ETHERTON, Clerk of the County Council.

COUNTY BOROUGH OF ROTHERHAM.

PUBLIC ASSISTANCE COMMITTEE.

ASSISTANT RESIDENT MEDICAL OFFICER.

Applications are invited from fully qualified Medical Practitioners, with the necessary knowledge and experience of Hospital work, for the appointment of a full-time resident Assistant Medical Officer at the ALMA ROAD HOSPITAL, Rotherham, at a commencing salary of £200 per annum, together with the usual emoluments (subject to a temporary deduction authorised by the Council).

The Hospital accommodates acute medical, surgical, and maternity patients, with approximately 370 beds.

The Hospital is a Training School recognised by the General Nursing Council and the Central Midwives Board.

The appointment will be made for a period not exceeding twelve months.

Applications, with copies of three recent testimonials, endorsed "Assistant Medical Officer," to be sent in to the Public Assistance Officer, Effingham Street, Rotherham, not later than October 27th.

Municipal Offices, Rotherham. October 9th, 1933. CHAS. L. DES FORGES, Town Clerk.

CITY OF SHEFFIELD.

NETHER EDGE HOSPITAL.

Applications are invited from fully qualified Medical Women for the appointment of TEMPORARY ASSISTANT MEDICAL OFFICER at the above Hospital.

The appointment will be for six months.

The Medical Officer appointed will take duty in the Maternity and General Medical Section of the Hospital and, in addition, will be required to assist in the Maternity and Child Welfare Department of the City.

The salary will be at the rate of £150 per annum, with full residential allowances.

Applications should be made by letter to the Medical Superintendent, City General Hospital, Sheffield, and should state age, qualifications, and experience.

CITY OF COVENTRY.

GULSON ROAD MUNICIPAL HOSPITAL.

The Public Health Committee invite applications from duly registered male Medical Practitioners for the appointment of SECOND ASSISTANT MEDICAL OFFICER at the above Hospital, which is a modern general hospital of 300 beds. The Hospital includes medical, surgical, obstetric, and children's wards, and possesses up-to-date operating theatre and x-ray plant.

The appointment will be for a period of one year. The salary will be at the rate of £250 per annum, with board, residence, and laundry. The officer appointed will be required to pay to the Corporation any fees received in connection with his official work.

Applications, accompanied by copies of three recent testimonials, should reach the undersigned on or before Friday, October 27th. Forms of application are available on request.

The Council House, Coventry. October 10th, 1933. A. MASSEY, M.D., Medical Officer of Health.

WILLESDEN URBAN DISTRICT COUNCIL.

APPOINTMENT OF OPHTHALMIC SURGEON (PART-TIME).

Applications are invited for the above appointment.

The remuneration attached to the post is 2[illegible] guineas per session for three sessions per week throughout the year. Sessions are not as a rule held during the month of August. In the event of absence from any cause, the person appointed must provide an approved substitute. The work is mainly refraction work in connection with children attending the public elementary schools. The Council provide the necessary apparatus.

Further particulars of the above appointment can be obtained from the Medical Officer of Health, 54, Winchester Avenue, Kilburn, London, N.W.6.

Applicants should state their qualifications, age and experience.

All applications should reach the Medical Officer of Health not later than 9 a.m. on Friday, November 10th.

Town Hall, Dyne Road, Kilburn, N.W.6. October 17th, 1933. E. A. PRATT, Clerk to the Council.

PORTSMOUTH EDUCATION COMMITTEE.

SCHOOL MEDICAL SERVICE.

The Committee invite applications from fully qualified candidates for the appointment of a Whole-time MALE ASSISTANT SCHOOL MEDICAL OFFICER.

Salary £500—£25—£700 per annum. Experience in Refraction, Orthopaedics, Mental Deficiency, Diseases of the Ear, Nose, and Throat, or any other special branch of the work will be deemed a recommendation.

The selected candidate must pass a Medical examination, and in the event of the appointment being designated as an established post in the future, will be required to contribute to the Council's Superannuation Scheme.

Forms of application may be obtained from the Chief Clerk, Education Offices, Guildhall, Portsmouth, to whom they should be returned not later than the first post on November 9th.

Canvassing in any form will be regarded as a disqualification.

Guildhall, Portsmouth. Oct. 14th, 1933. F. J. SPARKS, Town Clerk & Clerk to the Education Committee.

CITY OF SALFORD

INFECTIOUS DISEASES HOSPITAL.

Applications are invited for the post of JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER (male). Salary £200 per annum, plus board, residence, and laundry. The appointment will be for one year. Form of application may be obtained from the Medical Officer of Health, 143, Regent Road, Salford, 5, Lancs, to whom it must be returned, endorsed "Junior Assistant Resident Medical Officer," not later than October 28th.

H. H. TOMSON, Town Clerk.

LONDON CLINIC AND INSTITUTE OF PHYSICAL MEDICINE.

The Committee of Management are about to appoint a full-time ASSISTANT MEDICAL OFFICER.

Candidates will be required to act as Assistant in the Diathermy Department, under Dr. C. A. Robinson, and as Receiving Officer.

Salary £250 per annum.

Applications, with three recent testimonials, should be addressed to the Secretary, London Clinic and Institute of Physical Medicine, 22, Ranelagh Road, S.W.1, not later than Oct. 31st.

EAST LONDON CHILD GUIDANCE CLINIC

Applications are invited for the post of HONORARY CLINICAL ASSISTANT. Candidates must have had experience in Children's Diseases or Psychiatry or both. The post affords opportunities for the study of the psychoneuroses of childhood and educational difficulties.

Applications, with copies of testimonials, should be sent to the Secretary at Woburn House, Upper Woburn Place, W.C.1, by November 1st.

THE BELGRAVE HOSPITAL FOR CHILDREN, Clapham Road, S.W.9.

The Committee of Management invite applications for the post of ASSISTANT PHYSICIAN. Candidates must be graduates in Medicine of an English University and Fellows or Members of the Royal College of Physicians of London. There is an honorarium of 50 guineas per annum attached to the post. Applications, with copies of testimonials, must be delivered to the undersigned by Saturday, November 11th, from whom further information may be obtained.

By Order, THOMAS CLAPHAM, Secretary.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested *not to apply* for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of *Scottish appointments, with the Scottish* Medical Secretary, 7, Drumsheugh Gardens, Edinburgh)

(a) British Islands.

Town or District	Town or District	Town or District
CONTRACT PRACTICE	**CONTRACT PRACTICE** *(contd.)*	**PUBLIC HEALTH**
FFRW VALE MON *(Workmen's Medical Society)*	MARDY, GLAMORGAN *(Workmen's Medical Scheme)*	HERTFORDSHIRE COUNTY COUNCIL WARE SANATORIUM *(Assistant Medical Officer)*
GILFACH GOCH GLAMORGAN *(Workmen's Medical Scheme)*	NEATH AND DISTRICT *(Medical Aid Association)*	COUNTY BOROUGH OF SOUTH SHIELDS *(Assistant School Medical Officer)*
LLWYNPIA CLYDACH VALE PENYGRAIG GLAMORGAN *(Workmen's Medical Scheme)*	OAKDALE MON *(Medical Officer for Medical Aid Association)*	HARTON INSTITUTION AND CLEADON COTTAGE HOMES *(Medical Officer)*
LOWESTOFT MEDICAL INSTITUTE *(Medical Officer.)*	OGMORE VALLEY GLAMORGAN *(Wyndham Colliery Medical Aid Society)* *(Workmen's Medical Scheme)*	NORTH RIDING OF YORKSHIRE COUNTY COUNCIL *(Temporary Maternity and Child Welfare Medical Officer—Woman)*

(b) Overseas.

Medical practitioners are requested *not to apply* for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1

Town or District.	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch
NEW SOUTH WALES *(All Friendly Society Appointments)*	Dr. J. G. HUNTER (Medical Secretary, New South Wales Branch), 135, Macquarie St., Sydney, N.S.W.	**QUEENSLAND.** *(Brisbane and Associated Friendly Societies Institute)* *(Toowoomba Associated Friendly Societies, Medical Institute, Toowoomba)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	**WELLINGTON, NEW ZEALAND** *(Contract Practice Appointments)*	Dr. G. F. V. ANSON (Hon. Sec. New Zealand Branch) British Medical Association, P.O. Box 156, Wellington, New Zealand.
VICTORIA. *(All Institute or Medical Dispensaries)*	Dr. J. P. MAJOR (Hon. Sec., Victorian Branch British Medical Association), Medical Society Hall, East Melbourne, Victoria.			**WESTERN AUSTRALIA.** *(Contract and Lodge Practices)*	Hon. Sec. Western Australian Branch, British Medical Association, No. 6 Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.

October 18th, 1933 By Order of the Council C. C. ANDERSON, Medical Secretary

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THE HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.1

There is a vacancy for a HOUSE SURGEON, duties to commence as early as possible in November.

Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock on Saturday, October 28th, with copies of not more than three testimonials given especially for the purpose, and also evidence of their having held a responsible Hospital appointment.

The appointment is made for six months. Salary at the rate of £100 per annum, laundry allowance £5, board and residence in the Hospital.

Candidates must be unmarried and possess a *legal qualification to practise*.

All candidates must appear before the Joint Committee at their Meeting on Wednesday, November 1st, at 5 p.m. precisely.

Further particulars with forms of application and copies of the rules may be obtained from the Secretary.

By Order of the Board of Management,
HERBERT F. RUTHERFORD,
October, 1933. Secretary.

KING EDWARD VII. SANATORIUM, MIDHURST, SUSSEX.

The Council invite applications for the post of MEDICAL SUPERINTENDENT to the Institution. Candidates must be duly qualified and registered, and have had experience in Tuberculosis work.

Salary £1,000 per annum, rising to £1,200 with house. Applications (with 12 copies of not more than three recent testimonials) to be sent on or before Monday, *November 6th* to the Secretary, 31, Davies Street, London, W.1.

EVELINA HOSPITAL FOR CHILDREN, Southwark Bridge Road, London, S.E.1.

Applications are invited for the post of HONORARY DENTAL SURGEON. Candidates (male) must be fully qualified Medical Practitioners and Licentiates in Dental Surgery of a Royal College of Surgeons of the United Kingdom or shall hold some other special Dental qualification obtained in the United Kingdom.

Applications with copies of four testimonials to be addressed to the Secretary at the Hospital before October 31st.

Candidates will be required to call on Members of the Honorary Medical Staff whose names together with the Standing Orders *relating to the post* can be obtained from the undersigned.

By Order of the *Committee of Management*
W. H. SIDNELL,
Sept. 29th, 1933. Secretary Supt.

THE CHRISTIE CANCER HOSPITAL AND HOLT RADIUM INSTITUTE, WITHINGTON, MANCHESTER.

Applications are invited for the post of *RESIDENT MEDICAL OFFICER* to the above Hospital and Institute for duty with the Radium Therapeutic Department. Appointment is for six months in the first instance but is renewable. Salary £150 plus residence, board, etc. The appointment offers an excellent opportunity of obtaining experience in Radium Therapy. Candidates must have had previous medical and surgical experience. Applications stating qualifications (D.M.R.E. would receive preference) and previous experience to be submitted to the Secretary at the above address not later than October 25th.

LONDON JEWISH HOSPITAL, Stepney Green, E.1
(General Hospital—108 Beds.)

Applications are invited for the following posts:

RESIDENT MEDICAL OFFICER AND HOUSE PHYSICIAN. Salary at the rate of £150 per annum with board and residence. Appointment for six months.

HOUSE SURGEON. Salary at the rate of £100 per annum with board and residence. Appointment for six months.

CASUALTY OFFICER (non-resident). Salary at the rate of £150 per annum with luncheon and tea. Appointment for six months. The holder will be required to attend the Out-patient Department from 9 a.m. to 2 p.m.

Applications with copies of three recent testimonials to be sent to the Secretary on or before Friday, October 27th. The successful candidates will be required to take up their duties on December 1st.

ANCOATS HOSPITAL, MANCHESTER.

Applications are invited for the post of Full-time *RADIOLOGICAL OFFICER* to commence duty early in November. Salary is at the rate of £500 per annum and the appointment is for twelve months and is renewable. Candidates must hold the D.M.R.E. Diploma. Applications stating age and particulars of qualification and experience to be forwarded to the undersigned on or before Wednesday, October 25th, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

(Appointments continued on p. 52)

British Medical Journal
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WANTED OUTDOOR, EXPERIENCED MALE ASSISTANT with view, for large Midland city. Private and panel Practice. Good personality and appearance essential. Excellent scope and opportunity for right man. Scots preferred.—Address, No. 7470, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—UNMARRIED OUTDOOR MALE ASSISTANT with some previous experience for Contract Practice in South Wales. State age and nationality, references. Salary £350, with furnished rooms and attendance. Usual bond. No Irishman need apply.—Add., No. 7459, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — ASSISTANTSHIP BY M.B., Ch.B.(Glasg.), 1931, aet. 25, Prot., in mixed panel and private practice in good locality within 30 miles London; ex H.P., H.S., and R.M.O. Maternity Hospital. Free now.—No. 7381, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — INDOOR ASSISTANT; PANEL and private Practice, South Wales port. Dispenser kept. £300 p.a., all found. Usual bond. Must be able to drive a car. State age and full particulars.—Address, No. 7271, B.M.A. House, Tavistock Square, W.C.1.

WANTED, INDOOR MALE ASSISTANT, £300 to begin. Industrial Practice near Manchester. State age, nationality, and full particulars. All applications will be acknowledged. — Address, No. 7383, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — INDOOR, SINGLE, MALE ASSISTANT for Manchester. Must be ex H.S. Salary £300 per annum. Dispenser and book-keeper kept. Able to drive car. Send photo., age, religion, etc.—Address, No. 7356, B.M.A. House, Tavistock Square, W.C.1.

WANTED NOVEMBER 1st, FOR INDUSTRIAL Practice, near Glasgow, Lady ASSISTANT (outdoor) for six months. State age and experience. Must be strong and active. R.C. preferred. — Address, No. 7278, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — OUTDOOR ASSISTANT, MALE, single, for pleasant country town practice in North of England. State experience, age, nationality, etc. Suit young man requiring experience and who is fond of the country.—No. 7368, B.M.A. House, Tavistock Sq., W.C.1.

WANTED, OUTDOOR ASSISTANTSHIP, with or without view, in pleasant part of Midlands, South or West, by experienced, married graduate, age 31, own car, etc.—Address, No. 7385, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—SHORT ASSISTANTSHIP WITH view to Partnership or Succession, by M.B., B.Ch., seven years' experience hospital and general practice. London or South preferred. — Address, No. 7387, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANT FOR PANEL, private, and dispensing Practice, three evenings per week. Tuesday, Thursday, and Friday. — Address, No. 7458, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANTSHIP BY M.B., B.Ch., B.A.O. (N.U.I.), single, age 29 years, 6 years' experience panel and private practice. Own car.—Address, No. 7382, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY.—INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view, good salaries. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

ASSISTANT WANTED SOON AS POSSIBLE by General Practitioner, with one partner, in home county; ex H.S. preferred. Salary during three months' probation at rate of £300 p.a., with board and lodging, but must provide own car. After three months 1/4 share available and further 1/4 share on retirement of advertiser now aged 64. Average gross receipts £3,000. Panel 2,000. Appointments now held: M.O.H. to Urban District Council, Poor Law District Officer to two Parishes, Local P.O. and Surgeon under Factory Acts.
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ASSISTANT, YOUNG, ENERGETIC, MALE, wanted, Protestant. Desirable London suburb, £300, with light and furnished rooms. Attractive house if married. Full particulars, including age, height, nationality. — Address, No. 7388, B.M.A. House, Tavistock Sq., W.C.1.

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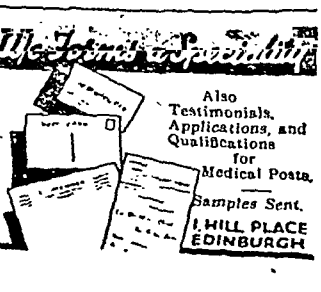
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Applications are invited for the position of JUNIOR HOUSE SURGEON (male) to this Hospital at a salary of £150 per annum, plus board, residence, and laundry.
Application, accompanied by three recent testimonials, to be sent to the Secretary, St. Helens Hospital, Lancs, not later than Nov. 7th.

HERZL MOSER HOSPITAL, Leopold Street, LEEDS.

RESIDENT MEDICAL OFFICER required. Salary £200 per annum. Ample time for post-graduate study. Apply SECRETARY.

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TWO RESIDENT ANAESTHETISTS

Applications are invited for the above posts. Appointments will be for six months with possibility of renewal. Salary £150 per annum, with board and residence.
Applicants will please give particulars of special experience in the administration of Anaesthetics, and enclose copies of testimonials with particular reference to Anaesthetic work to the House Governor and Secretary by first post on Monday, the 30th inst.
HARRY JOHNSON,
October 17th, 1933. House Gov. & Sec.

HILL END MENTAL HOSPITAL, ST. ALBANS, HERTS.

ASSISTANT MEDICAL OFFICER (Male) required. Male, single, aged not over 30 years. Previous Mental Hospital experience essential. Salary £350, rising by annual increments of £25 to £450, with furnished quarters, board, attendance, and washing. In addition, £50 per annum will be paid on obtaining the D.P.M. The appointment is subject to the provisions of the Asylum Officers Superannuation Act, 1909. At present a temporary economy deduction of 5 per cent. on the salary is in force. Application, stating age, qualifications, and experience, with copies of three recent testimonials, to the Medical Superintendent.

THE WOMEN'S HOSPITAL, CATHARINE STREET, LIVERPOOL.

HOUSE SURGEON wanted immediately for the above Hospital until December 31st.
Salary at the rate of £100 per annum.
Applications to the Hon. Secretary of the Medical Board by October 26th.

ROYAL LANCASTER INFIRMARY.
(106 Beds.)

JUNIOR HOUSE SURGEON (male, first) required immediately. Salary £150 per annum, with board, residence, and laundry. Applications, with copies of testimonials, should be addressed to the Hon. Secretary, Medical Committee.

MANCHESTER ROYAL INFIRMARY

ASSISTANT SURGICAL OFFICER (PART TIME) IN THE NEUROSURGICAL DEPARTMENT

The Board of Management invite applications from registered Medical Practitioners for the above appointment.

The appointment (non-resident) is for twelve months renewable for a further period of twelve months subject to the provision of the bye-laws as to notice. Salary £350 per annum. Applicants must state age and send twelve copies of their application and testimonials to the undersigned not later than Wednesday, Nov. 1st.

By Order
FRANK G. HAZELL, General Supt.

BRADFORD ROYAL INFIRMARY

ONE HOUSE PHYSICIAN (male) and TWO HOUSE SURGEONS (male) wanted for six months from December 1st.

Candidates must be single and legally qualified.

Salary £135 per annum with board, residence and washing.

There are 215 beds and six resident officers.

Applications stating age, qualifications and previous experience with copies of recent testimonials to be received by the undersigned not later than first post October 24th.

J. J. BARRON,
October 10th, 1933. Secretary Supt.

MINEHEAD AND WEST SOMERSET HOSPITAL, MINEHEAD, SOMERSET (28 Beds)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male or female) to this Hospital.

Duty to commence on November 21st. Appointment for a period of six months. Salary £150 per annum with board, residence and laundry.

Application stating age, nationality, experience and qualifications, accompanied by copies of three recent testimonials to be sent to the undersigned not later than November 3rd.

W. H. P. RODDA, Secretary.

NATIONAL HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, Queen Square, W.C.1

ASSISTANT REGISTRAR

Applications are invited for the post of Assistant Registrar who will be required to attend the Hospital every afternoon in the Out-patient Department. The salary is £200 a year with luncheon.

Applications with recent testimonial should reach the undersigned from whom any further particulars may be obtained, on or before October 31st.

GODFREY H. HAMILTON, Secretary.

NATIONAL HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, Queen Square, W.C.1

HONORARY ORTHOPAEDIC SURGEON

Applications are invited from Fellows of the Royal College of Surgeons of England for the post of Honorary Orthopaedic Surgeon. Applications with copies of recent testimonials should reach the undersigned, from whom any further particulars may be obtained, on or before October 31st.

GODFREY H. HAMILTON, Secretary.

NATIONAL HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, Queen Square, W.C.1

REGISTRAR

Applications are invited for the post of Registrar. The salary is £200 a year with luncheon. Applications with recent testimonial should reach the undersigned from whom any further particulars may be obtained on or before October 31st.

GODFREY H. HAMILTON, Secretary.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, *Park Place, Cheetham Hill Road*, MANCHESTER

The Committee of Management require the service of a SENIOR HOUSE SURGEON duly qualified who is to commence duty on December 1st. Salary £130 per annum with board and residence.

Application stating age and experience with copies of recent testimonial to be sent to the Secretary, Mr. James C. Daniel, 58 Barton Arcade, Manchester, not later than the first post October 31st.

ROCHDALE INFIRMARY AND DISPENSARY (110 Bed)

The Board of Management invite applications for the appointment of JUNIOR HOUSE SURGEON. The salary attached to the appointment is £200 p.a. including board residence and laundry. Application stating age, nationality, etc., with copies of three recent testimonials to be sent to the Secretary, *endorsed* House Surgeon. Particulars of duties and conditions of the appointment may be had on application to the Secretary.

Infirmary Office, Rochdale Lanes.
W. WYNNE, Secretary.

QUEEN MARY'S HOSPITAL FOR THE EAST END, E.15

Applications are invited for the post of HONORARY ASSISTANT RADIOLOGIST at the above Hospital.

Applicants must be registered Medical Practitioners *engaged solely in the practice of Radiology*. Applications together with copies of not more than three recent testimonials should be forwarded to the undersigned on or before Wednesday, November 1st.

RAPHAEL JACKSON (Major), Secretary.

ROYAL HAMPSHIRE COUNTY HOSPITAL, WINCHESTER (158 Bed)

RESIDENT SURGICAL OFFICER

Applications are invited from fully qualified men for the above post to take up duties on December 1st next. Six months' appointment. Salary £200 per annum with board, residence and laundry. Candidates who must be of British nationality, to make application at once to the undersigned, enclosing copies of three testimonials.

HERBERT MASLEN, Secretary.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Road, S.E.1

There will be a vacancy on November 1st for a HOUSE PHYSICIAN (male) at the above Hospital. The appointment is in the first instance for a period of six months. Salary at the rate of £100 per annum, with board and residence. Applications with copies of testimonials should be forwarded not later than Tuesday morning, October 24th to the Secretary at the above address from whom further particulars can be obtained.

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HOUSE SURGEON (male) required on January 1st 1934. Appointment for six months with possibility of extension. Salary at the rate of £200 per annum with board, residence and laundry. Two weeks holiday for each six months service.

Applications stating age, qualification and experience with copies of three recent testimonial should be in the hand of the Secretary, Superintendent by November 15th.

DISTRICT INFIRMARY, ASHTON-UNDER-LYNE (General Hospital—200 Bed: mainly Surgical)

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NEAR NORTH WEST COAST—Country PRACTICE of over £800 p a in beautiful district Panel 329 Scope Good sport *Premium, best offer*—No 477

MANCHESTER — Old established mixed PRACTICE, averaging £929 p a Panel 1,475 Scope for increase. Good residence (away from Practice), 2 reception, 5 bedrooms, and garden Rent of main Surgery £59 p a Premium 1½ years purchase—No 501

MANCHESTER—Mixed PRACTICE averaging £1,000 p a Appointments (*transferable*) £200—£250 p a Panel 850 *Good* corner house, 2 reception, 3 bedrooms 3 professional rooms *garage and small garden Premium—Practice—1½* years purchase—No 492

CHESHIRE.—Middle-class PRACTICE in residential town near Manchester Cash receipts last year £762 Panel 120 Scope for increase, district developing Excellent modern house, 2 reception, 4 bedrooms Garage and large garden Professional rooms separate *Premium—Practice and house—£2,600*—No 503

MANCHESTER—Mixed PRACTICE in residential suburb Aver*age cash receipts £780 p a Panel 700 District developing* Scope Good house 2 reception, 5 bedrooms, garage, and garden Premium 1½ years purchase—No 483

LANCS TOWN eight miles from Manchester—Old-established mixed PRACTICE averaging £700 p a Panel 639 Scope for increase District rapidly developing Good house, 2 reception 3 bedroom garage, and garden (separate entrance to Surgery) Premium—best offer—No 493

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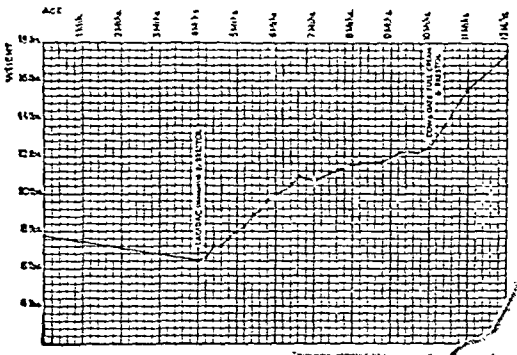
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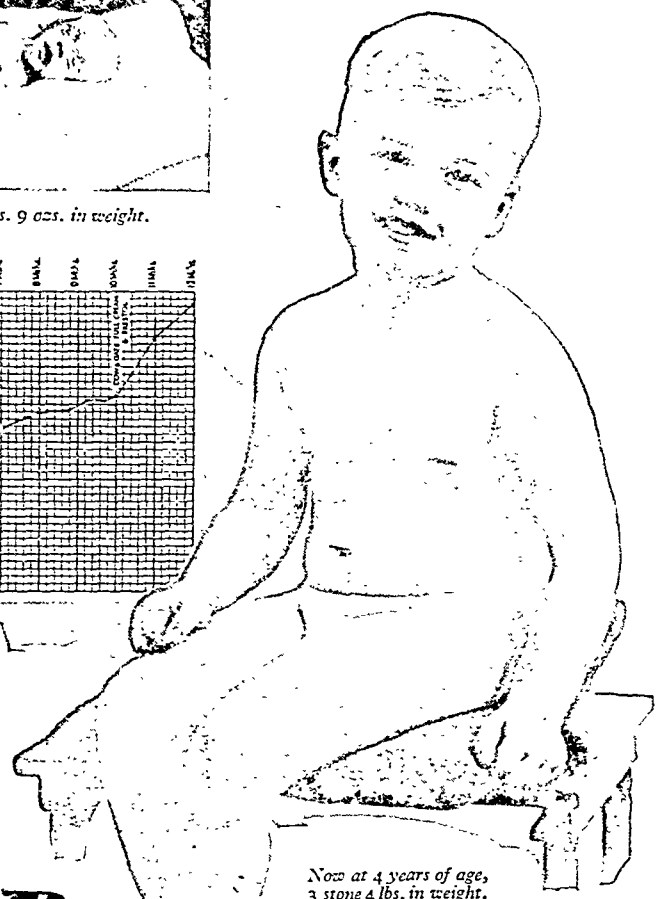
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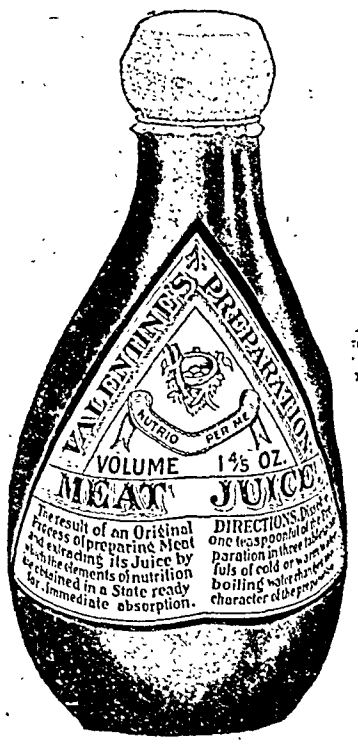
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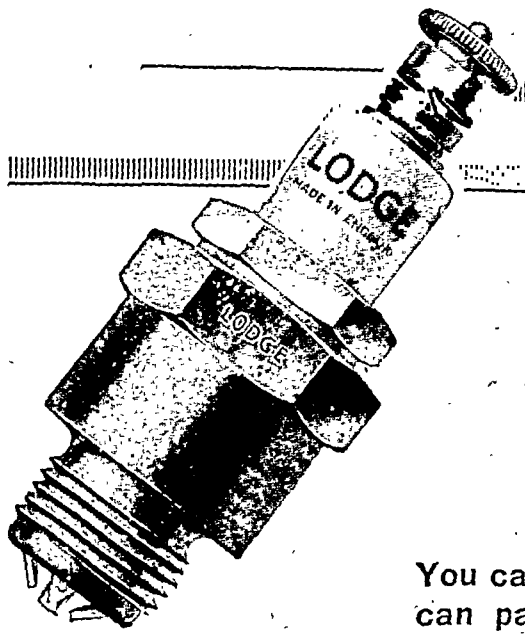
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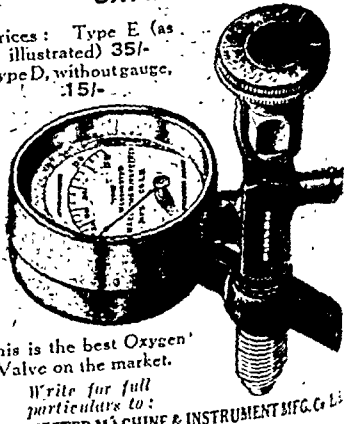


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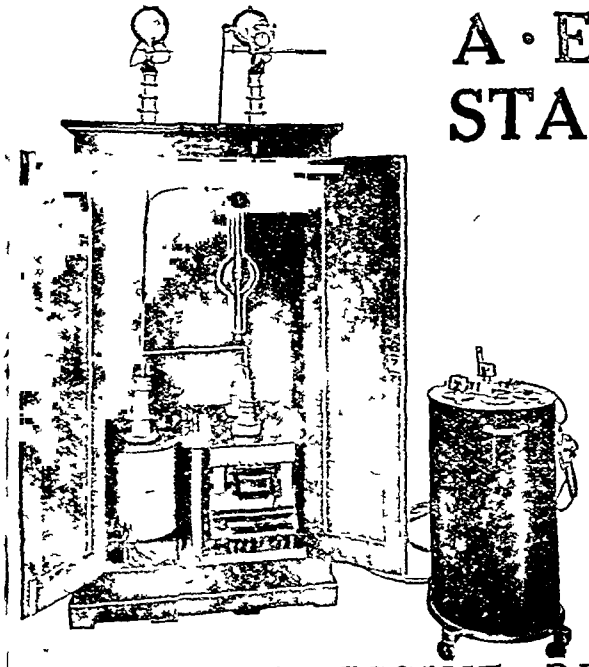
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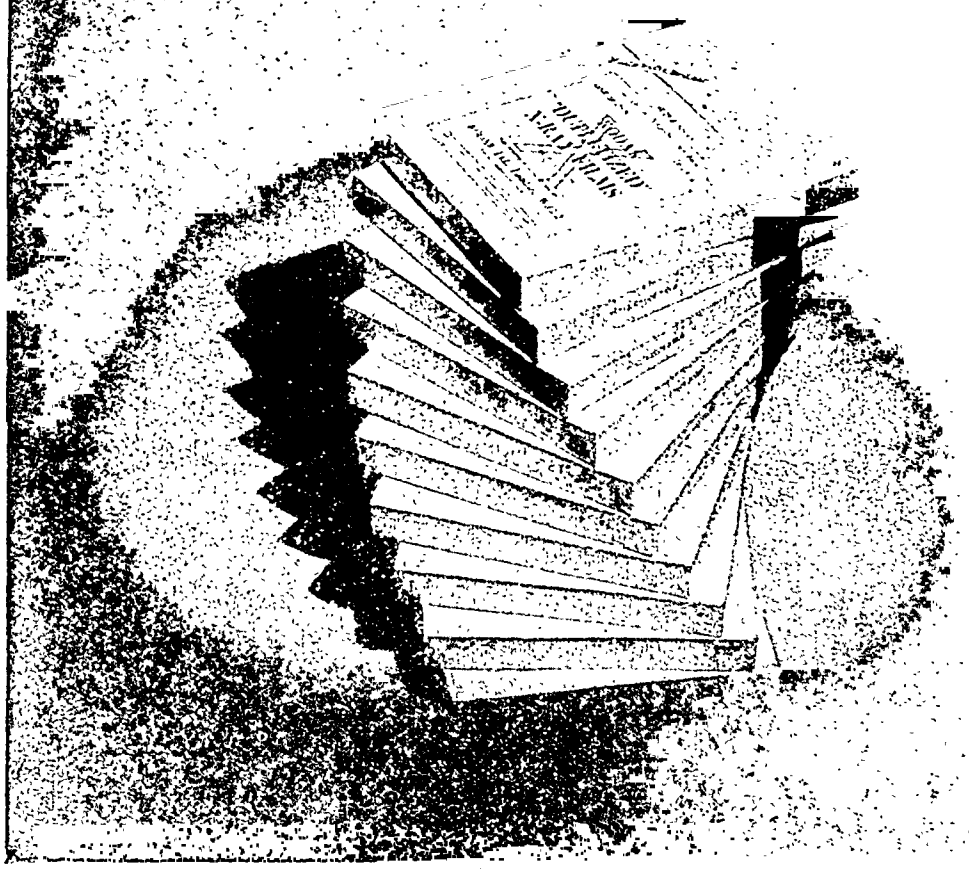
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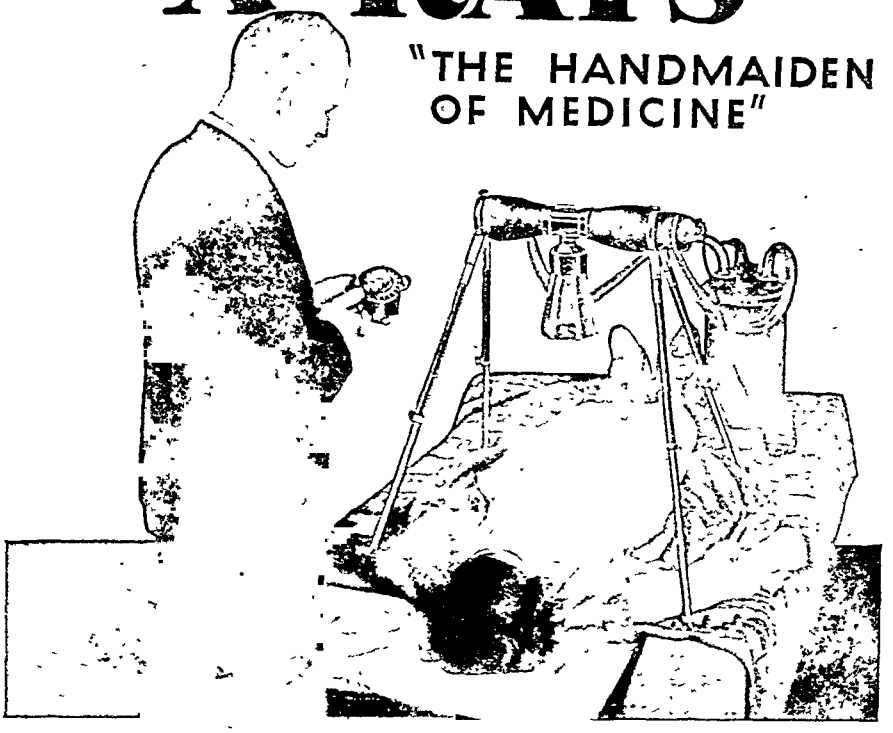
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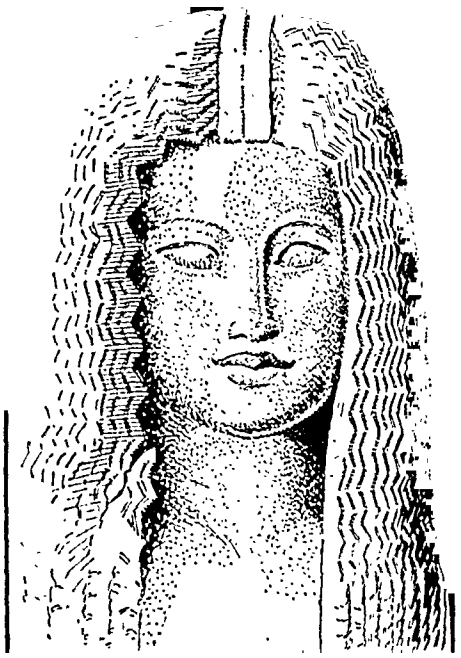
"Ovaltine" is purin-free. Its use, therefore, neither aggravates nor favours the accumulation of uric acid in the system, nor leads to kidney disorder or gout. The tendency to constipation, so common in old age, is avoided by the use of "Ovaltine."

"Ovaltine" replaces to great advantage the usual meal-time beverages, tea and coffee, which are valueless as sources of nourishment and often contraindicated in senility.

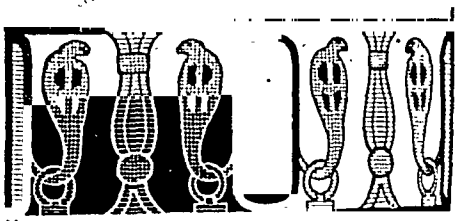
A liberal supply for clinical trial sent free on request.

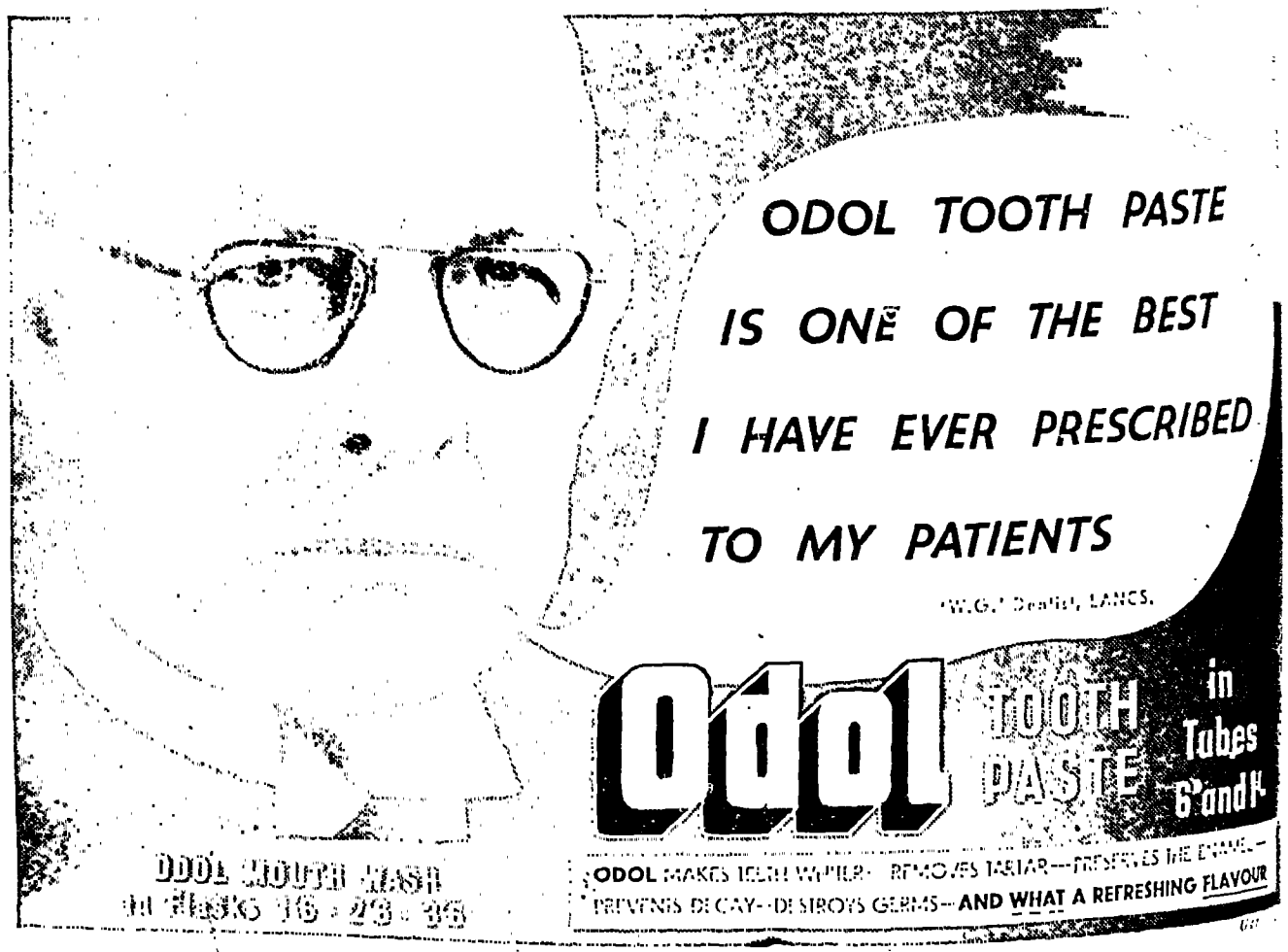
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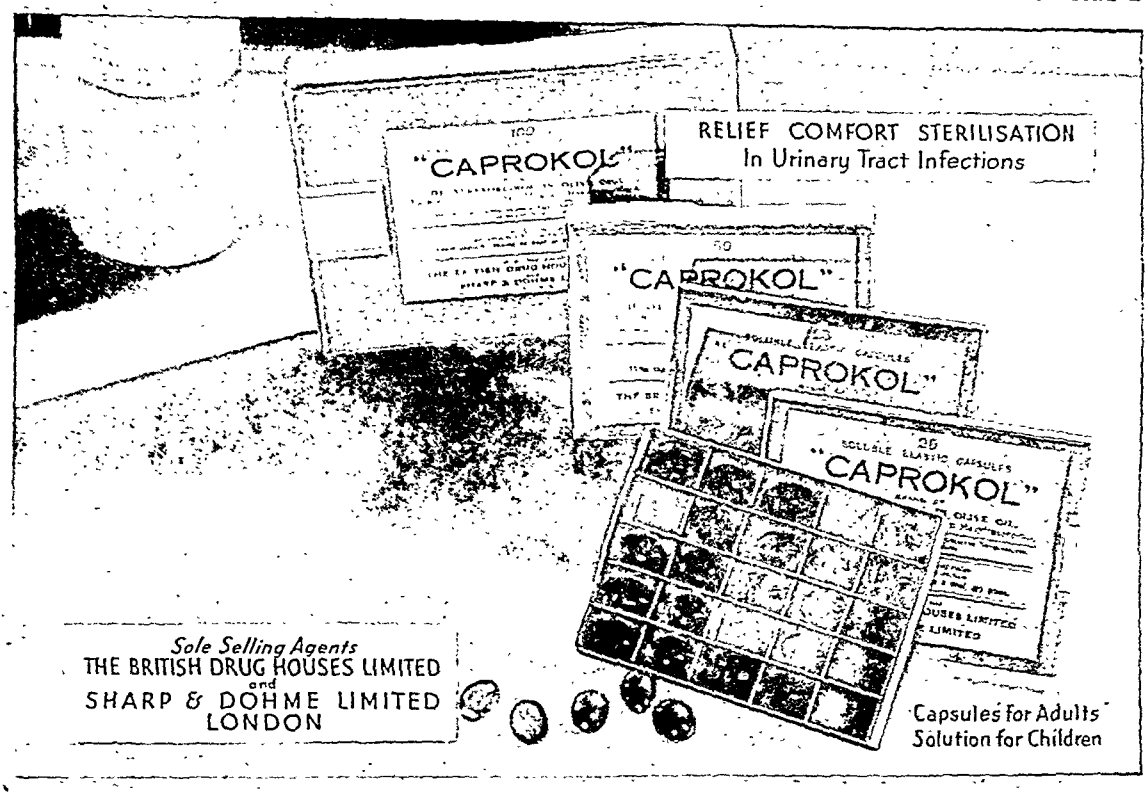
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Head of a Priestess of the XVIIIth Dynasty (Egyptian)







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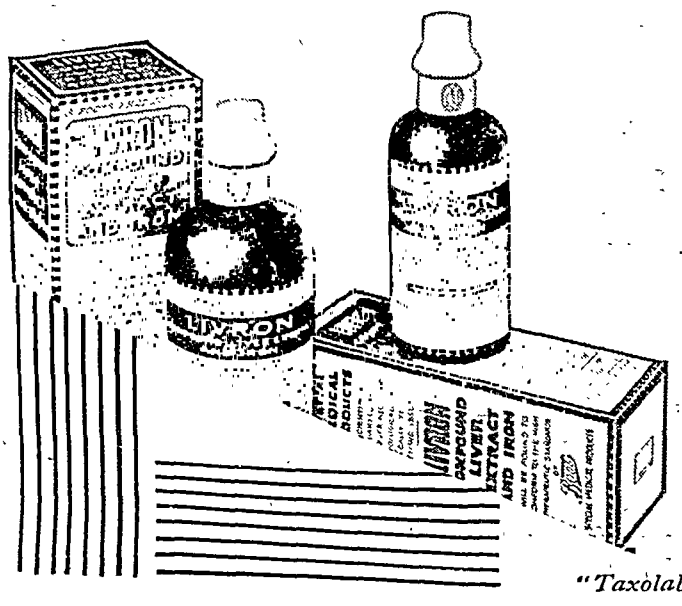
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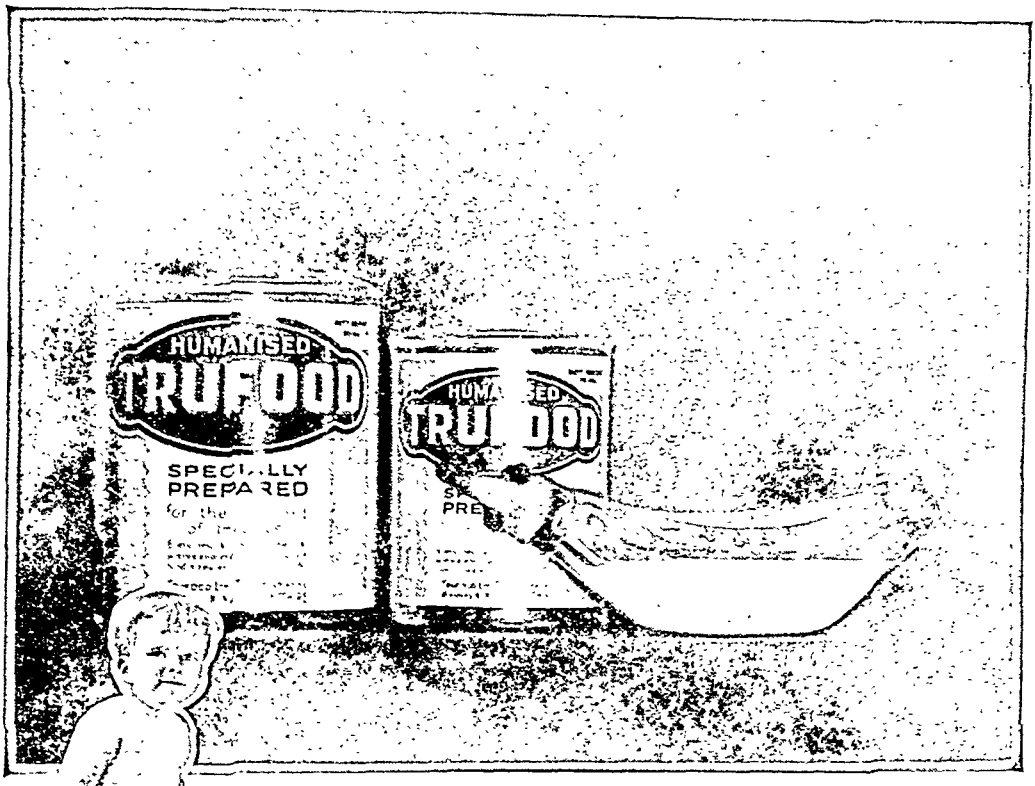
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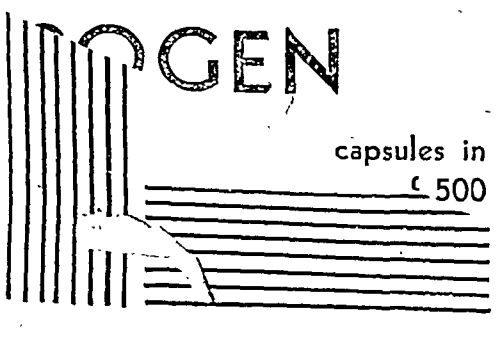
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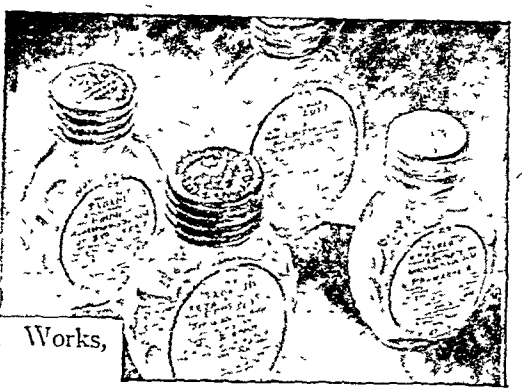
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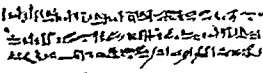
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LINES CONTAINING ANCIENT EGYPTIAN MAGIC WORDS TO BE SPOKEN IN USING THE VESSELS FOR MEASURING MEDICINES.—The magician-doctor of ancient Egypt was as careful to "enchant" his medicine measures and bandages as is the modern physician to have these auxiliaries rendered antiseptic; evil spirits might, otherwise, play as much havoc then as germs do now. The text here reproduced related to measures, and reads: "The word for the *d b h* measure on taking it in order to bring down the measure a prescription: As for this measure, I am measuring this prescription therewith measure with which Horus measured his eye, it (the eye) was tested and I found it living This prescription is measured with this *d b h* measure in order to bring down the which is in this body."



(Reads right to left)

Date: c. 1990–1500 B.C.

...using if the ...have had to deal ... all three lesions were

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...ciliary colic is perhaps the most frequent ...e to seek surgical relief It may be the only ...mptom, as in cases of the single cholesterol stone, but more commonly there is accompanying dyspepsia of a

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is the only glucose reinforced with Ostelin vitamin D and calcium

1 lb. tins 1/9, 7 lb. tins 10/6



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the polyvitamin malt preparation of palatable flavour and high concentration.

Ostomalt contains

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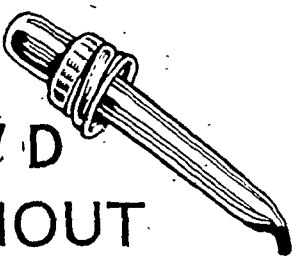
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A luxury product at new low prices : ½ lb. jar, 1/9 ; 1 lb. jar, 3/– ; dispensary size (over 7 times as much as in the 1 lb. size) 17/–.



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The vitamins A and D of Adexolin Liquid are present in the proportions they occupy in high-grade cod-liver oil : it is thus a balanced product, overloaded neither with vitamin A nor with vitamin D, but containing the active principles of cod-liver oil in the proportions that have been established as effective in this well-proved traditional remedy. Furthermore, being twenty times as potent as cod-liver oil, and having no nauseous taste or smell, Adexolin Liquid can be given in the smallest prophylactic or the largest therapeutic doses to the most delicate infants, children and adults.

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Each Adexolin Capsule (3 m.) contains vitamins A and D equivalent to that in 10 grams of high-grade cod-liver oil, and in the same proportions.
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Observations on SURGICAL DISEASES OF THE BILIARY TRACT*

BY

D. P. D. WILKIE, M.Ch., F.R.C.S.

PROFESSOR OF SURGERY IN THE UNIVERSITY OF EDINBURGH

Much interest has been aroused of late years in the changing incidence of certain diseases. Chlorosis and muco-membranous colitis are now seldom met with. Streptococcal infections, on the other hand, would seem to be on the increase. Peptic ulcer and biliary disease have assumed increasingly prominent places in the list of diagnosed diseases. It is doubtful, however, whether there has been a real increase in the prevalence of biliary infections and gall-stone formation; it is more probable that a growing appreciation of the significance of such disease, and a recognition of the symptoms to which it gives rise, have focused the attention of the medical profession and of the public on these very prevalent maladies.

In the great majority of cases the disease appears to start in the gall-bladder and to affect the ducts as a sequel. We now know that certain types of gall-stone may form as the result of disordered metabolism and, possibly, of dyskinesia of the biliary passages independent of recognizable bacterial infection—for example, the single cholesterol stone and the multiple pure pigment stones. Sooner or later infection is superadded, more especially if the outlet from the gall-bladder becomes occluded by a stone. Infection of the gall-bladder is very common, and is often followed by gall-stone formation. The infection is usually intramural in type, and is probably blood-borne. Certain bacteria have a predilection for the gall-bladder—namely, the streptococcus, *B. coli*, and *B. welchii*, in order of frequency, the latter two particularly in acute infections associated with blockage of the cystic duct.

Apart from the symptoms caused by the local pathology, gall-bladder disease is of importance by virtue of the many and varied complications which may result from it. Those due to the presence of stones include empyema of the gall-bladder from obstruction of its duct, arrest of a stone in the common bile duct with its resultant changes, carcinoma of the gall-bladder, and intestinal obstruction due to arrest of a large stone which has ulcerated through into the duodenum.

The grave interference with health, to which a stone in the common bile duct may give rise, need not be emphasized. The prevalence of carcinoma of the gall-bladder has, I believe, however, been under-estimated. Out of a total of 987 operations on the biliary tract I have encountered carcinoma of the gall-bladder in thirty-one cases, and in every case there were gall-stones present. In two cases, in which a previous cholecystostomy had been performed for acute disease, and in which gall-stones had been removed, I found at the second operation a recurrence of gall-stones and, in addition, carcinoma of the gall-bladder wall.

Many complications depend on the infection of the gall-bladder wall and not on the presence of stones. Chronic pancreatitis is a not uncommon complication. Certain cases of hepatic cirrhosis have cleared up after removal of an infected gall-bladder. Much more important, however, are the distant toxic effects on heart muscle, joints, intermuscular fibrous tissues, and kidneys. The proof of the relationship has been the striking improvement which has resulted in a large number of cases of disease of the above-mentioned tissues following the removal of a chronically infected gall-bladder.

* Read in opening a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Dublin, 1933.

Surgery of the gall-bladder may therefore have one or more of three main indications.

1. To deal with an organ which is giving rise to troublesome local symptoms.
2. To remove a focus of infection causing metastatic trouble in distant organs and tissues.
3. To remove a diseased organ which is potentially malignant.

Diagnosis

Where typical biliary colic has occurred repeatedly diagnosis presents little difficulty. When chronic dyspepsia of a flatulent type is the main complaint our suspicions turn to the gall-bladder. We may find an intolerance to cooked fats, a history of ache in the right shoulder-blade, and, on examination, a definite subcostal tenderness, and a tender spot over the ninth intercostal nerve in the scapular line.

In the great majority of cases of gall-bladder disease we can, from a careful clinical examination, come to an accurate diagnosis. In a certain number of cases symptoms referable to the gall-bladder are complained of and no organic disease, but merely a dysfunction of the organ, is present. Newman has lately focused attention on these cases, so carefully studied by Westphal. All surgeons must acknowledge that on not a few occasions, after making a confident diagnosis of organic biliary disease, they have exposed a gall-bladder showing no evidence of infection and devoid of stones. The use of cholecystography and of the duodenal tube has greatly reduced the number of such mistakes.

Schmieden has devoted much attention to the so-called "stasis gall-bladder" which may give rise to attacks of pain resembling biliary colic, and may be due either to mechanical kinking of the cystic duct or to spasm of the gall-bladder neck or of the sphincter of Oddi, the result of a disturbance of the sympathetic nervous system. In all such cases medical treatment should be given a prolonged trial before surgical intervention is considered.

We must remember also that in the female duodenal ulcer may simulate biliary disease closely, hence the importance of employing the special diagnostic methods as adjuvants. A dye test, followed by a barium meal, will give evidence as to whether the gall-bladder is functioning, and may show up translucent stones; the barium meal may show definite deformity of the duodenal cap, indicating ulcer, and this, with a normal gall-bladder shadow, may modify the original diagnosis.

My experience is that, in the female, gall-bladder disease is now frequently diagnosed where the seat of trouble is in the duodenum, there being a widespread impression that whereas cholecystitis is a frequent ailment in the female, duodenal ulcer is rare. This is not the case. My own figures for the past twelve years for female patients are: cholecystitis and gall-stone cases 747, duodenal ulcer 202 (a ratio of 3.6 to 1). In over 10 per cent. of the duodenal ulcer cases the primary diagnosis had been cholecystitis.

It must always be borne in mind that biliary lesions are not uncommonly associated with disease in the appendix and, although less frequently, with peptic ulcer. In quite an appreciable number of cases all three lesions may be present and active—the abdominal triad. The clinical picture in such cases may be confusing if the association be not borne in mind. I have had to deal with thirty-one cases in which all three lesions were present.

Indications for Operation

Recurring biliary colic is perhaps the most frequent incentive to seek surgical relief. It may be the only symptom, as in cases of the single cholesterol stone, but more commonly there is accompanying dyspepsia of a

flatulent type and persistent subcostal uneasiness. Radiological investigation demonstrating the presence of calculi or of a non-functioning gall-bladder is a necessary prelude to operation in this group of cases.

Chronic dyspepsia is now recognized to be due more frequently to biliary disease than to any other single cause. The chief complaint is flatulence and bloating, coming on very early after meals, greatly aggravated by fried and greasy foods, and sometimes accompanied by a dull, aching pain in the right scapular region. Such chronic dyspepsia may, or may not, be punctuated by attacks of biliary colic. Such a history should suggest a purposive examination for evidence of gall-bladder disease, and, if this be positive, operative intervention should be considered.

Acute Obstructive Cholecystitis.—The characteristic clinical picture in the case where the gall-bladder is infected and its outlet obstructed is familiar to all. The fever, dirty tongue, the catch in the breathing, the boarded and tender upper right quadrant of the abdomen, and the faint icteric tinge, all proclaim the diagnosis. In the majority of cases an expectant attitude is justified until the acute symptoms have subsided. This takes on an average a week to ten days. Operation should then be undertaken and should be cholecystectomy. In certain cases, and particularly in elderly subjects, if symptoms show no signs of subsiding within forty-eight hours of the onset of the attack, operation should not be delayed. In such cases, under "twilight sleep" and local anaesthesia, the gall-bladder should be exposed, opened, the obstructing stone dislodged, and drainage established. Cholecystectomy during this acute toxic phase, with its associated hepatitis, is by no means free from risk. In quite a high percentage of such cases *B. welchii* is the infecting organism.

Stone in the Common Bile Duct.—This should be regarded as one of the complications of gall-stone disease. The clinical picture is a very variable one. Where the typical "Charcot syndrome," with its recurring colic, with rigors, jaundice, and loss of weight, is present, diagnosis is easy. In some cases, however, no history of typical biliary colic is obtainable. Jaundice may be so slight as to have escaped notice, and vague discomfort with dyspepsia and loss of weight may be the only symptoms. In other cases, following relatively mild pain, a progressive jaundice may develop, suggesting rather an obstruction of the duct by malignant disease. Wherever there is a reasonable suspicion of stone in the duct operation should be advised. Delay invariably leads to serious, and sometimes irretrievable, damage to liver and pancreas. In approximately 20 per cent. of the cases on which I have operated for stone in the common duct a previous operation for gall-stones had been performed, usually through an inadequate incision. No operation on the biliary tract, with the exception of the emergency operation for fulminating, obstructive cholecystitis, should be considered complete which does not expose the common bile duct. If the latter be dilated or thick-walled it should be first punctured with a fine needle, and if the bile show turbidity the duct should be opened and explored. Repeatedly I have discovered one or more small calculi at the lower end of the duct, concealed by some thickening of the head of the pancreas.

Distant Toxic Effects

In some cases the extirpation of an infected gall-bladder may be called for because of symptoms of secondary mischief elsewhere.

Cardiac Symptoms.—In many cases of gall-bladder disease breathlessness, palpitation, and cardiac arrhythmia are present. In some cases the cardiac disturbances would appear to be reflex in origin; in others, in obese and flabby subjects, a fat-laden heart may account for the symptoms, but in a few cases a definite toxic myocarditis is almost certainly present. In a number of cases, where the factor of obesity was not present, I have removed an infected gall-bladder which was causing relatively little in the way of local symptoms, but was associated with marked evidence of myocarditis. The results in these cases have been most gratifying, and in three cases the patients have been restored from chronic invalidism to a life of activity.

Articular Manifestations.—In some cases of so-called rheumatoid arthritis a diseased gall-bladder may be the focus of infection. In a few cases I have seen a remarkable disappearance of joint symptoms after the removal of a chronically inflamed gall-bladder. The association is not a very common one, but is sufficiently well established to warrant an investigation of gall-bladder function in cases of rheumatoid arthritis where other efforts to find an infective focus have failed.

Fibrositis.—In a follow-up of cases after cholecystectomy a striking feature is the number of patients who volunteer the information that the most gratifying result of the operation has been the betterment in their "rheumatism." This has usually been of the fibrositic type. Complaint of recurring fibrositis may therefore be one of the factors which weigh in favour of operation in a patient in whom the local biliary symptoms may not, of themselves, seem clearly to demand it.

Renal Disease.—A causal relationship between gall-bladder infection and nephrosis or nephritis is not generally conceded. In a few cases, however, the association would appear to be undoubted. Following one case, diagnosed as nephrosis, with pronounced albuminuria and general anasarca, which was associated with a suppurative cholecystitis, and which resisted all treatment until cholecystectomy was performed, the albuminuria and anasarca disappearing rapidly after operation, I have operated on three patients in whom marked albuminuria was the outstanding symptom. In two of these cases the renal condition improved rapidly after the removal of the infected gall-bladder; in the third case the improvement was only temporary. In all four cases a streptococcal infection of the gall-bladder was present.

Carcinoma of the Gall-Bladder.—This is one of the most serious complications of gall-stones, and is usually fatal in spite of operation. I have met with thirty-one cases of carcinoma of the gall-bladder. In only five of these was the disease operable, and in all fatal recurrence took place within two years. In all thirty-one cases gall-stones were present, and, from the histories, appeared to have antedated the malignant disease, in most cases by many years. A timely cholecystectomy might have anticipated the onset of malignancy. This consideration should be kept in mind when gall-stones have been diagnosed and the question of operation is under discussion.

Preparation for Operation

If biliary surgery is to be made safe for the patient strict attention to preparatory treatment is imperative. Many of the subjects are obese, flabby, and breathless, and a course of dieting and training is required to tone them up for operation. In the stout female a three-months course of dieting and daily outdoor exercise will usually reduce her weight by two stone, and render operation relatively easy and safe. If dental sepsis be present it is attended to during this period. Where stone in the duct is diagnosed, and cholangitis is present, a course of urotropine will diminish infection. If jaundice is moderate or slight and has followed a rigor and febrile attack, it is well to wait until it has, in part at least, subsided. This period can be usefully employed by restoring the body fluid reserve and supplying glucose. There is little

danger of haemorrhage following operation in a case of waning jaundice. When the jaundice is progressive and evidence of hepatic insufficiency is present, generous supplies of fluid and glucose, preliminary injections of calcium chloride and sodium citrate, and a blood transfusion are called for. If biliary obstruction be complete and the jaundice is daily becoming more intense the preparation must needs be short and intensive.

Operation

The best anaesthetic, in my experience, is gas and oxygen, supplemented by ether and combined with local anaesthesia of the abdominal wall. Spinal anaesthesia, although giving perfect relaxation, is not without danger in biliary surgery.

The main desideratum is free exposure, so that the whole pathology may be assessed and dealt with under full vision. For the average case the oblique subcostal incision gives easiest access. A complete exploration of the biliary tract, of the stomach and duodenum, and of the colon and appendix should be made. When the disease is limited to the gall-bladder cholecystectomy is the operation of choice, for the reasons already referred to.

The cystic duct and artery should be ligated separately and in continuity, well away from the common bile duct and the right hepatic artery. Injury to the latter is the most serious mistake which can be made. When stone in the common duct is present, the intensity of jaundice will determine the operative procedure. There are very few stones which cannot be safely removed by forceps through an opening in the supraduodenal portion of the duct. If there has been complete obstruction, associated with deep jaundice and severe backward pressure on the liver, particularly if the duct be distended with colourless fluid—white bile—and the stone be firmly impacted, discretion will dictate simple drainage of the duct, leaving the removal of the stone to a second operation, when jaundice is relieved and hepatic function restored.

In all cases in which stones have been removed from the common duct, drainage of the duct should be established. The gall-bladder should be removed unless this addition to the essential part of the operation seems to add appreciably to the risk—for example, when marked jaundice is present. When there is pronounced thickening of the head of the pancreas, and the gall-bladder is not sclerosed and contains bile, it is good practice to anastomose the gall-bladder to the duodenum after draining the common duct.

The most difficult decision to make is when, in a patient who has had recurring attacks of colic and in whom a dye test has given no gall-bladder shadow, a distended gall-bladder, showing no gross evidence of inflammation and containing no stones, is exposed. The surgeon is tempted to compromise by draining the gall-bladder in such cases. This practice is, in my experience, valueless. If no other pathological condition, such as an inflamed appendix or a duodenal ulcer, be disclosed it is wiser to remove the gall-bladder. It will frequently be found to be the seat of early cholesterosis. In several instances complete freedom from symptoms has followed cholecystectomy in this type of case.

Post-operative Treatment

The post-operative course following cholecystectomy is usually uneventful, except that vomiting is more frequent than after most abdominal operations. When it does occur fluid and glucose should be given in plentiful amount by rectum. Chest complications are relatively rare, particularly if an oblique or transverse abdominal incision be used and CO_2 inhalations be given at the conclusion of the operation and at intervals during the first few hours thereafter.

The jaundiced and cholaemic patient requires especial care. Large quantities of fluid and glucose are essential. Where liver function is flagging heat applied by a diathermy apparatus through the lower thoracic region will sometimes promote hepatic activity. The tendency to capillary oozing in the intensely jaundiced patient is best dealt with by small, repeated blood transfusions, and by calcium chloride.

When external drainage of the common bile duct has been established in common duct cases the tube should be clipped for the space of one hour several times a day. This improves digestion and prevents silting of biliary sand in the lower part of the common bile duct.

As pulmonary embolism is the complication most to be feared, active movements of the limbs should be encouraged from the day of operation in all cases.

Operative Mortality

The death rate of operations on the biliary tract depends largely on the presence of complicating factors, such as intense jaundice or subacute pancreatitis, but also on the care in selection and preparation of patients, and on gentle handling and avoidance of injury to hepatic ducts and vessels, obtained by free exposure and full visualization of the operative field.

The chastening exercise of reviewing the causes of death in the fatal cases in one's practice has convinced me that, while some cases were forlorn hopes, in quite a number death was due to avoidable mistakes in judgement, in preparation of the patient, in choice of anaesthetic, and in technique. For example, death resulted in one instance where cholecystectomy was superadded to an intestinal resection, clearly a mistake in judgement. In one case, in which a small fibrosed gall-bladder was removed with difficulty, the right hepatic artery was inadvertently ligated In one case haemorrhage was the cause of death, a small lateral wound having been made in the cystic artery proximal to the ligature. One patient died of cardiac failure with sudden fall of blood pressure under a spinal anaesthetic.

The cheerful side of the picture, however, is to discover that with increasing experience the death rate has steadily diminished. Thus in the six-year period 1921–7 there were 187 cholecystectomies with six deaths, whilst in the six-year period 1927–33 there were 341 cholecystectomies with five deaths, or 1.4 per cent.

When we come to consider cases with stone in the common duct the operative risk is considerably greater, no matter how careful the preparation. Thus of 130 cases in my practice there were twelve deaths, or a mortality of 9.2 per cent. In many cases the patients had been allowed to drag on for months with jaundice, accompanied by rigors and loss of weight, and were therefore poor subjects for surgery. In eight of the twelve fatal cases the common duct was distended with white bile. In some of them it would undoubtedly have been wiser merely to open and drain the duct. Even then it is questionable whether the cholaemia would have been survived. These must be regarded as neglected cases, of grave import, and are in a separate category from that of the slightly jaundiced patient in whom, with adequate preparation and gas-and-oxygen anaesthesia, operation has a mortality rate hardly exceeding that of cholecystectomy.

Where stone in the duct is diagnosed timely operation is imperative and is not dangerous.

Late Results

The late results of cholecystostomy for gall-stones are disappointing. Whilst many patients regain good health, some have recurrent mucocele of the gall-bladder from a small stone or stones having been left in the cystic duct; I have operated on twelve such cases. In a number of

patients—cured of their colic—indigestion, flatulence, and occasional subcostal aching remain. Recurrence of stone occurs in at least 7 per cent., and malignant disease may supervene as in two of my cases.

After cholecystectomy the results are good in 70 per cent. of cases. In general terms it may be stated that the grosser the pathology the better the result after operation. The most gratifying results of all are found after cholecystectomy for subacute obstructive cholecystitis. Over 90 per cent. of patients in this group express themselves as cured. Flatulence and an intolerance of cooked fats remain after operation in approximately 20 per cent. of patients. A few patients complain of occasional attacks of diarrhoea. Improvement in general health and energy, and freedom from former rheumatic pains, are the common tribute of the majority of patients.

The most striking improvement occurs in patients from whom stones have been removed from the common bile duct. From a life of semi-invalidism they are usually restored to robust health. However, in a few cases, where a subacute pancreatitis is present or where cirrhotic changes in the liver have developed, improvement after operation is slow, incomplete, and disappointing.

I shall refer but briefly to the reconstructive surgery of the common bile duct, as my experience of it has been relatively small. It is a tribute to biliary surgery in this country that I have had to deal with only three cases of fistula from, or stenosis of, the common duct due to operative trauma. In all three cases the first operation had obviously been performed through an inadequate incision, and the cystic duct must have been clamped blindly. The moral is that unless the surgeon is prepared to expose the parts fully and to assess and deal with the whole pathology present he had better not embark on biliary operations.

Summary

1. Surgery has a wide field of usefulness in diseases of the biliary tract.

2. With modern methods of diagnosis biliary disease can be detected in its early and curable stage.

3. Surgery, when timely, is curative and safe.

4. Free access with complete assessment of pathology is the watchword of biliary surgery.

5. Biliary disease has manifold and serious complications. In late and complicated cases only by great care in the preparation of patients for operation, by a minimum of anaesthetic poisoning, and by gentle and restrained surgery can intervention be made reasonably safe.

6. The late results of biliary surgery are, with a few exceptions, extremely good.

SOME EXPERIENCES OF SYMPATHECTOMY IN ANTERIOR POLIOMYELITIS

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(With Special Plate)

The unfortunate victim of severe acute anterior poliomyelitis has not only to contend with his paralysis, but may suffer much distress from coldness of the affected limbs, with persistent and severe chilblains. From these causes he may be incapacitated during long periods, especially in the winter months. One of us (E. D. T.) has charge of a very large number of these cases in a cripples' day-school, and the inquiry on which this paper is based was undertaken in the attempt to discover any measure which might help to diminish the distress from which these patients suffer.

It is necessary in the first instance to try to understand why the limb of old anterior poliomyelitis is blue and cold. In this matter we found little help from the existing literature ; the condition, so far as we have been able to find, has been tacitly accepted without inquiry or explanation. It seems evident that the direct cause of the blueness, coldness, and other vascular disturbance is the fact that not only is a smaller amount of blood entering the limb, but it is leaving the limb less readily than in a normal extremity. The diminished inflow is a later development, and, in our view, the primary circulatory defect is impairment of the venous drainage. The blueness is the result of the presence of dilated capillaries and venules containing venous blood, and is secondary to the slow return of blood by the veins. Pressure of the finger produces a blanched area, which on release of the pressure quickly fills up from all sides. This appearance has been very aptly described by Krogh as a "subcutaneous lake of blue ink."

For the purpose of investigation a number of patients were selected in whom the paralysis of the lower limbs was strictly unilateral. By this means a sound limb and a paralysed one could be tested and the results compared in the same patient. When both lower extremities of such a patient are baked in a radiant heat bath and the surface temperature recorded during the process, it will be found that the paralysed limb "heats up" more quickly than does the healthy one. If both limbs are exposed for twenty minutes to a temperature of 50° C. and are then allowed to cool at ordinary room temperature, say 22° C., it is found that the paralysed limb will cool much more slowly than the healthy one. The following is a typical example taken from a series.

A boy, aged 12 years, who had had acute anterior poliomyelitis since the age of 5, had total paralysis of the right lower extremity, the left limb being normal. The surface temperatures taken in a room at 22° C. were: right foot 27° C., left foot 31° C., a difference of 4° C. Both limbs were baked for twenty minutes at 50° C. and then removed from the machine. Five minutes later, the room being still at 22° C., the temperature of the right foot was 31.3° C. and of the left 34.3° C.: difference 3° C. When examined twenty minutes after removal from the machine the temperature of the right foot was 28.9° C. and of the left 30.6° C., the difference then being 1.7° C. These figures show that the temperature of the normal limb at the end of twenty minutes had actually fallen 0.4° C. below the pre-baking temperature, while that of the paralysed limb was still 1.9° C. higher than it was before baking.

These observations would indicate that less blood is flowing through the paralysed limb than through the normal limb in the same time. It is as if two radiator shells had been heated to the same temperature and a current of fluid then passed through each radiator, the fluid being at equal temperatures but passing at different rates. That radiator in which the current was slower would cool less quickly.

Arterial Defect in the Paralysed Limb

Direct evidence that a lesser quantity of blood does reach a paralysed limb is strikingly afforded by observations we have made on the main arterial trunks during the operation of lumbar sympathectomy in these patients. The main arteries in a limb severely paralysed for a considerable period will be found to be very much smaller in calibre. In a girl of 22, who was suffering from a total but strictly unilateral palsy of one lower extremity, dating from the age of 18 months, we found, during the per-

formance of a lumbar sympathectomy, that the common iliac artery of the affected side was very small, while the external iliac trunk was no larger than a normal radial artery at the wrist. This arterial defect will not, of course, occur immediately after the acute illness, but will develop gradually and will exert an increasing effect during the growing period. As the years pass a diminishing amount of blood, relative to the size of the limb, will enter it.

There can be little doubt that loss of the normal stimuli created by activity is responsible for the poor development of the arteries, and the latter seems to be proportionate to the loss of voluntary power. The loss of muscular activity has a more prompt effect upon the venous return, which in a limb depends very largely upon the contractions of muscles. Every movement causes compression of the neighbouring veins, and, through the arrangement of the valves in these vessels, propels the blood towards the heart. In the case of a dependent part—the legs—the venous return is conditional almost entirely upon muscular activity. The extent to which the muscle atrophies can be fully realized only by the study of a cross section through one of these completely paralysed limbs. The illustration (Fig. 1 on Plate) is from a life-size drawing of a cross section through the upper third of the leg in a case of long standing and severe paralysis from anterior poliomyelitis. It shows graphically how trivial is the amount of muscle, the size and contour of the limb is dependent almost entirely on a mass of poorly vascularized fat.

Further, it is to be noted clinically that the blueness, the coldness, and the liability to chilblains vary directly with the loss of active muscle tissue. Where even a small amount of voluntary movement is retained, blueness is not likely to be marked and chilblains are very rare. These facts have been very evident in a series of fifty paralysed children examined by us, with special reference to the relation between the amount of circulatory change and the extent of the paralysis. The dilated capillaries are secondary to the feeble venous return, but it seems probable that another factor is introduced in their production. The impaired venous drainage will prove injurious to the tissues, and is likely to lead to the release of histamine, which substance will induce dilatation of the capillaries.

A further point which calls for consideration is that in a normal limb there is always a certain tension beneath the deep fascia. An incision through the fascial stocking of a limb produces at once a bulge of the muscle belly through the opening. It is clear, therefore, that the vessels of a limb normally derive some support of functional significance from structures outside their walls. In a totally paralysed limb such support will be lacking, and its loss will obviously fall more on the veins than on the arteries. Hence in the limb of anterior poliomyelitis not only is the arterial channel smaller, as we have shown above, but the venous pathway is badly supported and the venous return is grossly disturbed by the loss of muscular activity.

The question of altered trophic influence is more difficult, but there seems no reason to invoke an explanation which is not only very academic, but to which there seem definite objections. For instance, there are performed every year many hundreds of extensive operations for the stabilization of feet in anterior poliomyelitis, and these wounds invariably heal well. A further point is that one of us, in the course of twenty-eight years' experience of "surgical" tuberculosis, has never seen tuberculosis develop in a limb afflicted with old anterior poliomyelitis.

A living active limb cannot, of course, be regarded merely as a radiator deriving all its heat from a current of blood; metabolism and movement contribute some share. Such changes must be profoundly affected in anterior poliomyelitis, and this, though probably of minor importance, may be a factor in the lower temperature of the limb.

There is no evidence that the sympathetic supply to the vessels of the limb is in any way affected in a typical case of anterior poliomyelitis. In the course of operations carried out for the stabilization of these limbs we have on several occasions made observations on the temperature of the limb. If a spinal anaesthetic, reaching to the sixth dorsal segment, is given to a patient with anterior poliomyelitis of the legs, the lower limbs will show a marked rise of temperature and assume a pink colour while the patient is lying down. These observations show that the vaso-constrictor mechanism is intact, because the action of the anaesthetic, producing as it does a temporary paralysis of the mechanism, leads to a rise of temperature as in a normal limb. The rise of temperature we have obtained in these limbs is from 5° to 6° C. This is less than the rise which occurs in the normal limb of a young patient, in which an increase of 8° C., or even 10° C., will be observed. This difference in the amount of response adds further support to the suggestion that the vascular supply of an old anterior poliomyelitic limb is not on a scale proportionate to the size of the limb.

It seems evident from the foregoing that if we can increase the amount of arterial blood entering an old anterior poliomyelitic limb, we might be able to abolish permanently the coldness and liability to chilblains. This can, of course, be readily done by the operation of lumbar sympathectomy, and to this end we selected, in the autumn of 1932, three of our worst cases for treatment.

Case Records

Case 1.—A male, aged 17, with total paralysis of both lower extremities and severe scoliosis, was able with the aid of walking callipers and a celluloid jacket, to follow his employment as a watchmaker. Every winter, however, he was incapacitated by severe chilblains and ulceration. Under a spinal anaesthetic the temperature of the feet rose on the right 6° C. and on the left 5.8° C. Bilateral lumbar sympathectomy was performed on August 27th, 1932, and the result has been excellent. During the whole of a winter which was marked by spells of severe frosty weather the patient did not have the slightest trouble. His feet and legs have always been warm, and he has been able to continue his employment without any interruption.

Case 2.—A boy, aged 12, with total paralysis of both lower extremities, could walk with callipers and a celluloid jacket but was totally incapacitated each winter owing to severe chilblains and ulceration. Under a spinal anaesthetic the temperature of the feet rose on the right 7° C. and on the left 6° C. The result of the bilateral sympathectomy, performed on August 27th, 1932, has also been excellent. The patient has been seen many times and during the most severe weather the feet and legs have always been warm and of almost normal colour. He has lost no time from school.

Case 3.—A female, aged 21, with total paralysis of the right lower extremity, had operations as a child for arthrodesis of the knee and stabilization of the foot. These gave a good result, and the limb was a useful prop in walking, but every winter since the onset of the paralysis at 18 months she has had severe ulceration over the lower part of the calf. For the past two years a large ulcer has persisted and has shown no sign of healing under very competent treatment by elastic pressure (Fig. 2 on Plate). Under a spinal anaesthetic the temperature of the affected foot rose 5° C. On October 29th, 1932, the right lumbar sympathetic cord was excised, and the ulcer began at once to clear up. It was soundly healed in six weeks and the patient passed through the winter with no sign of trouble in the leg.

The result in these three experimental cases shows that sympathectomy has been of very great benefit to these patients. During the whole winter their limbs have remained warm, and there have been no distressing chilblains or period of incapacity for school or work. They

are most enthusiastic about their greatly increased comfort and happiness, even in the coldest weather; the warmth is most striking and in a paralysed limb seems quite unnatural. The colour has improved markedly in all, but when the patient has been standing for a time there is still a trace of cyanosis, mostly in the calf, showing that in the erect position there is still some lag in the venous return.

Although the number of cases is small and but one winter has passed since the operation, yet we think it likely that sympathectomy will prove of real value in those cases of anterior poliomyelitis which are subject to recurrent chilblains and ulceration. The results obtained so far have been so entirely satisfactory that they seem to us to justify a more extensive trial of the operation.

The question of the permanent results of operations on the autonomic nervous system is raised by writers from time to time. In a recent article[1] Lambert Rogers states ". . . the vascular responses to sympathectomy, . . . as is well known, are soon recovered from." Such a statement is, in our opinion, worthless unless the word "sympathectomy" is more exactly defined. If perivascular sympathectomy is meant, we agree, but if removal of cord and ganglia is meant, we disagree entirely with the statement. A number of our cases of ganglionectomy are now of two years' duration, and not-one of these shows the slightest sign of any relapse. That cases of "sympathectomy" have shown incomplete results and serious relapses is no doubt true, but we maintain that such poor results are due, on the one hand, to inadequate removal—for example, perivascular methods and attempted ramisectomy—or, on the other hand, to those wide anatomical variations which are, to the surgeon, so troublesome a feature of the autonomic system. The latter is especially true of the cervico-dorsal ganglionectomy. We maintain that if ganglionectomy be adequately done there is no question that the result is complete and permanent. There is, by now, ample support for this contention in the literature of ganglionectomy in both man and animals.

BILATERAL FIRST THORACIC GANGLIONECTOMY IN TWO CASES OF PARKINSON'S SYNDROME*

BY

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AND

K. C. GHOSH, L.M.S.

(With Special Plate)

Within recent years the sympathetic system has been brought into prominence mainly through the work of Hunter and Royle, and it has become more and more obvious that our knowledge of its physiology has been grossly misleading since the reports on cases in which operative procedures have been performed on the sympathetic nerves and ganglia have been published. It is only by clinical study on the human subject that our knowledge may be improved, as there is no doubt that the function of the human sympathetic system is not exactly parallel with that of the lower animals. The following cases are reported to show the effects of removal of the first thoracic ganglion in Parkinson's syndrome in the hope that, as time goes on, the accumulation of data from different observers may lead to a fuller understanding of the obscure and complicated function of this part of the nervous system.

[1] Rogers, L. C.: *Lancet*, 1933, i, 580.

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Case I

The first case was that of a female Teochew Chinese, aged 28 years. She was admitted to the medical wards of the hospital on February 20th, with a history of having been ill for three months with progressive lethargy and paralysis. On admission she was unable to walk, the knee and ankle reflexes were increased, there was no Babinski *reflex*, both arms were spastic, and the right hand showed the typical pill-rolling movement. The left hand was spastically contracted, and the lips were tremulous. Cerebration was slow, and fine tremors of the tongue were present. Both fundi were normal, and there was no facial paralysis. There was nothing else of note in any of the systems, and the case was diagnosed as Parkinson's syndrome following encephalitis. In conversation with the physician, Dr. Norris, who was in charge of the case, I suggested bilateral first thoracic ganglionectomy to determine if any improvement could be effected. According to Royle, the result of this procedure is to cut off the sympathetic control from the cerebral vessels, and thereby produce a dilatation of these vessels, thus increasing the blood supply to the brain. The operation is said to produce improvement in Parkinson cases.

On March 2nd the patient was operated on under local anaesthesia, according to Royle's technique, and the first thoracic sympathetic ganglion and also the last cervical ganglion, which was fused with it, were removed on the right side. During the operative procedure the patient remained perfectly quiet until the ganglion was picked up by forceps prior to section of the nerve trunks and roots for removal. Immediately the ganglion was compressed the patient called out and the pulse accelerated. It was noted that each time the ganglion was compressed she called out, and when the pressure was removed she remained quiet. Immediately the ganglion was removed Horner's syndrome was noted on the same side. Three hours after the operation the twitchings of the right hand were slower but more forcible and the arm had lost some of its spasticity and was more freely movable. No alteration of the skin temperature on the same side of the face was apparent, as tested by hand touch, the only method available to us. On the following day the right arm movements were slightly easier and she appeared to take some interest in her surroundings and appeared more cheerful, whereas prior to operation she was lethargic and took no interest in anything. The right pupil had contracted to a pin-point, and the action of the right arm was more co-ordinated. During the succeeding five days there was no material change in the patient, except, perhaps, a slight improvement in cerebration, and a slightly more cheerful outlook. She was quite interested in the taking of the polygraph tracings. The ganglion was sectioned by Dr. Ghosh, and showed the normal structure of a sympathetic ganglion as seen in Fig. 1 (see Special Plate).

On March 11th the operation was repeated on the left side. The ganglion was exposed and the same phenomenon of shouting out was noticed when the ganglion was compressed. The effect of thus stimulating the ganglion was so noticeable that the experiment of compressing it was deliberately repeated several times to demonstrate that the sign was due to pressure. The pulse at the beginning of the operation was 72. During the manipulation of the ganglion it rose to 120, and subsided to 100 after section of the roots. Half an hour after the operation the pulse was steady again at 72. The ganglion was sectioned, and showed the same structure as on the right side. The blood pressure was taken before the second operation, and gave readings of systolic 138 and diastolic 108; on the second post-operative day the pressure was 120/80. Throughout the period of observation the blood pressure varied between 150/110 and 100/80. The cilio-spinal reflex was lost on both sides after operation. Polygraph tracings were taken before and after the second operation, but there was no appreciable difference in the action of the heart. So far as the muscular movements were concerned there was practically no change after operation. On the second post-operative day the tremors of the left hand were slightly less active, but the patient appeared depressed. On March 15th she was much more cheerful and intelligent, and made attempts to stand and walk. By March 28th she was able to walk about and attend to her own physical needs, feed herself, and roll her own cigarettes,

whereas prior to operation she had been completely lethargic and everything had to be done for her. From this period onwards the general condition remained *in statu quo*, and during the succeeding month, when the patient was kept in hospital under observation, no further improvement was manifest.

Case II

The second case was that of a male Hokien Chinese, aged 33 years, who was referred to me by Professor Hawes. He had been an inmate of the pauper hospital for several years, suffering from Parkinson's syndrome, apparently the result of an encephalitis. In this case the tremors were confined to the right upper and lower extremities and to the lips. Mentality was slow and expression vacant, but he was fairly cheerful in disposition. Both fundi were normal. The patient answered questions sensibly. He was able to walk about and do a little light work, such as attending to the flowers.

First thoracic ganglionectomy on the right side was performed on April 20th under local anaesthesia. A polygraph tracing was taken before operation, and the physiologist was in attendance to note any variations in pulse during the operation. The pulse rate before operation was 66, blood pressure 120, 82. Pupils were normal and reacted to light and accommodation. The pulse rate at the commencement of operation was 120, and showed no change when the skin was cut, but this might be inferred, since the operation was performed under local anaesthesia. During the manipulation of the deep connective tissues the pulse rate rose to 140, but returned again to 120. When the ganglion was exposed and picked up by forceps the rate rose to 160, and the patient groaned and struggled. After the removal of the ganglion the pulse fell to 108. Half an hour after returning to the ward the pulse rate was 98 and two hours later it had dropped to 70, and the blood pressure was 164/100. Five days later the patient's mental outlook was improved, but there was no change in the muscular tremors. Polygraph tracings were taken during the week.

On April 29th the operation was repeated on the left side. During this operation a continuous record of the pulse was taken, since so far as our knowledge of the sympathetic system goes the result of this operation, together with the operation on the right side, would be the complete division of the sympathetic control to the heart. This control is stated to occur by sympathetic fibres leaving the spinal cord by the first, second, and, possibly, the third thoracic roots. The fibres then ascend in the sympathetic cords and have their cell stations in the *superior, middle, and inferior cervical* ganglia of each side, whence new fibres arise and pass to the superficial and deep cardiac plexuses. At the commencement the pulse rate was 100 and rose to 140 when the deep connective tissues were being separated. The groaning and struggling were repeated when the ganglion was being compressed as in the previous operation. During the removal of the ganglion the pulse varied between 152 and 100, accordingly as the sympathetic fibres were being stimulated or not. On return to the ward the pulse had steadied to 92, and the blood pressure was 130/90. On the second post-operative day the pulse was steady at 62, and remained around this rate during the remainder of his stay in hospital. There was no material change in the heart's action, as demonstrated by the polygraph tracings taken before, between, and after the operations. The patient's mental outlook and disposition were slightly bettered, but no improvement was noted in the muscular condition in this case. He was kept under observation for a month, and then returned to the pauper hospital. Both ganglia were sectioned by Dr Ghosh, and both showed the normal structure of the sympathetic ganglion.

Discussion

Although in both cases the operation effected an improvement, which was much more marked in the female case than in the male, neither subject was improved to such an extent that he or she became a useful member of the community. The reason for the greater improvement in the female was probably that the condition was not of such long duration. The result—that she was improved to such an extent that she was able to attend to her own wants—justified the operation, but in the case of the male this hardly seemed true.

From these cases it would appear that the sympathetic control of the heart is not essential for its normal function. That stimulation of the sympathetic produces increase of the heart's rate is evident from the effect of pressure on the ganglion. In several cases the vagus has been accidentally sectioned in the neck on one side, and no appreciable difference has resulted in the heart's action. Such results lead one to believe that the rate of the pulse is dependent primarily on the intrinsic plexuses of the heart and on the heart muscle itself, and that the vagus and sympathetic merely exercise a controlling influence on the heart in mental states such as excitement and depression. If this is not so there must be sympathetic and parasympathetic fibres reaching the heart from sources as yet unknown to us. Developmentally, the heart is a cervical organ, and as such one expects that its nerve control would function through the cervical nerves. Our present knowledge of the gross anatomy of the heart seems to confirm this view, since all the extrinsic nerves of the heart arise in the neck region. It is highly probable, however, that the heart in the human subject has gradually evolved an independence from the extrinsic nerves, and that its rhythm is controlled through its intrinsic plexuses. Whether the increase in the rate in fevers is due to the specific toxins acting directly on the intrinsic plexuses or through the extrinsic nerves still remains to be proved. It would be interesting to see the effect of a specific fever on a patient who has had a double ganglionectomy performed, to note whether the pulse rate would increase with the temperature. I feel certain it would, which would indicate that the variations in pulse rate were primarily due to stimulation of the intrinsic plexuses. This explanation is in keeping with the function of the gut, in which the peristaltic movements are controlled through its intrinsic plexuses.

Cunliffe Shaw makes some interesting observations in connexion with tissue changes. He states that the sympathetic control of tissue cells is normally of the nature of a brake, and regulates the physico-chemical balance of these cells. I believe that one might go a step further and state that the action of the autonomic system in general is that of a watching brief over the various tissues and organs. It is difficult to explain the groaning of the patients during the manipulation of the ganglion at its removal on the basis of our present knowledge. The sympathetic system is not supposed to carry painful stimuli, yet the only other explanation is stimulation of the first thoracic nerve, which sends two roots to the ganglion. I do not favour the latter explanation, as the groaning occurred during pressure on the ganglion, which suggests that pain fibres are present in the ganglion. I have suggested to the physicians in the General Hospital that a double ganglionectomy might be tried in a case of exophthalmic goitre. If the tachycardia is produced through the sympathetic system the chief symptom of goitre should disappear when the sympathetic control is removed. Frankly, I believe it is a direct action of the altered thyroid secretion on the heart muscle and intrinsic plexuses which produces the tachycardia. So far I have not had an opportunity of testing this, as goitre is uncommon in Singapore.

While it is impossible to dogmatize on the results of two cases, the evidence points to the fact that the heart is intrinsically controlled, and it would be interesting to have the results of other workers in this field for comparison. In the past, the sympathetic system has been blamed for all sorts of ills, but judging from the results of sympathectomies in various parts of the body, the action of the sympathetic is a very subsidiary one in the normal human economy. When the sympathetic is causing spasm in diseased conditions, as in carcinoma

of the bladder or Raynaud's disease, section of the nerves involved has a beneficial result, but in the normal economy the sympathetic, like the appendix or gall-bladder, can be dispensed with.

The observations on the pulse rate and blood pressure were conducted by Dr. Ghosh, who took a keen interest in the work. I have also to thank my house-surgeon, Dr. Apparajoo, for his careful clinical record of both cases.

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FRACTURES OF THE SPINE

TREATMENT AND TRANSPORTATION*

BY

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(With Special Plate)

Fractures of the spine, by which I mean crush fractures of the bodies of the vertebrae, constitute a much commoner injury than was formerly supposed—perhaps even a commoner injury than is at present fully recognized. In proof of this I may state that not long ago five cases of fractured spine came under my own care in six months. But apart from the frequency of this injury, its seriousness, both in the immediate consequences of the graver forms with compression of the cord, and also in the later complication of minor degrees, cannot be too heavily stressed. With regard to the minor degrees, all orthopaedic surgeons are familiar with the "wedging" of vertebral bodies, as seen in the lateral profile of the spine, in cases referred to them complaining of increasing pain and disability in the back following a fall some months previously. This pain is localized, and sometimes radiating. The late Sir Robert Jones never tired of impressing on us that callus forming round a fracture was definitely soft for variable and prolonged periods, and that up to six months from accident such callus might permit deformity to increase by bending, compression, or shearing at the site of fracture, if premature weight-bearing was permitted.

Everyone is aware that "crush fractures" (compression fractures) of the bodies of the vertebrae may at first present very slight deformity on the *x*-ray film, but a crush fracture implies an inflamed bone, and rarefying osteitis soon softens this bone sufficiently to permit gradual, or even rapid, "wedging" of the bodies if premature weight-bearing is allowed. These facts sound the clarion call of preventive medicine—namely, (1) for the earliest possible diagnosis, and (2) for the earliest possible correct transportation and treatment if deformity, disability, and even death are to be prevented.

Early Diagnosis

If a man has a heavy fall, and is partially or completely paralysed from the waist down, anyone can diagnose a "broken back." But in cases where the spinal cord is not at once involved the patient may walk, though he complains of severe, persistent, localized spinal pain. All such cases should at once be submitted to a very careful antero-posterior and lateral *x*-ray examination. A true conception of "crush fractures" and fracture-dislocations of the spine, as regards (1) frequency, (2) degrees of severity, and (3) late "wedging" of injured vertebral bodies, has only been rendered possible by the improved technique in obtaining lateral (profile) views. By this method any alteration in the general antero-posterior curves of the spine can at once be detected, as well as any change in shape or relations of the individual bodies of vertebrae.

Principles of Treatment

To appreciate the mechanics of treatment we should try to understand the mechanics of the cause. In most cases of wedge-shaped vertebrae following injury we find the wedge shallower in front and deeper posteriorly. Assuming the spine to be a column of support, or flexible girder, this wedging, shallower in front, indicates the crushing force to be greater in front. This suggests *flexion of the spine* in excessive degree to be the cause. In my experience, the lower dorsal and upper lumbar vertebrae are those more frequently affected by "crush fracture." Here again we have the normal curve of dorsal kyphosis (convex backwards) changing to lumbar lordosis (convex forwards). Change of curve in any structure constitutes a source of weakness under undue strain. Assuming, then, that excessive flexion is the cause, we have compression in front of the spine and tension at the back. This fractures the body of one or more vertebrae by crushing into a wedge shape, and, if the force continues to act, this wedge-shaped body tends to slide backwards by dislocation, and may involve the spinal cord by immediate direct bony pressure, or by subsequent pressure due to haemorrhage or inflammation. During excessive flexion of the spine we have relaxation of the anterior longitudinal ligament. If this is not torn we have a possible factor for reduction of deformity in the pull which it can exert during extension and hyperextension of the spine.

Reduction by Extension

The late Professor Kocher of Berne, at whose clinic I spent several months, showed us his method of reduction for fracture-dislocation of the cervical spine ("cherry-tree fracture"). It was as follows:

1. A leather sling, shaped to occiput and chin, was applied, and strapped to head of patient's bed.
2. The professor's assistant, standing at the foot of the bed, grasped the patient's ankles, and at the word of command began a steady, slow, progressive, heavy traction on the spine, through the legs and pelvis.
3. The professor's fingers and thumbs manipulated the neck during extension, and recorded the "click" of reduction.

I had the privilege of seeing three such cases recover in the same month, and witnessed one of the reductions (1902).

For dorsal and lumbar fractures my own technique has been:

(*a*) *In Recent Cases* (soon after injury).—Place the patient face downwards on a hard table, with a large sandbag lying transversely under the upper part of the thorax, and another large sandbag (or bags) transversely under the pelvis. This produces a very marked "hollowing" of the back, with hyperextension of the spine. In this posture of hyperextension a posterior plaster spinal shell is applied. On this plaster shell, lined with felt half an inch thick, the patient is nursed in bed for three to six months, and is then allowed up in a spinal support, with axillary crutches, to be kept on for twelve months or more.

(*b*) *In Later Cases* (three months or longer after injury).—With these I use Whitman's modification of the Bradford spinal frame, in the hope of obtaining gradual reduction. If this is not tolerated I use the posterior plaster shell to give anatomical fixation and physiological rest, followed by a spinal support as above.

To a vice-president of this Section, Professor Harry Meade, I owe a very deep debt of gratitude for introducing me to Dr. Böhler's methods of fracture treatment,

* Read in the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Dublin, 1933

which I have followed closely for four years. To Dr. Böhler himself I owe a debt which can never be repaid—a debt which is shared by most orthopaedic surgeons, and by humanity at large. In November and December, 1930, I had the pleasure of meeting Dr. Böhler in London and in Dublin. He then explained to us his method of treating "crush fractures" and fracture-dislocation of the spine by "suspension." This appealed to me as being both practical, powerful, and simple. In fact, like all his other work, it represents applied anatomy, applied physiology, and applied mechanics rolled into one—*Teres atque rotundus*. Below I cite an instance of its use.

In May, 1931, my next case of fracture-dislocation of the spine turned up for treatment, with compression of the spinal cord. Riding a horse in Phoenix Park, the patient was knocked against a tree and thrown off. On examination it was found that he had a crush fracture of the ninth dorsal vertebra, with wedging of its body and dislocation backwards and sideways. The spinal cord or its nerve roots was also compressed, with complete motor paralysis of the right leg, partial sensory paralysis of the left leg, and loss of control of bladder and rectum. After consultation with my neurological colleague, Professor F. C. Purser, I decided to treat the patient by Böhler's suspension method. The anaesthetic used was 1/3 grain of morphine. For this suggestion I am indebted to Mr. Watson Jones: this anaesthetic was completely successful. A brief description of the four stages of the treatment is given below (see Plate).

Stage I: The patient lies face downwards on two tables, placed to form a T, the head and shoulders only resting on the transverse table, the body and legs on the other. *Stage II*. The ankles are padded thickly with felt, placed between and around. A rope is made fast around the padded ankles by a "clove hitch," and suspension tackle is hooked on. *Stage III*: The ankles are slowly hoisted from the horizontal to the vertical, thus exerting powerful traction in the axis of the spine, and hyperextension in the anatomical sense. This stage should occupy twenty minutes, and during it partial or complete reduction of the fracture-dislocation should be effected. *Stage IV*: The table under the body and legs is removed, and on the hyperextended spine a posterior plaster shell, suitably padded with felt (or a complete plaster jacket), is built up, and the patient lowered.

In ten days after suspension this patient began to move the previously paralysed toes, and two days later he recovered control of bladder and rectum. From the twelfth day he recovered the lost motor power and sensation gradually, and this was completed in three months. After three or four weeks he was given an anterior spinal shell, and then nursed for six months in a posterior shell by night and an anterior shell by day. In the latter he was encouraged to use his spinal muscles, which he did vigorously. X rays proved the dislocation completely reduced, and the wedge-shaped body of the ninth dorsal vertebra to be reconstructed in true rectangular shape when seen in profile. Six months after the accident he was allowed up in a special spinal support of poroplastic and steel lattice of my own design, which carried a pelvic girdle and axillary crutches to prevent any further compression of injured vertebrae. One year after breaking his back he learnt to swim the "crawl stroke," and he is now a creditable performer.

Transportation of Spinal Fractures

If suspension of the body with the spine in *hyperextension* is the method of choice in treating these fractures, as has been amply proved by Dr. Böhler and those of us who closely follow his technique, then to transport a patient suspected to have this injury in any other position becomes, in my opinion, an act of gross neglect. I wish here to record my indebtedness to Mr. Watson Jones (who has his own admirable method of hyperextension for these fractures) for his suggestion to transport these cases *face downwards*. If the patient is placed face downwards on the stretcher, with a roll of coat, blanket, or sandbag transversely under the upper part of the chest, and another transversely under the pelvis, the spine will sag by gravity into the posture of hyperextension. In this posture automatic reduction of the deformity may even occur during the period of transportation; but in any case the injury is not made worse. I am gratified to think that my friend Sir John Lumsden, commissioner of the St. John Ambulance Brigade in Ireland, had the courage more than two years ago to make an order that all patients suspected to have this injury should be transported face downwards by all officers and men working in his district. To prove the wisdom of his decision I may quote a case from Canada, which occurred twenty years ago.

A former pupil of mine, Dr. Cecil Boyd, while surgeon to a mining camp, was called to a lumber camp, where a "tree-rigger" fell about one hundred feet into smaller trees. He was much torn and lacerated, semi-conscious, and paralysed from the waist down. After dressing his wounds, Dr. Boyd noticed that he made persistent efforts with his arms to turn over on to his face. Finally Dr. Boyd decided to turn him over, face downwards, with a roll under chest and pelvis. In this position he was transported 150 miles over rough country to hospital, without moving, and recovered from his broken back and paralysis.

As regards cases of broken neck (fracture-dislocation of the cervical spine), the best authenticated accounts of this accident suggest that it occurs in flexion. Kocher has proved that extension of the spine and hyperextension of the head and neck provide a method with many successes to its credit. Therefore, in my opinion, any case which is conscious, but paralysed in both arms and both legs, should be transported with the head and neck hyperextended over a small hard pillow or sandbag, cylindrical and four inches thick, placed transversely behind the neck and above the shoulders. For this form of spinal fracture the patient should be transported on his back.

HAEMANGIOMA OF THE SPINE

BY

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(*With Special Plate*)

Since the first radiograph of a haemangioma of the bone was published in 1917 by Hitzrot[1] numerous other cases have been recorded, and it has become possible by comparison of these findings to recognize haemangioma of the vertebrae. In January, 1930, Bucy and Capp[2] reviewed all the recorded cases and classified the radiological findings, stating that they considered a diagnosis could be made from the radiograph in the majority of cases. Haemangioma of the vertebrae differs from haemangioma elsewhere, and presents a definite radiological picture of its own. It has been stated that haemangioma of the vertebrae is rare, and clinically this appears to be true. Bucy and Capp[2] found only eleven recorded cases which had produced symptoms. These were not isolated to any age period, but women were affected more than men in the proportion of nine to two. In all but one of the cases the symptoms were those of a compression myelitis, and were indistinguishable, except by *x* rays, from an extramedullary tumour. In the other case, that of Makrycostas,[4] the symptoms were not recorded.

Pathologically haemangiomata are not rare, numerous cases having been recorded post mortem—limited, however, to the body of the vertebra, and not producing

symptoms during life. Saltykow,[5] Pentman,[6] and Fibigar[7] each report one case. The lesions so far reported have been situated most commonly in the mid-dorsal region, less commonly in other dorsal and lumbar vertebrae; but until the present none have been described in the cervical bodies. Topfer[8] sectioned the bodies of 2,154 vertebrae and found in 11.93 per cent. evidence of angioma; in thirty-four of these the tumours were multiple; in four cases it extended beyond the body; in three cases into the arch; and in one into the spinous process. Haemangiomata occur in other bones, the skull being the commonest site, the scapula, ilium, sternum, and clavicle being less frequent sites. In one case only—that of Ewings—was a collapse of the body of the vertebra described. The *x*-ray findings recorded by Bucy and Capp[2] are as follows.

"Irregular absorption of the bony trabeculae and thickening of the remaining vertical trabeculae, with resultant dense parallel vertical striations in the body of the vertebra, together with loss of the normal homogeneous bone structure in the radiograph."

The microscope slides of this condition show large, dilated, thin-walled vascular spaces, and a meagre amount of supporting connective tissue. The bone appears at first to be honeycombed with dilated and tortuous capillaries. As no case has been recorded of the condition occurring in the cervical vertebra, and as the total number of cases of haemangioma diagnosed during life is so small, we were prompted to report the present case, which presents unusual features. The case came under observation following an accident, which led to the serious condition of subluxation at the atlanto-axial joint.

Case Record

H. W., a meat carrier, aged 38, was struck on the back of the head and neck by a side of beef. He felt severe pain at the site of the blow, and lost consciousness. Admitted to hospital, he regained consciousness six hours later, but the pain continued, and he was unable to rotate the head. He was treated in a supine position for seven days, and was then fitted with a plaster casing for the head and neck, and afterwards with a rigid collar. The subluxation has not been reduced, but it has not become more marked. The radiograph (see Figs. on Plate) shows a remarkable condition of the upper cervical spine. The atlas is subluxated forward on the axis, the odontoid process being bent forward. Close examination of the body of the axis shows that the normal bony density is not present and that the whole body appears to be riddled with small spaces, while the remaining bony trabeculation round the spaces is thickened. The condition is localized to the body, odontoid process, and laminae of the axis. These parts are necessarily softened and weakened. The mechanism of the subluxation was probably as follows. The head, carrying with it the atlas, was thrust forward by the violence applied from behind. The atlas as it moved forward dragged on and bent the softened odontoid by means of the transverse ligament. The pain, more severe at first and still persisting, has all along been referred to the back of the head on the left side—that is, the area of distribution of the posterior root of cervical 2. The involvement of this root is readily understood. The rest of the spine and the other bones were radiographed, but showed a normal appearance. It must be assumed, therefore, that the lesion is a single isolated haemangioma.

Comment

Reviewing the treatment of spinal haemangioma Ramage[9] states that operative treatment was carried out in five cases suffering from compression symptoms, the operation in each case being laminectomy. Three patients died from post-operative shock, and in two recovery was followed by deep *x*-ray therapy. Radiation therapy is indicated in haemangioma in other parts of the body, and only contraindicated in the spine when pressure symptoms on the cord render the condition dangerous. Ramage records good results in his case by treatment with deep *x*-ray therapy in spite of cord symptoms, which were present when treatment was commenced. *X*-ray treatment was undertaken in the present case, and the symptoms of pain and limited movement have been relieved, but the bone shows no increased consolidation even after twelve months' treatment. As regards prognosis, there seems little hope of being able to dispense with the immobilizing apparatus which prevents the subluxation from becoming a complete dislocation.

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A CASE OF "MARCH FOOT"

BY

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SURGEON TO KING GEORGE HOSPITAL, ILFORD, AND TO ROYAL HOSPITAL, RICHMOND; ASSISTANT SURGEON TO PRINCESS LOUISE HOSPITAL FOR CHILDREN, KENSINGTON

(With Special Plate)

The condition described below, although not uncommon,* is far from being widely recognized. A short description of a typical case therefore seems merited.

Mrs. S., aged 29 (one child), worked as a milliner's assistant from 8 a.m. to 8 p.m. Before and after these hours she performed a housewife's duties. For six months her feet had ached when she walked home in the evening; she dreaded kerbstones, rough roads, and getting off a bus. During the six weeks before I saw her the pain in her right foot was very severe all day; she had worked with her knee resting on a chair, and walking caused her agony. She had worn a steel arch support, applied liniments, and rested in bed for ten days, but without relief; and finally she had given up her post.

When I examined her she was pale, thin, and tired. On the dorsum of the right foot was a slightly cyanosed, diffuse swelling, warm to the touch; it scarcely pitted on pressure. It was painful and tender, especially over the distal half of the shaft of the second metatarsal, where a definite rounded hard swelling, the size of a small walnut, was palpable. No crepitus was detected in it. On the sole of the foot were callosities over the heads of the first and second metatarsals. No other painful places were detected. The foot was normally mobile, and the toes were freely movable in flexion, in extension, and sideways. I mention the easy lateral movements, as in most cases of "march foot (*pied force*) the second and third toes are somewhat fixed, and can only be moved sideways with pain. This is due to spasm of the interosseous muscles, the spasm being one of the predisposing factors in the development of the condition. The feet were moderately flattened, the left more than the right.

X-ray examination showed the following points: (1) The right foot was "weak" architecturally. This is denoted by the apparent prolongation of the space between the bases of the first and second metatarsals, through the first and second cuneiform bones to the scaphoid. This cleft indicates laxity of these joints, and consequent hypermobility of the first metatarsal, which rolls upwards during weight-bearing (thus permitting over-pronation of the foot). With such an inefficient first metatarsal, extra weights must be carried by the other, slenderer metatarsals, especially on the second and third. Radiological evidence of this is shown by a defini-

* A description of "march foot" appeared in the *Epit.* August 5th, 1933, para. 102.

compensatory thickening of their shafts (see Fig on Plate) (2) On the shaft of the second metatarsal at the junction of the middle and distal ends was seen a fracture surrounded by a rounded mass of callus this was the palpable hard swelling noted clinically The fracture and callus formation is a later characteristic of 'march foot', it occurs quietly without incident and is due to cracking of the weakened overstressed bone Its location to the point of entry of the nutrient artery of the bone is fairly constant

The patient was successfully treated by the following procedures (1) Rest in bed until the pain subsided (2) Fitting with bespoke robust lined shoes adjusted with inside wedges a metatarsal bar and a thick soft tongue (3) Massage and exercises to restore the tone of the exhausted muscles of the feet and legs (4) General tonics Finally the patient was warned that her feet were 'built weakly,' and therefore she would always need to take more than usual care of them This would include wearing shoes of the "sensible" rather than of the fashionable type The pain and disability had reduced her to a state of indifference to appearances (only a temporary phase) but she must walk and work again first

Comment

Cases like this are seen oftenest in soldiers who march long distances with packs The above record, however, emphasizes the importance of x raying every painful foot Unusual conditions and unexpected fractures are not infrequently revealed in this way, and may even prove of medico legal significance Further, x rays by showing the type of foot architecturally, give valuable help in prognosis, and, where 'weak' feet are found, enable prophylactic advice to be offered

THE ROLE OF FUSION OPERATIONS AS APPLIED TO THE HIP-JOINT*

BY

G R GIRDLESTONE, F R C S

HONORARY SURGEON WINGFIELD MORRIS ORTHOPAEDIC HOSPITAL OXFORD

(With Special Plate)

In the following short paper I confine myself to the role of arthrodesis in arthritis of the hip in two groups—(*a*) the tuberculous, and (*b*) that nondescript, non tuberculous group which we may for the present purpose name the "arthritic'

Tuberculous Arthritis

The indications for fusion operations in this group are (1) to promote healing (2) to prevent recurrence, (3) to prevent deformity—particularly severe adduction and flexion In adults the promotion of healing is the paramount and all sufficient reason for in adults tuberculosis of the hip does not otherwise heal Indeed, amputation is the only and unattractive alternative Our practice is to confirm diagnosis by arthropsy, proceeding at once, if the naked eye appearance is indubitable, to intra and extra articular arthrodesis In children each case must be individually considered One or other or all of the indications may call for the operation, and I think arthrodesis will be found advisable in most cases in which there has been serious damage to the articulation itself

The contraindications of this treatment are (1) septic infection, which commonly leads to ankylosis without operative arthrodesis, but sometimes requires radical drainage, and in adults may ultimately necessitate amputation (2) Tuberculous disease so extensive that arthrodesis is impracticable In such cases an extensive resection may be necessary

As regards the method in tuberculosis this should, in adults, always be both intra and extra articular, the extra articular being simultaneous with, or subsequent to, the intra articular arthrodesis In the case of children, as in our practice operation is commonly postponed until the convalescent, recalcifying stage is reached, the extra articular method alone is often sufficient Excision of the articulation and intra articular arthrodesis is added only when there are x ray indications of much necrotic debris

Technique should involve the turning down of the broadest possible iliac flap In our hands, experience has proved this technique to be much more reliable than a femoral or tibial graft We operate with the patient lying undisturbed on a Robert Jones abduction frame, and in doing the purely extra articular operation we take great care to avoid opening into the infected area It is, I think because of these precautions that we have a very low proportion of sinus formations A sinus has only appeared in 4 per cent of the operations and has even then been brief and uncomplicated by septic infection

Non Tuberculous Arthritis

Here the indications for operation are pain, and disablement on account of pain or deformity But whereas in tuberculosis arthrodesis is always the operation of choice, in non tuberculous arthritis there are attractive rivals—to wit pseudarthrosis (for example, such as that I described in the *Robert Jones Birthday Book*), when a free range of mobility is the great essential or, as a middle course, some form of "reconstruction"

Statistics in 114 Cases

In the table below are seen the results of the operation in the two groups

Table I—*End Results Arthritis of Hip*

	Cases	Fusion	Satisfactory End Result	Deaths	Ankylosis
Tb	76	52	41	1*	37 = 90 %
Non Tb	38	13	13	1†	12 = 92 %

* Death one year later
† Post-operative heart failure extreme obesity
N B—All cases were followed through but eleven were too recent to furnish end results

The first column indicates the number of patients operated upon not the total number under treatment In both groups sound bony ankylosis has been achieved *in, roughly 90 per cent of the cases* but whereas in the arthritic group it has been achieved in one operation in the tuberculous group more than one operation has been necessary in 40 per cent of the cases Further details are given in the second table

Table II—*Operations after Arthrodesis of Hip*

	Cases	Operation						
		Total Number	Fusion			Non Fusion		
			Int	Ext	Sim	Exc	Amp	
Tb	76	93	19	47	3	15	9	24
					69			
						Rec	IN	V
Non Tb	38	41	1	3	9	10	15	7
					13			32

Int = Intra articular arthrodesis
Ext = Extra articular arthrodesis
Sim = Simultaneous intra and extra articular arthrodesis
Exc = Excision
Amp = Amputation
Rec = Reconstruction
IN = Pseudarthrosis
V = Various

* Paper read in the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Dublin 1933

It will be seen that in tuberculosis arthrodesis is the standard operation, for wide excision is only carried out when the area of disease is so extensive that arthrodesis is impracticable, and amputation only when life is threatened by severe septic complications not amenable to drainage. (The average age of the amputation patients was 33.) In the "arthritic" group mobilizing operations outnumber fusions, thus showing a contrast with the tuberculous cases, in which fusion is always desirable because it almost certainly eliminates the risk of local recurrence. In "arthritis" there is a free choice—on the one hand of a result which is stable, painless, and permanent, though awkward and inclined to strain the low back, on the other hand of a free pseudarthrosis in which one can be sure of mobility and freedom from pain, but so little stability that a walking appliance is necessary for at least part of the day. Thirdly, there are the various forms of reconstruction—a middle course giving fair stability, but, as a rule, only a small, though useful, range of movement.

Pseudarthrosis is indicated when free and permanent mobility is specially desirable—for example, in polyarticular arthritis—and particularly when both hips are ankylosed or in danger of becoming ankylosed.

Figure 1 in the Plate shows a case of femoral tuberculosis involving the whole head and neck and upper trochanteric region: arthrodesis was impracticable. In Figure 2 is seen a case of acetabular disease so extensive as to make wide excision an alternative to arthrodesis. Figures 3 and 4 illustrate the definite extra-articular method of arthrodesis and the development of the graft.

CHLOROFORM CAPSULES DURING LABOUR *

BY

L. C. RIVETT, F.R.C.S.

SURGEON TO QUEEN CHARLOTTE'S HOSPITAL

For some years I have been endeavouring to find the ideal method of producing analgesia, particularly as applied to the pains of labour. Gas-and-oxygen administered by an expert is the nearest approach to the ideal that I have yet found. But "administered by an expert" is the all-important qualification, and this, added to the somewhat cumbersome machinery required, puts it out of court for most labours. For the lucky few who can afford to pay for it, it has very few drawbacks, and such drawbacks as exist are only minor ones. Perhaps the greatest of these is the discomfort of the closely fitting rubber facepiece when this form of analgesia is kept up for a considerable period of time.

In England and Wales there are about three-quarters of a million labours annually, and of these nearly 60 per cent.—about 450,000—are cases conducted by midwives without the aid of a medical practitioner. Nearly all the rest—about 300,000 cases—are conducted by a medical practitioner in general practice aided by one midwife or maternity nurse, and in only a few, and those mostly abnormal cases, is a second medical practitioner present.

It is obvious that gas-and-oxygen can benefit only an extremely small proportion of parturient women, from economic reasons alone. Let us first consider the 300,000 who are attended by medical practitioners. About 90 per cent. are normal labours and are attended by medical practitioners in general practice assisted by a qualified midwife or maternity nurse, who, as a rule, informs the practitioner when labour starts, leaving him to pay a flying visit when he can spare time to ascertain that all is normal. The midwife or maternity nurse is then left in charge of the patient, and in many cases where the doctor concerned knows the midwife and her capabilities, he relies on her to inform him when the second stage is definitely in progress. The doctor then leaves his practice—or bed—and goes to the case armed with his traditional black bag. From this he extracts a drop bottle and a piece of lint, and proceeds to administer very small doses of chloroform with each pain. When the head appears at the vulva he hands over the lint and drop bottle to the nurse and proceeds to wash up, don mackintosh gown, gloves, etc., and conduct the actual delivery. Should there be any delay at the outlet he instructs the nurse to administer a little more chloroform, and proceeds to effect delivery with the forceps, which he has previously extracted from his little black bag and had sterilized. Some doctors go a stage further, and if the pains are really severe at the commencement of the second stage, administer a few drops of chloroform with each pain, and in many cases, especially where the second stage is slow and the practitioner busy, leaves the drop bottle with the nurse with the instructions to apply one or two drops with each pain. This is done to my personal knowledge by many practitioners around London, and I am confident that it is done by many practitioners throughout the country. It does not appear to have any ill effects, and chloroform, in very small doses indeed, produces a remarkable degree of analgesia without reaching even the first stage of anaesthesia. In fact, this form of analgesia, which was the form in which chloroform was administered to Queen Victoria in 1853, very closely approaches gas-and-oxygen as being an ideal analgesic during labour, and it is with this form of analgesia that I am particularly concerned to-day.

I feel rather like a lion in a den of Daniels, in coming here to-day to advocate chloroform in this city, because I am quite sure I shall meet with strong and eloquent criticism. I also feel sure that my critics will be divisible into classes as follows: (*a*) The diehard who has never used chloroform, is quite sure that chloroform in every form is a dangerous and wicked drug, and anyway thinks labour pains are good for women. (*b*) The practitioner who has lost one or two cases after some severe obstetric operation during which anaesthesia has been produced by chloroform. The patient has really died from obstetric shock, but in order to excuse himself from blame he attributes the death either directly or indirectly to chloroform poisoning. Of course, if ether has been used, he has to admit that death is due to obstetric shock.

In searching for a method by which the 450,000 women who are delivered by midwives alone can receive some relief from the pains of labour I came to the conclusion that gas-and-oxygen was not yet practicable, although I have heard a rumour that a London anaesthetist is devising an apparatus which can be used by a midwife; I am looking forward to its materialization with great interest. Meanwhile I find chloroform is infinitely the most promising. In order to overcome the risk of a midwife applying too much chloroform from the drop bottle, I have had chloroform put up into crushable glass capsules, and a mask fitted with a little clip into which these capsules can easily be inserted one at a time, and in over 3,000 cases at Queen Charlotte's we have found these capsules eminently satisfactory. A capsule wrapped in its gauze covering is placed in the clip, and when the patient states she feels a pain coming it is crushed and the mask applied about two inches free of the patient's face, so that the patient gets little more than the odour of chloroform. Labour pains usually last from thirty to forty seconds, and as soon as each pain has ceased

* Paper read in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Dublin, 1933. A note on the discussion appeared in the *Journal* of August 19th (p. 347).

the mask is taken away altogether and the next pain awaited The patient should not go unconscious If she does the mask has been too closely applied She should remain sufficiently conscious to respond to instructions to bear down, to be able to say or indicate when a pain is coming on , and if the chloroform is used to this extent only, almost perfect analgesia is produced in at least 95 per cent of normal labours, and the patient remembers, and apparently feels, nothing of pain or of the actual birth of the child Chloroform administered in this way can be used throughout labour without detriment In order to test this thoroughly I have a series of cases recorded over three months showing time during which capsules were administered

Queen Charlotte's Hospital during April, May and June 1933

Total number of cases receiving capsules	342
Patients receiving capsules for less than 2 hours	226
" 2 to 3 hours	38
" " 3 to 4 "	16
" " 4 to 5 "	16
" " 5 to 6 "	9
" " 6 to 7 "	6
" " 7 to 8 "	5
" " 8 to 9 "	3
" " over 9 "	23

Of these cases receiving capsules for over 9 hours, 20 out of the 23 terminated in forceps delivery

It is noticeable in how few cases the capsules were administered for more than five hours, and it is particularly interesting because I was urging the two resident anaesthetists to get me a series of one hundred cases in which capsules had been administered for at least ten hours In most of this series of 342 cases, capsules were started when the cervix was dilated to the size of a florin, but very few of them lasted more than five hours longer before they delivered themselves Of the twenty three cases of over nine hours, twenty were posterior positions, or closely fitting heads which required forceps delivery , and this fits in with our experience that analgesia markedly shortens the duration of labour by relaxing the soft parts, and only in those cases where there is a real obstetric difficulty will labour last over twelve hours, even in primigravidae

Now during this period at Queen Charlotte's there have been two disasters among these 342 cases One patient, who had had capsules for fourteen hours, subsequently developed puerperal sepsis Sixty six capsules were used during this time The presentation was right occipito-posterior, and the forceps was used to complete delivery She had a positive blood culture, but did eventually recover, and I do not doubt that several " category (*a*) " listeners will be quite convinced that her sepsis was entirely due to the lowering of resistance by this prolonged administration of chloroform

Another patient died , she was a primigravida, who had had thirty-seven capsules over a period of five and three quarter hours, and delivered herself of a living child weighing 8 lb 10 oz In doing so she sustained a second degree laceration of the perineum The capsules were discontinued and the placenta was expelled about twenty minutes later Some ten minutes later anaesthesia was produced by chloroform out of a drop bottle in order to insert stitches As she reached the stage of anaesthesia her tongue fell back into her pharynx and she stopped breathing The tongue was pulled forward and breathing was re established, but only for a very short time At the post-mortem examination she was found to have a fatty heart, and no smell of chloroform was detected in the tissues Here again " category (*a*) " will be convinced that death was due to the capsules, but I am sure that it was the deeper anaesthesia which allowed the tongue to fall back, and the resulting partial asphyxia which stopped the diseased heart.

To sum up, these capsules are intended for the use of midwives They are only meant to be used during the second stage of labour or perhaps during the end of the first stage also if the pains are particularly strong They are not meant to be an anaesthetic, only an analgesic They are not intended to be used for the application of forceps or the insertion of stitches, although in some cases they may produce sufficient analgesia for the latter operation

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

CHRONIC BILATERAL SPONTANEOUS PNEUMOTHORAX

(With Special Plate)

On examining the literature one is struck by the comparatively few reported cases of acute bilateral spontaneous pneumothorax Hans Kjaergaard, in his book *Spontaneous Pneumothorax in the Apparently Healthy*, draws attention to the very few cases of chronic spontaneous pneumothorax reported, his reference being to unilateral cases, but does not mention chronic bilateral pneumothorax in his survey of this obscure condition This latter condition must be excessively rare, as I have been unable to find a solitary reference to it after an exhaustive search of the current literature On this account I have been prompted to report one such case, which came under my care in June, 1932

Case Record

A married man aged 49 enjoyed perfect health up to the age of 42 when he noticed the first symptom of the present illness His occupation as an electrician did not entail any laborious work whilst during his leisure hours he took part in amateur theatricals He was married but had no family There was no history of venereal disease or of abortions or miscarriages nor was there a family history of tuberculosis He stated that his illness commenced seven years previously with a cold resembling flu which left him after a few days of malaise with a slight cough A certain amount of dyspnoea accompanied the residual cough but was for some time not sufficient to cause him any respiratory embarrassment whatsoever Gradually however the dyspnoea became worse and over a period of two to three years the hitherto unproductive cough became accompanied by a muco purulent expectoration and as a result he decided to consult his doctor A diagnosis of bronchial asthma was made and he was treated by means of autogenous vaccines prepared from his sputum Several courses of vaccine therapy were employed over a period of years without any noticeable improvement in his condition Instead, he became more and more dyspnoeic his cough more troublesome his sputum more profuse, while his general condition slowly deteriorated

He consulted me with a history as he said of asthma of seven years duration but as there was complete absence of spasmodic dyspnoea this diagnosis was eliminated His breathing was markedly distressed whilst the slightest exertion was sufficient to produce an alarming dusky ness of his face, almost amounting to cyanosis Although he was unable to walk more than two hundred yards without resting he was sufficiently tenacious to continue his occupation though in a greatly restricted capacity, but was with reluctance compelled to abandon his theatrical aspirations His sputum did not contain tubercle bacilli, was profuse and mucopurulent, but not fetid His main concern was his gradually increasing breathlessness, which was now almost suffocating and at times alarming He was of small stature with a pale, drawn, expressionless face His hands were cold, but the fingers were not clubbed His respirations were short and quick, and on attempting to remove his clothes for examination he became so terribly distressed and cyanosed that I thought he was about to die

Reviews

ROENTGEN AND HIS DISCOVERY

The recently published account of Conrad Roentgen[1] is worthy to rank with Vallery-Radot's Life of Louis Pasteur. Sooner or later it will have to be issued in a cheaper and perhaps slightly shortened form for popular reading. When this is done the volume will be easier to handle and the paper on which it is printed will be less glossy. The book appeals to the man of science as a well-documented history of a great discovery ; to the general public as a portrait, full of intimate details, of an unassuming and somewhat shy professor of physics in the various German universities where he was called to teach and experiment. The book is a translation from the German edition of *Wilhelm Conrad Roentgen* by Otto Glasser, Ph.D. It is dedicated to Professor G. W. Crile and Dr. W. E. Lower, both of Cleveland, Ohio.

Roentgen, born in Germany in 1845, was the only child of a well-to-do merchant, who soon migrated to Holland. Some childish freak under an unforgiving master led to his expulsion from school and prevented him from entering the University at Utrecht. Intending to become an engineer, he took a diploma in mechanical engineering at Zürich in 1868, but soon turned his attention to physics. He taught at Strasbourg and Giessen, and in 1888 was appointed professor of physics at the University of Würzburg. Here, "at a late hour on Friday evening, November 8th, 1895, when assistants were no longer to be found in the laboratory," whilst he was working with a Crookes tube covered by a shield of black cardboard, he noticed that some crystals lying at a distance became fluorescent, and it dawned upon him that he had discovered that new source of energy which became known as the *x* ray. Astounded at the discovery, and hardly believing that it was true, he lived day and night in his laboratory, and spoke of it to no one. Afterwards, when a newspaper reporter asked him, "And what did you think?" he replied in the true spirit of science, "I did not think, I investigated." The results of further experiments so confirmed his original observation that on December 28th, 1895, he sent a preliminary report, which was published in the *Annals* of the Physical and Medical Society of Würzburg with the simple title "W. C. Roentgen on a New Kind of Ray." The news spread rapidly throughout the world, and was received with enthusiasm, though its widespread importance was not recognized at first, and some ungenerous spirits tried to belittle Roentgen's claims as a discoverer.

Miss Boveri, daughter of Theodore Boveri the zoologist, an intimate friend of Roentgen, contributes a remarkable picture of Roentgen as a man who lived his simple life devoted to his science and to his laboratory. Tall and bearded—there are several excellent portraits—he was fond of outdoor life. But he was shy, and did not make friends easily. So far as his finances allowed he was hospitable ; as a professor his income was 5,500 marks a year, and he made about the same by examinerships—say £500 a year in all. Like other geniuses he was not always easy to live with. His wife told of a day soon after their marriage when, during a walk, she found herself embroiled in a terrific argument. A passing cab was stopped, she was put into it, the fare was paid to her house, and her husband continued his walk alone. He was, too, a bad loser, though he was fond of cards. Like a real Bavarian, she says, he pounded the table when his hand was a bad one ; his eyes filled with silent rage when he lost the game, and if his partner played badly he became so angry that many of his friends—male and female alike—declined to play with him on any consideration. But these were minor foibles. He was kind-hearted to a degree, and, having no children of his own, he adopted a niece of his wife's and educated her until she married Dr. B. Donges in 1909. Wrapped up in laboratory work, he was an investigator rather than a teacher. He cared little for the numerous honours which fell to his lot, and resolutely declined an offer of nobility. Roentgen died at Munich on February 10th, 1923, having outlived his wife for four years. His body was cremated and the ashes were interred in the chapel at Giessen.

The rest of the book contains a series of readable chapters on the reception of *x* rays by the daily Press, the popular journals, and the scientific magazines, for all of which it formed excellent "copy." There are also some amusing pictures to illustrate how the discovery appealed to humorists. Their practical use in medicine, surgery, and for non-medical purposes is described, and there are short technical descriptions of the apparatus employed in generating the rays. A hand-list of 1,044 articles dealing with the subject is added, and there are two excellent indexes, the one of authors and the other of subjects. The illustrations are numerous, and are well reproduced.

[1] *Wilhelm Conrad Roentgen, and the Early History of the Roentgen Rays.* By Otto Glasser. With a chapter, "Personal Reminiscences of W. C. Roentgen," by Margret Boveri. London: John Bale, Sons and Danielsson, Ltd. 1933. (Pp. xii + 494 ; 96 figures. 32s. 6d.)

CLEFT PALATE

"Crime is common," Sherlock Holmes once observed to Dr. Watson ; "logic is rare." This melancholy aphorism might serve as a motto for Dr. Dorrance's most interesting and useful work on *The Operative Story of Cleft Palate*.[2] Crimes in abundance occur in the tale he tells ; for how else can be named such procedures as the use of a finger, a skin flap transplanted through the cheek, or of the entire nasal septum to fill the palatal cleft? But far more disturbing to our conceit as a profession than these individual aberrations is the complete lack of logic that has been shown in our approach to the problem of the operation. What worries the patient is inability to speak correctly, and this inability is due to lack of the normal power of closing the nasopharynx. Surely it would be as well to make sure of the manner in which this is normally done before operating to enable the patient to do it. And yet, unbelievable as it may seem, there is still no account of this function of the body that is generally accepted.

Dr. Dorrance gives his own hypothesis of the closure: he believes it to be performed by a ring of horizontal muscular fibres, which he describes as part of the superior constrictor. These fibres undoubtedly exist, but as they are internal to, and run in a quite different direction from, the superior constrictor itself, it would seem more reasonable (in the absence of any guidance from anatomical authority) to regard them as part of the palato-pharyngeus, into which they merge below. In the actual mechanics of the closure Dr. Dorrance follows the textbooks of physiology and phonetics in making the posterior edge of the palate and the uvula meet the back of the pharynx in shutting off the nose. It is curious that none of the authorities he quotes appears to have glanced through the open mouth of one who is saying "Ah," and worked out some scheme of muscular action that is consonant with what is then seen. It is merely a slip which lets him say in an argument centring about the superior constrictor that every muscle in the body has an opponent, but it is a more pertinent objection

[2] *The Operative Story of Cleft Palate.* By G. M. Dorrance, M.D., F.A.C.S., assisted by Enayat Shirazy, D.D.S. London and Philadelphia: W. B. Saunders Company, Ltd. 1933. (Pp. 564; [illegible] figures. 32s. 6d. net.)

that his scheme of closure leaves the tensors and levators of the palate without a function, and does not account for the way in which the contracting sphincter rises as it closes.

The author describes with many excellent illustrations his "push-back" operation, which is designed to give free action to a joined palate that is too short and stiff to work normally. Though it is only applicable to cases in which the hard palate is intact, it appears to have certain advantages over what are known in this country as the Gillies-Fry and Wardill operations, and is undoubtedly worthy of a trial. The book is excellently produced, has some 500 illustrations, and ends with a list of 1,800 references to the literature of the subject. Even if it is possible to differ from some of Dr. Dorrance's teachings, his work can be cordially recommended to all who are interested in its subject, more particularly those who contemplate the description of methods which they believe to be new.

WOMAN'S PERIODICITY

In her book on *Woman's Periodicity*[3] Miss Mary Chadwick begins with a very interesting account of the taboos and ritual practised by primitive tribes in connexion with the onset of menstruation in girls and its monthly recurrence. Superstition attributed the loss of blood to a wound which had been inflicted by an evil spirit, and was connected with the absence of external genitalia. This belief is at the back of the sense of guilt or of fear which was bound up with the monthly molimina. From primitive man's fear of the baneful influence of a menstruating woman is traced his repulsion from her and much of his cruelty. Followed up historically, the fiercest expression of this is found in the persecution of witches, even in modern times. The author works out this theme in each stage of a woman's life, with reference especially to those slight exaggerations of the normal with which she, as a psychologist, is accustomed to deal. She conveys much useful information as to the reactions to the monthly cycle of the child, the adolescent, the mature, and the post-climacteric woman of to-day. The variations in health and temper of the mother or her equivalent is shown as influencing the whole household in subtle and inescapable ways, attractive or repellent, so that it becomes a strong environmental force in the formation of the characters of both sons and daughters.

Miss Chadwick observes that the girl of to-day is better informed: she does not suffer so much from psychological trauma in connexion with menstruation as did the woman of former generations. One feels that emphasis might have been laid here on the value of a knowledge of biological fact to a growing child, with a view to his protection from precisely such trauma, certainly environmental, perhaps even of ontogenetic origin also. Miss Chadwick deprecates the teaching of those who, recognizing that the phenomena of menstruation are natural, go so far as to disregard its onset. Doubtless she is right in pointing out that many adjustments have to be made, and that some special care should be taken of an adolescent girl until her periods are proved free from pathological features. Later on, if a woman can recognize the origin of her own exaltations and depressions she is well on the way to conquering them. This knowledge is shown to be of special use in social relationships and also at the climacteric. There are wise and comforting remarks about this epoch also.

The style of the book is compressed and informative, many illustrations being taken from the author's own experience. Methods of treatment are not within its scope. Evidence, especially in the anthropological section, is not sifted, but a valuable bibliography is supplied. While of interest to psychologist and gynaecologist, it is probably intended for the intelligent layman or woman. It would help any reader towards a better understanding of human mentality, male as well as female. Female periodicity is obvious, and its effects are here shown to permeate human social evolution. Woman has always a biological reason for her infinite variety. Havelock Ellis tried to provide man with similar excuses, but failed. Can nothing more be done for him?

[3] *Woman's Periodicity*. By Mary Chadwick, S.R.N. London: Noel Douglas. 1933. (Pp. 228. 6s. net.)

GROWTH OF BONE

Professor H. A. Harris, in his book on *Bone Growth in Health and Disease*,[4] approaches the subject of bone pathology from a new standpoint. This appears to be necessary in view of the present admittedly unsatisfactory and confused classification of diseases of bone. As a new line of approach, and one likely to be fruitful, he has undertaken a re-examination of the fundamental features of bone growth. The impetus to this research appears to have originated in his observations on the transverse lines of arrested growth which are often seen in radiograms of the long bones of children, and which were generally ascribed to a healing process occurring in rickets. He showed that they bore no necessary relation to rickets, but were to be regarded as indications of temporary arrests of growth, from whatever cause resulting. A histological examination proved them to have the structure of condensed bone, the loss in length due to arrest being associated with a condensation of the osseous tissue. A precisely similar condition is found in the line marking the junction of the epiphysis and diaphysis in the long bones of adults, and indicating the permanent arrest of growth. In children the lines generally indicate the occurrence of previous infective diseases, but Professor Harris has shown that they occur also in non-pyrexial diseases—for example, in diabetic children, in whom they were found to be a constant feature whenever the disease was of long standing. An interesting example of the occurrence of lines of arrested growth in the plant world is seen in the well-known rings in transverse sections of the trunk and branches of trees.

Professor Harris next takes up the subject of the growth of cartilage, and he has succeeded in revealing some new and interesting facts. He observes that the most characteristic feature about cartilage is the specific limit to the extent of its growth. As the distance from the proliferating mitotic centre increases, the cartilage undergoes at a certain point a degeneration or "senescence," the nature of which varies according to the conditions: at the articular surface it is liquefactive, at the epiphyseal line it is characterized by death of the cells and calcification of the matrix. Professor Harris has made the interesting observation that the mitotic centre of the epiphyses is not situated at the centre, but occupies an intermediate zone between the centre and the periphery, proliferation taking place, consequently, both centrifugally and centripetally. He has called this proliferating zone the "mitotic annulus." In connexion with the growth of cartilage the problem of its nutrition is of importance, and a detailed description is given of the vascular relations of the epiphyses.

The above and other facts relating to the growth of bone are utilized by the author in elucidating disease processes in various pathological conditions, among others rickets, osteomyelitis, atrophy, infantile scurvy, osteomalacia, achondroplasia, diaphyseal aclasis, and the various deformities dependent on mucoid degeneration

[4] *Bone Growth in Health and Disease*. By H. A. Harris, D.Sc., M.B. London: H. Milford, Oxford University Press. 1933. (Pp. xv + 248; 201 figures. 34s. net.)

not merely those engaged in elementary schools, will make full use of the presentation it offers and the suggestions it contains. It is not a syllabus of a course or a subject, but it should enable teachers more fully to interest their pupils in health matters, to equip them with sufficient knowledge, and to inculcate in early life habits which will be of immense preventive value in later years. Such instruction can best be given in most schools by the ordinary teacher rather than by a specialist teacher or an expert introduced into the school for the purpose from outside; and methods may well vary according to the circumstances and character of the school and the ideas of the head master or head mistress. It is in every way a good thing that an authoritative, accurate, and helpful guide such as this should be available for local education authorities and their staffs, both teaching and medical. General practitioners not themselves employed in any way in connexion with the health or educational service of such authorities may gather from it much that is of practical value, and may, by its means, acquaint themselves with what is being done in this sphere of governmental activity.

ERADICATION OF BILHARZIASIS

The problem of the eradication of bilharziasis is one which is at present occupying the minds of tropical sanitarians. The method of breaking the chain of developments of the parasite by attacking the intermediary host is obviously the ideal one, and the question is one of paramount importance for such countries as Egypt, the Sudan, China, Japan, and Venezuela to solve. Recently R. G. Archibald has found an important and practical method, which presents many possibilities.[1] So far attempts to eradicate the freshwater snails by periodic cleansing of irrigation canals, and by the application of lime and other chemicals, have been attended by but poor results, besides being at the same time unpractical. Archibald has found that the fruit, bark, and other parts of the tree *Balanites aegyptiaca* possess properties lethal to the molluscs themselves, to bilharzia miracidia and cercariae, and also to similar stages of animal trematodes. Afforestation in pond areas and on the edges of watercourses and the dead ends of irrigation canals affords an assured and unlimited supply of this fruit, and is an efficient and cheap substitute for the more costly chemicals usually employed. The more this subject is studied, the more has it become necessary for each particular species of bilharzia to be tackled in a different way; and, in order to evolve a practical method, the habits of life of each intermediary host must be minutely studied. This has now been done by Saburo Sugiura[2] for Japanese bilharziasis (*Schistosomiasis japonica*) and the intermediary snail, *Oncomelania nosophora* (Robson). Liming the main streams in which the snail dwells has given fairly good results, but the demand for a more effective method has led to the question of attacking them by duck-raising. Domestic ducks are very fond of small freshwater molluscs, and greedily prey upon them; moreover, under experimental conditions, they are immune to *Bilharzia japonica*. Being gregarious by nature, a flock of fifty or more can, by training, easily be manœuvred by one man. The ducks must be water-raised birds, or otherwise they never acquire the habit of efficiently hunting the snails, and this method can be used together with liming. Naturally, digging out the streams and ridding them of mud, which is spread on the fields, greatly aids in the diminution of *Oncomelania*. The distribution of this snail in Japan is now fairly well known; its habits are quite different from those of other freshwater snails: it is distinctly amphibious, and can resist considerable periods of desiccation. It can only live in semi-stagnant water, and is not found in rapidly flowing streams; it is therefore only confined to relatively small areas. According to the hydrogen-ion concentration, it appears that *Oncomelania* haunts waters of *p*H 6.2 to 7. They rarely remain in deep water, but are usually found in moist soil just above the water's edge; they also inhabit the rice-fields and the ridges between them. The snails move about by gliding under the film of water; this they do by means of a band of slime secreted from the pedal gland; their speed has been estimated at 1 to 2 cm. per minute. The migration of these snails has been studied by marking 100 specimens (painted green) in August, 1928: sixty-five of them were recovered a year later, so that it is clear that the current of the water has no great influence upon their dispersal. The life span of the snail from marked specimens would appear to be five years or more, and the young, hatched from eggs, take nearly a year to arrive at maturity. The snails hibernate in the winter months and begin to stir as the temperature rises in spring. In a period from April to May copulation takes place, and eggs are laid from the middle of May to the end of July. The young snails appear from June onwards, and continue to grow until the hibernation season sets in in October and November. The eggs of this snail are usually laid singly, and they are covered with a layer of mud particles, which is attached to the outer mucous shell-membrane, so that they look like small grains of mud, and can only with difficulty be detected. The ovum, passing through the trochophora and veliger stages, hatches in two weeks. The newly hatched snails are 0.6 mm. long and have a shell of one and a half whorls, and grow to 6.5 to 8 mm. in length. By October or November they acquire seven to eight whorls. Testing experiments show that the young snails have a low resistance to chemicals and desiccation as compared with the adults.

[1] *Trans. Roy. Soc. Trop. Med.*, 1933, xxvii, No. 2.
[2] *Mitteilungen aus dem Pathologischen Institut der Medizinischen Fakultat, Niigata, Japan*, April and June, 1933.

PRESIDENTIAL PROPHECIES

To speak of the past requires the labour of research; to speak of the present requires understanding and a critical faculty; but to speak of the future requires imagination—and until that future arrives no one can say that prophet nay. Various past presidents of the Society of Medical Officers of Health, going back to the middle of the last century and the days of John Simon, indulged in prophecies about public health on the occasion of their annual addresses, and some of them might deem it a little unkind of the latest occupant of that position that, for his own address, he should have delved into the forgotten addresses of his predecessors to discover how far later events had justified

E. D. TELFORD AND J. S. B. STOPFORD: SOME EXPERIENCES OF SYMPATHECTOMY IN ANTERIOR POLIOMYELITIS

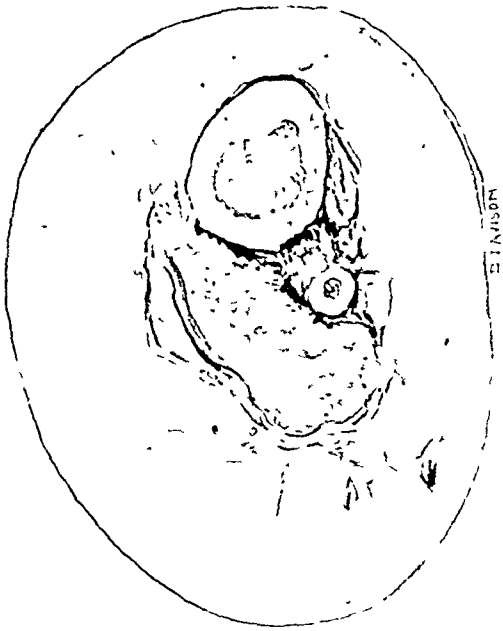


FIG. 1.—Cross section through the upper third of the leg in a case of old anterior poliomyelitis. Note the small amount of muscle and the great increase in fat.

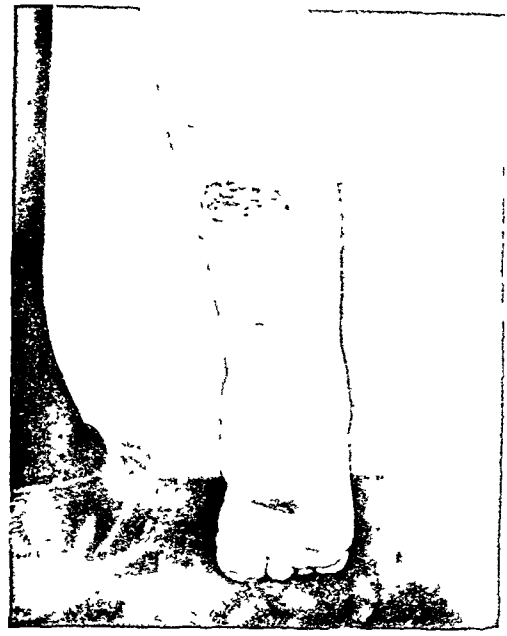
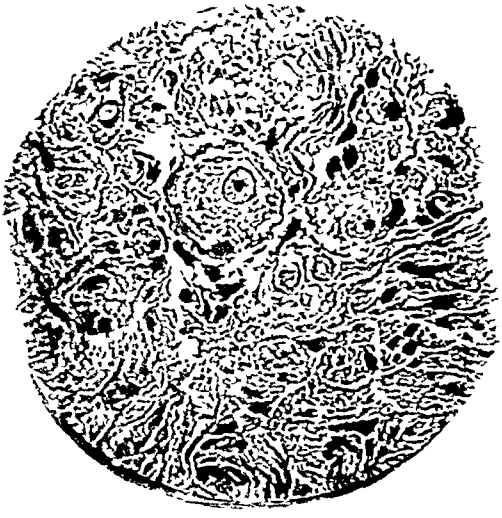


FIG. 2.—The ulcer in Case 3 which had been present every winter for 14 years and continuously for the last 2 years was soundly healed six weeks after the operation and has remained well.

GORDON HARROWER AND K. C. GHOSH: BILATERAL FIRST THORACIC GANGLIONECTOMY IN TWO CASES OF PARKINSON'S SYNDROME



Photomicrograph of right first thoracic sympathetic ganglion removed at operation in a case of Parkinson's syndrome.

HAROLD DODD "MARCH FOOT"



Note (1) fracture and surrounding callus of the 2nd metatarsal (2) The space between the bases of the 1st and 2nd metatarsals is continued between the 1st and 2nd cuneiforms, this permits hypermobility and consequent inefficiency of the 1st metatarsal (3) The thickening of the shafts of the 2nd and 3rd metatarsals, compensatory to the unstable 1st metatarsal

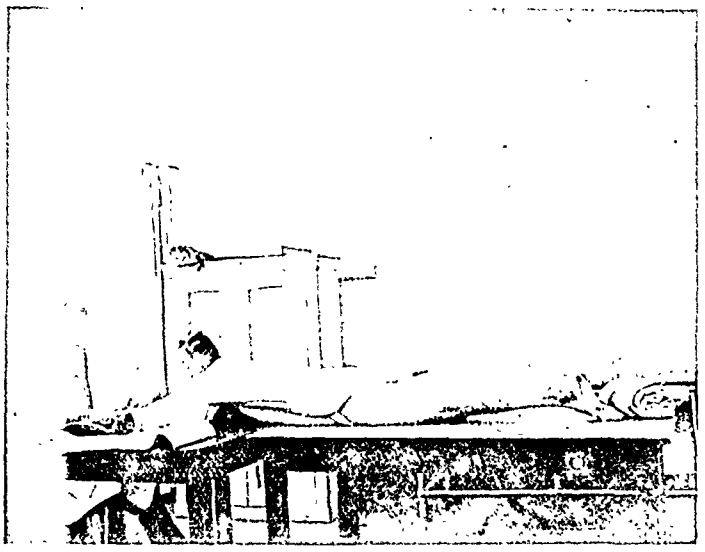


FIG. 1.—Extension and hyperextension of spine by Böhler's "slinging" method. First stage. Patient lying face downwards on two tables, upper one supporting weight of head, neck, and shoulders only.

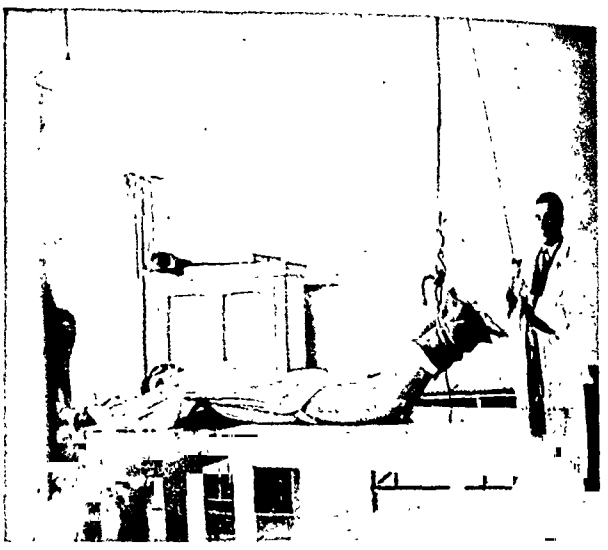


FIG. 2.—Second stage. "Slinging" begun; hoisting by means of double and single block.

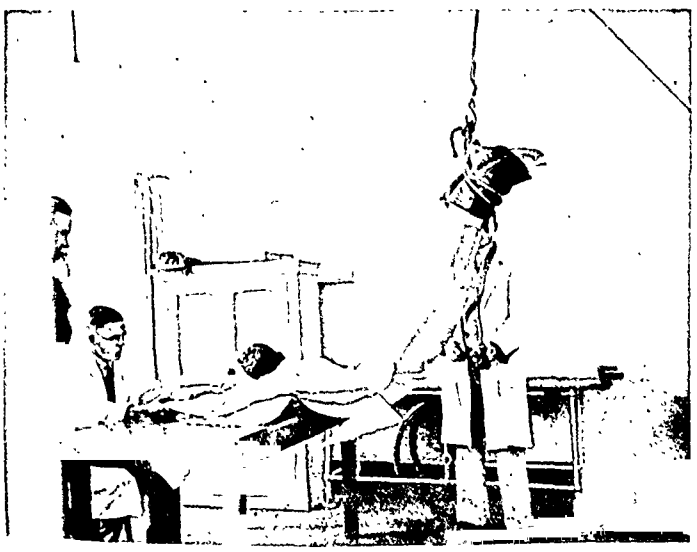


FIG. 3.—Third stage. Twenty minutes after second stage: hoisting now completed. Note extension in long axis of spine and anatomical hyperextension of spinal curves.

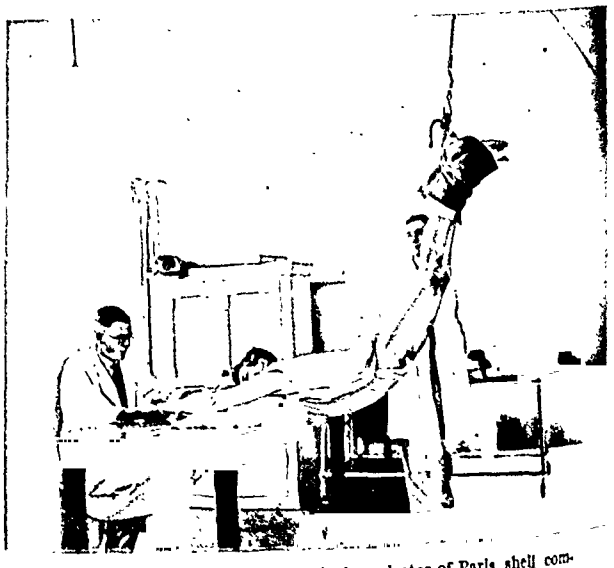


FIG. 4.—Fourth stage. Posterior plaster-of-Paris shell completed in thirty-five minutes.

F. STRONG HEANEY AND P. H. WHITAKER: HAEMANGIOMA OF THE SPINE



FIG 1.—Haemangioma of spine. Lateral view of cervical spine showing the characteristic appearance in the axis and the subluxation forward of the atlas with bending of the softened odontoid process.



FIG 2.—Haemangioma of spine. Antero-posterior view of axis seen through the open mouth.

G. R. GIRDLESTONE: ROLE OF FUSION OPERATIONS AS APPLIED TO THE HIP JOINT

(For description, see text)

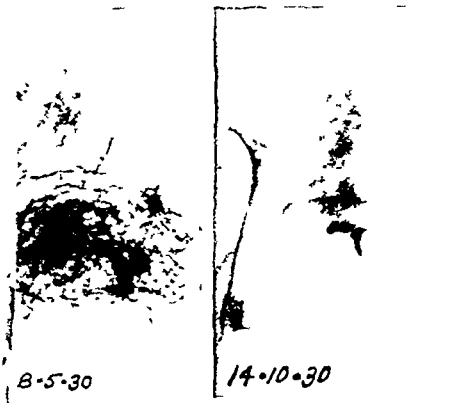


FIG 1

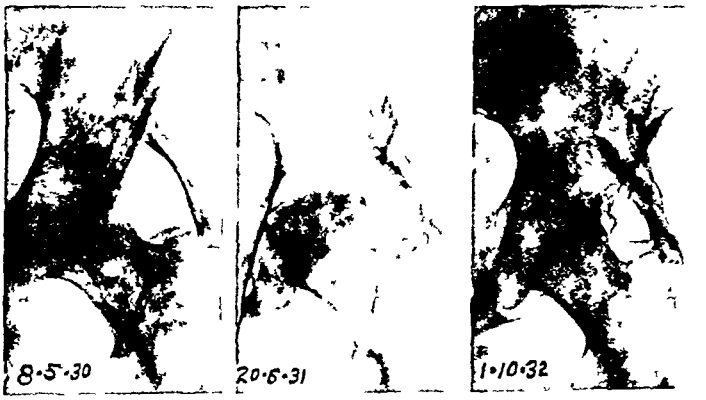


FIG 3

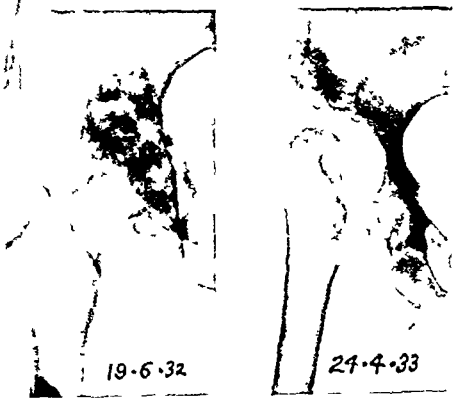


FIG 2.

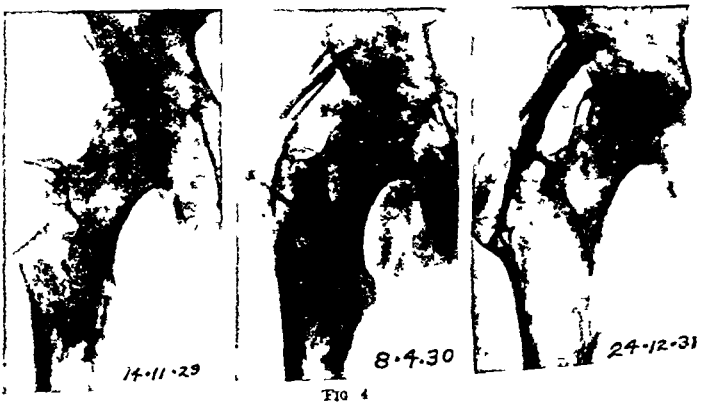


FIG 4

JOSEPH LEWIS: CHRONIC BILATERAL SPONTANEOUS PNEUMOTHORAX

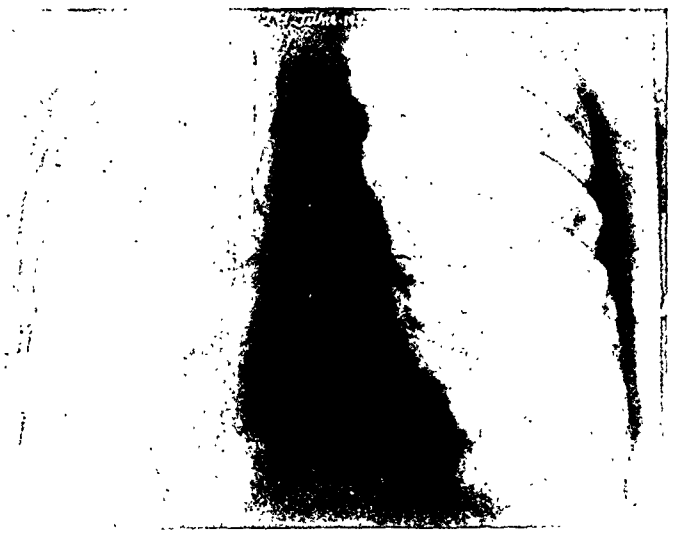


FIG. 1.—Showing partial pneumothorax on both sides.

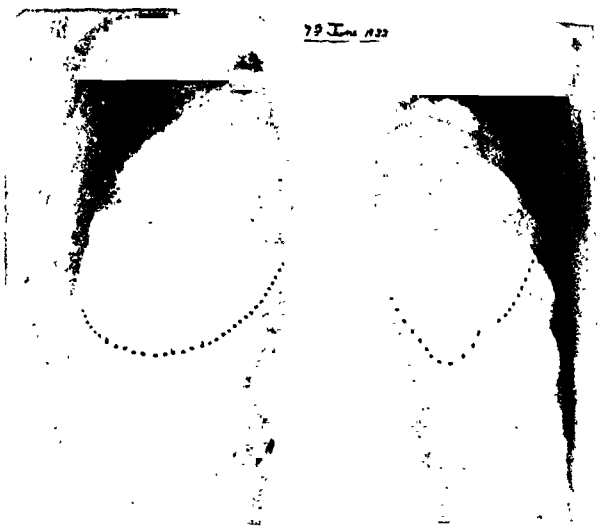


FIG. 2.—Five days later: showing increased collapse of lung.

R. V. MORLOCK AND A. J. SCOTT PINCHIN: CONGENITAL BRONCHIECTASIS

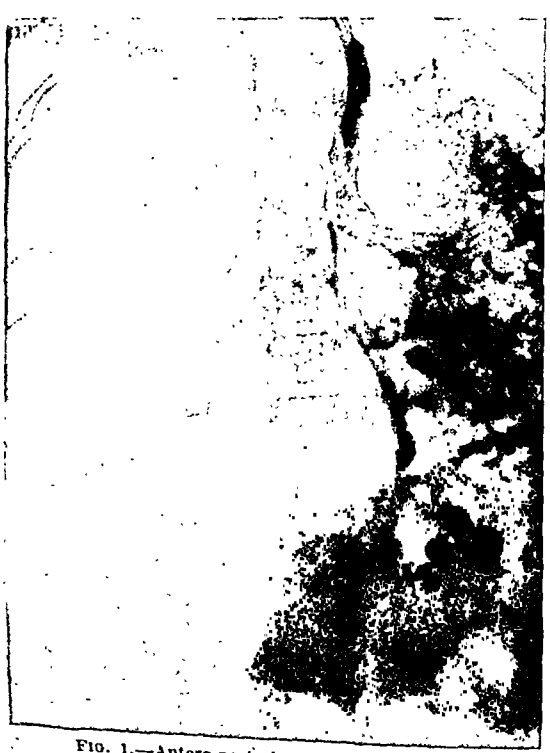


FIG. 1.—Antero-posterior view with lipiodol.



FIG. 2.—Lateral view with lipiodol.



FIG. 3.—After artificial pneumothorax. Note [illegible] cystic appearance of collapsed lung.

their predictions But, on the whole, these past presidents emerge very well from Dr Charles Porter's painstaking examination Most of those who did speak in the prophetic vein were taking no particular risks, they were modest in their "futures," and made no extravagant forecasts or promises Indeed, as Dr Porter rather suggested in his own address last week, the remarkable thing is not their discerning vision, but what they failed to see He commented on the absence from many addresses in which infectious diseases were discussed of any attempt to envisage future happenings and discoveries along the lines of bacteriology and immunization Many of these eminent men appeared to regard the position as it was in later Victorian times from the point of view of prevention and control as the most satisfactory that could be devised, and likely to prevent any increase in prevalence or mortality Even the last and one of the most forward-looking of nineteenth century presidents, Sir Arthur Newsholme, who made the theme of his address a valuable contribution to the study of epidemic diarrhoea, exhaustively examining every view and theory as to causation and prevention, gave no indication that before the twentieth century was two decades gone epidemic diarrhoea would have ceased to be a menace and would occupy a position of negligible importance in mortality statistics The same was true of a slightly later president, Dr Spottiswoode Cameron of Leeds, who thought the commoner infections were not likely to show the marked diminution which they have in fact done Dr Cameron was happier in his prognostications about health teaching, housing, and slum clearance Speaking thirty years ago, he said that it would be for the local authorities to see that houses built for the industrial populations were so arranged that fresh air and light were freely admitted, also that the authorities must energetically deal with slums even to the extent of making it impossible for any landlord to receive rents from overcrowded property Another president who was happy in his forecast was Sir Shirley Murphy, who, in 1892, in the pre pasteurization and pre-vitamin era, pleaded for the abolition of private slaughterhouses, for the proper examination of home-killed and imported meat, for a share by the veterinary profession in active public health administration, and for powers to require that the milk of cows showing signs of ill-health should not be used as food unless precautions had been taken to destroy, by boiling, any infective properties the milk might contain, while milk from cows with tuberculous udders should not be used at all No nineteenth century president appears to have forecast the great diminution in infant mortality, or the possibility of securing such control over tuberculosis as the returns now show, or the propriety at some time in the future of substituting a voluntary for a compulsory system of vaccination against small-pox One war-time president, Sir John Robertson, made the wise observation, which events have justified, that public health as a whole would be advanced rather than retarded by the war Speaking before the Ministry of Health was created, he referred to the need for concentrating in one authority the responsibility for the prevention of disease, and he added that he had no anxiety about the salaries paid to public health officers being improved as time went on, because such positions must gather importance After these quotations from his predecessors Dr Charles Porter might well be expected to assume the prophet's mantle himself, but he forbore on the ground that to day public health prophesying was too simple The importance of health and the necessity of attending to it was now so firmly grasped that even in the most backward areas steps were taken to ensure it Mortality and morbidity rates were tumbling down, and so, too—thanks to the Minister of Health—were the slums At the same time, Dr Porter felt that better results might ensue if the practitioner having medical charge of the family were more firmly linked up with the health service It was no fault of the practitioner that he was not, it was the fault of his teaching and of his medical school, which was too often over-departmentalized and lacked the co-ordinating principle of prevention At the same time, he admitted that "except perhaps in the London schools" the situation was not quite so completely and generally unsatisfactory as the description suggested Attractive arrangements along the lines of co ordination had recently been made in the medical institute of Bristol University[1], it was an experiment which deserved to be carefully watched, and, if successful, as it would be, adopted elsewhere

NARCOTIC DRUGS IN GERMANY

In order to combat the problem of drug addiction in Germany the legislature introduced in 1931 a series of drastic restrictions upon the liberty of medical practitioners to prescribe hypnotic drugs This term includes opium, morphine, and heroin, and all the newer synthetic substances, such as dicodid and dilaudid whatever they are called and in whatever quantity or form they are used Chemists may only give them out on the prescription of a doctor, dentist, or veterinary surgeon, and certain prescriptions are absolutely forbidden For instance, a doctor may not prescribe any of these drugs in substance, or a medicine containing more than one hypnotic drug, a preparation of co a leaves or an e ter of morphine No medicine except tablets may contain more than 15 per cent of morphine or heroin or of any other hypnotic drug but opium, tablets containing hypnotic drugs other than morphine or heroin may contain up to 30 per cent A doctor may not prescribe more than one hypnotic drug for a single patient or for his own professional needs on the same day, except that cocaine may be prescribed together with another hypnotic drug The maximum quantities which may be prescribed for a single patient per day are laid down in a scale which includes opium 2 grams, morphine, eukodal, and a number of similar preparations, 0 2 gram Narcophin, laudanon, and pantopon are allowed up to 0 4 gram, but the maximum for heroin and dilaudid is 0 03 gram In special cases these amounts may be exceeded, but the prescription must be entered in a special book and clearly marked 'registered prescription" Cocaine in the form of lamina preparations for the eyes can only be prescribed for professional use Doctors are forbidden to prescribe more than 0 1 gram of cocaine for a patient per day, and this must not be given more highly concentrated

[1] *British Medical Journal*, October 7th 1933 p 688

than 2 per cent., in solution or ointment, for use in the eye, or than 1 per cent., with a mixture of atropine sulphate, for other purposes. The exact purpose of the prescription must be stated and all cocaine prescriptions must be registered. These regulations are relaxed for public hospitals, merchant vessels, and private medical and veterinary dispensaries approved by the authorities. This statute was drafted in accordance with the international conventions and in full agreement with the German medical profession. According to Dr. P. Wolff[1] the consumption of morphine dropped about 20 per cent. in the first year, although many addicts to the synthetic preparations had to be switched over to it. He says that there was probably a further drop in 1932, as far fewer fresh cases would have occurred and several of the old addicts would have died or been cured. The consumption of opium dropped in 1931 by 30 per cent., largely owing to the restrictions on the sale of tincture of opium and cholera drops. The consumption of cocaine has been reduced by an even greater percentage. The ordinance was designed to stop the supply of drugs to addicts, and the quantities allowed appear to be ample for ordinary practice. It is possible that cocaine can be altogether replaced by the harmless synthetic preparations. Nevertheless, such drastic and specific interference with medical men in the treatment of patients must seem repugnant to the feeling of the profession in this country. Drug addiction here has probably never reached the dimensions it has reached in Germany, but if it should do so the profession would feel that it should be trusted to serve the best interests of the State without being told, categorically, what it might and might not do.

THE CERTIFICATION OF BLINDNESS

As recorded in our last issue, circulars have been issued simultaneously by the Ministry of Health and the Board of Education on the certification of blindness. The circular of the Ministry (No. 1353) is addressed to county and county borough councils and to voluntary associations for the blind; that of the Board of Education to the local education authorities. With each circular there is enclosed a copy of the revised edition of the form of certificate originally published by the Prevention of Blindness Committee of the Union of Counties Associations for the Blind. One form bears the heading in bold type "Board of Education," and states that it is the form recommended by the Ministry of Health. Of the two circulars, that issued by the Ministry of Health is the more important. Reference is made to the criteria to be adopted for determining whether or not an applicant satisfies the condition of blindness laid down by the Blind Persons Act, 1920. These criteria are reprinted as an appendix to the circular. Next the Minister urges the importance of securing satisfactory medical evidence before a person is admitted to the blind register, and for that purpose urges examination by "a medical practitioner with special experience in ophthalmology." He adopts a definition of this appellation:

"A medical practitioner who devoted his or her whole time to the practice of ophthalmology in all its branches or who is in charge of the ophthalmic department of a general hospital of not less than 100 beds; failing such practitioner, one who holds a diploma in ophthalmology from a university, the Royal Colleges of Surgeons of England and of Physicians of London, or other examining body recognized by the General Medical Council."

The Minister recognizes that there may be some difficulty in the strict application of the definition, yet recommends that this standard should be aimed at. The circular proceeds to the consideration of the purpose of the form recommended for use: first, the certification of the individual; secondly, the compilation of statistics such as may prove of value in directing steps for the prevention of blindness. This form has been the subject of some controversy. Dr. G. W. N. Joseph, in the *Medical Officer* of October 29th, 1932, wrote enthusiastically about it, and urged its general adoption as a measure for the prevention of blindness. To this Mr. Bishop Harman, in the same journal, under date of December 24th, published a vigorous counterblast. He contended, in general, that this form of four foolscap pages was so voluminous that it would defeat the object in view; and, in particular, that there were serious mistakes in the drafting. He pointed out that the form required ophthalmologists to "state precisely" or "state precise cause" of conditions that could only be a matter of hearsay. It required them to employ "the means at their disposal" to supply other data, which, if not by intention certainly by implication, called for a long series of clinical investigations into general conditions usually beyond the habit and certainly beyond the time of the ophthalmologist. Finally, he showed that the phrasing of the actual certificate, the business part of the document, was not in conformity with the relevant Acts of Parliament. The specimen forms now issued by the two Government Departments have been corrected to meet these particular objections. "State precisely" has gone; the phrase "means at their disposal" has been changed to "information at their disposal"; and the part dealing with certification has been corrected. The circular of the Ministry shows that the authorities have accepted the advice that this elaborate form of record-taking may be expected to be justified by results indicating possible measures for the prevention of blindness. It states that arrangements have been made for the Prevention of Blindness Committee to collate the statistics through a specialist sub-committee; consequently the Minister "regards it as important that a copy of each certificate given in the form proposed should be sent periodically to the secretary of the committee." We understand that some doubt has been felt by local authorities as to the propriety or legality of forwarding documents which are very properly headed "Strictly Private and Confidential" to an outside and unofficial committee. This must be a matter for legal opinion. The circular throws no light on the point, but doubtless it would be safe to send the certificates to the committee with serial numbers and without names and addresses. The attitude which ophthalmic surgeons will adopt towards this voluminous form is another matter. Despite some assertions to the contrary, there is no doubt that it will add considerably to the work and time required of them (as indeed it will to the labours of the clerical staff of the local authority). But if, as would appear from

[1] *Brit. Journ. Inebriety*, 1933, xxxi, 141.

the fact that the Minister of Health has decided to recommend the use of the form a considerable number of local authorities have already adopted it, then it will be better for all to agree to give it a substantial trial, *con amore*.

A MEDICAL PREMIER

The new Prime Minister and Minister of Native Affairs for Southern Rhodesia, Mr G M Huggins, is a Fellow of the Royal College of Surgeons of England He has represented Salisbury North since the grant of responsible government Born at Bexley, England, fifty years ago, Mr Huggins went to Rhodesia in 1910 and started medical practice in Salisbury During the war he was for some time a surgeon at the military hospital at Brighton, and then saw service with the R A M C in France He was afterwards a surgeon at the Valetta Hospital at Malta During the war he twice returned to Salisbury, and was one of the few doctors in the town during the great influenza epidemic of 1918 Mr Huggins entered Parliament in the first Legislative Assembly, and was re elected in the 1928 election He crossed the floor from the Rhodesian Party benches last year to lead the Reform Party

THE SEMON LECTURER

The Semon Lecture will be delivered on Thursday, November 2nd, at the Royal Society of Medicine, by Dr Burger, professor of oto laryngology in the University of Amsterdam His subject is "The So called Associated Paralyses of the Larynx and Pharynx (Multiple Cranial Nerve Palsy)" Professor Burger will deliver the lecture in English Like so many Dutchmen he is an excellent linguist It was partly for this reason that, in 1909, he was appointed secretary general of the International Committee for the International Congress of Medicine In this capacity he acted when the last International Congress of Medicine was held under the presidency of Sir Thomas Barlow, in London, in the year 1913 Professor Burger is still the secretary-general, but there seems little prospect of another international congress for general medicine at present! He is a man of many interests He was Rector Magnificus of his university during the academic year 1927-8, and he has thrice been president of the Dutch Medical Association *On November* 1st, at 5 p m, he will give an address before the Section of the History of Medicine in the Royal Society of Medicine, with the interesting title, "The Doctor, the Quack, and the Appetite of the Public for Magic in Medicine"

We much regret to announce the sudden death of Mr Donald Armour, surgeon to the National Hospital for Nervous Diseases, Queen Square and consulting surgeon to the West London Hospital He was taken ill at this week's council meeting of the Medical Society of London at 11, Chandos Street, and died shortly afterwards The ordinary meeting, which should have followed, was abandoned We hope to publish an obituary notice of Mr Armour, with portrait, in our next issue

THE HARVEIAN FESTIVAL

COMMEMORATION AT THE COLLEGE OF PHYSICIANS

The annual Harveian Commemoration at the Royal College of Physicians of London was celebrated on St Luke's Day, October 18th, in the usual manner In the afternoon the Harveian Oration was delivered at the College by Sir Thomas Lewis, and its text will be found in full in the opening pages of our last issue After the Oration, the President, Lord Dawson of Penn, presented the Baly Medal to Professor Robert Robison, head of the department of biochemistry at the Lister Institute, and the Weber Parkes prize to Sir John MacFadyean The medal is awarded every alternate year to the person deemed to have most distinguished himself in the science of physiology, especially during the previous two years The prize is awarded every third year to the author of the best essay *upon some subject* connected with tuberculosis

In the evening the customary Harveian dinner was held in the College in accordance with William Harvey's injunction in 1656 "And once every year there shall be a general Feast kept within the said College for all the Fellows that shall please to come" It was attended by a large number of Fellows, and the guests who enjoyed the hospitality of the College were Sir Austen Chamberlain K G, The Hon G Howard Ferguson (High Commissioner for Canada), the Earl of Cromer (Lord Chamberlain), Field Marshal Lord Milne Lord Trenchard (Commissioner of the Metropolitan Police) the Dean of St Paul's Sir William Llewellyn (President of the Royal Academy), Sir Holburt Waring (President of the Royal College of Surgeons), Sir Patrick Duff (Permanent Secretary H M Office of Works), Dr Edwin Deller (Principal of the University of London), Professor Edward Mellanby (Secretary of the Medical Research Council) the Clerk of the Mercers Company, the Weber Parkes prizeman and the Baly medallist and the Editors of the *British Medical Journal* and the *Lancet* The officers of the College present, with the President, were the Censors Sir Charlton Briscoe Lord Horder, Dr Arthur Hall, and Dr Charles Bolton the Treasurer, Dr Sidney Phillips the Registrar Sir Raymond Crawfurd and the Harveian Librarian Dr Arnold Chaplin

After the memory of William Harvey had been toasted in silence the health of the guests was proposed in felicitous terms by Lord Dawson Of Harvey the founder of the feast Lord Dawson said that to him the world owed not only a great discovery, but also the gift of *scientific method* which created an epoch in the history of medicine In these days medicine was coming into closer and closer contact with social progress without the contribution of *medical science constructive statesmanship* would become as nothing The toast was responded to by Sir Austen Chamberlain and Dean Inge the former taking this occasion to report on the progress of the London School of Hygiene and Tropical Medicine, and to express his ideals for the British Post Graduate Hospital and Medical School The health of the Harveian Orator was proposed by Sir Charlton Briscoe and responded to by Sir Thomas Lewis

Sir StClair Thomson then presented to the College a seventeenth century 'Antimonyall Cuppe,' and briefly described this latest addition to the treasures of the College This was a *poculum emeticum*, otherwise known as a *calix vomitorius* The Pharmaceutical Society did not possess a specimen, nor was there one in the Wellcome Museum, though that was the largest and most complete collection in the world of objects illustrating the history of medicine In fact, Sir StClair only knew of two others, one being already in the possession of the College He recalled that emesis, though perhaps not a suitable subject

at the end of a good dinner, was a therapeutic measure of wide and ancient use. There was certainly justification for employing antimony as a remedial drug, though the attempt to make a panacea of it in the seventeenth century led to abuse, and this to prohibition, and this perhaps to antimonial cups. White wine left in the cup overnight was found on analysis next day to contain 1½ to 2 grains of antimony. For this particular cup the College was indebted to Madame de Navarro, so much admired on the stage in Victorian times as Mary Anderson, whose late husband was well known as an art connoisseur and authority on pewter ware.

PEOPLE'S LEAGUE OF HEALTH

CAMPAIGN FOR A SAFE MILK SUPPLY

A luncheon was given at Claridge's Hotel, London, on October 18th, by Miss Olga Nethersole, founder and honorary organizer of the People's League of Health, for the purpose of meeting the newly appointed Veterinary Council of the League, and of reporting on the campaign for a safe milk supply, following upon the survey of tuberculosis of bovine origin recently undertaken by the League.

Dr. C. O. Hawthorne, in welcoming several eminent members of the veterinary profession who were present, said that the constitution of a Veterinary Council was an inevitable development of the League's work, in view of the growing conviction that man shared with the members of the animal kingdom a common interest in the investigation, treatment, and prevention of disease. The League had appreciated very highly the co-operation of the veterinary profession in its report on bovine tuberculosis, a report which had commanded general confidence, alike from experts in medicine and surgery and from public health authorities. The League was determined to carry the recommendations contained in the report into the social life of the nation by awakening in those concerned in the production and distribution of milk a keen sense of their responsibility and securing their co-operation and good will, by educating public opinion, and by putting pressure upon the Government to pass the necessary legislation. He thought the programme of the League might well attract a more sympathetic and practical support from all who valued the public health.

Sir Frederick Hobday expressed the thanks of the Veterinary Council for the welcome extended to them, and said that the subject of tuberculosis was inseparable from veterinary science, as the purity of the milk supply depended eventually on eradicating the tuberculous cow and getting the milk pure from its source. Professor T. J. Mackie of the Department of Bacteriology, Edinburgh University, remarked that it was common knowledge, both to the medical and to the veterinary profession, that the milk supplies of this country, collectively speaking, were not safe. The problem of milk-borne tuberculosis dominated the whole subject of the milk supply, but it was only one of a number of milk-borne infections, such as diphtheria, enteric fever, scarlet fever, and undulant fever. There was apathy, and even antipathy, in certain quarters, to measures—some of them quite simple—which would remedy the present state of affairs. It was stated in the League's report that the bovine tubercle bacillus caused at least 4,000 new cases of human tuberculosis every year in England and Wales, also that 7 per cent. of the samples of raw market milk tested contained the bacillus of bovine tuberculosis. A striking fact elicited by recent work on the subject of bovine contagious abortion was that up to 35 per cent. of the tested samples of unpasteurized milk sold in large communities contained the specific organism of that disease, which was communicable to the human subject and might cause undulant fever. The recent discussion in the Section of Agriculture at the British Association Meeting at Leicester had resulted in a clear verdict for compulsory pasteurization as the only remedy. He knew that the veterinary profession favoured the eradication of disease from dairy herds as the fundamental remedy, and so it was; but it must be recognized that even the highest grade of tubercle-free milk might carry a dangerous infection. He did not agree that pasteurization would set back the clock and hinder fundamental progress. The problem was urgent, but the eradication of tuberculosis from dairy herds could only proceed slowly. The agricultural and public health organizations of this country, Professor Mackie concluded, were doing the people a grave injustice in their tacit sanction of the sale of ordinary raw milk. If they were not prepared to bring about compulsory pasteurization, at least in the large communities, the only honest alternative was the official designation of the milk, thereby making it clear that such milk was not free from potential danger.

Professor Basil Buxton of the Institute of Animal Pathology, Cambridge University, declared that the vast majority of the British public had no idea of the type of milk which it was reasonably safe to drink, and it was amazing how little stress had been laid upon the fact that there was such milk available. Pasteurization by itself was not sufficient; it was necessary to have a clean supply of milk from the source. Sir Leonard Hill said that if people could be persuaded to consume the right diet, in which milk was one of the most important foods, the amount of disease would be enormously diminished. One way of making the milk supply safe was by pasteurization, which he thought should immediately be made compulsory for all milk supplies. As a physiologist he had no fear of pasteurization lessening the nutritive quality of the milk in any degree. Apart from the method of destroying tuberculous cattle, an attempt should be made to immunize them, and the same preventive measures—plenty of fresh air, sunshine, and good food—adopted for them as for human beings.

Some concluding remarks were made by Mr. G. P. Male, former president of the Royal College of Veterinary Surgeons, on the need for helping the milk producer to free his herds from disease, and by Major D. S. Rabagliati, chief veterinary officer to the West Riding County Council, who described the measures taken in his area to ensure a clean milk supply by twice-yearly examinations of milk-producing cows.

England and Wales

Professor Rutherford Morison

A correspondent—"J. C. S."—writes: On Tuesday, October 10th, Professor Rutherford Morison, emeritus professor of surgery in the University of Durham College of Medicine, Newcastle-on-Tyne, reached his eightieth birthday. He is living in retirement at St. Boswells, where he says he spends his time losing money farming. On the occasion of this birthday he received a happy surprise when a party of twelve of his old house-surgeons joined in a pilgrimage and journeyed to St. Boswells to greet him and to make a presentation. Thanks to the courteous co-operation of Professor Morison's niece, Miss Boswell, it was possible to arrange for the meeting and the presentation to come as a complete surprise to the professor. During the time Professor Morison was surgeon at the Royal Victoria Infirmary thirty-three house-surgeons passed under him; of these, nine are dead, four are abroad, two were ill, and six were unable to attend the presentation owing to distance or other causes. It was a wonderful sunny day, and the journey to St. Boswells was a delightful one. The countryside was glorious in its colourings, the trees just putting on their autumn tints, but there was sufficient green to render it fresh and bright. The farm where the professor lives is in a delightful situation. It has a background of beautiful hills, and itself is picturesque, with its white walls and pretty garden. The pilgrims assembled at St. Boswells

and then went on to the house. The professor meanwhile had been in his own room, and when all was ready he was asked to come into the dining-room. As he entered the door his face was a study—surprise, delight, and other emotions swept across his face and also affected those who had come to greet him. Each one was greeted by name, and then Colonel L. J. Blandford, the senior house-surgeon present, made the presentation of two arm-chairs for the professor's study. In making the presentation, Colonel Blandford paid tribute to the value of the teaching which they had received from the professor, particularly making reference to his insistence on the general principles of surgery. He also referred to his valuable writings, and paid tribute to the great and many kindnesses they had received at his hands, and ended by a reference to the professor's discovery of the "Bipp" method of treatment of septic war wounds. The professor affectionately returned thanks for the gift and the kind thoughts which had prompted it, and then led his unexpected guests to the table, where light refreshment was served and the party partook of the birthday cake. Photographs of the group were taken in the garden. Professor Morison was in splendid form, eighty years young rather than eighty years old. His eye was bright, his face was healthy in colour, his voice was vibrant, and his movements as brisk as of yore. His keen memory recalled not only all about his house-surgeons, but enabled him to make charming references to their families. Old jokes were recalled, and altogether a very memorable hour was passed, which was not without its touch of emotion for all present. The party was then taken over the farm, and all were struck with its beautiful order and the fineness of its stock. If it is possible to introduce new things into farming then the professor certainly does that. Mr. R. J. Willan, who had acted as organizing secretary of the pilgrimage, read letters from some of those who were unable to be present, and stated that all the thirty-three house-surgeons were accounted for. Others in the party were: Dr. J. B. Williamson, North Shields; Mr. J. Collingwood Stewart, Newcastle; Dr. B. E. Spurgin, who is now in the South of England; Colonel T. S. Cortes, York; Dr. E. Gofton, North Shields; Dr. Andrew Smith, Ryton; Dr. R. W. Smith, Whickham; Mr. F. C. Pybus, Newcastle; Mr. Stanley Robson, Sunderland; and Dr. L. M. Weekes, Jesmond. Mr. W. G. Richardson, who was for so many years associated with the professor at the Royal Victoria Infirmary, came from Keswick to present his congratulations and join the party. It was a very memorable meeting, and all who had been there came away full of delight at having had the opportunity of meeting their old chief again and finding him in such a pleasant place and in such vigour of life and mind. It was a pilgrimage that none of the party would have missed.

Public Health Developments in Portsmouth

The report for 1932 of the medical officer of health for Portsmouth is a valedictory one, for Dr. Mearns Fraser is retiring from the appointment after more than thirty-seven years of service. He has seen the work of his department grow steadily in extent and complexity, and his last survey of what has been done gives more than one indication of further developments in the immediate future. The boundary of the city area was extended in April last year to include the Fareham and Havant rural districts. The total area of the Portsmouth authority is now 9,217 acres, with an average density of population of 31.3 persons per acre. The population rose from a total of 248,000 in 1931 to an estimated figure of 253,100 in the middle of 1932. The deaths numbered 3,101, being 151 more than last year. The death rate was 12.2, whereas the figure for England and Wales was 12. There was a slight increase in the number of deaths from cancer and pulmonary tuberculosis. A new feature in the present report is a statistical table indicating the birth and death rates and other particulars of the sixteen several wards of the city. A survey of the position as regards tuberculosis, prepared by Dr. A. B. Williamson, deputy medical officer of health, is incorporated in the report. This points out that the death rate from tuberculosis is clearly shown to be correlated with the density of population in the various wards of the city, overcrowding and unsanitary housing being thus incriminated. An increase of notifications of this disease during the year is attributed to the larger number of early cases which are being referred to the tuberculosis dispensary by general practitioners, closer co-operation with whom is being attained. This dispensary was established in 1911; in May, 1932, a careful scheme of reorganization was put into force, as a result of which the supervision of patients became much more effective. It was found that some of the patients who were re-examined after long intervals were potential sources of infection, even though they were in apparently fair health and capable of performing light work. Others were found who had long remained free from signs of active disease, and were accordingly classified as "recovered." The value of radiological examination in this disease for diagnosis and supervision is emphasized. A system of payment or part payment for medicines by patients was inaugurated during the year under review; it is estimated that it will bring in at least £50 annually. The accommodation at the sanatorium was increased, and further expansion has been devised. The maternal mortality rate for the year was 2.34 per 1,000 births, which is over 40 per cent. below that for England and Wales. In December last year it was decided to appropriate the Poor Law hospital of St. Mary's in order to convert it into a municipal hospital under the control of the health committee. The local authority has also approved a recommendation to provide a colony for 500 mental defectives on a site on Portsdown Hill. In October an unusual infection of the water supply by *B. coli communis* was detected; it was traced to a visitation of sea-gulls to the filter beds, and after they had been prevented from gaining access no further organisms of this kind were discovered.

Chelsea Clinical Society: Annual Dinner

The annual dinner of the Chelsea Clinical Society was held on October 18th at the Rembrandt Hotel, with Dr. L. Rawes, the president, in the chair. In proposing the toast of the Chelsea Clinical Society, coupled with the name of the president, Sir William Bragg said that the early publications of the Royal Society, from 1665 onwards, were often largely concerned with medical matters, such as discussions on optic glasses, on blood transfusion, and on the bolus of clay. Referring to the relation of modern physics to biology and medicine, he spoke about the molecular structure of living matter: the molecules were long, their length much exceeding their breadth; this was, he said, associated with the direction and purpose necessary for growth. He concluded his very interesting speech by saying that societies like the Chelsea Clinical Society played an important part in connexion with the discoveries of pure science and their application to practical medicine. The president, in a brief reply, thanked Sir William Bragg for his interesting speech, and informed the society of the programme for the coming session. He regretted that, among the guests, the Portuguese Ambassador had at the last moment been unable to come. Mr. Cecil Rowntree, proposing "The Guests," welcomed Sir William Bragg, the French Consul-General, Sir Allen Powell, Mr. Arthur Wimperis, and the presidents of the Royal Society of Medicine, the Harveian Society, and the Hunterian Society. Mentioning the presence of representatives of the

medical press, he said he understood that speeches would not be taken down verbatim. The French Consul-General, M. Charles Billicocq, responding for the guests in a brief and gracious speech, remarked that he was personally indebted to members of the Chelsea Clinical Society, as was the French Hospital in London. Sir Allen Powell and Mr. Arthur Wimperis, supporting the reply on behalf of the guests, ably contributed to the success of the evening by speeches whose wit was greatly appreciated by the audience.

Surgical Instrument Makers at Dinner

The annual dinner of the Surgical Instrument Manufacturers' Association took place at the Criterion Restaurant on October 20th, and again proved a very pleasant and informal function. Mr. Patrick C. Maw, who has been president of the association for five years, and who is shortly retiring from that position, took the chair. The principal toast, that of the welfare of the association, was proposed by Sir William De Courcy Wheeler, who referred to the surgeon's extraordinary dependence upon his instruments. Recently he had had occasion to count the instruments which were brought sterilized and ready to the surgeon's hand for a relatively simple operation, and they numbered over one hundred. It was upon their fineness and balance that the issue lay as between relief and continued pain, success and failure, even life and death. Whatever the skill of the surgeon, he must have perfect tools. Sir William thought it would be very desirable for surgeons and surgical instrument makers to come into closer personal contact, to confer oftener, and to be more evidently comrades in the same craft or guild. He took occasion to express the indebtedness of those who organized the recent Dublin meeting of the British Medical Association to the surgical instrument makers of London and elsewhere who took their latest patterns and inventions across St. George's Channel. With regard to the future, he suggested that preventive medicine would have it all its own way, that presently cancer and tuberculosis would be forgotten in the same dishonourable grave as small-pox and plague, and that the physician of the future would have to be content with sitting by the bedside comforting the relatives of those who were departing this life in uncomplicated old age. With prevention the surgeon, too, would find a good deal of his occupation gone ; war surgery also might be a thing of the past, but the terrible toll of the road seemed likely to continue to demand the surgeon's skill. Mr. Patrick Maw, in response, referred to the work of his association, particularly to the reorganization of an appliances section, through which it was hoped to deal more effectively with quack appliances. In responding for the guests, whose health was proposed by Mr. H. G. Drew, Dr. Robert Forbes, Deputy Medical Secretary of the British Medical Association, made play with some of the Irish and Scottish associations of the gathering, and spoke of the indebtedness of the profession to those who provided the useful and necessary instruments of its practice. Any opportunities for closer liaison between the profession and the makers of surgical instruments would receive hearty furtherance from the British Medical Association. Mr. L. Ferris-Scott, Financial Secretary and Business Manager of the British Medical Association, added a few words expressive of the friendly feeling between himself and his staff and the hosts of the evening. A further response was made by Sir Frederick Hobday, who mentioned the debt of the veterinary profession to the surgical instrument maker. A few years ago instrument makers thought that all appliances for veterinary practice should be of large size—forceps, for example, were as long as a pair of fire-tongs—but now much more precise and specialized instruments had been produced.

New Headquarters for Midwifery Services

A large and beautiful London mansion, No. 57, Lower Belgrave Street, at the corner of Eaton Square, has been secured as the joint headquarters of the Queen's Institute of District Nursing, the Incorporated Midwives' Institute, and the National Birthday Trust Fund, whose object is to foster and extend maternity services. The house, which is held on lease, has been most generously adapted and furnished by Sir Julien Cahn, chairman of the Trust Fund, and its future maintenance will be the task of the Birthday Trust. The Queen's Institute and the Midwives' Institute, both of which have about half a century of service to their credit, have hitherto had separate and quite inadequate accommodation elsewhere in London. Both of them have gladly accepted the offer of free office accommodation on the new premises, an offer which is the equivalent to a subscription of £600 a year in the one case and of £250 in the other, and it is expected that much greater co-operation will be possible between them than in the past, and that the status of the Midwives' Institute, and therefore of the midwifery profession, will be definitely raised by this new venture. The National Birthday Trust Fund has for its purpose the provision of organized services and assistance to minimize the perils and suffering incidental to maternity among the poorer classes, and the idea of the " birthday " is that on their own birthdays friends and sympathizers should send a donation. The Fund is devoting its main energies at present to experimental schemes for improving the maternity service in particular districts ; the Rhondda Valley has been chosen for the first experiment. The new headquarters of the services, in addition to ample office accommodation, provides an excellent lecture room, a library, a club room, and a certain amount of bedroom accommodation for midwives whose duties require them to pass an occasional night in London. All the rooms are gracefully decorated and furnished, the feminine inspiration of the whole movement revealing itself in many graceful touches. The house was opened by the Minister of Health on October 25th.

Scotland

Housing in Edinburgh

At a meeting of the Public Health Committee of Edinburgh Town Council on October 17th, it was decided, in response to a request from the Department of Health for Scotland, to prepare a five years' housing programme. It was intimated that a three years' programme, which was just about to expire, had provided for the erection of 4,500 houses ; all of these would be completed within the scheduled time. It was urged by various members that the corporation should maintain a building programme of 1,500 houses per annum, about half of which should replace houses unfit for habitation or buildings which were overcrowded, and the other half should meet the needs of new persons requiring houses. It was reported by the sanitary inspector that there were approximately 7,500 houses suitable for clearance and closing or demolition, 3,000 overcrowded houses, and 3,000 further houses sublet and insanitary. The City Chamberlain reported that 4,000 condemned houses had been cleared away, and the average rate of progress in this matter had been from 500 to 700 houses per annum. In 1931 there had been 108,375 inhabited houses in this city, and the approximate number at the end of 1933 was 116,000 ; it was estimated that by 1941 the number of houses necessary would be 125,000.

Use of Radium in Scotland

The National Radium Trust in its fourth annual report, for the year ended March 31st 1933, deals among other things with the position regarding the use of radium in Edinburgh and Glasgow. It points out that the national centre in connexion with Edinburgh Royal Infirmary promises to establish radium therapy on a scale appropriate to the presence of this institution. A large part of the radium work is now conducted at the special hospital of Beechmount for cancer cases, although part of it is also carried on in the main building of the Royal Infirmary. In Glasgow the demand for treatment both from the city and from the surrounding densely populated districts served by its hospitals made apparent the necessity for two centres. Supplies of radium were therefore established at both the Western and the Royal Infirmaries. The Commission has before it a plan for compiling and collating the statistics of five years of radium therapy from which it is hoped to evaluate the efficiency of radium in the treatment of malignant growths.

Sharpey-Schafer Lectureship

It is proposed to establish a lectureship in the University of Edinburgh, to be called the Sharpey Schafer Lectureship in Physiology to commemorate Professor Sir Edward Sharpey-Schafer, who has occupied the chair of physiology for thirty-four years, and who has just retired. It is suggested that under this lectureship one lecture shall be given annually in Edinburgh by a distinguished physiologist to be suggested by the Faculty of Medicine. For this purpose a capital sum of about £1 000 is required, and an appeal has been issued for subscriptions to this fund, limited to a maximum of five guineas. Any persons desiring to contribute to the fund should send their subscriptions to the Dean of the Faculty of Medicine, University of Edinburgh.

Department of Health for Scotland

Dr. Thomas Ferguson and Dr. Andrew MacFarlane have been appointed medical officers in the Department of Health for Scotland. Dr. Ferguson is a graduate of Edinburgh University, and holds the degrees of M.D., Ch.B., and D.Sc. (Public Health); he is also F.R.C.P.Ed. and D.P.H., and a Fellow of the Royal Society of Edinburgh. During the past three years he has been H.M. Medical Inspector of Factories for Scotland and North of England under the Home Office. Dr. McFarlane is also a graduate of Edinburgh University, and holds the following medical qualifications: M.D., Ch.B., M.R.C.P.Ed., and D.P.H. For the past three and a half years he has held the post of deputy medical officer of health, chief assistant school medical officer, and medical certifier under the Mental Deficiency Acts for the Borough of Darlington.

Dundee Royal Asylum

In the report of the Dundee Royal Lunatic Asylum for the year ended June, 1933, Dr. Arthur B. Dalgetty, medical officer to the institution, states that there were fifty-two patients on the register on June 20th, 1932—twenty male and thirty-two female—of whom twelve were voluntary patients, six of each sex. During the year six patients were admitted, one certified and five voluntary, and there were five discharges of voluntary patients, all in satisfactory mental condition. There were four deaths during the year, three of which were of persons at an advanced age, one patient having been an inmate of the institution for thirty-eight years. In June, 1933, forty-nine patients remained on the register, of whom eleven were voluntary boarders. The report shows that the total revenue for the year was £6,641 and the expenditure £6,780, while the capital funds amounted to £61,266.

CORRESPONDENCE

Bronchiectasis

SIR,—As an illustration of Dr. Beaumont's contention in the *Journal* of October 14th (p. 708), may I describe two cases.

In 1929 a doctor consulted me for bronchiectasis. He was bringing up large quantities of purulent fetid expectoration. His breath was so offensive that he was utterly unable to conduct his practice. A thoracoplasty had been proposed. I suggested however a trial of artificial pneumothorax treatment. He agreed and this was done. He came into hospital, and in three weeks was out again, with the lung completely compressed and with no symptoms whatsoever. In six weeks he was back at his practice, and from that time to this he has practised uninterruptedly. The clubbing of the fingers gradually disappeared. At one time, unfortunately, he tried experiments in the intervals of refills, and allowed the lung to expand too far so far in fact that it expanded at the base and stuck to the chest wall. The result, therefore, at the present time is not so good as formerly, but he is still carrying on pretty well, and prefers this treatment to the hazards of a lobectomy.

In 1928 a little girl was under my care in hospital with a terrible condition of bronchiectasis. We first tried phrenic evulsion as it was basal. This had no effect. An artificial pneumothorax was then given. It improved her, but it was so distressing that we looked round for other methods of treatment. Towards the end of a refill pus poured out of her nose and mouth, and the coughing paroxysm was so great that it was impossible to take any final pressure. I therefore decided to convert the artificial pneumothorax into an oleothorax. From that time to this she has been in good health, and she is growing up a healthy young woman. At one time she won a race at a "Brownie" competition.

Now there is no doubt that most of us, if we had bronchiectasis, would prefer the simpler method of artificial pneumothorax to running the risk of lobectomy. I write this, not in any way to disparage lobectomy, but to emphasize the possibilities of the simpler methods of treatment. I am convinced, and have been for many years, and expressed my views in an article in the *Lancet* several years ago, that lobectomy is the only radical method of treatment, that when the technique had improved and had become safe it would be the method of choice. At the present time the position is this. In many cases lobectomy has been done with dramatic success, but still, in spite of the excellent results published in the current number of the *British Journal of Surgery* by J. E. H. Roberts, H. P. Nelson, and Robert M. Janes, the operation must be regarded as a dangerous one, and one requiring very special knowledge. It may be argued that if we in any way discourage lobectomy this advance in technique will not occur. There are, however, always patients who will demand something more to be done, who will urge and insist on treatment, however drastic, that is radical, and these are the patients who will give the opportunity for advancing the technique of lobectomy. Before long I believe lobectomy will be as safe as the major abdominal operations.

I would also like to support Dr. Hefferman's plea (October 14th, p. 708) for postural drainage. The results from this alone are often dramatic. I have several patients, whom I have been watching now for many years, with definite bronchiectasis, often with gross dilatations, proved by lipiodol, who are carrying on satisfactorily without any of the more special forms of treatment mentioned. It is not a question of lobectomy versus artificial pneumothorax, or versus postural drainage, or versus bronchoscopic drainage, but, as in everything else in medicine, it is a case of dealing with a particular patient, and particular and special circumstances, in every case.—I am, etc.,

F. G. CHANDLER, M.D., F.R.C.P.

London, N.W.1, Oct. 17th.

Rest in the Treatment of Coronary Thrombosis

Sir,—The number of cases of coronary thrombosis—correctly or incorrectly diagnosed—must be very considerable, and is most probably on the increase, especially, perhaps, the second variety. As the main treatment of the condition consists of rest—of which the minimum period now almost universally ordered is six weeks—it is time that the members of the profession should carefully consider the physiological principles upon which such prolonged periods of rest are prescribed, and the economic consequences to the individual patient as well as to the country at large.

Coronary thrombosis means that the blood in one of the coronary arteries has—as the result of some extrinsic cause such as arteriosclerosis, or of some intrinsic factor associated with coagulation—become clotted, thus depriving a portion of the myocardium of its blood supply, with consequent death of that part. The rest that is prescribed presumably has two objects in view: (1) to give time for the dead portion of the myocardium to be scarred over, and (2) to prevent a repetition of the infarction. As regards the second object, it would seem that rest is definitely contraindicated, inasmuch as the tendency to coagulation varies inversely with the rapidity of flow. Moreover, until we can either cure the arteriosclerosis or discover and remedy the intrinsic factor which is responsible for the diminished coagulation time, it is futile to pretend that we know how to prevent the possibility, or even the probability, of another attack. We must therefore assume that there can be one object only in prescribing periods of rest varying from six weeks to six or more months—namely, to allow the formation of a strong scar, which will prevent rupture of the heart when the extra strain of a vertical posture is thrown upon it. If that be so, the thoughtful physician would like to know, from those who are in a position to supply the information, on what grounds the minimum period of six weeks has been fixed, and what are the contraindications to getting a patient up after the lapse of that minimum interval?

Every medical practitioner of experience has met with cases where patients disobeyed the doctor's or cardiologist's instructions, and hardly stayed in bed at all, with no terrible consequences. On the other hand, he is equally aware of patients who have religiously obeyed orders, and have died whilst they were at complete rest in bed under the supervision of a nurse. When one comes across two members of the same household, husband and wife, both of whom were diagnosed by more than one cardiologist as cases of coronary thrombosis within a short period of each other, and the one who took the matter lightly is alive and well to-day and married a second time, because his wife, who was kept at complete rest for a prolonged period in bed, died in the middle of the night during that period of rest, one begins to wonder whether the question of complete and prolonged rest is not being stressed unduly without a proper discrimination between different cases.

I spoke to one cardiologist, who justified the minimum period of six weeks on the analogy of thrombosed varicose veins. But such an analogy is, of course, utterly erroneous, because the fear of the detachment of an embolus does not arise in cases of coronary thrombosis. The other question that I put to cardiologists, and which I should like to repeat here, is whether there is any statistical evidence based on the observation of representative numbers of comparable cases treated with and without prolonged periods of rest to fortify their belief that such prolonged rest is necessary, or even justifiable. I use the word "justifiable" advisedly, because not only is such advice frequently accompanied by anomalous results, but the economic aspect of the question is a matter of considerable importance. The condition, as we know, occurs mostly in people who are neither of the hospital type nor of the class of people who are insured under the National Health Insurance Act. The strain upon one's resources entailed by a prolonged period of rest in bed, nursing, and absence from one's daily occupation is very great, and should not be undertaken except on very good grounds. Moreover, if it is remembered that the condition is apt to occur in people who are big leaders of industry, it will be realized that prolonged periods of absence from business, when taken *en masse*, are likely to react unfavourably upon the prosperity of the country, quite apart from the adverse psychological effects produced in the patient himself.

It therefore behoves the leaders of the profession to ponder over the matter very carefully, and come to some conclusion whereby it might be possible to classify the cases into (1) those in which the infarct is sufficiently large to demand a long period of rest, and (2) those in which the doctor would be justified in telling his patient that a few days or a couple of weeks' rest is all that is necessary. I do not think that either the level of the dropped blood pressure, or the precordial discomfort, or even electrocardiographic evidence is—at any rate when taken singly—a sufficient guide.—I am, etc.,

London, W.1, Oct. 7th. W. M. Feldman, M.D.

"Clinical Science"

Sir,—Few Harveian Orations can have been more thought-provoking and inspiring than that delivered by Sir Thomas Lewis. Loyal to the tradition of William Harvey, the validity of which no one can dispute, the Orator laid down as his premise that clinical science must seek its knowledge from study of the living patient, of the dead man, and of the experimental animal. But as I pondered over the Oration I was impelled by his profound insight to conclude that the genius of Sir Thomas Lewis cannot be confined within the Harveian tradition.

Sir Thomas clearly exposed the advantages and disadvantages of studying the consequences of *artificially* induced disease in healthy animals, but, probably from loyalty to William Harvey, Sir Thomas offered no advice on the methods of overcoming these disadvantages. I hope Sir Thomas will not take offence at my pointing out that John Hunter showed us a method whereby clinical science should benefit from "correlated studies upon the lower animals." John Hunter sought knowledge of cause and process of human disease by observation of *naturally* acquired disease of animals. The value of following the Hunterian precepts and practice is evident in the work of such distinguished followers as Sir John Bland-Sutton, Dr. J. A. Murray, and Sir Frank Colyer.

The resemblance of the process of *certain* natural diseases of man and animals is so very close as to justify not only the same nomenclature but the inference that similar causes operate. May I be permitted to cite examples of which I have some experience? The clinical and pathological expressions of a type of nephritis in dogs appear to be indistinguishable from Bright's disease of man; similar conclusions result from a comparison of human and canine chronic endocarditis. The pathogeny and pathology of rheumatoid arthritis of the horse is very similar to, if not identical with, that of human rheumatoid arthritis. Such conditions of particular significance to surgeons as twist and intussusception of the human abdominal viscera are duplicated in several species of animals.

Probably Sir Thomas Lewis has often wished to look inside the hearts of his cardiac patients long before they appeared in the post-mortem room; he could do so at

any stage of cardiac failure in a dog patient. Probably with a hundred cardiac dogs he might work out the complete story of the disease; I think John Hunter would have attempted it were he living to-day.

Briefly, I suggest that clinical science should embrace the Harveian and Hunterian traditions, in which a place for observation and experiment of natural disease on comparative lines should be found.—I am, etc.,

TOM HARE, M.D.

Royal Veterinary College, N.W., Oct. 23rd.

"Cabbage Goitre"

SIR,—The leading article entitled "Problems of Diet," which appeared in the *British Medical Journal* of October 14th, rather leads one to assume that the so-called "cabbage goitre," which has been produced in America in rabbits, is considered to be the result of a food deficiency. This conclusion is untenable in the light of Marine's[1] work on the presence of a definite goitrogenic substance in cabbage. He showed that a batch of rabbits fed on potent cabbage developed thyroid hyperplasia, whereas a batch of rabbits of the same age and breed and kept under identical conditions developed no thyroid hyperplasia when fed with equivalent amounts of the same sample of cabbage dried at room temperature in a current of air. These experiments were performed concurrently. How can this be the effect of a dietetic deficiency?

The previous failures in England to produce thyroid hyperplasia by means of cabbage is no argument against the presence of a definite goitrogenic agent. In a paper about to go to press Spence, Walker, and Scowen have shown that this was due to the anti-goitrogenic property of the foodstuffs with which the cabbage diet was supplemented.—I am, etc.,

A. W. SPENCE, M.D.

Dunn Laboratories, St. Bartholomew's Hospital and College, Oct. 17th.

Radiation in Malignant Disease

The Problem of Metastasis

SIR,—In your issue of October 14th there appear three papers on the radiation treatment of malignant disease which were read at a combined meeting of the Sections of Radiology and Surgery at the recent Dublin Meeting of the British Medical Association—one by a surgeon, one by a radium worker, and the third by a physician chiefly interested in *x*-ray therapy. At the end of his paper the surgeon says with regard to treatment by radium and *x* rays:

"The great advantages they offer over operative treatment, in the way of complete freedom from risk to life, avoidance of a period of invalidism, of mutilation, and of the infliction of pain, are in these days of heavy dosage, prolonged treatment, marked local reactions, and complementary surgical procedures, less convincing."

So far as I can see there is nothing in the other papers to controvert this view.

I write to you to point out that these ideas are not common to all experienced radiologists. It is impossible in a communication of this kind to range over the whole field of malignant disease, so I will confine my remarks to one subject—cancer of the breast. What is the ultimate cause of death in this disease? The answer must be, in most cases, *internal metastases*. Of all cases seen, there must be a large proportion in which metastases are already present in latent form, for the ideal "early case" hardly exists. According to inquiries made in a recent series of 100 patients seen by me in hospital and private practice, 80 per cent. stated that the "lump" was discovered accidentally, and varied in size from that of a large pea to that of a walnut. As it is known that secondaries are sometimes present even when the breast tumour is not palpable, it is obvious that no patient can be guaranteed free from these microscopic beginnings.

If such beginnings are in existence, no form of local treatment to the breast can be effective in preventing future trouble. In the absence of clinical or radiological evidence to the contrary we must, however, hope in any given case that distant metastases are not yet present. This means that if we can deal effectively with the local tumour *and the surrounding lymphatics* no metatases should occur. Now it is admitted by all radiologists that it is not possible to give, even with approximate safety to the patient, a "lethal dose" of radiation from an external source to cancer cells over a wide area. It is also admitted—though on the part of some it would seem to be a form of lip-service only—that the surrounding tissues, and the patient as a whole, play a part in the disappearance of a malignant tumour under radiation treatment. As we cannot by external radiation directly destroy all cancer cells, it becomes of the utmost importance to make use of the natural resistance of the body. The *x*-ray dosage best calculated to stir up such resistance can only be determined by trial and error. Speaking from an experience of over twenty years, I am personally convinced—and I am not alone in the conviction—that any treatment which seriously upsets the patient renders him more and not less liable to metastatic invasion.

We do not really know how *x* rays produce their beneficial effects. For example, the same dosage that reduces red cells in a case of polycythaemia will reduce whites and put up reds in a patient suffering from leukaemia. By keeping down dosage to the minimum by the aid of frequent blood counts, one can prolong active life for years: overdosage is fatal. To say that *x* rays benefit polycythaemia because "they destroy red cells" or improve the leukaemic case because they "destroy white cells" is begging the question. It is in all probability equally unscientific to say that *x* rays cause the disappearance of a breast cancer because they destroy cancer cells. All we can truly say is that they help the body to help itself. As to metastases already present in latent form, it is plain that the only thing we have to count on is the patient's powers of resistance. This can be raised or lowered both mentally and physically. A patient may rapidly go to the bad with the shock of financial loss or bereavement; conversely, even after metastases have appeared, she may improve with good news. On the physical side, general light treatment may restore for years a patient apparently moribund. The beneficial effects of light have been confirmed at the Cancer Hospital.

This is naturally not the place to go into the question of technique. Nor am I claiming that the *x*-ray dosage in vogue a decade or more ago was a sufficient dosage. But, in general, I wish to state as my considered opinion that breast cases, except in rare instances, are harmed rather than benefited by *x*-ray treatment sufficiently intense to prevent them following their ordinary avocations.—I am, etc.,

London, W.1, Oct. 21st. F. HERNAMAN-JOHNSON.

The Anti-Noise League

SIR,—Following upon a letter to the *Times*, signed among others by Lord Buckmaster, Lord Horder, and Lord Riddell, a new association has been formed under the name of the Anti-Noise League, with the object of diminishing the amount of noise in modern life. A definite attempt is thus being made to moderate what has long been a nuisance, and is now gradually, though not

[1] Marine, D., Baumann, E. J., Webster, B., and Cipra, A.: *Proc. Soc. Exp. Biol. and Med.*, 1930, xxvii, 1025.

imperceptibly, becoming something more than a nuisance. Since the formation of the league two or three weeks ago, a large number of members have been enrolled, and the stream of new adherents shows no sign of lessening. That the league will grow in power and influence, and that its efforts will prove to be successful, must be the hope of every medical man, as all of them are not only frequent witnesses of the disturbing influence of street and other noises upon the sick, but are also themselves frequent victims in their own efforts to obtain repose.

When one considers the almost infinite variety and the multifarious sources of the noises we have to endure, it will soon be appreciated how heavy and difficult is the task assumed by the Anti-Noise League. Motor cars and their hooters, pneumatic street drills, clattering lorries, banging doors, aeroplane engines, and the new and growing plague of wireless loud speakers—there is no end to the volume. All the more reason, therefore, for medical men to join the league and to persuade others to do the same. Membership may be obtained by intimation to the honorary secretary, Anti-Noise League, 18, Old Cavendish Street, W.1, together with the nominal fee of half a crown, or one guinea for founder members, which confers upon the subscriber the right of participating in the election of officers, and of taking an active part in this most necessary reformation in public manners.—I am, etc.,

BECKLES WILLSON,
Honorary Secretary.

London, W.1, Oct. 17th.

SIR,—We should like to add a word to Lieut.-Colonel Beckles Willson's appeal to medical men to join, and to work for, the Anti-Noise League.

Members of the British Medical Association will remember how, three or four years ago, certain of their representatives and others of the League of Health waited upon the then Minister of Health to urge upon him and the Government of the day the need for legislative effort that might lead to a moderation in the production of road-traffic noise. Nothing, however, was promised, and nothing was attempted. Indeed, to judge from the Minister's reply on that occasion, it seemed that he had little or no sympathy with our pleadings and protests. The impression left upon the minds of us who were present was that the influence upon legislators of medical opinion alone—even in matters of public health—may be surprisingly ineffective, and that, to induce any Government to take action, prolonged and unremitting pressure must be exercised upon it, not only by one class in the community but by all.

Nevertheless, our attempt was not entirely futile. It showed sufferers that a start had been made on the road to reform, and so gave a lead to the general and widespread movement that is now being organized. As we have hinted above, however, without a numerous and influential membership, embracing all ranks and all callings, the Anti-Noise League will fail, and the misery of this removable social irritant will continue to grow worse and worse as time goes on. Consequently we appeal to medical men and women everywhere not only to join the League themselves, but also to arouse the interests of their lay friends and acquaintances in the efforts now being made to render life quieter and more peaceful.

We call upon all doctors throughout the length and breadth of the land to become themselves propagandists in the furtherance of this most urgent and necessary reform.—We are, etc.,

HORDER
D. J. COLLIER
J. PURVES-STEWART
DAN MCKENZIE
Medical Members of the Provisional Committee of the Anti-Noise League.

London, W.1, Oct. 23rd.

Arachnidism

SIR,—Your interesting note on arachnidism (*Journal*, October 21st, p. 743) made no reference to the therapeutic properties of the spider venoms. Yet it was the interesting observation that a tarantula bite cured a leper of his neuritis which stimulated Monaelesser to repeat Calmette's work on the neurotoxic properties of the venoms and to come to Paris, where his work on the treatment of tumours with cobra venom has aroused the interest of the Académie de Médecine.

Fabre's field researches on the life of the black-bellied tarantula demonstrated that this hunting spider kills its prey, often an insect as large as itself, by a bite in the neck, the poison fangs reaching the cervical ganglia: the result is instantaneous death. The neurotoxin of the spider's venom ensures instant immobility in its relatively large and powerful prey when injected by the spider into the central nervous system (*The Life of the Spider*, Chapter I). Semple recorded a case in which an anginal syndrome developed after a bite by the "black widow" (*Virginia Monthly Medical*, 1875). Bogen's series of nearly 150 cases of *Latrodectus* poisoning in man included no case of anginal syndrome, but many of the cases developed the picture of shock and board-like abdomen (*Arch. Int. Med.*, May, 1926). Since 1890 *Latrodectus* venom in dilutions from 10^{-12} has been used with considerable success in the relief of the constricting pains in the thoracic cage that accompany angina.—I am, etc.,

FRANK BODMAN.

Bristol, Oct. 22nd.

Surgeons' Fees

SIR,—A good deal of correspondence has lately been carried on in the lay Press about doctors' fees. Many complaints have been made about excessive charges and about the great increase that has taken place since the war, and in some cases these complaints would seem to be justified. Being in general practice myself I know little about the charges of other general practitioners, but from personal knowledge I do feel that there is much ground for complaint about consultants' fees, especially surgeons.

In the Midland town in which I live a new generation of surgeons has sprung up since the war, whose charges are, to my mind, often quite unreasonable, and in many cases they cause great hardship. The question of surgeons' fees is a most difficult one, and is likely to remain so as long as the present custom prevails of charging people largely according to their means; and recent experience has led me to think that some surgeons have no scale at all, but charge just as much as they think they are likely to get. But I do not put all the blame on the surgeon for these excessive charges. The general practitioner is often at fault, and so is the patient. How much easier it would be if we had some reliable means of ascertaining the patient's financial position. At present the surgeon often knows next to nothing about this, and he has to rely on what he can find out from the patient and on what the general practitioner tells him. Many patients who are well-to-do will do anything to avoid paying a decent fee, while others who are hard up often behave as if money were no object, give us an entirely false impression as to their position, and so find themselves in difficulties.

The general practitioner, too, is often lacking in his duty. It is he who enjoys the patient's confidence and knows most about his circumstances, and surely it is his job to see that both patient and surgeon get a "square deal." He should especially see that his patient is not overcharged. How often is this done? But the fact remains that surgeons' fees are too high, and for this the surgeons are chiefly to blame. May I give a few instances which have recently come under my notice of charges made to

people of moderate means? Appendicectomy, thirty-five guineas; tonsillectomy in a child, twenty guineas; cholecystectomy, fifty guineas; Caesarean section, fifty guineas. I could give many more instances of a similar nature, but these will suffice, and I think many of your readers will agree with me that if such amounts were halved they would still represent reasonable fees for such cases. The result of all this is that the public are becoming alarmed, and complaints are heard on every hand. Many who are in need of operations have to carry on as best they can, because they simply cannot afford to pay the fees, and among those who are more fortunately situated there is a widespread dissatisfaction and a feeling that they are being unfairly treated. Such a state of things as I have outlined is bound to result in a general uprising on the part of the public. There is a growing demand for provident schemes and other means of protection, and it is certain that very soon we shall be inundated with insurance schemes for the middle classes.

There is one class of surgeon whom I would except from that indictment, and that is the man who has had experience of general practice. As a rule he is most reasonable and considerate, far more so than the man who has had no such experience.

I have only referred to charges made to people of moderate means, not to the well-to-do. That is another story.—I am, etc.,

X Y Z

October 16th.

Prevention of Tuberculosis

SIR,—In reply to Dr. G. Walker (October 14th, p. 709), I have to state that I did not suggest that we should "concentrate *all* our efforts in treating our cattle on sanatorium lines." The suggested attack was against the disease so far as it was spread by cattle. That did not involve any interference with measures against the human type. Dr. Walker is entitled to his view that the disease is not *mainly* disseminated by the milk supply. I think it is generally admitted that the disease may be caused in men by either type, and that the bovine type is commoner in children owing to the large consumption of milk by them.

The fact that so many cases of tuberculosis in children are due to the bovine type and that in adults most are due to the human type suggests the possibility of mutation of one type to the other. We know that prolonged cultivation of an organism on special media may change the characteristics of that organism, and so during a lengthy sojourn in man the bovine type may be so modified into what we regard as the human type. The evidence for and against is not final. But is that any reason for getting evidence by experimenting on the lines suggested to eradicate the disease among cattle? Tuberculosis is essentially a disease of the lymphatic system, and one might well ask whether, if there had been no tuberculous milk, there would have been tuberculosis of the lungs.

Krause has shown that of 75 per cent. or more of persons infected with tuberculosis before adolescence over a half are infected for the first time during the three years between the ages of 3 and 6, whilst in the first three years of life only one-quarter are infected. It is during the first three years of life that the child is brought into contact with contaminated milk. Why stay the prevention of these? Some of these cases go on with latent focus to light up in later years. During the war the increase of tuberculosis from malnutrition showed the activation of a pre-existing focus. Jews living under the worst conditions in great cities of Europe and America returned to Palestine showing an acquired immunity; for whilst there was tuberculous infection, as proved by the von Pirquet reaction, there was no tuberculous disease. Yet they were active dangers to the susceptible. I deny that my suggestion is in any way affected by Dr. Walker's letter.—I am, etc.,

Sydenham, Oct. 15th. A. G. NEWELL, M.D., D.P.H.

Primary Thrombosis of the Axillary Vein

SIR,—I was interested in Mr. Cosbie Ross's article on primary thrombosis of the axillary vein (*Journal*, September 16th, p. 535), in which he attributes this disease in most cases to trauma. In this country, where bilharzia infection is found in over 75 per cent. of post-mortem examinations, and where intravenous injections are extensively given, it is surprising that, with the constant damage to the veins of the arms, and the injections of such an irritant drug as tartar emetic, no thrombosis of any consequence is ever met with. In fact, if it ever occurs it clears up within ten days. It may be interesting to record here the history of a patient seen by me last February.

A healthy married male, aged 36, leading the active life of a police officer had a touch of dysentery, and was being given daily subcutaneous injections of emetine on the posterior aspect of his left arm. After the third injection he felt a little cramp in his right arm while writing. This was attributed to rheumatism. On the following day pain increased, and was greatest about his axilla and brachial aspect of the arm. On inspection, his axillary and brachial veins were tender and cord like. All superficial veins of his arm and those around his shoulder were prominent. Despite slight duskiness of the skin about these veins nothing of importance could be noticed. The patient had no rise of temperature and no rigors, and was treated by rest and antiphlogistine for a few days, and later by local application of ichthyol. The Wassermann reaction was negative, and the blood pressure was 110. Six weeks later his left arm was also affected, and both had to be put up in slings. Fully two and a half months after the appearance of his symptoms his thrombosis cleared up.

It may be interesting to notice in connexion with this case: (1) complete absence of trauma, (2) the enormous number of patients who are given tartar emetic daily, or every alternate day, and the fact that in any who may get thrombosis the latter clears up within ten days; (3) emetine could not be the cause, as it was given subcutaneously in the left arm; (4) the low blood pressure, and (5) the absence of oedema. Could it be possible that some hormone defect, affecting either the blood calcium or blood pressure, or both, is responsible for such cases?—I am, etc.,

Tantah, Egypt, Oct. 8th. A. K. SELIM, M.R.C.S.

History of Anaesthetics

SIR,—It may be interesting to quote an account of the first administration of ether in England.

It has been recorded (Sir R. Reynolds) that the first operation in this country under an anaesthetic was witnessed in University College Hospital. Liston had consented to try the anaesthetic. He said to his students: "Gentlemen, we are now going to try a Yankee dodge for making men insensible." At length one Peter Squire said: "He is ready now, Sir." Liston's knife flashed in the air. I took out my watch to count the time, and the leg was on the floor in six-and-twenty seconds. Liston turned to his students and said, "This Yankee dodge, gentlemen, beats mesmerism hollow."

Sir James Simpson was the first to use ether in obstetric practice. The dining-room story of his discovery of the anaesthetic properties of chloroform is too well known to recall. It is recorded that a Linlithgow chemist, Waldie, had previously suggested the trial of chloroform, and that a French chemist, Flourens, had, a few months before, written on its effects on animals.—I am, etc.,

P. G. SHEPPARD.

Parkgate, Cheshire, Oct. 23rd.

desirable to have the woman's point of view expressed, the Council constantly looked to her to serve, and when she stood for election to the standing committees of the Association her election was practically assured. She was the first woman to be a member of the Council. Always active in work devoted primarily to the interests of women doctors, she was enthusiastic in support of their rights and privileges, and she watched carefully the medical interests of women patients. Nevertheless, her views on such topics never obscured the wider interests of the profession and the people as a whole, of which she was a convinced supporter. She thus served as a helpful liaison between the women's medical organizations and the Association. Quietly pursuing her work in these fields, her worth was recognized in the Representative Meeting, and in Division and Branch she was promoted to the highest offices, while her crowning triumph was her election this summer to the General Medical Council as one of the direct representatives of the profession. Vigorous and indefatigable in work, a great opportunity came to her at the Centenary Meeting, when she was made chairman of the Ladies' Committee which looked after the well-being of ladies attending the meeting. This work gave full scope to her powers of organization, practical wisdom, and tact, and she discharged it with conspicuous success.

She never sought the limelight for herself, nor did she frequently intervene in debate unless she had something important to say, and any distinction she met with was a due recognition of her character and ability. She was forceful and tenacious in argument, concise and direct in speech, and her optimism and enthusiasms were tempered with sane common sense and a practical desire to see things accomplished. Above all, those who worked with her loved her for her cheerful, loyal, courageous nature and her gift of comradeship, and now many colleagues will miss a valued friend.

Dr. Charles F. T. Scott, President of the Metropolitan Counties Branch of the British Medical Association, writes:

By the passing of Dr. Christine Murrell the medical profession has lost one of its finest and most distinguished members. As one who had the privilege of her friendship, I had many opportunities of knowing her fine character and sterling worth. She was the first woman president of the Metropolitan Counties Branch, and we all know how loyally and with what conspicuous ability she carried out the duties of her office, proving to us what a wise choice we had made. It is fresh in our memories the great amount of work she did as chairman of the Ladies' Committee in connexion with the Centenary Meeting, and it was largely due to her wise statesmanship that the meeting was the pronounced success it was. The crowning honour of her public life, when she was elected to the General Medical Council, came too late for her to take an active part, but the thought that she was considered worthy and had the confidence of her fellow members was a joy to her.

There was nothing small about "Our Christine," as she was affectionately known by those who worked with her. Large-hearted and generous, she gained her points by her personality, her sincerity, and her powers of persuasion. It would be incorrect to say that Dr. Christine Murrell was merely a protagonist for the cause of women in medicine, but rather was she for their successful co-operation in the profession as a whole. This she achieved, and held the balance always with credit and distinction. At this time our thoughts go out in sympathy to her beloved friend and colleague, Dr. Honor Bone—devoted to the end.

Mr. Howard M. Stratford writes:

As a member of the Kensington Executive Committee for many years with the late Dr. Christine Murrell I should like to send a few words of appreciation. Endowed with a very orderly mind, and a large fund of common sense, she was a valuable member of any committee, never speaking unless she had something cogent and useful to add to the debate. She was especially effective in summing up a discussion and elucidating the principal points, and made a most excellent chairman of the Division. I think what must have struck those who knew her best was her absolute sense of justice and fair play: no office was acceptable if there was a question of anyone having prior claims being overlooked. As chairman of several important committees of the Centenary Meeting, and in poor health at the time, she carried through a big undertaking, requiring great tact and judgement, with conspicuous ability, which added in no small measure to the success of the meeting. That considerably more than appreciation for her work for the Association was felt was evident at the Dublin Meeting, when many anxious inquiries were made as to her health, her Christian name often being used—a sure sign of affectionate regard. The B.M.A., and especially the Kensington Division, have lost a valued member.

Dr. Jane Walker writes:

Dr. Christine Murrell was a great personality. You could never pass her over. You might differ from her, but you had to respect her point of view. Perhaps the one adjective—if that be an allowable thing to say—that would best describe her, is loyal. Whatever capacity in life she was in, she was always that. She was also to a high degree single-minded. I have known her to retire gracefully and simply from a post which was hers by right because she was convinced that another person would serve the cause she had at heart more effectually. Moreover, she was quite clear where her loyalty lay, and it was useless to attempt to turn her from the path she had marked out for herself. She will be missed by a very large section of the community. By her patients, as she should be, first and foremost, for she was a very good and successful doctor. She has been stated to have been one of the most successful general practitioners in London. She will be missed by the many and varied public bodies on which she served with such use and distinction—to mention only two of them, the Medical Women's Federation and the British Medical Association. Of the former she had been president, and under her rule during this time the Federation grew and prospered. At the time of her death she was its treasurer. She was a most generous donor to it as well, for she presented £1,000 to it to form a fund for helping medical women in practice: this is named the John Rayne's Fund, in memory of her grandfather, who helped her so generously when she started her medical career. With regard to her work for the British Medical Association, doubtless others more conversant with it than I am will speak; but I venture to think that only time, showing further knowledge of all she did for the Association and of her deep loyalty to it, will bring the realization of the very deep loss it has sustained.

Lady Barrett writes:

I have known Christine Murrell since we were first students and then house-surgeons together at the Royal Free Hospital, and throughout the succeeding years she will always remain a vivid memory. Others will tell of the varied movements and activities she led or shared in, of which her work in the British Medical Association was one of the most important; but through all the phases of work—medical or social—which engaged her interest, the same character revealed itself, gathering richness of quality as time went on. She had a quick sympathy for the wrongs and troubles of others, and a very low, soft, musical voice for its expression. Her outstanding characteristics, however, were strength, loyalty, sincerity, with a keen love of fair play—qualities which we recognize as those of a great gentlewoman. These contributed not a little to her outstanding success as a general practitioner.

Dr. Letitia Fairfield writes:

Christine Murrell's special gift was friendship, and it is difficult to find words in which to pay a tribute to her warm-hearted comradeship. To the young and struggling medical woman she was generosity itself, to any older colleague in trouble or perplexity she would give

especially of sympathy and counsel Full of delightful humour and tolerance she had yet no patience with the cowardly optimism which assumes that barriers full of their own accord Christine Murrell fought gallantly and undoubtedly all her life for the removal of artificial restrictions on women but her masterful feminists she regarded as such controversy merely as a tiresome though essential preliminary to the business of getting on with one's job Of her own splendid work she was immensely proud She regarded the life of a general practitioner as a real vocation, and nothing would rouse her to such wrath as any attempt to belittle the G P in comparison with the specialist or public health officer The honours paid her by the British Medical Association gave Dr Murrell peculiar pleasure and we always regarded simply as further opportunities for serving her profession It was added tribute that she never lived to show how splendidly she could justify the last and crowning token of confidence—her election to the General Medical Council

Miss Mary Ramsay President of the Medical Women's Federation, writes

There will be many medical men and women who have had the association with Dr Christine Murrell who will grieve when they learn of her death She was a woman of outstanding personality and one sensed on meeting her for the first time that here was a character well worth knowing and one from which much could be learned During the past years I have been associated with her on many committees concerned with medico-political work and was able to observe how she brought many such undertakings to a successful conclusion Only last year she worked to her uttermost as chairman of the Ladies' Centenary Celebration Committee of the British Medical Association There were many tributes to her skill and management, and thanks by all for making so many people comfortable and happy in every possible way She was tired but very triumphant at the way things had gone

Dr Murrell had a very acute one might almost say a legal, brain The unravelling of problems was a real joy to her, and she could generally manage to reach the kernel of a question and could lead a bewildered committee into clear spaces Each colleague she regarded as something very precious and she would often say how honoured she felt when entrusted with the care of medical colleagues She expended much time and thought over them and never forgot that treatment for a physical ill must be accompanied by parallel treatment for the sickened mind She welcomed friends from many lands and at her home one received a true hospitality never to be forgotten Her sense of humour carried her through many a difficult place—suffrage trudges processions, constabulary service under bombardment, etc, were all in the day's work One can say that she never was known to let one down, and she always played the game Her loyal support could always be counted on when a question of principle was at stake She never considered self

Dr Murrell filled many offices in the British Medical Association and the Medical Women's Federation Her final honour was her election as the first woman member of the General Medical Council but alas! she was not permitted to take her seat She has pioneered a path in so many ways that perhaps it will be found that this last piece of work will not be lost For myself I mourn the loss of a dear friend and colleague

DAVID MILLER MUIR, M.A., M.R.C.S., D.M.R.E.

Exeter

Workers in his own field will have heard with great regret of the sudden death, on October 18th, of Mr David Miller Muir of Exeter at the early age of 46

David Miller Muir was educated at University College School, Trinity College, Cambridge, and St Bartholomew's Hospital, where he worked under Professor Langdon Brown He qualified as M.R.C.S., L.R.C.P. just at the beginning of the war, and as soon as possible entered the Royal Navy, eventually becoming Surgeon Commander He was appointed to the *Bellerophon*, one of the dreadnoughts of the Grand Fleet, and served in her during most of the war He was popular with his brother officers and did a great deal for the other ratings over and above that which came within the scope of his duties After the war he was able to continue his specialized work, and joined Dr Harris of Exeter in partnership In 1922 he was appointed consulting radiologist and officer in charge of the radiological and electrical department of the Royal Devon and Exeter Hospital and later consulting radiologist also of the Devon Mental Hospital He was passionately keen on his work and exceedingly clever in diagnosis, but, more than this, he was a first-rate physicist, and at Cambridge had been one of the select band who worked at the Cavendish Laboratory under Sir J J Thomson, of whom so many have now become world-famous He had great mechanical ability which he turned to good account in devising new instruments and methods of improved technique This combination of qualities and his organizing ability enabled him to make his department in the Royal Devon and Exeter Hospital one of the best not only in the provinces but in England In the same manner in his private practice he was ruthless in the way he scrapped apparatus nothing but the very best and latest was good enough for David Muir and he sought it everywhere, not only in this country but on the Continent and in America Few private practices had such lavish and splendid equipment none could have had more, and the best of a few months before was promptly displaced when better came along Mr Muir was a trustee of the Exeter Cancer Fund

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The recent death of Dr William Ernest Nelson has taken from Henley in Arden Warwickshire, one of its most highly respected and valued citizens Born 62 years ago, he first went to Arden House Henley where his father was then conducting a preparatory school and thence to Haileybury He received his medical education at Cambridge and St Thomas's Hospital, obtaining the diplomas M.R.C.S., L.R.C.P. in 1899 and graduating M.A. Soon after qualification he returned to Arden House where he took charge of the school and also commenced medical practice Among his medical appointments were those of medical officer and public vaccinator to the Wootton Wawen district medical officer to the Post Office and Education Department and certifying factory surgeon In November 1914 Dr Nelson organized a V.A.D. hospital at the Public Hall in Henley and recruited the necessary voluntary assistance becoming medical officer and superintendent The hospital remained open until May 1919 and 1,576 patients were treated For this work he was awarded the O.B.E. He was medical director to the Warwickshire Branch of the British Red Cross Society Among his published articles were one on the acaptation of canal barges for the transport of the wounded, and one in the *British Medical Journal*, on the open air treatment of the wounded The Henley Public Hall was originally brought into being by Dr Nelson who raised £1,400 for the purpose It was opened in 1909 and Shakespeare performances have been given in it by Sir Barry Jackson and Mr John Drinkwater, the latter a close friend of his Dr Nelson managed the affairs of the hall for many years, and instituted in it a rifle range—an activity of which he was very fond In 1910 he was elected High Bailiff, and held the office until 1921 He interested himself actively in local sport particularly in football and tennis More recently he was made a justice of the peace, and sat on the Henley Bench For many years he was chairman of the Henley Horse Show, and at one time was a follower of the North Warwickshire Hounds He was a member of the British Medical Association until the beginning of last year, when ill-health compelled his retirement from medical practice His funeral on October 12th was attended by a large number of friends and professional colleagues

We regret to record the death, on September 28th, at Great Yarmouth, of Dr. Alfred Charles Mayo, at the age of 88. Dr. Mayo, who was born in 1845, received the diplomas M.R.C.S.Eng. and L.S.A. in 1870, and had been a member of the British Medical Association since 1873. He was president of the old East Anglian Branch of the Association in 1894, and acted as representative of the East Norfolk and North Suffolk constituency at the Annual Representative Meetings of the Association at Swansea (1903), Oxford (1904), Belfast (1909), London (1910), and London (special meeting) and Birmingham (1911). Dr. Mayo became president of the Norwich Medico-Chirurgical Society in 1888–9, and was mayor of Great Yarmouth in 1905. He was consulting surgeon to the Great Yarmouth Hospital, and a justice of the peace.

We regret to announce the death of Mr. Richard Bolton McCausland at Folkestone on October 9th. A former resident of Dublin, Mr. McCausland received the diploma L.R.C.S.I. in 1885, and in the next year graduated M.B. of Dublin University. He proceeded M.D. in 1895, and in the same year was elected a Fellow of the Royal College of Surgeons in Ireland. He was senior moderator in natural science at Trinity College, and at one time was a member of the Council, and honorary librarian, of the Royal College of Surgeons in Ireland. He had been visiting surgeon to Dr. Steevens' Hospital, Dublin, and was for some years a member of the British Medical Association. Mr. McCausland married the daughter of Professor C. E. Brown-Séquard (1817–94), who succeeded Claude Bernard in the chair of experimental medicine in the Collège de France, and was successively a professor in the Harvard and Paris medical faculties.

News has been received of the death of Dr. Alfred David Gorman of Blackburn, Lancs, following an operation for appendicitis. For some time after qualifying in 1917 he was in practice at Bathgate, West Lothian, Scotland, but he gave this up for post-graduate study in order to gain higher professional qualifications. He obtained the diploma of F.R.F.P. and S.Glas. in 1920, the M.R.C.P.Ed. in 1929, and the D.P.H. in 1931. Only last July he was elected a Fellow of the Royal College of Physicians of Edinburgh. In 1931 the corporation of Blackburn appointed him assistant medical officer of health and school medical officer, but in January of this year he resigned these posts in order to become a partner in private practice at Blackburn. Dr. Gorman was very popular with his colleagues and much beloved by the general public. His untimely death robs the profession of a gifted member in the midst of his usefulness.

We regret to announce the death on September 24th, following an operation, of Dr. Williams Cock, at Salcombe, at the age of 84. Dr. Cock received the diploma of M.R.C.S.Eng. in 1875, and L.R.C.P.Ed. and L.M. in 1876. While a student at Guy's Hospital he was a prosector at the Royal College of Surgeons of England. He retired in 1906, after over thirty years' work in Peckham, where he was a well-known and busy practitioner. Dr. Cock was an enthusiastic Freemason and a good worker for medical and local charities, and was for many years a member of the British Medical Association. He was a county magistrate for Devonshire. His wife died in November, 1932, and of their six children two sons and one daughter survive him.

The death occurred in Liverpool on October 12th, after a very short illness, of Dr. Ariel Ransford Stewart McElney. Dr. McElney, who was 29 years of age, was the daughter of Major Deacon and Dr. Mary Deacon of Waterloo, Liverpool, and received her education at Roedean School, Brighton. Proceeding to Liverpool University she graduated M.B., Ch.B. in 1928. After leaving the university she was a house-surgeon at the Liverpool Stanley Hospital, where she met her husband, Dr. J. H. McElney. She then took a post at the Bridgwater Hospital and for a short time before leaving for China was in private practice at Northwich. After her marriage in Singapore in 1930 she proceeded to Hong-Kong, where her husband was in private practice, and there obtained a Government post in connexion with maternity and child welfare centres. She leaves behind two young boys, the younger being only two months old. In 1932 Dr. McElney held the office of honorary librarian and treasurer to the Hong-Kong and China Branch of the British Medical Association.

The following well-known foreign medical men have recently died: Dr. Giovanni Carbonelli, a prominent medical historian, editor of the *Bolletino dell' Istituto Storico Italiano dell' Arte Sanitaria*, aged 74; Professor Heinrich Wolff, for many years director of the Hermanns-werder Hospital at Potsdam, aged 61; Dr. Silvio Rebebo, professor of pharmacology and therapeutics at Lisbon; Dr. A. Chassevant, a Paris hygienist, aged 68; Professor K. Willmanns, a Heidelberg psychiatrist; Dr. Eric Leschke, professor of internal medicine in Berlin University; Dr. Thompson Seiser Westcott, a Philadelphia paediatrist, and part author with Dr. Louis Starr of *The American Textbook of Diseases of Children*, aged 71; Dr. Julius Gross, professor of children's diseases at Budapest; Dr. Ramon E. Ribeyro, professor of parasitology, and president of the National Academy of Medicine at Lima; and Dr. Carlos Bello de Moraes, professor of clinical medicine at Lisbon.

Corrigendum.—In the obituary notice of Mr. Charles Henry Hough in last week's *Journal* (p. 763) the name of his father should have read James (not Thomas) Hough, F.R.C.S.

Medical News

The annual dinner of the Royal Society of Medicine will be held on Thursday, November 16th, at 7.30 for 8 p.m., at the May Fair Hotel, Berkeley Square, with the president, Mr. V. Warren Low, in the chair. The Earl of Athlone and Sir Ernest Benn will be the Society's guests of honour.

H.R.H. Prince Arthur of Connaught will lay the foundation stone of the new nurses' home of Putney Hospital on Wednesday, November 1st, at 3 p.m.

A meeting of the Eugenics Society will be held at the rooms of the Linnean Society, Burlington House, Piccadilly, W., on Tuesday, November 7th, at 5.30 p.m., when Dr. H. L. Gordon will speak on "Amentia in the East African Native, Considered Psychiatrically and Socially." Sir Humphry Rolleston, Bart., will occupy the chair. Dr. Gordon, who is well known for his work in Kenya, has been making an inquiry, extending over seven years, into the nature of mental deficiency in the East African native. His results suggest that there are important differences between the average brain and average mind of the native and those of the European.

There will be a hearing on November 17th and 18th of a complaint which the Board of Trade has received under Section 1 (5) of the Safeguarding of Industries Act, 1921, that insulin and its salts have been improperly excluded from List H (iii) of articles chargeable with duty under Part I of that Act, as amended by Section 10 of the Finance Act, 1926. The hearing will commence at 10.30 a.m. in the Conference Room, No. 47, Second Floor, Board of Trade, Great George Street, S.W.1, and the tribunal will consist of the Hon. S. O. Henn Collins, K.C., the Referee, Professor F. G. Donnan, F.R.S., and Professor Samuel Smiles, F.R.S.

The council of Epsom College will shortly elect a girl to a St Anne's Scholarship of £120 a year, tenable at some approved girls' boarding school. Candidates must be at least 9 and not more than 12 years of age on July 30th 1934, and must be orphan daughters of medical men who for not less than five years have been in independent practice in England or Wales. Application must be made by December 11th 1933 on a form to be obtained from the secretary of the college at 49 Bedford Square, W.C.1.

The Fellowship of Medicine (1 Wimpole Street, W.) has arranged a course in neurology specially suitable for the general practitioner, at the West End Hospital for Nervous Diseases, from October 30th to November 4th. There will be a course in ophthalmology at the Central London Ophthalmic Hospital from October 30th to November 4th. A week-end course in obstetrics has been arranged at the City of London Maternity Hospital on November 4th and 5th. A course in urology for advanced post-graduates will be given at St. Peter's Hospital from November 6th to 18th. A week-end course in gynæcology will be held at the Samaritan Hospital on November 18th and 19th. Other forthcoming courses include medicine, surgery and gynæcology at the Royal Waterloo Hospital, November 6th to 25th; diseases of the chest at the City of London Hospital, Victoria Park, November 14th to 25th; venereal diseases at the London Lock Hospital, November 14th to December 9th; proctology at St. Mark's Hospital, November 20th to 25th. Individual clinics in various branches of medicine and surgery are available daily by arrangement with the Fellowship of Medicine.

The Society for Constructive Birth Control informs us that demonstrations of contraceptive technique for medical practitioners and senior medical students will be given at 108, Whitfield Street, W.1, on Wednesday, November 1st, at 2.30 p.m. Application should be made to the honorary secretary of the society at that address.

The September issue of *Watson's Microscope Record*, published by W. Watson and Sons, Limited, 313, High Holborn, W.C.1, contains several notes of practical interest to microscopists, including Part IV. of a series on dark ground illumination.

The issue of the *British Journal of Dermatology and Syphilis* for October contains the following papers connected with William Tilbury Fox, father of British dermatology: "At the Public Dispensary," with William and Bateman's, by Dr. Henry MacCormac; "William and Bateman on Fevers," by Dr. J. D. Rolleston and Some Personal Relics of Robert William," by Dr. H. Haldin Davis.

The third biennial Conference on Mental Health will be held at Caxton Hall, Westminster, S.W., from November 22nd to 24th. It will be opened on the evening of Wednesday, November 22nd by H.R.H. Prince George, President of the National Council for Mental Hygiene.

With reference to the Home Office announcement (*British Medical Journal*, September 23rd, p. 574) regarding the extension of control to methylmorphine (commonly known as codeine) and ethylmorphine (commonly known as dionin) and their respective salts, the Home Secretary gives notice that he is advised that pills and tablets that contain the drugs compounded with any other substance are to be regarded as preparations or compounds containing the drugs, and therefore outside the provisions of the Dangerous Drugs Acts.

At the quarterly court of the directors of the Society for Relief of Widows and Orphans of Medical Men, held on October 11th, with the president, Mr. V. Warren Low, in the chair, three new members were elected and the death of one reported. The sum of £84 10s. was voted for special grants to orphans who had reached the age of 16, to enable them to continue their education, and £625 was voted as a Christmas present to the widows and orphans in receipt of grants, each widow over 75 years of age to receive £15, those under 75 £10, and each orphan £10. A widow of a member applied for relief, and was voted a yearly grant from the ordinary funds of £50, and one of £25 from the Brackwell Fund. She received at this Court £18 15s., being the amount of the grants for the last four months of this year. A widow, whose death was reported, and who had been in receipt of relief for four years, had received in grants from the society £300. Her late husband was elected a member in 1903 and died in October 1929. He had paid in subscriptions £52 10s., the maximum amount that an ordinary member can pay in yearly subscriptions before becoming a life member. Relief is only granted to the necessitous widows and orphans of deceased members. Membership is restricted to medical men who at the time of their election are resident within a twenty mile radius of Charing Cross. Full particulars and application forms for membership may be obtained from the secretary, 11, Chandos Street, Cavendish Square, W.1.

The Grocers' Company offers three medical research scholarships each of £300 a year, with an allowance to meet the cost of apparatus and other expenses, tenable for one year but renewable for a second or third year. The next election will take place in May, 1934. Applications must be sent in before the end of April, to the Clerk, Grocers' Hall, London, E.C.2, from whom a form of application and further information may be obtained.

Group Captain Henry Cooper, D.S.O., R.A.F.M.S. (ret.), clerk and registrar of the Society of Apothecaries, was admitted to the Freedom of the City of London on October 17th.

Dr. Friedrich von Muller, professor of internal medicine at Munich, has recently celebrated his 75th birthday.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS as well as orders for copies of the *Journal* should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange for all departments).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology, Westcent, London*.

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westcent, London*.

MEDICAL SECRETARY, *Mediocracy, Westcent, London*.

The address of the Irish Office of the British Medical Association is 35, Kildare Street, Dublin (telegrams *Bacillus, Dublin*, telephone 62550 Dublin); and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams *Associate, Edinburgh*, telephone 24361 Edinburgh).

QUERIES AND ANSWERS

Chronic Urticaria

"X. Y." writes: I should be glad to receive suggestions for the cure of a case of chronic urticaria which has resisted all forms of treatment including the administration of calcium, ephedrine and luminal and the injection of whole blood, peptone and T.A.B. vaccine.

Trigeminal Neuralgia

"T. M." writes: I have a patient, a married woman, aged 43, who has suffered from this appalling condition for over twenty years. At first each side of the face was attacked on alternate occasions. Now the attacks come on weekly and last about two days—the first day on one side and the second on the other side. Only the infra-orbital branches are affected. A ray examination reveals nothing abnormal. Can anyone suggest any mode of treatment or give me information regarding results following alcohol injections?

*** Dr. Wilfred Harris's paper on the treatment of trigeminal neuralgia in the *British Medical Journal* of July 16th 1932 (p. 87), dealt in considerable detail with alcohol injection in preference to open Gasserian operation.

Hyperidrosis

Dr. H. G. ADAMSON (London, W.1) writes: I have read with interest Dr. D. M. Macdonald's note (*British Medical Journal*, October 21st, p. 765) on the treatment of hyperidrosis of the axillae by applications of the constant current, as employed so successfully by the late Dr. J. J. Pringle. This is a method which seems not to be mentioned in text-books; nor is it referred to in Dr. Pringle's article on hyperidrosis in Clifford Allbutt's *System of Medicine*, vol. viii, 1899. Moreover, I remember revising with Dr. Pringle his article on hyperidrosis for the second edition of Clifford Allbutt's *System*, published in 1911, and oddly enough he made no reference to this, his favourite method; nor do I find any mention of it in the revised article on referring to it to-day. Hyperidrosis of the axillae is often such an unsatisfactory complaint to treat—it is even sometimes refractory to *x*-ray treatment—that it would be useful to learn from Dr. Macdonald details of this method of applying the constant current—that is, which pole to apply to the axilla, what current to use (in milliamperes), and what duration to make for each application.

"J. R. R." (Glasgow) writes in answer to the query published on October 14th (p. 716): "Uncomfortable" could have the condition cured with *x* rays. It would require six or eight doses. There is a proprietary agent called "instant odorono." One patient has used this and found it completely successful. It has to be reapplied every two or three days. It apparently does the skin no harm. I know nothing of its constitution.

"J. W." (London, W.) also writes in reply to "Uncomfortable," to suggest a trial of a few moderately large *x*-ray doses at three-weekly intervals; this often has the desired effect in axillary hyperidrosis.

Winter Underwear

Lieut.-Colonel J. COWAN, R.A.M.C.(ret.), writes from Bath: In reply to "North London" (October 14th, p. 716), who inquires about the best material for winter underwear: I suggest that he should try "airlin"—all pure linen mesh, or "meshlin," 55 per cent. pure linen, which is cheaper and nearly as good. In my opinion linen mesh is by far the best material for underwear, all the year round. I have not worn anything else as underclothing for the past ten years, and never regret giving up woollen underwear. Airlin and meshlin can be obtained from most of the stores, but the makers, The Irish Linen Mesh Company, Ltd., Rydalmere Street, Belfast, give a generous discount to medical men if the goods are ordered *direct* from them. Perhaps I should add that I have no financial interest in the firm.

Income Tax

Acting as Locumtenent for Friends

"D. M. H." puts the case of a retired medical man (Dr. X) who during the past three years has acted as locumtenent to a friend, using his own car. It was understood between them that the £5 5s. per week paid should be "free of income tax," and accordingly Dr. X did not return it for assessment, and his friend did not claim it as a deduction. The revenue authorities are now claiming tax from Dr. X. What is the legal position?

** Dr. X is liable; the amount received was for services rendered, and cannot be regarded as a "gift" for income tax purposes. He can deduct the appropriate cost of using his own car on the locumtenent work, but apparently his household expenses would not be increased, and could not be brought in to reduce the amount assessable. The practitioner he assisted can claim a revision of the past three years' assessments on the ground of "error or omission" in his returns.

Depreciation and Replacement of Car

"M. O." inquires whether on claiming cost of replacement of an old car the first year's depreciation of the new car is totally lost, and, generally, how should the claim be made?

** It is a definite rule of law that for the same assessment depreciation cannot be allowed if cost of replacement has been deducted in computing the assessment. Consequently, if that expense has been deducted in the account for, say, the year 1932, which forms the basis of the assessment for 1933-4, then no depreciation allowance is legally due for that year. Suppose the new car cost £120 in 1932, then the depreciation allowance lost (as such) for 1933-4 would be, say, 20 per cent. of £120 = £24 + 10 per cent—that is, £26. The allowance for 1934-5 will be calculated on the written-down value £120 − £26 = £94. When "obsolescence" is claimed, however, on renewal of the car, the loss of depreciation allowance is made good, because the non-effective £26 will be excluded from the aggregate of the allowances made. In our opinion 20 per cent., not 15 per cent., is the proper and usual rate of depreciation for cars in frequent use, but it is a matter for the discretion of the district commissioners of taxes.

LETTERS, NOTES, ETC.

The Weekly Action

Dr. R. E. HOPE SIMPSON (Beaminster, Dorset) writes: The following case may be of interest. Four months ago I was called in to see a baby boy, aged 5 months, whose mother was anxious because he would only pass a stool once a week. I could find nothing abnormal in the child. He was breast-fed, slightly over weight, in very good condition, slept well, ate well, played happily, and seemed always contented. There was no distension of the colon. The mother was told to give him plenty of water, but no purgatives or laxatives. The baby is now being weaned, passes a comfortable, large, well-formed stool each seventh day, and continues to thrive.

Glasgow Public Health Qualifications

Our attention has been drawn to the omission from our recent Educational Number (September 2nd) of any reference to the public health qualifications of Glasgow University. This university confers the B.Sc. (P.H.) and the D.P.H., and conducts complete qualifying courses for both at its Institute of Hygiene and, for administrative work, in the Public Health Department of the city. The course for the diploma is divided into two parts, and admission to the examination is contingent upon the candidate having complied with the following conditions: Part 1.—(*a*) Completion, subsequent to obtaining a registrable medical qualification, of the course of instruction prescribed for Part 1. Part 2.—(*b*) Completion, subsequent to obtaining a registrable qualification, of the course of instruction prescribed for Part 2; (*c*) a lapse of two years after obtaining a registrable qualification; (*d*) previous passing of examination in all subjects of Part 1.

Pictures at Guy's

Guy's Hospital has discovered that it possesses perhaps the only surviving specimen of the work of John Teal Cooper, an English artist of the early eighteenth century, famous in his day as a painter of fruit and flowers. The painting, covered with a dark and discoloured varnish, hangs in the hospital. The canvas is approximately 3 ft. by 2 ft. 6 in., and the subject is fruit in variety. The medical superintendent, Mr. H. L. Eason, is arranging to have the picture cleaned and photographed. Among other paintings owned by the hospital is a portrait of Thomas Guy, the founder, painted by Vanderbank in 1706, a Mr. Crank, traditionally from the brush of Zoffany, Dr. William Saunders, by Lemuel Abbott, two Paninis, and two pastels by John Raphael Smith, the engraver.

A Warning

A medical man in North London writes to warn other readers against parting with money to a supposed colleague, who says he cannot afford the railway fare to take up a temporary appointment in a provincial hospital.

Kingston's Translation Institute has recently issued a revised edition of Kingston's metric equivalent tables. Those whose work makes it necessary for them to express ounces in terms of grams, Fahrenheit temperature in terms of centigrade, miles in terms of kilometres, will find these tables invaluable. They can be obtained (1s. 1d. post free) by applying to Leadenhall House, 101, Leadenhall Street, London, E.C.3.

We are asked to state that copies of a revised prospectus of Smedley's Hydropathic Establishment, Matlock, Derbyshire, with details of the various bath treatments available, may be had from the manager at that address.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 45, 46, 47, 50, and 51 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 235.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

291 Goitre in Derbyshire

P. H. J. Turton (*Proc. Roy. Soc. Med.*, July, 1933, p. 1223, and also report in *Journal*, May 6th, 1933, p. 784), who, in a ten-year study of this subject in its geological, climatological, and sociological aspects, has classified all persons whom he examined, divides his material into five groups: (1) normal, (2) incipient goitre, (3) small goitre (causing definite alteration in neck contour); (4) medium goitre (definite deformity due to lateral or anterior bulging); and (5) large goitre, obvious on casual inspection. He finds that the incidence of childhood goitre is valuable only as evidence of prevailing thyroid disease, when considered in relation to other criteria of endemicity—the prevalence of cretinism, the proportion of the sexes affected, and the prevalence of goitre among adults. Turton examined 21,639 girls and 21,236 boys between the (inclusive) ages of 8 and 13 years. Goitre in younger children is uncommon, though considerable numbers of infantile and congenital cases were seen. Cretins are rare, but a few were found in the eastern area and in Nottinghamshire. Nearly one third of the county from south-east to north-west is carboniferous limestone strata with volcanic vents in the northern half. The water supplies from this formation are extremely liable to organic or animal pollution, and the total hardness is high. This has always been a goitrous region. The limestone shales extend over a large area north and south of the limestone, and in the Derwent valley. Organized water supplies are generally good and hardness is low, but springs and surface wells are very liable to faecal pollution. He concludes that endemic goitre is not due to any single agent, impure and unprotected water supplies, leading to gastro-intestinal infection, being important causes. Of the many contributory factors, foods, in relation to mineral imbalance, and iodine or vitamin deficiency, play their part. The problem of the very definite relationship between goitre in the limestone region and its almost total absence in the Triassic region in the south is still unsolved. There is no evidence that iodine deficiency has played any important part in the aetiology of Derbyshire goitre, and Turton agrees that, although goitre in most cases is to be regarded as an endemic disease caused by a definite poison, it is impossible to assert that all goitres originate from the same cause.

292 Rheumatism and Tonsillectomy

Pártos-Bernath (*Med. Welt*, July 29th, 1933, p. 1066) states that several pathological conditions may necessitate tonsillectomy, but that 60 per cent. of all cases are of rheumatic origin. Of these, it is said, 10 per cent. have tonsillar symptoms. Subacute tonsillitis ranks with the teeth and intestinal tract as a source of acute polyarthritis, though the so-called "primary chronic tonsillitis" is a more frequent cause. Acute polyarthritis may follow other diseases—for example, scarlatina and dysentery. Conversely, every tonsillitis does not produce arthritis. Tonsillectomy is indicated. (1) When polyarthritis occurs immediately after acute tonsillitis, or when frequent recurrences are followed by exacerbations of polyarthritis. (2) When there is a history of recurrent adolescent tonsillitis and the tonsils appear unhealthy. (After inspection the writer uses two spherical "tonsil expressors" frequently this pressure yields a quantity of pus.) (3) In relapsing rheumatism, with indications of "focal infection" if no other source be found, although the tonsils are not obviously unhealthy. (After "tonsillar expression" temperatures should be taken for some days: fever is certain proof of deep-seated pus, which necessitates incision. Many of these patients have polyarthritis.) (4) Finally, tonsillectomy is indicated clearly when nephritis or endocarditis is present. (Tonsillitis, like diphtheria, may damage the auriculo-ventricular bundle and lead to total heart-block. Some of these patients improve greatly after tonsillectomy.) Tonsillectomy is contraindicated generally in patients under 6 and over 60 years of age, unless there is evidence of heart disease, or a fresh lesion has developed. Operation is then necessary, though it may release septic material that may lead to a fatal termination. In older, compensated heart lesions, without evidence of exacerbation, operation is contraindicated definitely. Chronic focal tonsillitis requires treatment before operation; if this fails, tonsillectomy is contraindicated.

293 Spirochaetal Jaundice

G. Vincent (*Thèse de Paris*, 1933, No. 245) states that recent literature shows the above disease to be endemic in Paris. The male sex is chiefly involved. Most of the patients described were young adults between the ages of 20 and 35, but there was a fatal case in a man aged 66. The disease was most frequent in the summer months—probably owing to bathing in contaminated rivers. In addition to the ordinary forms the following were encountered: fatal forms, characterized by early jaundice, well-marked haemorrhage, erythemas, and rise of blood creatinine; myoclonic forms; pure meningeal forms without jaundice; and a non-icteric type characterized by acute polyserositis. From the diagnostic aspect the following considerations are said to be important: (1) the predominance of lymphocytosis in some cases of spirochaetal meningitis; (2) the necessity of inoculating the guinea-pig with the patient's cerebro-spinal fluid; (3) the possibility of the presence of spirochaetes in the urine at an early stage. On histological examination the liver shows a polymorphonuclear infiltration, a predominance of amitotic cell divisions, and a redistribution of pigment at the periphery of the lobule, as in pigmentary cirrhosis. In the meningeal form, without jaundice, biopsy of the lymphatic glands shows neutrophagy.

294 Hypertension and the Endocrine Glands

E. Kylin (*Med. Klinik*, July 21st, 1933, p. 1004) suggests that there is a connexion between the anterior pituitary lobe, the sexual glands, and essential hypertension. He has arrived at the following conclusions: (1) The theory that essential hypertension originates in some endocrine disturbance is at present unproved, but there is evidence that endocrine glands are involved, particularly the anterior hypophyseal lobe and the gonads. (2) It has been found that 60 per cent. of acromegalic women have hypertension in the post-climacteric period—suggesting a connexion between the anterior pituitary lobe and ovarian dysfunction. As a general rule hypertension is not found among other acromegalic patients. (3) When the functional activity of the anterior hypophyseal lobe is diminished ("Simmonds's disease") essential hypertension does not occur. This fact justifies the assumption that there is some mutual antagonism between these two pathological conditions. (4) Conversely, acromegaly and essential hypertension exhibit similar symptoms. Hyperglycaemia and glycosuria are found in both diseases—in acromegaly, glycosuria occurs in 40 per cent. of the patients, while in essential hypertension 20 per cent. suffer from glycosuria. (5) In Simmonds's disease, and in dwarfs suffering from hypophyseal atrophy, the symptoms are entirely opposite to those of acromegaly. (6) While the clinical pictures in acromegaly and essential hypertension undoubtedly coincide at many points, the syndrome of Simmonds's disease is quite the reverse; it appears, therefore, that the hypothesis is justified that the anterior hypophyseal lobe may be implicated in the production of essential hypertension. An active "contra-insulin" hormone has been isolated from the anterior pituitary lobe. It is suggested that in acromegaly an excess of this hormone neutralizes insulin and so induces glycosuria. The author feels that if this theory is correct diabetes in essential hypertension probably has a similar origin.

Obstetrics and Gynaecology

306 Appendicitis in Pregnancy

E. D'Errico (*New England Journ. Med.*, July 6th, 1933, p. 27) reports the results of an analysis of sixty-five unselected cases of appendicitis complicating pregnancy. He calculates that the incidence of this complication is one in 766 pregnancies, its frequency being no more than in the non-pregnant state. In the author's series over 52 per cent. of the cases occurred between the ages of 15 and 25; the youngest patient was 16 and the oldest 40.

Appendicitis is only slightly more common in primiparae. The type of inflammation was chronic in 42.23 per cent. of the series, acute in 26.15, gangrenous in 12.31, ruptured with abscess in 7.69, and ruptured with diffuse spreading peritonitis in 4.62. The greatest number of cases occurred within the first four months of pregnancy. As regards the differential diagnosis of this condition, D'Errico holds that in any case of pain in the right lower quadrant, whether primary or recurrent, and whether the only symptom or associated with others, the possibility of appendicitis must not be abandoned until it is absolutely ruled out. A right-sided ectopic gestation may be very difficult to differentiate, but this is of no importance, since surgical intervention is called for in both cases. The author warns against temporizing in discussion of the finer points in differential diagnosis when appendicitis cannot be excluded—especially in the later months of pregnancy, when appendix inflammation may advance with fulminating rapidity to perforation and diffuse spreading peritonitis. The prognosis is no worse in early pregnancy than in the non-pregnant state, and may conceivably be better, perhaps owing to an increased peritoneal resistance during the first months of gestation. There were four deaths in D'Errico's series, the mortality thus being 6.16 per cent. In all the fatal cases labour had commenced before death, thus indicating a mortality rate of 30.77 per cent. for such a complication. The author concludes that pregnancy does not tend to cause a recurrence of an old appendicitis, nor to increase susceptibility to a primary attack. Early surgical intervention is indicated as soon as the diagnosis has been established, or in case of doubt when the possibility cannot be ruled out. Conservative surgery should be the rule in the management of all types of appendicitis occurring in the first eight months of pregnancy. In the last month conservative treatment may also be preferable, provided that there are no such complications as contracted pelvis, disproportion, or advanced age.

307 A New Pupillary Test in Pregnancy

Z. Bercovitz (*Amer. Journ. Obstet. and Gynecol.*, June, 1933, p. 882) describes a simple test for pregnancy. He finds that if five or six drops of the patient's blood, diluted with one drop of normal saline—or, preferably, with a 10 per cent. sodium citrate solution—be placed in one conjunctival sac, the pupil of that eye will either contract or dilate if the patient be pregnant. There is a prompt and definite change in the size of the pupil as compared with that of the other eye. Bercovitz has observed 382 patients. He and his colleagues tested 183 pregnant women. Positive reactions occurred in 155 cases (an average of 84.7 per cent.), while there were fifteen negative and thirteen doubtful reactions. On the other hand, 154 non-pregnant individuals (of whom sixteen were men!) failed in every case to show the reaction. In one series many patients were under treatment for syphilis, but this did not affect the test, nor were there any signs of eye injury. The test can be done in two minutes, and the reaction persists for (approximately) five minutes. In one pregnant patient a positive pupillary reaction occurred twelve days after the onset of the last menstrual period. It was found that a 0.2 per cent. phenol solution instilled into the conjunctival sac, either before or during a pupillary reaction, inhibits it. Neutralized female sex hormone, isolated from the urine of pregnant women, failed to cause a pupillary reaction when instilled into the conjunctival sac of fourteen pregnant women. All these women reacted positively to their own blood. Forty-one post-partum cases were observed. Thirty-four had negative pupillary reactions. One patient who had a positive reaction before delivery was negative fifteen minutes after the birth of twins and expulsion of the placenta.

Pathology

308 Viability of Brucella abortus in Ice-cream

R. Thompson (*Canadian Med. Assoc. Journ.*, July, 1933, p. 9) describes bacteriological investigations undertaken last year which showed that *Br. abortus* was transmissible from naturally infected cow's milk to ice-cream prepared in the laboratory according to the recipe of Patterson. Repeated studies had already revealed that this organism could be recovered from "certified" and "special" milk which was being sold in Montreal, and a review of medical literature had shown that the number of cases of undulant fever in Canada was steadily increasing. Thompson's research has now made it clear that *Br. abortus* is transmissible to ice-cream, and remains viable in this product for a period of at least one month, when kept at temperatures below freezing point. It follows that ice-cream made from "ordinary unpasteurized," "special," or "certified" milk may constitute a mode of transmission of this organism from cows to human subjects, and thus have to be taken into serious consideration by public health authorities. It was found also that commercial companies might retain ice-cream for one to three weeks before releasing it for sale, but rarely for longer periods than this. The media employed in this study contained gentian violet in a dilution of 1 in 10,000; this undoubtedly inhibited the growth of spore-forming organisms. It is stated that, while many large manufacturing plants use pasteurized cream, many small plants and private homes continue to employ the unpasteurized form for making dairy products.

309 The Widal Reaction in Typhoid Carriers

M. Kristensen and K. A. Poulsen (*Ugeskrift for Laeger*, July 6th, 1933, p. 759) discuss the shortcomings of the bacteriological examination of the stools in the demonstration of typhoid carriers, and give an account of their investigations at the State Serum Institute in Copenhagen, where they have submitted the blood of seventy-seven chronic typhoid or paratyphoid carriers to the Widal reaction. All the fifty-nine typhoid carriers and all the eighteen paratyphoid carriers agglutinated typhoid bacilli and paratyphoid B, respectively, when the vessels in which the reaction developed were kept for about sixteen hours at a temperature of 50° C., and when various technical formalities were observed with a view to rendering the reaction more than usually delicate. To ascertain how often a positive Widal reaction is demonstrable among persons not known to be chronic carriers, the authors have applied the same version of their technique to the serums of 242 persons, of whom forty-three were tuberculous. In only seventeen cases (7 per cent.) were typhoid bacilli agglutinated in dilutions of 5 or weaker. Another series of controls consisted of 506 serums taken from persons who, as they handled milk, were to be examined in order that the possibility of their being carriers might be eliminated. Among these persons were twenty whose serum agglutinated typhoid bacilli and twenty-four whose serum agglutinated paratyphoid B. None of these serums agglutinated both typhoid and paratyphoid organisms. The authors conclude that, provided the technique of the Widal reaction conforms to their requirements, a perfectly negative reaction shows that the person concerned is not a chronic carrier of the typhoid or paratyphoid germ with which he is tested. If, however, there are grave reasons for suspecting a particular person of being a carrier, it is desirable to supplement a Widal reaction with a bacteriological examination of the faeces and urine.

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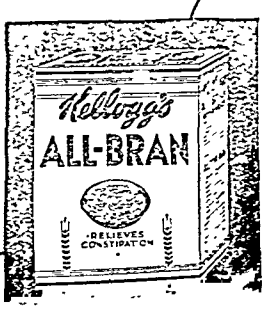
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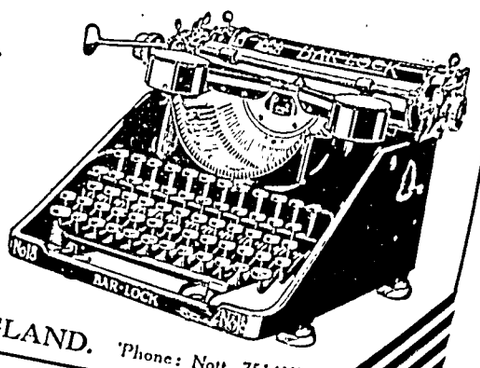
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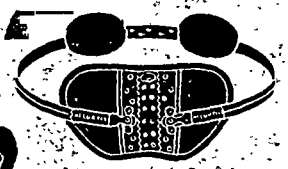
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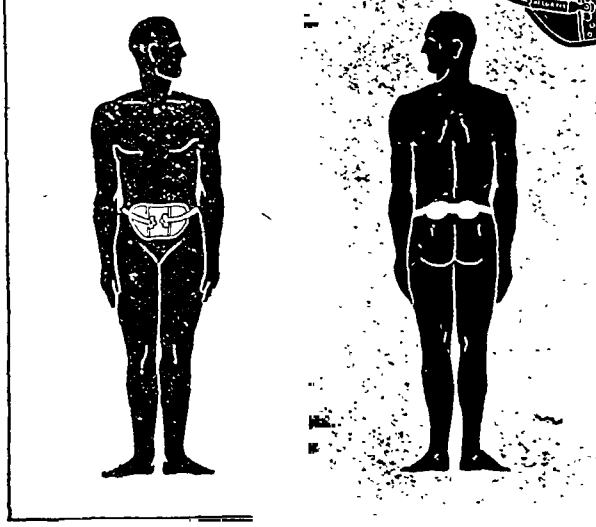
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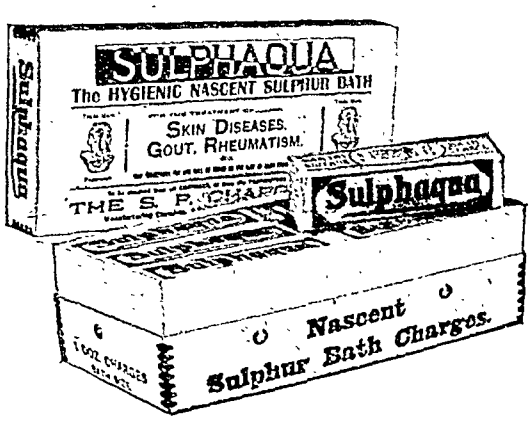
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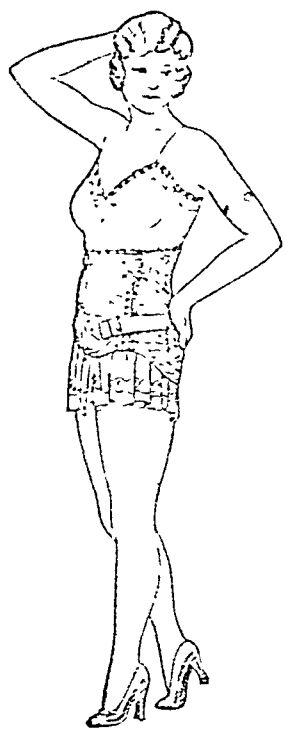
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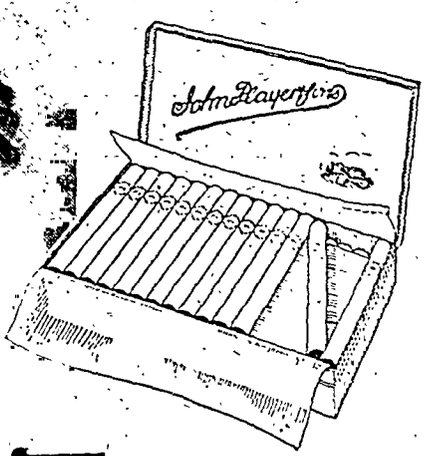
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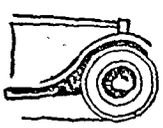


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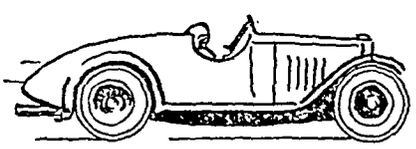
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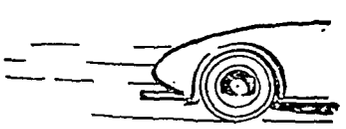
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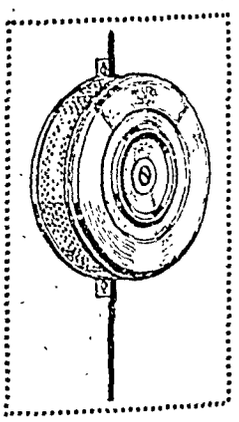
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FOR MENTAL DISORDERS,

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FOR THE UPPER AND MIDDLE CLASSES ONLY.

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For terms and further particulars apply to the Medical Superintendent (Telephone No. 2356 and 2357 Northampton), who can be seen in London by appointment.

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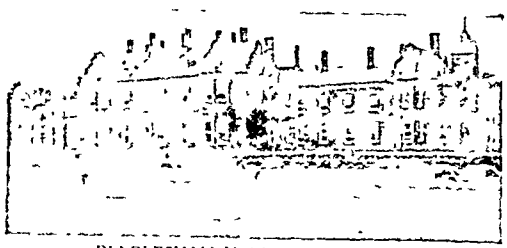
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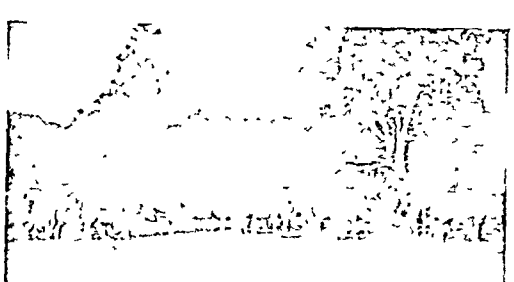
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For Mental Defectives of either sex.

Under private management.

Apply to Dr. Langdon-Down.

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A PRIVATE HOME for the treatment of Gentlemen suffering from Mental or Nervous Illness *including* the *allied* disorders of Alcoholism and the Drug Habit All types of early Mental and Nervous cases are received without certificates as Voluntary Patients under the provisions of the Mental Treatment Act, 1930 Bracing Hill country See *Medical Directory*, p. 2314.—Apply to Medical Superintendent. 'Phone. 10 P.O. Church Stretton.

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Terms include (with rare exceptions) all forms of treatment, for which unusual facilities exist —*there being* a staff of consultant specialists, and the central laboratory of London County Mental Hospitals being attached to the Hospital. Inquiries of EDWARD MAPOTHER, M.D., F.R.C.P., F.R.C.S., Medical Superintendent

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As founded and established by the late Dr. FRANCIS HARE, for 20 years Med. Supt. of the Norwood Sanatorium, and author of "Alcoholism," etc., for the treatment of ALCOHOLISM, other Drug Habits, Insomnia, Neurasthenia, Functional Nervous Disorders

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Fees 5—10 guineas. Ample amusements 25 bedrooms Annexe for mild cases Quiet and pleasant situation

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A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses. Conveniently situated four miles from Charing Cross. Easy access from all parts. Six acres of ground highly situated, facing Finsbury Park. Private Suites. Voluntary Patients and Temporary Patients received without Certification

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PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

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The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Certified voluntary and temporary patients are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis Courts. Entertainments, dances, and indoor amusements held throughout the year. Terms from £3 3s. per week.

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Extensive grounds. Detached Villas. Chapel. Garden and dairy produce from own farm. Terms very moderate.

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Detached Villas standing in 12 acres of ornamental grounds, with tennis courts, etc., which Voluntary, Temporary or Certified Patients may visit, by arrangement, for long or short periods.

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This REGISTERED HOSPITAL, with a SEASIDE BRANCH at Colwyn Bay, N. Wales, is for the treatment and care of those of the Upper and Middle Classes suffering from MENTAL and NERVOUS DISEASES.

The Hospital is governed by a COMMITTEE, appointed by the TRUSTEES of the Manchester Royal Infirmary.

In addition to the Main Building there are separate villas. Extensive grounds. Hard and grass tennis courts, cricket and croquet grounds, and a court for badminton. There are also wireless installations. Golf may be had within easy distance. Occupational Therapy.

VOLUNTARY, TEMPORARY, AND CERTIFIED PATIENTS received.

The Hospital is nine miles from Manchester, 50 minutes by rail from Liverpool, and 3½ hours from London.

For terms and further particulars apply to the Medical Superintendent, J. A. C. ROY, M.B., who may be seen in Manchester by APPOINTMENT.

Telephone: GATLEY 2251 (3 lines).

CAMBERWELL HOUSE, 33, Peckham Road, London, S.E.5.

Telegrams: "PSYCHOLIA, LONDON." **FOR THE TREATMENT OF MENTAL DISORDERS.** *Telephone*: RODNEY 4731—4732.

Also completely detached Villas for mild cases, with private suites if desired. Voluntary patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Putting Greens, Bowls, Croquet, Squash Rackets, and all indoor amusements, including Wireless and other Concerts. Occupational Therapy, Callisthenics, and Dancing Classes, X-ray and Actino-therapy. Prolonged Immersion Baths, Operating Theatre, Pathological Laboratory, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician: Dr. HUBERT JAMES NORMAN, assisted by three Medical Officers, also resident and visiting Consultants.

An illustrated Prospectus, giving fees which are strictly moderate, may be obtained upon application to the Secretary.

The Convalescent Branch is HOVE VILLA, BRIGHTON, and is 200 feet above sea-level.

NORDRACH-UPON-MENDIP SANATORIUM

FOR THE TREATMENT OF TUBERCULOSIS, was opened in January, 1899, by ROWLAND THURNAM, M.D.

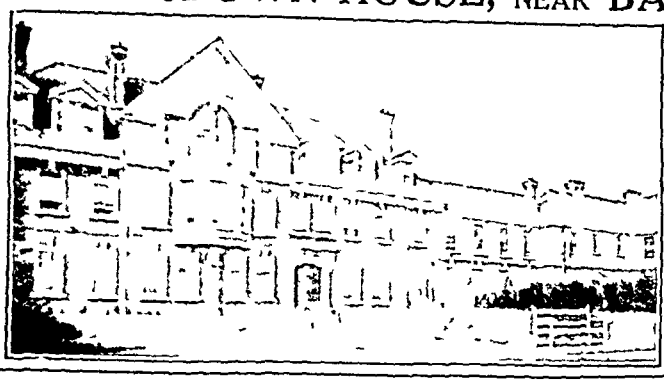
All modern forms of treatment are available. There are X-ray and ultra-violet ray installations. Full day and night nursing staff. The Sanatorium stands in gardens and private grounds of 65 acres, at an altitude of 862 feet above sea-level, surrounded by woods and moorland. All rooms are heated by hot-water pipes and electrically lighted.

Fees 4, 5, and 6 guineas per week.

CYRIL FRANCIS ASHBY, M.R.C.S., L.R.C.P., Certificate of Sanatorium Stephani, Switzerland, *Resident Medical Supt.*

For full particulars apply to *The Secretary*, Nordrach-upon-Mendip, Blagdon, Bristol. *Telegrams*: Nordrach Blagdon. *Telephone*: Blagdon 23.

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NERVOUS AND MENTAL ILLNESS.

A Superior Modern and Attractive Building situated in a charming and bracing locality, 400 ft above sea level

Extensive pleasure grounds with croquet tennis, bowling and putting greens

Occupational Light and Hydro Therapy

ONE HOUR RAIL JOURNEY FROM LONDON

Ladies and Gentlemen can be received as private patients on a voluntary basis or with certificates written application alone is required for the former

FEES including all necessaries except clothing, from THREE to FIVE GUINEAS A WEEK

Brochure and information may be obtained from the MEDICAL SUPERINTENDENT
Telephone 197 Basingstoke

RUTHIN CASTLE, NORTH WALES

REDUCTION OF FEES

In view of the present economic position the inclusive fees at Ruthin Castle formerly from 17 guineas a week have been reduced to from 15 guineas a week

The fees include medical attendance all scientific investigations that may be needed such as analyses bacteriological cultures the ordinary x-ray examinations and electrocardiograph readings all treatment that may be prescribed such as special diets insulin artificial sunlight electrical treatment baths massage nursing medicine or vaccines board and lodging

The only extra charge is that for a complete alimentary x-ray examination or for x-ray therapy

All the usual forms of treatment are given at Ruthin Castle The climate is mild The annual rainfall is 30·5 inches that is less than the average for England There is central heating throughout Should the accommodation in the Castle not prove sufficient comfortable rooms can be obtained near by for those undergoing treatment

Address—THE SECRETARY, Ruthin Castle North Wales Telegrams CASTLE RUTHIN Telephone RUTHIN 66

The MUNDESLEY SANATORIUM

The newly opened central building makes the Mundesley Sanatorium the best equipped building in England for the cure of Tuberculosis All the bedrooms have hot and cold running water, electric light, and wireless headphones The new public rooms are spacious and comfortable

Medical Staff
S VERE PEARSON
MD(Cantab) MRCP(Lond)
ANDREW MORLAND
MD(Lond) MRCP
E C WYNNE EDWARDS
MB(Cantab)

For all information apply
THE SANATORIUM MUNDESLEY, NORFOLK
(Telephone Mundesley 94)

The buildings face S S W and are sheltered from the sea by a pine clad ridge The sunshine record and dry air complete a perfect site The medical equipment is of the latest kind, and there is a day and night nursing staff

TERMS FROM 7½ GUINEAS WEEKLY.

TOR-NA-DEE SANATORIUM
MURTLE DEESIDE ABERDEENSHIRE

FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS

Managing Director DAVID LAWSON MD FRSE

Southern aspect Low rainfall Pure bracing air Sheltered grounds Beautiful surroundings All modern equipment for diagnosis and treatment including operating theatre No extra charge for X Rays, Artificial Pneumothorax, Ultra-Violet Light, or other special treatment

Day and night Nursing Staff All bedrooms have central heating electric light hot and cold running water, and wireless (headphones) Comfortable and airy public rooms

Medical Superintendent J M JOHNSTON MB MRCS DPH For full particulars and prospectus apply to the Secretary

Inclusive Terms: SEVEN GUINEAS A WEEK.

An Invitation to Visit

HARROGATE

Members of the Medical Profession are cordially invited to pay a visit to this BRITISH Spa. Concessions available include free use of the Baths and Waters, Golf, Concerts, etc. Considerable reductions off hotel bills, Motor-Coach Excursions, Tennis, etc.

Pullman and Fast Restaurant Car Trains
Daily from King's Cross Station, London.

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THE PREMIER SPA OF THE WORLD FOR THE TREATMENT OF RHEUMATISM, BY MUD BATHS AND SALT WATERS.

OPEN ALL THE YEAR ROUND.
Through trains from PARIS. On the main line to Biarritz, Pau and Spain.

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in which every treatment of the Station can be carried out.

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The National Federation of the Health Resorts of France, Tavistock House, Tavistock Square, London, W.C.1.
The French Tourist Office, 56, Haymarket, London, S.W.1.

LINFORD SANATORIUM,
RINGWOOD, NEW FOREST, HANTS.

Established 1898 for the treatment of Tuberculosis. Radiators and Electric Light throughout. Hot and cold water and shower bath in nearly all rooms. Powerful X-ray Plant. Ultra-violet Rays. Full Nursing Staff. All forms of treatment available. Farm of 120 acres, including 40 acres of wood. Herd of Tuberculin-tested Guernsey cows kept. Resident Physicians—ARTHUR DE W. SNOWDEN, M.D., B.Ch.(Cantab.), A. G. E. WILCOCK, M.R.C.S., L.R.C.P., COLIN CASSIDY, M.B., B.Ch.(Cantab.)

THE COTSWOLD SANATORIUM

First opened in 1898 and rebuilt in 1925. On the Cotswold Hills, seven miles from Cheltenham, for the treatment of Pulmonary and all other forms of Tuberculosis. Aspect S.S.W., sheltered from North and East, elevation 800 feet. Pure bracing air. Special Treatment by artificial Pneumothorax (X-ray controlled), Tuberculins and Ultra-violet Rays is available, when necessary, without extra charge. X-ray plant. Electric light. Radiators, hot and cold basins, and Wireless in all rooms.

Full day and night Nursing Staff.
Medical Superintendent: GEOFFREY A. HOFFMAN, B.A., M.B., T.C.Dub. *Assistant Physician*: MARGARET A. HARRISON, M.B., B.S.Lond.
Consulting Laryngologist: SIDNEY BERNSTEIN, M.R.C.S.Eng., L.R.C.P.Lond. (Attends Regularly.)
Apply: The Secretary, The Cotswold Sanatorium, Cranham, Gloucester. *Telephone*: 41 WITCOMBE. *Telegrams*: "HOFFMAN, BIRDLIP."

HOSPITAL FOR CONSUMPTION
AND DISEASES OF THE CHEST, BROMPTON, and FRIMLEY SANATORIUM.

PAYING PATIENTS RECEIVED.
BOTH MEDICAL and SURGICAL CASES.

4 to 8 guineas per week at the Hospital. 3 to 4 guineas per week at the Sanatorium.
APPLY TO THE SECRETARY:—BROMPTON HOSPITAL, S.W.3.

GRAMPIAN SANATORIUM,
KINGUSSIE, INVERNESS-SHIRE.

Specially built for the Open-air Treatment of Tuberculosis, and opened in 1901. Bracing mountain air. Elevation 860 ft. above sea-level. Sheltered situation in pine wood. Graduated walks. Electric light throughout building and in shelters. Central heating. Fully equipped X-ray Plant. Inoculation Treatment available for patients—24 beds. Trained Nurse on duty all night. Terms £4 7s. 6d. to £6 6s. p.w. inclusive. No extras. Med. Supt.—FELIX SAVY, M.D.
For particulars apply to the Secretary.

Tel. and Telegrams: "Haynes, Brentwood, 45."
Littleton Hall, Brentwood, Essex.
Large grounds, 400 ft. above sea. HOME for ladies Mentally afflicted. Voluntary Boarders received. Station: Brentwood and Shenfield 1 mile. Liverp'l St. 26 min. Apply, Dr. HAYNES.

STAMMERING.
Mr. A. C. SCHNELLE receives resident and daily pupils. Twenty-three years' continual success. Apply for prospectus.—119, Bedford Court Mansions, London, W.C.1. 'Phone: Museum 3465.

MASTERY OF MIDWIFERY.

Examinations for the Diploma of the Mastery of Midwifery of the Society of Apothecaries of London will be held beginning Monday, November 20th, 1933, and Monday, May 21st, 1934.
For regulations, apply to the Registrar of the Society, Water Lane, E.C.4.

Preliminary Examinations.

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

F.R.C.S.(Edin.).
PREP. COURSE with daily Lecture-Demonstrations of Museum Specimens of Surg., Path., for next Exam., will commence shortly. POSTAL TUITION at any time.—Further partics., H. C. ORRIN, F.R.C.S., Surgeons' Hall, Edinburgh.

DIPLOMA IN PSYCHOLOGICAL MEDICINE
Short Intensive Oral and Postal Revision Courses in preparation for the D.P.M. Conjoint, London University, etc.
Apply SECRETARY, Medical Correspondence College, 19, Welbeck St., London, W.1. Free booklet "How to Pass the D.P.M." on application.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

A SERIES OF WEEKLY DEMONSTRATIONS for medical practitioners has been arranged in the various hospitals of Glasgow from November till May. A COURSE OF LECTURES will also be given in the Faculty Hall weekly from November till February. In addition some SPECIAL COURSES are offered and CLINICAL ASSISTANTSHIPS are available in several of the hospitals. The syllabus may be had on application to the Secretary, Post-Graduate Medical Association, The University, Glasgow.

STAMMERING, SPEECH DEFECTS.
BEHNKE METHOD. Estab. 1880. Cases, resident, treated at 39, Earl's Court Square, S.W.5, and in residence, in the Summer holidays, at Miss BEHNKE'S house on the Chilterns.
"Pre-eminent success in the education and treatment of sta[m]" ... "The ..." ... "Lancet." ... "T[he] ... [ef]fect and perfectly effective."
STAMMERING, CLEFT PALATE SPEECH, LISPING, etc. at Miss BEHNKE, 39, Earl's Court Sq., S.W.5.

Post-Graduate Teaching, West London Hospital.

Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave," and for those wishing to take a course under the "Grant-aided Scheme for Post-Graduate Study by Insurance Practitioners."—Anaesthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

Prospectus from the DEAN, West London Hospital, Hammersmith, W.6.

UNIVERSITY EXAMINATION POSTAL INSTITUTION

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M.B., B.S (Lond.),	Final 1918-32 (Completed Exam.)	206
F.R.C.S.(Eng.),	Primary 1918-32	146
	Final	155
M.R.C.P.(Lond.),	1919-32	215
D.P.H.	(London) 1919-32 (Completed Exam.)	316
F.R.C.S.(Edin.),	1918-32	53
M.R.C.S., L.R.C.P.,	Final 1919-32 (Completed Exam.)	456
M.D.	Various Recent Numerous successes	

Preparation for the above, also for Medical Preliminary, and all examinations leading up to M.R.C.S., L.R.C.P., or M.B. of various Universities; also for M.R.C.P.(Edin.), D.P.M., D.O.M.S., D.T.M. & H., D.L.O., D.G.O., D.M.R.E., M.M.S.A., L.M.S.S.A., etc. Many successes

ORAL CLASSES.

M.R.C.P., M.D., Primary and Final F.R.C.S., F.R.C.S.(Edin.), also Final M.B., B.S., and M.R.C.S., L.R.C.P. Museum and Microscope Work. Also Private Tuition.

MEDICAL PROSPECTUS (48pp.)

CONTENTS:—The method and the cost of entering the Medical Profession. *Particulars of all Medical Examinations*, Postal Courses, and Oral Classes. Suggestions for the Higher Medical Examinations. Suggestions for the Higher Surgical Examinations. Suggestions for the Special Diploma Examinations. Refresher Courses. Openings for Women. Hints for writing theses.

Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, Mr. E. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6313.)

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Messrs. J. & J. PATON having an up-to-date Knowledge of the BEST SCHOOLS and TUTORS in this Country and on the Continent, will be pleased to AID PARENTS in their choice by sending (free of charge) prospectuses and TRUSTWORTHY INFORMATION and ADVICE.

The age of the pupil, district preferred, and rough idea of fees should be given.

J. & J. PATON, Educational Agents, 143, Cannon St., London, E.C.4. Tel.: Mansion House 5053.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE

(UNIVERSITY OF LIVERPOOL)

A course of instruction lasting about three months in Tropical Medicine commence on October 2nd, 1933, and January 3rd, 1934, and for the Diploma in Tropical Hygiene on January 11th and April 26th, 1934. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars, apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

EPSOM COLLEGE.

COUNCIL EXHIBITIONS.

An EXAMINATION will take place in due course for the admission of two boys as COUNCIL EXHIBITIONERS. The fees payable are £75 a year, instead of the usual fee of £155. Candidates must be the sons of such duly qualified Medical Men as shall, in the opinion of the Council, be among the less fortunate members of their Profession. They must be over 12 and under 14 years of age on January 1st, 1934. Application forms are obtainable on request, and must reach me at the College, 49, Bedford Square, W.C.1, duly completed, by the morning of January 1st, 1934.

W. L. GIFFARD (Major),
Secretary.

49, Bedford Square, W.C.1. October, 1933.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

At the Annual Meeting of the College held on October 18th the following Office Bearers were elected for the ensuing year:

President: Dr. A. H. H. Sinclair. Vice-President: Mr. J. W. Dowden. Secretary and Treasurer: Mr. J. W. Struthers. President's Council: Mr. Henry Wade, Mr. W. J. Stuart, Mr. George L. Chiene, Dr. J. S. Fraser, Mr. J. M. Graham, Dr. R. W. Johnstone. Representative on the General Medical Council: Mr. Alexander Miles. Convener of Museum Committee: Dr. A. Logan Turner. Librarian: Dr. D. M. Greig.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

Dr. C. S. MYERS, C.B.E., F.R.S., will deliver the BRADSHAW LECTURE on Thursday, November 2nd, at 5 o'clock, at the College, Pall Mall East, S.W.1.

Subject: *Psychological Regard for Medical Education.*

Any member of the Medical Profession admitted on presentation of card.

By order of the President,
H. M. BARLOW, Secretary.

SEAMEN'S HOSPITAL SOCIETY.

POST GRADUATE COURSES FOR SHIP SURGEONS.

The Seamen's Hospital Society announces that Part 3 of these Courses—i.e., Refresher Course in Clinical Subjects, will be held from November 13th to December 2nd at the Dreadnought Hospital, Greenwich, S.E.10. The course is essentially practical and will include as an additional feature instruction in Operative Surgery. All applications for this Course should be sent to the Secretary, Seamen's Hospital, *Greenwich*, S.E.10, not later than November 7th next.

THE UNIVERSITY OF SHEFFIELD

FACULTY OF MEDICINE.

The Council of the University and the Board of Management of the Royal Hospital, Sheffield, *acting conjointly*, are about to make an appointment to the post of ASSISTANT PATHOLOGIST to the Hospital and DEMONSTRATOR OF PATHOLOGY in the University. The salary offered is £500 per annum. Applications, accompanied by the names of three referees, should be sent on or before November 2nd to the undersigned, *from whom further details* may be obtained.

W. M. GIBBONS, Registrar.

THE UNIVERSITY OF SHEFFIELD.

The University invites applications for the CHAIR OF PHARMACOLOGY, which has become vacant owing to the resignation of Professor E. Mellanby, F.R.S. The primary duty of the person appointed will be to carry out investigations in clinical and experimental medicine.

Applications should be sent to the undersigned (from whom further particulars may be obtained) not later than November 10th.

W. M. GIBBONS, Registrar.

MEDICAL CORRESPONDENCE COLLEGE,

19, Welbeck Street, London, W.1.

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All Universities.

Skilled coaching, guidance, and advice, by specialist tutors.

Recent successes include Gold Medals at M.D. Edinburgh, and at M.D. Belfast, and many "High Commendations" and "Commendations" at these and other Universities.

Write for free booklet "How to Write a Thesis for the M.D. degree."

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Courses by skilled tutors for each branch of the M.D. London.

Oral, clinical, and practical work arranged.

Special courses, postal, oral, and clinical, for all higher medical examinations, M.R.C.P. London, Edinburgh, F.R.F.P.S. Glasgow. Many successes.

Write for free booklet, "Guide to the M.D. London," to the Secretary, Medical Correspondence College, 19, Welbeck Street, London, W.1.

UNIVERSITY OF LONDON.

A COURSE OF FOUR LECTURES on "*The Influence of Ductless Glands on Metabolism*" will be given by Dr. J. A. HEWITT, Ph.D., D.Sc., at KING'S COLLEGE (Strand, W.C.2) on THURSDAYS, NOVEMBER 9th, 16th, 23rd, and 30th, at 5 p.m.

Admission free, without ticket.

S. J. WORSLEY,
Academic Registrar.

UNIVERSITY OF LONDON.

The Senate invite applications for the Sir William Dunn CHAIR OF PATHOLOGY, tenable at Guy's Hospital Medical School. Salary the whole income of Dunn Trust at present about £1,400 a year. Applications (12 copies) must be received not later than first post on Friday, December 1st, 1933, by the Academic Registrar, University of London, S.W.7, from whom further particulars may be obtained.

LONDON HOSPITAL MEDICAL COLLEGE.

LIDDLE TRIENNIAL PRIZE.
(OPEN TO PUBLIC COMPETITION.)
1932-1933.

The above prize for an Essay on "*The Causes and Differentiation of Anaemias*" has been AWARDED to Miss JANET M. VAUGHAN, D.M.
Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., Dean.

CHARTERHOUSE RHEUMATISM CLINIC.

An HONORARY ASSISTANT PHYSICIAN is to be appointed. Applications should be addressed to the Secretary, C.R.C., 94, Harley Street, W.1.

HULL ROYAL INFIRMARY.

The Appointing Committee invite applications for the office of HONORARY PHYSICIAN to the Institution.

Applicants must have obtained a degree in Medicine at one of the Universities of the United Kingdom, be a Fellow or Member of the Royal College of Physicians of London, Edinburgh, or Ireland, and be duly registered under the Medical Acts.

Honorary Physicians are appointed for a period not exceeding 20 years or until attaining 60 years of age (whichever event occurs first), and in accordance with the terms of the Royal Charter.

The successful candidate will be required to give an undertaking that he will not engage in general practice.

Applicants are prohibited from personally canvassing, but may send copies of their applications and testimonials to the members of the *Appointing Committee*.

Applications should be addressed to the Chairman of the Managing Committee, and should reach him by November 16th.

R. J. CARLESS,
October 19th, 1933. House Governor.

ST. PAUL'S HOSPITAL FOR DISEASES (INCLUDING CANCER) OF THE GENITO-URINARY ORGANS AND SKIN, Endell Street, W.C.2.

CLINICAL ASSISTANTS FOR UROLOGICAL WORK.

Vacancies will occur commencing on November 1st next for Clinical Assistants in the Out-patient department, to the following Surgeons:

Mr. C. H. Mills;
Mr. H. P. Winsbury-White;
Mr. W. K. Irwin.

Each appointment is for six months and is subject to renewal up to a period of two years. A fee of £5 5s. is payable at the time of the first appointment. Applications should be addressed to the Secretary.

THE FINCHLEY MEMORIAL HOSPITAL, Granville Road, N.12. (72 Beds.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER at this Hospital. The appointment is for six months in the first instance, at a salary of £150 per annum, together with board, residence, and laundry. At the end of this period re-appointment may be applied for, and if confirmed the salary for the second six months will be at the rate of £200 per annum. The appointment is open to men or women (unmarried) and is suitable for a recently qualified practitioner.

Applications, with full details of qualifications and experience, and stating age and nationality, together with copies of recent testimonials, should be addressed to Miss M. A. BRUCE, Secretary, not later than Nov. 3rd.

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church Street, BIRMINGHAM.

Applications are invited for the post of RESIDENT SURGICAL OFFICER, which will become vacant on November 28th next. Salary at the rate of £200 per annum, with board, residence, and laundry allowance of £10 per annum.

Applications, with testimonials and evidence of registration, should be addressed to the undersigned not later than Wednesday, November 8th next.

J. W. PEARCE, Gen. Supt.

MINEHEAD AND WEST SOMERSET HOSPITAL, MINEHEAD, SOMERSET. (58 Beds.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male or female) to this Hospital.

Duty to commence on November 21st. Appointment for a period of six months. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, nationality, experience, and qualifications, accompanied by copies of three recent testimonials, to be sent to the undersigned not later than November 3rd.

W. H. P. RODDA, Secretary.

ROCHDALE INFIRMARY AND DISPENSARY. (110 Beds.)

The Board of Management invite applications for the appointment of JUNIOR HOUSE SURGEON. The salary attached to the appointment is £200 p.a., including board, residence, and laundry. Applications, stating age, nationality, etc., with copies of three recent testimonials, to be sent to the Secretary, endorsed "House Surgeon." Particulars of duties and conditions of the appointment may be had on application to the Secretary.

Infirmary Office, Rochdale, Lancs. W. WYNNE, Secretary.

ROYAL CHEST HOSPITAL, City Road, E.C.1. (Royal Northern Group of Hospitals.)

Applications are invited for the following posts:

RESIDENT MEDICAL OFFICER. This post will be vacant on December 1st. The appointment is for six months, when re-election is required. Salary at the rate of £150 per annum, with board, residence, and laundry.

HOUSE PHYSICIAN. This post will be vacant on December 1st. The appointment is for six months. Salary at the rate of £100 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, should be sent on or before November 3rd to the undersigned, from whom forms of application, rules, and further particulars can be obtained.

GILBERT G. PANTER,
Royal Northern Hospital, Holloway Road, N.7. Secretary.

ROYAL CHEST HOSPITAL, City Road, E.C.1. (Royal Northern Group of Hospitals.)

The post of MEDICAL REGISTRAR (Part-time) is now vacant.

Candidates will be required to attend at the Hospital at least three half days a week. The appointment is for one year, with eligibility for annual re-election for a further period not exceeding two years. Honorarium £50 per annum.

Applications, with copies of testimonials, should be sent on or before November 4th to the undersigned, from whom rules of the post can be obtained.

GILBERT G. PANTER,
Royal Northern Hospital, Holloway Road, N.7. Secretary.

THE ROYAL HOSPITAL, WOLVERHAMPTON. (Incorporated under Charter.)

HOUSE SURGEON required for Orthopaedic and Fracture Department, duties to commence on November 1st. The Hospital contains 300 beds, includes the usual special departments, and is recognised by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice.

Candidates must be registered under the Medical Acts, and unmarried.

The appointment is for six months. Salary at the rate of £100 per annum. Board, furnished rooms, and laundry provided.

Applications, with copies of testimonials, to be forwarded to the undersigned.

Wolverhampton. W. H. HARPER,
October 10th, 1933. House Governor.

THE WEST NORFOLK AND KING'S LYNN GENERAL HOSPITAL.

HOUSE PHYSICIAN.

Applications are invited for the above post, which will become vacant on November 30th. Salary £125 per annum.

To have charge of Medical and Ophthalmic beds, also to act as Casualty Officer and Resident Anaesthetist. The post, which is for six months in the first instance, offers valuable experience in both In-patient and Out-patient work.

Applications, with copies of recent testimonials, should be sent to the undermentioned as early as possible.

JOSEPH E. SEARJEANT, F.C.C.S.,
House Governor & Secretary.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn Road, W.C.1.

RESIDENT HOUSE SURGEON (Male).

There will be a vacancy for a Third Resident House Surgeon to enter on duty on December 1st next.

The appointment will be for a period of nine months; three months as Third House Surgeon, three months as Second House Surgeon, and three months as First House Surgeon. Remuneration at the rate of £75 per annum.

Applications, *accompanied by copies of not* more than three testimonials, should be sent to the undersigned on or before November 3rd.

JOHN H. YOUNG, Secretary-Supt.

QUEEN MARY'S MATERNITY HOME, Heath Street, Hampstead.

The Committee invite applications from medical practitioners living in Hampstead for the appointment of a non-resident MEDICAL OFFICER to the Home.

The practitioner appointed will have responsibility for general clinical supervision and for ordinary emergencies arising in the midwifery practice of the Home. Adequate experience of midwifery is essential, but a consultant staff is available for cases of special difficulty. Honorarium 120 guineas. Applications to be addressed to the Secretary (from whom any further particulars may be obtained) not later than November 18th.

MANCHESTER ROYAL INFIRMARY.

MEDICAL OFFICER TO OUT-PATIENTS.

The Board of Management invite applications from registered Medical Practitioners for the above appointment.

The duties are to assist in the treatment of Medical Out-patients on Wednesday and Saturday mornings from 9 o'clock. The appointment is for one year, but the holder of the office is eligible for re-election on two subsequent occasions for a similar period. Salary £35. Candidates must state age and send twelve copies of their application and testimonials, to the undersigned on or before 9 a.m. on Thursday, November 2nd.

By Order,
FRANK G. HAZELL,
Oct. 18th, 1933. Gen. Supt. & Secretary.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

Applications are invited for the following appointments:

HOUSE PHYSICIAN, vacant on December 1st. This appointment is for nine months (three months as Out-patient Casualty Officer and Anaesthetist and six months as House Physician). Salary at the rate of £70 per annum, with board, residence, and laundry.

HOUSE SURGEON, vacant on December 15th. The appointment is for nine months (six months as House Surgeon and three months as Casualty Officer). Salary as above.

Applications, with copies of testimonials, should be sent to the undersigned by November 8th, from whom forms of application and rules can be obtained.

GILBERT G. PANTER, Secretary.

LEICESTER ROYAL INFIRMARY. (472 Beds.)

TWO RESIDENT ANAESTHETISTS.

Applications are invited for the above posts.

Appointments will be for six months, with possibility of renewal. Salary £150 per annum, with board and residence.

Applicants will please give particulars of special experience in the administration of Anaesthetics, and enclose copies of testimonials, with particular reference to Anaesthetic work, to the House Governor and Secretary by first post on Monday, the 30th inst.

HARRY JOHNSON,
October 17th, 1933. House Gov. & Sec.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.11. (121 Beds.)

HOUSE SURGEON (male) required. The appointment is for six months, commencing on December 1st. Salary £120 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered.

Applications, stating age, qualifications, and experience, with copies of not more than three recent testimonials, should be sent to the undersigned on or before November 8th.

W. S. RANDOLPH BISS,
Secretary-Superintendent.

THE HOSPITAL FOR DISEASES OF THE SKIN.

Applications are invited from fully qualified medical men, with experience in dermatology, for the post of REGISTRAR at the above Hospital. Candidates must apply, in writing, to the Secretary, from whom further particulars can be obtained, before November 6th next. The appointment will be made in the first instance for one year, but the holder will be eligible for re-appointment.

FREDERICK HAYTER,
71, Blackfriars Rd., S.E.1. Secretary.

THE ROBERT JONES AND AGNES HUNT ORTHOPAEDIC HOSPITAL, OSWESTRY. (Beds: Adults 210—Children 110.)

HOUSE SURGEON (male) required on January 1st, 1934. Appointment for six months, with possibility of extension. Salary at the rate of £200 per annum, with board, residence, and laundry. Two weeks' holiday for each six months service.

Applications, stating age, qualifications, and experience, with copies of three recent testimonials, should be in the hands of the Secretary-Superintendent, by November 15th.

THE GUEST HOSPITAL, DUDLEY. (General Hospital—107 Beds.)

HOUSE SURGEON required. Salary £170—£200 per annum, according to experience, with furnished apartments, board, and laundry.

Applications, stating age, qualifications, and experience, and accompanied by copies of testimonials, to be sent to the undersigned.

H. RAYMOND HURST,
Oct. 21st, 1933. House Gov. & Sec.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B M A House, Tavistock Square W C 1 (in the case of Scottish appointments, with the Scottish Medical Secretary, 7, Drumsheugh Garden, Edinburgh).

(a) British Islands.

Town or District	Town or District (contd.)	Town or District
CONTRACT PRACTICE	**CONTRACT PRACTICE** (contd.)	**PUBLIC HEALTH**
FERRYHILL AND DISTRICT (Medical Officer)	MAESTEG GLAMORGAN (Works and Medical Scheme)	HERTFORDSHIRE COUNTY COUNCIL WARE SANATORIUM (Assistant Medical Officer)
CULCHETH AND GLAZEBURY (Medical Officer)	NEATH AND DISTRICT (Medical Aid Association)	BOROUGH OF LOWESTOFT (Medical Officer of Health)
LLWYNYPIA CLYDACH VALE TONYPANDY CLYDACH (Medical Officer and Surgeon)	OAKDALE MON (Medical Officer for Medical Aid Association)	COUNTY BOROUGH OF SOUTH SHIELDS (Assistant School Medical Officer)
LOWESTOFT MEDICAL INSTITUTE (Medical Officer)	OGMORE VALLEY GLAMORGAN (Workmen's Permanent Medical Aid Society) (Works and Medical Scheme)	HALTON INSTITUTION AND CLEADON COTTAGE HOMES (Medical Officer)

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B M A House, Tavistock Square W C 1.

Town or District	Hon Sec of Division or Branch	Town or District	Hon Sec of Division or Branch	Town or District	Hon Sec of Division or Branch
NEW SOUTH WALES (All Hospital and Medical Appointments)	Dr J C HUNTER (Medical Secretary New South Wales Branch) 135 Macquarie St Sydney N S W	**QUEENSLAND** (Hospital and Medical Appointments)	The Hon Sec Queensland Branch British Medical Association B M A Building Adelaide St Brisbane.	**WELLINGTON NEW ZEALAND** (District Hospital Appointments)	Dr G F I ANSON (Hon Sec New Zealand Branch) British Medical Association P O Box 156 Wellington New Zealand
VICTORIA. (All Hospital and Medical Appointments)	Dr J P HAMILL (Hon Sec Victorian Branch British Medical Association Medical Society Hall East Melbourne Victoria.	(Hospital and Medical Appointments)		**WESTERN AUSTRALIA** (Contract and Lodge Practices)	Hon Sec, Western Australian Branch British Medical Association, No 6 Bank of N S W Chambers St George's Terr Perth Western Australia.

October 25th, 1933 By Order of the Council G C ANDERSON, Medical Secretary

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THE ROYAL INFIRMARY SHEFFIELD
(500 Beds)

OPEN APPOINTMENT

The Weekly Board of Management invite applications for the post of HOUSE SURGEON Salary £80 per annum with board and residence after six months service to £100 per annum

This appointment will terminate on December 31 next but the officer elected then will be eligible for this or one of the other thirteen House appointments

Application with copies of testimonials to be sent to the undersigned

JNO W BARNES F C I S
Board Room Gen Supt & Secretary
October 11th 1933

MANCHESTER EAR HOSPITAL,
Grosvenor Square All Saints

The Board invite applications for the post of RESIDENT HOUSE SURGEON Salary £120 per annum 24 beds) Candidates must be duly qualified and registered *Application* with copies of four recent testimonials to be forwarded to Mr REGINALD S MILFORD (Hon *Secretary Manchester* Ear Hospital) c o Mr W J ELLAM 33 Brazennose Street Manchester 2

DURHAM COUNTY HOSPITAL.
(100 Beds)

TWO HOUSE SURGEONS are required to commence duties on November 16th Salary £150 per annum with board and lodging Applications with copies of testimonials to be sent to Wm P WILSON, Secretary, 79 Saddler Street Durham

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NATIONAL HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM
Queen Square W C 1

ASSISTANT REGISTRAR

Applications are invited for the post of Assistant Registrar who will be required to attend the Hospital every afternoon in the Out Patient Department The salary is £200 a year with luncheon

Applications with recent testimonial should reach the undersigned from whom any further particulars may be obtained on or before October 31st

GODFREY H HAMILTON Secretary

NATIONAL HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM,
Queen Square W C 1

HONORARY ORTHOPAEDIC SURGEON

Applications are invited from Fellows of the Royal College of Surgeons of England for the post of Honorary Orthopaedic Surgeon Application with copies of recent testimonials should reach the undersigned from whom any further particulars may be obtained on or before *October 31st*

GODFREY H HAMILTON Secretary

THE ST HELENS HOSPITAL

Applications are invited for the position of JUNIOR HOUSE SURGEON (male) to this Hospital at a salary of £150 per annum plus board residence and laundry

Application accompanied by three recent testimonials to be sent to the Secretary St Helens Hospital, Lancs, not later than Nov 7th.

QUEEN MARY'S HOSPITAL FOR THE EAST END E 15

Applications are invited for the post of HONORARY ASSISTANT RADIOLOGIST at the above Hospital

Applicants must be registered Medical Practitioners engaged solely in the practice of Radiology Applications together with copies of no more than three recent testimonials should be forwarded to the undersigned on or before Wednesday November 1st

RAPHAEL JACKSON (Major)
Secretary

KING EDWARD VII SANATORIUM, MIDHURST SUSSEX

The Council invite applications for the post of *MEDICAL SUPERINTENDENT* to the Institution Candidates must be duly qualified and registered and have had experience in Tuberculosis work

Salary £1 000 per annum rising to £1 200 with house Applications (with 12 copies of not more than three recent testimonials) to be sent on or before Monday November 6th to the Secretary 31 Davies Street London W 1

NATIONAL HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM
Queen Square, W C 1

REGISTRAR

Applications are invited for the post of Registrar The salary is £200 a year with luncheon Application with recent testimonials should reach the undersigned from whom any further particulars may be obtained on or before October 31st

GODFREY H HAMILTON Secretary

(Appointments continued on p 50.)

British Medical Journal
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1
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NOT CLASSIFIED.

DOCTOR OFFERS POST-GRADUATE student, or man doing non-resident hospital work, QUARTERS in return for occasional availability to see patients. Near Streatham.—Address, No. 7571, B.M.A. House, Tavistock Square, W.C.1.

REQUIRED IN LONDON, NORTH OF THE Thames, by elderly invalid gentleman, comfortable ACCOMMODATION in Doctor's house (not nursing home). Please reply fully.—Address, No. 7554, B.M.A. House, Tavistock Square, W.C.1.

STOATLEY FARM AND KENNELS, HASLEmere, Surrey; 'Phone 626.—Young people taken as PUPILS; epileptics and mild mental cases especially catered for, ages from 15—20. Very good results have been obtained.—Apply, Mr. & Mrs. TOMPSETT.

ASSISTANCIES.

WANTED.—PERMANENT ASSISTANTSHIP soon as possible by well-qualified and received woman; experienced hosp., G.P., private, and panel. Accustomed sole charge. Lacking finance. Grateful immediate offers hospitality London, on the spot, return Assistance desired, until remunerated post secured.—Address, No. 7586, B.M.A. House, Tavistock Square, W.C.1.

WANTED (FOR NOV. 12TH) FOR CONTRACT Practice, South Wales, unmarried, male, outdoor ASSISTANT. State age and nationality, references. Salary £350, with furnished rooms and attendance. Usual bond. No Irishman need apply. — Address, No. 7459, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANTSHIP, LONDON, BY Scotch M.B., Ch.B., well qualified, aged 30; 4 years' Hospital experience, leading London Hosp.; ex H.P., H.S., R.M.O., excellent testimonials. Free now.—Address, No. 7559, B.M.A. House, Tavistock Square, W.C.1

WANTED IMMEDIATELY.—INDOOR MALE ASSISTANT, for winter, in Colliery Practice, within 7 miles of Newcastle-upon-Tyne. Salary at £300 per annum, plus commission. Usual bond. Give age, nationality, refs., etc.—No. 7587, B.M.A. House, Tavistock Sq., W.C.1

WANTED.—OUTDOOR MALE ASSISTANT, Nov. 7th. Single, English, or Scottish. Must have had hospital and G.P. experience. Surgeon preferred. View Partnership. Cheshire town. Good salary.—Address, No. 7590, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANTSHIP BY MEDICAL Woman, recently qualified. West Country preferred. Able to drive car. Testimonials. Moderate salary. — Address, No. 7592, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY.—INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view, good salaries. State full particulars.—BRITISH MEDICAL BUREAU, 35, Cross Street, Manchester, 2.

WANTED, — JUNIOR ASSISTANT, SINGLE, British nationality. Salary £300 per annum, with rooms, coal, gas, and attendances. —Address, No. 7597, B.M.A. House, Tavistock Square, W.C.1.

WANTED, — ASSISTANT IN EAST END Practice. Late im. £300 p.a. Abstainer preferred. Usual bond. — Address, No. 7593, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANTSHIP BY L.R.C.P. & S.(Edin.), Indian, young, energetic. Abstainer. — Address, No. 7575, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP WANTED BY EXPERIenced Scotsman, aged 27, with view to Partnership or early succession. H.P., H.S., H.S.S.C., G.P. Ex. testimonials. Minor surgery, anaesthetics. Only good-class work considered. —J. C. H. SPEIRS, Montgomerie St., Tarbolton.

ASSISTANT, WITH VIEW TO PARTNERSHIP required in London area. Preferably married and experienced in general practice. Good salary and prospects. Send photo. and testimonials.—Address, No. 7585, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP, PREFERABLY OUTDOOR, with or without view, wanted by Aberdeen Woman Graduate, D.P.H., 8 years' experience G.P. Accustomed to sole charge. Own car. —Address, No. 7577, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP WANTED BY M.B., B.CH., B.A.O., 1924, single, age 31, ex H.S. and H.P., 4 years' experience panel and private practice. Free in November. — Address, No. 7555, B.M.A. House, Tavistock Square, W.C.1.

OUTDOOR MALE ASSISTANT WANTED early December, pleasant country town, outskirts Bournemouth. Own car, State full particulars, including age, education, nationality, experience. Bart's University Graduate preferred.—Address, No. 7581, B.M.A. House, Tavistock Square, W.C.1.

RADIOLOGICAL PRACTICE. — NORTH England. Salary £350. Wanted, ASSISTANT, 1/4 share partnership considered later. Capital necessary. D.M.R.E. almost essential. Under 35 preferred. Commence December.—No. 7355, B.M.A. House, Tavistock Sq., W.C.1.

WILL A KIND-HEARTED PRACTITIONER take as ASSISTANT, an Indian Doctor, in great difficulty. Registered qualification. Specialised in female and children's diseases. Exp. in general and panel practice in England. —No. 7551, B.M.A. House, Tavistock Sq., W.C.1.

WOMAN, M.B., B.CH., REQUIRES ASSISTANTSHIP or LOCUMS, 6 years' experience in General Practice; ex H.S. and H.P. General and Children's Hospital. Free end of October. — Address, No. 7572, B.M.A. House, Tavistock Square, W.C.1.

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EXPERIENCED G.P. AND PANEL; SEVERAL years on Hon. Surgical Staff of a Children's Hosp. Recently sold own practice. Willing do LOCUMS. Own car if desired.—Address, No. 7351, B.M.A. House, Tavistock Square, W.C.1.

EXP. G.P. AND PANEL; SEVERAL YEARS on Hon. Surg. staff of Children's Hospital. Recently sold own Practice. Willing do LOCUMS. Own car if desired.—Address, No. 7566, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIPS.

WANTED. — PARTNERSHIP IN OR NEAR London by London Conjoint man, English, age 29, married. Experience G.P., panel and private. Conscientious. Free anytime.—Add., No. 7578, B.M.A. House, Tavistock Sq., W.C.1.

GUY'S MAN, AGED 38, MARRIED, EX house physician and resident obstetrician, 10 years' general practice, requires PARTNERSHIP or PRACTICE in Sussex, preferably Eastbourne. Scope for midwifery and anaesthetics. Income £1,500. Capital available.—Address, No. 7595, B.M.A. House, Tavistock Sq., W.C.1.

LONDON, S.E.—PARTNER WANTED FOR A well-established Practice. Receipts nearly £900 p.a. Guarantee income of £6 per week. Premium £450, payable only £200 down. Excellent opportunity.—Apply PEACOCK & HADLEY LTD., 19, Craven Street, Strand, W.C.2.

MEDICAL POSTS, DISPENSERS, etc.

WANTED, INFORMATION OF OPENING for Ophthalmic Surgeon or PARTNERSHIP in Medical Firm. Coastal town preferred. —Address, No. 7591, B.M.A. House, Tavistock Square, W.C.1.

A LADY DISPENSER - BOOKKEEPER supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations. — Write, wire, or 'phone (Bayswater 0969), Secretary, 7, Westbourne Park Road, W.2.

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DISPENSER - BOOKKEEPER, QUALIFIED (Hall), desires POST with Doctor. Excellent experience private practice, firm, hospital, bookkeeping, filing, first aid. Southern Counties preferred, though not essential.—Address, No. 7580, B.M.A. House, Tavistock Square, W.C.1.

DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeuse-Dispensers, are invited to write, wire, or 'phone Temple Bar 5858, THE DISPENSERS' BUREAU, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

DOCTOR REQUIRES PART-TIME WORK; out-patients, anaesthetics, or assist specialist. Free afternoons and Saturday night.—Address, No. 7576, B.M.A. House, Tavistock Square, W.C.1.

DOCTOR'S WIDOW, WITH HANDSOME furniture, wishes position as RECEPTIONIST or HOUSEKEEPER. Highest testimonials. — Address, No. 7558, B.M.A. House, Tavistock Square, W.C.1.

EXPERIENCED SECRETARY-RECEPTIONIST lady (29) desires POST with Physician, Surgeon, or Dentist, in or near London. Held similar post seven years.—Address, No. 7579 B.M.A. House, Tavistock Square, W.C.1.

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LADY DISPENSER (HALL CERTIFICATE), 34, DESIRES POST with Doctor interested in social work; anywhere; live in or out: willing to undertake other duties. — Address, No. 7562, B.M.A. House, Tavistock Square, W.C.1.

LADY, M.P.S., SEEKS POST AS DISPENSER to firm of Medical Practitioners. Experienced in buying drugs and supplies economically. Keep books, drive car. London or Home Counties. State salary. — Address, No. 7561. B.M.A. House, Tavistock Square, W.C.1.

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PRACTICES.

WANTED BY EXPERIENCED PRACTITIONER, PRACTICE or PARTNERSHIP ... £1,500—£3,000 p.a., including ... Capital available (cash). —Address, No. 7366, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, SOUND MIXED PRACTICE, good panel essential. ... £1,200—£1,500. House to rent and R.C. educational facilities desirable. Capital avail. Partner, to-day in ... —No. 7356, B.M.A. House, Tavistock Sq., W.C.1.

WANTED, — PRACTICE, SCOTLAND OR Border Country, rural or ... about £1,500. Advertiser is Scots Graduate, ... —No. 7451, B.M.A. House, Tavistock Sq., W.C.1.

WANTED IMMEDIATELY, PRACTICE IN ... any part of London with panel of 2,000 to 4,000. Good premium will be paid. Ample cash available. Replies in confidence.—Address, No. 7382, B.M.A. House, Tavistock Sq., W.C.1.

WANTED.—SMALL PRACTICE, £500 P.A. Panel. In London or neighbourhood. With small house to rent or buy. Capital available.—Address, No. 7357, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — PRACTICE IN LONDON OR ... suburbs yielding from £1,500 up, with a minimum panel of 1,500. Suitable house essential. —Address, No. 7375, B.M.A. House, Tavistock Square, W.C.1.

EXCHANGE WANTED. — DOCTOR, WITH easily worked Practice in most desirable South Coast Town, averaging £1,250, desires EXCHANGE his HOUSE and PRACTICE, with a Practice of about £1,900 and house to rent. Good panel desirable. Sale considered.—Add., No. 7560, B.M.A. House, Tavistock Sq., W.C.1.

GOOD-CLASS GENERAL PRACTICE FOR sale in Liverpool residential area. Average income £1,500. Beautiful house, with garden, garage, etc., can be rented. Premium £3,000. —Address, No. 7584, B.M.A. House, Tavistock Square, W.C.1.

LANCS.—LARGE TOWN.—OLD-ESTABLISHED PRACTICE. Receipts £950 p.a., including panel 1,140. Nice house, rent £60 p.a. Premium £1,100. Accountant's report available. —Apply, PEACOCK & HADLEY LTD., 19, Craven Street, Strand, W.C.2.

LONDON.—PRACTICE FOR SALE. RECEIPTS £500—£600 per annum. Panel nearly ... Scope. Premium £750 cash. Address, No. 7582, B.M.A. House, Tavistock Square, W.C.1.

MANCHESTER.—OLD ESTABLISHED PRACTICE. Good house, garage, and £60 on lease. Receipts £650 increasing. Panel 780. Price £1,250, purchase part deferred.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

MIDLANDS, IN LARGE ATTRACTIVE CITY, ... established private and panel PRACTICE averaging over £2,000. Excellent house ... for Doctor. Partnership for sale, with succession within 15 months. Accounts carefully audited open to inspection. A quarter share for immediate disposal at 2 years purchase. Price of house on succession) freehold, £2,500. Knowledge of ... in advance. No. 7555, B.M.A. House, Tavistock Sq., W.C.1.

NEAR LIVERPOOL. — WOMAN DOCTOR ... Medical HOUSE, with SMALL ... PRACTICE. Excellent position, ... by clientele in suburban Sanatorium for women. —Address, No. 7395, B.M.A. House, Tavistock Square, W.C.1.

NUMBER OF SMALL PRACTICES AT VERY ... premiums. Scope in every case. Good ... for anyone with small capital. London, ... and country.—Apply, PEACOCK & HADLEY ... 19, Craven Street, Strand, W.C.2.

OPHTHALMIC PRACTICE, SOUTH COAST. ... average of 1933 31/52 £4/29 open to Partnership or Succession. Moderate ... —WHITE, MONTEATH, 1, Redcliffe St., ... S.W.5.

EXPERIENCED YOUNG LADY SECRETARY-RECEPTIONIST desires POST with Physician or similar. Efficient shorthand and correct address. Interview after 5.30 p.m., or ... Education.—Phone Prep et 1614, or write L.Q., 37, Lower Richmond Rd., S.W.14.

TO PURCHASERS. — DO NOT BUY without expert assistance. With 50 yrs.' experience Mr. PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St. Strand, W.C.2. Telephone, Temple Bar 9.11. Telegrams: "Epsomian, London."

YORKS. — OLD-ESTABLISHED. — RECEIPTS over £800, great scope. Nice house, garden, garage, rent £60. Panel 700, increasing. Price £1,250 or offer, part deferred.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

YORKS — OLD ESTABLISHED VILLAGE PRACTICE. Receipts nearly £1,000 a year, panel about 500. Nice house and garden, rent £40. Premium £1,400. Part cash, ... farmers and ... —Apply, PEACOCK & HADLEY, LTD., 19, Craven St., Strand, W.C.2.

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BERINGTON, CHESHIRE. — EXCELLENT position for professional man. DETACHED RESIDENCE, standing in its own grounds. Corner position. Rapidly developing residential area. Compact accommodation. Garage. Early possession. Rent £125 p.a. and rates.—HUGHES & JONES, 19, Hamilton Sq., Birkenhead (153).

B'HAM, DOCTOR'S RESIDENTIAL SURGERY, in a new, growing estate. Rent 15s. weekly, clear as part subsidy to Housekeeper-cum-caretaker for 10s. 6d. Suit young, single, energetic doctor. Any nationality.—Address, No. 7435, B.M.A. House, Tavistock Square, W.C.1.

CLIFTONVILLE, THANET. — EXCELLENT ... double-fronted HOUSE FOR SALE ... adapted for a doctor. Four bedrooms, 3 reception rooms. Freehold £1,500, or near offer.—Apply, PERCY GOFF SONS & CO., 109/102, Northdown Rd, Margate. 'Phone 247.

CONSULTING ROOMS TO LET. — HARLEY Street and Mayfair districts. Particulars sent on application. Those having consulting rooms to let should send particulars to ELGOOD & CO., 10, Henrietta Street, Cavendish Square, W.1. Langham 2601.

HARLEY STREET. — A DELIGHTFUL ... HOUSE of medium size, in excellent condition, to be let at extremely low rental of £400 per annum, or Head Lease would be sold.—ELLIOTT, SON & BOYTON, 6, Vere Street, W.1. Mayfair 3204/5.

HARLEY STREET (ADJOINING).—BACHELOR SERVICE FLAT, very well furnished, sitting room, bedroom, and bathroom (constant hot water), lift. 3½ gns. per week. Also BACHELOR BEDROOM 30/- per week.—Add., No. 222, B.M.A. House, Tavistock Sq., W.C.1.

HARLEY COURT, 49, THE DRIVE, HOVE, SUSSEX. — Beautifully appointed CONSULTING ROOMS will shortly be available, for the use of Specialists, Doctors, Dentists, etc., desiring accommodation in this most exclusive neighbourhood. Central heating, electric fires, power and lighting points (h. and c. lav., basins enclosed in cabinets). G.P.O. telephones in each room, furnished or unfurnished. Excellent service, meals as required. Use of private saloon car by arrangement. Further particulars and terms, etc., write "Manager."

HARLEY STREET.—CONSULTING SUITE OF TWO ROOMS on ground floor, with examination room and private lavatory adjoining. Rent £350 per annum.—Apply to SAMUEL B. CLARK & SON, 16b, New Cavendish Street, W.1. (Langham 2567.)

HARLEY STREET.—TWO DOORS FROM.—Only £50 per annum secures part-time use of handsome CONSULTING ROOM with waiting room and every convenience. — Address, No. 7368, B.M.A. House, Tavistock Square, W.C.1.

LATE DOCTOR'S HOUSE IN ACCRINGTON ... central, populous district, private and surgery entrance. Excellent waiting room and living accommodation, e.l. All conveniences. Space for garage.—Apply, 34, Avenue Parade, Accrington, Lancs.

NEW SHOP AN ... in COURSE ROAD, SEVEN ... Surgery.—Apply, ... works, or at 22 ...

OPPORTUNITY FOR DENTAL SURGEON TO occupy ONE-HALF the PREMISES at present occupied by two doctors in S.E. London, and to practise there. One doctor vacating to attend to additional practice. Suit single man already practising in vicinity.—Address, No. 7570, B.M.A. House, Tavistock Square, W.C.1.

SOUTH COAST. — FASHIONABLE TOWN. Splendidly equipped NURSING HOME, 22 bed., 6 bath, reception rooms, etc. Great possibilities. Part purchase on mortgage or premium.—Address, No. 6803, B.M.A. House, Tavistock Square, W.C.1.

TO RADIOLOGISTS OR ELECTRO-THERAPISTS.—An exceptionally fine SUITE of TWO very large ROOMS on first floor, with dark room in basement, in best part of Devonshire Street. Low rent.—Address, No. 7569, B.M.A. House, Tavistock Square, W.C.1.

UNIQUE OPPORTUNITY.—HARLEY STREET. Attractive modern stone-fronted HOUSE of medium size TO BE LET without premium. Rent only £400 per annum.—Owner's Agents: BEDFORD & Co., 10, Wigmore Street, W.1. Langham 5927.

WEST HAMPSTEAD. — HOUSE FOR SALE, freehold, detached, modern, ... 8 reception rooms, 3 sitting rooms, etc., a small Practice (about £200 a year), has been conducted ... for some years, the present owner has not been able to give it adequate attention. Price £2,600. —No. 7555, B.M.A. House Tavistock Sq., W.C.1.

WHEN YOU COME TO LONDON STAY AT THE HAMPDEN RESIDENTIAL CLUB FOR GENTLEMEN, Hampden Street, N.W.1, Close King's Cross and Euston. 300 bedrooms; 12/6—25/- p.w., includ baths, attend & boot cleaning. All meals a la carte in dining room. Mod tariff. Large club rms., reading rm., study for students. Illus. prosp. Sec. Euston 2344/5.

WIMPOLE STREET — PART-TIME CONSULTING ROOM in beautiful house. One morning or one afternoon weekly. £25 per annum. Further time by arrangement.—Welbeck 6581.

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AUSTIN 12/6, DELIVERED JULY; MILEAGE 2,000. Condition as new. Just decarbonized and tuned up. Licensed to December. £175.—Station Garage, 67, Albert Embankment, Vauxhall. 'Phone: Reliance 1508.

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Vols. I and II of the BRITISH MEDICAL JOURNAL for 1932 and previous years can be had, price 2s. 6d., by parcel post 2s. 10d., each.

Orders, with appropriate remittance, should be addressed to:

THE MANAGER,
BRITISH MEDICAL JOURNAL,
B.M.A. HOUSE, TAVISTOCK SQUARE,
LONDON, W.C.1.

APPOINTMENTS.—Contd.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park Place, Cheetham Hill Road, MANCHESTER.

The Committee of Management require the services of a SENIOR HOUSE SURGEON, duly qualified, who is to commence duty on December 1st. Salary £130 per annum, with board and residence.

Applications, stating age and experience, with copies of recent testimonials, to be sent to the Secretary, Mr. JAMES C. DANIELS, 38, Barton Arcade, Manchester, not later than the first post October 31st.

DERBYSHIRE HOSPITAL FOR WOMEN, FRIAR GATE, DERBY. (54 Beds.)

Applications are invited for the post of HOUSE SURGEON. Salary £150 per annum, with apartments, board, etc. The appointment is tenable for six months, with a possibility of extension for a further period of six months.

Application, with copies of not more than three testimonials, to be sent to the undersigned not later than November 4th. Duties to commence at once.

W. T. COCKER, Secretary.

BLOOMSBURY DISPENSARY, 12, Bloomsbury Street, W.C.1.

RESIDENT MEDICAL OFFICER (male), not over 40, required to take up duties on January 1st, 1934. Salary commencing £250 per annum, with furnished apartments, coal, and light. Applications, with testimonials, to be sent to the Secretary (from whom further particulars should be obtained) not later than November 4th.

WANTED AT SOUTHMEAD MUNICIPAL HOSPITAL, BRISTOL (540 beds), a male ASSISTANT RESIDENT MEDICAL OFFICER. Temporay appointment for twelve months. Salary at the rate of £200 per annum and emoluments—salary subject to temporary reduction in accordance with scale adopted by Council. Applications to be addressed to the Medical Officer of Health, 40, Prince Street, Bristol, 1, by November 15th.

KING GEORGE HOSPITAL, ILFORD.

Applications are invited for the appointment of ASSISTANT OPHTHALMIC SURGEON to this Hospital.

Further particulars may be obtained from the undersigned, to whom applications should be sent not later than November 13th next.

G. AUSTIN HEPWORTH, Secretary.

ROYAL SURREY COUNTY HOSPITAL, GUILDFORD. (182 Beds.)

Wanted December 1st, HOUSE SURGEON (British, male). Salary £150 per annum, with board, residence, and laundry. Applications, with copies of not more than three testimonials, to be sent to the Secretary-Superintendent not later than November 11th.

COUNTY BOROUGH OF WEST BROMWICH.

HALLAM HOSPITAL.

TWO RESIDENT HOUSE PHYSICIANS.

Applications are invited from fully qualified male registered practitioners for the above appointments.

The appointments are for six months, with eligibility for re-appointment for a further six months, but either party may give six weeks' notice terminating the engagement. The Hospital has 474 beds, and is equipped with up-to-date special departments. There is a visiting staff of eight consultant Physicians and Surgeons.

Preference will be given to applicants with previous Hospital experience.

Salary £200 per annum.

Canvassing, either directly or indirectly, is strictly prohibited and will be deemed a disqualification.

Applications, stating age, experience, and qualifications, together with copies of three recent testimonials, must be forwarded to the Medical Officer of Health, 2, Lodge Road, West Bromwich, so as to arrive not later than by first post on Tuesday, November 7th.

Town Hall, ALFRED WICKHAM,
West Bromwich. Town Clerk.
October 23rd, 1933.

COUNTY BOROUGH OF SOUTHAMPTON.

BOROUGH HOSPITAL, SOUTHAMPTON.

JUNIOR RESIDENT MEDICAL OFFICER.

Applications are invited from registered male medical practitioners for the above appointment. Candidates must be unmarried.

Preference will be given to applicants who have held resident hospital appointments, and have had experience in the administration of *anaesthetics*.

The salary will be at the rate of £200 per annum, together with the usual residential allowances.

The appointment will be made for a period of twelve months and not renewable.

Form of application and conditions of the appointment may be obtained from the Medical Officer of Health, Civic Centre, Southampton.

Applications on the prescribed form, endorsed "Junior Resident Medical Officer," must be delivered at the Town Clerk's Offices, Civic Centre, Southampton, on or before Nov. 15th.

R. RONALD H. MEGGESON,
October 23rd, 1933. Town Clerk.

WILLESDEN URBAN DISTRICT COUNCIL.

APPOINTMENT OF OPHTHALMIC SURGEON (PART-TIME).

Applications are invited for the above appointment.

The remuneration attached to the post is 2½ guineas per session for three sessions per week throughout the year. Sessions are not as a rule held during the month of August. In the event of absence from any cause, the person appointed must provide an approved substitute. The work is mainly refraction work in connection with children attending the public elementary schools. The Council provide the necessary apparatus.

Further particulars of the above appointment can be obtained from the Medical Officer of Health, 54, Winchester Avenue, Kilburn, London, N.W.6.

Applicants should state their qualifications, age, and experience.

All applications should reach the Medical Officer of Health not later than 9 a.m. on Friday, November 10th.

Town Hall, E. A. PRATT,
Dyne Road, Clerk to the Council.
Kilburn, N.W.6. October 17th, 1933.

SANATORIUM, BRIDGE OF WEIR AND ORPHAN HOMES OF SCOTLAND.

ASSISTANT FEMALE RESIDENT MEDICAL OFFICER wanted, to commence duties January 1st, 1934.

Appointment for six months in first instance, at rate of £200 p.a. (renewal by mutual agreement), with board and laundry.

Applications to Medical Superintendent, stating age, experience, and qualifications, and enclosing references.

ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY, WIGAN.

A vacancy occurs for an HONORARY ASSISTANT SURGEON, who must be legally registered to practise Medicine and Surgery. Applications, with copies of two recent testimonials, stating age, qualifications, etc., to reach the undersigned (from whom further information can be obtained) not later than Monday, November 6th.

By Order of the Board of Management of the Wigan Infirmary.

A. STANLEY BRUNT,
Oct. 18th, 1933. Gen. Supt. & Sec.

PORTSMOUTH EDUCATION COMMITTEE

SCHOOL MEDICAL SERVICE.

The Committee invite applications from fully qualified candidates for the appointment of a Whole-time MALE ASSISTANT SCHOOL MEDICAL OFFICER.

Salary £500—£25—£700 per annum. Experience in Refraction, Orthopaedics, Mental Deficiency, Diseases of the Ear, Nose, and Throat, or any other special branch of the work will be deemed a recommendation.

The selected candidate must pass a Medical examination, and in the event of the appointment being designated as an established post in the future, will be required to contribute to the Council's Superannuation Scheme.

Forms of application may be obtained from the Chief Clerk, Education Offices, Guildhall, Portsmouth, to whom they should be returned not later than the first post on November 9th.

Canvassing in any form will be regarded as a disqualification.

Guildhall, F. J. SPARKS,
Portsmouth. Town Clerk & Clerk to the
Oct. 14th, 1933. Education Committee.

THE ROYAL GWENT HOSPITAL, NEWPORT, MON.

(NEWPORT AND MONMOUTHSHIRE HOSPITAL.)

NOTICE.

There is a vacancy for an ASSISTANT HONORARY SURGEON, and applications are invited for this position.

Applicants must be Graduates of a University or Fellows of a Royal College of Surgeons.

The successful candidate will be required to hold the office subject to the Rules and Regulations of the Hospital.

It is expected that there will be application from Junior members at present on the Honorary Staff.

There is also a vacancy for an HONORARY ANAESTHETIST who must hold similar qualifications.

Further particulars may be obtained from the undersigned, to whom applications, with copies of testimonials, should be sent on or before November 3rd.

J. K. MILLWARD,
October 24th, 1933. Secretary-Supt.

WEST LONDON HOSPITAL, Hammersmith Road, W.6. (234 Beds.)

Required a non-resident CASUALTY OFFICER (male). The appointment is tenable for one year from December 1st next, subject to one month's notice on either side. The appointee candidate will be eligible for re-election for two further periods of one year. Salary at the rate of £250 per annum, with lunch and tea *daily*.

... duly qualified, registered ... and preference will be given ... ave held a resident appointment ... l Hospital. Application ... (which must be made on printed forms obtained from me) must reach me not later than Friday, November 17th. Selected candidates will be required to call upon such members of the Medical Staff as directed, and to be in attendance at a meeting of the Medical Council at 4.30 p.m. on Friday, November 24th, and the House Committee Meeting at 5 p.m. the same day, when the appointment will be made.

H. A. MADGE, *Secretary*.

PRINCESS LOUISE KENSINGTON HOSPITAL FOR CHILDREN, St. Quintin Avenue, North Kensington, W.10

PATHOLOGIST AND BACTERIOLOGIST.

Applications are invited for the post of part-time Pathologist and Bacteriologist to the Princess Louise Kensington Hospital for Children, from qualified Medical Practitioners of either sex. The successful candidate will be required to give the necessary Bacteriological service to the Kensington Borough Council such work to be carried out in the Hospital laboratory, and details of which can be obtained from the undersigned. A salary of £250 per annum is offered and a full-time technician will be provided.

Applications, with copies of three recent testimonials, should reach the undersigned from whom any further particulars can be obtained, not later than November 10th.

H. J. ELEY, Secretary.

GLASGOW EAR, NOSE, AND THROAT HOSPITAL.

EXTRA ASSISTANT SURGEON wanted, also HOUSE SURGEON (outdoor). Honoraria. Please apply, with testimonials, to D. N. MACKAY, Secretary, 38, Bath Street, Glasgow.

COUNTY BOROUGH OF WEST HAM

PUBLIC ASSISTANCE COMMITTEE

The Council invite applications for the appointment of DEPUTY ASSISTANT RESIDENT MEDICAL OFFICER at their WHITES CROSS HOSPITAL, Whitgift Grove, Lambeth Hill, at the salary of £250 per annum, rising by annual increments of £10 to a maximum of £300 per annum, subject to the Medical Officer's Superannuation Scheme, and to the conditions of service of the Council.

The successful candidate will be required to pass a medical examination, and the appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, or to the Transitional Provisions Act, 1929, as the case may be.

Forms of application may be obtained from the Medical Officer of Health, Municipal Hall, Stratford, West Ham, E.15, and must be returned to the Town Clerk, Town Hall, West Ham, E.15, not later than November 1st.

CHARLES E. CRANFIELD, Town Clerk.

Public Assistance Office, Town Hall,
Leytonstone, E.11.
October 23rd, 1933.

LONDON COUNTY COUNCIL

Applications are invited for the post of Assistant Medical Officer (grade II) at each of the undermentioned Hospitals. Salary £350 rising by annual increments of £25 to £425 with board, lodging and washing. Duties assigned to medical superintendents and assistants are subject to such alterations as may be considered necessary by the Council. Further particulars and conditions may be obtained from the Medical Superintendent of the Hospital concerned.

1. LAMBETH HOSPITAL, Prince's Street, Kennington, S.E.11.—Candidates must have held a resident appointment for not less than a year in a general hospital for at least six months.

2. ST. LUKE'S HOSPITAL, OLD STREET.—Experience in a resident appointment in a general hospital and of the treatment of non-pulmonary tuberculosis desirable.

Applications, forms obtainable (stamped and addressed foolscap envelope necessary) from medical officer of health (Staff Division 3a), County Hall, S.E.1, returnable by November 10th. December 3rd in the case of St. Luke's Hospital). Canvassing disqualifies. Further enquiries should be addressed to medical superintendent at respective hospitals.

LONDON COUNTY COUNCIL

Applications invited from registered Medical Practitioners (men and women not over 45 years of age) for inclusion in a Panel for filling vacancies for temporary part-time ASSISTANT MEDICAL OFFICERS for School Medical Work. The present inclusive rate of pay is 30s. a session of 2½ hours, but this rate is subject to review. Except in special circumstances married women are ineligible.

Special experience of the medical examination of children is necessary. Employment will depend upon the needs of the work, but normally practitioners will work three sessions a week during school terms.

Application forms obtainable (stamped and addressed foolscap envelope necessary) from Medical Officer of Health (S.D.5), County Hall, Westminster Bridge, S.E.1, returnable by November 11th. Canvassing disqualifies.

LANCASHIRE COUNTY COUNCIL

JUNIOR ASSISTANT MEDICAL OFFICER FOR THE WRIGHTINGTON HOSPITAL, PARBOLD, LANCS.

Applications are invited for the post of Junior Assistant Medical Officer (male, unmarried) for the Wrightington Hospital (containing 226 beds for non-pulmonary tuberculosis).

Salary £200 per annum. The appointment will be for twelve months.

Forms of application and conditions of appointment obtainable from Central Tuberculosis Officer, County Office, Preston. Closing date November 9th.

GEORGE ETHERTON,
County Offices, Clerk of the County Council.
Preston.
October 26th, 1933.

COUNTY BOROUGH OF SOUTHAMPTON

CLINICAL TUBERCULOSIS OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH

Applications are invited for the above appointment from registered medical practitioners having special experience in the diagnosis and treatment of Tuberculosis.

The salary will be at the rate of £750 per annum rising by annual increments of £50 to a maximum of £937 10s. per annum.

The successful candidate must devote the whole of his time to the duties of the office and the performance of such other duties as may be required under the direction of the Medical Officer of Health.

The Local Government and Other Officers' Superannuation Act, 1922, will be applicable to the appointment. The selected candidate will be required to pass a satisfactory medical examination.

Form of application and conditions of the appointment may be obtained from the Medical Officer of Health, Civic Centre, Southampton.

Applications on the prescribed form endorsed "Clinical Tuberculosis Officer and Assistant Medical Officer of Health" must be delivered at the Town Clerk's Office, Civic Centre, Southampton, not later than the first post on Wednesday, November 15th.

J. RONALD H. MEGGSON,
October 23rd, 1933. Town Clerk.

COUNTY BOROUGH OF HUDDERSFIELD

BRADLEY WOOD SANATORIUM FOR PULMONARY AND SURGICAL TUBERCULOSIS

RESIDENT MEDICAL OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH

Applications are invited for the above appointment from registered Medical Practitioners (particularly surgical) who have had special experience in the diagnosis and treatment of Tuberculosis. A good knowledge of X-ray work is essential. Board and residence are provided at a salary of £500 increasing to £600 per annum by annual increments of £25. (The salary is subject to a temporary economy reduction.)

The engagement will be terminable on three months' notice from either side. Applications should be accompanied by copies of not more than three testimonials, and addressed to JOHN M. GIBSON, B.A., M.D., D.P.H., Medical Superintendent of Hospitals and Medical Officer of Health, so as to reach him not later than November 9th.

Forms of application are not provided.

Town Hall, SAMUEL PROCTER,
Huddersfield. Town Clerk.

ROYAL FREE HOSPITAL,
Gray's Inn Road, W.C.1

Applications are invited for the appointment of SECOND ASSISTANT SURGEON to the Ear, Nose and Throat Department, including candidates who must be Fellows of the Royal College of Surgeons of England. Applications limited and accompanied by copies of three recent testimonials on or before November 25th.

REGINALD R. GARRATT, Secretary.

ROYAL FREE HOSPITAL,
Gray's Inn Road, W.C.1

Applications are invited for the appointment of HONORARY ANAESTHETIST. Intending candidates who must be fully qualified should submit applications stating age, accompanied by copies of three recent testimonials to the undersigned on or before November 25th.

REGINALD R. GARRATT, Secretary.

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Telegrams: "ASSISTIANO, LONDON"

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W. J. HICKS, *Secretary*

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WANTED BI M.B., CHB., AGED 44, PRACTICE of £1,800 p.a. in mixed country town not too far North. House, with at least 4 bed and garden, to rent. £3,000 capital ready.—No. 1811.

WANTED IN LONDON, NEAR WEST END, preferably St. John's Wood, Hampstead, Bayswater, etc., neighbourhoods. Panel at least 1,500 and cash practice. Income about £2,000 p.a. Capital of £5,000 ready to invest.—No. 901.

WANTED — GOOD CLASS PARTNERSHIP, with panel. In or near South Coast Town, Hants or Sussex preferred. £800/£1,200. Good house (3 reception, 6 bed.) and schools accessible by bus essential.—No. 2313.

DEATH VACANCY.—WITHIN 60 MILES OF London, N.W. Last year £770. Panel about £200. Appointments £80. Good house, 3 recep., 6 bedrooms, surgery, with separate entrance, good garden with tennis. For sale or would rent. Small Hospital and good school in town.—No. 9225.

SURREY TOWN.—ABOUT £600 P.A. AP pointment £100. Visiting fees 5/- to 21/. Scope for lower fees. Midwifery £4 4s. up. Some panel. Corner house, with 3 recep., 4 bedrooms, 1/4 acre of garden and good garage to rent. Premium £1,500.—No. 9223.

URGENT SALE.—NUCLEUS SPA PRACTICE for disposal at £100. Detached house, with 4 recep., 6 bed., etc., and good garden to rent at £60 or would be sold at £1,000 freehold. Practice very suitable to semi-retired man.—No. 9221.

LONDON, NEAR CLAPHAM JUNCTION.—Branch PRACTICE worth £300 p.a. increasing and ample scope if worked full time. Panel 200, increasing. Fees 3/6 to 5/- Surgery 2/6 to 3/6. Accounts kept. Lock-up premises in excellent condition in main road. Rent £70 part sublet at £52.—No. 9220.

NORTH EASTERN PORT, ETC.—INCREASING PRACTICE of £1,100 p.a., including panel of 920, in dense part near new estates. Fees 3/6 to 10/6. Ex. house 2 recep. 5 bed. garage, surgery, etc. £1,600 freehold. Good will £1,700.—No. 9217.

EAST YORKS — OUTSKIRTS OF TOWN — PRACTICE *estimated at £960 p.a.* Established 18 months and increasing rapidly. Panel 250 at present. Visits 3/6 up. Maternity £2 10 up. *Good house (6 bed. 2 recep., surgery, etc.)* and garden. Premium for good will £1,200 with house at £70 or £2,000 house and practice. Suit man or woman.—No. 9213.

PARTNERSHIP.—CENTRAL LONDON.—HALF share. Old estab. Receipts about £1,000 p.a. Panel 240. Fees 5/- to 21/. Single man, aged about 30 preferred. Flat available or could reside elsewhere. Premium for quick sale £500.—No. 9207.

EAST COAST.—CASH RECEIPTS LAST 17 months £509. Panel 120, *increasing*. Fees 3/6 up. House 2 recep., 3 bed., bathroom, surg., and waiting. Rent £70 p.a. Premium £360.—No. 9206.

LONDON N.—WELL ESTABLISHED IN creasing PRACTICE. Receipts last year £1,250. Panel 670. No midwifery, but ample scope. Car not necessary. Visits 3/6 to 7/6. Surgery 2/6—3/6. Premises in *main road* comprise cons. and wait. rooms and 7 living rooms. Rent on lease at £150 p.a., or sell leasehold. Premium for goodwill £2,000.—No. 9205.

SOUTH COAST — FAVOURITE RESORT — £900—£600 p.a. and ample scope. Panel of 580. Ill-health cause of sale. Very little midwifery. Visiting fees 3/6 to 10/6. Small modern corner house (3 bed.) with garage and good garden. Price, House and Practice, £2,050.—No. 9189.

MIDLANDS.—IMPORTANT BUSINESS AND Manufacturing Town. Assy. with view to one-third share in PRACTICE of £1,800 p.a. Salary as Assistant £300 indoor and all found. Salary as Assistant £300 indoor and all found. Applicants must be able to undertake refractions.—No. 9188.

ASSISTANTS REQUIRED.—SUFFOLK. GOOD mixed class Practice. £250—£300 all found. GLAMORGAN. Indoor £250—£300 found. HONG KONG. $800 per month. Young man, 26/28, able to undertake Eye work. LONDON. £300 p.a. all found.

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SOUTH LONDON.—Old-established mixed suburban PRACTICE. Semi-detached house to be rented on lease at £110 p.a. Average receipts approximately £1,850 p.a. Panel 1,450. Premium 2 years' purch.

LONDON, S.W.—Mixed suburban Cash and Panel PRACTICE. Semi-detached house to be rented at the exceptionally low rental of £20 p.a. on lease. Receipts approximately £410 p.a. Panel 460. Excellent scope. One appointment. Premium £600.

ESSEX.—Within 8 miles of London.—NUCLEUS Lock-up Practice, *situated in rapidly growing district. Living accommodation* if desired. Splendid opportunity for young man. Present receipts £100 p.a. Panel 25. Premium £100, or near offer.

SUSSEX.—PARTNERSHIP in very old-established middle-class Practice in South Coast seaside resort. Accommodation to be rented on lease at £80 p.a. This year's receipts £2,000. Appointments. Panel over 800. Premium for one-half share £2,300.

LONDON, E.—Mixed suburban PRACTICE. *Medium-sized* house on lease at the exceptionally low rental of £30 p.a. Average receipts £450 p.a. Panel 300. Appointments. Ample scope for young Practitioner. Premium £950, or near offer.

LONDON.—Old-established mixed middle and working-class G.P. House to be rented on lease. Average receipts nearly £1,000 p.a. Panel 1,180 (increasing). Fees 2/6 up. Two appointments. Premium to include certain furniture, etc. 2 years' purchase.

LONDON, S.E.—Middle and working-class G.P. with scope for development. Medium-sized semi-detached house on rental or for sale. Approximate receipts £890 p.a. Panel 350. Premium £1,750, or near offer.

MANCHESTER.—Old-established industrial G.P. Corner house to be rented at £60 p.a. Receipts over £660 p.a. Panel nearly 800. Excellent scope. Premium £950, to include furniture.

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4. LONDON, E. — Old-established PRACTICE, selling owing to ill health. Receipts last year £350, previously much more. Premium £450. House, with garden, to rent.
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MANCHESTER.—Mixed PRACTICE averaging £1,000 p.a. Appointments (transferable) £200—£250 p.a. Panel 850. Good corner house, 2 reception, 5 bedrooms, 3 professional rooms, garage and small garden. Premium—Practice—1½ years purchase.—No 492

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WARWICKSHIRE.—Country PRACTICE in delightful district. Cash receipts approx. £900 p.a. Panel 479. Scope. Modern house (built for doctor), 3 reception, 5 bedrooms, garage, and large garden with orchard for sale. Sport of all kinds. Premium £500. Vendor retiring.—No 480

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15 MIDDLESEX — MIXED WORKING CLASS PRACTICE OF about £1 [illegible] p a in rapidly growing district within 10 miles of Hyde Park at present £1 [illegible] Corner house (5 bedrooms) with garage and fair sized garden, for sale Scope for increase Premium £2 000

16 KENSINGTON — WELL ESTABLISHED HIGH CLASS NON dispensing PRACTICE Cash receipts last three years averaged £1 618 p a No panel Visits 10/6 to 1 [illegible]/6 and 15/ Residence of 4 bedrooms, consulting room etc, to rent on lease Premium £3 000

17 S E COAST —PARTNERSHIP IN OLD ESTABLISHED PRACTICE over £3 250 p a in growing town Panel 1 700 Fees 3/6 to £1 1s Double-fronted corner residence (4 bedrooms) garage, etc, for sale Premium one half share two years purchase

18 S COAST —NON DISPENSING PRACTICE AVERAGING OVER £450 p a in well known Health Resort Panel 250 Visits 3/6 to 10/ House in excellent position facing sea and containing 6 bedrooms, etc Price of freehold £2,400 Premium for Practice £400

19 LONDON, E C —OLD ESTABLISHED PRACTICE OF ABOUT £1 650 p a including appointments panel and Public Medical Service worth over £500 p a Visits 2/6 to 7 6 Practically no midwifery Introduction up to 12 months will be given Premium £1,500

20 N E COAST —OLD ESTABLISHED PRACTICE IN SEAPORT Town Cash receipts average £1 260 p a including appointments worth £130 p a and a panel of 1 115 Corner house (4 bedrooms) with separate surgery accommodation Premium for House and Practice £2 600

21 SHROPSHIRE & CHESHIRE BORDERS —OLD ESTABLISHED PRACTICE averaging £1 055 p a in Market Town Panel 850 Visits 3/6 to £1 1s, medicine sometimes extra Detached house (5 bedrooms attics etc) with garage and old world garden for sale Educational facilities All kinds of sport Well equipped Cottage Hospital and opportunity for one keen on Surgery Premium £1,580

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23 N OF ENGLAND —OLD ESTABLISHED MIXED CLASS PRACTICE in large growing residential suburb of important town Cash receipts average £1 450 p a including appointments and Panel 677 Charming modern corner residence Good introduction Premium two years purchase

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26 S COAST —A WELL-ESTABLISHED PRACTICE OVER £1 000 p a in popular Resort Panel 850 Excellent scope Premium two years purchase

27 N KENSINGTON —PRACTICE OF ABOUT £300 P A PANEL 200 Corner house to rent Premium £475

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29 EASTERN COUNTIES —COUNTY TOWN —VERY OLD ESTABLished middle and upper-class PRACTICE averaging £1 190 p a Panel 120 Visiting fees 7/6 to 15/6 Ten roomed house in good residential part with garage and garden for sale Scope Premium £2,200

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31 GLOUCESTERSHIRE —PARTNERSHIP IN VERY OLD ESTABlished Practice of nearly £1,750 p a in small town in beautiful part of the country Panel over 1,350 Fees average 7/6 Premium one half share 2 years purchase.

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34 LONDON E —CASH AND PANEL PRACTICE OF OVER £600 p a in populous district Panel 590 Small house to rent on lease Premium £800

35 LONDON W —GOOD MIDDLE CLASS PRACTICE £400 P A in suburb within easy access of the West End Panel over 100 Attractive double fronted house with nice garden for sale Scope for increase Premium 1½ years' purchase.

36 HOME COUNTIES — OPHTHALMIC PRACTICE BETWEEN £300 and £400 p a in desirable Residential Town under 15 miles from London Good detached house (4 bedrooms) with large garden for sale Good reasons for plenty of scope for increase Premium £300

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4. SOUTH WALES.—Beautiful Country District within 4 miles of large town. Small PRACTICE, producing between £300 and £350 p.a., *offering* good scope Visiting fees from 5/-. Very little midwifery or night work. Well-situated house, with well-kept garden, *containing 2 reception, 3 good-sized bedrooms and servants' rooms.* Electric light and gas throughout. Garage. Price for Practice and house £1,500.
5. PARTNERSHIP.—HOME COUNTIES.—A one-third share, producing approximately £900 p.a. is offered (after a Preliminary Assistantship) in an old-established mainly better-class Practice situated in very attractive county town within easy reach of London. Ingoing Partner must be well qualified and experienced, accustomed to good-class work, married, and between 30 and 40 years of age. *Premium for share 2 years' purchase.*
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7. HANTS. — ASSISTANTSHIP with view to PARTNERSHIP, and ultimate SUCCESSION, is offered in an old-established Practice situated in very desirable district. Must be a Graduate, experienced, and about 30 years of age. Appointment either Indoor or Outdoor. *Personal application if possible.*
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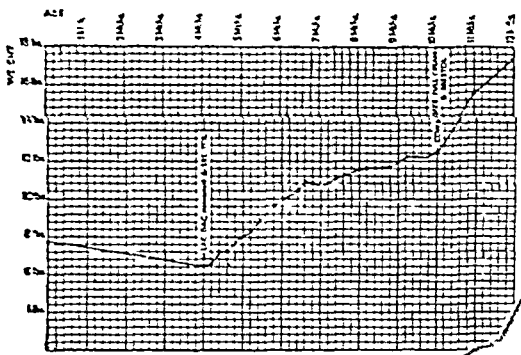
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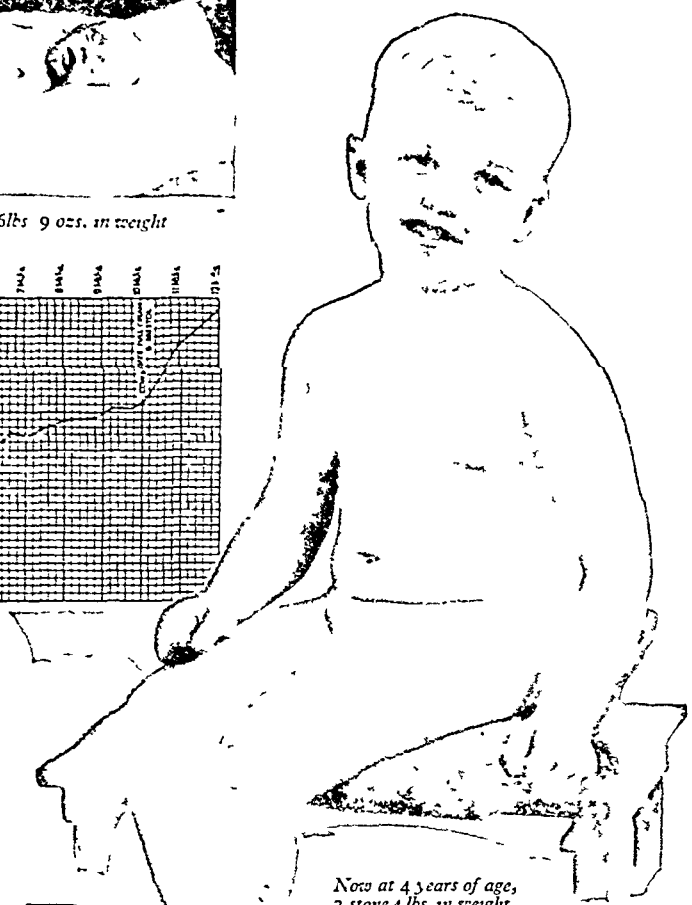
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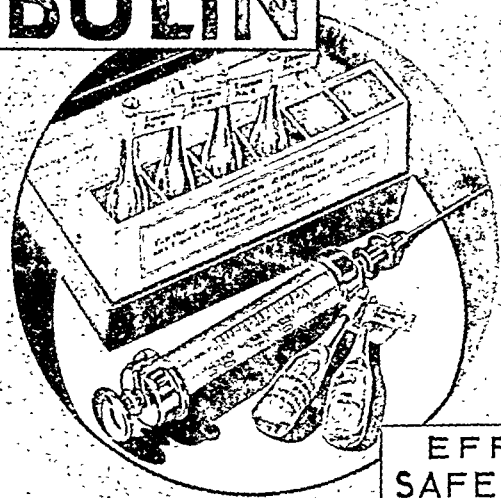
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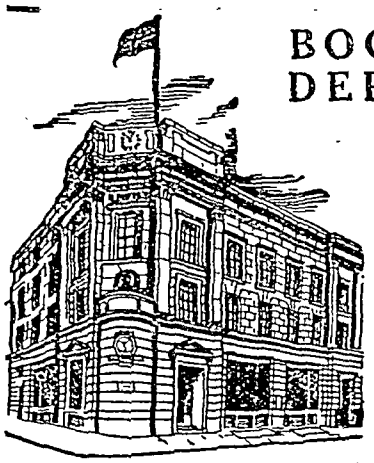
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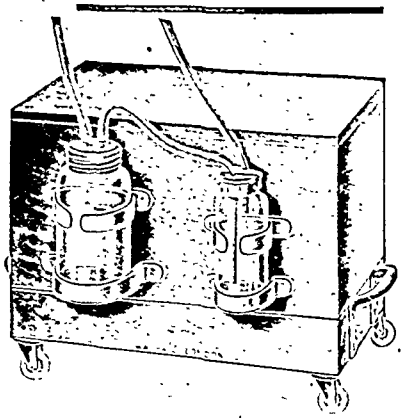
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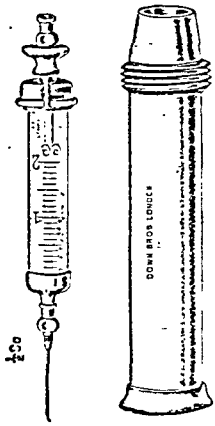
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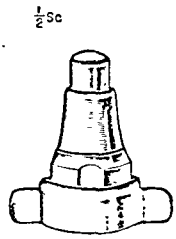
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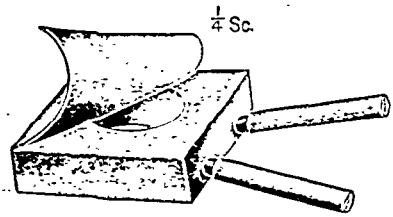
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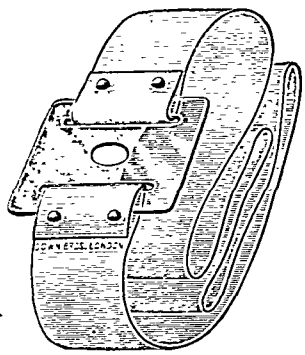
This case will not leak *even in hot climates.*



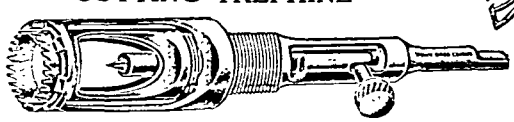


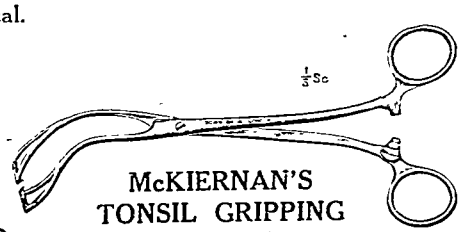
TERENCE MILLIN'S SPONGE RUBBER SUPRA-PUBIC DRAINAGE BOX.

Comfortable, watertight, economical.



SIMPSON-SMITH'S NON-PLUNGING RAPID CUTTING TREPHINE





McKIERNAN'S TONSIL GRIPPING FORCEPS.

Sole Manufacturers:

DOWN BROS., LTD.,

Surgical Instrument Makers,

21 & 23, ST. THOMAS'S STREET, LONDON, S.E.1

(Opposite Guy's Hospital).

Telegraphic Address: "DOWN, LONDON"
(Registered throughout the World).

Telephone: Hop 4400 (4 lines).

WHEN ADVISING YOUR PATIENTS ABOUT SMOKING . . . *remember*

that in Turkish cigarettes there is *less than half the nicotine content* of Virginia cigarettes.

THE PROOF →

CERTIFICATE OF ANALYSIS

SALAMON AND SEABER
Consulting & Analytical Chemists,
79 Mark Lane,
London, E.C.3

Messrs. Abdulla & Co. Ltd.,
173 New Bond Street, W.1

Reference No.
22,262

We certify that the samples described as CIGARETTE TOBACCO marked A, B, C, D, E, F, have been received by us.

We have made a fair sample which we have analysed with the following result:

★ SAMPLE	NICOTINE CONTENT
A	1.08%
B	0.84%
C	2.19%
D	2.35%
E	2.57%
F	2.40%

These were all estimated on the lines of the official American Process, using silico tungstic acid.

(Signed) SALAMON AND SEABER

30th June, 1933

★ The samples A and B referred to in the Certificate of Analysis were from two standard Abdulla Turkish brands. The remainder were from various leading brands of Virginia cigarettes.

ISSUED BY ABDULLA AND CO. LTD.

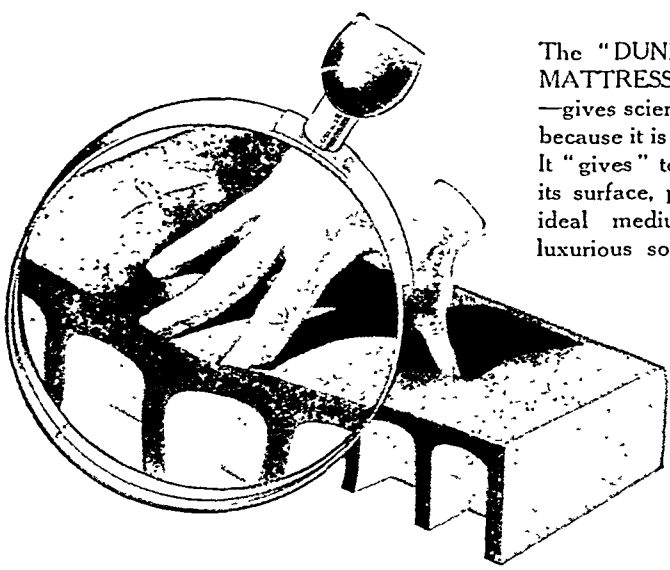
WHEN REST IS IMPORTANT

When restful sleep is difficult to achieve and a tired body craves the relaxation vital to its recovery, you may now turn to new relief which has already met with marked success. In cases of rheumatic, cardiac and other troubles, in which a restful position of the body is difficult to obtain but of importance to the patient's well-being, it proves particularly beneficial.

DUNLOPILLO

CELLULAR LATEX MATTRESS

Made under British Patents



The "DUNLOPILLO" CELLULAR LATEX MATTRESS—an entirely new type of mattress—gives scientifically correct support to the body because it is of uniform consistency throughout. It "gives" to exactly the same degree all over its surface, presenting a pressure which is the ideal medium between firm support and luxurious softness.

These unique features are caused by its construction of multi-cellular latex, the air cells being interconnected and the mattress completely porous throughout. Its elasticity is such that no unevenness can occur, and the mattress never sags or wrinkles.

From a hygienic standpoint the "Dunlopillo" Mattress is excellent. Fully porous throughout, it "breathes" with the movements of the sleeper and never heats. The cellular latex is in itself antiseptic and repels germs. In most cases it requires no sterilisation.

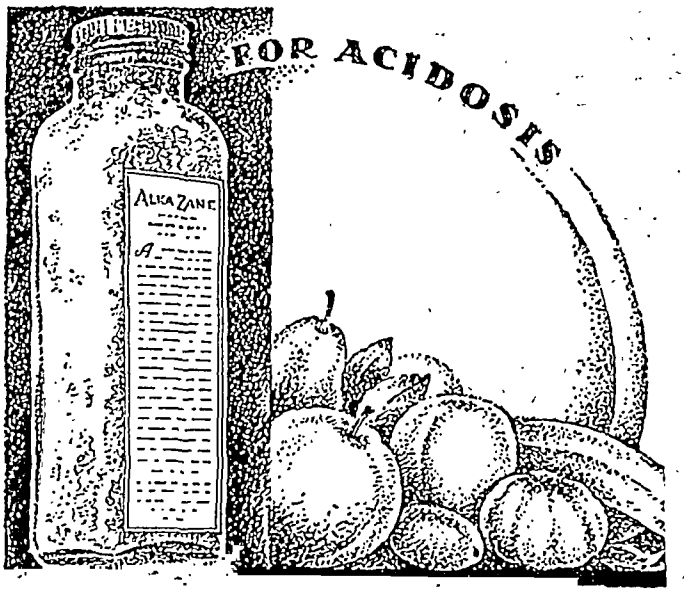
A descriptive pamphlet will be sent immediately on request to:

DUNLOP RUBBER COMPANY, LIMITED

General Rubber Goods Division, Cambridge St., Manchester

C.F.H

3P135



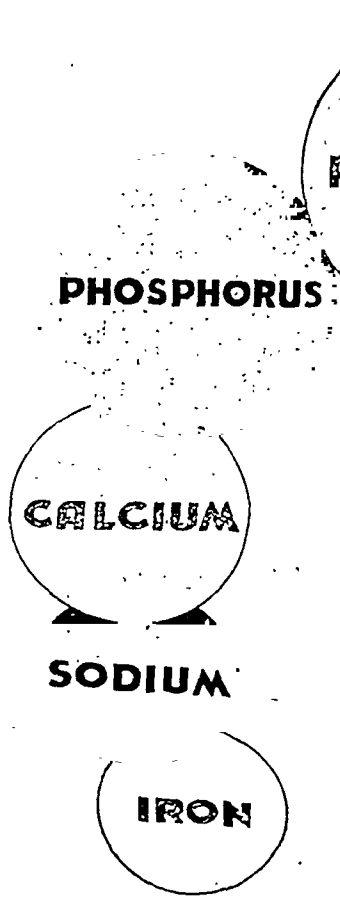
FRUITS will do it . . . vegetables will do it . . . but not as thoroughly and as promptly as Alka-Zane. When acidosis complicates disease, food is not enough. Alka-Zane supplies sodium, potassium, calcium and magnesium in proper proportions for quickly replenishing and for efficiently maintaining the alkali reserve.

Alka-Zane contains carbonates phosphates and citrates only — no tartrates, lactates, or sulphates, and no sodium chloride.

ALKA-ZANE

A trial will give you an impartial answer concerning the efficiency and palatability of Alka-Zane. Let us send you a liberal supply.

WILLIAM R. WARNER & CO., LTD., 300, Gray's Inn Road, London, W.C.1



AN AID IN FIGHTING CHRONIC SEPSIS

Chronic cholecystitis, chronic prostatitis, chronic colitis are but a few of the rather common conditions which give rise to a state of *chronic sepsis.*

Compound Syrup of Hypophosphites "Fellows" in these conditions supplies the required mineral elements. The dose suggested is one teaspoonful four times daily, in water.

SAMPLES ON REQUEST

FELLOWS MEDICAL MFG. CO., LTD.
286 St. Paul Street, West, Montreal, Canada.

COMPOUND SYRUP OF HYPOPHOSPHITES
"FELLOWS"
(TRADE MARK)

QUALITY

PURITY·ACTIVITY·STABILITY

INSULIN 'A.B.'

Full particulars and the latest literature will be sent free to members of the Medical Profession

The world-wide supremacy of Insulin 'A.B.' is due to its unequivocal purity no less than to its well-known potency and stability under all conditions. Insulin 'A.B.' contains the minute quantity of phenolic preservative originally recommended by the Medical Research Council and still considered necessary by bacteriologists (*Lancet*, Sept. 12, 1931, pp. 582-584) as a complete safeguard against the development of bacteria that may be accidentally introduced during self-administration.

Supplied in three strengths:

20 units per c.c. Packed in bottles containing:
5 c.c. (100 units) 2/- each
10 c.c. (200 ,,) 4/- ,,
25 c.c. (500 ,,) 10/- ,,

40 units per c.c. Packed in bottles containing:
5 c.c. (200 units) 4/- each

80 units per c.c. Packed in bottles containing:
5 c.c. (400 units) 8/- each

Joint Licencees and Manufacturers:

Allen & Hanburys Ltd. The British Drug Houses Ltd.

CHLOR-SAN

TRADE MARK BRAND



Contains 1% (approx.) of available chlorine

CHLOR-SAN is a stable solution of Sodium Hypochlorite in salt solution.

CHLOR-SAN is the ideal household antiseptic, being non-caustic and non-poisonous.

Specially recommended as a mouthwash or gargle and for cleaning and sterilising dentures.

3 fl. oz. Bottle 6d.; 12 fl. oz. Bottle 1/6

DISCOUNT TO THE MEDICAL PROFESSION

FROM ALL BRANCHES OF The Boots Chemists

OVER 1000 BRANCHES IN GREAT BRITAIN

Full size trial sample free to any medical practitioner in Great Britain ONLY, on application by postcard to BOOTS THE CHEMISTS, STATION STREET, NOTTINGHAM.

BOOTS PURE DRUG CO. LTD Nottingham England

TELEPHONE: NOTTINGHAM 45501 TELEGRAMS: DRUG NOTTINGHAM

RECENT TESTS

conducted by an eminent bio-chemist have demonstrated:—

1. That the proteins of Horlick's Malted Milk are quickly digested and absorbed, and readily utilized in the body.
2. That its carbohydrates are remarkably well tolerated. The ingestion of even large amounts of Horlick's caused no glycosuria.
3. That Horlick's brought about a better utilization of carbohydrates in general.
4. That anaemia induced in rats by putting them on a whole fresh milk diet was relieved by replacing the fresh milk with Horlick's Malted Milk.

An outstanding feature of these tests was the speed of the effect of Horlick's upon metabolism. The results confirm the clinical experiences of the past 50 years.

Horlick's Malted Milk is pure fresh cow's milk combined with the nutritive extracts of wheat and malted barley. Some 15% of its total caloric value is derived from protein. Horlick's, which has a marked protein-sparing and anti-ketogenic value, can be safely recommended in all cases associated with under-nutrition.

HORLICK'S MALTED MILK CO. LTD., SLOUGH, BUCKS. *British throughout*

WINTER APPROACHES

The best preventive to invasion by infecting germs in the nose and naso-pharynx is

DIMOL (Antiseptic) SNUFF

Diluted with 10 times its bulk of mucus will kill:

Pneumococci in 30 seconds
B. influenzae in 30 seconds
M. catarrhalis in 35 seconds
Streptococci in 40 seconds

In new containers for waistcoat pocket—neat, tidy

Prices and particulars will be sent on application to:

Dimol Laboratories, 40, Ludgate Hill, London, E.C.4.

The Treatment of Anæmias

"It is, however, clear that Marmite provides a definite hæmopoietic factor which is not Vitamin B . . . . and not present in all yeast preparations. . . . . it is far less expensive than liver or stomach."

(*The Lancet, July 8th*, 1933, *p.* 63.)

The statement quoted above reflects the opinion of modern hæmatologists; it is based on carefully controlled experimental research and clinical trials and shows that Marmite has now definitely gained an assured position in the therapeutics of certain anæmias.

In addition to its striking power as a hæmopoietic agent Marmite — being one of the richest known sources of the Vitamin B complex — is indicated in all disorders associated with avitaminosis B.

MARMITE

(Registered Trade Mark)

In Jars: 1 oz. 6d., 2 oz. 10d., 4 oz. 1/6, 8 oz. 2/6, 16 oz. 4/6

Special quotations for supplies in bulk to hospitals and institutions.

Sample and literature on application to—

338 THE MARMITE FOOD EXTRACT CO., LTD., Walsingham House, Seething Lane, London, E.C.3

SEASONABLE PREPARATIONS

ELIXIR RIBES NIG. CO.
(DUNCAN)

A combination of Codeina Ipecac., Menthol, etc., flavoured with Syrup Ribes Nig., which is prepared from the finest fresh fruit.

Duncan

ELIXIR TERPO-CODEIN. CO.
(DUNCAN)

A pleasantly flavoured elixir, containing Codeina Phosphate and Terpin Hydrate in a suitable basis.

THESE ELIXIRS ARE MOST SUITABLE FOR THE TREATMENT OF COUGHS IN CASES OF PHTHISIS, CHRONIC BRONCHITIS, CATARRH, ETC.

SAMPLES AND PRICES ON APPLICATION.

DUNCAN, FLOCKHART & CO.

EDINBURGH & LONDON (155/7, Farringdon Road, E.C.1).

A BALANCED FORMULA

For the treatment of painful and febrile conditions

'KEPHALDOL'

BRAND

ANALGESIC, ANTIPYRETIC TABLETS

Acetphenetidin 2.15 gr.; Sodium Salicylate 1.75 gr.; Quinine 0.45 gr.; Caffeine 0.25 gr.; Salicylic Acid 0.15 gr.; Citric Acid 0.25 gr.; Amylum q.s.

Non-toxic ***Non-depressant*** ***Not habit-forming***

Samples free on request

Distributors: Sangers Ltd., 258 Euston Road, N.W.1

for

ORAL

administration

"EPHETONIN" TRADE MARK BRAND

SYNTHETIC EPHEDRINE

in

BRONCHIAL ASTHMA

HAY FEVER

URTICARIA

and all allergic conditions

E. MERCK **DARMSTADT**

CHEMICAL WORKS

Samples and Literature sent on request to Medical Practitioners

H. R. NAPP LIMITED,

3 & 4, Clements Inn, LONDON W. C. 2 (Sole Concessionaires for the U.K. and Irish Free State)

ANAESTHETICS

Planocaine is a highly efficient anæsthetic for local, regional and spinal administration. Samples and literature sent on request.

PLANOCAINE

MAY & BAKER LTD
Battersea, London, S.W.11

"An elegant and effective preparation is NATIVELLE'S "granules of DIGITALINE"

Sir James MACKENZIE and James ORR (Principles of Diagnosis and Treatment of Heart affections Oxford University Press 1926).

"Digitalis has no substitute, that is to say, no other drug can "take its place and there are not two or three crystallized "digitalines. There is and can only be this one : the crystallized "DIGITALINE discovered by NATIVELLE"

HUCHARD
(Thérapeutique Clinique 1909).



DIGITALINE NATIVELLE

Announcement

The 16th annual issue of the Genatosan Vaccine Bulletin has recently been posted to all medical men whose names appear on the Register. A copy of this publication will be forwarded, free of charge, to any Practitioner who has not received one owing to change of address or other reasons.

A perusal of this Brochure will show that there is a wide range of infections which are amenable to treatment and prophylaxis by Vaccines. In view of the encouraging reports which have been published by medical men who are making an extensive use of Vaccines—both by injection and local application—it is to be regretted that in general practice their use is largely limited to Catarrhal, Intestinal and Septic conditions.

The bacteriological aspect of Influenza and "Colds" has been widely discussed during the past year. In epidemic Influenza the primary causative factor appears to be a filter-passing virus, but it is undoubtedly in the complications that the real danger lies. Although we are unable to inoculate against the primary cause we can give protection against such serious sequelæ as Pneumonia, Pleurisy and Middle Ear Disease by using a Vaccine prepared from the secondary invaders.

GENATOSAN LTD.

VACCINE DEPARTMENT

LOUGHBOROUGH LEICESTERSHIRE

SCIENTIFIC VITAMIN D THERAPY

IF any further proof were needed that Radiostol is the best and most effective agent for preventing and curing human rickets, as it is in experimental rickets in animals, that proof is provided by an exhaustive scientific investigation (*Lancet*, October 21st, 1933, p. 911) carried out under the auspices of the Therapeutic Trials Committee of the Medical Research Council.

IN one series of experiments in this investigation 12 actively rachitic children were given daily doses of Radiostol Solution for 11 weeks, and 8 similar children were kept as controls.

THE second series consisted of two remarkable experiments unique in the history of vitamin therapy in that two pairs of identical twins, both suffering from florid rickets and manifesting symptoms exactly similar in character, were used; one of each pair was treated with Radiostol Solution, the second in each pair being kept as a control.

BOTH series of experiments showed complete healing in the optimum time of all treated cases, whilst the controls remained still uncured at the end of the period.

THUS the crude and unscientific methods of administering so-called "natural" products can now be superseded entirely by the administration of

RADIOSTOL SOLUTION

a scientific preparation of pure crystalline Vitamin D in accurately-standardised dosage, or of

RADIOSTOLEUM

a preparation having the same standardised amount of Vitamin D with also a standardised amount of Vitamin A. These preparations ensure those optimum therapeutic effects that come when scientific methods are applied to vitamin therapy.

Samples and literature on request

THE BRITISH DRUG HOUSES LTD. LONDON N-1

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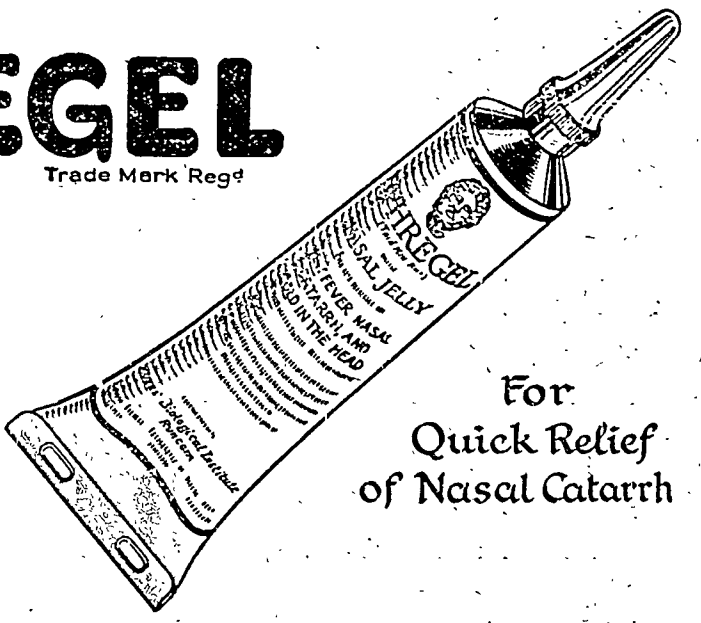


(*Æsculapius*)

EPHREGEL

Trade Mark Regd

Nasal Jelly



For Quick Relief of Nasal Catarrh

Ephregel is a combination of Ephedrine and Adrenalin with suitable analgesics and aromatics in a water soluble non-greasy base. In this form it is specially suitable for prompt and most efficient action on the mucous membrane of the nose for the reduction of congestion in

CATARRH and COLD IN THE HEAD

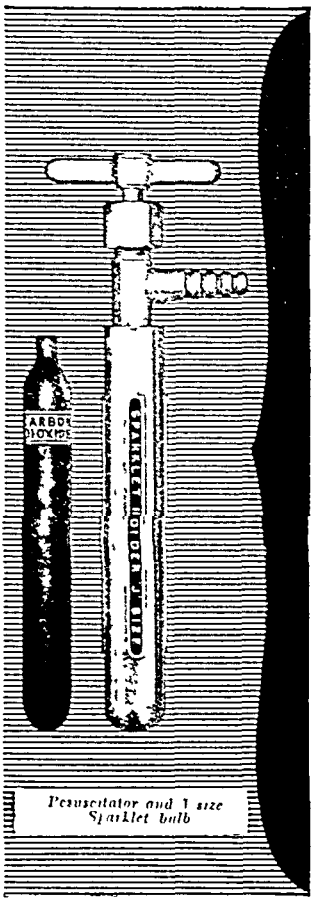
In tubes at 1/6 each

BRITISH PRODUCT

Prepared at
EVANS' BIOLOGICAL INSTITUTE, HIGHER RUNCORN
by

Evans Sons Lescher & Webb Ltd.

LIVERPOOL LONDON DUBLIN



Resuscitator and 1 size Sparklet bulb

CARBON DIOXIDE IN GENERAL PRACTICE

An Easily Portable Apparatus

CARBON DIOXIDE (CO_2), and OXYGEN and CARBON DIOXIDE MIXTURE, are now becoming more and more generally used, not only in all forms of respiratory emergencies, but in the routine treatment of chronic respiratory diseases, such as ASTHMA, HAY FEVER, PNEUMONIA, WHOOPING COUGH, etc.

A simple compact apparatus is now available in the Sparklet "Pocket Resuscitator" (here illustrated). Measuring only ten inches long, it can be carried in the handbag *anywhere*, a turn of a lever instantly releasing the required stream of pure CO_2. OXYGEN, or MIXTURE GAS when and where needed.

PRICES (British Isles):

RESUSCITATOR, "J" Size (as illustrated) ...			...	32/6
BULBS "J" Size, for use with Resuscitator containing:				
CARBON DIOXIDE, Box of 6	10 6	Refilling ditto ...		4/6
OXYGEN, "	12/-	" "		6/-
O_2 & CO_2 MIXTURE, "	12/-	" "	...	6/-

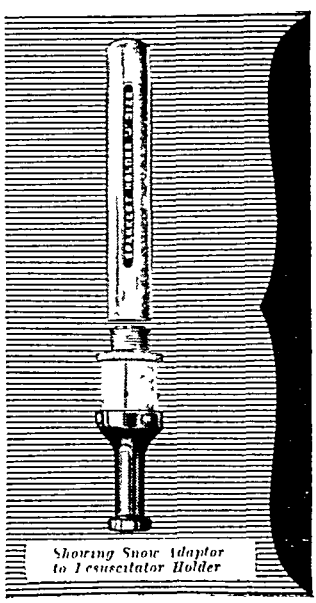
Extra if required:—

RUBBER BAG AND FACE MASK, for use in the administration of oxygen, or oxygen and CO_2 Mixture Gas Mention whether ADULT or INFANT size mask is required 17/6

RUBBER TUBING with NASAL TIP, for use in treatment of ASTHMA, VASOMOTOR RHINITIS, and HAY FEVER 2/6

Of all leading Surgical Instrument Houses.

The Sparklet Pocket RESUSCITATOR


Showing Snow Adaptor in Resuscitator Holder

MAKE YOUR OWN CO_2 SNOW PENCILS

Not only can the RESUSCITATOR, above described, be used for the administration of Carbon Dioxide in respiratory emergencies, and in the treatment of ASTHMA, HAY FEVER, etc., but with the aid of the Sparklet CO_2 SNOW ADAPTOR, CO_2 Snow Pencils may be produced by the Practitioner, INSTANTLY—ANYWHERE —and at LOW COST.

Write for booklets "The Uses of Carbon Dioxide in General Practice" and "The Uses of Carbon Dioxide Snow in the Treatment of Skin Blemishes" to—

Sole Makers: SPARKLETS LTD., Head Office, LONDON, N.18.
Town Showroom: 93, REGENT STREET, W.1.

ADAPTOR 12/6
RESUSCITATOR HOLDER, if required 5/-
Prices in British Isles.

The Sparklet Pocket CO_2 SNOW ADAPTOR

12 POINTS

of interest to the MEDICAL PROFESSION

No 6

THE ECONOMICAL ASPECT OF BOURN-VITA

1. Bourn-vita goes further than other malt drinks.
2. There is no starch or other cheapening agent added, so that it possesses a strong full flavour and body.
3. Only the useful part of each ingredient is retained. Thus only 25 per cent. of each egg is used; the rest being moisture and therefore of no value. Only 13 per cent. of the milk is used for the same reason. Only 85 per cent. of the malt is used, and it will be seen, that Bourn-vita is not merely made with good ingredients, but with only the best parts of these.
4. Every ingredient is British in origin and every tin you buy means more work for the British workmen.
5. Bourn-vita needs no preparing or cooking. You can save these costs by using Bourn-vita. It saves time and trouble.
6. In view of its food value, and the quality of its constituents, Bourn-vita costs less than other malt drinks.

Cadbury's

BOURN-VITA

(A SCIENTIFIC COMBINATION OF BRITISH MALT, FRESH MILK, NEW-LAID EGGS AND CHOCOLATE)

for sleep and energy

THE "humanisation" of cow's milk involves at least four factors:

1—An adjustment of the ratio of protein to the other constituents of the milk.

2—An increase in carbohydrate to the same sweetness as human milk.

3—An alteration in the physical characters of the caseinogen of cow's milk.

4—A modification of the physical characters of the fat to render this element as easily digestible as the fat of human milk.

■ ■ ■ ■

The first two changes are effected by the removal of a suitable proportion of caseinogen and the addition of carbohydrate. The other modifications are brought about by the addition of a colloid and also by the drying process.

■ ■ ■ ■

"Allenburys" Modified Milk Foods carry these methods into practice; they show that the protein curd of cow's milk may be made to resemble that of human milk in being light, flocculent, and easily digested.

■

This announcement regarding the 'Allenburys' Foods is No. 2 of a series which will be continued.

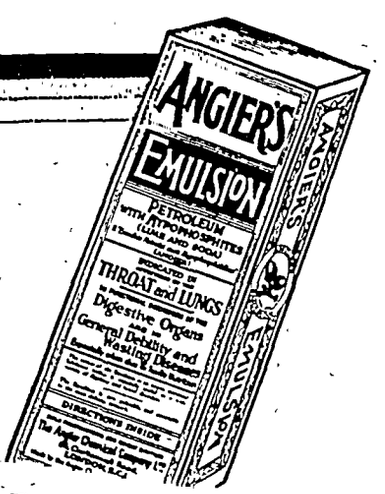
Petroleum in the treatment of Intestinal Disorders

Purified Petroleum in one form or another is becoming more and more widely employed in the treatment of intestinal disorders associated with toxæmia. To obtain the best results, the petroleum should be not only non-irritating and free from all impurities, but it should preferably be in the form of an emulsion. In this form, the minutely divided petroleum globules mingle freely with the intestinal contents, and are more widely and evenly distributed throughout the entire intestinal tract. Maximum lubrication is thus assured and the characteristic action of the oil obtained with greater uniformity.

Angier's Emulsion is made with a specially purified petroleum of just the right degree of viscosity. It is a perfect Emulsion of cream-like appearance and consistency, and mixes instantly with water and other liquids. Pleasant to the palate and remarkably well borne by sensitive stomachs, it can be administered either undiluted or in any suitable vehicle. It has been found that patients who cannot tolerate clear petroleum are able to take Angier's Emulsion without the slightest difficulty, and continue indefinitely without ever developing an antipathy to it. Angier's Emulsion will also be found most useful as a vehicle for the administration of intestinal antiseptics or astringents, for which purpose it is eminently suitable.

"After long experience of many forms of paraffin and petroleum, both in the character of emulsions and otherwise, I have found none so satisfactory to the patient as Angier's Petroleum Emulsion."

—M.D., D.Sc., M.A.



Free Samples to the Medical Profession.

ANGIER'S EMULSION

THE ORIGINAL AND STANDARD EMULSION OF PETROLEUM

ANGIER CHEMICAL COMPANY, LIMITED, 86 CLERKENWELL ROAD, LONDON, E.C.1

RELIGIO-MEDICAL SERIES, No. 52—ANCIENT EGYPTIAN

Modern Digitalisation

DIGOXIN
(B. W. & Co.)

A pure, stable crystalline glucoside isolated from leaves of *Digitalis lanata*

Effective orally or intravenously

Discovered and prepared at the Wellcome Chemical Works, Dartford, Kent.

Clinical tests were carried out by The Therapeutic Trials Committee, British Medical Research Council.

Acts rapidly in cases of auricular fibrillation



For Oral use

'TABLOID' DIGOXIN, 0·25 mgm.
Bottles of 25 products, at 2/1 Bottles of 100 products, at 7/4

SOLUTION OF DIGOXIN (B. W. & Co.)
0·5 mgm. in 1 c.c.
Bottles of 30 c.c. (with pipette), at 4/6 Bottles of 250 c.c., at 30/10

For Injection

'HYPOLOID' DIGOXIN
Each ampoule contains 0·5 mgm. Digoxin in 70 per cent. alcohol.
Boxes of 10 'Hypoloid' ampoules of 1 c.c., at 3/9 per box

London Prices to the Medical Profession

BURROUGHS WELLCOME & CO., LONDON
Address for communications: SNOW HILL BUILDINGS, E.C. 1
Exhibition Galleries: 10, Henrietta Street, Cavendish Square, W. 1

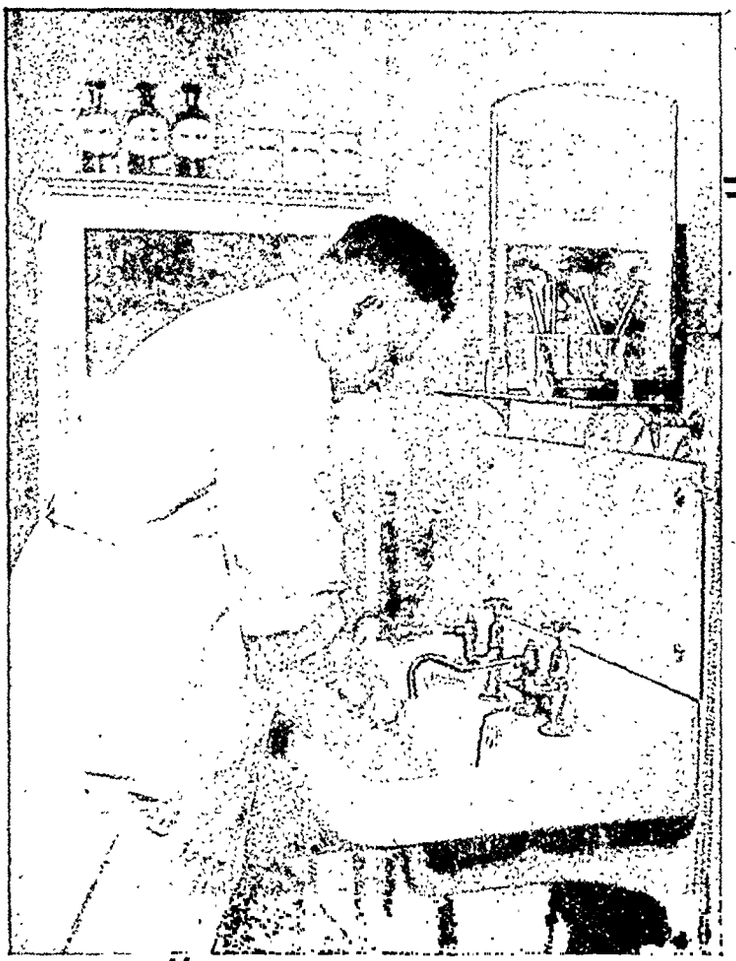
Associated Houses:
NEW YORK MONTREAL SYDNEY CAPE TOWN MILAN BOMBAY SHANGHAI BUENOS AIRES

O O O O O



THE EGYPTIAN GOD, SET, IN EARLY TIMES A BENEFICENT BEING, BUT LATER A CREATOR AND DISSEMINATOR OF EVIL AND DISEASE.—Venerated in early dynastic times, Set had come, by about 1700 B.C., to be looked upon as an unmitigated power for evil, associated with darkness and ill-health; henceforth, he was worshipped only out of fear. His evil reputation came from the facts that he was the murderer of Osiris, the deadly enemy of Horus, who was the personification of good, and that he was lord of the night as Horus was lord of the day. The colour red was associated with Set and became of ill-omen in consequence. The "unlucky" days of the calendar were written in red, red-haired men were persecuted as being devoted to him, while animals with red or reddish-brown hair were looked at askance for the same reason. Set is represented in the figure here reproduced with the head of an indeterminate creature generally styled the "Set animal."
Date: c. 1700 B.C.

COPYRIGHT



To the Medical Profession:

Your hands

need proper care, just as your instruments do, because your hands

are your most valuable instruments

Plunging your hands into a solution of corrosive sublimate, alcohol, etc., and frequent washing and scrubbing, renders the skin red, sore and chapped.

To keep your hands in good condition, we recommend the use of

NIVEA-CREME

a water-fat emulsion with Eucerite, the skin-fat-related cholesterol, serving as the emulsifying agent.

NIVEA-CREME penetrates into the apertures of the skin very readily and does not leave a greasy residue. It keeps the skin soft and smooth.

As a protective against the irritation of ordinary soap, disinfectants and chemicals, NIVEA-CREME has no equal. Keep some on your "scrub-up basin" for the continued care of your hands.

NIVEA-CREME can be obtained from all chemists, stores, etc.

BEIERSDORF & LTD.
Welwyn Garden City, Herts.

Made in England

Remarks
ON
THE TREATMENT OF ACUTE HEAD INJURIES*

BY
GEOFFREY JEFFERSON, M.S.Lond., F.R.C.S.
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It is not only because head injuries are such common occurrences, but also because skilful treatment of the right kind, and at the correct time, may make so much difference to the result that they are a fruitful subject for discussion on such an occasion as this. Few subjects can boast a more voluminous literature, reflecting the mutations in theory which time has brought and the alterations in practice which logic demanded. Nor is opinion as yet well stabilized on the meaning of certain of the cerebral states observable as the result of cranio-cerebral trauma, and in consequence there are divergencies of opinion as to the nature of the treatment which is most beneficial. At the present time the treatment of head injuries is chiefly non-operative, because experience has shown that the worst cases are not saved by routine decompression, and because it is generally believed that we have in hypertonic solutions a method of lowering pressure which, if it cannot replace operation in all cases, is useful enough in the majority. I believe that the current fashion for hypertonic solutions as a cure-all is wrong, because it is indiscriminately applied: that they have their value when properly applied I shall not deny, but the problem of head injury is not solved by their use, and the time has come for revision.

When a patient with a head injury is brought into hospital to-day it is admitted that he may have a middle meningeal haemorrhage; but then this is something of a rarity, and it is hoped that if he happens to have one it will make its presence known by the classical train of signs. Otherwise it is generally assumed that the patient will not be operated upon, that if he has had maximal brain laceration he will die and nothing will save him (this is true), and that if he has a submaximal injury he will no doubt get better (which may be). In the meanwhile hypertonic treatment will be given, and this panacea will cure him if he is curable. It is my contention that this line of action tends to produce a feeling of unwarranted satisfaction, a feeling that all that could possibly be done is being done. We shall do a better service to surgery and to the patient if we regard every head injury as a potential subject for operation, if we suspect our patients of having not only epidural haemorrhages, but the much more insidious and common subdural haematomas, and thus reduce by a little more the unavoidable death rate in these serious cases. In order to get a proper sense of proportion we shall do well to turn to the available clinical material, and to subject it to scrutiny to determine so far as we can in what respects the cases differ from one another, in which our treatment is adequate, and in what particulars we may improve it.

Clinical Material

An analysis has been made of a consecutive series of cases at the Manchester Royal Infirmary and Salford Royal Hospital (a five-year period at the one, six years at the other). The total number of cases of head injury admitted amounts to 1,004, and of these 230 patients died (23 per cent. fatality). Various mortality rates have been arrived at by other observers, from over 60 per cent. downwards, and if the rate appears to be falling to-day it is chiefly because the slighter cases are admitted more often than formerly, and it is these minor cases which cause an apparent improvement in result.

Much more important than the gross rate is an analysis of the rapidity of death. In 152 cases the time of death after admission to hospital was stated sufficiently accurately, and the death rate per day is shown in the accompanying chart (Fig. 1).

Ninety-one patients, 60 per cent. of total eventual deaths, died within twenty-four hours, and the next highest number before the end of forty-eight hours, meaning that overwhelming damage occurs in a high proportion of the cases. In three cases, for example, tears of the cavernous and superior longitudinal sinuses were found at necropsy, with the skull full of blood. Some four patients were believed to have local haemorrhages, but died whilst active preparations were on foot to relieve them—that is, within an hour or so of admission. This primary mortality seems to me to be fixed and unavoidable, but the case is otherwise with the late deaths—those from the second or third day onwards. Some of these are comprised by fatalities in aged persons who die of pneumonia or exhaustion, but there is a sufficient number of young people in this category to raise the question as to why, having survived the initial danger period, they have eventually succumbed. Given a severe enough trauma it is not surprising that death will speedily occur, but it is

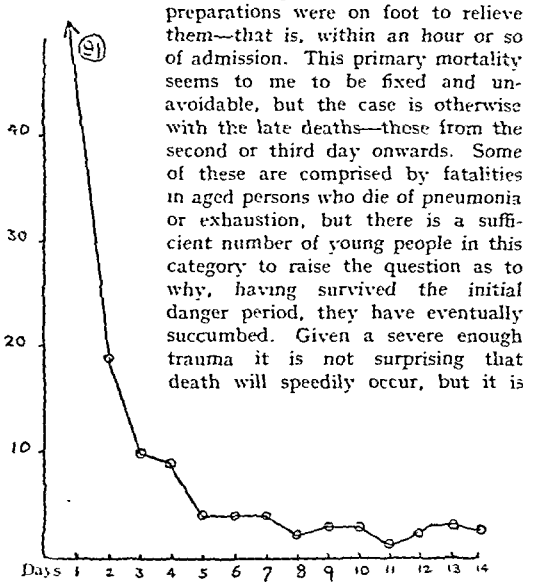


Fig 1.—Acute head injuries (152 cases). Death rate per day.

interesting to ponder the various factors which permit survival for longer periods with death as the outcome. Meningitis accounts for some 8 per cent. of deaths, with a special incidence in childhood. It will be seen shortly that unsuspected subdural haematomas have been found among them more often than they were suspected, and evidently we shall have to focus attention in future on the recognition of this cause of death from compression. But all the late deaths are not due to gross compression, and we can only assume damage to centres and to synaptic and tract connexions by haemorrhage, secondary oedema, and necrosis, in which histamine may play a part. In thinking of such centres and pathways we must bear in mind that the subthalamic nuclei of the vegetative nervous system are as vulnerable as, and perhaps even more delicate than, those in the medulla oblongata. We know very little of those metabolic disorders which lead to death, for besides those centres which are immediately necessary to life there are others without whose aid life cannot be long sustained. The thermal crises which proclaim severe injury to the tuberal region are inescapable evidences of damage; minor injuries of the same type and with different results no doubt occur. Arising out of this question of damage to different centres is the variability of the placement of the injury in different people. Polar contusion is well known, lacerations of the under surfaces of the frontal lobes and of the

* Made in opening a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Dublin, 1933.

temporal poles commonplaces of observation ; indications of these local injuries are recognizable clinically. It is sometimes assumed that the great variations in behaviour during recovery arise from temperamental peculiarities in the individual. This presupposes that patients sustain a stereotyped injury, the result varying with the make-up of the person injured ; and up to a point this may be true. But it is much more probable that the differences commonly remarked are due to variations in the situation of the chief damage, and I am convinced that evidences of lesions of particular regions are much more frequently to be observed than has been generally believed. Symonds has done notable service in drawing attention to the possibility of recognizing residual focal damage long afterwards, and there is a rich field awaiting more intensive study during the acute phases.

Clinical Types

When all is said and done the outstanding consideration in any case of head injury is the problem of traumatic stupor: how has it arisen, what does it mean, and how shall it be dealt with? How much of it is due to direct contusion, how much to secondary oedema? These are the mute questions put to us by every case, and on the answer depends the individual treatment. So much is the depth of unconsciousness the one and essential primary clinical point in head injuries that it can be said that immediate anxiety is almost at an end when consciousness is regained. Patients arrive at hospital in all stages of post-traumatic stupor, and they will be found to fall conveniently into three groups.

Group A

Group A includes those who are deeply unconscious or comatose, with widely dilated pupils and sluggish corneal reflexes, cyanosis, stertorous respiration, and flaccid limbs. These patients die very rapidly and nothing can be done to save them.

Group A.—*Comatose on Admission*

Sex	Age	Pulse Rate	Survival in Hours
M	58	140	8
M	64	82	2
F	43	68	12
F	61	104	7
M	59	76	6½
M	7	130	½
M	23	60	12

Group B

Group B, in which the patients are already recovering consciousness when they reach the hospital, is the largest. The patients have no recollection of the accident (retrograde amnesia) ; they are shocked, vomit once or several times, are dazed and restless, but can be induced to answer questions, though some persistence may be required to obtain answers. Often enough these patients do not again relapse into unconsciousness, and though they may be drowsy and restless they can usually be roused periodically for a sufficiently thorough general and neurological examination. When they follow this course they do not give rise to any great anxiety ; they may be irritable, but once they have answered questions the surgeon feels that he knows where he is with them, and will be able to intervene appropriately if there is any falling-off in their condition. It is important, however, to observe that fractures of the skull may be present in this type of case and, what is more important, laceration of the brain ; it is from this class that the best examples of extra- and sub-dural haematoma are recruited. The cases which follow are random examples of the common uncomplicated cases of the general type just described, the only noteworthy point being the variability from case to case of the pulse rate.

Group B.1.—*Dazed, but not Unconscious on Admission: Recoveries*

Sex	Age	Pulse Rate	Unconscious	Fracture	Home: Days
M	50	60	Not	No	14
M	47	66	Not	Yes	18
M	27	100	Not	Yes	14
M	53	112	Not	Yes	15
F	44	56	Not	No	10
M	23	60	5 minutes	Yes	21

Not all of these patients remain in such good condition, and some again relapse into unconsciousness or into a stupor from which it is difficult to rouse them. Unless careful observations have been made on admission they then present very difficult problems, for although there is always the strong suspicion of massive haemorrhage in such cases, it is not always present, and some recover again without intervention: the crucial point is the depth of secondary unconsciousness and the presence or absence of localizing signs. If the stupor is relatively light and no limb weaknesses are present a clot can be assumed to be absent, but if there is the slightest doubt it is very much wiser to explore, a brief and conservative intervention being sufficient to establish the presence or absence of intracranial bleeding.

Group B.2.—*Primarily Unconscious ; Recovery ; again Unconscious*

Sex	Age	Pulse	Consciousness	Fracture	Recovery: Days
M	63	104	Unconscious Conscious Unconscious 12 hours	No	17
M	46	74	Semi-conscious Lapsed into complete unconsciousness for two days	Yes	28
F	24	80	Dazed Became unconscious for 36 hours	Yes	14

It is possible that small clots were present in the three cases outlined above, but if so they were not of sufficient size to be localizable clinically.

Group C

The third group (C) presents the greatest difficulty in diagnosis and treatment. This consists of patients admitted in a state of stupor or semi-stupor and who remain non-co-operative and unresponsive for many hours or days. Although they do not reply to questions their general condition is not as a rule bad ; they are well oxygenated, their pupils are normal, and while it is the common rule to speak of them as unconscious they move about in bed, and much information can be gathered if the observer will take the trouble to sit by them for a time. Facial asymmetries may be observed by testing the corneal reflexes, and the movements of the arms watched in the effort to remove an annoying finger from the cornea. The abdominal, plantar, and tendon reflexes furnish corroborative evidence of a unilateral lesion. In a number of these patients no lateralizing signs are dis-

coverable, and after a few days of anxiety they gradually become more conscious and slowly recover. Generally the hospital records of these patients merely state laconically that the "patient is unconscious," often a lazy way of saying that no trouble has been taken to

GROUP C.—*Unconscious on Admission: Recoveries*

Sex	Age	Pulse Rate	Unconscious	Fracture	Hours: Days
M	21	88	2 hours	0	10
F	20	64	3½ hours	+	14
M	33	88	2 hours	+	21
M	21	90	4 hours	0	10
M	18	96	6½ hours	0	5
M	35	80	24 hours	0	23
M	24	80	24 hours	0	22
F	36	80	24 hours	0	23
F	37	94	2 days	+	15
M	21	80	2 days	0	21
F	22	84	3 days	0	21
F	20	88	3 days	+	21
M	40	120	6 days	+	28
F	23	76	35 days	+	42
M	56	90	28 days	0	42
F	40	70	19 days	+	21
M	21	70	28 days	0	35
M	33	90	10 days	+	21

find out his exact state. The students' teachers are somewhat to blame for this, because the fact of non-co-operation on the patient's part is regarded as a preventive of any useful examination. Perfunctory examination of reflexes ought to be replaced by careful notes on limb movements during the restless turnings of these patients and a clear-headed search for evidences of damage to cerebral centres.

THE CAUSE OF TRAUMATIC STUPOR

Reference has already been made to variations in the depth of stupor, and attention called in particular to the fact that the patient is rarely so deeply unconscious that important clinical observations cannot be made. Following the teaching of Trotter in this country, we assume that concussion is due to vascular arrest, that it is an affair in its purest form of moments only, and that recovery is perfect. This doctrine has been widely received because it is the only understandable explanation of a dysfunction which passes off quickly and leaves few traces behind. That it may not be a complete explanation is very possible, for we know that trauma may temporarily paralyse nervous tissue (for example, the "physiological paralysis" of peripheral nerves) without our being any the wiser as to the exact processes involved. This much, however, is certain, that the longer any paralysis lasts the more certain are we that anatomical damage has occurred, a fact of great importance when applied to the brain mass. Patients remaining unconscious for any length of time may safely be assumed to have suffered neural damage, and there is no doubt that even those who recover consciousness in a few moments may still have had contusions and even lacerations of the brain, and from such injury may spring a subdural haemorrhage large enough to cause death unless the surgeon intervenes.

It is very commonly assumed that prolonged unconsciousness is the result of raised intracranial pressure. This seems to be a logical assumption, since Nature from time to time performs a human experiment for us by producing a severe local compression in the shape of a middle meningeal haemorrhage. Indeed, the sequence of stupor, recovery, and secondary stupor implies the production of unconsciousness by clot. But is it the clot by reason of its size or the clot by reason of its position which leads to stupor? It so happens that most massive clots are anteriorly placed, and it is undoubtedly the frontal lobe which suffers most. Evidence of a tangential kind can be drawn from experience with intracranial tumours, and we know, for example, that pressure alone does not cause stupor except in its last stages, and with rises of tension far in advance of anything seen in head injuries. The intracranial pressure in cerebellar tumours, for instance, exceeds considerably any so far recorded rise in trauma, and yet these patients are never ordinarily unconscious, whilst we have learned that the only cases which approximate to head injuries in their behaviour are neoplastic lesions of the frontal and temporal lobes. Nor do the demeanour, the lack of cyanosis, nor the actual cerebrospinal fluid pressure readings in traumatic cases bear out the teaching that stupor is due to pressure. Rapidity of compression does not explain why stupor should result from a focal clot, and we know that manometric readings may be normal even when a clot is present, which should signify that the haematoma has a local rather than a general influence. But this discussion on clot pressure is taking me away from my main theme—namely, that stupor in the average case is contusional, and that even when oedema occurs it is very rarely alone the cause of protracted unconsciousness. I believe that it is most often due to contusion of the anterior portions of the hemispheres, and we know that these regions are particularly prone to damage by reason of the anatomical configuration of the fossae and the cranio-cerebral relationships there. Further, the restlessness, the irritability, the anger, indeed the "sham rage" of some patients, recall the animal experiments of Bard, and of Fulton and Ingraham, who produced it by lesions of the under-surfaces of the frontal lobes. The following is a clear-cut example of frontal contusion.

CASE I

A very powerfully built young man, aged 20, fell 80 ft. whilst rock climbing. He remained stuporous with intervals of wild excitement for many days, and finally became quite uncontrollable. In the second and third weeks he was constantly out of bed, tried to get out of the window, and threw the nurses about when they interfered with him. Male nurses had to be called in. He was in hospital five weeks, and finally made an excellent recovery.

Incontinence is another symptom found, in particular in affections of the frontal lobes (sometimes of the temporal); it is a really rare occurrence with tumours elsewhere than in these areas. Incontinence is the rule in the severer head injuries, and I believe that it means the same thing in head injuries as in tumour cases. In some patients residual signs of a severe frontal contusion may be discovered as soon as consciousness is regained: the following cases will illustrate my point.

CASE II

A youth, aged 20, was thrown from a motor cycle ten days before. Remained stuporous for four days, but is now talking well, though his mental processes are very much disordered. He thinks he is at the works in the electrical laboratory, where he has been carrying out researches. He is very interested in the taking of temperatures by the nurses in the ward, and told his brother that he did not know how they conducted their experiments as the instruments had no external connexions. He talks very well, though disorientated in time and place. He is still quite incontinent,

and given a urinal does not know how to use it and does not try. This is a pure frontal-lobe picture. Patient made a complete recovery; he was incontinent five days after return to consciousness.

Case III

A girl, aged 14, was knocked off a cycle by a motor car. She remained unconscious nine days and then gradually recovered her faculties. Usual retrograde amnesia. She remained incontinent for five days after recovery of consciousness, and was incontinent at night for twenty-one days in all. Finally made a complete recovery.

The only other localizing sign of frontal contusion which is undebatable is anosmia, of which I have seen five cases following injury. It is often permanent, and is a very distressing sequel. No doubt the lack of concentration, enfeeblement of memory, and temperamental changes which can follow severe head injuries have the same pathological explanation.

Time will not permit me to describe further the signs of local contusion in other regions of the brain: evidences of parietal and of occipital contusion, with its visual defects, are presented sufficiently commonly. I must, however, refer to one point of the very greatest importance—left-sided frontal or temporal contusion with aphasia. An injury in this situation interferes, of course, with speech, and at times a patient will be encountered who is recovering from his stupor, who looks at the examiner as if he understood what was said, and who then turns away without replying. Failure to recognize this as an important localizing sign has cost more than one patient his life, for I well remember how a left-sided subdural haematoma was overlooked through non-realization as significant of this absence of speech in one who looked as if he could speak. I strongly suspect that the patients in Group C who remained stuporous for so many days had some degree of aphasia, and that the lack of speech or understanding of speech was mistaken for semi-consciousness.

Basic State and Epiphenomena

These considerations are of great importance to us when we turn to the treatment of head injuries in general. This brings us up against the question of hypertonic salines and their place in the therapeusis of cerebral trauma. I believe that their use is incorrect if we expect them to return a patient to consciousness, for this they invariably fail to do during the first stages of injury. The patient is not unconscious because his brain is oedematous, but because it has been damaged generally, and probably locally as well, by a severe blow. This generalized traumatized state producing stupor of a duration dependent on the severity of the injury is the "basic state" in head injury, and if it is not too severe and if no new element is added to it the patient will eventually recover, no matter how he is treated, although maybe with some lingering evidence of damage to some area in excess of another. Alterations in this state, and particularly alterations in the normal recovery from it, may be brought about by the production of local compression by a haematoma.

In order to separate these happenings from the ordinary effects of trauma I prefer to call them the epiphenomena. We shall see shortly that subdural bleeding is an event for which we must be ever on the watch, and particularly must we be careful not to do anything which may induce it. Intravenous hypertonic salines not only raise the blood pressure but, by shrinking the brain, increase the space into which haemorrhage may occur. During the first day or so hypertonics are best withheld, and used only when there is definite evidence for their administration. This means a manometric reading on the cerebro-spinal fluid by lumbar puncture. When should this be done? Not during the first twenty-four hours. Readings at any time are valueless if the patient is restless, for they are then fictitiously high, and the plain fact is that most of the patients in the present series have not needed to have it done at all. This practice is entirely at variance with that of whole-hearted dehydrators, who drain off all the obtainable cerebro-spinal fluid immediately and again daily, meanwhile restricting fluid intake and giving hypertonic solutions. I see no point in this. The only time when dehydration is of great service is during secondary oedema, and that means from the second or third day onwards. The danger is that we can fall into the trap of believing that these methods are necessary for all cases indiscriminately from the time of admission to hospital, and that we become interested in applying them more and more whole-heartedly without safeguards. I do not wish to condemn hypertonics entirely, I ask only for their intelligent use; and I say the same of lumbar puncture.

The Epiphenomena

Massive Haemorrhages

The classical picture of middle meningeal haemorrhage is well known, and there have been in the present series fifteen examples of epidural clot, of which few have been of the orthodox type. I have referred already to the uneasiness that one feels about the late deaths and the fear that some of them may have been due to unrecognized compressions by massive haematomas and not to the laceration and secondary oedema that was the presumed cause of death. Unfortunately the fatal cases in the present series have not come frequently to post-mortem. Owing to the workings of the Coroners Act necropsies are no longer carried out as a routine in fatal injuries, and are much harder to obtain than was formerly the case. I believe that this has a bad influence on the handling of head injuries, for the overlooking of a middle meningeal haemorrhage is no longer revealed, and a salutary lesson is lost. A false sense of the complete adequacy of our treatment is only too easily engendered. Recourse has had to be made to the records of the Manchester Royal Infirmary over a long period to obtain 100 consecutive post-mortem examinations. Among them were fourteen examples of unrecognized clot.

Middle Meningeal Haemorrhages

Sex	Age	Length of Survival	Fracture Present	Clot
F	1½	2 days	Yes	Huge
M	42	7 hours	No	Large
M	12	3 days	Yes	Large
F	60	3½ hours	Yes	Enormous
M	46	65 minutes	Yes	Extensive

The period of survival in such a retrospective survey as this is of the first importance; the last case, for instance, could scarcely have been operated upon in time, however quickly aware the surgeon was of the needs of the case. The extreme youth of the first patient no doubt disarmed suspicion, for middle meningeal haemorrhage is rare in childhood. This record demonstrates the frequency with which fracture is present in this type of bleeding, as compared with those next to be considered, and also the rapidity with which death can occur from an arterial haematoma.

Subdural Haematomas

Sex	Age	Length of Survival	Fracture Present	Clot
M	38	4 hours	No	Extensive
F	60	16 days	No	Enormous
M	65	2 days	Yes	Large
M	30	8½ hours	Yes	Very large
M	35	7 days	No	Large
M	45	6 days	No	Bilateral
M	21	Hours	No	Extensive
M	60	1 day	Yes	Bilateral
M	35	10 minutes	Yes	Huge

The last patient, of course, could not have been saved by operation, and we have no right to assume that all of these patients would have recovered had they been operated upon. Cases in which there was extensive brain laceration have been excluded, and in most of those set out above it is specifically stated that the brain was not seriously damaged except by indentation with the clot. The absence of fracture in five out of nine subdural haematomas is important when comparing them with the epidural haematomas, where coexisting fracture was the rule. Another important point is the very rapid production of subdural bleeding. The literature contains many references to chronic subdural haemorrhage and insufficient to cases of this type. The cases in this post-mortem record have occurred over a period of twenty years, and were under the care of different surgeons; they may be taken as an average series. Considering the great number of cases admitted the overlooking of these examples no doubt represents a small margin of error, but if they disturb our equanimity it is right and proper that they should do so. Nor are these figures isolated commentaries of past (and present) diagnostic difficulties. Vance, in his series of 512 necropsies, found sixty-one epidural and 132 subdural haemorrhages, but in the latter series he has not made sufficiently clear the extent of coexisting lacerations which would have made recovery improbable, even had the clots been removed. McCreery and Berry, in 520 cases of proved skull fracture, found fourteen cases of unrecognized epidural and fifty-one of unrecognized subdural bleeding. They mention three patients in this latter group in particular, where repeated lumbar punctures were done, with deaths of all within twelve hours. These writers, and others as well, have taken signs of fracture as indications of the severity of the injury, feeling that only those with proved fractures were worthy of serious analysis. The incorrectness of this attitude will be generally recognized from the frequency with which subdural haematomas occur without fracture.

The impression that is forced upon one by reflection on these cases is that, though the syndrome of middle meningeal haemorrhage is well known, mistakes are still made at times, whilst subdural haemorrhage is a common cause of death, and still more often escapes diagnosis and correct treatment. If there is this danger of overlooking subdural haemorrhage, are we on the right lines in our treatment of head injuries? Ought we not to be much more suspicious and much more ready to operate than has been the common practice in recent years? I believe that we are through with the period of operating for cerebral contusion and oedema (save in the late case with papilloedema), but that we have not yet entered as fully as we shall on the new but still limited stage of looking for subdural clots.

Clot Compression

How are cases of clot compression to be recognized? The most important service that we can perform is to advertise their occurrence and make surgeons suspicious of their presence. On extradural haemorrhage I have little to say. A direct temporal contusion is apt to produce injury to the meningeal vessels, and I have come to be very suspicious of a temporal haematoma. Indeed, if there is the least sign of contralateral limb weakness, and especially if there is a Hutchinsonian pupil, the indication for exploration is absolute. But no single sign can be taken alone. With the subdural haemorrhages the case is still more difficult. Laceration of the brain is common in all head injuries, and I believe that we should often be startled if we could but see how great the damage is, even in patients who recover. Any laceration must be accompanied by a certain amount of bleeding, which varies from a sub-pial stain to a clot of varying dimensions. If by chance a large artery or vein is ruptured the resulting bleeding may cause death within a few hours. In other cases a slowly increasing haematoma is created, which can finally become stabilized to form a large tumour, to be discovered weeks or months later. My own observations lead me to think that these clots have arisen from injuries to the temporal or frontal lobes low down. Trotter, in his chronic cases, stated that the haemorrhages were high and had come from parasagittal veins. The fact is that it is very difficult to discover the exact origin of the bleeding, for some of the clots are so large that they cover great areas of the hemispheres. So much is this so that there is little risk of missing a haematoma if a drill-hole is made just below the temporal crest.

A patient with a subdural haemorrhage may not be unconscious, though he will become so eventually if unrelieved. The latent period of subdural clot compression is longer than in extradural haemorrhage, and may, as has been said, be of almost any length. The acute cases will be mistaken for those of extradural clots, but as long as the dura is opened when an extradural clot is not found no harm will come of this. The following example is that of a subacute haematoma.

CASE V

A man, aged 37, was admitted to hospital in semi-stupor. He had suffered a mild injury to his head in a rough-and-tumble twelve days before but had never been unconscious. As the days passed he became more and more drowsy, and finally no longer answered when spoken to. He could, however, still be roused, when he looked round confusedly, but would not speak. Some slight weakness of the right hand was made out when he resisted attempts at examination. Eye closure to the corneal reflex was also weaker on the right, and the resulting grimace uneven. Pulse rate 60. This was a clear case of total aphasia, and a large subdural clot was found on the left side.

Five other cases of similar type have been operated on, and, as in extradural haemorrhage, the result depends on the extent of concomitant cerebral damage, the perfect cases being those in which there is but negligible damage to the brain proper. In summary, the acute cases look like those with extradural clots; the more chronic are those in which a patient at the end of a day or so begins to get worse, to become drowsy and difficult, and to present some evidence of lateralization of the lesion. The need for bilateral exploration requires to be mentioned, but I feel sure that the clots are more often uni- than bi-lateral.

THE PULSE RATE IN HEAD INJURIES

What use can be made of the pulse rate as a sign of clot compression? I believe that it is a reliable guide provided that the rest of the picture fits in with it, but that by itself it is not an indication for operation. The great variability in the rate will have been observed in the cases outlined above, nor can any hard-and-fast rule be laid down

first year and were acute cases in all but one instance. The period of survival in these twelve was: one month, three cases; two months, four cases; three months, two cases; four months, two cases; five months, one case. Thus the prognosis in cases with an acute onset appears to be materially graver than in those with more gradual development.

Treatment and its Results

The treatment of ulcerative colitis is disheartening and confused, the numerous methods available indicating the uncertainty which prevails as to the best course to adopt. Indeed, it is difficult to avoid the somewhat cynical conclusion that most patients with this disease who get well do so in spite of their treatment. The following abstract from a letter dated October 3rd, 1932, from an experienced general practitioner in answer to our inquiry affords an apt commentary on the present position, and is in no way peculiar.

"I am writing to you with reference to Miss F., a patient 37 years of age, who had had severe ulcerative colitis for three months when first she came under observation in January, 1930. From January to May, 1930, she was in the General Hospital, and was treated with the usual expectant measures and polyvalent anti-dysenteric serum in big doses. She returned home and remained in bed very ill, passing frequent stools containing blood, mucus, and pus, for practically a year—that is, until May, 1931. By this time she had wasted until she was almost a skeleton, could not lift her limbs nor do anything for herself, and when I left her to go on my holiday I thought I should not see her alive again. But she slowly improved, and by the summer of 1931 was able to go out in a bath-chair. By the autumn she was able to stand, and weighed then just 6 st. She now weighs (at the time of writing) 11 st. 8 lb., and is able to do a full day's work as a clerk at Messrs. ———. Her recovery has been little short of a miracle, and it is difficult to speak of it without apparent exaggeration. Treatment has been symptomatic only, and there are no discoverable sequelae."

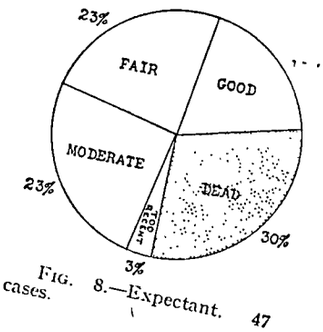


Fig. 8.—Expectant. 47 cases.

Results of Treatment

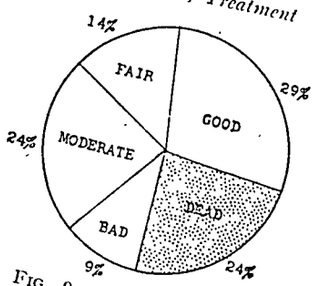


Fig. 9.—Anti-dysenteric serum. 21 cases.

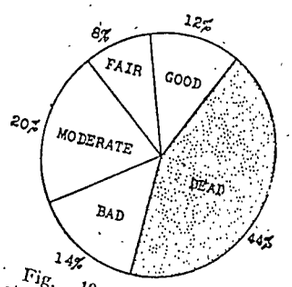


Fig. 10. — Appendicostomy and caecostomy. 25 cases.

The general treatment of the disease has been similar to that elsewhere: prolonged and complete rest in bed; a well-varied, bland, and non-residue diet with high calorie and vitamin content; colon lavage with various substances, bland and medicinal; charcoal, china clay, and other symptomatic remedies by mouth. This treatment we have designated the expectant, and its results are graphically shown in Fig. 8. In twenty-one cases, in addition to expectant measures, polyvalent anti-dysenteric serum was administered intensively on the lines suggested by Hurst; the results are seen in Fig. 9. Surgical treatment was carried out in twenty-five cases, appendicostomy being the operation of choice, but caecostomy occasionally of necessity (Fig. 10). The immediate mortality was high, eight dying within ten days of the operation and the other three deaths occurring six, eight, and fourteen months respectively afterwards. The longest period of survival so far is ten years.

It is difficult to say what the exact indications were for the adoption of the respective lines of treatment, but they appear to have been determined more often by individual preference than by any exact clinical indication. Comparison of the three groups is fraught with fallacies: a mild case would not be deemed a subject for vigorous measures; a more severe case would receive additional treatment; while a case doing badly might call for operation, such as appendicostomy, as a forlorn hope. This will account to some extent, at any rate, for the high mortality occurring in the surgically treated group of cases, and it would be unfair to draw any inference from the figures. The highest proportion of good results occurred after serum treatment, and the mortality in this group was lower than in the expectant group. It will further be noted that there were 9 per cent. of bad results among the serum-treated cases, and that the proportion of fair and moderate results among the survivors was lower than in the expectant group.

An experience of the disease and study of the literature must lead to considerable doubt as to the value of any particular line of treatment, even the time-honoured colon lavage being open to criticism. In our experience in the early and active stage of ulcerative colitis it may prove definitely harmful; for, however bland the fluid and however skilfully it is administered, contraction of the colon is bound to occur with greater or less discomfort to the patient. We have been impressed with the immediate improvement occurring in many cases when colon lavage is discontinued.

The basic principles of treatment are absolute and very prolonged rest in bed for a minimum period of six months, a well-varied diet of high calorie and vitamin content, the judicious use of opium to control an exhausting diarrhoea, and the provision of an adequate supply of fluid to the tissues by mouth, rectum, or intravenously as occasion demands. We are not convinced that serum treatment or surgical intervention has materially improved the outlook of this disease, though brilliant results with either are within the experience of everyone.

Finally, we would especially emphasize two facts: that recovery in ulcerative colitis is invariably slow and rarely complete; and, secondly, that there are few diseases in which a patient can reach such a state of emaciation and exhaustion and yet recover. Patience is requisite and hope justifiable in quite unusual degree.

Conclusions

1. A survey has been made of ninety-five cases of ulcerative colitis coming under observation between January, 1920, and October, 1932. The sexes were represented equally.

2. The disease is essentially one of adult life, the main incidence falling in the age period 21–40 in both sexes.

3. One-third of the patients died during the period under review.

4. The highest fatality rate occurred in the age period 21–40.

5. The mortality during the first year is high (75 per cent.), and thereafter diminishes rapidly with every year of survival.

6. The most unfavourable type of the disease is that showing an acute onset, and the least unfavourable is that characterized by intermittent attacks with complete freedom from symptoms in the interim.

7. Various methods of treatment have been briefly reviewed.

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TREATMENT OF CHOREA BY INDUCED PYREXIA

BY

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The present aim of treatment in Sydenham's chorea may be summarized in a single word—rest. The heart is involved in such a high proportion of cases (50 per cent.)[1] that a minimum of three months' rest in bed has been arbitrarily fixed in all cases, whether or not there is clinical evidence of carditis.[2] Unfortunately it is impossible to attain complete rest in these cases owing to the persistent spasmodic movements. Sedatives of various kinds are used in order to control as far as possible these movements. Of these aspirin, chloretone, and nirvanol have been most extensively used, the last-named having now been abandoned as dangerous.

It was suggested in 1931 by Sutton[3] that instead of the present expectant methods of treatment active measures should be adopted to cut short the attack of chorea. The method she advocated was the induction of artificial pyrexia by T.A.B. vaccine. She claimed that by producing a temperature of 103° to 106° F. each day for seven to ten days the choreic movements are brought to an abrupt conclusion, and the child can be allowed up about two weeks after the commencement of treatment. Granted the truth of these claims, there is yet a very important part of the clinical picture upon which the effect of the treatment must be observed before any conclusion can be drawn as to the efficacy of the method. I refer to the cardiac complications. It might reasonably be supposed that a constitutional disturbance such as is produced by this treatment might have an adverse effect upon the heart, which in so many cases is already affected. Before the method can be generally adopted, therefore, it must be clearly shown that the induction of a temperature of 103° to 106° F. for ten days will not accelerate any existing carditis. This aspect of the problem, not mentioned by Sutton[3] or Bateman,[4] has been given special consideration in this article.

TECHNIQUE

This consists in the daily intravenous administration, for a period of seven to ten days, of T.A.B. vaccine in sufficient quantity to produce a temperature of 103° to 106° F. The vaccine contains in 1 c.cm. *B. typhosus* 1,000 million, *B. paratyphosus* A 750 million, and *B. paratyphosus* B 750 million. The initial dose is 0.1 c.cm. intravenously, which almost invariably produces a satisfactory response. There is a severe constitutional reaction. The patient vomits and develops a peculiarly cyanosed appearance. The choreic movements are markedly increased for the time being. Subsequent doses are increased in accordance with the response to the first injection. An approximate rule is to double the previous day's dosage on each day. The final dose may be as much as 2.5 c.cm. Sutton recommends the administration of aspirin and an ice-bag to the head if the temperature rises above 106° F. With careful attention to dosage, however, this is a rare incident, and did not occur at any time in my series of cases. The injection is given in the early afternoon to enable the subsequent reaction to subside before night, and thus not to interfere with the child's sleep. The constitutional reaction becomes less marked with each injection, until the final injection produces no obvious reaction apart from the pyrexia.

REPORT OF CASES

As space will not permit of the detailed description of all the cases, I have chosen as examples those which appear to throw most light on the subject. The cases have been divided according to Sutton into mild, moderate, and severe. (1) *Mild cases:* Those in which there was occasional twitching of the limbs and face, but no hypotonia or speech disturbance. (2) *Moderate cases: Frequent gross choreic movements of limbs, trunk, and face*, with some disturbance of speech. (3) *Severe cases:* Those in which the movements were so severe and the hypotonia so marked that the child was unable to perform any voluntary movement whatever.

Case 1.—Aged 11 years. History of rheumatism and chorea four years previously. On admission, a typical chorea of moderate severity. Heart sounds normal. Intravenous T.A.B. vaccine in increasing dosage given for seven days. At the end of this time there was marked improvement, there being practically no evidence of chorea. The heart sounds were still normal. Eighteen months later the mother says she has been quite well since discharge. There is no evidence at the moment of any rheumatic manifestation, and the heart sounds remain normal.

Case 2.—Aged 8 years. Admitted on January 5th, 1932, with one week's history of twitching of arms and legs and incoherent speech. No previous history of chorea. On examination the child presented the picture of a severe case of chorea. Heart sounds were normal. A series of nine injections was given, with satisfactory pyrexial response. The movements were diminished at the end of this time, but were still fairly well marked. The patient was kept in bed for two weeks, during which time the movements became slightly worse. A second course of seven injections was therefore given. At the end of this the movements were very slight, and disappeared entirely within a few days—that is, during the sixth week from the onset of the attack. Fifteen months later the child is well, has had no recurrence, and has no evidence of valvular disease of the heart.

Case 3.—Aged 5 years. Had chorea in January, 1930, and was admitted on November 24th, 1931, with a recurrence. Choreic movements of moderate severity. No clinical evidence of cardiac involvement. A series of eight injections was given ranging from 0.1 to 1.5 c.cm. At the end of this time the choreic movements had almost disappeared. The patient was kept under observation for three months, at the end of which time she was again admitted to hospital with a recurrence. T.A.B. treatment was not given on this occasion, and under the usual sedative treatment all movement ceased after a further two months. Now, eighteen months after the treatment with T.A.B., she is in the throes of yet another attack. The heart sounds are still normal.

Case 4.—Aged 10 years. Admitted on January 14th, 1932, with a mild attack of chorea. Previous history of acute rheumatism in June, 1930. Heart enlarged. Blowing mitral systolic murmur conducted towards the axilla with rough mitral diastolic murmur. After a course of seven injections of T.A.B. the choreic movements were no longer in evidence. In view of his heart lesion he was kept under observation at a convalescent home. He was readmitted to hospital on May 26th, 1932, with severe chorea and acute pericarditis. The heart enlarged progressively, and death occurred on July 10th, 1932.

Discussion

The response to treatment in these cases is very varied. Case 1 appears to justify Sutton's claims, since the attack lasted only about seven days without the subsequent development of heart disease. In Case 2 a second course of treatment was necessary. The movements only subsided during the sixth week after the onset of the attack. It is therefore possible that, in the absence of treatment of any kind, the attack would have come to an end by then. Case 3 was under observation during two separate attacks, one treated with T.A.B., the other by the usual sedative measures. The attack treated with T.A.B. lasted about two weeks, that treated by conservative methods two months. This case therefore appears to confirm the claim that the new treatment cuts short the duration of choreic movements. On the other hand, it demonstrates that there is the same liability to recurrence with either method of treatment. Finally, Case 4, whilst bearing out the effect on the choreic movements, shows in a rather tragic manner that the pyrexial treatment has no retarding influence on the course of the cardiac complications. It is even possible that it had an accelerating effect.

Conclusions

The conclusions to be drawn from the results are that the treatment of chorea by artificial pyrexia (1) shortens the duration of choreic movements, (2) does not prevent recurrence, (3) appears to have no beneficial action on rheumatic carditis.

In view of these conclusions it is clear that the method requires exhaustive trial before it can be generally adopted. Its grave danger lies in the tendency to produce a false impression of cure by abolishing the movements, which in themselves are merely a symptom, when serious changes may be occurring in the heart. We do not allow a child with acute rheumatism out of bed as soon as the joint swellings have subsided under the influence of salicylates. In the same way it is undesirable to allow a child out of bed two weeks after the onset of an attack of chorea unless it can be conclusively proved that the treatment which cuts short the choreic movements also cuts short any accompanying carditis. When these facts are borne in mind it is clear that the use of artificial pyrexia has a very limited place in the treatment of chorea.

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TREATMENT OF CHOREA BY INDUCED PYREXIA

BY

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In the *British Medical Journal* of June 10th, 1933, Dr. Donald Bateman gives a description of the treatment of Sydenham's chorea by pyrexia induced by intravenous injections of a triple typhoid vaccine. The following is an account of a case treated by this method. The author intends to apply the treatment to a series of cases, but in the absence of any other suitable ones the experience gained from the first seems worthy of publication.

Case Record

The patient was a girl, aged 9 years. She had had two previous attacks of chorea. The first one, starting in December, 1930, lasted four months. The second, starting in December, 1931, lasted ten months, five of which were spent in a hospital and three in a convalescent home in the country. The present attack started in January, 1933, two months after her return from the above-mentioned convalescent home. The child's mother stated that this attack was worse than either of the other two. When admitted to High Wood Hospital on June 28th, 1933, the child had been continuously in bed for six months—three at home, and three in a general hospital.

State on Admission.—Choreiform movements of the upper part of the body were severe. The child grimaced, waved her arms about continuously, and made writhing movements of her trunk from side to side. Voluntary movements were very clumsily performed. She could not hold a pencil in the writing position, and was unable to put on her bed jacket. There were no movements of her legs, in which there was slight loss of muscular power. Both knee-jerks were absent. Speech was very little affected, except that the child was reluctant to talk, and never did so spontaneously. The condition of the heart was as follows. The apex beat was in the fifth intercostal space, 7 cm. from the mid-sternal line (in the nipple line). The area of cardiac dullness was normal. A soft systolic murmur was faintly audible in the mitral area, and conducted towards the axilla.

Treatment.—The first injection of vaccine was given ten days after admission. During this time no appreciable change took place in the child's condition. She was kept lying down in bed all the time on an open-air balcony. The vaccine used contained 1,000 million typhoid and 500 million each of paratyphoid A and B per cubic centimetre. (This is slightly weaker than Dr. Bateman's vaccine, which contained 750 million each of paratyphoid A and B.) It was administered intravenously, three hours after breakfast on each occasion. The details of the management of the pyrexia were the same as those described by Dr. Bateman, with the exceptions that no aspirin was administered and the intervals between successive treatments were longer. The child was nursed between blankets, and hot-water bottles were used to help raise the temperature. The first injection was 0.05 c.cm. As this produced only a moderate pyrexia (103° F. rectal), 0.1 c.cm. was given next time. The temperature now rose very rapidly to 106°, and in spite of tepid sponging it reached 107° before it was finally brought down with ice-packs. The third injection was the same quantity as the second, and this time the temperature rose rather less rapidly to 105°, and was then successfully controlled with ice and sponging. For the fourth injection 0.15 c.cm. was given, and 105° was again reached. The interval between the first and second injection was two days. After the second injection, which produced a temperature of 107°, it was thought advisable to watch the child's general condition and the state of her heart for a few days before continuing. As no ill effects were observed, the third injection was given ten days after the second, and the fourth three days after the third. During the early stages of the pyrexia the child was very fretful and irritable. She complained of headache, and vomited from one to three times. Later she became drowsy, except during the last bout of pyrexia, when she was so restless and excitable throughout that considerable difficulty was experienced in taking the temperatures. During the second bout a rigor occurred. Sweating was not a very prominent symptom, which probably accounts for the rapidity with which the temperature rose. On the morning following each bout the child felt quite well.

Effect on the Heart.—An examination of the heart was made before and after each bout, and also at the height of the pyrexia. During the first and third bouts there was no evidence of cardiac disturbance beyond a tachycardia, which was not out of proportion to the pyrexia. During the second bout, at the height of the pyrexia, there was slight cardiac dilatation, the apex beat being palpable about one centimetre outside the nipple line. It had returned to its normal position the following morning. During the fourth bout there was again slight dilatation, and the child complained of pain over the praecordium. On the following day the dilatation was still present, although the pain had gone. The murmur at the apex was louder and better conducted than it had been previously. This, however, was presumably only due to a relative incompetence of the mitral valve, for on the next day the apex beat had returned to its normal position, and the murmur was only faintly audible.

Effects on Chorea.—After each bout of pyrexia there was a definite decrease in the spontaneous movements and an increased facility in performing voluntary movements. It is noteworthy that this improvement did not reach its maximum till the second day after the pyrexia. During the ten days' interval between the second and third injections not only was there no further improvement after the second day, but towards the end of this period a slight relapse set in. This was probably attributable to a visit of the child's parents. Two days after the final injection involuntary spontaneous movements had disappeared, except for an occasional twitching of the angles of the mouth, and of the tongue when protruded. Control of voluntary movements was normal. The child could write legibly, and do up buttons with one hand. The effect of the treatment on the paresis was much less obvious than on the movements. There was still weakness of the legs, and the knee-jerks were still absent.

Discussion

In my opinion there is no doubt that, in the above case, the duration of chorea was cut short by induced pyrexia. The attack had continued for six months without showing any signs of abatement, although the child was in bed all this time. It might be suggested that the cure was due to some special factor or factors in the environment of an open-air sanatorium, but the absence of improvement, either before the treatment or between the second and third bouts, makes this hypothesis untenable. Further, to those who would say that so drastic a treatment is unjustifiable in a disease recognized to be self-limited, the author would point out that this child had previously had an attack of chorea which lasted for ten months, although it was stated to have been milder than the present one. The present attack was almost completely cured in three weeks from the start of the treatment; and this period could presumably have been made shorter still by reducing the intervals between the injections of vaccine. Relief from so many months' recumbency was surely an end worth achieving.

When we consider the place of pyrexia in the treatment of chorea in general the question becomes a very different one. Cases as persistent as the one described are the exception, and in many instances the disease clears up after a few weeks of well-managed institutional treatment. Further, it is not always the severest cases that take the longest time to get better. The method has definite disadvantages, of which the most obvious is the discomfort it causes the patient. In the case described this amounted to considerable suffering. Also, there is certainly a risk, though only slight, of the temperature becoming so high that the child's life is endangered. With regard to the heart, there are several points to be considered. In the present case, specially chosen with early cardiac involvement, the pyrexia does not appear to have given rise to any permanent extension of the lesion. The fact that slight dilatation did occur, however, would make one chary of applying the treatment to any case with well-marked valvular disease. Another question is whether a long period of rest in bed is not advisable for every case of chorea, irrespective of the duration of the movements. Besides helping to arrest the progress of endocarditis already present, might not this rest prevent the appearance of the cardiac murmur which is so frequently discovered after the chorea has subsided? In our present state of ignorance of the pathology of rheumatic carditis and its relation to chorea, the practice described by Dr. Bateman of discharging cases of chorea after three weeks in hospital would seem to involve considerable risk. On the other hand, if these cases are to be kept recumbent for a long time after the movements have ceased the value of the treatment seems doubtful.

Conclusions

Although it is unjustifiable to dogmatize from a single case, the author would tentatively suggest the following types of chorea as suitable for treatment by induced pyrexia.

1. Cases with no signs of cardiac rheumatism which show little improvement after four weeks in bed in an institution.

2. Cases with slight cardiac rheumatism in which a period of rest longer than four weeks in proportion to the severity of the heart lesion has produced little improvement.

3. Cases of choreic relapse in which the previous attack or attacks have been of long duration (the heart again being only slightly affected).

The treatment would appear to be unsuitable for cases with extensive valvular disease, especially if active rheumatic carditis or any degree of cardiac failure be present.

With regard to the technique, I would like to suggest the following modifications of the method described by Dr. Bateman. (1) The principle of doubling the dose of vaccine for each new injection may lead to dangerous reactions in some cases. If only one and a half times the first dose is given for the second injection some idea can be obtained from the reaction to this as to how easily the patient acquires immunity to the vaccine, and the rate of increasing the doses may be gauged from this. (2) By spacing the injections with a day's interval between each, instead of giving them daily, it should be easier to assess the degree of improvement obtained after each one; and possibly a smaller total number of injections would prove necessary. For those who do not approve of Dr. Bateman's practice of getting the patients up after two weeks in bed a slight increase in the total duration of the treatment would not matter. With regard to the importance of careful observation and attention to the patient during the course of the pyrexia I am in complete agreement with Dr. Bateman, and would like to re-emphasize this point.

I wish to thank Dr. A. G. L. Reade, medical superintendent of High Wood Hospital, for his consent to the publication of this case.

"BORNHOLM" DISEASE

ACCOUNT OF A YORKSHIRE OUTBREAK

BY

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AYSGARTH

The following is an account of an acute specific infectious disorder of definite and characteristic syndrome, which hitherto has apparently escaped recognition in this country, though it is often recorded elsewhere. As the symptoms, though of brief duration, are initially alarming and perplexing, this paper is written in the belief that it will aid the general practitioner, to whose purview the disease is likely to be confined, in recognizing cases and according them formal diagnosis.

In the early morning of July 24th, 1933, I was called to a farmhouse to see a small boy, 2½ years of age, who had been quite well and lively whilst being dressed, but was then suddenly attacked with pain in the upper abdomen, sweated profusely, and was thought to have had a fit. When he was seen the pain was not so acute, but he seemed limp and ill, and his temperature was 96° F. His respirations were rapid, and appeared to be painful, and he resented palpation of his abdomen. My partner, Dr. Dean Dunbar, saw him shortly afterwards in a return of the acute symptoms, and suggested that the condition was a painful spasm of the diaphragm. We saw him together at 3 p.m. His face was then flushed, his temperature was 101°, and his respirations were 60 per minute; his alae nasi were working, and he had an expiratory grunt and a short cough. Previous to this the case was frankly undiagnosed. The possibility of the ingestion of some poisonous substance, or of an acute abdominal condition, was suggested, but the absence of vomiting

made either unlikely. Now, however—quite justifiably, as I think—we considered the condition a commencing acute pneumonia. At 6 p.m. he seemed better; his temperature was 100°, his respirations were 48, and he had no pain. The next morning he was standing on the window sill, and greeted me cheerily as I came up the garden path. His temperature was 98°, and he seemed normal in every respect. On the 26th he had a return of the symptoms of two days before, with the addition of a pain in the back, which prevented him raising himself from the bed. On the 27th he had violent nasal catarrh, and his evening temperature was 99.8°, but after this date he recovered completely.

In addition to this patient the household consisted of his father and mother and his three brothers, two of whom, aged 4 and 6, were attacked respectively on the 25th and 26th, and two little girls, contacts, aged 5 and 7, on the 27th. It would be tedious to describe all these cases, as they differed very little from the first, but the following is a summary of the symptoms.

1. Onset with very acute upper abdominal pain, which occurred in spasms, and was accompanied by profuse sweating. All the children placed their hands with the centre of the palm over the xiphisternum when asked to indicate the site.
2. Rapid, shallow respiration, obviously extremely painful. Pain on yawning and deep breathing between the spasms. No abnormal signs in the chest.
3. Fever up to 103°, rapidly subsiding, but tending to rise again with a return of the pain on the third day.
4. Absence of vomiting or diarrhoea. Tongues coated, three being of the white strawberry variety.
5. No faucial injection, but nasal catarrh in one child and unilateral conjunctivitis in another.
6. No rashes.
7. Complete recovery in from four to six days, and an absence of sequelae.

On August 3rd the father of the boys, a man of 33, had a sharp pain in his left shoulder at 9.30 p.m. After a good night he awoke with pain at his costal margins and down his arms, but was able to work. In the evening he had a profuse sweat, and the pain disappeared. He had no pain during the next day, the 5th, but in the afternoon of the 6th it returned in the lower ribs, being especially noticeable on deep breathing. He had a very bad night, breathing being rapid at intervals, and accompanied by pain in the epigastrium and lower ribs. On the 7th he was still feeling dizzy and ill, and had definite tenderness over both costal margins. His temperature was normal, although he stated that during the night he was feeling "burning hot" and had an intense headache.

The probable infecting case was a small girl, who visited the family of boys on July 20th, and who spent the afternoon lying on the sofa and crying with pain in her abdomen, but was said to have recovered on the following day. This child came from the York neighbourhood, but all inquiries have failed to elicit information of similar cases. An interval of four days separated this case from that of the first small boy, which suggests a short incubation period.

Commentary

It was clear that we were dealing with an infectious malady of which we had had no previous experience, and which was identical with one described in Scandinavian countries and named after the island of Bornholm in the Baltic, a frequent nidus of the disease. Articles by Dr. Ejnar Sylvest[1] (Copenhagen) gave me the clue to its identification. He considers that in these cases there is an infiltration of the muscles, and names the disease "myositis acuta epidemica." He states that it is more prevalent in the summer and autumn, and estimates that as many as 3,000 cases occurred in Copenhagen during 1930. Looking up his references I find that the disease was first described in the United States in 1888 by Dabney,[2] who suggested rather tentatively that it was a form of dengue, and stated that its local name was "devil's grip." In 1923 references were made to the same disease by Payne and Armstrong,[3] who named it "epidemic transient diaphragmatic spasm"—a very good descriptive title—and by Hangar, McCoy, and Frantz,[4] Torrey,[5] and Greene.[6] In 1924 three epidemics of a somewhat similar nature, but accompanied by a pleuritic rub, were recorded as "epidemic pleurisy" by Bruce Williamson,[7] Lloyd,[8] and Attlee, Amsler, and Beaumont.[9] Beyond these no references have been found in English medical publications.

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PRIMARY THROMBOSIS OF THE SUBCLAVIAN VEIN

BY

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Mr. J. Cosbie Ross's article in the *British Medical Journal* of September 16th gives a résumé of the characteristics of primary axillary vein thrombosis, and usefully summarizes the theories which have been propounded as to its causation.

The following notes are on two cases I have seen of primary thrombosis of the subclavian vein, and possibly of that part of the axillary vein which is impalpable. I have seen or heard of similar cases only amongst undergraduates who row, although the proportion of my patients who engage in other forms of athletics has been larger than that of rowing men.

Case I

A healthy-looking and powerfully built undergraduate of about 13 stone, aged 19, in his second year of rowing, came to see me because his friends in the boathouse had for some days been "ragging" him that his "right arm was growing as big as his thigh"; an observation which might have been disturbing, had not the absence of pain or other symptom for a time permitted a not unnatural pride in what he took to be a further development of his bulging musculature. However, the phenomenon soon began to call for explanation, which I was asked to provide. There was uniform and considerable swelling from fingers to shoulder, slight cyanosis of skin, but no pitting or tenderness on pressure. The radial pulse was good. Superficial veins were prominent over the right pectoral region and axillary chest wall. No thrombosed vein could be palpated, nothing abnormal could be felt or seen in the axilla, and *x*-ray examination was negative. There was no evidence of any associated pathological condition and no constitutional disturbance. I reported the condition to the boy's parents, who took him to London for further opinion, but beyond hearing that he had been forbidden to row again, I lost touch with the case. At the present time he is said to be well.

Case II

In May, 1927, a muscular and healthy-looking undergraduate, aged 19 and weighing over 12 stone, at the end of a year's rowing at Cambridge, woke up one morning to find his left arm swollen and rather cyanosed. He rowed the same afternoon, but next morning the arm ached considerably and swelling had increased. I found his left arm cyanosed and evenly swollen from fingers to shoulder. It did not pit on pressure. There were dilated veins over the pectoral region and antero-lateral chest wall. The radial pulse was good. No thrombosis of the axillary vein could be felt. A report on the skiagram stated that there were old tuberculous glands in the chest and some evidence that the trouble was not quiescent. I found a small rise of temperature (98.8°

in the morning as well as evening for a day or two. Consultant opinion suggested the possibility of pressure on the subclavian vein by tuberculous glands, causing obstruction to lymphatic and venous flow, and sanatorium treatment was advised. Three weeks of this excluded the diagnosis of any active tubercle, and further consultant opinion declared a diagnosis of subclavian vein thrombosis. The arm was massaged, and seven weeks after the onset of the condition all swelling had subsided. In October the patient started rowing again, but at the end of a week the arm had swollen a little and he stopped. Early in January rowing caused some swelling, for which I advised massage. From this time there was improvement and the patient continued to row without recurrence of swelling until he left Cambridge eighteen months later. He reports good health and no further trouble up to July, 1933.

Comment

These two cases presented most of the characteristics of primary axillary vein thrombosis mentioned by Mr. Cosbie Ross, but no "firm tender cord in the vicinity of the axillary vein" could be felt, the thrombosis being presumably in the subclavian vein or possibly in the first part of the axillary vein, which could not be palpated. Both subjects were muscular beyond the average and had good histories, both past and familial. It is unlikely that tuberculous glands in the second case could have caused sufficient pressure to produce a cyanosed and swollen arm without considerable constitutional upset. Moreover, within three weeks of observation at the sanatorium, he was declared to be in excellent health, without any signs whatever of active tuberculosis. Nor does his subsequent rowing career, commencing a few months later, give any support to this possibility.

Of the four theories quoted by Mr. Ross to account for this form of thrombosis, three give the causation as expiratory effort combined with muscular strain, and two of these define the movement causing damage to the vein as abduction of the arm.

In rowing there is little abduction of the upper arm. The amount varies with individual style, but at the worst the abducent movement is not more than 45 degrees from the hanging position. There is, however, a good deal of shoulder play at different parts of the stroke, so that the clavicle, pivoting about the sterno-clavicular joint, goes through a considerable range of movement. At the finish of the rowing stroke the outer end of the clavicle is pulled backwards and downwards, and I would suggest that this action may cause pressure on the subclavian vein as it passes over the first rib, and that such a pinching of the subclavian vein is assisted by the pressure of the backward and downward swinging clavicle against the contracted anterior scalene muscle, combined, as Pearce Gould and Patey suggest, with pressure on the vein by the contracting subclavius muscle.

Idiosyncrasy of anatomical structure, size, or position of bone, ligament, or muscle may be the predisposing factor in all cases of thrombosis from effort; and the fact that nearly all the reported cases are right-handed and of the male sex gives support to the theory of trauma through pressure or pinching by surrounding structures of more than ordinary development. The axillary vein, ending as it does at the outer border of the first rib, is not subjected to bony pressure, and it may be that an axillary vein thrombus has its origin in thrombosis of the subclavian vein.

That the subclavian or axillary artery (and presumably with it, the vein) can be compressed has been demonstrated to me by Dr. A. B. Appleton of the Anatomy School at Cambridge, who, by a certain movement of drawing the shoulder downwards with the arm hanging, is able to stop his radial pulse.

The *British Medical Journal* of November 26th, 1932, contained a report of a paper read before the Pathological Society at Manchester by Mr. Peter G. McEvedy on aseptic phlebitis. This paper, which Mr. McEvedy has kindly allowed me to read, is an interesting contribution to the subject, and deals also with primary thrombosis of the axillary vein. The author, in discussing its causation and pathology, points out that embolism is rare, and emphasizes the importance of ambulatory treatment.

SOME OBSERVATIONS ON WHOOPING-COUGH AND ITS TREATMENT BY VACCINES

BY

R. W. COCKSHUT, M.B.

Whooping-cough kills over 6,000 children every year, and is remarkable for the harshness of its sequelae. The frequency of tuberculous infection of lungs and mediastinal glands is well known, and the possibility of damage which does not at once show itself in any gross lesion is worthy of notice.

The winter of 1932–3 saw an epidemic of great severity. I treated some two hundred cases. At the beginning an attempt was made to keep elaborate records, but this had to be abandoned. Most of the patients were the children of poor people, and, of course, were treated at home. The projected records were to be an attempt to tabulate, for instance, the number of spasms during the day and the night, temperatures, pulse rates, and the approximate average number of expiratory efforts before the whoop. This last, if carried out efficiently on a large group of cases, would be of great value. It was soon evident that this would lead to confusion and inaccuracy, as each case would depend upon a different observer—usually the mother—and a spasm called fearful by one would be almost unnoticed by another. I regretfully came to the conclusion that a more accurate clinical impression would be gathered on my own observations during the visit and by a general questioning of the relatives. For these reasons no detailed percentage list of cures, partial cures, etc., is given. This omission can only be remedied by hospital observation of large numbers of cases *of all types*. Hospital figures are unreliable, because mild cases are not admitted.

The picture of pertussis as an acute infection with or without complications appears to be misleading, and I suggest that pneumonia, for example, is often not a complication in the true sense, but a terminal condition. The child dies or recovers according to the severity of the original infection, his powers of resistance, etc., and not according to the extent or severity of the "complications." In short, whooping-cough, at any rate in its worst form, ought to be regarded as an acute generalized infection. The ordinary course of the disease is one where the whoop is the dominant feature and the patient remains "well" throughout the illness. In the severe type to which I wish to direct attention the patient is seriously ill from the very beginning.

Classification

The severe type, which does not appear to be separated in the literature, might be called the malignant type, and there are five main points which distinguish it quite clearly.

1. *The Whoop.*—This is *never* the dominant feature.
2. *Temperature.*—I know of no disease in which pyrexia is of more importance as a single sign; and suggest that a temperature of 100° or more for a period of four days in the first ten days of the illness is a very serious prognostic omen.
3. *Pallor.*—This is marked and constant and of great gravity.

4. *Loss of Interest.*—This occurs at from seven to ten days from onset, and is so marked in some cases that it is impossible to get the child to follow with his eyes the movement of a favourite toy held before him. It occurs in exact relation to the severity of the case.

5. *Loss of Whoop.*—When this happens in conjunction with the other four signs recovery is almost hopeless. Children with a severe attack of ordinary whooping-cough will cough till they are exhausted and unable to support the weight of the head upright, drooping in their mother's arms, and yet will somehow summon the energy to whoop again in a few minutes' time. But children with malignant whooping-cough do not whoop after a time. They just cough spasmodically, and this loss of whoop is perhaps the most serious sign of all.

Convulsions, though a serious pointer, occur in ordinary whooping-cough, and, indeed, are uncommon in the malignant type, except when due to a terminal meningeal involvement. Instead, therefore, of the classical description of the textbooks of whooping-cough of all degrees of severity, with or without complications, I believe that there are two separate, distinct divisions of the disease—the *malignant type*, where the patient dies of "blood poisoning" and has perhaps a terminal pneumonia or meningitis, and the *ordinary type*, with which we are all familiar, and in which there may be true "complications." The malignant type is, I think, the most appalling of all the diseases of childhood, in its slow, uninterrupted, inexorable progress.

So far I feel that I am on fairly safe ground, but in coming to treatment I feel very differently, and offer my experience with the greatest diffidence.

Vaccine Therapy

For some years I have had what appeared to be excellent results with vaccine, and last winter I was anxious, by careful tabulation, to put the matter beyond doubt. Why that was given up has been explained. What follows is the conclusions reached after attempts to allow for errors due to some parents' belief in anything in a hypodermic syringe, and to some fathers' objections to "anything to do with vaccination." These observations do not apply to the malignant type, in which the life of the child depends on his latent strength and the skill of his nurses. The effect of vaccines in any doses in these cases is, I think, harmful.

The vaccines used in my cases were:

1. *St. Mary's Hospital (Parke Davis)*

Bordet's bacillus	...	500	millions per c.cm.
Influenza ,,	...	250	,, ,,
Pneumococcus ...	...	20	,, ,,

2. *St. Paul's Hospital (Genatosan)*

Bordet's bacillus	...	10,000	millions per c.cm.
Influenza ,,	...	5,000	,, ,,
Pneumococcus ...	...	5,000	,, ,,

The latter is, of course, a detoxicated vaccine, and is twenty times as strong as the ordinary one. There is no danger in vaccines in whooping-cough, and after a reasonable initial dose for conscience' sake enormous doses can be given with safety. Indeed, it is for massive doses that I plead. The largest dose-for-age I have given is 15,000 millions (the figures refer to Bordet's bacillus) of the detoxicated vaccine as a second dose, to a child 9 months old. The dose recommended by the makers is 1,000 millions, so that this was fifteen times the dose suggested. The result was in every way more than satisfactory. Among colleagues who have failed with vaccines I have found that the tendency is to give even less than the recommended doses. To get results it is necessary to give at least five times the ordinary amount. I gave these large quantities to some sixty cases last winter, without any ill effect beyond a slight reaction when using ordinary vaccine. Dosage varies with age, but at, say, 1 year I would suggest second doses of 400 millions of ordinary, and 8,000 millions of detoxicated vaccines, with maximum quantities of 1,000 millions and 25,000 millions respectively. The most startling result of vaccine therapy is seen in the cases which have an acute exacerbation some time after all cough has ceased, and suddenly start to whoop twenty or thirty times a day. A large dose of vaccine has a really dramatic effect. I am persuaded that by use of vaccine the period of the disease is shortened, and there is a marked diminution in the number of spasms in the twenty-four hours, and in the severity of the individual spasms. I think that better results are obtained with ordinary vaccines—that is, non-detoxicated—but I do not feel quite convinced of this. Since I started to use these large amounts I have never treated a case in this way without definite benefit.

There are apparent contradictions in these observations but I am quite happy about this. Clinical observation has always preceded scientific investigation, and I hope and believe that when the reactions of the living organism to infection are fully understood, many things which now appear contradictory and inexplicable will fall naturally into their proper places to form a complete picture.

Nowadays most doctors carry a hypodermic syringe in spirit. It is very difficult to clean and get free from spirit, and this must make a difference to many substances. The following method may be useful. The syringe and case are kept lying in spirit overnight. They are then washed in water and left to dry. When dry, the syringe is put into the case without any spirit at all. As the outside of the barrel only is handled at each injection the inside of the syringe is kept sterile for all practical purposes during a round of visits. A tube of sterile hypodermic points (fitting into the usual adapter) is carried and a clean needle used for each patient.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

A CASE OF PAROTID CYST

Parotid cysts are mentioned in textbooks of surgery, but very few have been described. The following instance may therefore be of interest to readers of the *Journal*.

A man, aged 65, consulted me about a swelling on the face, which he had had for nine months. It was situated on the left side, in front of the lobule of the ear, and was the size of a pigeon's egg. The skin was freely movable over it. Fluctuation was absent. No signs of inflammation were present. I diagnosed a mixed-cell parotid tumour. Mr. D. Patey, who operated on this case, agreed with the clinical diagnosis. At operation a greyish tumour was found. On dissecting this out the knife accidentally pierced its wall and a large quantity of clear fluid escaped. The nature of the swelling then became apparent—it was a large parotid cyst. The cyst wall was carefully dissected away. The pathologist reported as follows: "Section shows a cyst wall of fibrous tissue, lined by a single layer of flattened epithelial cells. Adherent to the outer aspect of the cyst wall are fragments of the parotid salivary gland, showing areas of infiltration of chronic inflammatory cells." After the operation the patient developed an external fistula of the gland. The duct was patent. Saliva was oozing out from the internal orifice of the duct when the patient was tested with food. After six weeks of annoyance to the patient the fistula closed, when he chose to try a liquid diet only for three days. It is now nine months since the operation. The scar is sound, and there is no recurrence.

I wish to express my gratitude to Mr. D. Patey for his kind help in this case.

London, N.W.11. J. Mintzman, F.R.C.S.

ATYPICAL CASE OF CORONARY THROMBOSIS WITH INFARCTION AND RUPTURE OF THE HEART

The following case appears to be worth recording.

A man, aged 62, an engine-cleaner, had enjoyed excellent health up to the night before his death, although recently he had consulted a doctor with regard to "rheumatism" of the knee- and ankle-joints. A few years previously he had successfully passed a medical examination for life insurance. He had never been out of employment, and was well able to do his day's work. On the afternoon before his death he walked into town, a distance of about three and a half miles. On his return home (by bus) he ate a good meal, but shortly afterwards complained of being tired; he retired to bed early in the evening after drinking half a glass of whisky. Next morning he arose at 6 o'clock, as was his custom, dressed, and had breakfast. He was later discovered dead in the water-closet outside the house, having died apparently during the act of micturition. On no occasion had he complained of pain of a cardiovascular type. His wife had never seen him breathless.

Post-mortem Findings

At the post-mortem examination a rupture of the wall of the left ventricle was found; eleven ounces of blood had escaped into the pericardial sac. The rupture was parallel with the septum, half an inch to the left of the anterior descending branch of the left coronary artery, which was completely occluded by thrombosis from a point half an inch from its origin. The rupture measured three-quarters of an inch in length; its edges were frayed, everted, and slightly undermined by clotted blood. It was due to the giving way of a massive infarct, which involved the lower part of the anterior wall of the left ventricle, the lower third of the interventricular septum, and the adjacent part of the right ventricle. On the inner surface of the infarcted area of the septum there was some ante-mortem thrombosis. The infarcted area had dilated, and had formed an acute aneurysm of the heart-wall, which projected a distance of fully three-quarters of an inch. At the actual point of rupture the consistence of the necrotic muscle was practically semi-fluid as the result of autolytic changes. The main coronary arteries showed a moderate degree of nodular atheroma, but in the thrombosed anterior descending artery the condition was extreme; in one particular branch of this vessel only about one-sixth of the lumen persisted. There was some atheroma of the aorta and its main branches, but this was not severe, the main incidence of the disease having fallen upon the coronary arteries.

Microscopically the changes in the left ventricle were characteristic of infarction with rupture. Ischaemic atrophy and replacement fibrosis of the myocardium were not marked. There was no evidence of syphilis (Levaditi) in the heart or aorta.

Commentary

This man had suffered from a complete occlusion of the main trunk of the anterior descending branch of the left coronary artery with a resultant massive infarction of the heart wall. Yet during life there was apparently nothing to indicate the gravity of the condition, or to suggest that a fatal event was imminent.

Such cases of silent coronary thrombosis and infarction, although uncommon, are well known, more especially in connexion with medico-legal necropsies. The explanation of these cases, however, is difficult, seeing that some victims of the disease may die during the onset of the attack and before the additional insult of infarction has had time to make its presence felt, the rapid death being due to shock associated with the severity of the pain, or perhaps to ventricular fibrillation. On the other hand, those who have extensive infarcts may show no symptom of illness, as in the present case. (Levine[1] states that sudden dyspnoea and a feeling of weakness are features of these atypical cases of coronary thrombosis in which pain is absent.)

The reason cannot be altogether that the vessel suddenly occluded was not of sufficient size to interfere seriously with the nutrition of the myocardium; the anterior descending artery is not a small vessel in so far as the coronary arteries of the heart are concerned. In this connexion it might be argued that the reason for the absence of pain and other symptoms of myocardial involvement was to be found in the development of coronary anastomoses and other compensatory changes, which are known to follow atheroma of the coronaries, whereby ischaemia and anoxaemia tend to be prevented. Nevertheless, in the recorded case at least, the compensatory nutritional mechanism had failed, and the death of an extensive area of the myocardium had resulted, apparently without symptoms, including pain—that is, if one accepts the anoxaemic theory of the origin of cardiac pain.

From the point of view of prognosis no reliance can be placed on the general appearance of the individual who suffers from coronary thrombosis, because spontaneous rupture of the heart may occur in those who would seem the least subject to such an accident.

The distance which the man walked while suffering from cardiac infarction, although remarkable, is exceeded in a case of a somewhat similar nature described by Hughes.[2] A dock labourer, aged 49, while working on an oil tanker, suddenly dropped dead from rupture of an infarcted heart. Up to two days before his death it had been his daily habit to walk a distance of six miles to work; this walk had to be discontinued owing to a slight feeling of distress, although up to the end he was still quite equal to his strenuous work on the oil tanker.

I wish to thank Professor Shennan for permission to publish this case.

References

[1] Levine, S. A.: *Medicine*, 1929, viii, 322.
[2] Hughes, F. M.: *Lancet*, 1914, i, 533

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Reports of Societies

EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS

At a meeting of the Section of Medicine of the Royal Society of Medicine on October 24th, with Sir E. Farquhar Buzzard in the chair, the subject taken for discussion was "The Early Diagnosis of Pulmonary Tuberculosis."

Dr. W. Stobie (Oxford) said that a satisfactory conception of the pathogenesis of this disease had still to be discovered. On hardly a single point was there anything like general agreement. As a result there had accumulated a mass of literature which threatened to become overwhelming. Even now, fifty years after the discovery of the causative organism, there was a sharp division of opinion as to the portal of entry of the bacillus and the route of the infection. It was commonly acknowledged that in the vast majority of cases an initial infection occurred in early childhood by way of the air passages, and that consequent on this there appeared somewhere in the lung a primary lesion, which generally underwent a healing process. But from this point disagreement began. For the time being the theory of air-borne reinfection held the field. He confined his remarks to the early diagnosis of pulmonary tuberculosis in adults. There was an inclination to blame the general practitioner for failure to recognize the early symptoms and signs, but the onus of responsibility for failure lay, not with the general practitioner, but with those in authority whose duty it was to make satisfactory provision for the teaching of medical students. Other reasons for failure to detect early cases were the dissociation of tuberculosis work from the general hospital, a possible

change in the type of disease, the economic difficulties of the patients, and the prolonged institutional treatment necessary, which involved long waiting lists. With regard to symptoms, no single one of these was pathognomonic. Any of the classical symptoms might be found in other disorders. There were, he thought, a few symptoms to which too little importance had been ascribed. Aphonia was too often dismissed as a hysterical manifestation, especially in young women. An increase in the rate of the heart—tachycardia rather than palpitation—demanded a careful record of the temperature for a week or ten days. Pain in the shoulder in a patient complaining of being " run down " should not be too readily regarded as of extrapulmonary origin. Anorexia was a frequent early symptom. On the other side of the picture, he was not convinced that the premenstrual rise of temperature was of such great diagnostic value as some believed. It was important to listen carefully to the patient's story, to disregard the modern tendency to rush on to the latest method of examination, and to remember that the dread of consumption created in many patients an overwhelming urge to minimize their symptoms. It was rather the fashion nowadays to discount the importance of family history, but a history of close contact with an actively infectious member of the same household should be taken into serious consideration. In the physical examination no one sign in itself justified a positive diagnosis, apart, of course, from the discovery of the tubercle bacillus in the sputum. With regard to percussion, it was unlikely that in diseases of the respiratory system it would be possible to dispense with this method. Some observers seemed to get the best results by applying the auditory sense, others the tactile. In any case light percussion should be used. An important point to remember in connexion with percussion was that the affected side, even in an early stage, might yield, not an impaired note, but a slightly tympanitic one. A feeling of resistance to percussion, associated sometimes with tenderness, especially over the posterior apex, was a valuable sign of early infiltration. Percussion would not help when the lesion was deep-seated, nor, for that matter, would auscultation. The earliest change in auscultation, in his opinion, was a weakening of the breath sounds, though this in itself must not be regarded as pathological. The signs of early tuberculous infiltration might sometimes be first detected in the axilla. The use of *x* rays should be regarded as part and parcel of a routine examination, and the closest co-operation should be maintained between the physician and the radiologist. A certain amount of valuable information was forthcoming with the screen alone, but it was much safer to wait for the film before coming to positive conclusions. Dogmatic claims that radiology would diagnose an early case before clinical examination could not be justified. It must have been disconcerting to many physicians to have seen from time to time patients with evidence of definite disease to whom a short time previously an unhesitating opinion that there was no tuberculosis had been given on the strength of a negative *x*-ray report. Turning to laboratory methods, he pointed out that the disadvantage of gastric lavage was the length of time that must elapse before report. In the blood picture there was nothing pathognomonic. The complement-fixation test was of little use, and the cutaneous and intracutaneous tests were of doubtful practical value. The dangers of focal reaction to tuberculin had been exaggerated. It was essential to employ all methods of proved value, modern or traditional.

Dr. PETER KERLEY said that the time was ripe to consider the value of radiography in pulmonary tuberculosis, because from the radiographic point of view no further great advance in technique was to be anticipated immediately. The anatomical lesion in early pulmonary tuberculosis varied considerably. He put forward a classification of four *x*-ray appearances found in early pulmonary tuberculosis in the adult. These in order of frequency were as follows: (1) A round opacity in the infraclavicular region, more common on the right side than on the left. Usually there was but one capacity, which might be the size of half a crown; when multiple foci were present the individual ones were seldom bigger than a sixpence. (2) A triangular opacity with the apex of the triangle pointing to the hilum of the lung. This was seen most often between the ages of 18 and 30. Like the round focus, it did not tend to calcify readily. It had been described by American writers as " benign," and by French writers as " dangerous." (3) A collection of small spots, usually arranged in a circular manner and situated deep in the centre of an upper lobe. These were about 2 or 3 mm. in diameter, and only to be differentiated from vascular shadows by the fact that they were ring-shaped. (4) A collection of small spots situated in the apex of the lung. In children (Dr. Kerley continued) the problem of correlating clinical data and *x*-ray appearances was more difficult, because pulmonary tuberculosis was so often associated with glandular tuberculosis. It was now possible, however, to differentiate by radiography between a lesion arising in the lung and a lesion arising in the bronchial glands. The primary lung lesion in children was usually surrounded by a non-specific lobar infiltration. Rarely a round dense opacity might be seen in the centre of the infiltration. A round opacity might also be found without any surrounding infiltration; this was the same lesion as was seen in adults. It was rare in children, but when it did occur was usually situated in the right lower lobe. Glandular tuberculosis in children always produced some pulmonary reaction in the immediate vicinity of the bronchial glands. This pulmonary reaction was seen as an ill-defined opacity radiating from the hilum. It was never sharply defined, and never associated with a complete lobar infiltration.

Dr. J. A. STRUTHERS discussed the subject from the point of view of the tuberculosis dispensary. Many hard things were said about the medical profession, but doctors could hardly be blamed for not diagnosing disease in patients who did not consult them. The more he saw of tuberculosis work the more he realized that its problems were often as much economic and social as medical. Patients put off coming for advice because they were afraid of losing employment or of having a stigma attached to them. He emphasized the importance of family history. Figures had been produced to show that tuberculosis was roughly ten times more common among contacts of open cases than among those who were not known to have such contacts. Attention had been fixed on persons who were not known otherwise to have any illness, but there were also the cases of persons, 50 or 60 years of age, who were said to have chronic bronchitis or emphysema, and then one day they had an attack of influenza, or something that went under that name, and it was found that there were tubercle bacilli in the sputum. More than once, in trying to trace the origin of a case of tuberculous meningitis, he had come across a condition of that sort. Other cases where one had to be on the look out for pulmonary troubles, which might be tuberculous, were cases of gastric ulcer. Pulmonary tuberculosis and mitral stenosis also were not incompatible. At the tuberculosis dispensary there had always to be borne in mind the bias attaching to a single specialty, and such a tendency must be counteracted by keeping in touch with general medicine in all its aspects. He thought it fairly safe to say that if tuberculosis was missed it was never because it was not thought of; the tendency was all the other way. He would even go so far as to say that in a doubtful case every other possibility should be thought of first; the diagnosis also should not be precipitate or hurried. It was usually fairly easy to diagnose a case within a month or six weeks by ordinary textbook methods, and if a case was so near the borderline that that was not possible, it was doubtful whether any great hardship would be done by delay, at least any hardship comparable to that inflicted on patients by diagnosing them as tuberculous when they were not. With regard to the type of case seen at a dispensary as compared with a general out-patient department, he thought that there was a tendency for the earlier type of case to be sent to the dispensary, possibly because of the follow-up work which was part of the ordinary dispensary routine. He

was rather of opinion that the decline in tuberculosis shown statistically might be really greater than it appeared when it was considered that now by routine examination cases were discovered which in earlier days were not discovered at all or were discovered at a later stage.

Dr. R. R. TRAILL (Midhurst Sanatorium) said that the more one saw of phthisis the more one was struck with the truth that its history was the history of symptoms. Many cases of moderately advanced disease had a history of weeks only. From the records of some 3,000 sanatorium cases at Midhurst he had picked out in the histories those points most often missed. Every doctor knew that a cough which lasted more than a month, in spite of the ordinary measures employed for such a common cause as bronchitis, was suspect, but not every doctor seemed to advise his patient to return at the end of a month. The same was true of the symptom of indigestion. About 30 per cent. of sanatorium patients, again, had a history of pleurisy or haemoptysis some three years before admission. A history of amenorrhoea or of fistula-in-ano did not seem to be sufficiently correlated with chest disease. The presence of a fistula was presumptive evidence of chronic disease in a patient of good resistance. The history of patients with such conditions might be a very sad one, as the true cause might not be found until a lung lesion was lighted up under chloroform anaesthesia. It did not need an expert to carry out the simple investigation which might clinch the diagnosis. Rest was the great criterion; by that alone the doctor would be able to differentiate between the active and the quiescent state. Sputum and night sweats were not early signs, and when tubercle bacilli were found the case was already showing late manifestations of lung infiltration. He pleaded for applied investigation based on exercise and rest. The use of the eyes and hands in early diagnosis was of much more value than the use of the ears.

Dr. CECIL BULL differed from Dr. Kerley in regard to the relative frequency of the anatomical lesion produced in early cases. He found that the scattered lesions in the upper lobes or apices were commoner than the triangular type of lesion. He added that the need for co-operation between clinicians and radiologists had been emphasized; he would go further and say that the clinical, radiological, and pathological evidence should all be correlated. Dr. LEONARD FINDLAY pointed out that pulmonary tuberculosis varied very much at different ages, and the generalizations applied to the adult must not be applied to the child. In the case of the child it was not so much a matter of early diagnosis as of diagnosis itself. For all practical purposes the disease in the child was never chronic, but always acute. In a simple pneumonia the physical signs were usually in excess of the radiological; in tuberculosis the radiological signs were always in excess of the clinical. He did not think it was possible to base a diagnosis of tuberculosis in a child on a single film. It was only by observing the case over a certain period that one could make up one's mind as to tuberculosis. Dr. W. E. LLOYD pointed out the extreme importance of haemoptysis in the early diagnosis of pulmonary tuberculosis, and showed several radiograms illustrating the corresponding lesion. In these cases clinical examination was very indefinite, and *x*-ray examination was essential for the diagnosis.

Dr. ROBERT COOPE (Liverpool) said that he had taken 103 tuberculosis cases, hospital and private, and analysed them from the point of view of ascertaining why so many of these cases came late. These were all quite definitely and clearly cases of phthisis, and eighty-six of them were advanced or moderately advanced, while sixty-one had cavities large or small. Of these 103, only five were early cases. If one looked back on their history, all the familiar signs—haemoptysis, tiredness, persistent cough—had been present. Of this number thirty-seven had a history of close contact with open tuberculosis cases. It became clear to him from this analysis that the character of the disease itself did make difficulties in diagnosis, and also that there was a lack of appreciation of the significance of the history. He found, on talking to colleagues, that very often they had suspected tuberculosis, but on going over the chest they had found no signs, there was no temperature, and therefore they allowed, in many cases, the lack of signs to allay their justifiable suspicion of symptoms. As Osler said, one-half of the diagnosis of tuberculosis was to know when to suspect it. Another point was that there was a snare in the stethoscope. Even Thomas Addison complained of "exclusive stethoscopists" who "disdained to make those careful and minute inquiries which no sensible physician ever fails to do." When one found that only five of the 103 were coming up early—and incidentally those five were cases of nurses or students who were more or less on the spot for investigation—those of them who were teachers must feel the need of emphasizing more clearly to students the importance of history, sputum, *x*-ray appearances, and of assessing carefully the real value of physical signs.

Dr. L. S. T. BURRELL said that in his opinion it was often overlooked that the patient who came to the doctor with suspicious signs was ill. He was constantly asked to decide whether a given patient had or had not pulmonary tuberculosis. If he said "Yes" the patient went to the sanatorium; if he said "No" the patient celebrated the occasion at a dinner with his friends. But the fact remained that all these people had something wrong with them, and the crux of the matter was to get the patient well. If they had courage enough to say, "I do not know whether this patient has or has not tuberculosis, but he is in need of treatment," that large gap between negative and positive cases would be filled, and a large number of people would be saved from becoming actively consumptive later on.

FORECASTING EPIDEMICS IN THE TROPICS

A meeting of the Royal Society of Tropical Medicine and Hygiene was held at Manson House, London, on October 19th, when Sir LEONARD ROGERS delivered his presidential address.

Sir Leonard Rogers spoke on his methods of forecasting the incidence of cholera, small-pox, and plague in India, based on the climatic data of the previous year, and the results of four such forecasts recorded early in each year in the *Indian Medical Gazette*. His studies of some fifty years' small-pox data[1] had led him to base his forecasts on the absolute humidity variations during the previous year's monsoon rains, for low rainfall with low absolute humidity lessened the season decline of the disease and led to increased subsequent prevalence. His forecasts had proved correct in about four-fifths of the provinces and areas dealt with, but the increase this year proved greater than he had anticipated. He had therefore made a brief study of the saturation deficiency data, which he had worked out after completion of his small-pox study, and he now found that the latter data appeared to be likely to permit of more accurate forecasts in future than by reliance on the absolute humidity ones. He next dealt with the relation of variations from the normal in the mean monthly temperatures and saturation deficiencies to subsequent plague incidence, as he had found[2] low mean temperatures and low saturation deficiencies led to diminished seasonal decline of plague in the hot season, followed by increased subsequent prevalence. Here once more the results of his yearly forecasts had proved unexpectedly correct, for the successes again worked out at four-fifths of the total of the five plague-infected areas dealt with, and the errors related chiefly to North-West India, where the incidence proved in some years to be less than he had anticipated, due apparently to a definite tendency for the disease to die out there, as it did from Central India a century ago. On the other hand, it seemed likely to continue for some time in the Bombay Deccan. Lastly, he dealt with the still more important subject of cholera, which carries off an average of about 250,000 people a year in India, and which he had shown,[3]

[1] Medical Research Council, Special Report Series, No. 106, 1926.
[2] *Proc. Roy. Soc.*, B, 1928, cii, 42.
[3] *Proc. Roy. Soc. Med.*, 1926, xix, 59, and *Indian Journ. Med. Research*, March, 1928, Memoir No. 9, 1.

from a detailed study with maps of the incidence in forty-five divisions of India for forty-five years, was most closely associated with deficient local rain during the previous year's monsoon. Here his forecasts had given still more remarkable results, as in the first two years they had proved correct in fourteen out of fifteen, and in twelve out of fifteen divisions respectively, and in three of the four divisions in which the disease proved to be rather more prevalent than he expected this was due to subsequent deficient rainfall in accordance with the principles he had laid down. In the third year he had successfully foretold a year of exceptionally low cholera, and the only area of the fifteen in which he anticipated some increase in the disease also proved to be correct. The results of this year's cholera forecast were not yet available. In view of the fact that in none of the four years had there been any material failures of the previous monsoon rains, so that all except one with high rainfall and absolute humidities were very unfavourable for forecasting, the above results were considered to justify further trials of his methods.

MEDICO-LEGAL ASPECTS OF SHOCK

At the meeting of the Medico-Legal Society on October 26th, Sir BERNARD SPILSBURY delivered his annual address from the chair, taking as his subject "Some Medico-Legal Aspects of Shock."

He said that he had chosen this subject because, in many of the forms in which it occurred, shock presented to the medical man one of the most difficult problems for elucidation. In these forms its sudden onset, followed possibly by equally sudden death, allowed little opportunity for observation of the bodily changes which accompanied the process or the mechanism by which death came about. "Shock" was one of the most overworked and misused words in the medico-legal vocabulary. Many deaths stated to be due to shock should be ascribed to loss of blood, exhaustion, injury to a vital organ, or concussion of the brain. Shock might develop gradually, appearing many hours after the cause, such as a severe bodily injury, had operated. In such cases the most striking manifestation was a progressive fall of blood pressure to a level far lower than was found in health. Some of the deaths which occurred after street accidents were to be ascribed to this delayed shock. This form of shock, therefore, was one of very considerable importance, and he referred to it chiefly to point out that the mechanism by which it developed had established clearly that the fall of blood pressure was due to changes occurring mainly in the capillary circulation of the body. The minute vessels became greatly dilated, and at the same time the blood lost some of its fluid portion into the tissues, and so became greatly reduced in volume. The explanation had been advanced that the crushed and injured tissues gradually developed histamines, which by their action on the capillaries produced this series of changes. On the other hand, shock sometimes appeared immediately after the application of a stimulus, and might result in death within two or three minutes of its onset. It was not surprising to find that very different views were put forward as to the mechanism of death in these cases. By some it was ascribed without qualification to syncope; others used the term "inhibition," implying an instant arrest of the vital activities of the central nervous system; whilst nervous reflexes were invoked by others as an explanation. With one form of acute shock—namely, the shock resulting from electrical discharges passing through the body—he would not concern himself at all. It might now be claimed that the phenomena of electrocution were thoroughly understood. The first of four different classes of cases with which he proposed to deal, and in which sudden shock might bring about an almost fatal result, consisted of the group in which shock, and sometimes instant death, resulted from attempts at criminal abortion. These cases were apparently unknown in this country until within the last twenty years, but since then an increasing knowledge of them had arisen. He had himself investigated nineteen fatalities ascribed to this condition. In twelve of these the death was the result of an operation performed upon a woman by herself; in six the operation was performed by other persons (and in five of these cases the operators were convicted and sentenced); and there was one doubtful case. In thirteen of these cases the death was caused by the injection into the uterus of soap solution; the other cases, with one exception, were caused by the passage or attempted passage of an instrument. Sir Bernard Spilsbury then described in detail three representative cases.

The first of these was that of a self-induced abortion by the injection of soap solution. On post-mortem examination it was found that the neck of the uterus was slightly dilated; on opening the body of the uterus there was found to be an intact ovum, with the foetus *in situ*; the membranes were unruptured, but they had been stripped off in the lower part of the cavity for a distance of 2½ to 3 inches, and the space thus formed contained bloodstained fluid. That stripping off had occurred just before the woman died. The appearance of the body immediately after death showed a large amount of lividity, and on internal examination the organs, especially those of the abdomen, were congested. The second case was one in which the operation was performed by another person. Like the first, this woman was very healthy, except that she had some signs of the condition known as status lymphaticus, which possibly might have been a factor in bringing about her death. The neck of the uterus was dilated sufficiently to admit a No. 9 or No. 10 catheter. The ovum was intact and the foetus *in situ*, but the membranes were separated from the wall just immediately around the internal os, and the space was occupied by a small blood clot about the size of a shilling, indicating that the blood which escaped as the membranes separated was unable to find its way down from the uterus and had clotted in position. It appeared from the evidence that this woman had had an instrument inserted some hours previously, and that it was only on its removal that death occurred. The insertion of the instrument had occasioned no pain, and it appeared that in these cases death could not be ascribed to any painful sensations associated with the operation. Here also there was the appearance of external lividity and internal congestion. The third case, again, was one in which the abortion had been carried out by another person. Here the only abnormality discovered was a slight dilatation of the external os, which just admitted the little finger. This woman also had had interference twelve days before the second occasion, on which the fatal result occurred, a syringe containing warm water having been introduced and several injections made. On the first occasion it was stated that she complained of no pain, and she exhibited no nervousness in preparing for the second occasion, which led to her instant death.

Summarizing these deaths from shock during attempts at abortion, one found that the victims were all healthy young women, with no disease to cause or accelerate death, with the exception in the one case of a condition resembling status lymphaticus. In each case there was, immediately on the application, a loss of consciousness, followed rapidly by death. The symptoms were brought about by manipulation of the uterus and the attempted passage of the instrument, except in the second case, when death occurred during the removal of the instrument. Pain did not appear to have been present in any of the cases. In all of them there was evident after death marked lividity of some part of the body, generally the exposed parts, which had no pressure of clothing upon them, and in every case there was marked congestion of all the organs, especially the abdominal ones. With regard to the mechanism of death, the suddenness of the onset and the rapidity of the result in all these cases clearly showed that no chemical explanation could be advanced, that no form of histamine poisoning could possibly be the cause, and the only explanation acceptable was one which assumed some rapidly acting nervous mechanism. Death must be ascribed to a fall of blood pressure, resulting not from arrest of the heart's action, but from the dilatation of the smaller arteries widely or universally throughout the body. The effect of impulses sent from the cervix uteri to the central nervous system brought about some form of local inhibition in the brain which affected the vasomotor centres controlling the size of the arteries, causing these arteries to dilate widely, allowing the blood to escape into the smaller vessels, with a profound fall of

blood pressure, although the heart continued to beat. That explanation fitted in with the external lividity and the engorgement of all the organs. Therefore, in this form of shock, death was the result of a nervous mechanism in which the vasomotor apparatus was paralysed. The unfortunate part was that there was so little chance of treating shock of this kind successfully. The only possible chance was by the establishment of severe compression of the abdomen and limbs, but it was doubtful whether even with these measures life could be saved. Death did not necessarily follow in all cases where shock of this kind occurred, and convicted abortionists had admitted that very often their victims suffered from shock, manifested by fainting, without a fatal result. The experience of anaesthetists pointed to much the same conclusion. In operations on the uterus where the neck had to be dilated the patient sometimes exhibited alarming symptoms. There were three other forms of shock to which he desired briefly to refer. One was the rare form of shock which brought about sudden death from the entrance of a foreign body into the larynx. He mentioned two cases, both in children, in which death was otherwise inexplicable. The mechanism was some form of nervous reflex, and he was rather inclined to view it as a form of shock due to the perversion of the normal cough reflex. Another form of shock resulted from sudden immersion in water. Quite a fair percentage of bodies recovered from the water showed no sign of drowning; there was no water in the lungs, but death was apparently due to the shock of sudden and in most cases unexpected immersion, with the violent passage of water up the nose. This was probably a perversion of the reflex by which sneezing was normally produced. Experienced divers were aware of the necessity for keeping the nose closed when entering the water feet first. The last group of cases to which Sir Bernard Spilsbury alluded were those in which death occurred, sometimes suddenly, as the result of a blow in the upper part of the abdomen. Occasionally such deaths had been met with in boxers who suffered a "foul." This was again a form of shock, comparable to some extent to the shock met with in abortion, and was perhaps due to the blow having affected the splanchnic region, where the nerve complexes of the sympathetic system could be reached. It might be that a paralysis induced locally in that area was responsible for the rapid dilatation of the abdominal blood vessels and a fall of blood pressure, which brought about death.

METHODS FOR RESECTION OF COLON

At a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland, held on October 13th, with the president, Mr. HENRY STOKES, in the chair, Mr. SETON PRINGLE made a communication summarizing the methods which he was at present using for resection of the colon.

He said that the colon must be divided into: (1) colon proper (caecum to upper pelvic colon), and (2) lower pelvic colon. As regards the colon proper, he stated that in all suitable cases he still used his own aseptic method in preference to all others. He showed lantern slides demonstrating the method, and discussed the various objections which had been raised, and the type of case in which the method was unsuitable, and in which it was necessary to use ordinary anastomosis with clamps. For the lower pelvic colon he used four methods. (1) A complete, abdomino-perineal, one-stage resection of the pelvic colon and rectum, exactly as for cancer of the rectum. (2) A method in which, after mobilizing the pelvic colon, the rectum below the growth was controlled by a strong forceps, the handles of which were left projecting through the lower end of the abdominal wound; the pelvis was then filled with gauze protected by rubber tissue, and the peritoneum sutured over this rubber and gauze dam so as to cut off the abdominal cavity (as described by Coffey); the upper end of the pelvic colon was brought through a stab wound, forming an artificial anus. (3) A modified Paul's operation, in which the parietal peritoneum was sutured around the afferent and efferent loops in such a way that marked retraction occurred, and it was easy to restore the lumen of the bowel by the use of an enterotome. (4) A method—which he believed original—for patients in whom, after resection of the growth, there was only a stump of rectum left deep in the pelvis, and where there was some special reason for avoiding an artificial anus. In these cases he invaginated a closed upper end of the colon through the anterior wall of the rectum, this procedure being facilitated by leaving the ligature controlling the end of the colon very long, and by drawing this ligature down through the rectum and out through the anus by means of gauze plugging (as again suggested by Coffey in his No. 2 method for transplanting the ureters into the pelvic colon).

The PRESIDENT, referring to the last method described, asked why the rectal opening was made so low down. Mr. R. ATKINSON STONEY said he thought there was a considerable range of cases in which the last method described by Mr. Pringle might be useful, as it was often very difficult to decide whether a low anastomosis was possible or not. In such cases the operation referred to should be perfectly feasible, and he thought that it was a modification of an operation described by Lockhart-Mummery a good many years ago. The real operative trouble in so many cases of pelvic colon growth was the fact that the patients were often very fat. Dr. R. W. SHAW said that he had given spinal anaesthesia in cases of rectal and colonic resection on nine occasions, with three deaths, each of which occurred three weeks after operation, and could not therefore be attributed to the spinal anaesthetic. In the other six cases the results had been most satisfactory. Percaine was given in combination with nembutal orally, and he thought that cases of colonic resection were essentially ones in which this combination should be used in preference to any other anaesthetic.

ASSOCIATION OF ANAESTHETISTS

The annual general meeting of the Association of Anaesthetists of Great Britain and Ireland took place on October 20th at the rooms of the Medical Society of London, with the president, Dr. H. W. FEATHERSTONE, in the chair, a large number of members being present. The report of the council showed that during the past year the advice and help of the association had been sought on various occasions in connexion with the status and remuneration of anaesthetists in hospital and other practice in various parts of the country, and the part which the association had played in connexion with the London County Council part-time service and the British Medical Association was recounted. A letter was read from an anaesthetist in a northern town describing the most unsatisfactory arrangements, or lack of arrangements, under which he had to work there, both in hospital and in private practice. After discussion it was decided that the matter should be taken up by the council. Dr. H. SINGTON (London) and Dr. GREAVES (Cardiff) raised the question of the separation of the anaesthetist's fee from that of the surgeon.

Dr. HOWARD JONES brought forward the question of anaesthetics in obstetric work, and a full discussion took place, regarding especially the manner in which this might be provided for those women who are attended solely by midwives. Finally, Dr. PROBYN WILLIAMS moved and Dr. KIRKBY THOMAS seconded the following resolution, which was unanimously carried:

> That this general meeting of the Association of Anaesthetists of Great Britain and Ireland views with concern any increase in the administration of anaesthetics by unqualified persons as a danger to the public, and hopes that if the practice is to be extended to midwives it will only be allowed under strict regulations and after adequate instruction.

Dr. C. F. HADFIELD spoke on chloroform capsules; Dr. Z. MENNELL demonstrated a new fool-proof Junker apparatus; and Dr. H. J. MINNITT demonstrated a small, simple machine, which is being tried in Liverpool, for giving gas and air during labour for the production of analgesia.

Reviews

LETTSOM AND HIS TIMES

In 1919 Dr. R. Hingston Fox published *Dr. John Fothergill and his Friends*, which soon became the standard life of the great Quaker physician of the eighteenth century. Mr. James Johnston Abraham now performs the same kindly action for Dr. John Coakley Lettsom, Fothergill's successor in practice, his pupil, and his friend. Mr. Abraham's book[1] is a sumptuous volume, with numerous and well-chosen illustrations. It is, moreover, accurate in the details, for the author has been at infinite pains to verify facts, and by going to original documents has been able to correct the numerous errors which have crept into the accounts both of Fothergill and of Lettsom. We are now in possession, therefore, not only of adequate lives of these two physicians, but we have a picture of Quaker life and of that transition period in English medicine when the learned physician who rarely saw his patient was replaced by the modern physician who examines, diagnoses, and prescribes for him.

Much has already been written about Lettsom, but it was scattered for the most part, and was hard to come by. Mr. Abraham has gathered together all the facts, has set them out anew, and has given us a valuable picture of a most interesting personage and of the times in which he lived. Lettsom's life was very wonderful. Born in 1744 of Quaker parents, at Jost van Dykes, one of the smallest of the West India Islands close to Tortola, he was the elder of the seventh set of male twins which his mother presented to his father, a small slave-owning planter. He was sent to England at the age of 6, and after a time came under the guardianship of Samuel, the younger brother of Dr. John Fothergill. Educated at the Quaker School at Penketh, he was apprenticed to a North Country surgeon. At the end of his apprenticeship he "walked the hospital at St. Thomas," and having gained a certain amount of medical knowledge returned to Tortola on the death of his father. Here he freed his slaves, made £2,000 by practice in a few months, and returned to London. Part of the £2,000 he spent at Leyden, where he gained the M.D. degree, which was unattainable in England because he belonged to the Society of Friends. He settled under the aegis of Dr. John Fothergill, succeeded him in due course, and in the end had one of the largest practices in the metropolis. He married within the Society a young heiress, who made him an admirable and devoted wife. Lettsom died in 1815, in the October after the battle of Waterloo.

It is not difficult to account for Lettsom's success in spite of his birth and unpromising upbringing. He belonged to a small, select, and cultivated religious body, consisting for the most part of the well-to-do middle class, who knew each other intimately. By this body he was esteemed as a clean-living man in an age when debauchery was rampant. He was well spoken, had good manners, some sense of fun, and an innate gallantry, which quickly put him on friendly terms with ladies. The pictures which Mr. Abraham gives of contemporary Quaker life are very charming, and the extracts from Betty Fothergill's Diary are exquisite. But Lettsom as a mere successful physician would long since have been forgotten. Four of his works live after him, and of these Mr. Abraham gives detailed accounts; the Aldersgate Dispensary (the first of the many public dispensaries in London), the Royal Humane Society, the Medical Society of London, and the Royal Sea-Bathing Hospital at Margate. Mr. Abraham asks why the Royal Humane Society restricted itself to the care of "the apparently drowned" Was it not because hangings were frequent and the half-hanged or badly hanged were so numerous that a society established to resuscitate the asphyxiated would have been even more suspect than was the Humane Society itself at the outset of its career?

There are a few trivial errors to be corrected in the next edition. The map on page 35 is upside down; on page 162 "The City Company" should read "Surgeons' Company," lest it be confused with the United Company of Barbers and Surgeons. A. Faree, on page 164, should be Arthur Farre. The Royal Sea-Bathing Hospital at Margate still works under its old constitution, so Mr. Abraham is indebted to the President and Court of Directors for permission to take extracts from the minutes. There were sixteen note-books belonging to the Rev. John Ward, not one, as is stated in the note on page 394. On page 101 "No" should precede "other Nonconformists."

D'Arcy Power.

[1] *Lettsom. His Life, Times, Friends, and Descendants.* By J. J. Abraham. London: Wm. Heinemann (Medical Books) Ltd. 1933. (Pp. xx + 498; illustrated. 30s. net.)

OBSTETRICS AND GYNAECOLOGY

It is pleasing to see that the *Combined Textbook of Obstetrics and Gynaecology*,[2] by four Scottish teachers, has been resuscitated in a second edition after ten years, during which period it was reprinted once. The new edition is enriched by chapters on "The Infant in the First Month," by Professor Charles McNeil, and on "Radiology in Relation to Obstetrics and Gynaecology," by Dr. Duncan White, radiologist to the Royal Infirmary, Edinburgh, as well as by a chapter of particular interest dealing with the causes and factors influencing maternal mortality. The remainder of the book has been revised or rewritten and the whole enlarged by some hundred pages.

The major part of the book is, of course, devoted to obstetrics and gives a very adequate portrayal of the subject. The newer knowledge and theories with regard to menstruation are touched upon, although not very fully described, and the bearing of this knowledge upon irregular haemorrhages is again mentioned in the gynaecological section. The chapter on "The Physiology of Pregnancy," which commanded our special commendation in the first edition, is again one of the best in the book, and gives a well-balanced and lucid account of a difficult subject, upon many aspects of which there are no uniform opinions. The chapter on "The Management of Pregnancy" is short but practical, and stresses the importance of ante-natal care. In the pathological section the subject of toxaemias is well discussed, although, inevitably, it reaches no aetiological conclusion. The outline of treatment is such as to command general approval. The chapter on "The Association of Pregnancy with Disturbances of the Other Maternal Systems" is particularly full and should prove very helpful to the practitioner, as the subject is one of great practical importance and rarely receives the attention which it deserves. The same applies to the section dealing with "The Relationship of Infectious Disease to Pregnancy." The more modern views with regard to the treatment of asphyxia neonatorum receive scant recognition, and it is curious to find three-quarters of a page devoted to a description and illustration of Schultze's method of resuscitation, although the description is introduced by the sentence, "Schultze's method is not now favoured." We had hoped that it was as extinct as it deserves to be. The

[2] *A Combined Textbook of Obstetrics and Gynaecology.* By J. M. Munro Kerr, M.D., James Haig Ferguson, M.D., James Young, D.S.O., M.D., and James Hendry, M.A., B.Sc., M.B. Second edition, revised, rewritten, and enlarged. Edinburgh: E. and S. Livingstone. 1933. (Pp. xii + 1,100; 497 figures and *x*-ray plates. 35s. net.)

section on "Puerperal Infection" is admirably done and is well illustrated by charts, and there is a great deal of most interesting material in the chapter on "Maternal Mortality." Professor McNeil's chapter on "The Infant in the First Month" gives a clear and succinct description of the subject which should be helpful to the young practitioner. The operative section is admirably clear and practical. But there is again evidence that the authors have found difficulty in completely discarding some of the older teaching, as witnessed by the illustration of Bossi's dilator, despite the fact that the text truly states, "We very much doubt if there is any place for this type of instrument."

The section on gynaecology has been brought up to date, and the omissions which we noted in the first edition have been rectified—for example, there is now a description of endometrioma with a reference to the various theories of its causation. Functional bleedings have been well described. Dr. Duncan White's chapter on radiology is brief but to the point, and adds to the value and completeness of the volume.

As a book of reference this ought to be useful to both practitioners and students, although it is too bulky for an ordinary student's textbook and scarcely full enough for the specialist. There are, of course, drawbacks which are inherent in any attempt to combine the description of two subjects in one volume. There are also indications of the difficulty of editing a co-operative volume, but these have been reduced to a minimum. All the teaching is on the soundest lines, as is only to be expected from the experience of its eminent authors. The illustrations are for the most part good, and our general impression of the book is that the present revision has very distinctly improved it.

DIET IN SINUS INFECTIONS AND COLDS

That the nasal mucous membrane is a site where local manifestations of general disorders are frequent is well known, yet this fact often receives insufficient recognition. Dr. ULLMANN makes a useful contribution to the study of this relationship in a book called *Diet in Sinus Infections and Colds*.[3] He bases his argument on the observation that in all cases of colds and sinus infections the patients show symptoms of a marked acidosis, but by this expression he does not mean a gross disturbance in the acid-base equilibrium of the blood, such as occurs in diabetic coma. He finds that acidosis of this degree can be corrected by restriction of salt and choice of suitable food. Excessive consumption of salt disturbs both calcium and water metabolism and causes a hypersecretion of hydrochloric acid, while meat produces acid. The tables quoted from Ragnar Berg, showing the acid and basic values of various kinds of meat in contrast to those of fruits and vegetables, support the recommendations in the choice of foods to avoid this form of acidosis. Canned foods which become acid are to be avoided and the proteins derived from fish and meat reduced. "The diet is directed to counteract acidosis, to increase the effect of calcium in the system, and to prevent an eventual lack of vitamins."

The author puts forward no extravagant claims for the efficacy of his methods, but he makes out a good case for far more attention to diet than such cases usually receive at the hands of laryngologists. The directions for the management of the patients and the application of the diet are given in full and practical detail. The author is not a vegetarian crank, but has made a proper study of metabolism, and he has explored a neglected field to good purpose.

[3] *Diet in Sinus Infections and Colds*. By E. V. Ullmann, M.D. Recipes and menus by Elza Mez. London: Macmillan and Co., Ltd. 1933. (Pp. x + 166. 10s.)

PHYSICAL CHEMISTRY

Beginners in the study of physical chemistry will find Dr. HITCHCOCK'S treatise[4] more than ordinarily helpful. Many who are not mathematically inclined find a difficulty in connecting mathematical treatment with experimental observation. Textbooks too often fail to assist in this step, either for the lack of expressive language or in some cases because the description is too laboriously involved. With an evident natural facility of expression, and with a careful attention to the effect of his words, the author has contrived to give life to the text he has written. It was intended primarily for the use of students of medicine at Yale University, and the selection of subject-matter has been made with special reference to the needs of students of biology and physiology. It provides no instruction for laboratory work, but questions are given at the end of each chapter which should lead the student to explore with interest the corollaries arising from what he has perused. References are given, where it seems desirable, to special textbooks in which more detailed information is provided. Mention of the names of notable men in the history of research and discovery is always accompanied by a footnote reciting the man's connexion with scientific work. This is a very informative book, and is one of the most useful of its kind for the use of those who desire to study physical chemistry in relation to biology and medicine.

DISEASES OF THE BLOOD VESSELS

The New Treatise of Medicine, with the patronage of the names of Professor G. H. Roger, dean of the Paris Faculty of Medicine, the late Professor F. Widal, and Dr. P. J. Teissier, continues on its march. The two earlier volumes of the tenth fasciculus were devoted to diseases of the heart. The third volume, dealing with the blood vessels, has appeared this year.[5] It consists of a series of articles, some of them monographic, by nine contributors, three of whom are attached to the medical school of Lyons, on the diseases of the arteries and veins, prefaced by a summary of their anatomical, histological, and physiological features contributed by Professor Georges Bickel of Geneva. In connexion with the power of the veins to store up the blood not required elsewhere, he refers to the observations made by Wagner more than seventy years ago on the reservoir function of the spleen, which has recently been studied by Binet in France and Barcroft at Cambridge. This is followed by accounts of the diseases of the aorta and pulmonary artery, the article on aortitis is illustrated by four out of the eight coloured plates, and three of them show the characteristic changes which are most prominent just above the aortic valves of syphilitic aortitis.

The title of the volume—The Pathology of the Circulatory System—is rather misleading, for it might naturally suggest that the clinical picture is not presented; this is not so. Thus in his article on aortic aneurysm Dr. Albert Govet of Lyons gives more than double the space to the clinical account that he does to morbid anatomy. Much the longest article, occupying indeed two-fifths of the text, is that on arterial blood pressure by Professor A. Dumas of Lyons, in the general considerations of this important subject an account is given of the depressor nerve of Hering in connexion with the carotid sinus, and then the influence of the various endocrine glands, naturally

[4] *Physical Chemistry for Students of Biology and Medicine*. By D. Ingersoll Hitchcock, Ph.D. London: Bailliere, Tindall and Cox. (Pp. xii + 182, 26 figures. 15s. 6d.)

[5] *Nouveau Traité de Médecine*. Fascicule X. *Pathologie de l'Appareil Circulatoire (Cœur et Vaisseaux)*. Tome III. *Vaisseaux*. Edited by G. H. Roger, F. Widal, and P. J. Teissier. Paris: Masson et Cie. 1933. (Pp. 720; 130 figures, 8 coloured plates. 115 fr.)

MEASLES IN LONDON

At the present time, when arrangements are being made to deal with an expected outbreak of measles in this country, the recent publication by the London County Council of the report of the medical officer of health and school medical officer on the measles epidemic of 1931-2[1] is particularly welcome. The present report, which reviews a very considerable amount of clinical material, serves to collate and bring up to date our knowledge of the disease, and its conclusions will prove of great value in a study of both measles in general and its serum treatment in particular.

The Epidemic of 1931-2

The epidemic—which began in October, 1931, slowly reached its peak in May of the next year, and subsided during the end of August—provided, via the twenty-seven metropolitan borough medical officers of health, information about a total of 55,545 cases of measles. As in previous years the disease was most prevalent in the boroughs containing the large congested areas. Mortality proved highest in the first five years of life, and the disease proved most fatal in the urban districts. During this ten months' epidemic 11,526 cases were admitted to the council's hospitals, giving a reduced case mortality (5.6 per cent.) in comparison with the two previous epidemics. At the peak of the epidemic applications for admission to the fever hospitals were extremely heavy, and, owing to the lack of sufficient isolation accommodation, it was with the greatest difficulty that room could be found for the "contact" cases (persons with one disease and exposed to the infection of another), of which there were a large number at the council's residential schools. Further steps are being taken to provide enough isolation accommodation, and each infectious hospital admitting acute cases will ultimately have suitable room for this type of case, up to 30 per cent. of its total beds.

Dealing with the question of home treatment, the report states that many of the measles cases taken into hospital during the epidemic under review could just as well have been treated at home, particularly if advantage had been taken of the home nursing facilities afforded by the borough councils. The district nurse can provide valuable assistance and advice to the patient's mother, which will have the effect of curbing the spread of the disease among susceptible members of the household, promoting comfort and rapid recovery of the patient, and preventing complications. It is stated, however, that the majority of the children of the working classes in London should, owing to the social and domestic conditions under which they live, be transferred immediately to a fever hospital. Reference is also made to the fact that as a method of control of the disease, school closure (complete or by partial exclusion of susceptibles) can show nothing in its favour compared with the more scientific method of close daily surveillance of school and home, which aims at early recognition and prompt treatment of those infected. Under the heading "administrative measures" the importance of secondary cases is stressed. Fifty per cent. of the fatal cases are secondary cases in the home, and are therefore preventable; and though 30 per cent. of children between birth and 10 years of age escape measles owing to natural immunity, or to the acquisition of a latent immunity during an epidemic, the frequency and fatality of these secondary cases in the home would appear to offer the greatest opportunity for the prevention of death by the use of serum, or by the introduction of hygienic measures before or at the onset of an outbreak.

[1] *Measles.* Report of the Medical Officer of Health and School Medical Officer on the Measles Epidemic, 1931-2. Published by the London County Council. London: P. S. King and Son, Ltd. 1933. No. 2986 (2s. 6d.)

Use of Convalescent Serum

After tracing the history of measles treatment and control—a section of interest to others besides epidemiologists—the report passes to a detailed consideration of the use of serum. This resolves itself into treatment of children "at risk" (that is, susceptibles exposed to the disease) and of those who have already developed the disease. It is emphasized that though serum is of practically no value after the disease has been established, it offers the most effective means to those who are exposed to measles and are incubating it. Given within four days of exposure, and in sufficient quantity, it will prevent the disease developing; given between the fourth and seventh days after exposure, or earlier but in insufficient doses, it will not prevent the disease developing, but will result in a disease so mild that the invasive symptom or the rash may often be overlooked. The immunity from early use of serum is only temporary, and reinfection some weeks later may produce an ordinary attack; but if the child is allowed to develop the disease, however mild the attack may have been, he becomes permanently immune and will not be reinfected on subsequent exposure. Both methods, of course, have their value. The report indicates the advantage of adult in contrast to convalescent serum. Serum from the latter was short during the epidemic reviewed, and opportunities arose of observing the results of this adult serum in a series of 1,47 cases, in 1,133 of which prevention, and in 342 of which attenuation, was required. Controls were provided by 680 cases in which convalescent serum was used, and 207 uninfected contacts.

A statistical analysis of the results is presented in Part II of the report. Briefly, the conclusions are that 90 per cent. prevention was secured by convalescent serum and nearly 80 per cent. by adult serum; further that adult serum used in prevention yields approximately 70 per cent. better results than those in the untreated control data. To quote the report, "We have in adult serum a valuable therapeutic agent which can be used in the treatment of measles on a larger scale than is possible with human convalescent serum . . . both [convalescent and adult serum] have their therapeutic uses, either as preventive of measles or in controlling the type of the disease at the onset." It is stated in one of the "special papers" that adult serum in its protective and attenuating action is only slightly inferior to convalescent serum. Six special papers with extensive protocols are provided in this report, which forms in every respect—completeness included—an extremely valuable contribution to the literature of measles.

The eighty-sixth annual report of the Lester Chinese Hospital, Shanghai, outlines the first year of work in the new hospital buildings containing 225 beds and equipped on modern lines. During 1932, the year under review the local hostilities in February and March increased the number of cases of gunshot wounds in soldiers and civilians; traffic accidents, however, were fewer in 19 than in the two previous years, and the number of attempted suicide cases fell. The total of out-patient visits was 146,475, and of operations 3,058. The number of new patients was considerably in excess of that in the previous year. More beds have now been made available for women, and a new midwifery department of nineteen beds has been brought into being. The beds for male patients are still almost entirely occupied by emergency cases, leaving few for suitable cases from the out-patient department. There is urgent need of a hospital for incurables and for severe cases of nerve diseases, as well as for the more chronic maladies. The clinical laboratory work has increased in amount and efficiency, close co-operation being maintained with the Henry Lester Institute of Medical Research, to the useful investigations of which previous reference has been made in these columns.

British Medical Journal

SATURDAY, NOVEMBER 4th, 1933

THE COMMON COLD

At this season when the commonest of human ailments is resuming its usual winter sway, we may appropriately take stock of the position which has been reached in investigating its cause In this we have the help of Dr A R Dochez, whose Thayer Lectures, now published [1] were devoted to "a limited consideration of certain aspects of acute infection of the respiratory tract," and particularly to the common cold Dochez introduces his argument by contrasting the successful control in civilized communities of intestinal infections such as dysentery and enteric fever with the undiminished incidence of infections of the respiratory tract We have found the means to purify our water and food supplies, but none for the air we breathe To carry reflection on this point a little further, it is quite arguable that no measures other than the provision of a clean air supply will ever materially improve the position The free and profuse interchange of respiratory tract bacteria under winter conditions in crowded communities is the cause of these infections, among sparse and scattered populations they are much less frequent, although the flora of the individual respiratory tract does not appear to differ in the two types of community It may well be that the identity of the causative micro organism is of less consequence than its repeated transference from person to person a process which is known in the case of many bacteria to cause an increase in their virulence The example of cerebro spinal fever can be cited in support of this argument Under hygienic conditions the carrier of epidemic strains of the meningococcus may be harmless, under conditions of overcrowding and bad ventilation he infects others, but something more than chance infection of susceptible individuals is concerned in an epidemic, for Flack and Glover's observations showed that the disease only appears in this form in barracks when the proportion of carriers has notably increased It is clear that free and probably repeated transference of the causal organism is an important factor in producing outbreaks of this disease

Dochez, however, does not consider the common cold from this aspect, his purpose is to review the observations by which we may claim to have identified its cause in a specific micro-organism In his belief this organism is a virus, but he appears inclined also to credit bacteria with a larger share in producing the manifestations of the disease than has been customary among adherents of the virus hypothesis this new attitude owes much to the demonstration by Lewis and Shope that swine influenza can be produced experimentally in typical form only by an inoculum containing both the virus of the disease and *H influenzae*, an organism constantly present and formerly believed to be its sole cause That such "co operative undertakings," as Dochez calls them, are represented in human respiratory tract infections there seems to be no doubt, and to recognize this is to reconcile the two *antagonistic views of their causation, especially if it* be granted that the attack by the two agents is simultaneous, and not merely that bacteria follow in the wake of the virus as "secondary invaders"

The point at issue now is not whether a virus or a visible bacterium causes the common cold, but whether the disease has any constant microbic cause at all The tacit assumption by advocates of the virus hypothesis that a virus is *always* concerned does not appear to be justified The only method known of demonstrating such a virus is the inoculation of apes or human volunteers with filtrates, and its results are inconstant in Dochez's own experiments with apes forty four such inoculations yielded only twelve colds It is surely reasonable in the present state of knowledge to grant that a cold may be caused either by a virus or by bacteria, or by both It is in accordance with everyday experience—since every bacteriologist knows that the earliest secretion may be either swarming with pathogenic bacteria or entirely void of them—and with common sense, for, after all, why deny to the pneumococcus the capacity to cause acute inflammation of the nasal mucosa when it is accepted as the cause of lobar pneumonia and a dozen other conditions? This is also the only hypothesis which can be reconciled with the fact that the average person has two or three colds every year What disease is there, caused by a single specific agent, recovery from which confers immunity for no more than a few months? This is perhaps the strongest reason for regarding the common cold as a disease of multiple aetiology To deny this is tantamount, from the immunological point of view to a counsel of despair, for if the same agent is always concerned, and a natural attack affords so fleeting a protection, what hope is there for any method of artificial immunization?

A retrospect of the past ten years compels the candid observer to admit that searching for the cause of this complaint in some specific infection has helped not one whit in disarming the commonest reproach flung at the medical profession Since there is at least a possibility, as we have already suggested, that colds are to be attributed rather to conditions of microbic spread than to any specific bacteria or viruses, and that nothing short of a "clean air" campaign would materially reduce their incidence, something of more practical value might emerge from further study of the conditions governing *air-borne infection and means* of preventing it Must we be content to assume that the inhalation of innumerable bacteria from the throats and noses of other people is inevitable? Devices exist which claim to be capable of sterilizing air conveniently

[1] *Medicine*, 1933, xii, 245

and at low cost, and improved ventilating systems may achieve the same purpose, though it is perhaps too much to hope that either of these measures can yet affect conditions in the home or in certain types of vehicle. Meanwhile, until the engineer, working under laboratory guidance, has produced some practicable means for the control of air-borne diseases, we may recall the view, held by many experienced clinicians, that the common cold in its earliest stage is a local infection which can sometimes be aborted by prompt local measures, and the view, also held by many, that the resistance of the respiratory mucous membrane to pathogenic micro-organisms may be improved by general measures, dietetic and hygienic.

TREATMENT OF HEAD INJURIES

We publish this week in our opening pages the paper on treatment of acute head injuries read in the Section of Surgery at Dublin last July by Mr. Geoffrey Jefferson, one of the foremost exponents of cranial surgery in this country. The outcome of Mr. Jefferson's large experience of these cases will be read with the close attention it deserves, and we need do no more than note here his insistence on one cardinal principle: that the outstanding consideration in any head injury is "the problem of traumatic stupor: how has it arisen, what does it mean, and how shall it be dealt with?" It may, however, be of interest to give in brief outline, for purposes of comparison, some of the conclusions set before an audience of the same kind by Dr. Walter E. Dandy of Baltimore, in a paper read to members of the American Medical Association during the annual meeting at Milwaukee in June.[1]

Dr. Dandy's first point was that damage to the skull is by itself a relatively minor matter. Danger arises from lesions of the brain and blood vessels. Search for linear fractures, by operation or skiagram, is almost always useless. Only in depressed fracture—the one important bone lesion—are skiagrams helpful, but even here inspection and palpation are almost as satisfactory. Attempts at standardization of treatment are, in Dr. Dandy's view, often misleading. In diagnosis and treatment "each case is a law unto itself." Constant clinical observation is preferable to skiagrams and lumbar puncture. The effects of head injuries are immediate and late. During the first stage efforts are made to preserve life; afterwards, to preserve function. In acute stages a rising intracranial pressure threatens life; this is due to (1) haemorrhage, and (2) oedema, both produced by trauma. Nature's method of combating increased intracranial pressure is by withdrawing fluid from the ventricles and subarachnoid spaces. If intracranial pressure increases beyond Nature's power to counter it, death ensues. Hence the surgeon's duty is to estimate, as accurately as possible, when compensation is failing; at that point treatment becomes imperative. In coming to a right clinical judgement the following observations are needed: (1) state of consciousness; (2) restlessness; (3) involuntary micturition and defaecation; (4) pulse rate and quality; (5) respiration rate; and (6) temperature.

Of the objective data Dr. Dandy regards the state of consciousness as much the most important. Unconsciousness indicates pressure beyond the margin of safety. Deepening coma indicates that the patient is becoming worse; conversely, return to consciousness shows improvement. (Here he is in complete agreement with Mr. Jefferson, who says: "So much is the depth of unconsciousness the one and essential primary clinical point in head injuries that it can be said that immediate anxiety is almost at an end when consciousness is regained.") Loss of sphincter control points to an alarming degree of intracranial pressure; restlessness heralds the approach of coma, and morphine is then as dangerous as in abdominal lesions. Tachycardia, arrhythmia, irregular and Cheyne-Stokes respiration, all indicate a rising pressure. The body temperature is a still more sensitive indicator; it should be taken per rectum every fifteen or twenty minutes during the critical periods; when it is below 102° F. pressure is compensated. Every degree above this spells increasing danger. Dr. Dandy finds blood pressure readings of little value. External wounds should be cleansed, devitalized tissue removed, and the wound closed to exclude infection. When life is safe, depressed fractures of any magnitude should be elevated. The only acute cranial injury in which the cause can be removed is extradural haemorrhage. This may be rapidly fatal; therefore it calls for immediate removal of clot and ligature of torn artery as soon as the diagnosis has been made. Usually the patient recovers consciousness after the injury, but deepening coma supervenes. Paresis of the opposite side occurs, beginning with the face and spreading to the arm and, possibly, the leg. Convulsions may occur in the same order. Spontaneous recovery is not infrequent, though epilepsy is a common sequel. The majority of cases of acute intracranial pressure are due to causes other than extradural haemorrhage, and it is here that practice differs most widely. Dr. Dandy deprecates lumbar puncture and intravenous hypertonic solutions: "No patient has been saved by either method." Absolute rest is, in his belief, the only safe treatment. Of all patients with severe injuries, 70 per cent. will recover spontaneously: if left alone, the remainder will die, but, of these, 10 per cent. may be saved by early and skilful subtemporal decompression. If a patient is going to die within five or six hours there will be no possibility of saving him by operation, except in extradural haemorrhage. If, after this period, consciousness improves or remains unaltered, and rates of pulse and respiration and blood pressure keep within the limits of compensation, the prospect of spontaneous recovery is good.

Perhaps the gist of Dr. Dandy's teaching on this subject—which he has developed more fully in vol. xii

[1] "Diagnosis and Treatment of Injuries of the Head," *Journ. Amer. Med. Assoc.*, September 2nd, 1933, p. 772.

of Dean Lewis's *System of Surgery*—may be put in the words of Professor A E Boycott's recent inaugural address at University College Hospital "The body responds to injury in such ways as are appropriate to getting over the difficulties which are presented to it and to healing the injury The body, in short, behaves sensibly When the body finds itself in trouble it does things which are helpful, this is a law of injury and disease which in its own field is as valid as the law of gravity"[1] Absolute rest, Dr Dandy holds, is the most important aid that can be given to Nature's efforts to compensate for increased intracranial pressure Careful and frequent bedside observation will disclose at all times the state of the intracranial pressure, and will usually enable the surgeon to recognize and deal promptly with extradural haemorrhage. In the remaining cases active intervention should be avoided, unless Nature shows unequivocal signs of failure It is particularly interesting to note Mr Jefferson's cautious reference to intravenous hypertonic salines and his disagreement with "whole hearted dehydrators" He said. "I do not wish to condemn hypertonics entirely, I ask only for their intelligent use, and I say the same of lumbar puncture" Equally important was his statement, made in replying to the discussion, that he had had no intention of advising frequent intervention in acute head injuries Neither then nor at any time had he believed that anything like routine operation was desirable Those who now study his paper with due care will scarcely need this disclaimer, because it is evident that Mr Jefferson, while uneasy at the relative frequency of acute subdural bleeding, does not wish too free an interpretation to be placed upon his advice to "regard every head injury as a potential subject for operation"

X-RAY AND RADIUM PROTECTION

Since the general adoption of the recommendations of the X Ray and Radium Protection Committee, and as a result thereof, the health of workers in x ray departments has very definitely improved Unfortunately there is still much lee way to be made up, and all over the country x ray departments are still in existence that have failed to bring themselves up to date in matters of protection Even to day the most scrupulous supervision has to be exercised over public bodies who are contemplating the installation of radiographic departments There is, however, a growing recognition of the need for care in all branches of radiological work Moreover, much work has been done in recent times on the condition of the blood in *x*-ray and radium workers, in particular the work of Mottram, Canti, Simpson, and Phillips We are being introduced to quite a new conception—namely, the constant and rapid changes that take place in the condition of the blood even in health—and the outlook is hopeful But until there is the assurance that all x ray departments are well ventilated and the workers properly housed (the tendency to utilize basements dies hard) the *X*-Ray and Radium Protection Committee feels that it dare not make any marked change in the existing recommendations In its most recent recommendations (published this week at page 838) the committee does not, however, insist as strongly as hitherto on the six monthly examination of the blood of workers in x-ray departments, provided that in all other respects the recommendations are being faithfully carried out In the case of the radium worker the matter is left as before, and a three monthly blood count is still recommended

The committee has had a great deal of support in this and other countries for the general lines of safety which it has prescribed It has throughout taken up the attitude that there is no reason for workers in x ray or radium departments to anticipate anything prejudicial to health from their occupation, provided that the measures of safety laid down are meticulously regarded

[1] *Lancet* October 7th, 1933 p 846, *British Medical Journal*, October 14th p 698

RADIOLOGIST'S CANCER

Antoine Béclère,[1] who for a quarter of a century has been a member of the Academie de Médecine of Paris, with the weight of much observation brings forward arguments in favour of the view that the occurrence of cancer in the areas of skin damaged by exposure to x rays is a complication due to an entirely different and invisible factor, and is not the last link in an uninterrupted chain of chronic inflammatory and hyperplastic changes His thesis is fortified by a valuable and practical account of the clinical characters and course of the lesions occurring in radiologists He points out that, although the number of fatalities among radiologists is deplorable, it is small as compared with the total of those who present so called chronic radiodermatitis Further, there is a want of proportion between the degree of the cutaneous lesions and the incidence of carcinoma, some radiologists with very slight previous cutaneous changes are attacked by carcinoma of the skin, whereas others with very extensive and well marked skin changes escape malignant disease Acute radio dermatitis is by no means a constant event in the history of those who become the victims of radiologist's cancer, and Beclere denies that the chronic lesions on the hands and exposed parts of radiologists are really inflammatory, he regards them as essentially atrophic and much like those in the glossy skin due to nerve lesions, and lays stress on the devitalizing and destructive character of the cellular effects of x rays In the majority of cases the appearance of cancer is preceded by destruction of tissue, leading to a chronic indolent ulcer, which after many months or years suddenly becomes malignant, in a minority of instances there is exactly the reverse antecedent condition—namely, a radiological wart, at first minute, arising on an area of more or less atrophied skin These warts, which may be multiple, are very persistent and slow growing, and often it is not for years that definite malignant change with very severe pain supervenes

[1] Beclere, A *Bull Acad de Med*, Paris 1933 cx, 156

THE TRAFFIC IN NARCOTIC DRUGS

The Council of the League of Nations recently held its seventy-sixth session and the Assembly of the League its fourteenth session, and a report[1] was received by the former from the Permanent Central Opium Board on its work, with the statistical returns for the year 1932. While criticism is often directed against some of the activities or inactivities of the League of Nations there is general commendation of the efforts it is making to restrict the use of dangerous narcotic drugs to medical and scientific purposes. It is interesting to recall that it was its early concern for the traffic in opium and other dangerous drugs that drew the United States into association with the League, while remaining outside its membership. The Central Board, over which Mr. L. A. Lyall, the British representative, continues to preside, records the coming into force of the new Limitation Convention on July 9th last, but finds already that its provisions are not free from ambiguity. New statistical forms have been prepared by the League's secretariat in order to secure returns of the national requirements of opium, morphine, heroin, cocaine, etc., for strictly legitimate purposes; but "that the new forms are free from blemish is more than the Board dares to hope." The returns for the year 1932 show for Germany a very considerable increase in the manufacture of all substances and in the quantity of morphine remaining as such. The United States and France, on the other hand, record considerable decreases, while Great Britain shows that the manufacture of all substances dealt with by the Convention had increased in 1932. The total manufacture of morphine in Great Britain in 1932 was 1,292 kilograms, of which 870 kilograms remained of morphine as such, after deducting the amounts used in the preparation of heroin and of substances not covered by the Convention. The manufacture of cocaine in Great Britain has increased from 238 kilograms in 1929 to 395 kilograms in 1932. The Netherlands and Switzerland also produced more cocaine in 1932 than in 1931. The chief anxiety of the Opium Board, however, centres on China and Japan. The illicit manufacture and import of drugs in the former, and the high consumption of heroin and cocaine in Japan, as well as the export trade of the latter, call for careful investigation and scrutiny.

ANAEMIA IN PREGNANCY

It is only of recent years that the importance of anaemia as a complication of pregnancy has been fully appreciated. Osler recognized that a severe primary anaemia ("which he called "the severe anaemia of pregnancy") did occur in pregnancy apart from concurrent anaemias due to excessive blood loss. The onset of the anaemia may be most insidious, and show itself only by symptoms of breathlessness, oedema, and gastric disturbance, which may be attributed to some other cause or even to the pregnancy itself. The first suspicion of anything wrong may be occasioned by the sudden, and possibly fatal, collapse of the patient. The onset of the anaemia may be very acute, and cases have been reported in which the symptoms simulated very closely those of a severe intra-abdominal haemorrhage. The anaemia is most likely to show itself during the seventh and eighth months of pregnancy, and it is during this time that the foetus lays down the greater part of its store of iron. That the pregnancy is the cause of the anaemia there can be no doubt, but there must be a predisposing factor. Strauss and Castle,[2] in an extremely interesting study of anaemia in pregnancy, attempt to show that in these cases there is some inability on the part of the mother to assimilate iron. In a series of gastric analyses on pregnant women they find a connexion between deficiency in normal gastric function and the presence of anaemia. In 75 per cent. of their cases there was a definite reduction in the secretion of free hydrochloric acid; in 80 per cent. there was an increased concentration of the acid immediately after parturition. In a further investigation on thirty-six cases of anaemia in pregnancy they found that in thirty the anaemia was of the chlorotic type, the features of which were mainly due to defective blood formation. Six had a macrocytic anaemia and a blood picture resembling that seen in Addisonian anaemia, but differing from it in its occurrence in association with pregnancy and in its disappearance and the absence of collapse after parturition. Achylia gastrica is not found as uniformly as in Addisonian anaemia. Over two-thirds of the patients had poor diets, and more than half were unable to secrete free hydrochloric acid. Strauss and Castle found that the chlorotic type of anaemia was completely relieved by the administration of iron in large doses. The macrocytic type is presumably due to a temporary lack in the gastric juice of the specific intrinsic factor which has been shown to be absent from the gastric juice of patients with Addisonian anaemia in relapse. The ultimate complete return of this factor after parturition is hypothesized. The macrocytic anaemia of pregnancy may be completely relieved with liver extract, though iron is sometimes required as well. These investigations bring out the importance of an optimal diet, and one especially rich in proteins and iron-containing foods, for the prevention of anaemia in pregnancy.

ALCOHOLIC NEURITIS A DEFICIENCY DISEASE?

Since the original description of the disease by Lettsom in 1787 peripheral neuritis has been recognized as a not uncommon result of chronic alcoholism. It has usually been assumed that it resulted from the direct poisoning of the nervous tissue by alcohol or some other constituent of the liquor imbibed. Minot, Strauss, and Cobb,[2] as a result of a study of fifty-seven cases, put forward the view that the peripheral neuritis may result from the defective absorption of some essential factor, consequent upon the chronic gastritis and inadequate diet of the patient. They point out that the disease starts less frequently in June, July, and August than in any other months, and that the patients have all been taking grossly inadequate diets for some months previously, their food consisting largely of carbohydrate. Only seven of their forty-three cases in which a gastric analysis was performed had a normal amount of hydrochloric acid in the gastric juice, and twenty-one (49 per cent.) had complete achlorhydria. The authors formed

[1] Allen and Unwin, Ltd. (4s.)

[2] M. B. Strauss and W. B. Castle: *Amer. Journ. Med. Sci.*, November, 1932, p. 655; April, 1933, p. 529.
[2] *New England Journ. Med.*, June 29, 1933, p. 1211.

the opinion that cases improved more rapidly on a high protein diet with a high vitamin content than with other treatment A striking resemblance exists between the clinical symptoms and signs of alcoholic peripheral neuritis and beri beri which has been proved to be due to deficiency in B_1 vitamin It is almost certain that pellagra is in part the result of a deficiency in B_2 vitamin while evidence is plentiful that subacute combined degeneration of the cord results from a defect in some essential factor Further the histological changes in the brain in cases of chronic alcoholism have been shown to resemble those found in pellagra The thesis is thus put forward that the primary effect of the patient's alcoholic indulgence is to damage the gastro intestinal tract and to reduce the diet to inadequate levels The resulting deficiency may produce in different individuals a degeneration of a predominantly peripheral type when 'alcoholic beri beri" results or on the other hand, a predominantly central degeneration, when alcoholic pellagra" (Korsakoff's syndrome) is seen What determines the widely differing pictures thus produced the authors do not suggest Their view is unquestionably an interesting one and if it is substantiated may well be a step towards the elucidation of other obscure degenerative lesions of the nervous system

TUBERCULOSIS IN CATTLE

The high incidence of tuberculosis in cattle and the severe toll levied on the human population of this country by the bovine tubercle bacillus have been emphasized in several recent publications So far as the prevention of tuberculosis of bovine origin in human beings is concerned opinion has rapidly been crystallizing in favour of the pasteurization, or other efficient heat treatment, of all milk not coming from tuberculin tested herds, but though this policy may be successful in its immediate aim, it does not touch the root of the problem—namely, the eradication of tuberculosis from the cattle themselves When it is realized that some 40 per cent of bovine animals in Great Britain react to the tuberculin test, the magnitude of the problem will be appreciated Owing partly to the cost involved and partly to the shortage of milk that would result no summary eradication method is feasible, and recent proposals have envisaged a gradual elimination of tuberculosis by the building up of non infected herds That this method is capable of producing very real results is admirably exemplified by the recent experiment promoted by the Medical Research Council and carried out in Ayrshire by Dr L Jordan, veterinary pathologist to the Hannah Dairy Research Institute[1] Briefly, the experiment consisted in attempting to eliminate tuberculosis from a number of milking herds in a well defined area by testing all animals with tuberculin, dividing each herd into an infected and a non infected group, gradually getting rid of the positively reacting animals and replacing them by young non infected stock bred by the owner himself The method adopted was in essence similar to that associated with the name of Bang Free tuberculin testing was provided every six months, and free advice on methods of isolation disinfection and rearing of stock was given by qualified veterinarians No incentive was held out of a higher price likely to be obtained for the milk of tuberculosis free animals, nor was undue pressure brought to bear on owners to dispose of valuable reacting cows until after they had calved unless clinical evidence of tuberculosis was present The experiment was carried on for three years and involved thirty herds of cattle containing at the start 1,475 animals At the first test 26 1 per cent of reactors were found, and only eight herds proved to be non infected At the seventh and last test the proportion of reactors had fallen to 12 3 per cent and no fewer than twenty herds were free from tuberculosis These figures are especially creditable, since two of the owners failed to co operate with the result that the proportion of reactors in their herds rose during the three year period, reaching figures of 54 7 and 61 6 per cent respectively Apart from the actual diminution in the numbers of reactors other advantages were noted such as improvement in the general health of the animals and appreciation in the value of the stock enabling non reactors to be sold at a considerably higher price than would otherwise have been obtained The cost incurred by the owners was slight, and was in many instances more than compensated for by the increased value of the stock This experiment has demonstrated the efficacy of a method for dealing with tuberculosis in cattle that would be applicable on a wide scale Its adoption would undoubtedly constitute a great advance on the Tuberculosis Order, 1925 which practically all authorities are now unanimous in condemning as both costly and inefficient

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The Medical Research Council has appointed Professor E P Cathcart F R S, University of Glasgow to be chairman of the Industrial Health Research Board in succession to Sir Arnold T Wilson who has resigned on becoming a Member of Parliament The Council has also appointed Professor Cyril Burt and Miss Hilda Martindale to be members of the Board in succession to Sir John H Parsons, F R S, and Miss M Ritson who have retired in rotation

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We regret to announce the death of Sir Alexander Houston, M B, F R S, who was to have retired at the end of this year from the post of director of water examinations, Metropolitan Water Board which he had held since 1905

In a paper published in *La Pediatria* for October 1st Dr L Molinari illustrates the prevalence of measles in Italy by the fact that 133 000 cases were notified during 1930 In ordinary circumstances the fatality rate is from 4 to 5 per cent, and under less favourable conditions from 9 to 10 per cent In the epidemic of measles which occurred at Venice in the first half of 1932, when 269 patients were admitted to the isolation hospital, the fatality rate was 15 per cent This was mainly due to the fact that eighty nine patients (31 per cent) were also infected with diphtheria and twenty five of them died—a mortality of 29 per cent Molinari considers that the patients with the double infection were originally healthy diphtheria carriers in whom the attack of measles favoured the development of an attack of diphtheria

[1] Medical Research Council Special Report Series No 184 The Eradication of Bovine Tuberculosis By L Jordan London H M Stationery Office 1933 (2s net)

FOOD-POISONING OUTBREAK IN ST. PANCRAS

We published in the JOURNAL *of October 14th (p. 712) an interim note on the outbreak of food poisoning that occurred in St. Pancras on October 8th, and for the fuller account which follows we are indebted to* Dr. G. SOWDEN, *medical officer of health for St. Pancras.*

On Sunday afternoon, October 8th, six patients were admitted to Highgate Hospital suspected to be suffering from food poisoning, and it was stated that food purchased at certain premises in St. Pancras was thought to be responsible. Another patient was shortly afterwards admitted to University College Hospital, and on Monday notifications were received of six other cases. Of the total thirteen patients, five were adults and eight were children; eleven resided in St. Pancras and two in Holborn.

It was ascertained quite early in the investigation that the food responsible for the outbreak was pease-pudding. This had been made on Saturday, October 7th, the procedure being as follows. About 4.30 p.m. 4 lb. of dried split peas in a canvas bag were placed in an enamelled iron saucepan containing boiling water, to which a little bicarbonate of soda had been added. After coming to the boil they were allowed to "simmer" for three hours, were then emptied into a glazed earthenware vessel, and some salt was added; they were then beaten up with a wooden spatula, about a pint of the water in which the peas had been cooked being added. The process was completed about 7.30 p.m., the finished product weighing about 7 or 8 lb. The earthenware vessel containing the pease-pudding was kept near a gas stove in a room behind the shop, and at intervals during the evening a little boiling water was added to keep the pudding warm and moist. The conditions were therefore ideal for bacterial multiplication. Portions of about 5 oz. were sold for a penny, each portion being placed in a piece of greaseproof paper and then wrapped in newspaper. It was thought that about eighteen to twenty customers were served with the pudding during Saturday evening, as approximately 2 lb. remained unsold. In the thirteen notified cases the pudding was stated to have been purchased or eaten between 7.45 and 10 p.m., and in practically all the cases of Sunday morning. The clinical signs and symptoms, which were more or less marked, according to the severity of the attack, included vomiting, abdominal pain, diarrhoea with passage of blood and mucus, rapid pulse, rise of temperature, and cyanosis of lips and extremities.

The two fatal cases were of boys of 11 and 13 years of age; one died at 7 p.m. and the other at 9 p.m. on Sunday—that is, within a period of twenty-four hours of having eaten the pudding. In each of these cases only one pennyworth had been purchased, and each boy had given a portion of this to another child, both of whom were subsequently ill. An indication of the severity of the infection may also be gained from the fact that one patient, a woman 54 years of age, who had eaten only three teaspoonfuls of the pudding and, thinking it tasted "musty," threw the remainder in the fire, was taken acutely ill on Sunday morning, and obtained medical advice. The onset of symptoms was sufficiently rapid to suggest the possibility of chemical (inorganic) poisoning, although the rise of temperature pointed to a bacterial infection. Both chemical and bacteriological investigations were therefore made. The report of the analyst stated that no chemical poison could be found either in the dried peas, pease-pudding, salt, or soda, nor in the vessels in which the pudding had been prepared or stored.

BACTERIOLOGICAL FINDINGS

The report of the bacteriologist was as follows:

Dried Peas.—*B. coli*, streptococci, *B. welchii*, and a few colonies *B. faecalis alkaligenes*.

Pease-pudding.—An abundant growth of *B. coli*, streptococci, and *B. welchii*, a marked growth of *B. faecalis alkaligenes* and Gram-negative bacilli which had the reaction of *B. dysenteriae*. This organism agglutinated well with an anti-Sonne dysentery serum.

From material obtained from the two fatal cases, and also from the patient admitted to University College Hospital, dysentery bacilli of the Sonne type were isolated. As dysentery bacilli were not found in the sample of dried peas but were present in the pease-pudding, it appeared to be probable that the infection had been conveyed to the pudding after it was made. It was, however, feasible, owing to the number and character of the organisms present in the dried peas, that dysentery bacilli might also be present, although they had not been isolated from the particular sample examined. To exclude this possibility a number of samples of dried peas from the same consignment were examined, and the report received from the Ministry of Health laboratory was as follows.

Nine samples of dried split peas from various sources (same contingent) sent by the M.O.H., St. Pancras: No organisms of dysentery or enteric group found. *B. coli* non-lactose fermenting coliform bacilli (*B. faecalis alkaligene* type), and *B. proteus* present in over 50 per cent. of the samples. *B. welchii*, aerobic sporing bacilli (*B. subtilis* type), non-haemolytic streptococci, and staphylococci present in 100 per cent. of the samples.

Seven samples of dried split peas belonging to the same consignment received from medical officers of health, and one sample bought locally over the counter: all gave growth of similar types of organisms.

FURTHER INVESTIGATIONS

This report appeared definitely to exclude the dried peas as the source of infection and to confirm the suspicion that the pudding was infected after having been made. The facts that the consignment of dried peas in question (which had been imported from Poland and milled in Holland) consisted of a thousand 1 cwt. bags, that 700 bags had been distributed throughout London and the country, and that a large quantity of the peas had been consumed without ill effect, was also an important factor in excluding the peas from suspicion. The staff at the shop, which was a lock-up shop, was stated to consist of the proprietor and his wife. Samples of their blood, urine, and faeces were examined, but were found to be negative. This excluded the above persons as "carriers." No rats or mice had been noticed on the premises, and although these animals may be carriers of pathogenic organisms of the Aertrycke-Gaertner group they are not known to carry dysentery organisms.

As a result of further inquiries it was ascertained that a daughter, aged 9 years, her grandmother, and a female domestic, although residing elsewhere, occasionally came to the premises and sat either in the shop or in the room behind the shop. Samples of their blood, urine, and faeces were examined; the results as regards the two women were negative, but the child's faeces contained large numbers of dysentery bacilli of the Sonne type and her blood reacted in a dilution of 1 in 125. It is unfortunate that nine days had elapsed before the above information was obtained and the blood, etc., examinations were made, as it was now discovered that the child had been in the room behind the shop in which the pease-pudding was kept on Saturday, October 7th, between 7.30 and 8 p.m., and on being questioned admitted having eaten some of the pease-pudding, taking it out of the vessel with her fingers.

The point that now arose for consideration was whether the child was the cause or a victim of the outbreak. If the blood examination could have been made at an earlier date this problem would not have arisen. In the opinion of the bacteriologist it was unlikely that the blood would have reacted so strongly if the child had only been infected nine days before. It is also important to note that, after eating some of the pudding on Saturday evening, no symptoms of illness followed. The child was quite well on Saturday night, the whole of Sunday, and on Monday until about 4.30 p.m., when she came home complaining of some abdominal pain and a feeling of sickness. She had a holiday from school on Monday and went to Hyde Park for the day with the maid; for her midday meal she had some fried fish with much vinegar, then had some ice-cream, and previously had eaten a

banana. This very injudicious combination was doubtless responsible for the abdominal discomfort, as a dose of castor oil promptly effected a cure.

Comment

In outbreaks of food poisoning it is notoriously difficult to trace the exact source of infection, and in a large percentage of cases this is not ascertained. In the present instance, on reviewing all the evidence, it would appear to have been definitely established that: (1) the child was a "carrier" of dysentery organisms; (2) she infected the pudding on Saturday, October 7th, when taking a portion out of the receptacle with her fingers; and that (3) this act was responsible for the outbreak. This was the verdict of the jury after careful inquiry into the cause of death in the two fatal cases.

As to the presence of bacteria in dried peas, it does not appear to be generally known that such organisms as *B. coli*, streptococci, *B. welchii*, *B. faecalis alkaligenes*, etc., are usually present in peas, oats, wheat, and other cereals. This does not necessarily indicate faecal pollution, but is due to contamination by dust, handling, contact with sacks, containers, etc. The same organisms are also usually present on fruit and vegetables, and is due to contamination by dust, etc. Some tomatoes, exposed for sale on a stall, were recently examined, and an abundant growth of *B. coli* was obtained. Although practically all the bacteria mentioned would be destroyed in the ordinary process of cooking, the above facts emphasize the necessity for extreme cleanliness in culinary operations and the desirability of washing cereals before cooking.

With reference to the destruction of bacteria in the ordinary process of cooking, some experiments were made in the Ministry of Health laboratory. When a mass consisting of 4 lb. of dried peas, in a saucepan of water, was brought to the boil, and then allowed to simmer (the method adopted in making the pease-pudding), it was found that the temperature of the water was 96° C. and the temperature in the interior of the mass of peas was 94° C. *In a control experiment dysentery* bacilli (Sonne) were killed at a temperature of 58° C. in twenty minutes. This again indicates that if the preparation of the pudding was carried out as stated infection could only have occurred subsequently.

THE GENERAL INFIRMARY AT LEEDS

APPEAL FOR EXTENSIONS

Yorkshire has a reputation for big things, and in making an appeal for a quarter of a million to develop its services the General Infirmary at Leeds is sure of a sympathy which might not be forthcoming to the same extent for a less courageous and far-seeing project. The designation "The General Infirmary at Leeds" was adopted deliberately when the institution was started in 1767 in a yard in Kirkgate, with three in-patients and three out-patients and what seems to have been the adequate staff of two physicians and four surgeons. The gentlemen of Leeds who, after meetings at various inns, organized this charity visualized a wider field for it than the "town of clothiers," and nowadays two-fifths of its patients come from outside the city, from all parts of the West Riding, and, indeed, the North of England.

The hospital was founded at a time when Leeds was on the threshold of great prosperity, when steam power and the spindle and jenny were on the point of introduction. In the grim early stages of the industrial era it held up the lamp of humanity. George Eliot, though she wrote of "ugly Leeds," came to that city when she sought to present the ideals of the most advanced hospital administrators and practitioners. To-day the hospital has over 500 beds (or 600, if the extension at Cookridge be counted), and is the largest of the provincial hospitals associated with a medical school, with the possible exceptions of those at Manchester and Newcastle. Its in-patients number 13,000 a year, and there is a waiting list of some 1,700. The present building, dating from 1864, was the first in England, except the Herbert Hospital at Woolwich, to be arranged on the pavilion principle, after the example set by the *Hôpital Lariboisière in Paris.*

A Fivefold Objective

The board of management has been carefully thinking out certain proposals for the development and improvement of the services of the infirmary. The principal innovation proposed is the building of an entirely new block, which on the ground floor will be used for housing a new casualty department, while the upper floors will provide from 80 to 100 beds for paying patients. In this way Leeds will be in line with the movement for providing hospital accommodation for persons of moderate means who are not willing to accept charity nor able to pay nursing home charges. A second objective is the provision of additional accommodation for out-patients. The work in the out-patients' department at Leeds, where a thousand come for examination and treatment every day, and where there exists what can only be described as a federation of clinics, has grown to such an extent that the conditions under which the work is carried on have become exceedingly difficult. Often as many as four patients have to be examined at the same time behind screens in one room. It is proposed to convert the present operating theatres, where 12,000 operations are performed every year, into suitable rooms for medical out-patients, and to erect an entirely new suite of six operating theatres on the top of the present theatre block. The housing of nurses is also to be taken in hand. Additional nurses will be needed, for whom accommodation must be found, together with sufficient bedrooms to enable the nurses at present domiciled in private houses to be brought under the same roof. A fourth costly project is the modernization of the kitchen apparatus and the equipment for heating and water supply.

These four provisions will absorb rather more than £150,000, but the hospital, in pressing towards the mark, is unable to forget the things that are behind, chiefly a debt of £86,000, accumulated during these years of financial stringency while the demands on the institution have been steadily growing. This must be wiped off, and thus the quarter of a million is practically accounted for. The business side of this effort at rationalization should appeal to the Yorkshireman, for it anticipates no increase in annual maintenance. The "pay bed" section will be self-supporting; the new engineering equipment will reduce the cost of upkeep, and the extinction of the debt will save £3,000 a year in bankers' charges.

Inauguration of the Appeal

The appeal was inaugurated at a dinner recently given by Mr. Charles Lupton, whose name has been associated with the hospital for more than half a century. The resolution pledging support was proposed by Lord Irwin, the Minister for Education, who commented on the paradox that at a time when the physical health of the nation is at a higher level than ever before the demand for hospital accommodation and treatment has increased out of all bounds. It was explained by the progress of the healing art and by the passing of the old prejudice against institutional treatment. Lord Moynihan, who seconded the resolution, made proud claims for the Yorkshire hospital and the medical school. He added that in making provision for paying patients it was necessary to be careful that the nursing home, the general practitioner, and the consultant were not harmed, but he thought it would not prove to be a matter of great difficulty to arrange that the resources of patients should be carefully analysed before admission. The out-patients' block should be a great consultative department to which general practitioners also had access. The resolution was supported by the civic and university authorities, the Lord Mayor saying that were it not for the existence of the infirmary nothing less than a sixpenny rate would enable the necessary work to be done by the municipality, and this did not take into consideration the labours of

the honorary physicians and surgeons, which were hardly likely to be continued in a non-voluntary institution.

The first list of subscriptions, headed by the Princess Royal and Lord Harewood, and including some large amounts from industrialists of the West Riding, amounts to £78,000. Those responsible for the appeal believe that it is only necessary for the size and variety of the services of a modern infirmary to be understood to ensure the adequate response from those who regard the care of the sick and suffering as one of the first obligations of good citizenship. We are glad to associate the *British Medical Journal* with this appeal, which we hope will catch the eye of many who received their medical training in the capital of the West Riding.

X-RAY AND RADIUM PROTECTION

FURTHER REPORT BY THE COMMITTEE

At a recent meeting of the *X*-Ray and Radium Protection Committee, presided over by the chairman, Sir Humphry Rolleston, Bart., it was decided, in view of fresh evidence available, to reaffirm the attitude of the committee upon the necessity or otherwise of periodic blood counts on those engaged in radiological work. Particular importance centres round this matter, for if on the one hand the performance of these blood counts means a burden on hospital departments, from which they would welcome relief, yet on the other hand it is now generally acknowledged that changes in the blood picture due to radiation are recognizable long before any serious damage is likely to have been caused. It is in fact a danger signal, the indications of which cannot lightly be disregarded.

Recommendations

1. No person should be employed as an *x*-ray or radium worker whose blood (as tested by a complete blood count) or general health is unsatisfactory.

2. Before beginning work or training the normal leucocyte level should be found. If none of the total counts reach 6,000 per c.mm. and none of the lymphocyte counts reach 1,200 per c.mm. the service of the worker should not be accepted.

3. Periodical total and differential blood counts of the worker should be made during the morning period, every six months in the case of the *x*-ray worker and every three months in the case of the radium worker.

4. If then there is found to be a decided and sustained drop in the total leucocyte or lymphocyte count the worker should cease work and be placed under treatment for an adequate period. On resumption of work every care should be taken and the circumstances of the work should be reviewed so as to prevent a recurrence.

Note to Recommendation No. 3.—The six-month period may be considerably extended in the case of *x*-ray workers in departments which otherwise comply with the recommendations of the *X*-Ray and Radium Protection Committee.

Appendix to Report

It is not possible to lay down hard-and-fast rules for the detection of what may or may not be considered a pathological change in the blood, owing to the physiological alteration of the number of the cells which is always taking place.

A leucopenia is the first blood change to occur in *x*-ray and radium workers. In order to detect this change at an early stage it is necessary to take into account the following facts with regard to the leucocyte content of the blood of normal persons.

A leucocyte tide occurs twice daily in all healthy individuals; that which occurs in the daytime is low in the morning and high in the afternoon, particularly between 3 and 4. The differences between morning and afternoon counts are not infrequently twofold. Superimposed on this are minor fluctuations, which can be detected at short intervals of time—for example, minutes. Furthermore, when counts are made over long periods of time, such as a month, then the variations of the total leucocyte may be as wide as fourfold. It is to be noted that the polymorphonuclear cells play the dominant part in all these variations, and that the different varieties of white cells vary independently.

In face of these wide variations the leucocyte level of an individual can only be determined on the basis of a number of counts. This should be done by making three afternoon counts on the *x*-ray and radium worker before beginning his work or training. Afternoon counts should be chosen, since the afternoon rise in the numbers of white cells is less pronounced in leucopenia than normally. A mild leucopenia can thus be detected without difficulty. When the subsequent routine counts are made, a single afternoon count, if satisfactory, is sufficient. If, on the other hand, it is decidedly lower than the level normal to the individual, and this is confirmed by two further afternoon counts, then a full investigation of the case is essential.

France

[From our Correspondent in Paris]

CHARLES ALBERT CALMETTE

Professor Calmette's death last Sunday morning was a bolt from the blue. On the previous Tuesday, though feeling unwell and as if he suffered from influenza, he took part in a medical meeting at which the President of the French Republic was represented by General Braconnier. A few hours later Calmette had to take to his bed. During the following days he seemed well on the way to recovery, but early on Saturday morning abdominal symptoms set in. Professors Gosset and Pasteur Vallery-Radot were summoned, and it was hoped that the peritonitis which had developed might be localized. The illness took a turn for the worse on Saturday evening, and the peritonitis, supposed to be secondary to some hepatic lesion, became acute.

The brothers Calmette had distinguished careers. One of them rose to the rank of surgeon-general in the French Army. Another, Gaston, chose the even more dangerous career of a journalist, and it was early in 1914, when he was editor of *Figaro*, that he was assassinated by Madame Caillaux, the wife of the man he had dared to criticize in public. Charles Albert, a younger brother, was born on July 12th, 1863, at Nice. At the age of 20 he served on the *Triomphante*, stationed in Chinese waters. This was the beginning of his career as a naval surgeon. A few years later, in 1890, he returned to France and joined Pasteur's staff. Pasteur was not slow to appreciate Calmette's gifts. Trained in the spirit and methods of the older man, Calmette was chosen by him for an important post in French Indo-China. There he did that work on snakes and the treatment of snake bites which has since contributed so much to the reduction of the mortality from this cause. Many years later—in fact, only a couple of years ago—Calmette found himself reintroduced to his old love by the men who are to-day studying the effect of snake venoms on malignant disease. A side issue, which ultimately proved quite lucrative, was his work on the generation of alcohol on a commercial scale. During his absence abroad steps had been taken to create a research institute at Lille by public subscription. On his return from Indo-China in 1895 Pasteur and Roux secured his appointment as director of this institute. During his stay there, which lasted till 1917, Calmette extended his researches in many directions, including

bacteriology, hygiene, veterinary medicine, agriculture, and industry. His tuberculosis dispensary, the Emile Roux Dispensary, was both a pioneer institution and a model of its kind. Much work was also done on the hookworm, on the diagnosis of tuberculosis by the conjunctival reaction to tuberculin, and on the response of various strains of tubercle bacilli to changes in their nutritional environment. In association with Dr. Guérin, Calmette began before the war that series of cultures of tubercle bacilli, originally obtained from a bovine source, which has led to the production of the now famous B.C.G. vaccine. Soon after the outbreak of the war Calmette was confronted by the choice of retiring to some safe spot or remaining at his post after the Germans had occupied Lille. His choice of the latter course was characteristic of his high sense of duty, but it entailed great personal suffering and humiliation. Not only were his animal experiments suppressed, but his possession of pigeons nearly cost him his life at the hands of the Germans. It must, however, be stated that certain German colleagues took up the cudgels on his behalf. He was allowed to stay on in Lille, but his wife was removed to a concentration camp. It was during the war that Calmette compiled his prodigious volume on tuberculosis research. The death of Metchnikoff left a gap at the Pasteur Institute in Paris which Calmette was invited to fill in 1917. He did not, however, leave Lille till the war was over.

The last chapter of Calmette's life is mainly about B.C.G., although, owing to Roux's chronic ill-health, Calmette, nominally assistant director of the Pasteur Institute, was virtually its director. The laboratory and veterinary phase of the B.C.G. campaign had been conducted for many years when, a few years after the war, the vaccine was given for the first time to human beings by Dr. Weill-Hallé and Dr. Turpin. Their preliminary investigations, conducted between 1921 and 1924, were reassuring as far as the harmlessness of B.C.G. was concerned. In 1924 Calmette began to supply doctors and midwives with his vaccine free of charge. Its triumphal march continued till 1930, when the Lübeck tragedy temporarily slowed its pace. Though the findings of the scientific commission of inquiry completely exonerated B.C.G., a shadow continued to hang over it, particularly in Germany. Calmette took this tragedy much to heart, and only a few months before his death he wrote to his old friend, Professor Vincent: "Nul ne saura les affreuses souffrances que j'ai éprouvées." His friends and collaborators rallied to him, and even as late as last month he was cheered by new statistical evidence on behalf of his vaccine. Speaking at the National Congress of Hygiene held in Paris towards the end of September, Professor Cantacuzène stated that at the present time 95 per cent. of the newborn infants in Rumania are given B.C.G. While the tuberculosis mortality among the non-vaccinated is about 25 per cent. in certain classes, it has been reduced to 1.3 per cent. for the infants given B.C.G. On October 17th of this year Calmette and his associates presented a report to the Academy of Medicine on the recovery of B.C.G. germs from the blood of infants given this vaccine by the mouth only a few hours earlier.

In spite of a considerable degree of deafness Calmette was a singularly approachable man. He was the Grand Seigneur in the best sense of this term, affable and courteous to all. His literary appetite and digestion were phenomenal, and he read many foreign languages, including English, German, Spanish, and Italian. He retained to the last the journalistic sense, that flair for publicity with which his brother Gaston was even more richly endowed. It is safe to prophesy that Calmette's name will be remembered even after the buildings he created at the Pasteur Institute have crumbled into dust.

Dispensing Doctor versus Prescribing Chemist

A medical correspondent in a recent issue of *Concours Médical* raises certain questions he would like that excellent journal to answer. It appears that he was on such bad terms with the local pharmacist that the latter refused to dispense his prescriptions. The nearest rival pharmacy being some distance away, this blockade of his prescriptions inconvenienced as well as disgruntled the doctor, who wondered if he might not retaliate by dispensing his own prescriptions. As *Concours Médical* points out, an official communication has been published on this subject as recently as April 3rd of this year. The pharmacist must not dispense any drugs without a doctor's prescription, and it is for the local representatives of the law to decide when this regulation has been contravened to a degree necessitating disciplinary action. On the other hand, doctors are not entitled to constitute themselves retail chemists. Further, no pharmacist is obliged to dispense a doctor's prescription; like every other retailer he is free to sell or refuse to sell as he pleases, without consideration of persons. So much for the law. But in practice the French pharmacist not only dispenses medicines at his own sweet will, but also gives advice. In so doing he contravenes the law, assuredly, but for doctors to punish him by turning the tables on him and competing with him as salesmen of pharmaceutical preparations is another matter. In the present case the doctor might circumvent the disobliging chemist by forcing him to commit himself openly to sabotage. The doctor would then have a plausible case in the eyes of the law, were his sale of pharmaceutical preparations to be challenged. He is reminded, however, that even the most successful of campaigns is costly, and is advised to try arbitrational negotiations, which might induce the refractory chemist peacefully to dispense his prescriptions.

Scotland

Edinburgh University 350th Anniversary

The 350th anniversary of the foundation of Edinburgh University was celebrated on October 28th. In connexion with this celebration a history of the University during the past fifty years has been written, to continue Sir Alexander Grant's "Story of the University of Edinburgh from 1583 to 1883," which was prepared for the tercentenary in 1884. The festivities began on Friday evening, October 27th, with a civic reception by the Lord Provost and magistrates of Edinburgh. In an address of welcome Lord Provost W. J. Thomson said that the Corporation was proud of the college, which had been founded by the city fathers in the sixteenth century, and which had developed into the University; it differed from most universities of mediaeval origin in this civic beginning. It had at first been a small college with sixty or seventy students; it was now a great imperial university, attracting to itself in large numbers the aspiring youth of the Empire, and providing in its six faculties for the education of 4,000 young men and women. There were now sixty professors, 100 assistants, and 150 lecturers. Three-quarters of a century ago Parliament had given the University a new charter, but he was glad to say that the connexion with the Corporation had never been severed, and that in recent years the bond had become even closer and more amicable. The Chancellor of the University, Sir J. M. Barrie, in a humorous speech, thanked the Town Council for its hospitality. On the same evening a students' dinner was held in the University Union, at which Mr. F. J. C. Herrald presided. The Lord Rector of the University, General Sir Ian Hamilton,

in replying to the toast of "The University," made what he called a "psychical reconnaissance" of present-day life, and compared the present state of the British Empire to the position of Rome at the beginning of the Christian era. At the honorary graduation ceremonial in the McEwan Hall on October 28th, the Chancellor, Sir J. M. Barrie, presided; at the close of his address he said that the eyes of the University were fixed not on the past but on the next 350 years now beginning. The University stood undismayed, full target for all the winds of the future, knowing that for a university there could be no harbour. He then conferred the degree of Doctor of Divinity upon five graduates and that of Doctor of Laws upon nineteen recipients. Among the latter were the following members of the medical profession: Robert Cochrane Buist, a former undergraduate of the University who had founded *The Student* magazine, which had appeared under the auspices of the Students' Representative Council for forty-five years; Sir James Crichton-Browne, the oldest living graduate of Edinburgh University, who had entered the medical school seventy-six years before, and whose pre-eminence as an alienist and writer on mental diseases had been recognized fifty years ago by his election to the Fellowship of the Royal Society of London; John Wheeler Dowden, President of the Royal College of Surgeons of Edinburgh, the author of an original work on the treatment of fractures, and chairman of the governers of Merchiston Castle School; Sir Ewen J. Maclean, an alumnus of the University, who was recognized as one of the leading British gynaecologists and obstetricians, and a prominent member of the Welsh National School of Medicine; Sir Frederick Menzies, who had been in his undergraduate days a noted athlete at Edinburgh, and an organizer of students' interests, and later, in the capacity of Chief Medical Officer to the London County Council, the reorganizer and co-ordinator of the disjointed elements of the health services of London. Sir Edward Sharpey-Schafer was introduced as a direct connecting link with William Sharpey—the founder of British physiology, who graduated M.D. at Edinburgh 110 years ago; as a pupil of Sharpey, Sir Edward had eventually succeeded to his master's chair at University College, London; as professor of physiology at Edinburgh for thirty-four years he had been a pioneer in many fields of inquiry, especially regarding the functions of the endocrine glands, and had exerted a powerful influence on physiological thought and medical practice. The degree was conferred *in absentia* on Robert Thin, President of the Royal College of Physicians of Edinburgh, who had given convincing proof in his writings of his wide knowledge of the literary and material remains of old Edinburgh. After the capping ceremony the Archbishop of Canterbury, who had been one of those to receive the D.D. degree, expressed the thanks of himself and his fellow-graduates, and drew attention to the fact that this University was a child of the Reformation; it did not owe its foundation, as did the other Scottish universities, to prelates of the Church. The Scottish universities, more than those of any other country in the world, had entered into, enriched, and strengthened the whole national life, for at a time when the English universities had been the possession of a privileged class, the Scottish universities had opened their doors without favour to all who came with the desire to learn. When in England there had been no ladder of education at all, it had been possible in Scotland for lads to pass direct from the parish school to the university. It was impossible to estimate the influence of this great and long tradition of a full education upon the mind and character of Scotland and upon the place which this country had taken in the world. The University of Edinburgh might justly boast that it was the most cosmopolitan of all the universities. After the graduation ceremony a service was held in St. Giles' Cathedral, at which the Very Rev. Sir George Adam Smith, Principal of the University of Aberdeen, delivered an address, in which he referred to many of the men who had conferred distinction upon Edinburgh University during the course of its history. Immediately prior to the service Sir Thomas Holland gave a wireless talk from a room in the Cathedral, which was broadcast to stations in various parts of the British Empire where former students of the University were taking part in the celebrations. A lunch was subsequently held under the auspices of the Graduates' Association in the University Union, at which Dr. Logan Turner presided. In reply to the toast of "The Guests" Professor Emile Legouis, of the chair of English at the Sorbonne, said that he had been drawn to Edinburgh and its University by his familiarity with the works of Sir Walter Scott, and that he had acted as a lecturer for the Franco-Scottish Society. The ancient amity between the two nations of Scotland and France was a reality to him, and convinced him that the old alliance was founded not only on political interests and historical incidents, but on deeper feelings that had caused the hearts of Scotland and France to beat in unison. A reception by the University Court and Senatus was held in the McEwan Hall on the evening of October 28th, when over 1,200 guests were received by Sir James Barrie, Sir Ian Hamilton, and Sir Thomas and Lady Holland. On the same evening a students' torchlight procession, which assembled in the Old University quadrangle, proceeded through various streets of the city headed by the pipe band of the O.T.C.

The Future of Medical Services

The future of medical services in Scotland formed the subject of an address by Dr. R. W. Craig, Scottish Medical Secretary of the British Medical Association, to the Public Health Section of the Royal Philosophical Society of Glasgow on October 25th. Dr. A. K. Chalmers, former medical officer of health for the city of Glasgow, presided. Dr. Craig said that the object of the medical services in the past had been, chiefly, the prevention and cure of disease, but as the result of a new outlook the aim of the future would be, to a large extent, the preservation of health. There was considerable room for improvement in the existing health services towards achieving this end. A great amount of work had been accomplished by the public health services in connexion with the environmental circumstances of disease as it affected the population in the mass, but it might be questioned whether the money expended on health services was utilized in the most efficient way. These services at the present day cost Great Britain over £100,000,000 yearly, and had increased between the years 1900 and 1927 from 14s. 5d. per head of the population to £2 14s. 9d. The national health insurance service was the largest organization, and provided medical benefits for some 17,000,000 persons at an annual cost of £32,500,000, of which a large proportion was spent on administrative costs. There had not been evidence, however, of such a marked improvement in the health of insured persons as some people had expected, and it was becoming more widely recognized that health services had been very imperfectly planned, with redundancy of service in one direction and deficiency in another. Increased knowledge was now available concerning heredity, eugenics, and nutrition, and more attention must be paid to the physiological and psychological requirements of the people. The direction in which the health service should be improved was obvious—namely, that every kind of service which might be necessary for the prevention of disease and for the promotion of mental and physical efficiency should be provided. The position with regard to maternal morbidity and mortality could

not remain as it was. Every woman should have easily available a complete medical and nursing service, and the family doctor was the foundation on which such a service should be built. The adequate care of maternity cases could not be allowed to remain to be determined by the financial position of the mother and by varying local facilities for treatment. The control of health services by the State, which had been advocated by some people, had, Dr. Craig said, certain great disadvantages. The tradition of the medical profession was that the doctor's first duty was to his patient; under State control he would be the servant of the authorities, while there would no longer be "free choice of doctor"—a valuable privilege. There was a great difference between a State medical service and medicine in the service of the State. A serious obstacle at present confronted the voluntary hospitals, and this required to be removed if the voluntary hospitals were to survive. At present voluntary hospitals were left to the uncertain operations of charity, but in the future patients would be asked to pay, either directly or by some form of insurance scheme, charges appropriate to their financial status. This might be effected by a development of contributing schemes, such as already existed in London and Newcastle.

Astley-Ainslie Institution

The annual report for the year 1932 of the Astley-Ainslie Institution, Edinburgh, by the medical superintendent, Lieut.-Colonel John Cunningham, shows that the three units of the institution, providing seventy-nine beds for women and forty-five for men, have been fully occupied throughout the year. A steady advance towards the completion of the original scheme has been made, including the building of the new Millbank Pavilion and new administrative residential quarters. The number of patients treated during 1932 was 692, including 276 males and 416 females. As the institution aims at taking those patients for whose improvement a prolonged convalescence is necessary, the duration of stay has varied from four to twenty-six weeks, some fifty-four patients having been retained for the latter period. The average duration of stay was 10.6 weeks for men and 12.4 weeks for women, a combined average rate of 11.7 weeks. The annual cost of maintenance per bed for the year was £141 18s., the charges being entirely defrayed from endowment. The various physical therapeutic departments were actively employed, with 248 cases treated in the massage and gymnastic department, 7,074 applications of artificial sunlight, and 1,525 treatments by diathermy. Research was carried out in the study of the sedimentation rate of blood corpuscles in the convalescent stages of various diseases, and in the possible relation of the haemolytic streptococcus to the cause of acute rheumatism.

Glasgow University Graduation

At the Glasgow University graduation on October 22nd, Principal Sir Robert S. Rait presided and conferred the degree of M.D. on ten graduates, and that of M.B., Ch.B. on ninety-one candidates. Sir Robert said that the University was proud to send forth so large a band of young men and women trained in the healing of the sick. The tradition of the family doctor was one of which both their profession and their fellow-countrymen were justly proud. A great man of letters, whose life had been prolonged by medical skill and devotion, wrote some fifty years ago of the physician as "the flower of our civilization." Those who entered upon general practice would have many such experiences, and would find their reward in the gratitude and affection of their patients. Others would be called upon to plan for the prevention rather than the cure of disease, and some would find their proper sphere in the training of younger generations, in the management of hospitals, or in devotion to special provinces of healing. Whatever they did, it was essential they should remember that the knowledge which they carried away with them from the university was only the beginning of knowledge; the years would bring to them experience which would add to knowledge the wisdom that was life itself. Such wisdom might come unconsciously, but the continued acquisition of knowledge could only be the result of deliberate and persistent effort. The recent gift of the Rankin Medical Research Fund would remind them of the duty of every generation to increase and hand on the knowledge of the healing art. This was intended to encourage a great variety of investigations, and to provide material and equipment for the testing of new ideas. No knowledge, and least of all the knowledge of medicine, could be kept in cold storage, and he would advise the graduates of to-day to keep on reading, thinking, and learning. Moreover, they must remember that they were citizens as well as doctors, and outside medicine lay a great region of knowledge which must continue to be traversed by every educated man and woman. A volume just published by Professor T. K. Munro was a remarkable record of contributions by the medical profession to topics of human thought and speculation outside the problems of medicine.

Ireland

Royal Maternity Hospital, Belfast

When opening the Royal Maternity Hospital, Belfast, on October 23rd, Mrs. Stanley Baldwin said that maternal mortality was one of the most pressing social problems of to-day, and had to be conquered, not only on humanitarian grounds, but also on economic and Imperial grounds. Referring to the fact that infant mortality had lessened, Mrs. Baldwin attributed this to the fact that babies were much more interesting than grown-ups. Nearly all the money that was required for babies could be obtained, but it was a more difficult thing when the money was required for the young mothers. The great trouble was that there were not enough midwives or maternity beds to go round. If every mother was assured of proper attention when her baby was born nearly half the women's hospitals in England might shut down. By tackling infant mortality a very great work had been done, but the work ought to have begun with the antenatal period. It seemed to her that it was like starting to build a house on the first floor. Speaking on the question of anaesthetics, Mrs. Baldwin said that it was unfair that the mother who could pay for an anaesthetic should have it, while the poor mother was never considered. She believed that they were educating public opinion on this question, and that before long the poor mother would have the same alleviation for her suffering as the rich mother had had for many years. Colonel A. B. Mitchell, who presided, said the ceremony sealed and stamped the successful accomplishment of one stage in a great scheme to secure the safety of motherhood in Northern Ireland. It was ten years since the board of management of the Royal Victoria Hospital was approached with a suggestion that a new maternity hospital should be erected in its grounds, and that an amalgamation between the Belfast Maternity Hospital and the Royal Victoria Hospital should be carried out. After anxious consideration the board agreed to the project, but with a very keen sense of the immense responsibility involved—first, as to the difficulty in raising the funds for the erection of the hospital, and, secondly, as to its future maintenance. The joint committee of the two

hospitals could not adequately express their indebtedness to the Duchess of Abercorn for the interest she had taken in the scheme: to her energy and immense popularity the success of their appeal to the public was mainly due. The Duchess of Abercorn, in proposing a vote of thanks to Mrs. Baldwin, said that in Ulster they had not, perhaps, paid the same attention to maternal mortality as elsewhere, but she liked to feel that they were moving forward on the right lines. It was some years since Professor Lindsay took her over the old maternity hospital, and it was he who first put into her head the vital necessity for work in that direction. Professor Lowry had also taken a great interest in the work. Professor R. J. Johnstone, speaking on behalf of the committee of management of the hospital, seconded the vote of thanks, and paid a tribute to the Duchess of Abercorn's work for the hospital. Not the least of her services, he remarked, was to bring Mrs. Baldwin there that day, and to gain her imprimatur for their undertaking. The site, open, yet near a large general hospital, the plan carefully thought out to the last detail, and the sound construction which their contractors have given them, combined to form a building as near to the ideal of a maternity hospital as they were likely to find in this imperfect world—a maternity hospital of which Belfast and Ulster might well be proud. Its door would be open to every woman whose circumstances and surroundings were such that she could not be delivered with decency, let alone with safety, in her own home.

Presentation to Sir John W. Moore

At the opening meeting of the clinical session of the Meath Hospital, Dublin, when Sir W. J. Smyly presided, Sir John William Moore, who for many years has been consulting physician to the hospital, was presented with a silver salver on behalf of his colleagues. Dr. William Boxwell, who made the presentation, said that Sir John Moore had been physician to the hospital for fifty-eight years. This presentation was a token of the respect and affection deep down in the hearts of all of them, his colleagues, and every man, woman, and even every little child, who had come in contact with him in that hospital. Sir John had been an example to them in many things: in ethics, for which he set himself a rigid standard, in punctuality, in unflinching energy and devotion to duty, and, above all, in courtesy. Dr. Boxwell pointed out that at the top of the salver was a motto: *Fortis cadere, cedere non potest*—the motto of the Moore family. Sir John had never fallen and had never given in; very few men had lived up to the motto as he had. At the foot of the salver was the inscription: *Exegi monumentum aere perennius*, and, added Dr. Boxwell, a memory more precious than silver or even fine gold. In returning thanks Sir John Moore said he was overwhelmed by this presentation, which he accepted as a token of the lasting friendship between himself and his colleagues on the staff and successive generations of medical students of the hospital. He loved the Meath Hospital, and he had often felt how unworthy a successor he had been of the great men, such as Graves and Stokes, whose names had been associated with teaching in that institution.

Mr. T. J. Lane, surgeon to the Meath Hospital, in a paper on "Surgical Progress—The Last Dozen Years and the Next," stated that a Commission was about to investigate the hospital problem in Ireland. There were millions of pounds in the coffers of the Hospital Trust awaiting distribution. While the future of medicine remained an unwritten page, no one could dogmatize about the hospital of the future, nor even its cost of maintenance. One thing alone was certain—that the successful working of the hospitals of to-morrow would depend, just as it did to-day, on the efficiency of the personnel. The importance of the human element could not be exaggerated. Mr. Lane said he believed that whether research was done in Ireland or not depended not on money, or equipment, or the existence of a splendid institution, but on whether or not they had among them people with research minds. He was confident that the Commission would not forget that, while bricks could not be made without clay, a man must mould the clay.

Presentation to Dr. Bethel Solomons

The past and present nursing staffs of the Rotunda Hospital recently presented to the institution a bronze bust of Dr. Bethel Solomons, who has been Master of the Rotunda for almost seven years. When unveiling the bust, Dr. T. P. Kirkpatrick, one of the governors of the hospital, congratulated Dr. Solomons on the honour which the nursing staffs had paid him, and remarked that his Mastership had been as distinguished as that of any of his twenty-five predecessors. Dr. Bethel Solomons, in thanking the nurses, said he had always honoured and respected their profession. He knew the difficulties under which they worked, and that they went on working without complaint. He was glad to say that the governors of the Rotunda had raised the salaries of the nurses, and he hoped they would raise them still further; in fact, he hoped to see nurses all over the world better paid than they were at present. Dr. Solomons also paid tribute to his wife, for her help both during his term as Master of the Rotunda and in their lives together.

CORRESPONDENCE

Surgery of the Biliary Tract

SIR,—Having retired from active surgery, I feel somewhat diffident at joining issue with Professor D. P. D. Wilkie. His views are usually so sound and so much appreciated by his surgical colleagues that I was somewhat perturbed on reading certain statements in his recent paper on surgical diseases of the biliary tract (*Journal*, October 28th, p. 767).

Throughout my surgical career I have performed cholecystostomy in preference to cholecystectomy whenever possible, with excellent results. I have discussed and taught this operation in the wards to very many students, and doubtless some of them follow my example. It is therefore rather disturbing to read that Professor Wilkie disapproves of cholecystostomy. I studied his reasoning carefully, and his first and main objection is that "some have recurrent mucocele of the gall-bladder from a small stone or stones having been left in the cystic duct; I have operated on twelve such cases." The expression "in the cystic duct" is misleading. I doubt if stones are ever impacted *in* the cystic duct—they are impacted at the junction of the narrowing neck of the gall-bladder and the beginning of the duct. From this region they are readily squeezed back into the gall-bladder and then removed, and it is the bounden duty of the surgeon, when performing cholecystostomy, to *see that this is done*. This being so, I cannot accept Professor Wilkie's main objection as valid.

My other points of disagreement are perhaps merely questions of opinion. He says, speaking of cholecystostomy, "In a number of patients—cured of their colic—indigestion, flatulence, and occasional subcostal aching remain." This is true, but cannot exactly the same be said in respect of the operation of cholecystectomy? Ask the general practitioner. Again: "Recurrence of stone occurs in at least 7 per cent. of cases." Is not Professor Wilkie somewhat biased by his unfortunate

experience of cases that have been referred to him in which stones have been overlooked during cholecystostomy? Personally, I believe that recurrence of stones is a rare phenomenon I have only encountered two cases in my own records Again "Malignant disease may supervene." I can see no connexion between a drained gall-bladder and malignant disease

I should be very interested to see if there are other surgeons who agree with me, and it would be of the utmost value if some general practitioners would give us their views Thus we may live and learn—I am, etc ,

Littlestone, Kent Oct 28th L. Bathe Rawling

The Testimonial Farce

Sir,—Having been asked last week to write four separate testimonials I am moved to protest against the whole testimonial system Every member of the staff of a teaching hospital suffers from it Mr Jones, let us say, writes that he was your clinical clerk three years ago, that he is now qualified, and applying for a post at a provincial hospital, and may he have a testimonial? You have, of course, entirely forgotten Mr Jones, several generations of clerks having passed through your hands since then You therefore look up Mr Jones's record and find that his work was "poor" and his attendance "irregular" What are you to do? Obviously you should refuse his request But that, after all, may not be quite fair to poor Mr Jones, whose rivals for the appointment, though no better than he, may be fortunate in having had chiefs with more elastic consciences Hence you probably sit down and write a few colourless lines, which are entirely valueless as any real index of Mr Jones's worth But, Sir, are testimonials *ever* of any value? "De mortuis," as someone has said, "nil nisi *bunkum*," and the same indulgence seems always to be extended to applicants for testimonials. Well may their writers exclaim with the Prophet. "Who hath believed our report?"

I have heard it said by a cynic that the only helpful thing in one of these documents is what it omits, but that surely is an oblique method of arriving at an estimate of a candidate I also remember a professor at a northern university, much plagued in this way, who kept, ready typed, sets of testimonials at various levels of encomium, and when an old student applied to him he reached down one approximately equal to what he considered to be the applicant's deserts and sent it off , but this also seems a rough-and-ready method. Has the time not come to abolish testimonials for hospital appointments altogether, and to judge candidates solely by their record and on the strength of a personal interview?—I am, etc ,

London, W 1, Oct 30th Robert Hutchison

P.S.—I have a final grouse on this question. It has been my experience that when one sends a testimonial to a candidate he rarely has the courtesy to acknowledge its receipt ; still less to thank one for imperilling one's immortal soul by the things said in it.—R. H.

Liver Treatment of Anaemias

Sir,—May I direct your readers' attention to the lamentable state of affairs which obtained at the recently concluded London Medical Exhibition with regard to claims made by certain exhibitors with reference to the efficacy of their liver preparations, extracts, and/or concentrates. Even some of the better-known firms did not hesitate to display bold advertisements stating that their particular brand of liver preparation was indicated in cases of "general and pernicious anaemia." Now while it is an established fact that liver preparations are the treatment *par excellence* for the group of macrocytic anaemias (the most easily recognizable of these being, of course, pernicious anaemia), it is none the less established that liver is devoid of therapeutic effect in microcytic anaemia Such claims to treat "general anaemia," whatever that may be, by liver therapy, must rest incontestably upon an imperfect understanding of the elements of haematology, and would lead inevitably to the conclusion that there is much random treatment of so-called anaemias, treatment which is without attempt at scientific control by blood counts, etc , either before, during, or after treatment

Surely there are now sufficiently adequate laboratory facilities available to practitioners for them to investigate their anaemia cases—at all events before embarking on a course of treatment which is not only protracted and expensive, but also devoid of value in the absence of a correct diagnosis In other words, may I plead for the more careful investigation of anaemic conditions, as such investigations would tend further to establish the value of liver therapy in suitable cases, and ultimately tend to bring the price of the remedy more within the reach of genuine sufferers from pernicious anaemia and allied conditions—I am, etc ,

The Infants Hospital, Vincent Square Oct 25th David H Haler

Radiation in Malignant Disease

Sir,—The general drift of Dr F Hernaman-Johnson's argument (October 28th, p 797) tends to obscure the fundamental principle that radical surgery or radical radiation, or some combination of them, is necessary for the cure of cancer The exceptions to this statement are very few, and are the extremes of malignancy and of radio-sensitiveness It may be affirmed that reliance on the vague factor or factors of "natural resistance," upon which he lays such stress, will cure no cancer in any patient We doubt the very existence of this factor when confronted with a florid type of previously always healthy individual who may succumb to a rapidly growing malignancy, while a thin and weakly patient may successfully, almost to the end, fight long and hopefully Other opposing instances of rapid breakdown (as with pregnancy) or of increased resistance suggest there is such a factor , but it seems so far to be due to some elusive biochemical variants, and is not to be depended upon, except in a most general way Acquired resistance, local or general, as the result of radiation, is of some importance, but cannot be dealt with as an issue at present

One issue raised is that "any treatment which seriously upsets the patient renders him more and not less liable to metastatic invasion." As a logical conclusion from this view Dr Hernaman-Johnson would have to condemn operation, which is a severe shock to many patients But few surgeons will not advise that operative risks be taken, where possible, for the chance of ultimate cure And similarly with radiation, where in many cases the risks of heavy dosage must be taken for the prospect of ultimate cure Also, several series of statistics show that patients who have had considerable post-operative radiation treatments have shown less percentage of metastasis than similar non-radiated patients: in skilled hands the risks can be safely taken.

The "lip-service" some of us are accused of paying to the more general factors of radiation with more justice others may be suspected of paying to the quite essential factors of effectual local dosage. Some appear really to doubt the necessity of an adequate, local dose for cure! That this is fundamentally wrong has been well shown by a patient recently treated for a primary cancer of the

larynx, with an external tumour-mass. This growth showed only the slightest response after a dosage of 1,760 *r*, administered in twelve days (190 kV, 1 mm. Cu filter), whereas with a further 4,770 *r* in twenty-two days (that is, 6,530 *r* in all, over ten times the "erythema dose") the result has been apparently complete subsidence of all signs of disease, and the patient looks and feels a different person, having gained two stone in weight as swallowing has become easy once more. Other observers have reported similar results in laryngeal and other cancers; I have seen this often in breast cancer. There is a threshold dose (known well experimentally) below which little or no sign of regression is found; therefore, in spite of local or general risks, this level of dosage (often a high one) must be attained. This principle applies both to primary tumours (for example, of the tongue, breast, and cervix) and to their *regional* metastases (in neck, axilla, or pelvic glands). The treatment of *distant* metastases lies as a whole beyond the province of both surgery and radiation, with few exceptions.

In conclusion it should be said that radiation sickness is very much less with modern *x*-ray apparatus and methods than with older types and techniques. And the cure and prevention of Roentgen-sickness has been reported following intramuscular injections of liver extract (Dietel: *Strahlenth.*, September, 1933, Bd. 48, S. 110). The patients' appetite and sense of well-being are quickly restored as their lowered blood cholesterin content is raised to normal. This, if confirmed, will be a notable advance.—I am, etc.,

London, W.1, Oct. 29th. J. H. DOUGLAS WEBSTER.

Fusion Operations on the Hip

SIR,—As I was unfortunately unable to go to Dublin last July, it would be unfair of me to criticize Mr. Girdlestone's short paper on arthrodesis of the hip, which is published in the *Journal* of October 28th (p. 777). But, coming from such an authority, it is difficult to pass by altogether his dogmatic assertion that "amputation is the only and unattractive alternative" to arthrodesis in cases of tuberculous disease of the hip-joint in adults. We have shown that by a free excision the local disease can be completely eradicated, and that, moreover, the patient can be given a painless, stable, and freely movable hip. This is not merely an alternative to arthrodesis. I believe it is the operation of choice in these cases.—I am, etc.,

London, W.1, Oct. 30th. A. S. BLUNDELL BANKART.

Infantile Scurvy

SIR,—After reading Dr. F. J. Poynton's letter (*Journal*, October 21st, p. 755), on the increase of scurvy and the prevalence of dried milk feeding, I think it may be interesting to report a case which I have recently encountered as medical officer of the Pro Patria Day Nursery, Islington. At this institution all the babies are fed on fresh cow's milk with cod-liver oil, and orange juice is given as a routine. Also as a routine bone and vegetable broth is added to the feeds at the age of about 2 months, and ferri et ammon. cit. (grain j twice a day) is given regularly. The cots are out in the garden on all suitable days.

The child of whom I am writing attended regularly, usually on six days a week, from the age of 1 month, but in spite of this she developed definite symptoms of scurvy at the age of 9 months. Her only absence was for five weeks' measles quarantine, when she was 4 months old, and during this time and at week-ends the mother tells me that she was fed on cow's milk at home. She did very well until she was 6 months old, when she was vaccinated, but from that time onwards she was never well. She was fretful and off her feeds, lost 1½ lb. in weight, and at 9 months showed haemorrhages into the gums, beading of the ribs, and marked tenderness of the limbs. She was admitted to hospital, where the diagnosis was confirmed by *x*-ray examination.

I can throw no light on this case, and should be much interested by any comments on it. The definite dating of the child's ill-health from the time of vaccination is interesting, but may only be a coincidence.—I am, etc.,

London, N.W.8, Oct. 25th. EVELYN T. D. MACLAGAN.

Primary Thrombosis of the Axillary Veins

SIR,—Dr. Selim's letter from Egypt with reference to primary thrombosis of the axillary vein reminds me that I suffered from this condition in the right arm while in Egypt in 1917. The diagnosis was made by one of the principal medical practitioners in Cairo and confirmed by an officer of the Royal Army Medical Corps.

I felt a twinge of pain in the arm while playing golf, which I neglected; some days later the usual signs appeared. I recovered, with permanent dilatation of the superficial veins of the right side of the chest, which now partly provide for the venous return from the arm. My accident insurance company paid the agreed weekly amount during the time I was incapacitated, though with some demur.

My health was poor at the time, and I had a number of dead teeth in my mouth. I now look on the thrombosis as being the result, first, of a trivial injury to the vein, and, secondly, of the presence of a septic focus reacting on tissues in which the defensive mechanism was impaired.—I am, etc.,

October 29th. F.R.C.S.

Toxaemias of Pregnancy

SIR,—In the *Journal* of October 21st (p. 757) Dr. G. W. Theobald states, with reference to the toxaemias of pregnancy, that outside the pages of Boccaccio no cases of morning sickness have been reported in the husbands. I should like to state that I have come across two cases of morning sickness occurring in the husband in the initial period of the wife's pregnancy. One case occurred in a young doctor under my care, and it is interesting that he had morning sickness as soon as he knew his wife was pregnant and before she commenced vomiting herself. In a subsequent pregnancy of the wife the morning sickness recurred in the husband. I do not hold that all cases of hyperemesis gravidarum are neurotic, as I have met such cases with profound toxaemia, as indicated by jaundice, rapid loss of weight, cachexia, and albuminuria, which only cleared up on removal of the foetus. Such cases are undoubtedly of toxic origin.—I am, etc.,

Liverpool, Oct. 24th. MAURICE NEWMAN.

SIR,—In 1908–9 I made observations of the pressure in the rectum of women advanced in pregnancy, and published my findings in 1913. In many cases I found pressure values higher than in the non-pregnant—even in the lateral position. If that does not constitute experimental evidence that the pressure is increased in pregnancy I should like to know what does. One cannot show that the pressure is increased in women during pregnancy except by measuring it in women who have become pregnant. Dr. Theobald thinks that my assertions are invalidated by the absence of evidence obtained from laboratory experiments. But these are often misleading. Experimental conditions, even of far-reaching and determining effect, are often completely ignored, and even unrecognized, by those performing such experiments; while other essential conditions are not always provided for.

Thus, Dr Theobald takes a cat or a dog, places it in some stand, usually induces the effect of some drug, keeps the animal fixed in the stand, and, distending the abdomen, measures the pressure, and he thinks that his findings illuminate the conditions *qua* pressure within the abdomen of a woman happy and free, working in the house, eating as she pleases, and in whom during sleep the child is growing all the time. He omits completely all effects of the fixation on his animal, considers not the effect of fear or drug, ignores the differences in structure, due to the differences in manner of walking about, between his animal and man. He does not refer to the differences in the shape of the abdomen nor to the difference in the forces necessary to determine the return of blood to the heart. He pays no attention to the state of the abdominal muscles in pregnancy, neither in animal nor in man, and thinks that an experiment of a few hours with an animal fixed is comparable with the effects of many weeks of active life with the abdomen progressively being distended by pregnancy. On such evidence he states that the intra-abdominal pressure is not significantly increased in pregnancy.

The strength and the stability of my conception lie in the fact that it has been built up almost entirely from observation on man, and not at all from laboratory experiments, the effect of Eck's fistula in the dog being excepted. This does not mean that it is devoid of experimental support. Emptying the uterus, decapsulation of the kidney, even venesection in man, I take it, are experiments. So also in the cow suffering from its toxaemia of pregnancy, the distension of the udder with air, as practised by veterinary surgeons, is an experiment of the first order. It is a fine mental exercise to work out how these measures act. The conclusion from all is the same—that mechanical forces operating on the abdominal viscera are the essential cause of the disease.—I am, etc.,

Rugby, Oct. 26th R. H. PARAMORE, F.R.C.S.

*** We have referred the above letter to Dr Theobald, with whose reply this correspondence comes to an end.—ED., *B.M.J.*

SIR,—Mr Paramore would appear to be as ignorant of the atmosphere which obtains in a laboratory as he is of the "experimental method," so clearly enunciated by Claude Bernard, to which alone all advances which have been made in medicine may be attributed. Beyond assuring him that the rectal pressure is not the intraperitoneal pressure, I will leave him to his "fine mental exercise" in the comfort of his study armchair.—I am, etc.,

London, W.1, Oct. 29th G. W. THEOBALD.

Impacted Third Molar

A Request

SIR,—For the purposes of a lecture at the Royal College of Surgeons early next year I am collecting all the evidence relating to severe disturbances associated with either upper or lower impacted third molars, such as chronic infection, malignancy, cysts, fractures. I wonder if I might make this appeal through the medium of the *British Medical Journal* to members who may have the notes of any such cases to send me a brief summary, accompanied if possible by skiagrams or tracings showing the position of the tooth concerned. I shall take care that all radiographs and other original records are returned to the sender.—I am, etc.,

C. BOWDLER HENRY, M.R.C.S., L.D.S.Eng.
Lecturer in Oral Surgery, Royal Dental Hospital.

Leicester Square, W.C.2, Oct. 30th.

Surgeons' Fees

SIR,—"X. Y. Z." raises some debatable points when writing on this topic in your issue of October 28th (p. 798). I feel that in my capacity of physician I can safely take up the cudgels on behalf of my surgical brethren without fear of accusation of grinding a personal axe. Furthermore, having been in general practice, I am reasonably well qualified to examine the question from both sides.

"X. Y. Z." is undoubtedly right in putting the responsibility of fee determination on the shoulders of the general practitioner. It is he who knows, as well as they can be known, the circumstances of the patient, and it is he who should not only agree the amount of the fee, after consulting both parties, but also see that it is paid to the surgeon when the work is completed. This arrangement has held force in the past, and helps to maintain the correct relation between patient, practitioner, and consultant. The first and last should only in exceptional circumstances communicate with each other except through the intermediary of the family doctor.

When "X. Y. Z." tells that "many who are in need of operations have to carry on as best they can, because they simply cannot afford to pay the fees" I confess to a sense of incredulity. Are matters so different in the Midlands from elsewhere that consultants will not reduce their fees on a reasonable request? Are the hospitals likewise adamant? Certainly nobody in London need ever lack treatment on account of money shortage.

I am not greatly impressed by the alleged enormity of the fees quoted by "X. Y. Z." I confess that twenty guineas for removal of a child's tonsils (presumably by guillotine) causes the mere physician to salivate, but thirty-five guineas for appendicectomy and fifty guineas for cholecystectomy, though admittedly full fees for the provinces, where living is relatively cheap, are surely not exorbitant. Presumably the surgeons whom "X. Y. Z." employs are men of standing. They have devoted countless hours to perfecting themselves in surgical technique, and are still doing so. During these hours they are making no income. It is clear, therefore, that if the position of surgical consultant is to be maintained, these men must charge fairly high fees in order to live. Admittedly, I have seen cases of cholecystectomy where I have felt that it was the patient rather than the "surgeon" who deserved the fee, but I take it that "X. Y. Z." is writing not of the dangerous 'consultoid,' but of the man who knows his job and "delivers the goods." He, I think, deserves what he gets, and usually gets what he deserves.—I am, etc.,

London, W.1, Oct. 28th A. H. DOUTHWAITE.

SIR,—Is it fair to say that Dr "X. Y. Z." has not grasped the A B C of consultants' fees?

1. An experienced surgeon of, say, 40 years of age should, in a civilized community, be remunerated not less than other responsible members. As things stand at present he is surely worthy of a gross income of £2,000 a year, or more, since the years during which he can make such an income, and can save, are perhaps fifteen. It is doubtful if he can make this income unless he charges the fees "X. Y. Z." criticizes.

2. In comparison with commodity prices—for example, the price of a suit of clothes or of an article of furniture—35 guineas for a major operation is not high. Legal fees too, as for arranging the sale of a house, do not shame this charge. Indeed, six operations done for nothing in hospital, and one done privately for 35 guineas, work

out at 5 guineas apiece—payment not unlike a G.P.'s, when preliminary examination and after-visits are taken into consideration.

3. First things must come first. What is the average annual expenditure of the middle-class family on tobacco, holidays, and amusements—£30 to £40? An additional expense will strain the resources of any household if there is no thrift and no reserve. It is fair to say that the middle-class family can make provision to pay such fees as "X. Y. Z." condemns, but that it often does not, and hence suffers inconvenience or hardship.

The guidance of the family doctor undoubtedly should be sought in deciding what is a fair charge. If more precise standardization of surgical fees were necessary, as in any scheme of middle-class insurance, a fair one would seem to be one based on the income accepted for taxation by the Inland Revenue Commissioners. The patient, on producing his assessment form, would be charged a fixed percentage fee.—I am, etc.,

October 29th. A MIDLAND SURGEON.

Bequests for Medical Charities

SIR,—In your correspondence columns of October 21st you allowed me to make an offer. I said that if nineteen others would engage to do as much (or more) I would add a codicil to my will bequeathing £100 to a medical charity. Those who accept may leave the money to Epsom College, or to the Royal Medical Benevolent Fund, or to the Charities Committee of the British Medical Association. They are free to name a larger sum, but £200 in one legacy shall not count as two legacies of £100 for the purposes of this offer. Two at £50 shall, however, count as equal to one of £100, because the creation of a wider interest is part of the plan. An existing bequest of £100 or more shall not be deemed to be one of the nineteen, but if a testator adds a further £100 to his existing bequest he shall be reckoned in. Non-members of the profession are eligible for inclusion among the nineteen. It is to be understood that any testator is at liberty to revoke his bequest if changed circumstances appear to him to justify such action.

I suggested that those willing to join in this scheme should forward their names to you, Sir, or to the chairman of the Medical Charities Committee at B.M.A. House, Tavistock Square, W.C.1. When the nineteen names have been received a letter will be sent to each, asking that the necessary codicil (or will) may be executed, and that when this has been done a notification of it may be forwarded. The names will be kept strictly confidential. For the guidance of others I now enclose a model form of codicil.

Model Codicil for Medical Charity

I, A. B., of..... do make and declare this to be a Codicil to my last Will, which Will bears date the.....day of ....., 19....

I do hereby give and bequeath unto..... the sum of ... pounds free of legacy duty. And in all other respects I confirm my said Will.

In witness whereof I hereunto set my hand this.....day of ....., in the year of our Lord one thousand nine hundred and .....

A. B.

Signed by the said A. B., the testator, as a Codicil to his Will in the presence of us, present at the same time, who in his presence and in the presence of each other subscribed our names as witnesses.

C. D., of.....
.....(occupation).
E. F., of.....
.....(occupation).

The codicil should be kept with the will. The witnesses need not be the same as the witnesses of the original will.—I am, etc.,

October 27th. BACKBENCHER.

Drugs Supplied in Ampoules

SIR,—The idiosyncrasy of patients is not a sufficient explanation for those toxic effects which are sometimes experienced when ampoules of the newer drugs are employed in the treatment of tropical diseases. It is undesirable that incompletely tested drugs should be distributed among practitioners who are not fully conversant with the toxic effects which may follow their use; but the contradictory reports on new preparations supplied in ampoule form suggest that the sodium ions in soft glass containers may cause a change which is not readily discernible in some solutions. Drugs such as fouadin and antimonium-sodium tartrate, though seemingly free from toxic effect when prepared in bulk, may cause toxic reactions when supplied in ampoules for the treatment of schistosomiasis. Though the use of hard glass containers might eliminate the possible danger of sodium ions, many practitioners have wisely made fresh solutions of tartar emetic, even though this is less easily obtained, rather than employ ampoules where the stability of a drug may be adversely affected by tropical conditions.—I am, etc.,

Durban, Oct. 4th. F. G. CAWSTON, M.D.

Purification of Swimming Baths

SIR,—I read Dr. Margaret Lowenfeld's letter in your issue of October 14th with great interest and surprise. I should be much obliged if Dr. Lowenfeld would kindly name the public baths where a charge for lavatory accommodation is made. The National Association of Bath Superintendents would greatly appreciate this information, as hitherto it has had no knowledge that such a practice existed. This association is quite aware of the recent newspaper campaign regarding public swimming baths, and fully appreciates the fact that the majority of the "evidence" produced is of similar value to that obtained by overhearing casual conversations, such as the one referred to in Dr. Lowenfeld's letter.—I am, etc.,

Central Baths, Grange Road, S.E.1, Oct. 24th. E. SHUTT, Honorary Secretary.

The Services

HONORARY SURGEON TO THE KING

The King has approved the appointment of Major-General J. F. Martin, C.M.G., C.B.E., late R.A.M.C., Honorary Surgeon to the Viceroy of India, as Honorary Surgeon to the King, in succession to Major-General W. H. S. Nickerson, V.C., C.B., C.M.G., late R.A.M.C., who has retired.

DEATHS IN THE SERVICES

Lieut.-Colonel Cecil Charles Stuart Barry, C.I.E., Bengal Medical Service (ret.), died suddenly at Haslemere on October 6th, aged 66. He was born on December 10th, 1867, the son of Charles Barry, Esq., architect, of Dulwich, was educated at St. George's, and took the M.R.C.S. and L.R.C.P.Lond. in 1891. Entering the I.M.S. as surgeon lieutenant on July 29th, 1893, he became lieutenant-colonel after twenty years' service, and retired on February 9th, 1921. He served in the Chitral campaign, on the North-West Frontier of India, in 1895, and received the Frontier medal with a clasp. He entered civil employ in Burma in May, 1896, and spent the rest of his service in that province. After a spell as resident medical officer of Rangoon General Hospital, he spent some years as a civil surgeon in Burma, and in 1909 returned to the General Hospital as superintendent, and professor of midwifery and gynaecology in the Rangoon Medical School, and held that post till he retired in 1921. He received the C.I.E. on June 3rd, 1915. In 1902 he married Dorothea Alice Maud, daughter of the late W. De Courcy Ireland, LL.D., of the Burma Commission.

Obituary

DONALD ARMOUR, C.M.G., F.R.C.S.

Surgeon to the National Hospital, Queen Square; Consulting Surgeon to the West London Hospital

By the sudden death of Mr. Donald Armour on October 23rd British surgery, and more particularly neurological surgery, has suffered a severe loss, the profession at large the loss of a dominant personality, and the public the loss of a surgeon who was always ready to help and do his work well in the many hospitals to which he was attached.

Donald James Armour was born in 1869 at Cobourg in Canada, and was the son of a distinguished lawyer, the Hon. John Douglas Armour, Chief Justice of Ontario. He came to England in the 'nineties, after graduating with honours in medicine and natural sciences at Toronto University. On his arrival in this country he was appointed demonstrator of anatomy at University College, where he met Sir Victor Horsley, a meeting which had a great effect on his subsequent career, for a very firm friendship began, which lasted until Horsley's death in the early days of the war.



After coming to London Armour qualified at the Colleges in 1896, and a year later took his M.R.C.P., which was followed in three years by the F.R.C.S. He often remarked how Horsley's influence guided him during this time, when it was very difficult for him to know what course to pursue; and indeed, looking back, it is easy to see how that influence assisted him, for when a vacancy occurred on the surgical staff at the National Hospital for Nervous Diseases in Queen Square, Horsley exerted all his great personal influence and got him elected at the same time as the late Sir Percy Sargent. Armour held this appointment to the time of his death. In the meanwhile he had become assistant surgeon to the West London and Italian Hospitals, and consulting surgeon to the Blackheath and Charlton Hospital, and the Acton Hospital. He had to retire, much to his regret, from the West London Hospital, under the rule which prescribes a limit of twenty years' service on the senior staff. For many years he did his work at the West London with great regularity, and his teaching in neurological surgery there must be remembered by many hundreds of medical men attending the hospital and the post-graduate school, of which he was dean for some time.

In addition to all these hospital duties he had a large private surgical practice, so that his life was a very full one, and yet he never flagged, his energy carrying him through the great increase of work which came in 1914. During the war he became lieut.-colonel R.A.M.C., received the honour of C.M.G., and was attached to numerous private hospitals for officers in London and elsewhere. Perhaps the one at which he did most work was, appropriately, a Canadian hospital, supported by the I.O.D.E. (Imperial Order of Daughters of the Empire), and it was there he did some of the best surgical work of his career, for special cases were sent there to be "under Armour," many of them neurological and other big surgical emergencies. One such case was outstanding, an enormous diaphragmatic hernia with which Armour had a wonderful success; and should this note be read by any of the Canadian ladies who were in that hospital as nurses during the war they will recognize the case at once.

The man's energy and the work he got through during the years of the war had to be seen to be believed. Apart from his hospital and private work he found time to write many articles in the medical Press, and in every society to which he belonged he was a past-president or had held high office. He was successively president of the Neurological Section of the Royal Society of Medicine, of the West London Medico-Chirurgical Society, of the Medical Society of London, and of the Association of British Neurological Surgeons. He joined the British Medical Association more than thirty years ago, and on two occasions was a member of the Representative Body—at Belfast in 1909, and in London in 1910. At the Sheffield meeting in 1908 he was secretary of the Section of Surgery, and in 1910 secretary of the Section of Medical Sociology. At the Aberdeen meeting in 1914, which ended just before the outbreak of war, he was vice-president of the Section of Neurology and Psychological Medicine. His Lettsomian Lectures before the Medical Society have been widely recognized as giving an accurate description of modern surgery of the spinal cord and membranes, and these lectures are the standard work on the subject. It was just after he had given his report as treasurer of that society last week that he was seized by the sudden illness that put an end to a career of which any man might be justifiably proud; and it occurred as he would have chosen, at work.

Armour was a prolific writer, and in addition to the Lettsomian Lectures he was Arris and Gale lecturer, Hunterian professor, and Jackson prize essayist at the Royal College of Surgeons. These lectures and all the articles he wrote were models of conciseness, and dealt only with subjects of which he had personal knowledge and experience. He was intolerant of any hearsay evidence, and was very outspoken, both in his speech and in his writings, of anything he did not consider accurate. As a surgeon the influence of Horsley was obvious in all his work, and as he had not got the master's ambidexterity, a fact which he frequently deplored, he was always using fresh machinery and inventing new instruments to aid him. Donald Armour was a great admirer of de Martel of Paris, and at his own expense he had introduced that surgeon's electric motors, saws, trephines, and pumps into the theatre at the National Hospital, where he rapidly became expert in their use. This use of complicated machinery was the more striking as his surgical colleague, Sargent, used none, and many a bout of good-humoured chaff has been heard in that theatre on account of this difference between the two surgeons. It would not be correct to say he was easy to work with, but his criticisms

ROYAL COLLEGE OF PHYSICIANS OF LONDON

A quarterly comitia of the Royal College of Physicians of London was held on October 26th, with the President, Lord Dawson of Penn, in the chair. Dr. F. H. Jacob, Sir Ewen Maclean, Sir Henry H. Dale, and Dr. F. R. Fraser were elected councillors Dr. R. A. Young was re-elected a member of the Committee of Management of the Conjoint Board, and Mr. Comyns Berkeley re-elected a representative of the College on the Central Midwives Board. Dr. John Hay was appointed representative of the College on the Court of Governors of the University of Liverpool. The President announced that Dr. E. H. R. Harries had been appointed Milroy Lecturer for 1935, and that the Jenks Memorial Scholarship for 1933 had been awarded to Henry Newnham Peyton, late of Epsom College.

Membership

The following candidates, having satisfied the Censors' Board, were admitted Members of the College:

Trevor Arthur Lloyd Davies, M.B.Lond., Sailendra Kumar Ghosh-Dastidar, M.B.Calcutta, Ronald Edward Jowett, M.D.Leeds, Patrick Corbett Mallam, M.D.Oxf., Frederick Murgatroyd, M.D. Liverp., Ralph Athelstane Noble, M.B.Sydney, Bangalore Venkata Subba Rao, M.B.Mysore, Hari Krishna Rustagi, M.B.Lucknow, William Edward Snell, M.D.Lond., Ian Criel Thorburn, M.D.Melb.

Licences

Licences to practise were conferred upon the following 117 candidates (including twenty-one women) who have passed the final examination in medicine, surgery, and midwifery of the Conjoint Board, and have complied with the necessary by-laws:

R. D. Ayyar, A. J. N. X. Babapulle, Mrs. Bridget M. Barcroft, W. R. Billington, G. W. Blomfield, I. N. Blusger, P. R. Boucher, B. H. A. Bovet, Mrs. Muriel Boycott, C. F. R. Briggs, J. A. Brocklebank, A. Brown, G. C. Brown, R. E. Browne, J. A. C. Burridge, K. L. Buxton, W. H. Cartwright, T. Ll. Chester-Williams, J. A. Chivers, A. J. P. Coetzee, K. R. D. Coles, F. E. Corea, C. F. Critchley, J. D. Cruickshank, Enid G. M. Cummings, D. O Davies, H. S. Davis, G. De Lacey, G. V. W. Doherty, Ll. J. L. Edwards, P. J. England, G. H. D. Evans, T. Fitt, H. D. Fleming, H. C. Fletcher-Jones, P. A. Forsyth, H. R. Fosbery, M. K. Gadgil, H. J. Gaudin, B. Gaunt, S. K. Ghosh, Mary I. Gibson, H. W. Hall, Susanna M. Halliday, Ida M. Hamp, R. S. Handley, H. G. Hanley, Beatrice J. Haram, N. H. Harwood-Yarred, S. A. Hasan, G. A. H. Herbert, C. A. Hodges, J. Holme, A. C. L. Houlton, J. W. James, Maisie-Fraser James, R. G. James, E. H. Johnson, J. B. Jordaan, J. S. Kapadia, Mrs. Phyllis M. Kerridge, Gwendoline D. Knight, Alfreda W. Krichauff, E. H. P. Lassen, J. B. Lee, O. Lyth, F. W. H. McMurdo, J. S. Marr, K. R. Masani, P. C. Matthew, S. A. Mian, C. B. Miller, C. J. B. Murray, Frances C. Naish, P. B. L. Nicholas, W. S. Nutt, Margaret M. O'Connor, V. G. Peckar, G. D. Pirie, Joyce A. Pope, Margaret R. Price, R. R. Race, K. S. Ramaswami, V. B. Reckitt, L. R. J. Rinkel, M. Ripka, Helen E Rogerson, Picotee E. Rose-Innes, J. E. Rowlands, M. Sacks, D. S. Saklatvala, B. Samuel, P. R. Saville, B. Schulenburg, G. R. Sedleigh-Denfield, R. Shackman, J. Shields, I. M. Shulman, J. Smart, R. L. Soper, M. S. Spink, Alice C. N. Swanston, M. M. Syddiq, Barbara M. G. Taylor, H. W. Thomas, D. M Thomson, G. L. B. Thurston, Lilian E. Tracey, Sarah C. B. Walker, T. P. Ward, J. T. Watkins, C. P. B. Wells, P. R. Wheatley, F. E. Wheeler, J. I. Wilson, C. R. Wright, I. Zieve.

Diplomas in Public Health were granted, jointly with the Royal College of Surgeons, to the following:

B. Haring, W. Hartston, Mrs. Mary C. im Thurn, M. Jafar, Mrs. Lilian P. James, K. N. Mawson, G. P. Phadke, V. V. Puri.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—G. C. Canaval, E. E. Evans, E. M. F. O'Donovan, S. E. Roberts.

MEDICINE.—K. W. Bruce, H. L. Canaval, N. C. Lendon, D. A. Smith, G. L. R. Tapsall, P. D. Thomas, T. Von Haebler, J. P. Walsh Conway.

FORENSIC MEDICINE.—G. C. Canaval, R. F. Fleming, E. M. F. O'Donovan, B. D. Sachdeva, A. L. L. Silver, J. P. Walsh Conway.

MIDWIFERY.—P. C. Alexander, A. H. L. Baker, G. W. Hardy, W. C. Heunis, M. T. Hirst, E. G. Houghton, D. P. King, S. Krishnan, H. J. Ripka, H. W. Smithies, P. H. Willcox.

The diploma of the Society has been granted to K. W. Bruce, G. C. Canaval, R. F. Fleming, E. M. F. O'Donovan, P. D. Thomas, T. Von Haebler.

Medical News

Sir D'Arcy Power will deliver the William Mitchell Banks Memorial Lecture for 1933, on "The History of Amputation of the Breast to 1904," on Thursday, November 16th, at 4 p.m., in the Surgical Theatre, Medical School, University of Liverpool. The lecture will be illustrated by lantern slides, and is open only to members of the medical profession.

A meeting of the Paddington Medical Society will be held at the Great Western Royal Hotel, Paddington, W., on Tuesday, November 14th, at 9 p.m., when Dr. C. Killick Millard (medical officer of health for Leicester) will give an address on "Euthanasia," followed by a discussion.

At the General Infirmary, Leeds, to-day, Friday, November 3rd, at 5.30 p.m., Dr. Victor Pauchet of the University of Paris, will address the University of Leeds Medical Society, and, at 8 p.m., the Leeds and West Riding Medico-Chirurgical Society. Both lectures will be illustrated by cinematograph films.

At the meeting of the Royal Sanitary Institute on Tuesday, November 14th, at 5.15 p.m., at 90, Buckingham Palace Road, S.W.1, Dr. C. F. White, medical officer of health of the Port of London, will read a paper entitled "A Review of Port Sanitary Administration."

A reception will be held at the Royal Society of Medicine, 1, Wimpole Street, W., on Wednesday, November 29th, at 8.30 p.m., when Fellows and their friends will be received in the library by the president and Mrs. Warren Low. At 9.15 p.m. an address will be given by Professor E. N. da C. Andrade, entitled "Ultra-violet Light." Admission will be by ticket only, obtainable by Fellows from the secretary.

The fifty-sixth annual dinner of the Cambridge Graduates' Club of St. Bartholomew's Hospital will be held on Wednesday, November 15th, at 7.15 for 7.30 p.m., at the May Fair Hotel, with Professor W. Langdon Brown in the chair.

A course on heart disease will be held by Dr. Lian and his assistants at the Hôpital Tenon, Paris, from November 13th to the 23rd. The fee is 250 francs.

The Fellowship of Medicine (1, Wimpole Street, W.1) announces that a course of four lectures has been arranged by the London Child Guidance Clinic, to take place on November 13th, 15th, 20th, and 22nd, at the British Medical Association House, Tavistock Square, W.C. The first lecture will be given on Monday, November 13th, at 8.30 p.m., by Dr. William Moodie on child psychiatry and its bearing on behaviour. A course in urology, for advanced post-graduates, will be given at St. Peter's Hospital for Stone, Henrietta Street, from November 6th to 18th. During the week-end November 18th and 19th there will be a course in gynaecology at the Samaritan Hospital for Women, Marylebone Road, N.W. There will be a fortnight's course in diseases of the chest at the City of London Hospital, Victoria Park, from November 13th to 25th. From November 13th to December 9th there will be a course in venereal disease at the London Lock Hospital. Other forthcoming courses include proctology at St. Mark's Hospital, November 20th to 25th; rheumatism at the British Red Cross Clinic, Tuesdays and Thursdays at 8 p.m., from November 21st to December 7th; diseases of infants at the Infants Hospital, November 27th to December 9th (afternoons); dermatology at Blackfriars Skin Hospital, November 27th to December 9th (afternoons). Courses, etc., arranged by the Fellowship of Medicine are open only to members and associates.

A lecture on the theory and practice of contraception will be given to medical students who have completed their gynaecological course, by Dr. L. C. Butler, on Friday, November 10th, at 6 p.m., at the Walworth Women's Welfare Centre, 153A, East Street, S.E.17. Tickets are to be applied for in advance.

The annual general meeting of the British Health Resorts Association, Ltd., will be held at 28, Portland Place, W., on Friday, November 10th, at 4 p.m., with Lord Meston in the chair.

At the invitation of the Joint Tuberculosis Council Dr. Peter Edwards, medical superintendent, Cheshire Joint Sanatorium, near Market Drayton, Salop, is prepared to give short intensive post-graduate courses on modern methods of therapy in tuberculosis of the respiratory system, with special reference to collapse therapy. Methods of sanatorium administration will also be demonstrated, and no class will exceed four members in number. Arrangements for board and residence can be made within a convenient distance of the sanatorium. Details of dates, expenses, etc., will be sent by Dr. William Brand, honorary secretary for post-graduate courses, 8, Highway Court, Beaconsfield, Bucks.

The eighth French Congress of Gynaecologists and Obstetricians was held at the Paris Faculty of Medicine from October 5th to 7th, under the presidency of Professor Couvelaire, who delivered an address on the new orientation of modern obstetrics to surgical methods, and of surgical conservative methods as the result of recent physiological teaching.

October 21st was the hundredth anniversary of the birth of the Swedish chemist and engineer Alfred Bernhard Nobel, the discoverer of dynamite and founder of the Nobel prizes, who died in 1896. Up to the present Great Britain, France, and Germany have each contributed 15.2 per cent. of the prize-winners, the United States 7 per cent., and Sweden 6 per cent.

Dr. N. L. Clarke has been reappointed a nominated unofficial member of the Legislative Council of the Straits Settlements.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Mediscia Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

"Sore Heel"

DR. ALEXANDER BRYCE (Birmingham) writes: I wonder if any of your readers, skilled in foot therapy, could help me. Three or four years ago, early in January, whilst playing golf, I got my shoes, and goloshes covering them, full of slushy snow. Ever since that day I have suffered from painful heel. *X rays show nothing wrong* with the osseous mechanism of the heel, but with every step I feel as if the fleshy part of my heel was studded with hob-nails. Saturation with iodine ointments has done no good. The only relief I obtain is by walking on a soft heel-pad made from an oblong rubber sponge, and fitted into the heel of my shoe. Any hints will be much welcomed.

Paroxysmal Haemoglobinuria

"G. S." writes: I should be much obliged for any information about the treatment and prognosis of a case of paroxysmal haemoglobinuria in an otherwise perfectly healthy schoolboy of 16 years. Must he be kept from playing games for ever?

Insomnia in Infants

"W. T. W." invites suggestions for treatment of this condition. The child is otherwise in perfect health. She is 2 years of age, and will not sleep more than six to seven hours in the twenty-four. Chloral up to 10 grains has been tried without effect, and chloretone, luminal, and bimodide have also had no results. The diet seems to be suitable.

Winter Underwear

MR. R. BALFOUR GRAHAM, F.R.C.S.Ed., writes from Leven, Fife, with reference to "North London's" inquiry of October 14th: I would recommend for both summer and winter wear "aertex" cellular clothing. I have worn this for forty years. It contains latent heat in its mesh, readily absorbs moisture and quickly dries, and can be boiled, which woollen clothing does not stand. It is pure cotton, of British manufacture, and Oliver Bros. (455, *Oxford Street, London*) stock it. I may add, like Colonel Cowan in your last issue, "I have no financial interest in the firm."

Thumb-sucking

Dr. H. HUDSON (Salford) writes in reply to "Interested" October 21st (p. 765). I would suggest a fairly simple cure for his intractable case—namely, the application to the thumbs each night of a small quantity of ung. capsici (or ung. capsolin, P. D. and Co.). The remedy is severe, even cruel maybe, but fortunately is quick and sure.

Treatment of Urticaria

"Y. Y." writes in reply to "X. X.". I remember a very chronic and obstinate case which was speedily and permanently cured by a mixture containing tinct. ferri perchlor. ♏ x and liq. arsenicalis hydrochlor. ♏ ij in each dose, given after meals.

"Pulex ubiquitus"

Dr. IRENE N. CLOUGH (Glasgow) writes. With regard to the correspondence on *Pulex irritans*, the Natural History Museum, South Kensington, in its series "Economic Pamphlets" publishes one on "Fleas as a Menace to Man and Domestic Animals. Their Life History, Habits, and Control." The cost is 5d., post free, and it is obtainable on application to the Director, British Museum (Natural History), Cromwell Road, London, S.W.7. I have found the whole series very practical. Camphor is another scent much disliked by fleas. Is it beneath the dignity of a serious medical journal to suggest that by far the most effective weapon in pursuit of a flea is a damp cake of soap? I occasionally meet colleagues who are not aware of this useful piece of information.

Income Tax

Repair of Furniture

"DUBIUS" removed to other premises and had his consulting room furniture repolished and re-upholstered, etc., at a total cost of £30. Can this be charged as a professional expense?

*** Yes; the fact that it was done at the same time as the removal does not affect the main question—that is, that reasonable expenditure on repair and replacement of professional furniture is allowable for income tax purposes.

Obsolescence Allowance for Car

"ORTHOPHONIA" is a specialist most of whose work is done in his own house, but a car is a necessity for country visits, etc. Until last year the car was also used by his wife, who has now bought a car for her own use. Half the expense of the old car was allowed for income tax purposes. "Orthophonia" has sold his former (cost £390) for £120, and has bought another car for £173. No claim was made for depreciation. What can he claim now?

*** The maximum claim is £173 − £120 = £53—that is, "the amount expended" in replacing the old car. Presumably only one-half—that is, £27—will be allowed, having regard to the private uses of the old car. This case illustrates the disadvantage of not claiming the depreciation allowance year by year. The Income Tax Acts make no other allowance for wasting capital, and where the capital cost of an asset is falling the replacement-cost allowance is inadequate to give equitable relief.

Temporary Residence in the United Kingdom

"W. S." arrived in the United Kingdom on May 25th last on furlough after an absence of four years. Since then he has spent five days in the Irish Free State. He expects to leave for another term of service on December 2nd. What is the position as regards income tax?

** Assuming that he has not maintained a residence in the United Kingdom during his absence abroad his temporary residence here for less than six months will not make him liable to tax *as a resident*. But a non-resident is liable in respect of income derived from a source within the United Kingdom, so if during his furlough he has been in receipt of salary, etc., paid by an employer here he will be liable on those sums (less the year's personal allowances), but not on sums earned abroad before May 25th or after December 2nd.

Government Annuity

"DECEIVED" purchased a Government annuity of £180 when he was 53. Tax was deducted for a time at half the standard rate, but more recently at the full 5s. in the £. Has he any remedy?

** The Income Tax Acts make no allowance for the fact that an annuity of this nature is in part a return of capital, and the whole amount is taxable. We think that our correspondent is under a misapprehension, therefore, as to why only half-rate tax was deducted for some time—it was not to allow for the "capital" element in the annuity, but on the assumption that his total income was such that the full rate was not payable. If the contrary is the case—that is, if his allowances and other income are such as to leave the annuity liable at 5s. in the £—he has no remedy.

Removal of Special Practice

"H. G." has carried on a general practice outside London and a special, chiefly electrotherapeutic, practice in London. He now proposes to combine the two at his place of residence. Can he deduct as expenses: (1) cost of packing and removing machines; (2) cost of reassembling them; and (3) cost of installing a "power" current at his residence?

** If the removal is voluntary on his part—that is, decided on without compulsion from outside—then none of the specified expenses can be deducted. If, however, the removal has been forced upon him—for example, by termination of and inability to renew the London lease—then (1) and (2) can be deducted; (3) would in any event seem to be capital outlay in improving or adapting the premises in question.

LETTERS, NOTES, ETC.

Rheumatism and the Tropics

Dr. A. Ross, surgeon to s.s. *Camito*, referring to Dr. J. Tertius Clarke's criticism (*Journal*, August 19th, p. 360) writes: In my original letter to the *Journal* (July 29th, p. 216) I wished to convey the fact that "rheumatism and allied diseases" are hardly ever met with in the Tropics. *Heat*, with its attendant perspiration, is to my mind the preventive, and indeed the cure, for those afflicted with such diseases. My argument is that in the Western Tropics, at any rate, where we have not got the miasmatic dampness of the East, there is great potential worth in the all-the-year-round warmth and sunshine, where even sea-bathing can be indulged in at a temperature approaching the artificially heated waters of the English and Continental spas. For instance, Barbados—an island with a population approaching 200,000, which I know very well —has no latent moisture at all, as, owing to its coral formation, the usual tropical rains are absorbed at once, and malaria is non-existent.

Goitre and Mental Instability

Dr. HARRIET C. WILKIE (Auckland, New Zealand), referring to Dr. H. R. C. Rutherford's paper published in the *Journal*, July 29th, p. 188, writes: I might mention one family of which several members have been under my care. The father and mother are both very fine types of New Zealand settlers. Mr. X, aged 60, has had simple goitre for many years and is mentally stable; his wife, aged 58, had a goitre for many years which was removed for toxic symptoms about fifteen years ago. Their family consisted of four. YX, male, aged 29, developed a psychosis subsequent to financial disaster, and is at present in a mental hospital. He had very septic teeth, which were recently removed. ZX, female, aged 28, had a toxic goitre removed two years ago following a period of ill-health and mental instability. She was highly emotional, but the nervous symptoms are gradually improving. Septic teeth were removed. WX, female, aged 24, has a small goitre, suffers from nervous diathesis, and is highly emotional. VX, male, aged 20, had a goitre removed last year. He is fairly stable mentally, but apprehensive lest he should meet the same fate as his brother.

Pictures at Guy's

Mr. W. ROBERTS (London, S.W.4) writes: I think the word "discovered" is hardly correct to apply to the picture—referred to in your issue of October 28th—at Guy's Hospital by John Teal Cooper. The picture was recorded as being there in 1743! But as the announcement of the "discovery" has had the result of calling attention to a long-forgotten English artist—other than a portrait painter —of more than average merit, one need not quibble over a definition. John Teal Cooper is not mentioned in any English "Dictionary of Artists"; he is referred to as "Cooper" in Horace Walpole's *Anecdotes of Painting*. I have among my art cuttings one from the *London Evening Post* of October 27th–29th, 1743, in which the death is announced—"a few days ago after a lingering illness," in the 45th year of his age, "at his apartment in the Crown House at Lambeth," of Mr. John Teal Cooper, "that celebrated master in painting," and "well known to the ingenious world for his most excellent performances in fruit." The writer goes on to say: "There is one of his masterpieces in the Great Room at Guy's Hospital, which remains a monument of that great man's ability in painting." Thomas Guy died in 1724, when John Teal Cooper was 26 years of age, and so it is just possible that he may have purchased the picture from—or was presented with it by—John Teal Cooper. But from what we know of Thomas Guy, picture buying was not one of his virtues.

Sea Cruises for Health and Rest

In response to inquiries by a medical reader, the *Shipping World* announces that it is prepared to advise any doctor free of any charge or obligation, of all vessels, carrying or prepared to carry passengers, leaving Great Britain for any part of the world that he considers suitable for any particular patient. It will give him information as to the number of passengers carried, ports of destination, accommodation and charges, medical facilities, and the minimum or maximum cruises or voyages that would be possible in each case.

Medical Golf

The Medical Golfing Society held its autumn meeting at Littlestone on October 21st and 22nd, by kind permission of the Littlestone Golf Club. The attendance of some seventy competitors resulted in a most successful meeting. The results were as follows:

Singles v. Bogey.—1st, J. E. M. Wigley (11), 1-up; 2nd, S. J. Holford (12), all square.

Foursomes.—1st, A. Hope Gosse and J. L. Livingstone 2 down; 2nd, A. Gailetly and G. McGrath, 3 down.

Cammy Ryall Cup.—1, L. Bromley, 74 − 1 = 73; 2, Colonel Blackwell, 79 − 5 = 74; 3, A tie of four: H. Gardiner-Hill, 74 + 1 = 75; W. McK. McCullagh, 90 − 15 = 75; A. C. Palmer, 84 − 9 = 75; Stanley Wyard, 91 − 16 = 75.

Found

The Commissioner of Police of the Metropolis informs us that on October 7th, at Crown Lane, Streatham, a brown leather attaché case, 14 in. by 8 in., was found containing a stethoscope and other medical instruments, and three bottles supposed to contain anaesthetics. The finder of the bag deposited it with the police at the Z Division Station, Norbury, S.W., and the owner should apply to the superintendent there.

Messrs. Manlove, Alliott and Co., Ltd. (41, Parliament Street, S.W.1), have issued in pamphlet form an account of the sterilizing equipment ("recessed system") installed by them at the Royal Masonic Hospital, Ravenscourt Park, London, to which reference was made in the *Journal* of May 13th (p. 840).

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 51, 52, 53, 56, and 57 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 54 and 55.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 247.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

310 Symptomatology of Malignant Pituitary Tumours

E B Fink (*Journ Ner and Ment Dis*, June 1933, p 561) records four cases of malignant tumours of the hypophysis which invaded the diencephalon but did not cause cromegaly The growths penetrated the third ventricle extensively, and some of them involved the cerebrum as far back as the frontal lobes in front and the pons behind It is pointed out that pituitary symptoms are not prominent in malignant tumours of the hypophysis their occurrence depending somewhat upon whether the growth originates within the sella or is suprasellar from the beginning The age of onset is important since cranio pharyngeal tumours are commonly observed in the pre adolescent period Typical ocular signs such as paracentral or caecocentral scotomas or hemianopic field defects are frequently found at the first examination Bitemporal hemianopsia, when present, is *almost pathognomonic Symptoms of hypofunction* of the hypophysis such as infantilism and sexual dystrophy, *indicate the effects of pressure* Amenorrhoea is an early and reliable symptom of hypopituitarism Erosion of the clinoid processes, or suprasellar shadowing, affords additional evidence of hypophyseal tumour An acute clinical course, with rapid evolution of grave symptoms—particularly reduction of vision leading to hemianopsia—is almost pathognomonic Symptoms of involvement of the vegetative centres in the diencephalon such as polyuria, obesity, and hypersomnia, may be produced by large cysts, but when they develop rapidly malignancy must be suspected These tumours must also be differentiated from gliomas of the third ventricle, suprasellar meningiomas and gliomas of the optic chiasma

311 Megacolon

C de Glide (*Le Scalpel* July 15th, 1933, p 1073) defines the megacolon as a segmentary or total, idiopathic or secondary, dilatation of the colon, accompanied by elongation and hypertrophy of its walls *The dilatation may be extreme*, but elongation is not constantly present The wall becomes sclerosed owing to hypertrophy of the circular muscular fibres, the longitudinal bands and segmentation disappearing In studying the pathogeny of megacolon for which many theories have been advanced, de Guide distinguishes two types, the congenital (true Hirschsprung's disease) and the symptomatic (Hirschsprung's syndrome) Despite various contrary opinions he agrees with Hirschsprung that the congenital form results from a developmental anomaly during embryonic life it is idiopathic, as the dilatation is primary and no obstacle to the intestinal flow exists The symptomatic form follows a retrodilatation secondary to an impeded intestinal flow Various anatomical and physiological causes of this are discussed Among the former are persistence and exaggeration of a dolichocolon, presence of Bensaude's valve, and coalescence of the colonic walls Bensaude has demonstrated at the colon rectal juncture a valve supernumerary to Houston's and believes that, when this is absent, the dilatation causes no trouble and is only accidentally discovered Physiological causes are spasm of the anal sphincter and disturb*ance of the sympathetic and parasympathetic equilibrium* Certain cases appear to be of nervous origin Complications of megacolon are deterioration in the general condition, volvulus, faecalomata and ulcerative colitis The diagnosis must always be confirmed by radiography Conditions to be differentiated are the large flaccid abdomen of rickets and tuberculous peritonitis Of medical treatments a daily enteroclysis of a large quantity of water given with a long sound under low pressure, and electrical enemas are of value Mineral purgatives, agar laxatives, and stimulants of contraction (strychnine, etc) are harmful Belladonna tincture is useful for the spasm, and eserine for the constipation and acute symptoms The diet should be such as to leave little residue Should these measures fail, surgery is indicated In congenital total megacolon de Guide performs ileo sigmoidostomy, followed if necessary by total colectomy in the acquired total form, secondary to a sigmoid megacolon, sigmoid colectomy usually suffices, in subtotal forms colectomy with caecostomy is advised Notes are given of a case of congenital subtotal megacolon

312 The Heart in Typhoid Fever

R Lessard (*These de Paris*, 1933, No 312) records thirty two cases of typhoid fever, in patients aged from 17 to 49 in which changes in the normal electrocardiogram were found in seventeen, or 53 *per cent* The changes consisted in disturbances of rhythm in the form of sinus arrhythmia (one case) extrasystoles (one case) sinus bradycardia (one case) auricular fibrillation (one case) disturbance of the auriculo-ventricular conduction *(two cases), or changes in the ventricular complexes* Arrhythmia was only rarely found by itself, but usually associated with changes in the ventricular complex which were much more frequent Although not so frequent as in acute articular rheumatism, or so serious as in diphtheria various degrees of disturbance of auriculo ventricular conduction may occur in typhoid fever The frequency of electrocardiographic anomalies bore a direct relation to the clinical severity of the disease abnormal tracings being found in 12 5 per cent of the mild cases in 55 per cent of the moderate cases, and in 73 per cent of the severe cases It is stated that too much prognostic importance must not be attributed to the electrocardiographic method of investigation, as patients may die with normal tracings but a persistent change in the electrocardiogram in convalescence from typhoid fever should be regarded as of evil omen for the future

Surgery

313 Fractures of the Olecranon

E M Daland (*Journ Bone and Joint Surg* July 1933 p 601) gives the results of a study of forty eight cases of fracture of the olecranon—a condition which he finds most common in the first three decades of life In the series under review eight fractures occurred in children under 8, before the appearance of the epiphysis eleven between the ages of 8 and 16, before the fusion of the epiphysis to the diaphysis, and twenty nine after fusion He states that these fractures are caused by direct trauma, or by falls on the outstretched hand with the elbow partially flexed During flexion the triceps is tight, and the blow is transmitted through the lower arm and the sigmoid fossa to the olecranon against the tense muscle The fractures may be associated with other injuries to the bones of the same arm and are the only fractures about the elbow which should be treated in extension Complete reposition of the fragments and retention in good position are of great importance Manipulation and *application of a cast proved most un*successful and open operation was found to be the proper treatment for an olecranon fracture in which there is any displacement of the fragments The best method is the suture of the fragments with strips of fascia lata although, where a stronger type of suture or fixative is necessary, wire, kangaroo tendon, nails, or pegs may be used The use of foreign bodies *necessitates* a secondary operation for their removal The operative mortality in the series of twenty three cases in which open operations were done was just over 4 per cent Daland recommends fascia lata as the suture material, as producing a quicker recovery of function and a stronger result

314 **Staphylococcal Myositis**

J. Chaillet (*Thèse de Paris*, 1933, No. 358), who records eleven cases in patients aged from 5 to 61 years, of whom nine were males and two females, states that *Staphylococcus aureus* is the most liable of all the pyogenic organisms to give rise to myositis accompanied by septicaemia. The exciting cause may be trauma of the muscles or neighbouring parts, a boil or whitlow, impetigo, or abscess. The predisposing cause may be cold or a muscular strain, which accounts for the comparative rarity of the disease in the female sex. The local symptoms consist of severe pain and tenderness confined to the affected muscles. The skin usually retains its normal colour, but sometimes there may be a slight tenderness, or ecchymosis may appear. The local signs are accompanied by those of staphylococcal septicaemia, such as high temperature, digestive disturbance, albuminuria, pains in the joints, and enlargement of the liver and spleen. The condition is distinguished from typhoid and rheumatic fevers and phlebitis by blood cultures. The prognosis depends on the number or virulence of the organisms, the focus of the myositis, the past history of the patient, and the treatment—which should be both surgical and medical.

315 **Transurethral Treatment of Prostatic Hypertrophy**

A. P. Mathé and E. de la Peña (*Arch. Med., Cir. y Esp.*, July 15th, 1933, p. 785) maintain that transurethral resection, or *forage*, of the prostate has been accepted by an increasing number of surgeons as a suitable treatment for 80 per cent. of prostate cases. The success of the method depends on the selection of cases, careful pre-operative and post-operative attention, and exact knowledge of cysto-urethroscopic technique. It cannot take the place of prostatectomy, which should be reserved for cases in which the prostate has attained a considerable size, or instrumentation is difficult owing to lesions or deformities of the urethra, and lastly those in which vesical catheterization is impossible. In selected cases transurethral resection is better tolerated than prostatectomy and is followed by less constitutional disturbance and fewer complications. In most cases it can be performed under local anaesthesia. The results were good in the writer's series of 147 selected cases. One patient with advanced cardiac lesions died during the pre-operative treatment and seven had subsequently to undergo prostatectomy. In some cases transurethral resection had to be performed two or three times. After the operation sexual potency appeared to increase, and procreative capacity was not affected in the least.

Therapeutics

316 **Prevention of Anaphylaxis and Serum Sickness**

C. Rother (*Zentralbl. f. Chir.*, June 10th, 1933, p. 1336) finds that anaphylaxis cannot be prevented invariably by calcium administration, followed by intramuscular injection of autogenous blood, four or five hours after injection of "coliserum," which was given after the operation and before the patient recovered consciousness. Rother has discarded, in almost all cases, the practice of preoperative desensitization by autogenous serum (17 to 34 minims). Anaesthesia is an important preventive of anaphylactic shock. Recorded cases show that anaphylaxis may prove fatal. In one instance a patient died shortly after receiving an intravenous injection of 1½ oz. "coliserum." For some years it has been Rother's invariable rule, in cases of appendicitis showing signs of peritonitis, to give "coliserum" intramuscularly or intravenously, or both simultaneously, while the patient is still under the anaesthetic. All patients improved within twenty-four hours after operation. If the temperature persists next day (as is usual in severe appendicitis) 1 oz. of autogenous blood is injected to prevent post-operative pneumonia. The immediate results have been excellent, and, further, in approximately 120 cases there has been an entire absence of anaphylactic shock or serum rash. On the other hand, in two recent cases "coliserum" was given but autogenous blood injections were deferred. Both patients developed severe urticarial rashes. It appears that when the autogenous blood injection is postponed for more than one day "serum disease" cannot be prevented. It is evident that there is formed some extremely labile substance whose activity persists for a short time only. Possibly this substance may be isolated from the blood by serological research and employed therapeutically. Rother recommends intramuscular injection of seven drachms of the patient's blood, after an operation, and while anaesthesia persists; in severe cases he gives a similar dose intravenously and immediately. When this treatment is given within twenty-four hours it will prevent anaphylaxis, serum disease, and post-operative pneumonia.

317 **Serum Treatment of Typhoid Fever**

J. Barot (*Thèse de Paris*, 1933, No. 300) records twelve cases of typhoid fever in patients, aged from 13 to 49 years, treated with Rodet's serum, which is both bactericidal and antitoxic. It is efficacious in cases due to the typhoid bacillus, but has hardly any effect in cases due to the paratyphoid B bacillus only. The earlier the treatment is applied the better are the results. In cases in which it is given on the second or third day of disease the attack may be aborted. An injection given between the fifth and the eleventh day still has a favourable action, but treatment after the twelfth day is much more uncertain in its effect. The first dose should be 20 c.cm., and this should be followed by another dose in forty-eight hours if no result has been obtained. In severe cases 25 to 30 c.cm. may be given for the first dose, and the following injections should consist of progressively decreasing doses—namely, 15 c.cm. for the second and 10 c.cm. for the third. There are no contraindications to the use of the serum.

318 **Clinical Effects of Sodium Nitrite**

According to S. Weiss and L. B. Ellis (*Arch. Int. Med.*, July, 1933, p. 105), the employment of sodium nitrite in the routine treatment of arterial hypertension, with the hope of maintaining the blood pressure at a relatively low level, is illogical, and may be dangerous. It is held to be of no value in the routine daily treatment of hypertension, although it may be useful in dealing with the vascular crises associated with this condition. The authors record a study of the effect of large therapeutic doses (1 to 5 grains) by the mouth on ten normal persons, twenty-nine with primary arterial hypertension, five with glomerulonephritis, and nine on whom unilateral nephrectomy had been performed previously. The salt produced symptoms inconstantly, notably an increase in the cardiac rate, and a lowering of the blood pressure and renal function. No simple correlation was traced between these, except when they were markedly altered. The most frequently observed effect was a decrease of the systolic blood pressure. The greater the initial degree of arterial tonus, the greater was the drop in systolic pressure. In five normal persons the exhibition of sodium nitrite gave rise to no change in the minute volume output of the heart. In five others with arterial hypertension this output was doubtfully reduced in three, and reduced in two by 15 and 32 per cent. respectively. In nine of these ten subjects there was a reduction of the cardiac stroke volume output, which reached 15 per cent. or more in six. The salt did not affect the basal metabolic rate of nine out of ten subjects; it possibly increased the rate in one. The effect of the nitrite on renal function was also investigated. The authors conclude that sodium nitrite does not fulfil the requirements of the treatment of arterial hypertension, in that it has no constant and sustained action, does not act by dilating the arterioles over all the constricted areas, may give rise to unpleasant symptoms and side effects, does not maintain the normal functions of the heart and kidneys, and may depress renal activity.

Laryngology

319 Treatment of Adenoiditis

G Vergez (*Presse Méd*, July 8th, 1933, p 1083) describes a treatment of adenoiditis, with its occasionally associated adenopathies, by forceful pharyngeal palpation This method has been recommended by Rendu and employed also by Gamuleri and Michon Certain infants present elevations of temperature which can only be ascribed to infection from the tonsils In some, voluminous vegetations cause the usual mechanical troubles (open mouth, snoring etc) in others the adenoids are less marked, but being infected, may occasion infectious complications such as otitis, rhinitis bronchitis and enteritis The technique of this method which takes only a few seconds is as follows The presence of vegetations must be ascertained by rhinoscopy In very young patients with the left arm encircling the head the child's left cheek is forced between its jaws with the left index finger the child's arms being held by an assistant the right index finger is then quickly insinuated behind the soft palate presses the vegetations from before backwards triturates them from left to right and inversely and is then immediately withdrawn In older children greater restraint is usually necessary and a mouth gag may be needed Verger has noted no ill effects—such as generalized infection—from this treatment even during inflammatory periods He emphasizes the need of a correct diagnosis The conditions which must be differentiated and which contraindicate this procedure are otitis media tuberculous fever, and central pneumonia To illustrate the brilliant results following this intervention, short notes are given of seventeen personal cases (five of simple acute adenoiditis and five of prolonged acute adenoiditis without and seven with adenopathies)

320 Congenital Malformations of the Oesophagus

F H Jacob A Tweedie and V E Negus (*Journ Laryngol and Otol* July, 1933 p 486) record a case of congenital shortening of the oesophagus in a female child aged 19 months Intermittent attacks of vomiting had occurred since birth during meals and in the intervals between them A radiographical examination indicated the presence of a congenital stricture opposite the sixth to eighth dorsal vertebrae Oesophagoscopy was performed, but the child died about ten minutes after cessation of the anaesthetic and a few moments after removal of the oesophagoscope The post mortem examination revealed the presence of a permanent thoracic stomach, and of an oesophageal narrowing which extended for about 2 cm Below the narrowing the oesophagus again widened, and was broad at its passage between the crura of the diaphragm The thoracic portion had no serous coat, there were no adhesions to the diaphragm and no signs of peri oesophageal inflammation The stricture had a very small lumen, only allowing a probe to pass Below it there were large rugae on the walls of the oesophagus, similar to those in the stomach A Tumarkin (ibid, p 489) describes a case of congenital stenosis of the oesophagus Four days after birth the infant was obviously very ill the milk having been coughed up or regurgitated at each attempt There had been anuria for two days, and the motions had only contained meconium An oesophageal tube was passed without an anaesthetic for about 14 cm A rosette appearance was then seen in the lumen, suggesting the cardiac opening of the stomach Attempts to pass it succeeded only with firm pressure, and then suddenly Another 3 cm of oesophagus was traversed before the stomach was reached Fine strands of mucus partially obscured the view at times, and it was not possible to demonstrate the "mother of pearl appearance" described by Abel On carefully withdrawing the tube, a little blood was found at the level of the stricture The passages were otherwise normal, and the infant seemed none the worse Half an hour later it swallowed an ounce of sterile sugar and water eagerly It was then put on to normal breast feeds, and next day passed urine and a normal yellow motion No further abnormalities of any kind were discoverable during the next twelve months the infant progressing well

321 Medical Treatment of Otogenic Streptococcal Septicaemia

P Relliquet (*These de Paris* 1933, No 170) states that the medical treatment of otogenic streptococcal septicaemia is merely an adjuvant to surgical intervention, which should be as early and complete as possible In addition to drugs, the medical measures employed consist of leucogenic medication in the form of fixation abscess, chemotherapy—particularly the derivatives of acridine, gentian violet and trypaflavine—and biological treatment, such as transfusion, use of vaccines and serum especially Vincent's serum, which has produced the greatest number of successes in pure streptococcal septicaemia

322 Paralysis of Recurrent Laryngeal Nerve

A B Smith V E Lambert and H L Wallace (*Edinburgh Med Journ* July, 1933, p 344) give a statistical survey of 235 cases of paralysis of the recurrent laryngeal nerve covering a period of twenty five years with the object of ascertaining the history of these patients after their original examination and throwing light on the incidence and aetiology of the condition They find that this paralysis occurs twice as often in males as in females the left nerve being affected far more often than the right Goitre was the most frequent causal factor in females implicating the right nerve as often as the left In males the commonest causes of paralysis were aortic aneurysm and mediastinal tumour The authors obtained evidence for concluding that in the majority of cases such paralysis should be regarded as a grave sign, particularly in males Most of the paralysed vocal cords occupied the cadaveric position They added that a paralysed cord may completely recover function irrespective of its position this occurs mainly in those cases in which no cause for the paralysis can be discovered The original aphonia resulting from a permanently paralysed vocal cord will ultimately show considerable improvement and complete recovery of the voice may occur within one year Cases in which some intrinsic condition of the larynx was present—for example tuberculous or syphilitic ulceration—were not included in the series because although an ulcerative condition may affect the mobility of a vocal cord it does not necessarily follow that the immobility is due to true paralysis of the recurrent nerve

Obstetrics and Gynaecology

323 Fibroids in Pregnancy and Labour

An investigation of the extent and of the complications brought about in pregnancy and labour by the existence of myomatous tumours of the uterus has been undertaken by R E Campbell (*Amer Journ Obstet and Gynecol* July 1933 p 1) who found 142 tumours in 32,870 pregnant women an incidence of 0·43 per cent In eighty two of these the tumours were of sufficient importance to complicate pregnancy, labour, or the puerperium The majority occurred in primiparae, and the liability to fibroids was greatly increased between the ages of 35 and 45 In 25 per cent of the cases premature labour and immature births were closely associated with it Labour was often tedious, painful, and prolonged Early rupture of the membranes occurred in 37 per cent and haemorrhage was a disturbing event in 31 per cent Adherent placenta was observed on eight occasions, and poor involution in twenty six, infections were not uncommon Major surgical operative intervention was necessary in 31·6 per cent, and obstetrical operative procedures were undertaken in 14·6 per cent the total operative incidence was 46·2 per cent Necrosis was

found in 75.8 per cent. of the tumours removed during pregnancy, as compared with an incidence of 7.81 per cent. in the case of non-pregnant women—a ratio of 9 to 1. Campbell remarks that his series substantiates the statement that infection is too often overlooked as an event of considerable importance, and as an added danger in the fibroid complication. The gross foetal mortality in the series of eighty-two was 28 per cent. The gross operative foetal mortality was 33 per cent., and the gross maternal mortality was 3.65 per cent. The author remarks that the use of Caesarean section, with or without hysterectomy, instead of delivery per vaginam, has led to an important advance in the treatment of the complication. A clearer conception of the relative importance of necrosis and infection to the fibroid complication, with an early recognition and proper treatment in both, has saved many lives. The ability to evaluate and treat the less serious complications, such as early rupture of the membranes, uterine inertia, and subinvolution, has added greatly to the favourable prognosis, while the prevention of unnecessary obstetrical manipulation has lessened a considerable risk. His conclusion is that in this condition a more favourable outcome can now be predicted for both mother and child.

324 Occipito-posterior Presentations

W. H. Mast (*Amer. Journ. Obstet. and Gynecol.*, July, 1933, p. 74) reviews a series of 205 cases of occipito-posterior presentation, in order to discover whether the treatment should be operative intervention as soon as the cervix has dilated, or waiting in the hope that spontaneous resolution will ensue. Intervention was required in 30 per cent. of his cases. The gross foetal mortality was 3.9 per cent., or, excluding three exceptional cases, 2.44 per cent.—a rather better figure than that usually accepted. While all such presentations were watched with great attention, no intervention took place except for very definite reasons. The whole series of cases studied was 1,128, so that the incidence of this complication was 1.82 per cent., but Mast is of the opinion that many cases were seen only after spontaneous rotation to an anterior position had occurred. The left occipito-posterior position was present sixteen times (a ratio of 1 to 13), a frequency rather less than that usually recorded. Spontaneous rotation occurred in 129 cases (62.93 per cent.), and forceps were used to complete the delivery in twenty-six of them—" low forceps " in twenty-one and " mid-forceps " in five. Podalic version and extraction were performed three times. Rotation to the " deep transverse arrest " was noted in eight instances, low forceps being then used in six, and mid-forceps in two. The author concludes that the best treatment of these cases is conservative, since 70 to 80 per cent. will rotate spontaneously. When indicated, intervention may be adopted on the lines best suited to the individual case.

325 Rupture of the Aorta in Pregnancy

H. Uebermuth (*Zentralbl. f. Gynäk.*, July 15th, 1933, p. 1633) describes seven cases from the literature, and one personal case, of rupture of the aorta in pregnancy. The patients were under 39 years old, and five were aged from 26 to 30 ; half of them were primiparae. All were near the end of pregnancy, and three were in the early part of the first stage of labour. The pathology seems to have been uncertain, but in two cases atheromatous changes were well marked, and in Uebermuth's case there were histological signs in the media pointing clearly to syphilis. In all cases the rupture was within two centimetres of the aortic valve, and all but one led to haemopericardium. A dissecting aneurysm was present in five cases. Clinically the sudden death was found to have been preceded in several cases, some hours or days previously, by slight syncopal attacks, which probably marked the early stages of aneurysm formation. The rupture is ascribed to the increased intrathoracic pressure, and to the diminution in the angle between the axes of the heart and great vessels, which occur in late pregnancy. Uebermuth has no doubt that the diagnosis of an aortic aneurysm in early pregnancy should lead to induction of abortion.

Pathology

326 Human Necrobacillosis

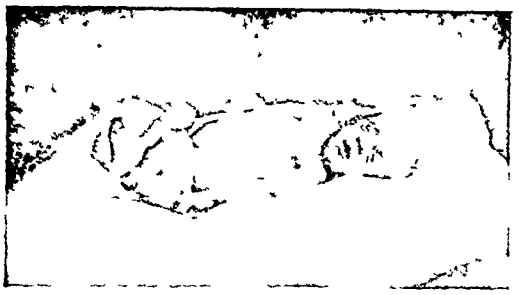
F. W. Shaw (*Zentralbl. f. Bakt.*, July 11th, 1933, p. 132) describes a case of human necrobacillosis, and draws attention to the apparent rarity of this condition. In animals the disease is well known. Such diseases as gangrenous dermatitis of horses and mules, calf diphtheria, foot-rot of sheep, necrotic stomatitis in cattle, multiple necrotic foci in the livers of cattle and hogs, and labial necrosis of rabbits, all seem to be manifestations of the same condition. The cases reported in man have presented varying clinical appearances, the most usual picture being purulent or gangrenous inflammation of the skin following a small lesion. Joints have been involved, and in the case described by the author there was a lung abscess containing foul-smelling pus. The causative organism, referred to variously as *Actinomyces necrophorus*, *Fusiformis necrophorus*, or Bang's necrosis bacillus, is a pleomorphic, filamentous, Gram-negative, non-sporing, anaerobic bacillus. It is cultivated most readily in glucose serum agar shake-tubes, to which cystine may be added—though this is not essential. Provided a low percentage of agar is used—not more than 0.3 per cent.—the resultant colonies have a grey, fluffy appearance ; if a higher concentration of agar is used, they appear as brownish circular (or bi-convex) colonies, with an entire edge. Neither gelatin nor serum is liquefied. Sugar fermentation and haemolysis are variable. Subcutaneous inoculation into rabbits of infected pus causes abscess-formation, often with death in a week. The author is of the opinion that if systematic blood cultures were made anaerobically in all cases of obscure fever and pyogenic focal infections the organism would be detected more frequently. Some of the " tuberculous hips " are in all probability *necrophorus* infections.

327 Clinical Pathology of Alcoholism

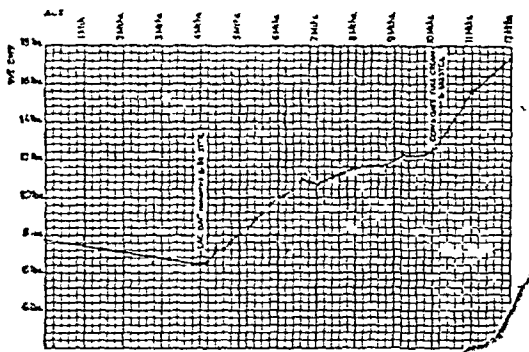
C. Truchi (*Thèse de Paris*, 1933, No. 263), as the result of the study of the biological changes in the blood, urine, and cerebro-spinal fluid in acute and chronic alcoholism, came to the following conclusions. *Blood*: (*a*) A considerable increase in blood urea is often found during an attack of delirium tremens, the increase in twenty out of twenty-one of his cases examined ranging from 0.6 to 1 gram ; (*b*) the residual nitrogen was slightly increased in half the cases examined ; (*c*) the *p*H was considerably increased in eight out of ten cases examined. *Urine*: (*a*) The amount of urea does not as a rule undergo any change ; (*b*) only one case of albuminuria and one of slight glycosuria were found among thirty-two cases examined—on the other hand, urobilin, urobilinogen, and bile pigment were almost always present. *Cerebro-spinal fluid*: In four out of ten cases there was slight excess of albumin and lymphocytosis, and there were no important changes in the benzoin curve. As regards chronic alcoholism the Bengal rose test was always distinctly positive, as was also the test of provoked glycosuria.

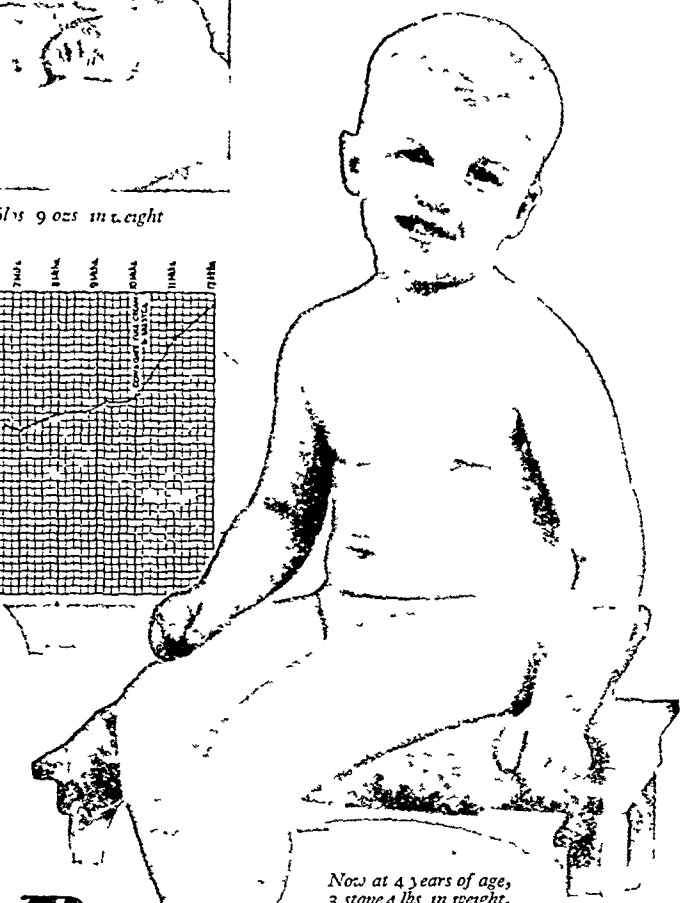
328 Determination of Bilirubinaemia

A. Vazquez, V. G. Alzarez, and E. Mathet (*Arch. Med., Cir. y Esp.*, July 1st, 1933, p. 744) have devised the following technique, which they regard as more accurate, more simple, and less costly than that of Hijmans van den Bergh. The serum is obtained by a sterilized syringe and 1 c.cm. is placed in a test tube. A watery solution of 1 in 1,000 methylene-blue is then gradually added to the mixture and shaken. If the reaction is positive an emerald blue colour is obtained. In order to calculate the quantity of bilirubin contained in a cubic centimetre the number of c.cm. of the methylene-blue solution employed is multiplied by 0.00056, and the product represents the quantity expressed in milligrams. By multiplying the number of c.cm. of methylene-blue used by 0.56 the number of milligrams of bilirubin present in a litre of serum is obtained.



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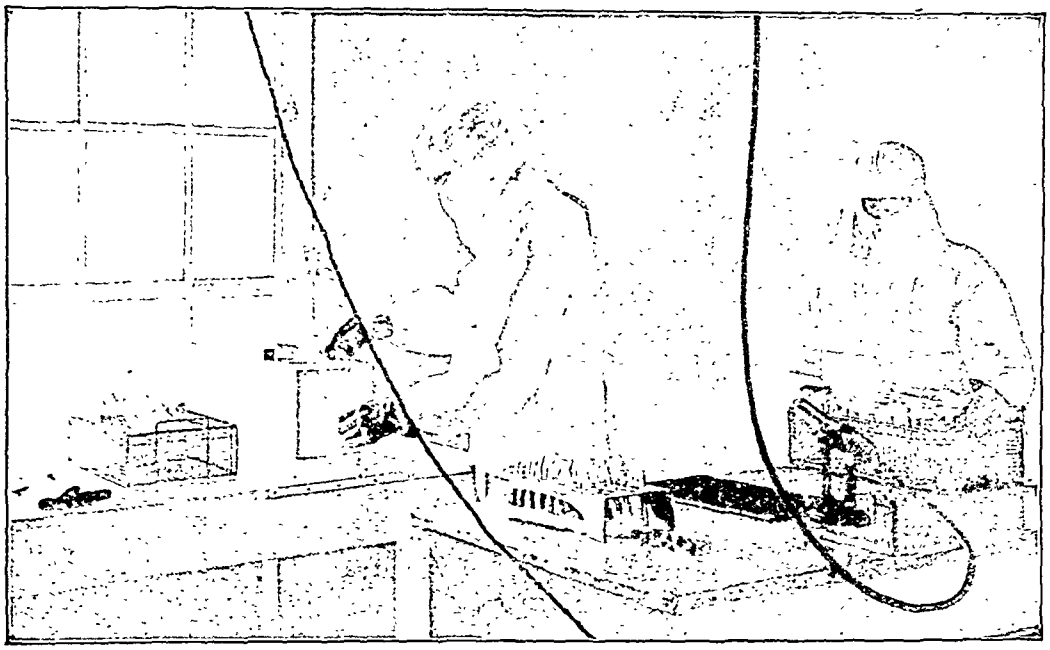
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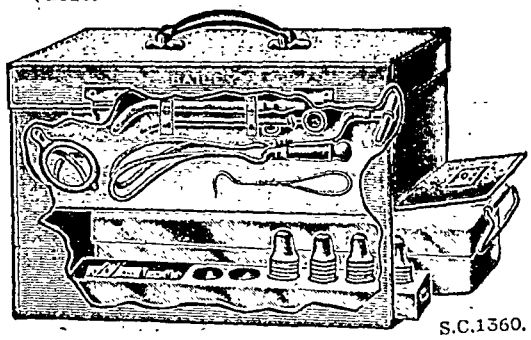
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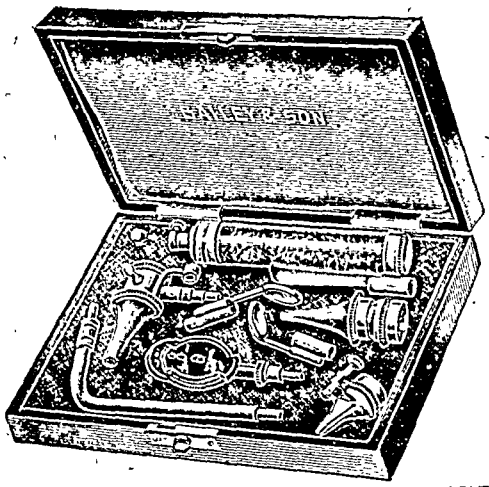
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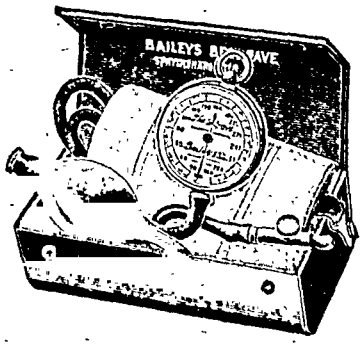


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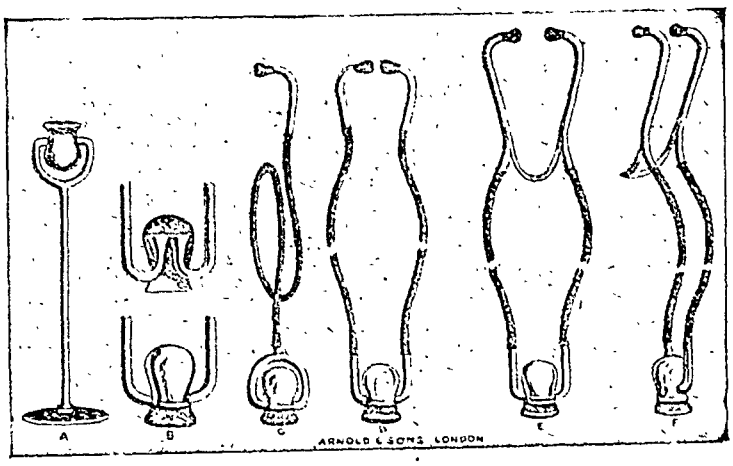


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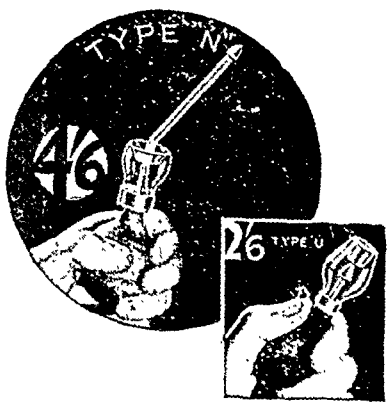
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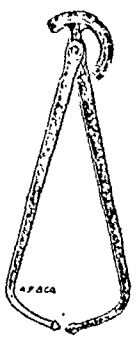
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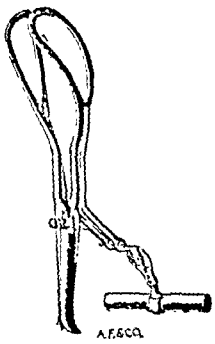
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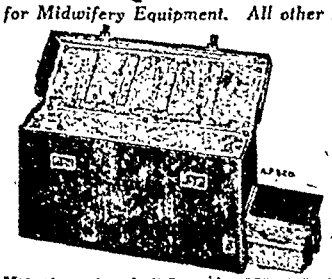
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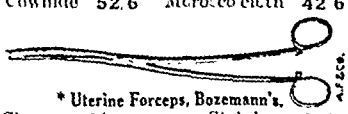
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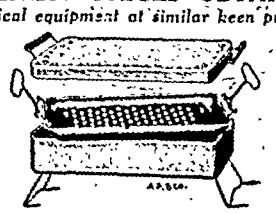
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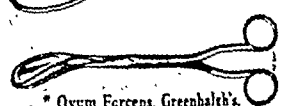
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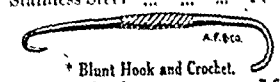
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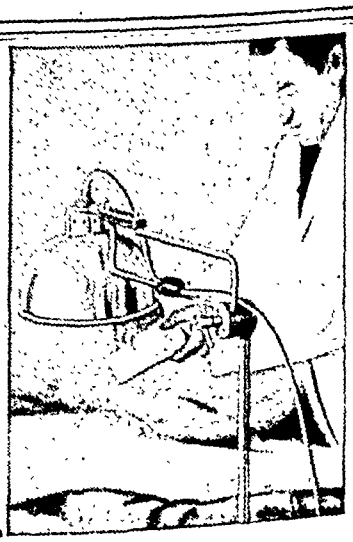
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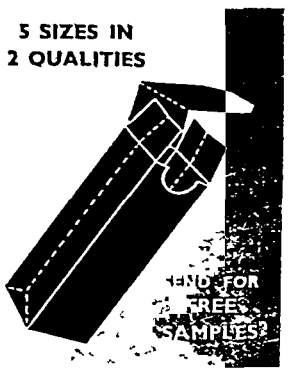
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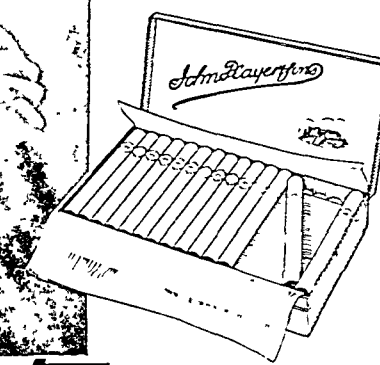
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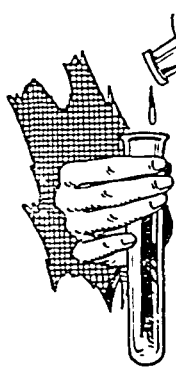
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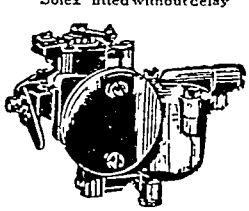
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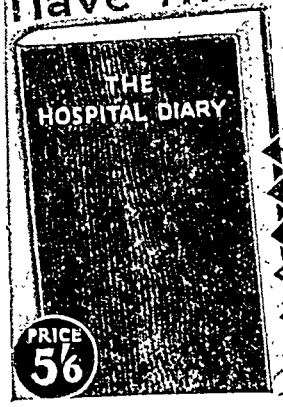


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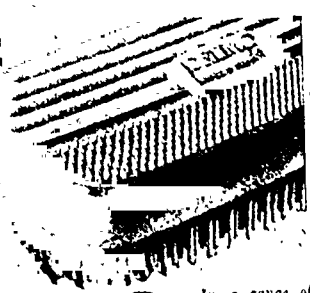
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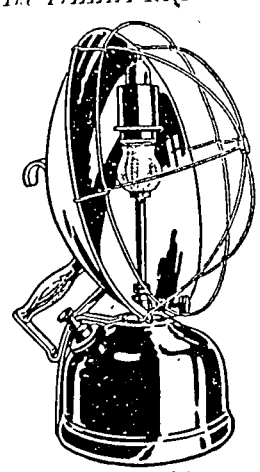
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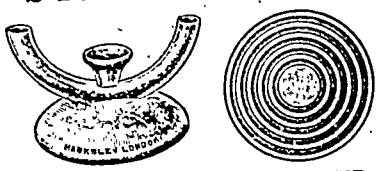
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MALLING PLACE, KENT.

For LADIES and GENTLEMEN of Unsound Mind, with or without certificates. Terms moderate. Apply Resident Physician.

Telegrams: Adam, West Malling.
Telephone: No. 2 Malling.

DAVOS

5,000-6,000 FEET GRISONS SWITZERLAND

THE ALPINE RESORT FOR TUBERCULOSIS, ASTHMA, PROPHYLAXIS, CONVALESCENCE

SANATORIA FROM FR. 12.-
BOARDING-HOUSES FROM FR. 8.-

INFORMATION FROM
INQUIRY OFFICE, DAVOS



TORQUAY

ENGLAND'S FOREMOST WINTER RESORT

STRONGLY RECOMMENDED BY THE MEDICAL PROFESSION FOR WINTER RESIDENCE OR HOLIDAYS.

Extract from the Medical Directory: "Quite exceptional equipment for the treatment of [illegible] TORQUAY [illegible] Winter Garden, Well-equipped Municipal Baths, Pavilion with fine "View" Ge[illegible] Spa Lounge [illegible] and Electrical Sections for recognised forms of Spa, etc., treatment.

Official Guide and all information re Hotels, Amusements, etc., free from Berkeley Hollyer (formerly Manager, Brine Baths, Droitwich Spa), Baths and Publicity Manager, Dept. B.M.J., Torquay.

TRAVEL BY RAIL.

Penny-a-Mile Tickets by any train, any day, extended until December 31st, available for return any day within a calendar month. Enquire at Railway Stations, Offices or Agencies for details of train services, cheap facilities, etc., from all parts.

TOR-NA-DEE SANATORIUM
MURTLE DEESIDE ABERDEENSHIRE
FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS

Managing Director: DAVID LAWSON, M.D., F.R.S.E.

Southern aspect. Low rainfall. Pure bracing air. Sheltered grounds. Beautiful surroundings. All modern equipment for diagnosis and treatment, including operating theatre. No extra charge for X Rays, Artificial Pneumothorax, Ultra-Violet Light, or other special treatment.

Day and night Nursing Staff. All bedrooms have central heating, electric light, hot and cold running water, and wireless (headphones). Comfortable and airy public rooms.

Medical Superintendent: J. M. JOHNSTON, M.B., M.R.C.S., D.P.H. For full particulars and prospectus apply to the Secretary.

Inclusive Terms: SEVEN GUINEAS A WEEK.

PENDYFFRYN HALL SANATORIUM
PENMAENMAWR.

Established 1900 for the treatment of Tuberculosis. Miles of carefully graduated walks through pine-clad hills, with sea and mountain views. Modern treatment, including ARTIFICIAL PNEUMOTHORAX, SANOCRYSIN, etc. X-ray plant, electric light, central heating, wireless. Special milk supply from tuberculin-tested herd. Full day and night nursing staff. On L.M.S. Main Line to Holyhead, 4½ hours from London. Resident Physicians: DENNISON PICKERING, M.D.(Cantab.), J. A. HENNESEY, M.B., Ch.B.; Matron: Miss S. A. EDDY, S.R.N., Late Sister-in-Charge, Royal Hospital Annexe, Sheffield.

For particulars apply to the SECRETARY, Pendyffryn Hall, Penmaenmawr, N. Wales. ('Phone, 20.)



KINGUSSIE, N.B.
THE GRAMPIAN SANATORIUM.

Situated in the upper Speyside district of Inverness-shire. One of the highest inhabited districts in Britain—"The Switzerland of the British Isles." Bracing and dry mountain climate. Well sheltered Sanatorium specially built for the Open-air Treatment of Tuberculosis. Opened in 1901. Elevation 860 ft. above sea-level. Electric light throughout buildings and in rest shelters. Central heating. Fully equipped X-Ray Plant. All forms of treatment available, including Artificial Pneumothorax and Ultra-Violet Rays for surgical cases of Tuberculosis. Terms: £4 7s. 6d. to £6 6s. per week inclusive. No extras.

Medical Supt.: FELIX SAVY, M.D. For particulars apply to the Secretary.

THE COTSWOLD SANATORIUM

First opened in 1898 and rebuilt in 1925. On the Cotswold Hills, seven miles from Cheltenham, for the treatment of Pulmonary and all other forms of Tuberculosis. Aspect S.S.W., sheltered from North and East, elevation 800 feet. Pure bracing air. Special Treatment by artificial Pneumothorax (X-ray controlled), Tuberculins and Ultra-violet Rays is available, when necessary, without extra charge. X-ray plant. Electric light. Radiators, hot and cold basins, and Wireless in all rooms.

Full day and night Nursing Staff.

Medical Superintendent: GEOFFREY A. HOFFMAN, B.A., M.B., T.C.Dub. *Assistant Physician*: MARGARET A. HARRISON, M.B., B.S.Lond.

Apply: The Secretary, N. BIRDLIP.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL
MARYLEBONE ROAD, N.W.1

Medical Students and Qualified Practitioners admitted to the Practice of this Hospital. Unusual opportunities are afforded of seeing Obstetrical Complications and Operative Midwifery (about one half of the total admission being primiparous cases). Over 2,700 patients are admitted to the Wards annually, and in the Ante-natal Department there are over 20,000 attendances per annum.

Certificates awarded as required by the various Examining Bodies.

For rules, fees, etc., apply, H. B. STOKES, Secretary-Superintendent.

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1880. Cases, non-resident, treated at 39, Earl's Court Square, S.W.5, and in residence, in the Summer holidays, at Miss BEHNKE'S house on the Chilterns.

"Pre-eminent success in the education and treatment of [illegible]cts."—"Times."
[illegible]les."—"Lancet."
[illegible]ect and perfectly
[illegible]"

STAMMERING, CLEFT PALATE SPEECH, LISPING, 3/9 at Miss BEHNKE, 39, Earl's Court Sq., S.W.5.

NORTH-EAST LONDON POST-GRADUATE COLLEGE.

PRINCE OF WALES'S GENERAL HOSPITAL, N.15.

The Practice of the Hospital is limited to Medical Practitioners. Particulars from J. BROWNING ALEXANDER, M.D., Dean.

F.R.C.S.(Edin.).

PREP. COURSE with daily Lecture-Demonstrations of Museum Specimens of Surg., Path., for next Exam., will commence shortly. POSTAL TUITION at any time.—Further partics., H. C. BERRY, F.R.C.S., Surgeons' Hall, Edinburgh.

SEAMEN'S HOSPITAL SOCIETY.

POST-GRADUATE COURSES FOR SHIP SURGEONS.

The Seamen's Hospital Society announces that Part 3 of these Courses—i.e., Refresher Course in Clinical Subjects, will be held from November 13th to December 2nd at the Dreadnought Hospital, Greenwich, S.E.10. The course is essentially practical and will include as an additional feature instruction in Operative Surgery. All applications for this Course should be sent to the Secretary, Seamen's Hospital, Greenwich, S.E.10, not later than November 7th next.

LONG FOX MEMORIAL LECTURE.

The Long Fox Memorial Lecture will be delivered by Mr. CECIL A. JOLL, M.D., Ch.M., F.R.C.S., on TUESDAY, NOVEMBER 7th, in the Physiological Lecture Theatre of the University of Bristol at 5.30 p.m. The Vice-Chancellor will preside.

Subject: "*Recent advances in the Aetiology, Diagnosis, and Treatment of Cancer.*"

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

A SERIES OF WEEKLY DEMONSTRATIONS for medical practitioners has been arranged in the various hospitals of Glasgow from November till May. A COURSE OF LECTURES will also be given in the Faculty Hall weekly from November till February. In addition some SPECIAL COURSES are offered and CLINICAL ASSISTANTSHIPS are available in several of the hospitals. The syllabus may be had on application to the Secretary, Post-Graduate Medical Association, The University, Glasgow.

M.D. THESIS
(Camb., Edin., Glas., Durham, &c.)

SKILLED COACHING, GUIDANCE, and ADVICE from Special Tutors. In conformity with the Regulations of the various Universities. Apply for particulars and free booklet, "Hints on Writing a Thesis for the M.D. Degree," to the SECRETARY, Medical Correspondence College, 19, Welbeck Street, London, W.1.

UNIVERSITY OF OXFORD.
DIPLOMA IN OPHTHALMOLOGY.

The next Examination begins on June 18th, 1934. The two months' Course of Instruction starts on April 23rd, 1934.

For further information apply to—
P. H. ADAMS,
6, Holywell, Oxford. Margaret Ogilvie Reader in Ophthalmology.

UNIVERSITY EXAMINATION POSTAL INSTITUTION

17, RED LION SQ., LONDON, W.C 1.
(ESTABLISHED IN 1882)

Principal Mr. F. S. WEYMOUTH, M.A. (Lond.)
POSTAL PREPARATION FOR ALL MEDICAL EXAMINATIONS

SOME SUCCESSES

M.D. (Lond.),	1901-32 (9 Gold Medals, 1915-32)	368
M.S. (Lond.),	1901-32 (including 4 Gold Medallists)	22
M.B., B.S. (Lond.),	*Final* 1918-32 (Complete Exam.)	206
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	Final	155
M.R.C.P. (Lond.),	1919-32	215
D.P.H.	(Various) 1906-32 (Complete Exam.)	316
F.R.C.S. (Edin.),	1918-32	53
M.R.C.S., L.R.C.P.	*Final* 1919-32 (Complete Exam.)	456

M.D. Various. By This Numerous successes.

Preparation for the above also for Medical Preliminary and all examinations leading up to M.R.C.S., L.R.C.P., or M.B. of various Universities. Also for M.R.C.P. (Edin.), D.P.M., D.O.M.S., D.T.M., H., D.P.H., D.G.O., D.M.R.E., M.M.S.A., L.M.S.S.A., etc. Many successes.

ORAL CLASSES.

M.R.C.P., M.D., Primary and Final F.R.C.S., F.F.R., Final M.B., B.S., and M.R.C.S., L.R.C.P. Museum and Microscope Work. Also Private Tuition.

MEDICAL PROSPECTUS (48pp.)

CONTENTS.—The method and the cost of entering the Medical Profession. *Particulars of all Medical Examinations.* Postal Courses and Oral Classes. Suggestions *for the Higher* Medical Examinations. Suggestions for the Higher Surgical Examinations. Suggestions for the Special Diploma Examinations. Refresher Courses. Opening for Women. Hints for writing the Essay.

Medical Prospectus gratis, along with list of Tutors, etc., on application to the Principal, Mr. F. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6316.)

THE UNIVERSITY OF LIVERPOOL.

By invitation of the Council, Senate and Faculty of Medicine, Sir D'ARCY POWER, K.B.E., M.A., M.B., F.R.C.S. (Consulting Surgeon to St. Bartholomew's Hospital, London) will deliver the William Mitchell Banks Memorial Lecture, 1933, on *The History of the Amputation of the Breast to 1904*, on Thursday, November 16th, 1933, at 4 p.m. The lecture, which will be illustrated with lantern slides, will be given in the Surgical Theatre, the Medical School, and is open only to members of the Medical Profession.

EDWARD CAREY, Registrar.

UNIVERSITY OF LONDON.

A COURSE OF FOUR LECTURES on *The Influence of Ductless Glands on Metabolism* will be given by Dr. J. A. HEWITT, Ph.D., D.Sc., at KING'S COLLEGE (Strand, W.C.2), on THURSDAYS, NOVEMBER 9th, 16th, 23rd, and 30th, at 5 p.m.

Admission free without ticket.

S. J. WORSLEY,
Academic Registrar.

UNIVERSITY OF LONDON.

The Senate invite applications for the Sir William Dunn CHAIR OF PATHOLOGY, tenable at Guy's Hospital Medical School. Salary the whole income of Dunn Trust, at present about £1,400 a year. Applications (12 copies) must be received not later than first post on Friday, December 1st, 1933, by the Academic Registrar, University of London, S.W.7, from whom further particulars may be obtained.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

(University of London)

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE (Eng.)

Dates of the Courses, 1933-34.

(Each part can be taken independently but not concurrently.)

SECTION A (CLINICAL AND LABORATORY INSTRUCTION).—a 3 months Course.

October 2nd—December 22nd, 1933
January 8th—March 29th, 1934
April 9th—June 28th, 1934

SECTION B (TROPICAL HYGIENE).—a 2 months Course.

January 22nd—March 23rd, 1934
April 23rd—June 22nd, 1934

FEES (inclusive)

Section A, £25. Section B, £15.

In Section A students may enter for the whole Section at three separate intervals (of 4 or 8 weeks) after the beginning of the course. Short periods of laboratory or clinical instruction can also be taken at proportionate fees.

DIPLOMA IN PUBLIC HEALTH

(University of London)

Course of Study (nine months for those working whole time) commencing on October 2nd. *Inclusive fee £54 guineas.*

DIPLOMA IN BACTERIOLOGY

(University of London)

Course of Study (whole time one academic year) commencing on October 3rd. Inclusive fee £47 15s.

EPIDEMIOLOGY AND VITAL STATISTICS

Special three months' advanced course. Inclusive fee 7 guineas.

For Prospectuses and Synopses of Lectures etc. apply to the SECRETARY, LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Keppel Street (Gower Street), London, W.C.1.

THE LONDON SCHOOL OF DERMATOLOGY.

St. John's Hospital for Diseases of the Skin,
49 Leicester Square, W.C.2.

Conducted by the Honorary Staff of the Hospital together with the Physicians in charge of the Dermatological Departments of the London Teaching Hospitals. Lectures and Demonstrations every Tuesday and Thursday at 5 p.m. from October to March and four times weekly during May. General Practitioners desiring to attend any particular lecture or lectures can do so without paying a fee. Clinics daily at 2 p.m. and 6 p.m. Saturdays 2 p.m. only. Pathological Laboratory for Instruction or Research Work.

For further particulars, fees, etc., apply to J. E. M. WIGLEY, M.B., Dean.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE

(UNIVERSITY OF LIVERPOOL.)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 2nd, 1933, and January 3rd, 1934, and for the Diploma in Tropical Hygiene on January 11th and April 26th, 1934. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

Sir HUMPHRY ROLLESTON, Bt., G.C.V.O., K.C.B., M.D., will deliver the FitzPatrick Lectures on Tuesday, November 7th, and Thursday, November 9th, at 5 o'clock at the College, Pall Mall East, S.W.1.

Subject: *History of the Endocrine Organs.*

Any Member of the Medical Profession admitted on presentation of card.

By Order of the President,
H. M. BARLOW, Secretary.

A DELIGHTFUL SCHOOL FOR YOUNG children between the ages of 4 and 12 years. Healthy home life combined with good preparatory education. Most highly recommended by parents of past and present pupils. Principal, Miss F. K. WALKER. The Birches, Penn Hill Avenue, Parkstone, Bournemouth.

MEDICAL CORRESPONDENCE COLLEGE

19, WELBECK ST., LONDON W.1. Tel. Welbeck 830

PROVIDES HIGHLY SUCCESSFUL ORAL AND POSTAL COACHING FOR ALL MEDICAL EXAMINATIONS.

Special Preparations for all Surgical Qualifications.

F.R.C.S. ENGLAND. (Primary & Final) M.C. CANTAB. M.S. LONDON. F.R.C.S. EDINBURGH

And all other Surgical Degrees and Diplomas.

The remarkable success of Students of the Medical Correspondence College at the higher *Surgical Examinations* is specially noteworthy.

Both at the Primary and Final F.R.C.S. England the majority of our Students are successful at the first attempt, and Candidates who have failed at these Examinations on several previous occasions get through without difficulty after going through our courses.

The Surgical Tutors of the College all hold either the M.S. Lond. or F.R.C.S. England or *both, and are highly experienced teacher.*

The Postal Courses are thoroughly clear concise and up to date, and the test questions are carefully selected from those set at previous Examinations so as to embrace all parts of the subject. By working systematically through the Course the Student is brought up to the examination standard in the minimum time, and much unnecessary reading is saved.

VALUABLE BOOK

How to Pass the F.R.C.S., free on application to the Secretary.

UNIVERSITY OF BRISTOL.

The University invites applications for the CHAIR OF ANATOMY, vacant in August 1934. *Full particulars may be obtained from the* undersigned with whom application should be lodged not later than December 31st, 1933.

WINIFRED SHAPLAND,
Secretary & Registrar.

THE MIDDLESEX HOSPITAL AND MEDICAL SCHOOL, W.1.

Applications are invited for the following:

TWO SURGICAL REGISTRARSHIPS.
ONE OBSTETRIC AND GYNAECOLOGICAL REGISTRARSHIP.
ONE OTOLOGICAL REGISTRARSHIP.

The Registrars are attached to Clinical Units of the Hospital and are responsible for the Clinical notes, the carrying out of clinical and pathological examinations, the preparation of material for demonstration, and the co-ordination of the work in the Bland-Sutton Institute of Pathology with that in the wards.

The appointment is for one year from January 1st, 1934, and the holder is eligible to apply for reappointment and may retain office for three consecutive years. Salary £300 per annum. Further particulars may be obtained from the Secretary Superintendent, to whom applications with not more than three testimonials must be sent by noon on Saturday, November 18th.

By Order of the Board,
S. R. C. PLIMSOLL, Secretary Supt.

LIVERPOOL MATERNITY HOSPITAL, OXFORD STREET.

HOUSE SURGEON required for the six months commencing January 1st next; salary at the rate of £90 per annum, with board, residence and laundry. Previous experience as House Surgeon essential. Membership of a Medical Defence Society is a condition of appointment.

Applications stating age, qualifications and experience, together with copies of testimonials, to be sent to the Hon. Secretary of the Medical Board on or before November 24th.

BARNWOOD HOUSE HOSPITAL FOR MENTAL AND NERVOUS DISORDERS, near GLOUCESTER.

Required SECOND ASSISTANT MEDICAL OFFICER (Male). Commencing salary £350 per annum with board, residence, and laundry. Applications with copies of three recent testimonials to be sent to the Medical Supt.

COUNTY BOROUGH OF WEST HAM.

PUBLIC ASSISTANCE COMMITTEE.

The Council invite applications for the appointment of FIFTH ASSISTANT RESIDENT MEDICAL OFFICER at their WHIPPS CROSS HOSPITAL, Whipps Cross Road, Leytonstone, E.11, at the salary of £350 per annum, rising by annual increments of £25 to a maximum of £450 per annum, with residential allowances, subject to the appropriate abatement in accordance with the resolutions of the Council for the time being in force, at present 2½ per cent. from the first £200, 3⅓ per cent. from the next £100, and 5 per cent. from the remainder.

Candidates must be fully qualified and registered Medical Practitioners, and should have held a previous resident Hospital appointment. Preference will be given to candidates with practical experience of surgical operations, and the person appointed must give his whole time to the service of the Council and will be required, should occasion arise, to act in any other Institution under the control of the Council.

The successful candidate will be required to pass a medical examination, and the appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, or to the Poor Law Officers Superannuation Act, 1896, and the statutory contributions under the Act will be deducted from the salary.

Forms, upon which application must be made, can be obtained from the Medical Officer of Health, Municipal Health Offices, Romford Road, West Ham, E.15, and must be returned to the Town Clerk, Town Hall, West Ham, E.15, not later than November 13th.

CHARLES E. CRANFIELD, Town Clerk.
Public Assistance Offices, Union Road,
Leytonstone, E.11. October 23rd, 1933.

DORSET COUNTY COUNCIL.

ASSISTANT MEDICAL OFFICERS.

The Council invite applications from registered Medical Practitioners for the appointments of Two Male Assistant Medical Officers. Age limit 40 years.

Applicants must have had at least three years' experience since qualification. The possession of the D.P.H. and previous experience in refractions, tuberculosis, and child welfare will be considered important additional qualifications.

Salary £500 per annum, rising, subject to satisfactory service, by annual increments of £25 to £700, plus travelling and out-of-pocket expenses according to the County Scale.

The officers appointed will be required to devote their whole time to the service of the County; to act under the direction of the County Medical Officer, and perform such duties in connexion with the Council's Health services as may be allotted to them, including the Medical Inspection of School Children.

The successful candidates will be required to pass a medical examination, and the appointments will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, the statutory contributions to the Superannuation Fund being deducted from the salaries.

Applications, in candidates' own handwriting, on forms to be obtained from the undersigned, accompanied by copies of not more than three recent testimonials, and endorsed "Assistant Medical Officer," must be received by me not later than Saturday, November 25th.

Canvassing in any form will disqualify.

County Offices, J. LESLIE TORR,
Dorchester. Clerk of the County
October 28th, 1933. Council.

COUNTY BOROUGH OF HUDDERSFIELD.

BRADLEY WOOD SANATORIUM FOR PULMONARY AND SURGICAL TUBERCULOSIS.

RESIDENT MEDICAL OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited for the above appointment from registered Medical Practitioners (married or single) who have had special experience in the diagnosis and treatment of Tuberculosis. A good knowledge of X-ray work is essential. Board and residence are provided and a salary of £500, increasing to £600 per [illegible] by annual increments of £25. (The POST subject to a temporary economy PRINCE OF Went will be terminable on three [illegible] on either side. Applications [illegible] of [illegible] by copies of not more [illegible] and addressed to John M. Gibson, M.A., M.D., D.P.H., Medical Superintendent of Hospitals and Medical Officer of Health, so as to reach him not later than November 9th

Forms of application are not provided.

Town Hall, SAMUEL PROCTER,
Huddersfield. Town Clerk.

COUNTY BOROUGH OF WEST BROMWICH.

HALLAM HOSPITAL.

TWO RESIDENT HOUSE PHYSICIANS.

Applications are invited from fully qualified male registered practitioners for the above appointments.

The appointments are for six months, with eligibility for re-appointment for a further six months, but either party may give six weeks' notice terminating the engagement. The Hospital has 474 beds, and is equipped with up-to-date special departments. There is a visiting staff of eight consultant Physicians and Surgeons.

Preference will be given to applicants with previous Hospital experience.

Salary £200 per annum.

Canvassing, either directly or indirectly, is strictly prohibited and will be deemed a disqualification.

Applications, stating age, experience, and qualifications, together with copies of three recent testimonials, must be forwarded to the Medical Officer of Health, 2, Lodge Road, West Bromwich, so as to arrive not later than by first post on Tuesday, November 7th.

Town Hall, ALFRED WICKHAM,
West Bromwich. Town Clerk.
October 25rd, 1933.

COUNTY BOROUGH OF SOUTHAMPTON.

CLINICAL TUBERCULOSIS OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited for the above appointment from registered medical practitioners having special experience in the diagnosis and treatment of Tuberculosis.

The salary will be at the rate of £750 per annum, rising by biennial increments of £50 to a maximum of £937 10s. per annum.

The successful candidate must devote the whole of his time to the duties of the office, and the performance of such other duties as may be required under the direction of the Medical Officer of Health.

The Local Government and Other Officers Superannuation Act, 1922, will be applicable to the appointment. The selected candidate will be required to pass a satisfactory medical examination.

Form of application and conditions of the appointment may be obtained from the Medical Officer of Health, Civic Centre, Southampton.

Applications on the prescribed form, endorsed "Clinical Tuberculosis Officer and Assistant Medical Officer of Health," must be delivered at the Town Clerk's Offices, Civic Centre, Southampton, on or before Nov. 15th.

R. RONALD H. MEGGESON,
October 23rd, 1933. Town Clerk.

PRISON MEDICAL SERVICE.

Applications are invited for the post of MALE MEDICAL OFFICER, Class II, in the above Service. Commencing salary £505 7s. per annum, proceeding by annual increments to £726, with unfurnished house or an allowance in lieu. These posts are pensionable, and there are prospects of promotion to higher rank. Applicants are informed that the conditions of service are liable to review.

Candidates must be fully qualified and registered. Preference will be given to those who have held house appointments, have had experience in lunacy and psychological methods, and are under the age of 30. Forms of application can be obtained from the Secretary, Staff Branch, Prison Commission, Home Office, London, S.W.1.

SANATORIUM, BRIDGE OF WEIR AND ORPHAN HOMES OF SCOTLAND.

ASSISTANT FEMALE RESIDENT MEDICAL OFFICER wanted, to commence duties January 1st, 1934.

Appointment for six months in first instance, at rate of £200 p.a. (renewal by mutual agreement), with board and laundry.

Applications to Medical Superintendent, stating age, experience, and qualifications, and enclosing references.

THE MIDDLESEX HOSPITAL, W.1.

Whole-time non-resident medical man required as ASSISTANT in the Department of Radium Therapy. Appointment in the first instance for 12 months. Salary according to previous clinical and radiological experience.

Applications, with copies of testimonials, should be submitted by Wednesday, Nov. 15th.

S. R. C. PLIMSOLL, Secretary-Supt.

ROYAL SURREY COUNTY HOSPITAL, GUILDFORD. (182 Beds.)

Wanted December 1st, HOUSE SURGEON (British, male). Salary £150 per annum, with board, residence, and laundry. Applications, with copies of not more than three testimonials, to be sent to the Secretary-Superintendent not later than November 11th.

DORSET COUNTY COUNCIL.

COUNTY MEDICAL OFFICER OF HEALTH.

Applications are invited from registered Medical Practitioners (male), holding the Diploma in Public Health, for the above appointment.

Salary £1,100 per annum, plus travelling and out-of-pocket expenses in accordance with the County Scale. Staff and Offices provided.

Age limit for applicants holding a pensionable post 50 years; otherwise 40 years.

The officer appointed will be required to reside at Dorchester and devote his whole time to the duties of the office, acting generally as the head of all the County Health Medical Services.

The successful candidate will be required to pass a medical examination, and the appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, the statutory contributions to the Superannuation Fund being deducted from the salary.

Applications, on forms to be obtained from the undersigned, accompanied by copies of not more than three recent testimonials, and endorsed "County Medical Officer," must be received by me not later than Saturday, November 25th.

Canvassing in any form will disqualify.

County Offices, J. LESLIE TORR,
Dorchester. Clerk of the County
October 28th, 1933. Council.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners for appointment at undermentioned hospitals. Candidates for (1) and (2) must be practitioners of at least one year's standing and have held a resident appointment in a general hospital for at least six months. Duties assigned by medical superintendents and include if necessary assistance at other establishments under Council's control. Remuneration and conditions subject to review.

1. LAMBETH HOSPITAL, Brook Street, Kennington, S.E.11. — *ASSISTANT MEDICAL OFFICER (Grade I). Salary £350, rising by £25 to £425 a year, with board, lodging, and washing.

2. ST. MARY, ISLINGTON, HOSPITAL, Highgate Hill, N.19. — *ASSISTANT MEDICAL OFFICER (Grade II). Salary £250 a year, together with board, lodging, and washing. Appointment for one year only and not renewable. Duties mainly medical.

3. ST. LEONARD'S HOSPITAL, Hoxton St., Shoreditch, N.1.—HOUSE PHYSICIAN. Salary £80 a year, with board, lodging, and washing. Appointment for six months in first instance. There is no accommodation for a married man.

*There is no accommodation for a married man or for a woman.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 3a), County Hall, S.E.1, returnable by November 17th (November 10th in the case of Lambeth Hospital). Canvassing disqualifies. Further enquiries should be addressed to Medical Superintendent at respective hospitals.

LONDON COUNTY COUNCIL.

RESIDENT MEDICAL SUPERINTENDENT required at FULHAM HOSPITAL (562 beds), St. Dunstan's Road, Hammersmith. Duties also include those of Medical Officer of Fulham Institution and of Henniker House Children's Receiving Home. Person appointed will be under direction of Medical Officer of Health, and must assist at other Council establishments. Salary £1,000 by £50 to £1,250, plus £50 and £25 for Institution and Home, respectively. Unfurnished house or quarters free of rates, valued at £100 a year. Candidates other than members of Council's Medical Staff must be not over 55 years of age, and must be fully qualified medical practitioners for at least five years, and have been house physician or house surgeon in public general hospital, and have experience of hospital administration. Remuneration and conditions subject to review.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Clerk of the Council, County Hall, S.E.1, returnable by Saturday, November 18th. Canvassing disqualifies.

LONDON COUNTY COUNCIL.

Part-time MEDICAL OFFICER required at HORNCHURCH CHILDREN'S HOME, Hornchurch, Essex. Duties include daily attendance at the Home at a fixed time and at such other times as may be necessary. Candidates must be registered medical practitioners and must reside within easy reach of the Home. In the case of women, marriage terminates contract of service. Provisional salary £200 a year subject to review. Application form, giving details of appointment obtainable from Education Officer (S.S.6), County Hall, S.E.1 (stamped addressed foolscap envelope necessary), returnable by November 20th. Canvassing disqualifies.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association B M A House Tavistock Square W C 1 (in the case of Scottish appointments with the Scottish Medical Secretary, 7, Drumsheugh Gardens Edinburgh)

(a) British Islands.

Town or District	Town or District	Town or District
CONTRACT PRACTICE	**CONTRACT PRACTICE** (contd.)	**PUBLIC HEALTH**
FFRW VALE MON (Workmen's Medical Society)	MARDY GLAMORGAN (Workmen's Medical Scheme)	HERTFORDSHIRE COUNTY COUNCIL WARE SANATORIUM (Assistant Medical Officer)
CILFACH COCH GLAMORGAN (Workmen's Medical Scheme)	NEATH AND DISTRICT (Medical Aid Association)	BOROUGH OF LOWESTOFT (Medical Officer of Health)
LLWYNPIA CLYDACH VALE PENYGRAIG GLAMORGAN (Workmen's Medical Scheme)	OAKDALE MON (Medical Officer for Medical Aid Association)	COUNTY BOROUGH OF SOUTH SHIELDS (Assistant School Medical Officer)
LOWESTOFT MEDICAL INSTITUTE. (Medical Officer)	OGMORE VALLEY GLAMORGAN (Hospital and Collieries Medical Aid Society) (Workmen's Medical Scheme)	HALTON INSTITUTION AND CLEADON COTTAGE HOMES (Medical Officer)

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association B M A House, Tavistock Square W C 1

Town or District	Hon Sec of Division or Branch	Town or District	Hon Sec of Division or Branch	Town or District	Hon Sec of Division or Branch
NEW SOUTH WALES (All Friendly Society Appointments)	Dr J G HUNTER (Medical Secretary New South Wales Branch) 135 Macquarie St Sydney N S W	**QUEENSLAND** (Brisbane Associated Friendly Societies Institute)	The Hon Sec Queensland Branch British Medical Association B M A Building Adelaide St Brisbane.	**WELLINGTON NEW ZEALAND** (Contract Practice Appointments)	Dr G F V ANSON (Hon Sec New Zealand Branch) British Medical Association P O Box 156 Wellington New Zealand
VICTORIA. (All Institute or Medical Dispensaries)	Dr J P MAJOR (Hon Sec Victorian Branch British Medical Association Medical Society Hall East Melbourne Victoria	(Toowoomba Associated Friendly Societies Medical Institute Toowoomba)		**WESTERN AUSTRALIA** (Contract and Lodge Practices)	Hon Sec, Western Australian Branch British Medical Association, No 6 Bank of N S W Chambers St George's Terr Perth Western Australia.

November 1st, 1933 By Order of the Council G C. ANDERSON Medical Secretary

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WEST LONDON HOSPITAL, Hammersmith Road W 6 (234 Beds)

Required a non resident CASUALTY OFFICER (male) The appointment is tenable for one year from December 1st next subject to one month's notice on either side The appointed candidate will be eligible for re election for two further periods of one year Salary at the rate of £250 per annum with lunch and tea duty

Candidates must be duly qualified registered Medical Practitioners and preference will be given to those who have held a resident appointment in a General Hospital Applications (which must be made on printed forms obtained from me) must reach me not later than Friday November 17th Selected candidates will be required to call upon such members of the Medical Staff as directed and to be in attendance at a meeting of the Medical Council at 4 30 p m on Friday November 24th and the House Committee Meeting at 5 p m the same day, when the appointment will be made

H A MADGE Secretary

BOLINGBROKE HOSPITAL Wandsworth Common S W 11 (121 Beds)

HOUSE SURGEON (male) required The appointment is for six months commencing on December 1st Salary £120 per annum with board residence and laundry

Candidates must be fully qualified and registered

Applications stating age qualifications and experience with copies of not more than three recent testimonials should be sent to the undersigned on or before November 8th

W S RANDOLPH BISS Secretary Superintendent

THE WEST NORFOLK AND KING'S LYNN GENERAL HOSPITAL

HOUSE PHYSICIAN

Applications are invited for the above post which will become vacant on November 30th Salary £125 per annum

To have charge of Medical and Ophthalmic beds also to act as Casualty Officer and Resident Anaesthetist The post which is for six months in the first instance offers valuable experience in both In patient and Out patient work

Applications with copies of recent testimonial should be sent to the undermentioned as early as possible

JOSEPH E SEARJEANT F C C S House Governor & Secretary

ROYAL FREE HOSPITAL Gray's Inn Road W C 1

Applications are invited for the appointment of SECOND ASSISTANT SURGEON to the Ear Nose and Throat Department Intending candidate who must be Fellows of the Royal College of Surgeons of England should submit applications to the undersigned stating age and accompanied by copies of three recent testimonials on or before November 25th

REGINALD R GARRATT, Secretary

ROYAL FREE HOSPITAL, Gray's Inn Road W C 1

Applications are invited for the appointment of HON ... Intending candidates qualified should submit ... accompanied by copies of three recent testimonials to the undersigned on or before November 25th

REGINALD R GARRATT, Secretary

HULL ROYAL INFIRMARY

The Appointing Committee invite applications for the office of HONORARY PHYSICIAN to the Institution

Applicants must have obtained a degree in Medicine at one of the Universities of the United Kingdom be a Fellow or Member of the Royal College of Physicians of London Edinburgh or Ireland and be duly registered under the Medical Act

Honorary Physicians are appointed for a period not exceeding 20 years or until attaining age 60 years of age (whichever event occurs first) and in accordance with the terms of the Royal Charter

The successful candidate will be required to give an undertaking that he will not engage in general practice

Applicants are prohibited from personally canvassing but may send copies of their applications and testimonials to the members of the Appointing Committee

Applications should be addressed to the Chairman of the Managing Committee and should reach him by November 16th

R J CARLESS October 19th 1933 House Governor

WANTED AT SOUTHMEAD MUNICIPAL HOSPITAL BRISTOL (540 beds) a MEDICAL male ASSISTANT RESIDENT OFFICER Temporary appointment for twelve months Salary at the rate of £200 per annum and emolument—salary subject to temporary reduction in accordance with scale adopted by Council Applications to be addressed to the Medical Officer of Health 40, Prince Street Bristol 1, by November 15th

(Appointments continued on p 56)

British Medical Journal
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1
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Tel.: EUSTON 2111 (4 lines).

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HIGHLY QUALIFIED LADY DOCTOR, GOOD district, North London, RECEIVES INVALIDS in her comfortable home, healthy, restful surroundings, good nursing if req. Cheerful atmosphere. Terms according to treatment.—No. 7714, B.M.A. House, Tavistock Sq., W.C.1.

PAYING GUEST. — FOUR MINUTES FROM Swiss Cottage. Bright airy BED-SITTING ROOM (21 by 14), h. and c. w. Bed breakfast. Other meals by arrangement.—Apply Primrose 3255.

TO DERMATOLOGISTS. — RADIOGRAPHER, qualified in electro-therapeutics, with capital DESIRES WORKING ARRANGEMENT in a good-class district. Can provide all necessary apparatus.—Write, Box 44, Frost-Smith Advg., 64, Finsbury Pavement, E.C.2.

ASSISTANCIES.

WANTED (FOR NOV. 12TH) FOR CONTRACT Practice, South Wales, unmarried, male, outdoor ASSISTANT. State age and nationality, references. Salary £350, with furnished rooms and attendance. Usual bond. No Irishman need apply. — Address, No. 7459, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANTSHIP, TEMPORARY or permanent, by Medical Woman, with six years' experience private and panel Practice, dispensing, anaesthetics. Able to drive car. — Address, No. 7703, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANTSHIP BY M.B., B.Ch., B.A.O. (N.U.I.), pref. with view or temporary, aged 29, 6½ years' G.P. Own car. Now in Cambridgeshire. Large experience.—Address, No. 7670, B.M.A. House, Tavistock Square, W.C.1.

WANTED, DECEMBER 1st, ASSISTANT TO live at Branch surgery. Better-class private Practice, Lancashire coast town. Male, Protestant, single, with hospital and private experience. Salary according to experience.—No. 7676, B.M.A. House, Tavistock Sq., W.C.1.

WANTED.—INDOOR ASSISTANT, M. OR F., for winter months, panel and private Practice, Swansea district. Work not heavy and time for reading. State age, nationality, and other essential particulars. Usual bond.—Add., No. 7716, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — INDOOR ASSISTANT, SINGLE, for winter months, country and industrial Practice. Must be young and British nationality. Salary £280—£300 according to experience.—Address, No. 7704, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — JANUARY, ASSISTANTSHIP, 3—6 months, with view Partnership or Succession. Glasgow Graduate, aged 29, married, 7 years' experience panel, private, club. Good midwifery. — Address, No. 7679, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — OUTDOOR MALE ASSISTANT for pleasant Practice in North-West London suburb. Salary £400. Man with good personality and keen on medicine preferred. —Address, No. 7653, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — AN ASSISTANCY, OUTDOOR, with or without view, by Scotch Graduate, experienced in all classes of practice. Free now. Married. — Address, No. 7671, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANT, INDOOR, MALE, for mixed Practice in South Yorks. Salary according to experience £250—£350. —Address, giving all essential particulars, No. 7721, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY.—INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view, good salaries. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

WANTED IMMEDIATELY, INDOOR ASSISTANT, large Lancashire Practice. Salary £300, rising to £365. Car provided. Must have hospital experience.—Address, No. 7707, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT (MALE) WANTED IN TOWN, 30 miles from London. Scottish graduate preferred. No immediate partnership prospects, but all-round experience promised. Salary £400, outdoor. — Address, No. 7660, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP WANTED BY EXPERIenced Woman Doctor, aged 26, London trained. Qualified 3 years; ex H.S., H.P., C.O., and Anaesthetist. One year's experience general practice. — Address, No. 7672, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP WANTED BY YOUNG M.B., Ch.B., preferably with view to Partnership. Scottish nationality. Protestant. Ex H.P., H.S., "Specials," and R.M.O., Maternity Hospital. Experienced G.P.—Address, No. 7708, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP OR PART-TIME WORK wanted by Woman M.B., B.Ch., eight yrs.' experience panel and private. London preferred. Free now.—Address, No. 7675, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP, WITH OR WITHOUT VIEW (whole or [illegible] required by experienced don; free shortly. No. 7706, B.M.A. House, Tavistock Square, W.C.1.

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FOR BUSY PRACTITIONERS. — M.R.C.P., F.R.C.S., reading for examination, is free every evening and week-end; aged 31, experienced practitioner, and would gladly ASSIST in specialist or general practice.—Address, No. 7661, B.M.A. House, Tavistock Square, W.C.1.

INDIAN DOCTOR, HIGHLY QUALIFIED, exp. in G.P., panel, and hospital, young, energetic, abstainer, well received, wants ASSISTANTSHIP or Locum engagement. References and testimonials. — Address, No. 7659, B.M.A. House, Tavistock Square, W.C.1.

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WANTED — MIXED PRACTICE, ABOUT £1,200, within 10—20 miles of coast —Address No 7719, B M A House, Tavistock Square, W C 1

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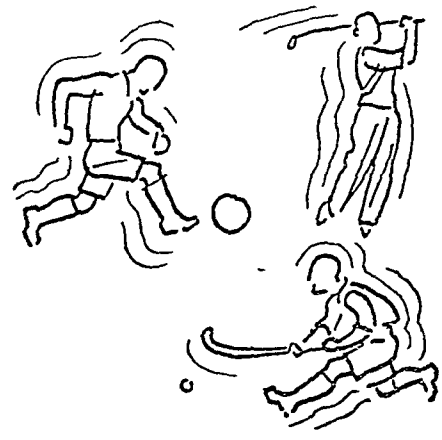
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Editors:
W. Kerr Russell, M.D., B.S., and B. D. H. Watters, M.Sc., A.Inst.P.
(Collaborating with an Honorary Advisory Editorial Board).

The Contents of the OCTOBER 1933 ISSUE INCLUDE:—

A Review of 17 Years' Work in the Electrical Department of the Radcliffe Infirmary, Oxford.
By W. J. TURRELL, M.D. (Oxon.), D.M.R.E. (Cantab.). In this time nearly 300,000 treatments have been administered. The author reviews the comparative value of different methods, including diathermy, Watteville current, Morton Smart method of graduated muscular contractions, and the high potential and unidirectional current. The combined attendances at the Electrical and Massage Department in one year (1930) constituted more than one-third of the total attendances at all other departments combined *and nearly three times the number of any other single department*. And yet, the author writes, the study of the principles and practice of electrotherapy is almost entirely neglected by the medical profession. Is it creditable to an honourable profession (he asks) that, either from ignorance, indifference, or prejudice, or whatever the cause may be, it should neglect the investigation of the principles of the most powerful and reliable controlled force in our remedial resources, and thereby condemn a large number of the public to an incalculable amount of unnecessary suffering and disability? It must be evident to any medical man of experience that as a result of this neglect of physical remedies, the public is drifting away, more and more, from the qualified to the unqualified practitioner of the healing art.

The *Rationale* and Technique of Treatment by Graduated Muscular Contractions.
By Sir MORTON SMART, K.C.V.O., D.S.O., M.D. Part I.—*Rationale*. Formation of Adhesions. Importance of (*a*) muscular action, (*b*) personal control. The author states that the basis of this treatment is the very antithesis of rest. It may be described shortly as the *controlled stimulation of the muscles to produce alternate contraction and relaxation*, and thereby to restore the tone to the injured muscles, to prevent inter- and intramuscular adhesions, to keep the tendons and other parts moving so that they do not become adherent to contiguous structures and, above all generally to increase the blood supply to the injured tissues and so stimulate the rate of repair by rapidly promoting the absorption of waste products. It provides a form of intensive exercise by a method of stimulation under such perfect control that the exercise can be exactly graded according to circumstances.

Physical Treatment in Arthritis.
Vide B.M.A., Arthritis Committee's Report. The objects of physical treatment viz. (1) to relieve pain, (2) to regulate sweat secretion and superficial capillary circulation, (3) to promote the absorption of fibrous thickening from muscles, fascia, and joint capsules, also of old inflammatory exudates, and thus to restore mobility in stiff joints and muscle, and (4) to regulate body metabolism and to raise (when present) a persistently low temperature, and thus to stimulate the defence mechanism of the body. Objects attained by (*a*) the application of heat or of alternations of heat and cold, (*b*) massage, (*c*) passive and active movements, including mechanotherapy and exercises. Consideration of methods of applying heat and mechanotherapy and exercises.

Treatment of Gonorrhoea by Electrolysis: A Survey of 1,000 Cases.
By CHARLES RUSS, M.B. (Lond.), M.R.C.S. The author describes a method which is less uncertain in its effects and progress than the commoner methods, and should be a painless procedure and confers immunity from rheumatic and joint troubles, and therefore must interest every practitioner.

Some Common Misconceptions Concerning Mechanotherapeutics.
By EDGAR CARIAN, M.D. (Edin.), London. (1) Need for resting after massage pure and simple, (2) Uses of Massage Proper of Muscles, (3) Technique of Colon Massage, (4) Treatment of Contractures of Muscles, (5) Technique of manual vibrations, (6) Employment of abdominal massage during pregnancy, (7) Use of abdominal massage in heart disease and arterio-sclerosis.

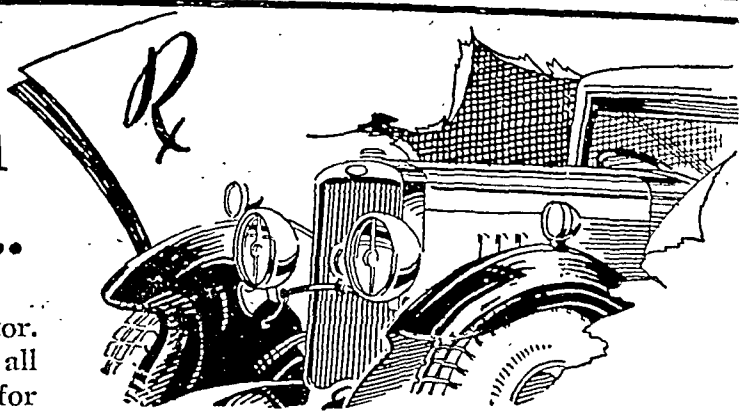
Spa Treatment of Heart Disease.
By C. R. L'Estrange Orme, M.A., M.R.C.P., Matlock.

ALSO
EDITORIAL.—Psychology and Physical Medicine. Salford and Certificates.
CORRESPONDENCE.—Light Treatment in a General Hospital. Ultra-short Waves. (from Mather Thomson and from Leonard Hill)
SOCIETY FOR LIGHT INVESTIGATION.
ASSOCIATION OF REGISTERED BIO-PHYSICAL ASSISTANTS and the medical profession (monthly Report of the Executive Committee)
APPLIANCES, PREPARATIONS, etc.
NOTES ON DIET AND NUTRITION.—Food Allergy, The Place of Copper in Dietary, Rectal Administration of Cod liver Oil.
(For Contents of the September issue see last week's "B.M.J.")

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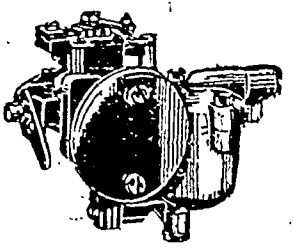
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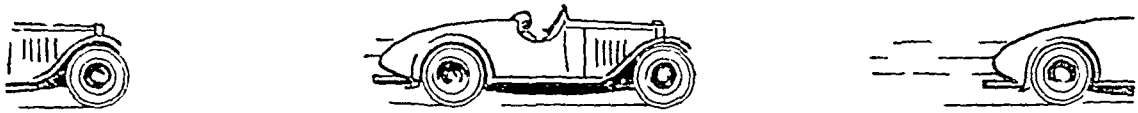
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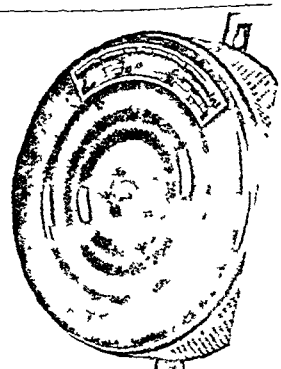
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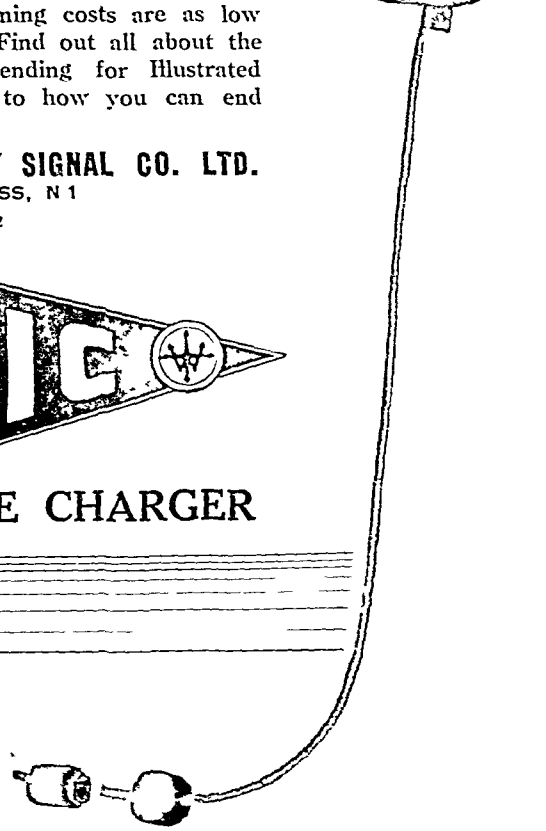
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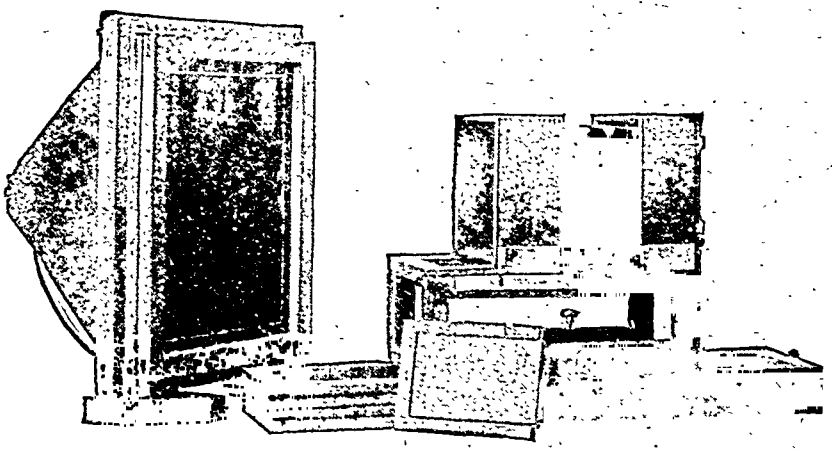


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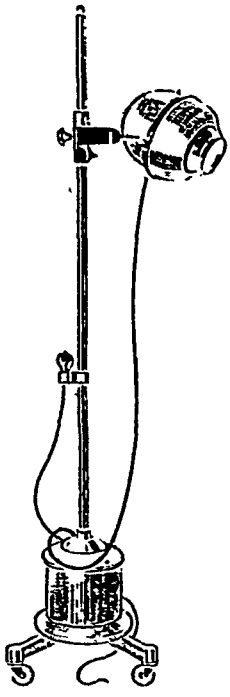
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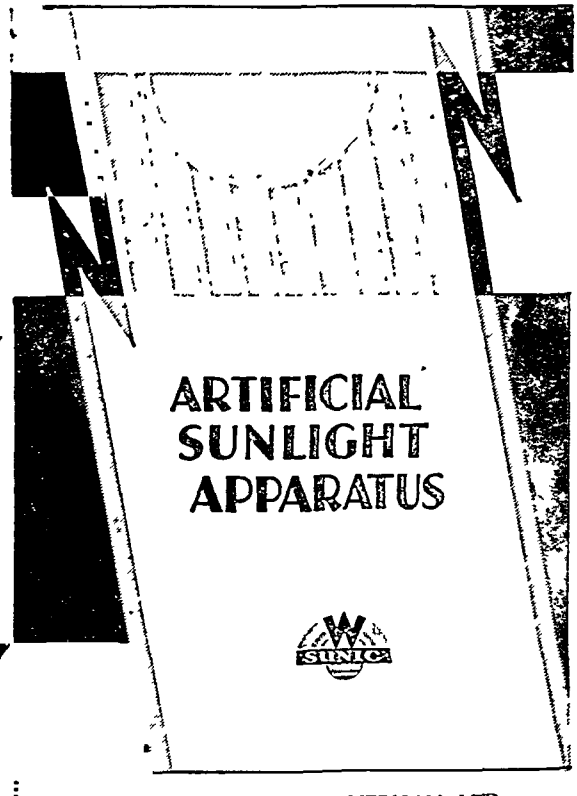
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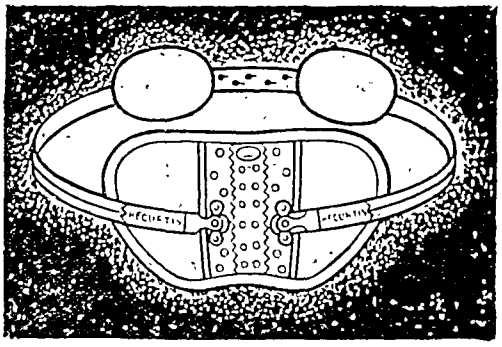
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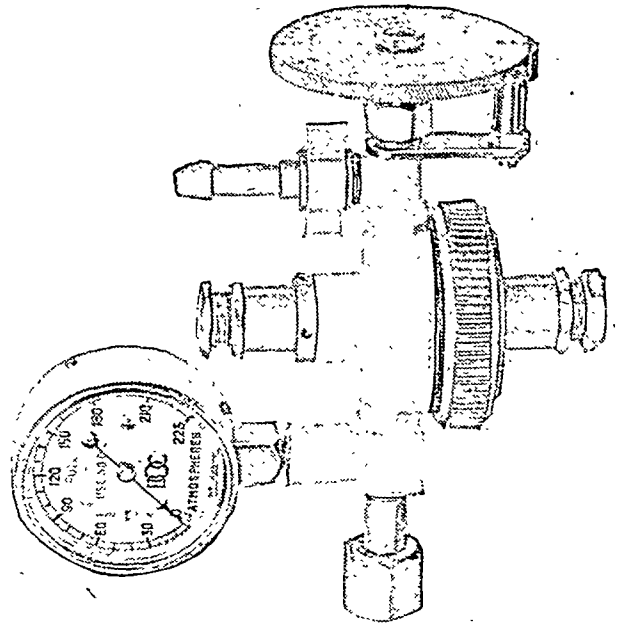
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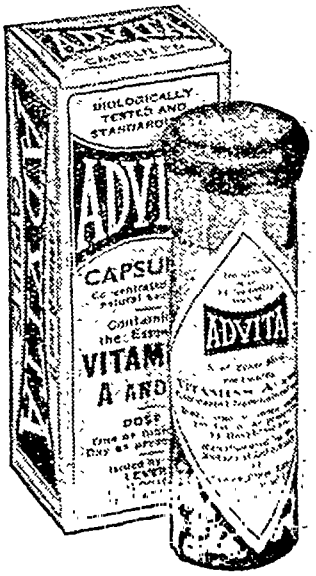
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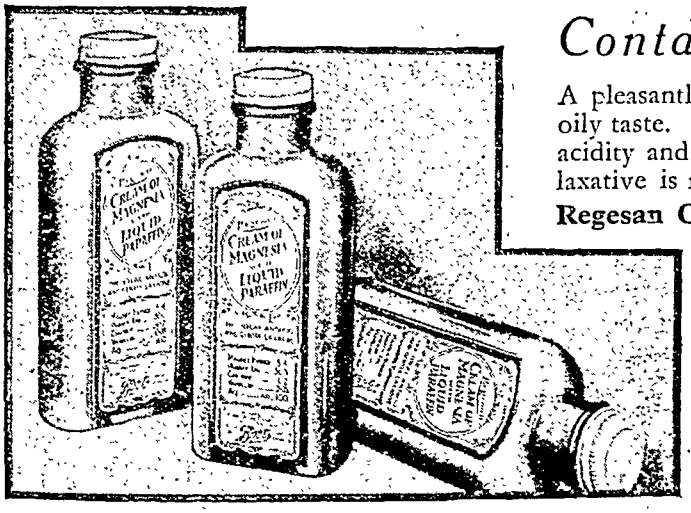
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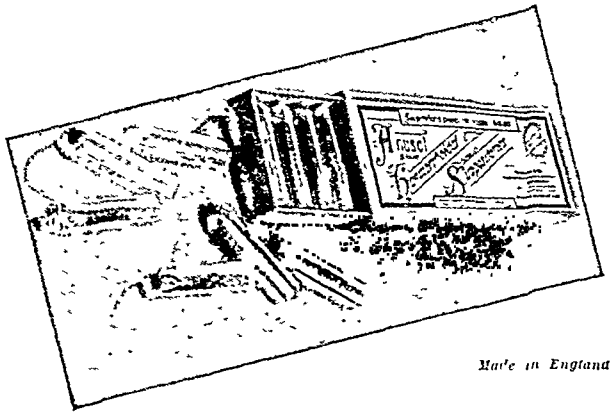
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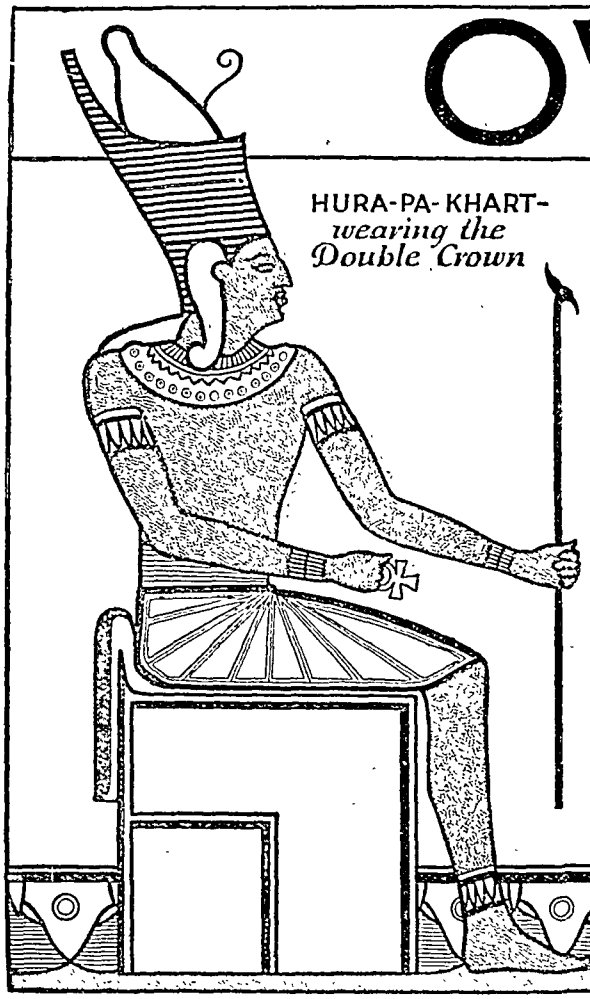
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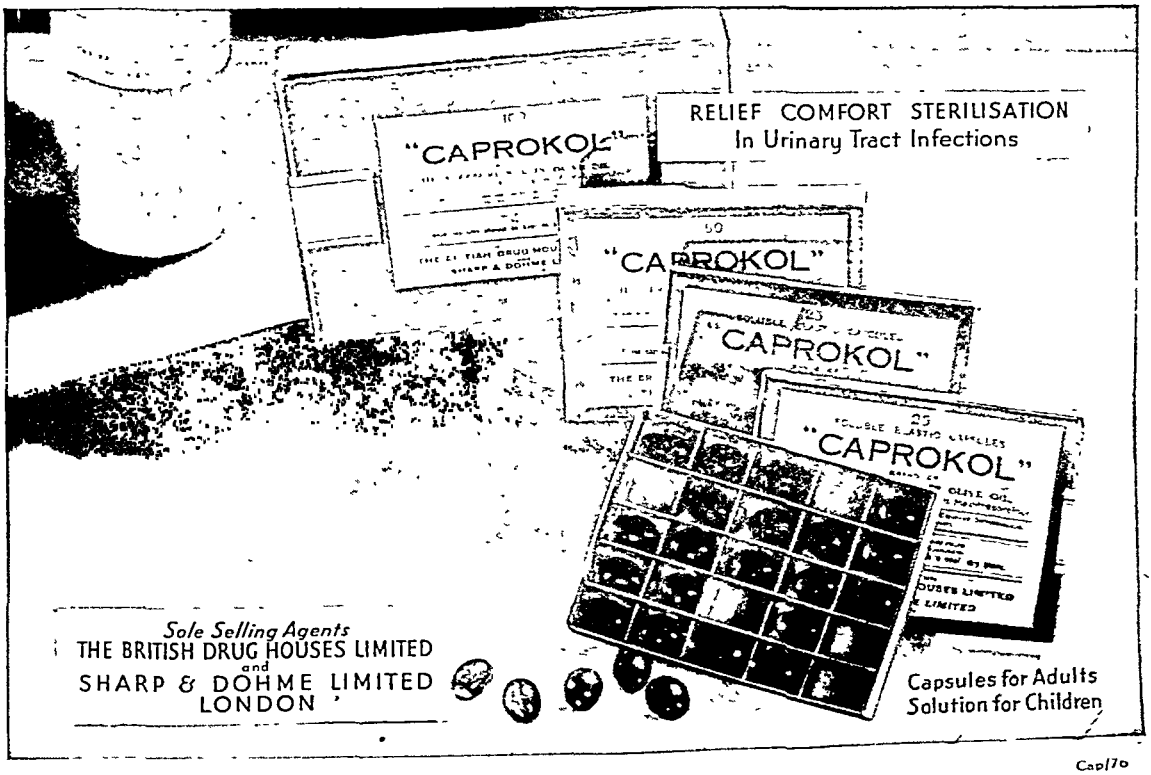
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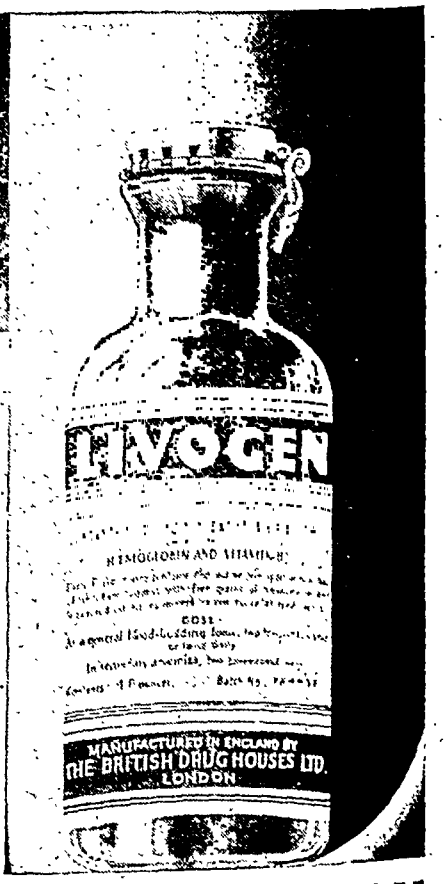
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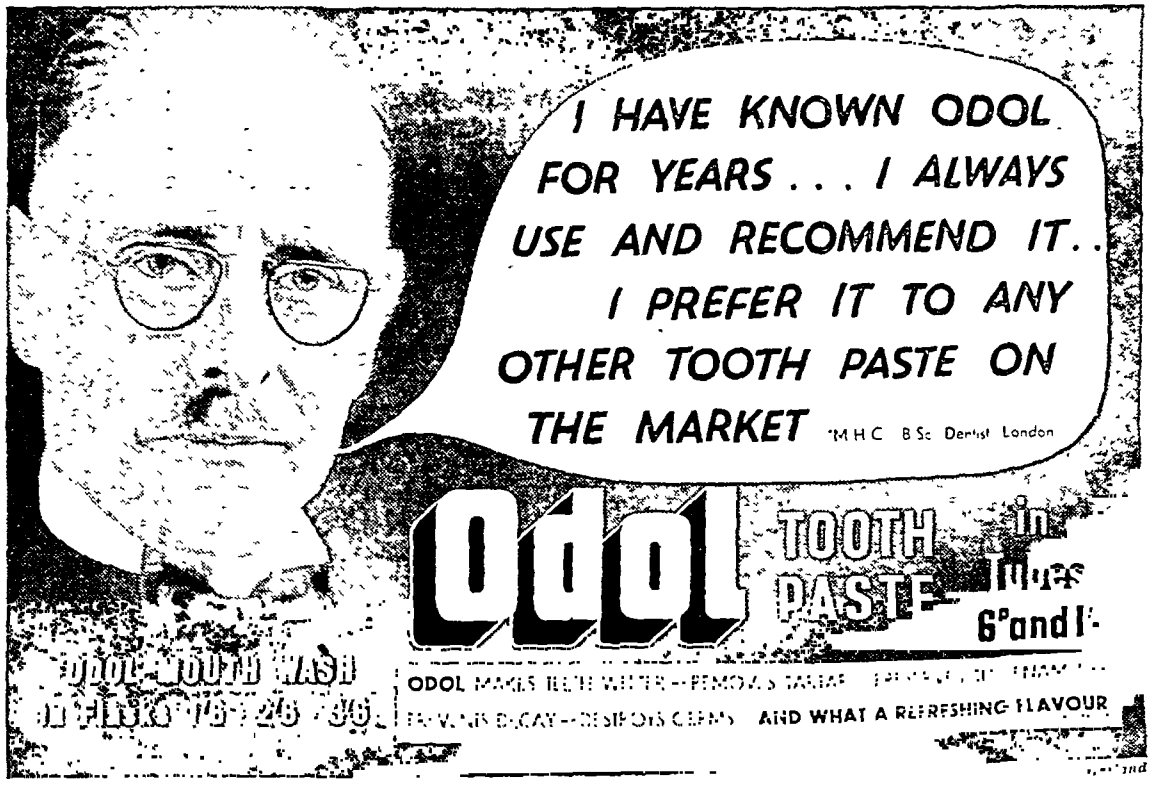
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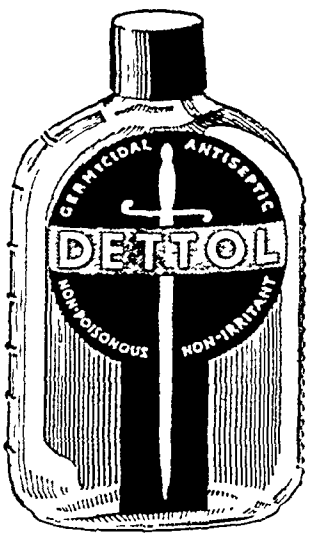
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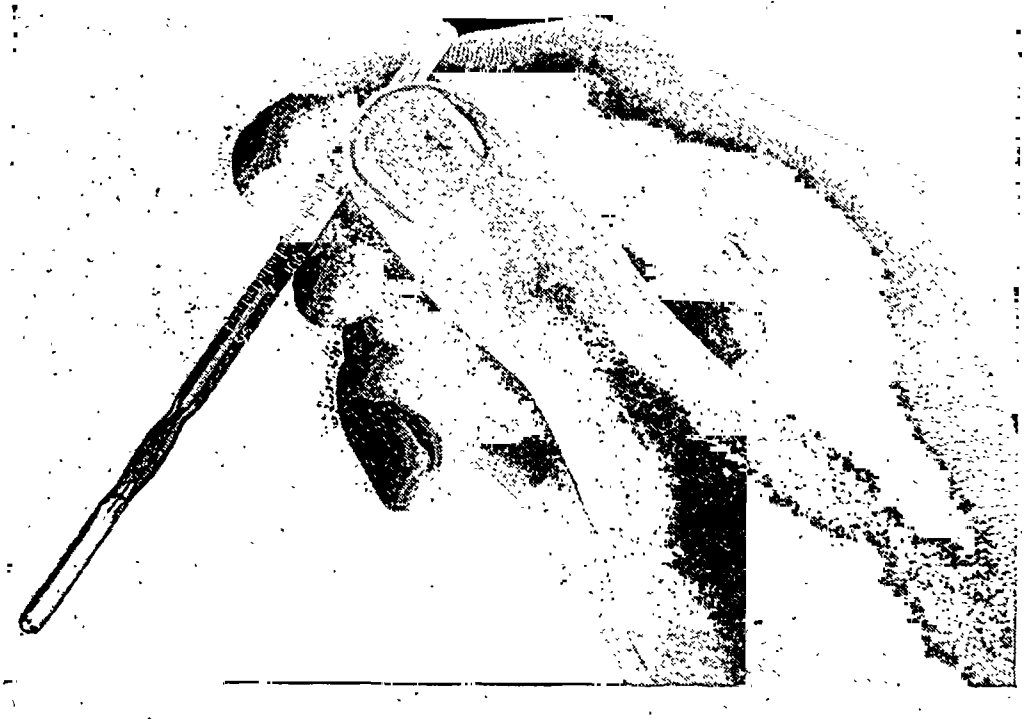
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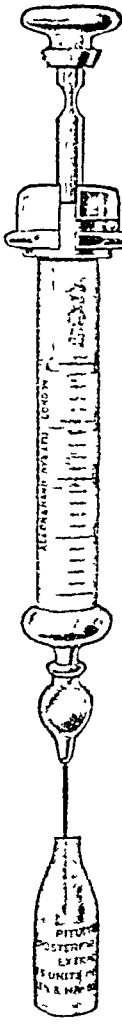
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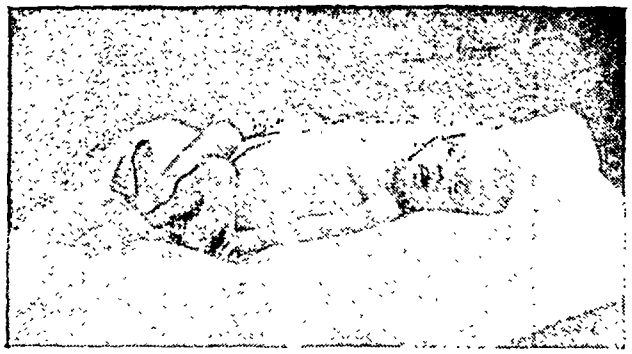
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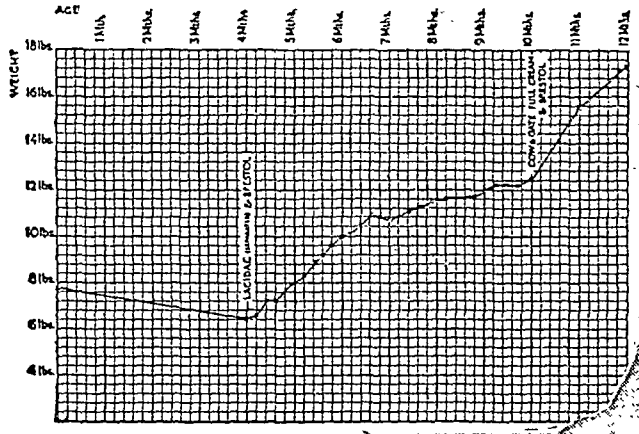
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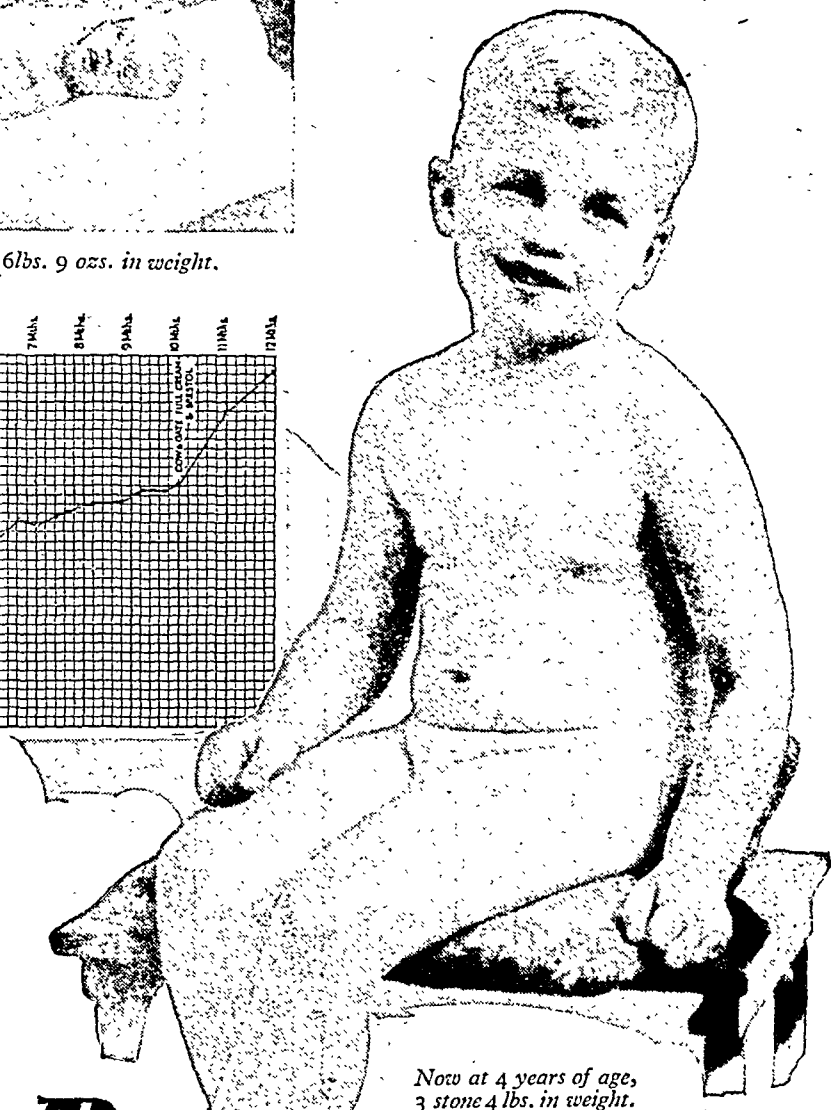
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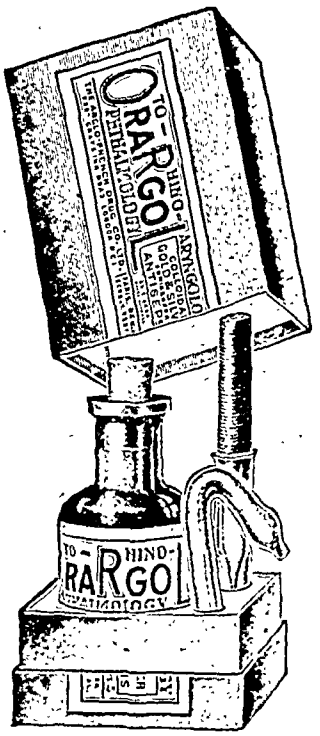
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Observations
ON
DIURETICS AND THEIR USES *
BY

D MURRAY LYON, M D D Sc, F R C P Ed
PROFESSOR OF THERAPEUTICS AND CLINICAL MEDICINE UNIVERSITY OF EDINBURGH

Diuresis is defined as an increased flow of urine, without regard to the composition of the fluid or its source Two main types should be clearly distinguished, for diuresis may merely represent an increased intake of water by the mouth or it may depend on removal of fluid from the tissues The terms "exogenous" and "endogenous" would serve to differentiate the two types Regulation of the flow of urine depends on many factors, and an examination of these is essential to a proper understanding of the process

Of late years considerable attention has been directed to the subject of water balance Water constitutes a large proportion of the body weight, on the average it is about 60 per cent, but the figure varies widely for different tissues muscle being the principal depot and skin the next The nutrition state is also of importance, for emaciated individuals possess a greater proportion of fluid than normal or adipose subjects

In considering the question of diuresis it must be clearly kept in mind that simple figures for fluids drunk and for urine passed give but a rough idea of the water balance The water intake includes not only the fluids imbibed, but the water content of foods and the water which is formed as an end product of metabolism The importance of these sources will be realized when it is recalled that such foodstuffs as fruit, vegetables, and milk consist of over 80 per cent of water, while the complete combustion of 100 grams of fat within the body yields 107 grams of water Fluids are removed from the body by several channels in addition to the urine The skin and lungs play a large part, even under conditions of rest, and some water is lost in the faeces The "insensible loss" by the skin and in the expired air amounts to about a litre daily, and is proportionate to the metabolic rate Fluid loss in the faeces is of relatively small amount, and is fairly constant unless diarrhoea is present When these conditions are not disturbed the quantity of urine may vary with the amount of fluid taken, but therapeutically induced sweating or diarrhoea must affect the urine unless the subject compensates by drinking extra fluid The relation of diet to water economy is rather complex, for, in addition to the fluid content of the foods, other dietary factors play a part The relative proportions of the foodstuffs also have an influence on the distribution of water Carbohydrates favour water storage, while fats release fluid from the system When a subject is changed from a rich carbohydrate low fat diet to one with high fat and little carbohydrate, extra water is rapidly lost from the body The loss may amount to three or four litres in the first few days A converse change of diet results in a rapid increase in weight, which can only be interpreted as retention of fluid in the body Diets which are grossly under nutritional may result in the development of hunger oedema

THE BLOOD PLASMA AND WATER ECONOMY

It is well recognized that the conservatism of the body tries to maintain constant values in many things These "constants" vary in their relative importance to the organism, and some are more jealously guarded than others Among the most important are the blood volume and the physical and chemical composition of the blood When the composition of the plasma changes an endeavour is made to keep the osmotic pressure constant The regulation of the water economy centres in the blood, since addition of water or of salts must be matched by a corresponding removal through the excretory channels or by transference to the tissues and spaces of the body The quantity of extravascular fluid is very elastic, and may vary widely under different conditions Much study has been devoted to the laws which govern the partition and the movements of water within the organism, and it would appear that faults and modifications can occur at many points Oedema, a gross increase of tissue fluids, may result from many causes Certain mechanical factors favour its occurrence—for example, peripheral stagnation of the blood stream with dilatation of the capillaries and an increased lateral pressure against their walls Changes may occur in the capillary walls increasing their permeability, or in the extravascular tissues leading to the attraction and retention of extra fluid Considerable attention has been devoted to the influence of the composition of the blood itself The plasma proteins, by their tendency to bind water, exert an oncotic pressure which resists filtration of fluid, and albumin is much more powerful in this respect than globulin When the plasma proteins fall below a certain value increased transudation must result The water binding properties of the colloids are influenced by the pH of the blood by certain crystalloids, and possibly by some of the hormones

Increased alkalinity within clinical limits tends to favour water retention, while acids lead to diuresis The importance of salts in the movements of water is fundamental Usually movements of water and of sodium chloride occur together, and at one time salt retention was believed to be the most important cause of oedema Salt retention however, occurs in pneumonia without oedema, and even in nephritis a pre oedematous stage has been described where salt is retained and stored in the skin An interesting development is the recognition that in nephritis the main difficulty may lie in the sodium metabolism The acid producing chlorides of calcium and of ammonium have diuretic properties, and potassium chloride may replace the corresponding sodium salt without causing oedema In addition, it has been shown that other sodium salts, such as the bromide and the bicarbonate, lead to water retention It is very interesting to observe that among the saline substances empirically recommended as diuretics sodium salts are practically never mentioned

The oedema of cardiac failure is usually agreed to depend chiefly on the poor circulation although secondary changes in the capillary walls, in the tissues and in the kidneys may contribute and the condition is aggravated by gravity Dilution of the blood may occur, but in any case, as Mayrs has shown, transudation will occur because of the increased capillary pressure before the plasma proteins have fallen far The oliguria of cardiac failure is also due to deficient blood flow, and a secondary renal insufficiency may further contribute to the oedema

Three types of oedema have been described in kidney disease In the early stage of an acute nephritis oedema occurs while yet the blood proteins are normal In the subacute or chronic parenchymatous variety (nephrosis), the prolonged loss of albumin depletes the plasma proteins, and the consequent low oncotic pressure is the principal cause of the waterlogged state of the body In the later stages of renal disease heart failure may ensue, and will contribute to the oedematous state Superficially the primary renal oedema would appear to

* Paper read in opening a discussion in the Section of Pharmacology and Therapeutics at the Annual Meeting of the British Medical Association, Dublin, 1933

Water Diuresis

In health, water is probably the most efficient diuretic, since any excess which may be ingested and absorbed is soon excreted by the kidneys. An extra intake of many litres may be got rid of in this way. Copious libations tend to deplete the system of sodium chloride, and once water diuresis has started some fluid in excess of that drunk may also be swept out of the body. Water as a diuretic finds its greatest use in infections and in local lesions of the urinary tract. In fevers and intoxications, copious bland fluids may be given to endeavour to carry off soluble poisons from the body. Dilution of the urine in these conditions will tend to make it less irritating. Diuretic salts may also be given.

In oedematous cases water is only a safe diuretic when the salt intake is limited. Water restriction is helpful in acute nephritis and in cardiac oedema when the renal circulation fails to deal with normal quantities of fluid. The fluid intake should gradually be increased to normal as the kidneys show evidence of being able to deal with it. After the more acute phase has passed a new state of affairs arises in renal oedema, and normal or even increased quantities of urine may be passed although the body remains oedematous. Such patients, when left to themselves, may drink more than normal, especially if much fluid is being lost by other channels.

The Mercurials as Diuretics

Calomel has a reputation as an occasional adjuvant in resistant cardiac oedemas. The older plan was to give daily purgative doses till mild mercurialism ensued—a drastic remedy. Given in this way it was said to act by depleting the system of fluid and so relieve the heart. Another method is to give repeated minute doses in order to obtain the renal effect without causing diarrhoea. Doses of 1/4 to 1/2 grain at intervals of half to one hour are given to a maximum of 2 or 3 grains. This procedure sometimes appears to initiate diuresis, but often fails. The Guy's pill, which contains a grain of pil. hydrarg., is also an old remedy.

One of the most successful advances has been the introduction of certain organic mercurials for the purpose of producing diuresis. Those most employed are novasurol, which was first introduced, and salyrgan, which is rapidly replacing it. Both are efficient and dependable drugs; they are issued in sterile fluid form, and have to be administered intramuscularly—not into the subcutaneous tissue, as this causes severe local reactions. A small percentage of patients who receive novasurol develop mild mercurialism, but salyrgan is practically free from this drawback. Diuresis usually sets in within a few hours and may reach its maximum on the second day. A simple injection often doubles the urinary output. In one remarkable case the urine was raised from an average of 1,800 c.cm. to 4,200 c.cm., 4,500 c.cm., 5,040 c.cm., and 6,000 c.cm. by four isolated injections. Where the oedema is resistant the drug can be given safely every second day over long periods. One patient reacted satisfactorily sixteen times, but his oedema continued in spite of this. Most cardiac oedemas respond by diuresis, but the most severe cases within a few weeks of death often fail to show any reaction whatever. To obtain a good effect the heart should first be digitalized, and it is said that a better response is obtained if ammonium chloride is given for about three days before the salyrgan. As a rule these drugs should be avoided in renal cases, although I have tried them occasionally without bad effect. The mercurials have been suggested for the effusions of hepatic disease, and they may actually be introduced into the peritoneal cavity.

Diuretic Properties of Hormones

Certain hormones are known to influence the movements of water within the body. Adrenaline probably acts by stimulating the circulation and by constricting vessels, but it is never used for producing diuresis. Pituitary possesses both diuretic and anti-diuretic properties, and is practically only employed in urinary suppression. Thyroid is sometimes an important remedy, especially in the waterlogged case of nephritic type. That it possesses a definite action on the partition of body fluids is shown from its effects on cases of myxoedema, and cases of obesity often show diuresis for a few days after thyroid treatment is begun. In long-standing renal oedemas, after other remedies have failed, thyroid may be exhibited with the usual precautions. Platt states that such cases may possess a remarkable tolerance to the drug. Experience with thyroid apparently varies, for while McCann states that diuresis may often commence even while the plasma proteins are still low, O'Hare says it is of no use, even up to doses of 50 grains. As it is seldom employed, except in resistant cases, remarkable results are hardly to be expected. I have sometimes found it of service.

As the thyroid will tend to raise metabolic rate and so cause an increased "imperceptible fluid loss" a reduction of urine might be expected, but patients on thyroid often compensate by drinking rather more. Both cases illustrated in the accompanying table show a greatly increased ratio of output to intake when on thyroid.

	Intake	Output	Ratio of Output to Intake
Case I	2,242 c.cm.	833 c.cm.	37%
Thyroid	2,326 c.cm.	1,210 c.cm.	52%
Case II	1,408 c.cm.	881 c.cm.	63%
Thyroid... ...	853 c.cm.	803 c.cm.	94%
Thyroid + urea	824 c.cm.	1,307 c.cm.	158%

Thyroid would be contraindicated in circulatory failure. Parathyroid has been recommended along with calcium salt such as the lactate, but I have never seen benefit from its employment.

Colloids as Diuretics

Certain oedemas appear to depend on reduction of the plasma proteins, with consequent fall in the oncotic pressure of the blood. Continued albuminuria perpetuates this and a low diet aggravates it. Thyroid and certain of the salts may act by improving the water-holding properties of the colloids, but a restoration of the normal pressure would be more satisfactory. One chronic case was given ten doses of 30 to 50 c.cm. gum saline intravenously with apparent benefit. Later, three transfusions of blood were given, and further improvement resulted. Enrichment of the blood by appropriate dieting should tend to relieve oedema.

Diets and the Output of Urine

A number of different types of diet have been suggested to remedy various kinds of oedema. In cardiac cases a salt-dry diet is often helpful. McCann emphasizes that a salt-poor diet is essential in the control of any dropsy. Low protein diets may relieve the kidney of work and may improve output as the renal lesion heals, but they will certainly lead to impoverishment of the plasma proteins. They are satisfactory for acute nephritis, but should not be continued for too long. When renal oedema has

reached the chronic stage and there is no evidence of nitrogen retention, a normal or high protein diet will probably be of greater benefit Besides any effect the extra protein may have on the plasma, the increased quantity of urea which it yields must be of great importance Several of our cases appear to show a parallelism between the protein content of the diet and the urinary output

Our experience with chronic nephritics has been similar to that of Sansum and his colleagues In nephritis the urine is usually highly acid and such patients do better on a diet which yields an alkaline ash, the blood chemistry improves and albumin and blood diminish in the urine Evidence that there is a greater output of urine on such a diet is not so definite, for though the output is usually higher with a basic diet the intake may also be greater

DECAPSULATION

In chronic parenchymatous nephritis, the tubular tissue may remain so swollen that the urinary passages are compressed and a mechanical obstruction is caused For such cases decapsulation of the kidneys has been suggested Sometimes remarkable improvement in the urinary output follows this procedure as is shown by the following case A woman of 27, who had been oedematous for many months had an average output of 270 c cm before the operation and a continued average of 1,100 c cm afterwards

INDICATIONS FOR THE USE OF DIURETICS

Copious libations or the administration of saline diuretics may be useful in certain fevers and intoxications or where it is desired to flush the urinary tract Diuretics are mostly given with the idea of reducing oedema, but this is, after all, merely a symptom, and does not necessarily require direct treatment Cases of heart failure seldom require special attention for the dropsy Where digitalis fails to relieve the condition and the ansarca is embarrassing the circulation and the diaphragm, diuretics are undoubtedly helpful A dry diet with a minimum of salt should first be tried The most dependable supplementary diuretic for such cases is salvrgan, either alone or after preliminary administration of ammonium chloride Urea may also be employed, but the salines and the specific diuretics are so uncertain in cardiac failure that they are hardly worth giving

In cases of nephritis the indications are less definite There is no evidence that in itself the oedema embarrasses the kidneys, and an artificial diuresis is not necessarily helpful It is, however, natural enough to try to relieve a symptom when nothing material can be done to remove the primary disease Acute nephritis is best treated by lessening the work of the kidneys and by favouring the loss of fluid etc, by other channels Salt restriction may be useful too For the chronic oedemas of renal *origin diuretic measures are of doubtful value Salines* may be used and copious diuresis may be produced by urea without, however, causing the disappearance of the oedema Some of the so called diuretics may, of course, benefit these cases in other ways Where the blood proteins are low, no permanent effect is likely to be produced until this fault is remedied Blood transfusion, high protein diets, or thyroid may help to accomplish this For inflammatory oedemas and effusions into serous sacs diuretics are of little or no value

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A CLINICAL REVIEW OF 620 CASES*

BY

L MARTINDALE, C B E, M D, B S, F C O G

SENIOR SURGEON NEW SUSSEX HOSPITAL, EASTBOURNE; SURGEON, MARIE CURIE HOSPITAL LONDON

In preparing this clinical review of a series of my own cases I have tried to show, by a study of the end results, the nature and duration of the artificial menopause, and the way in which it differs from the normal menopause, also the best and safest ways to induce an artificial menopause in an individual case and the indications and contraindications for the various methods

TABLE I—*Results in 620 Cases of Metropathia Haemorrhagica Fibrosis Uteri and Fibromyomata Treated by Various Methods from 1914 to 1933 (June)*

(A few cases of severe dysmenorrhoea tuberculosis and serious psychosis in which a temporary castration was indicated are included)

Treatment	No of Cases	Cured
Surgical operation	312	97.8%
Intensive x ray therapy	263	91.2%*
Radium treatment	45	68%*
Total	620	—

* The word cured in this context means (1) Relief of symptoms (pressure menorrhagia) (2) amenorrhoea of two years or longer in patients under the age of 38 and complete in patients over 40 (3) in the case of fibroids a reduction of the tumour to at least one third of its original size

* Read in the Section of Obstetrics and Gynecology at the Annual Meeting of the British Medical Association Dublin 1933

I have treated 620 cases as shown in Table I The material conveniently groups itself into

1 Cases of uterine haemorrhage of benign origin due to metropathia haemorrhagica fibrosis uteri or definite fibromyomata

2 A few cases of incapacitating dysmenorrhoea in which every form of medical treatment has been tried and a temporary castration was indicated

3 Cases in which a temporary or permanent menopause was indicated on account of tuberculosis or very severe migraine occurring at the monthly times only or the more serious psychoses

The summary has been made from records of the patients, in which the following points have been noted age, occupation, symptoms and physical signs the preliminary dilatation and curetting pathology and date and technique of treatment this being followed by a resume of the end results, giving details of the amenorrhoea, vasomotor and metabolic disturbances nervous symptoms, and sexual reactions Any subsequent surgical or radiological treatment the patient may have undergone has been noted, together with a list of the doctors who sent me the patients or other surgeons or physicians who may have examined or treated the case with me I have re examined 109 of these patients during the last three months, and received and tabulated the answers to 380 questionaries I sent out (whenever possible through the doctor of the patient), and it is from these data that I have worked

TYPE OF TREATMENT ADOPTED

Surgical operation has been chosen for those cases in which

1 The pathology of the uterus or the other pelvic organs was doubtful (A diagnostic dilatation and curetting has been performed in a certain percentage of these cases)

2. The size of the uterus was greater than that of a four months' pregnancy, and was causing serious pressure symptoms.

3. The fibroids were subperitoneal or submucous, or possibly undergoing degeneration. (Blood counts, with special reference to differential leucocytosis, were frequently done.)

4. The patient was young, and there was a reasonable hope that a myomectomy could be performed.

Intensive x-ray therapy was the treatment of choice in those cases in which:

1. The patient was suffering from severe climacteric haemorrhage, the uterus being fibrotic or only very slightly enlarged, and there being no intermenstrual haemorrhage.

2. The fibroid was interstitial, the uterus being enlarged to not more than the size of a four months' pregnancy, the main symptom being menorrhagia.

3. There were no physical signs or symptoms suggesting malignancy of either the uterus itself or any other pelvic organ. In cases of any intermenstrual bleeding a diagnostic dilatation and curettage was performed.

4. There was no evidence that the fibroid was undergoing necrobiotic or necrotic degeneration (differential leucocyte counts were done when this was suspected).

5. There was no evidence of cystic or other disease of the ovaries or of the tubes.

6. The patient's general condition was serious—for example, she was suffering from grave cardiac or pulmonary trouble, or any condition in which it was important to eliminate surgical shock.

Radium treatment was used in only a small percentage of cases:

As, for instance, when expense of treatment was an important factor. *X*-ray treatment is very costly, and as there is no intensive *x*-ray plant in my own hospital, and we do possess an adequate dose of radium, I treated some of the patients with radium whom I should have preferred to treat with *x* rays had it been possible.

Survey of Cases

I.—Surgical Operation

The 312 cases treated by surgical operation are classified under four headings, according to the nature of the operation—namely, subtotal or total hysterectomy, and abdominal or vaginal myomectomy. Table II shows the proportion of cases in which hysterectomy alone was performed, or hysterectomy with single or double oophorectomy; and the number of cases complicated by carcinoma or sarcoma of the uterus or other organs, and the operative mortality. I have included cases of myomectomy, although unless double oophorectomy was done at the same time, they should not, strictly speaking, have been included under "artificial menopause"; on the other hand, it seems fairer to do so in considering the advisability of surgical operation *versus* irradiation, especially as my mortality rate was highest in cases of myomectomy. Excluding the latter, the operative mortality rate was 0.9 per cent., whereas the total operative mortality was 2.2 per cent., three patients dying of pulmonary embolism on the fifth, fourteenth, and twenty-first days after operation respectively, and three of heart disease on the second, seventeenth, and twenty-first days after operation respectively. The seventh patient died of shock twenty-four hours after operation; there was a very large post-cervical impacted fibroid and an umbilical hernia.

Table II.—*Results in 312 Cases Treated by Surgical Operation*

	No. of Cases		Died	Cases Complicated by—		Cases Complicated by Malignancy of Other Pelvic Organs	Fibromyomata Complicating Pregnancy
				Carcinoma	Sarcoma		
Subtotal hysterectomy only ...	143						
Subtotal hysterectomy and oophorectomy	71	227	2	2	2	2	Nil
Subtotal hysterectomy and double oophorectomy	13						
Total hysterectomy only ...	21						
Total hysterectomy and oophorectomy	5	29	1	6	2	Nil	Nil
Total hysterectomy and double oophorectomy	3						
Abdominal myomectomy only...	25	37	3	Nil	Nil	Nil	2
Abdominal myomectomy and oophorectomy	12						
Vaginal myomectomy	19		1	Nil	Nil	Nil	2
Total	312		7	8	4	2	4

Fibroid Uterus Complicated by Carcinoma of Fundus

I have included only cases in which there was a fibromyoma present; of these there were eight in all. The percentage is a high one, but this is due to the fact that all the worst cases come under this surgical heading—namely, cases in which one chose operation rather than irradiation, either because of the suspicious intermenstrual bleeding or because the diagnostic curetting proved the necessity of operation. Adenocarcinoma was found in all these cases. In one case there was, in addition, a large pyometra with pyrexia. She is now well and symptom-free seven years after the panhysterectomy. One patient died two years after operation and subsequent *x*-ray treatment. Two cases have not been traced. Five cases are well and symptom-free after seven, four, three, three and a half, and three years respectively.

Fibroid Uterus Complicated by Sarcoma

There were four of these cases. Two are dead and two cannot be traced. In one case I did a vaginal myomectomy for a large, non-malignant, submucous fibromyoma, and two years later—namely, in 1916—a panhysterectomy for sarcoma of the uterus. In another case a subtotal hysterectomy and left salpingo-oophorectomy was done in 1929; endothelioma of the uterus was diagnosed by the pathologist, and *x*-ray treatment was subsequently given. In 1931 sarcomatous degeneration of the cervix was diagnosed, for which radium treatment was given, followed by *x* rays. The patient died eighteen months later.

Fibroid Uterus Complicated by Malignant Disease in Other Organs

In one patient, in 1917, subtotal hysterectomy and left oophorectomy for a large fibromyoma was performed. One fibroid was found to be sloughing and breaking through the uterine wall; it was diagnosed by the pathologist as non-malignant. In 1920 the patient consulted me for left sciatica and swellings in the left leg and thigh. I did an exploratory laparotomy. The recti showed red degeneration of the muscle fibres. A large tumour was felt on the left, attached to the pelvic wall; it was reddish, very vascular, and extended into the pouch of Douglas. On the right were similar tumours attached to the mesentery and small intestine; there was much free fluid. There were also large tumours in the muscles of the left thigh anteriorly, a smaller one above the lower end of the femur, and one in the right arm, anterior to the upper third of the ulna. *X* rays showed nothing abnormal in any of the bones. After regular *x*-ray treatment from 1921 to 1922 the abdomen became more normal, with less distension and very little free fluid. The patient felt well and was able to work. In December, 1922, the tumours in the thigh increased enormously following a fall; more *x*-ray treatment was given, and in July, 1923, the patient was in excellent health, although one hard fibrotic tumour could be felt in the left ovarian region, and the two in the thigh had become smaller and harder. The tumour in the right arm and the one in the back of the thigh had completely disappeared. In 1924 she was in excellent health and able to dance, the abdominal tumour being then smaller and harder and more movable. In July, 1925, the tumours began to undergo degeneration, and I aspirated the one in the left thigh, drawing off one and a half pints of bloodstained fluid. In May, 1926, the condition became worse, and the patient died of ascites and metastases in the liver nine years after the original operation. I quote this case as showing the value of post-operative irradiation.

I operated on a second case in 1926. The uterus was enlarged. A smooth, hard fibroid grew from the posterior wall of the supravaginal fornix, and another one in the fundus. A third tumour grew from the left side of the uterus, and was firmly adherent to, and infiltrating, the pelvic colon. Both

ovaries and tubes were normal, also the cervix. A subtotal hysterectomy and left salpingo-oophorectomy was performed, together with a resection of six inches or more of the pelvic colon, an end-to end anastomosis being done. Macroscopically the uterus was seen to be filled by a soft friable growth. Microscopically it was endotheliomatous. Intensive *x* rays were given in December, 1926. The patient is now in excellent health and symptom-free seven years afterwards.

Fibroid Uterus Complicated by Pregnancy

In two cases a vaginal myomectomy was done for a large submucous fibroid complicated by a three months' pregnancy with haemorrhage.

In another I did an abdominal myomectomy for a degenerating necrobiotic fibroid, together with a Caesarean section, at nine months (healthy baby).

In another case I did a myomectomy for a degenerating fibroid, together with a Caesarean section, for a five months' pregnancy. All these cases did well.

II.—Intensive X-Ray Therapy

In reviewing the 263 cases treated with *x*-ray therapy, the twenty-one cases treated this year have been deducted, as being too recent to be of any use in evaluating results. In ten of the remaining 242 cases hysterectomy was subsequently performed, although no malignancy was demonstrable at operation. The greater proportion of these cases occurred before 1922, when I was still irradiating very large fibromyomata; pressure symptoms having continued, however, one hesitated to postpone operation. In spite of this, out of the nineteen cases of fibroid uterus larger than a five months' pregnancy, and treated with x-ray therapy, twelve are well and symptom-free (1933).

Cases with Subsequent Development of Carcinoma or Sarcoma Necessitating Operation

In three of my irradiated cases carcinoma has developed in later years. In one case carcinoma of cervix developed fifteen years after irradiation for menorrhagia. In another case carcinoma of the fundus developed seven years after irradiation. I had given the patient *x*-ray treatment in 1923, six weeks after she had recovered from an acute mastoid. She had been dangerously ill, and operation for her severe menorrhagia was considered to be contraindicated. In 1926 she returned to me complaining of recurrent haemorrhage, for which I advised an immediate dilatation and curettage; but it was not until 1930 (that is, four years later) that she consulted a London surgeon, who gave her radium treatment, followed by an operation, when early malignancy of the fundus was found. In a third case (patient aged 50) I irradiated in 1924 for profuse menorrhagia. A well-known gynaecologist had refused to operate, although the uterus was fibroid, on account of her general condition and tendency to phlebitis. In 1927 she returned to me for metrorrhagia; I found a pyometra and pyrexia. After a few intrauterine douches I did a panhysterectomy, and found adenocarcinoma of the fundus, undergoing gangrenous degeneration, with much pus. She did very well, and is in excellent health now.

In another case sarcoma of one of the fibroids developed four years after irradiation. This was a married patient, aged 46, who complained of menorrhagia, dysmenorrhoea, and extreme anaemia. She had a fibroid uterus the size of a three and a half months' pregnancy. Although the fibroids were mainly interstitial there was a subperitoneal one on the right side the size of a golf ball. We discussed the case, but the husband (a doctor) dreaded operation for her on account of her general condition. Another gynaecologist had treated her for a similar condition four years previously, and had found the fibroid uterus then. In September, 1927, I gave her *x*-ray treatment. After two menstrual periods she started the usual menopausal symptoms. Early in 1930 I saw her again; the uterus had decreased to half its size, the fibroid condition being more marked on the right. There was pain in the right hip-joint on rotation. The *x*-ray report was: "No evidence of arthritic or pathological change in right hip or sacro-iliac joint. Ten months later, however, I found the uterus impacted in the pelvis, and advised hysterectomy. This I performed in 1931. The uterus was extremely difficult to deliver; the fibroid was in the anterior wall just above the cervix. It was the size of a grape-fruit, and was, together with the small uterus, firmly impacted in the pelvis. The pathological report stated: "The large soft fibroid showed large yellow areas of degeneration. Microscopically, the fibroid was seen to be sarcomatous. It contained large areas where the cells were irregular, with large hyperchromatic nuclei and numerous mitotic figures." After a stormy convalescence she left the nursing home, but four months afterwards she returned to me with a definite thickening in the right parametrium, and I started *x*-ray treatment, followed by radium. Unfortunately, the patient died five months afterwards.

From the above results one would conclude that carcinoma of the uterus following *x*-radiation is rare. Werner of Vienna, from his experience of 2,680 cases treated by radium or *x* rays for myomata or climacteric bleeding, reports an incidence of 0.3 per cent. Vogt of Tübingen, in 1,300 similar cases, reports an incidence of 0.4 per cent. My own figures are higher—1.1 per cent. for carcinoma of the uterus (including fundus and cervix) and 0.4 per cent. for sarcoma. Incidentally, one wonders whether carcinoma developing fifteen years, or even five years, after can be included in the results

TABLE III.—*Results (in 1933) of 242 Cases Treated by X-Ray Therapy, 1914-32**

Year of Treatment and Technique	No. of Patients Treated	No. of Patients Cured	Percentage Cured	Hysterectomy Performed Subsequently		Operations Performed Subsequently for Disease of Other Organs	
				Non-malignant	Malignant	Non-malignant	Malignant
1914-22 Technique A	51	43 (2 not traced; 3 gave up treatment before cure)	84.3	7	1 (15 years after carcinoma of cervix)	1 (Large ovarian cyst)	5 (Carcinoma of ovaries 7 years after; carcinoma of stomach 2 years after; carcinoma of breast 1 year after; malignant kidney 10 years after; malignancy of abdomen 5 years after)
1922-29 Technique B & C	124	119 (1 not traced; 1 had radium treatment later)	95.9	3	3 (7 years after carcinoma of fundus; 3 years after carcinoma of fundus; 5 years after sarcoma of fibroid)	4 (Ovarian cyst; cholecystectomy; cyst of breast; thyroidectomy, and appendicectomy)	2 (Carcinoma of breast 4 years after—very well now; carcinoma of breast 4 years after—very well now)
1929-32 Technique D	67	65 (2 patients were not traced)	97	Nil	Nil	—	—
Total ...	242	227	93.8	10	4	5	7

* *Details of Technique:*

A=80,000 voltage; 18-20 small ports of entry; 18 cm. focal distance; 3 mm. Al filter. Treatment every three weeks, four to seven treatments in all.

B=155,000 voltage; four to five 6×8 cm. fields; 23 cm. focal distance; 0.5 mm. Zn + 4 mm. Al filter. One treatment on two consecutive days; average time, 4½ hours.

C=155,000 voltage; two 21×22 cm. fields; 40-50 cm. focal distance; 0.5 mm. Zn + 4 mm. Al filter. One treatment on two consecutive days; average time, 4½ hours.

D=185,000 voltage; four 8×10 cm., or two large fields; 30-50 cm. focal distance; 0.5 mm. Cu + 2 mm. Al filter. One treatment only; average time, 6½ minutes.

following the original treatment. As, however, carcinoma of the uterus occurs in approximately 5 per cent. of all gynaecological cases, and in only 1.1 per cent. of my cases, one might equally argue that radiation has afforded a distinct protection against its development. The only safeguard would have been a panhysterectomy, but unfortunately this has even a greater mortality.

Some Non-malignant Conditions

With regard to operation performed subsequently for a non-malignant condition, in one case an ovarian cyst complicated the fibroid uterus; in another the diagnosis lay between a fibroid uterus and ovarian cyst, and I operated, doing a *myomectomy*. There were seven cases in which carcinoma developed in other organs many years after the artificial menopause.

Intensive *x*-ray therapy was also used for seven cases of severe and incapacitating *dysmenorrhoea* in which the ordinary medical and surgical treatment had failed to cure, and it was decided that induction of amenorrhoea was the correct treatment. In four of these cases the dysmenorrhoea was complicated by menorrhagia, and a temporary castration was done. In two cases the patients later became pregnant and had healthy children.

Tuberculosis

Four cases were complicated by tuberculosis. In one—tuberculosis of the tubes—the surgeon had to abandon the proposed hysterectomy for fibroids, and therefore transferred her to me for *x*-ray treatment. Nine years after irradiation this patient is very well, amenorrhoea being complete. In two other cases of tuberculosis of the lungs the patients were given a castration dose in order to prevent pregnancy and the exacerbations in pyrexia and general symptoms accompanying each menstruation. Amenorrhoea is so far complete and the patients have done well. In the fourth case there was tuberculosis of the caecum, for which resection had been done. Irradiation to the fibroid uterus resulted in complete amenorrhoea; the patient did well.

Psychosis

Of the cases in which the artificial menopause has been induced for the treatment of various forms of psychosis, on the advice of mental specialists, one patient had been unable to walk for eight months. On attempting to do so intention tremors of the whole body were marked. Aphonia had been the first symptom to appear, and this had persisted. There was profuse menorrhagia. Treatment was followed in two to three months by cure of the aphonia, and the patient began walking, becoming perfectly normal within five months. Another patient, aged 49, was suffering from a serious nervous breakdown with profuse menorrhagia. Six months later she was very well, and able to take up her ordinary social activities again. Another, aged 47, complained of insomnia, depression, loss of memory, and profuse menorrhagia. The patient reported distinct improvement within the first few months. Four years afterwards she writes: "Absolutely satisfactory, extremely well, and feeling younger." Another, aged 39, had dysmenorrhoea, followed by a severe nervous breakdown; very satisfactory result. One patient, aged 38, was suffering from various phobias, nervous trouble, and severe dysmenorrhoea. For the latter she had undergone a dilatation and curettage by a surgeon of Manchester, who, I was told, had advised hysterectomy and oophorectomy, but who had not been told of her nervous condition. *X*-ray treatment on December 20th, 1929, resulted in great improvement, but in July of the following year the periods recurred (she had only had 30 per cent. to each ovary), and I gave her a further treatment, after which she had no more trouble. Lastly, a patient, aged 42, suffering from mental depression and dysmenorrhoea, who had been treated by various specialists, was sent to me for an artificial menopause, with excellent result.

III.—Radium Therapy

These forty-five cases (1926 to June, 1933) have been classified under four headings, according to the age of the patient; 68 per cent. were cured of their symptoms. In one case the patient had a hysterectomy one year after treatment, when adenocarcinoma was found. In four cases *x*-ray treatment was subsequently given with success.

Menopausal Symptoms Following Various Methods of Induction

Flushes.—In 112 surgical cases specially examined in 1933, in Group A (see Table IV), flushes were absent in 41.9 per cent. (in a further six cases all had flushes), whereas only 28.7 per cent. escaped them in Group B, the 188 cases in which the menopause had been induced by *x* rays. On the other hand, one must remember that the seventeen cases between the ages of 30 and 35 did not develop menopausal symptoms until from one to fourteen years after, proving what had been noted by other observers—namely, that the menopausal symptoms in cases of hysterectomy in which one or both ovaries have been left do not appear until approximately the time at which the menopause would naturally occur. In normal women it was recently shown in a series of 1,000 cases* that 20.6 per cent. are free from flushes. From these figures it would appear that flushing, the most annoying and troublesome climacteric symptom, is less in the artificial menopause than in the natural one.

Table IV.—*Artificial Menopause*
Analysis of symptoms in patients re-examined in 1933.

Group	Method of Induction	No. of Cases	Flushes				Change in Weight			Nervous Disturbances			
			None	Slight	Marked	Without Flushes	Unchanged	Decrease	Slight Increase	Unchanged	Increase	Decrease	Without Increase
A.	Hysterectomy, and hysterectomy and single oophorectomy	112	47	48	17	41.9%	64	9	39	95	16	Nil	85.7%
A.	Hysterectomy, and double oophorectomy	6	Nil	4	2	Nil	4	1	1	2	Nil	Nil	Nil
B.	Intensive *x*-ray therapy ...	188	54	113	21	28.7%	154	2	32	34	10	8	80%
C.	Radium	11	4	2	5	36%	6	1	4	Nil	3	Nil	Nil

NOTE: In Group A seventeen cases were between the ages 30 and 35. Of these, five started flushes at 14, 13, 10, 7 years, and 1 year after operation, four soon after operation, and eight have had no flushes up to date. In Group B only 52 cases were examined for nervous symptoms.

Change in Weight.—Increase in weight occurred in 33.8 per cent. of the operated cases, and in 17 per cent. of the *x*-rayed cases, whereas according to the report referred to above it occurs in 34.2 per cent. of normal women. This again is in favour of an *x*-ray artificial menopause, though one must remember that increase in weight may possibly occur later.

Nervous Disturbances.—These seem to be about equal in the case of operated and *x*-rayed patients, and to be of little importance. On the other hand, in three of my hysterectomy cases, and in three of my *x*-rayed cases, insanity followed, although in two of the latter there had been attacks of insanity before treatment.

It is, however, an undoubted fact that when the artificial menopause has been induced by *x*-ray therapy the menopausal symptoms differ according to the tech-

* An investigation of the menopause in 1,000 women by the Medical Women's Federation, *Lancet*, January, 1933.

nique used. For instance, with technique A, when the treatment was given in small doses every three weeks until four to six or seven treatments were given in all, the flushes came on more gradually and were noticed less. Out of fifty-one cases (technique A), only seventeen (33 per cent.) complained of flushes; none noticed a change in weight; two had very decided nervous symptoms (but in both cases they had already been under nerve specialists), and one lost her migraine attacks. Of the 124 cases (technique B and C) seventy-nine complained of flushes (63 per cent.), eighteen had increased in weight, five had decreased, nine suffered from fewer nervous symptoms, and seven who had always been "nervy" or neurotic remained so.

Of the sixty-seven cases (technique D, in which the necessary dosage is given in sixty-four minutes on one day, or divided into two doses on consecutive days), forty-six complained of flushes (68 per cent.), eleven of increase in weight, three of decrease; ten suffered from fewer nervous symptoms, whereas five of the cases confessed to always being "nervy" and remaining so.

Sexual Reactions.—I have found it more difficult to estimate these, and I can only give anything like reliable statistics in those cases of married patients I have actually interviewed, and upon whom I have made records. Sexual reactions depend upon so many different factors—general health, nature of work, occupation of leisure, temperament and psychology, or on factors such as fear of pregnancy (except in the hysterectomy and permanent *x*-ray castration cases). The health, occupation, and temperament of the husband also play a part. For instance, in two cases recently questioned the husband had been insane and was home temporarily on certificate. It has been found that in the operated cases two out of twenty-three complained of a definite decrease in sexual reaction, whereas in twenty-nine of the *x*-rayed cases none did.

Conclusion and Summary

One may say from a study of the cases that:

1. Each method of induction has its definite function. Surgical operation is the correct method for all cases in which malignancy or degeneration of the non-malignant fibroid is suspected, for all young patients in whom myomectomy may be possible, and for all cases in which the fibroid uterus is of a certain size and causing pressure symptoms. Irradiation is the treatment of choice in all cases of climacteric haemorrhage, with fibrosis uteri or small interstitial fibroids, in which there is no suspicion of carcinomatous or sarcomatous degeneration.

2. The menopausal symptoms are no more severe—indeed, not as severe—in the irradiated cases than in those of the normal climacteric.

3. The temporary amenorrhoea caused by irradiation is a valuable method of treatment in certain cases of psychosis and tuberculosis.

4. The risk of malignant disease occurring in an irradiated uterus is no greater than, if as great as, the risk of carcinoma occurring in it, or in any other organ of the body in an untreated case.

5. Accuracy in diagnosis is here, as in all other fields of medicine, one of the essential factors in successful treatment. To ensure success, therefore, the patient must remain under the care and supervision of the gynaecologist, who, if he does not himself undertake the radiological part of the treatment, will at any rate work in the closest co-operation with the radiologist—an easier ideal to attain now that so many gynaecological departments have their own intensive *x*-ray plant and an adequate supply of radium.

LATE RESULTS OF INJECTION TREATMENT OF VARICOSE VEINS

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At the present time the standard treatment of varicose veins is by injections. The history of the introduction of the method, the few simple points in the technique, and the immediate reactions and possible complications are now so well known as to need no mention. There have been signs lately, however, that some observers are not finding the late results of injection treatment as satisfactory as the early results had led them to hope. The most striking contribution on these lines is that of Howard, Jackson, and Mahon,[1] who found that in forty-eight cases treated by injections and followed up all showed evidence of recurrence when re-examined at the end of a year. The time seemed opportune, therefore, for a re-examination from this point of view of the earlier cases treated at the Middlesex Hospital varicose vein clinic, and 100 consecutive cases treated by injections at the clinic two or more years previously were asked to attend for examination. Fifty of the 100 attended, while a certain number of the others replied and described their present condition; but it was decided to confine attention to the fifty cases actually re-examined.

Scope of Inquiry and Results

The series showed the usual variation, and included early cases in which the patient came with a single prominent vein giving only cosmetic offence, advanced cases with large tortuous veins occupying the greater part of both legs, and cases complicated by ulcers and dermatitis. For the present inquiry the complications were, as far as possible, ignored, and attention was centred on the effect of the injections on the veins. The solution that had been used for injection in most instances was quinine and urethane. The number of injections naturally varied from one only in the very early cases to forty-one in an advanced case.

After the patients had been re-examined and the condition compared with that noted and charted on their first attendance, they were classified as: (1) cured; (2) improved; (3) not improved. Into the category "cured" were placed those cases with no subjective symptoms and no objective signs of recurrence of the varicose veins. Into "improved" were placed those in which symptoms were absent, although definite objective signs of varicose veins were still present, or cases in which both symptoms and signs, though still present, were less marked than before treatment. Into "not improved" were placed the cases in which the symptoms were as bad as, or worse than, before treatment, and in which no objective improvement could be found. The numbers falling into each group were:

1. Cured: five cases, or 10 per cent.
2. Improved: thirty-one cases, or 62 per cent.
3. Not improved: fourteen cases, or 28 per cent.

On analysing the cases further it was found that the five cases of the "cured" group were all early cases in which originally both symptoms and signs had been slight. It will be seen that the majority of the cases fell into the "improved" group; all the patients in this group stated that they felt benefited by the treatment, even though in some cases the veins had again become

as prominent as before treatment. Of the fifty cases re-examined, therefore, in only 10 per cent. had a cure resulted, using the term "cure" in the sense that the patient had been made free, and remained free, of symptoms and signs up to the time of the re-examination. In the remaining 90 per cent. marked objective evidence of varicose veins was again present, although in the majority of these symptomatic relief had been given.

Nature of the "Recurrence"

The point next arises whether the veins found at the re-examination represented veins not obliterated by the treatment, fresh veins developing subsequent to the treatment, or veins originally obliterated which had again become patent. While there is no doubt that some of the "recurrences" represented incomplete original treatment or the development of further veins, a careful comparison of the condition found on re-examination with the original notes and diagrams made it obvious that, in the majority of cases, recanalization of obliterated veins had taken place. Without being able to give exact figures on this point we are satisfied that recanalization of varicose veins obliterated by injections is a frequent event and a common cause of recurrence. It is unlikely that recurrence is related to the solution used for injection, as the mode of action of all "sclerosing" solutions is probably similar (Patey[2]). In the present series the solution chiefly used was quinine and urethane, but recurrence was also observed after the use of the other solutions; it probably depends on the tendency of thrombosed veins to recanalize rather than on the particular solution used.

Present Position of Treatment for Varicose Veins

In the literature, while there are many references to recurrence after injections, detailed analyses of the results of the treatment are not common, and such figures as there are vary. On the one hand, Sicard and Gaugier,[3] in the 1931 edition of their book on the injection treatment of varicose veins, stated that, in their experience, only 4 per cent. of all patients treated returned for further treatment, and only 1 per cent. had true recurrences in the obliterated veins. On the other hand, Howard, Jackson, and Mahon[1] stated that recurrence was the rule following injections. Delater,[4] in his recent book on diseases of veins, takes up an intermediate position, but, commenting on the fact that 20 to 25 per cent. of his hospital patients returned for further treatment within four years, he writes:

"Un variqueux guéri de ces dilatations par la fibrose ne doit donc jamais être abandonné, parce qu'il n'est pas guéri de son insuffisance veineuse."

Of significance also in this connexion is the appearance lately of papers advocating a combination of surgical treatment and injections as being less likely to be followed by recurrence (de Takats and Quillin,[5] Wright[6]), and of papers analysing the pathological basis of recurrence (Theis[7]).

Considering the whole question of the injection treatment of varicose veins in the light of the late results it would seem that for most cases injection should be regarded as a useful means of palliation rather than as a cure, and that, as with most new forms of treatment, the original estimates of its value were too enthusiastic. It would be unwise, however, to go to the other extreme, because in spite of its limitations injection treatment, either alone or in combination with surgical measures, is probably for most patients with varicose veins still the best that can at present be offered. Moreover, recanalized veins seem to respond as readily to a further course of injections as the original veins.

But the limitations of injection treatment do indicate that finality on the question of the treatment of varicose veins is as yet far from having been reached. At present the tendency in many clinics is towards combining, where possible, surgical treatment—in the form of either ligature or excisions—with injections, both as a means of shortening the time of treatment and in the hope that the end-results will be better. This type of combined treatment is not new, having been advocated by Tavel[8] as long ago as 1904, although it was never extensively adopted. In more recent years papers on the subject have been published by d'Allaines and Roscau[9] in France, de Takats and Quillin[5] in America, and Wright[6] in this country. De Takats has recently analysed 200 cases treated in this way. At the Middlesex Hospital varicose vein clinic the present practice is to remove under local anaesthesia a segment of the main superficial vein whenever it can be demonstrated that pressure on it in the standing position controls the superior reflux, and to follow this up with injections to the peripheral veins. The immediate results are satisfactory, and the addition of the surgical procedure seems in most cases to shorten the length of treatment; but whether the end-results will be more satisfactory than those of pure injection treatment remains for the future to show.

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THE INCIDENCE OF PULMONARY DISEASE FOLLOWING EXPOSURE TO VESICANT AND ASPHYXIATING GASES

BY

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The following is an appreciation, a summary, and an analysis of 118 appeals heard by the War Pensions Appeal Board in Auckland during its mid-year session, 1932. The cases are those of men who appeared before the Board for the first time. Upwards of 100 other appeals by men who had previously been before the Board were heard at this session, but are not included in this review. I am indebted to the chairman, the Hon. Sir Walter Stringer, for his permission to use the official records of the Board in compiling this paper, and the facts and figures are wholly derived therefrom.

During my three years and 306 days of active service in the great war I was engaged as a regimental medical officer and ambulance officer with the New Zealand Division in the battle areas in Egypt, Anzac, and France, and can claim to have first-hand knowledge of the use of gas in war and of its effects on the exposed troops at the time of exposure. The vesicant properties of the so-called "mustard gas" were apparent in innumerable cases, its potency being such that it caused intense hyperaemia and even blistering through the thick khaki clothing. The morale of the men was such that only severe cases were evacuated, and the percentage evacuated would not bear any relation to the total number with demonstrable evidence of cutaneous or respiratory damage. Contributors to the literature on gas damage have differed widely as to the incidence of pulmonary fibrosis following exposure, but all agree that fibrosis is a possible sequela.

This contribution is the outcome of seven years of observation of gas-exposed men with the Appeal Board, and of thirteen years' service as honorary physician at the Auckland Hospital, during which time I have had many cases of acute respiratory disease through my wards. My experience forces me to the conclusion that persistent and acute respiratory disease is much commoner among *ex-soldiers than civilians*. I have endeavoured to make a comparison between exposed and non-exposed soldiers, and I have attached percentages published by Jacquelin and Mlle Konechowsky for purposes of comparison. Their observations were made at the Marthe Brande Dispensary for Chest Diseases, and seventy-three cases of gas-exposed men were investigated. No effort was made to compare the results with non-gas-exposed soldiers, and no *x*-ray investigations were made. In their clinical appreciations of the cases it seemed to me that they were too prone to attribute gross fibroid changes to direct gas damage. In my view the secondary infective factor must be held to be the chief cause of the gross fibroid changes that are most easily demonstrated by *x* rays. Their description of apical fibrosis, the direct result of gas damage, is inconsistent with my experience. They find that the incidence of pulmonary tuberculosis is high following gas exposure. Though I have previously expressed *myself as being opposed to this view, I would now be* inclined to suspend judgement until a further and more comprehensive comparison is made. While the Auckland Board recognized the high incidence of respiratory disease among soldiers in 1926, I did not publish until December, 1931 (*N.Z. Medical Journal*.)

Since then the need of intensive investigation of all cases was recognized if a contribution of any value was to be made to the literature on the subject. A comparison such as this between exposed and non-exposed troops is, I believe, unique. It should be borne in mind that the men examined are in no sense a cross-section of the N.Z.E.F., but are in reality selected cases in that they are men who have appealed, many of them solely, on the ground of disability as the result of gas damage. In my opinion it would be incorrect to deduce from these figures that a high percentage of exposed men develop pulmonary fibrosis and its allied sequelae. The factor of idiosyncrasy would seem to operate much as it does in miners' pneumoconiosis. I have been frequently struck by the absence of lung changes in men who must have had prolonged exposure or who were evacuated as "N.Y.D. gassed." Most of the cases evacuated would seem to have been damaged by phosgene principally, and that fact is frequently stated in the official records. My own impression is that prolonged exposure to a lower concentration of vesicant gas is a more potent factor in the production of fibrosis than short exposure to a high concentration. The latter type of case, of course, would predominate among the gas casualties.

Pulmonary Findings

It is interesting to observe that the rate of progress of the lung changes varies greatly. Many men have complained of respiratory abnormalities from the termination of their service and have been pensioned as "bronchitis." Other men seem to have carried on without serious disability for eight to ten years, until the onset of asthma or the loss of immunity to bacterial infection brought them to the chronically "wet" bronchitic stage. It is noticeable that the manual worker has "cracked up" much sooner than the sedentary worker. The symptoms complained of are referable to the lungs and to the heart. They complain of incessant coughing and expectoration, most marked on rising in the morning. Some will give a history suggestive of bronchiectasis. They say that they sweat easily, particularly after coughing bouts. The asthmatics describe attacks of wheezing and of having to sit up at night. All stress their undue susceptibility to "colds." The next most frequent complaint is exhaustion. They say they tire easily, they cannot keep up with other men, and that exertion brings on attacks of coughing that end in vomiting. As soon as they are found out by employers they are discharged as being unfit to do the work. They are dyspnoeic after slight exertion. Physical signs in the chest correspond largely to those discernible in emphysema—namely, hyper-resonance, loss of lung elasticity, with prolongation of expiration and increase in pitch associated with stray rhonchi and rales scattered over the lower half of the lung fields. Large bronchiectases are rare, and dense fibrosis causing percussion dullness is found mainly in cases where pneumonic and pleural complications have ensued. Blood-tinged sputum is fairly common, but large haemoptyses are rare in my experience. The heart invariably shows right-sided enlargement with gross epigastric pulsation. The superficial and deep cardiac dullness is obscured or absent owing to the overlapping lungs. It is difficult to be certain if there is accentuation of the pulmonary second sound at the base. The "effort syndrome" is of considerable interest. After having observed upwards of 400 of these cases I am convinced that there is a common type for them. The pulse rate accelerates rapidly and unduly after moderate exertion, but will be found to have returned to normal at the expiration of two minutes. A typical reading would be 78-140-80. I will refer to this later as the "right heart" type of effort syndrome, as opposed to the "left heart" type, where the pulse rate remains accelerated at the end of two minutes' rest. Coldness and blueness of the hands and feet is observed in advanced cases, but hypertrophic digital changes are most unusual.

In explanation of the above signs and symptoms I have supposed that vesicant gas has started a fine pulmonary fibrotic process that has resulted in a raised tension in the pulmonary artery and an undue susceptibility to respiratory infections and to pulmonary allergic phenomena. If there has been a minimum of secondary infective damage the lungs may appear to be actually "rarified"—that is, there is less density than normal—and this is seen particularly at the bases in the central areas. Investigation by means of lipiodol has not been extensively used in Auckland in post-gas-exposure chest conditions. I have not found that it revealed pathological conditions that could not have been surmised by clinical and ordinary *x*-ray examination. In one case a bronchopneumonia supervened in three days. The factor of secondary bacterial infection is a big one in all cases of pulmonary fibrosis following vesicant gas damage. The "dry" cases, particularly in sedentary workers, have very little disability. The intervention of bronchitis and asthma combined with manual work produces the highest disabilities most quickly from the point of view of assessment of pension. The British Ministry of Pensions does not accept a negative *x*-ray as excluding gas damage. It subscribes to the doctrine of "continuity of symptoms," and a history of chronic bronchitis is held to be a pensionable disability due to war damage. Unfortunately, *x*-ray evidence in early uncomplicated cases is largely negative. It is not nearly so helpful as in early pulmonary tuberculosis.

While it is recognized that 118 cases are an insufficient number on which to make a generalized statement, they provide an instructive comparison between men who had been in the gas areas and those whose service was confined to Anzac, Egypt, and Palestine, or who had had no front line service on any front. The two chief variants in this comparison would seem to be gas and climate. The latter is a difficult one to estimate. It would seem, on the face of it, that apart from gas one would expect pulmonary disorders to predominate in France. The actual percentages are 35.7 in France and 20.8 elsewhere. When the gas factor is taken into account this difference does not seem to be extreme. The dust, the summer clothing, and the cold of the Anzac blizzard and the Palestinian uplands are probably all factors in the relatively high rate among non-gas-exposed troops.

Analysis

Of the 118 cases analysed seventy were in the gas areas and forty-eight were never exposed to vesicant gas at all; 35.4 per cent. had been wounded at least once and several on three separate occasions. Ten per cent. of those exposed were evacuated as gas casualties, and

50 per cent. claimed to have experienced respiratory troubles when in the gas areas. Their symptoms at the time varied from hoarseness, loss of voice, vomiting, and prolonged coughing to bronchitis, under which latter heading many were evacuated. Forty per cent. of the 118 had nervous disorders varying from minor disturbance such as tremor, exaggerated deep reflexes, insomnia, "night starting" and war dreams, up to neurasthenia of varying degrees, anxiety neurosis, psychasthenia, Parkinsonism, and insanity.

The first comparison I wish to make is as regards asthma and tuberculosis.

	Gas-exposed.	Non-gas-exposed.	Jacquelin's Figures.
Asthma	10%	4.2%	11%
Pulmonary T.B.	5.7%	6.2%	17%

It will be noticed that our figures for asthma are in close agreement with those of Jacquelin. As regards tuberculosis, the percentage is a little higher in the non-gas-exposed than in the gas area men. I have previously expressed the opinion that the immunity factor in pulmonary tuberculosis is a greater one than that of extraneous gas injury. I have also been of the opinion that Jacquelin's figures for pulmonary tuberculosis are too high, and that is certainly borne out by this comparison. At the same time it should be noted that cases in which pulmonary tuberculosis had developed would have had symptoms that would bring them to the Pensions Department for relief at a much earlier stage. There were two cases of syphilis, one under each heading. The one exposed to gas had clinical evidence of pulmonary fibroid changes, but lost his appeal on the ground of uncertainty of causation. There were likewise two cases of penetrating wounds of the thorax. One had developed pulmonary tuberculosis. The high incidence—60 per cent. by some observers—of pulmonary tuberculosis in penetrating chest wounds is well known.

The next comparison is between chest affections on service and in the post-war period. Pulmonary tuberculosis is not included in this comparison.

	Gas-exposed.	Non-gas-exposed.	Jacquelin's Figures.
Chest trouble on service ...	35.7%	20.8%	—
Chest trouble post war ...	50.0%	18.7%	—
Pneumonia post war... ...	8.5%	Nil	—
Bronchitis post war... ...	34.3%	12.5%	19%

Chest trouble on service includes bronchitis and pneumonia only. Post-war chest trouble includes frequent and undue susceptibility to colds, constant coughing and spitting, morning cough and expectoration of the bronchiectasis type, and recurring bronchitis. As will be noted, no cases of pneumonia occurred among the non-gassed men. The discrepancy with Jacquelin's figures as regards bronchitis in the post-war period is a big one. I can only conclude that our classification is a less rigid one than his. We have included cases under the heading of bronchitis that he has classified under minor respiratory disorders.

The next comparison is between clinical and *x*-ray evidence of pulmonary fibrosis in exposed and non-exposed men.

	Gas-exposed.	Non-gas-exposed.	Jacquelin's Figures.
Clinical evidence of pulmonary fibrosis	48.%	12.5%	44%
X-ray evidence of pulmonary fibrosis	25.7%	7.1%	—

The clinical evidence of pulmonary fibrosis is based on: (1) Evidence of constant or frequently recurring respiratory infection. Outside medical and reliable lay evidence of this symptom is given due consideration, as is also reliable evidence of the occurrence of attacks of asthma. Special efforts are made to exclude paranasal infection. In this series there were six cases of "blocked nose" amongst the gas-exposed men and two in the non-gas-exposed. Most of them had been operated on at some time during or since the war, and in two cases sinus trouble was still present. The majority were apparently cases of septal deviation without sinus infection. (2) Clinical evidence of loss of lung elasticity associated with hyper-resonance. (3) Evidence of right heart enlargement. This sign is a valuable one; epigastric pulsation was constantly present in all cases of pulmonary fibrosis occurring in both series. (4) Obliteration of cardiac dullness.

Jacquelin's figures are in fair agreement when it is considered that our cases were examined three years later than his.

The policy of the Auckland Board at present is to refuse responsibility for cases with a negative *x*-ray, unless there is continuous and reliable evidence of chest trouble since the war. In the Board's experience it is useless to look for *x*-ray changes unless the clinical evidence is well established. For this reason in 23 per cent. of cases where clinical evidence could be said to exist no *x*-ray investigation was made. The following figures show the relative percentages of pulmonary fibrosis in the two groups. Pulmonary tuberculosis and syphilis are excluded, but post-pneumonic fibrosis is included.

	Gas-exposed.*	Non-gas-exposed.
Pulmonary fibrosis	32.8%	8.3%

The above figures include only those cases where the disability was sufficient to justify the awarding of a pension.

The following comparison shows the relative incidence of so-called "effort syndrome" symptoms.

	Gas-exposed.	Non-gas-exposed.
Effort syndrome	42.8%	27.1%

By effort syndrome due to gas damage is understood impaired capacity for sustained exertion, as well as the exercise tolerance test showing the right heart type of syndrome. It has been held by some observers that these "effort syndrome" returned soldiers should be regarded as displaying the sequelae of adrenal exhaustion or the effect of adrenal over-stimulation during their front-line service. In my opinion this explanation may hold for some of them, but the association of lung damage and chest infections is so constant that precedence must be given to the gas explanation. It is possible, and probable, in many of the cases of so-called "D.A.H.," that the "adrenal" factor has been predominant.

As regards the impaired effort syndrome in the non-gas-exposed, it is of the left heart type with the pulse rate remaining accelerated at the expiry of two minutes' rest. In the gas-exposed men the abnormal effort syndrome is only so attributed when all other organic troubles have been excluded. The non-gas-exposed men included impaired effort syndrome from all causes.

Competent authority in New Zealand states that the death rate from respiratory disease amongst returned soldiers is 42.4 per cent. as against 32 per cent. for the civilian population, an increase of just over 30 per cent. These figures include pulmonary tuberculosis, and make no differentiation between gas-exposed and non-gas-exposed men. They also do not include men dying from pneumonia in the post-war period who had been exposed to vesicant gas but had not been sufficiently incapacitated as to be pensionable. If our view is correct there must be an appreciable percentage of men whose progressive lung changes had not then, and have not now, reached a pensionable stage, but who would be unduly susceptible to death by pneumonia at any period since the war. It is thus evident that, if such statistics could be obtained and analysed on the lines of the figures given in this paper, it is possible that the contrast would be even more striking.

One soldier, for instance, who had been over two years "on the fire step" in France, was twice evacuated for "bronchitis" while the Division was in the Messines area. He had had continual "colds," as he expressed it, since the war, and was convalescing from his third attack of broncho-pneumonia when he was seen by the Board. This man had never applied for a pension, and had never been accepted as a pensionable disability for his chest, although *x*-ray and clinical investigation showed generalized fibroid changes in the lungs. If this man had died in one of his major attacks he would not appear as a possible post-gas casualty in the present figures.

While the published opinions of observers of the calibre of Messrs. Fenton and Burrell cannot be disregarded, it is important to know what special facilities they had for observation and investigation of a large number of cases

* Fibrosis occurring here was associated with gas exposure, but not necessarily directly due to it.

in recent years. As against their opinion must be placed the conclusions of trained observers such as *x*-ray specialists, clinicians such as Jacquelin, and, least of all, the Auckland records of the War Pensions Appeal Board. I am tempted to believe that the opinion that fibrosis does not occur to any extent following vesicant gas damage has been formed at a stage when the sequelae had not had sufficient time to manifest themselves fully. In recent years the Board has had to adjudicate on a number of cases of death from pneumonia in non-pensioned middle-aged soldiers. Their deliberations would have been greatly assisted by a competent post-mortem investigation.

As regards treatment, the main indication is the avoidance of infection. Pulmonary fibrosis can be subdivided under two headings, wet and dry, according to the sufferers' immunity to catarrhal organisms. As soon as immunity is lost their disability increases enormously, and bronchitis and asthma are much more frequent. The moist coastal climate in the northern areas of New Zealand is not nearly so favourable as the drier inland pumice country. We are fortunate in being able to obtain a reliable stock catarrhal vaccine in Auckland, and in my experience benefit is obtained by its administration, preferably towards the end of the summer.

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THE "CLOVER LEAF" SLING IN PARALYSIS OF THE SERRATUS MAGNUS

BY

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The principle of rest followed by graduated exercise, starting from the zero point and increasing slowly until the muscle moves through its maximum range, has been ably put forth by Mackenzie[1] as the rational form of therapy for paralysed muscles. In the treatment of any paralysed muscle, then, our primary object is to ascertain the position of physiological rest and to maintain it.

Anatomy

With the need for increased function of the arm as we ascend the animal scale, the scapula loses its connexion with the skull, thus becoming mobile, necessitating a further differentiation and rearrangement of the cervical muscles to control its movement. Complete usefulness of the arm depends not only on the proper function of the muscles inserted into the humerus and acting on the shoulder-joint proper, but also on the muscles arising from the trunk and inserted into the scapula, either stabilizing it or moving it through the acromio-clavicular and the sterno-clavicular articulations. This applies particularly to the ability to raise the arm above the level of the shoulder. To facilitate this the superficial shoulder-girdle muscles—the sternomastoid and the trapezius—have been evolved from the visceral musculature of the gills and from the metameric musculature of the second, third, and fourth cervical segments, while the deeper shoulder-girdle group—the levator scapulae, the two rhomboidei, and the serratus magnus—has been derived from the ventrolateral division of the lower fifth and sixth cervical myotomes. The serratus magnus has moved its point of origin extensively, finally dissociating itself completely from the levator scapulae, but carrying with it its original nerve supply from the cervical region. The other shoulder muscles arise in the blastema of the limb bud, the pectoral group spreading out over the trunk anteriorly and the latissimus dorsi posteriorly, the teres major becoming separated from the latter, to be attached to the lateral border of the scapula. The deltoid and its offshoot the teres minor, with the supra- and infra-spinati, develop together, while the subscapularis from the first prefers its own company.

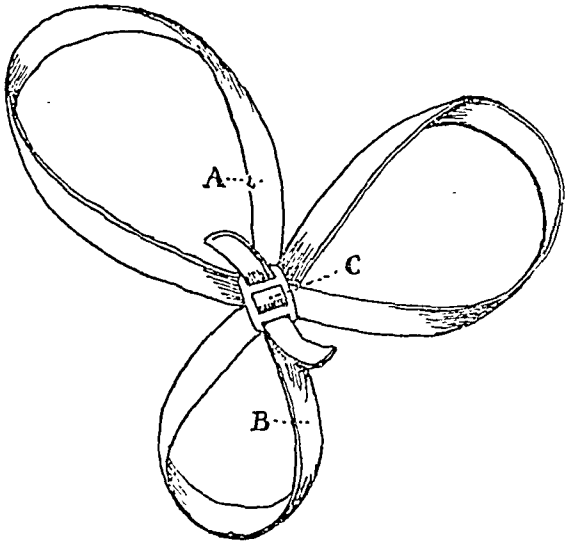
The two important muscles controlling the scapula, therefore, are the trapezius and the serratus magnus, and isolated paralyses of these muscles may occur. It is doubtful whether isolated lesions of the two rhomboidei or the levator scapulae are often recognized clinically. The serratus magnus springs from the lateral chest wall and is inserted into the undersurface of the vertebral border of the scapula, and its function is to pull the scapula forwards over the lateral chest wall and also to keep this bone close to the trunk, although Frazer[2] states that the upper fibres of the latissimus dorsi are responsible for this. The nerve supply is from the fifth, sixth, and seventh cervical roots. This nerve does not enter into the formation of the brachial plexus; thus, in injury to the superior trunk, the serratus magnus may escape, except in avulsion of the cervical roots. Its upper two roots pierce the scalenus medius, while the lower one passes in front of it. They unite as the long thoracic nerve, and pass out of the posterior triangle of the neck on to the outer surface of the serratus magnus behind the axillary vessels and nerves, occupying a position on the inner wall of the axilla and the lateral chest wall.

Aetiology

The signs and symptoms of isolated paralysis of the serratus magnus have been well summarized by Tournay and Kraus.[3] The two outstanding signs are the difficulty in raising the arm above a right angle and the undue prominence of the scapula. They tabulate a dozen other minor signs. From the standpoint of aetiology, the patients fall into two groups—toxic and traumatic. In the first group there has been some antecedent or concomitant infection, such as measles, puerperal fever, influenza, or broncho-pneumonia. In the other group the nerve is presumed to have been subjected to injury or pressure in some part of its course. Violent contraction of the scalenus medius, as in swimming or playing tennis, carrying weights causing traction on the shoulder, anomalies of the first rib, enlarged cervical or axillary lymph nodes, and pressure in the axilla have all been incriminated. If the first is a factor one wonders why the rhomboidei are not more often involved, for the posterior scapular nerve also arises from the fifth cervical root and pierces the scalenus medius. The right arm is usually affected. In the two patients under observation this was the case. In the first one, playing tennis may have been the factor, although he also gave a history of having had enlarged cervical glands which had receded completely. In the other case the aetiology was not demonstrable. The patient was a girl 19 years of age, in good general health, giving no history of previous infections. The evidence for trauma was inconclusive. She swam and played tennis moderately, and had suffered no accident. She was a stenographer, using a typewriter and pulling out drawers in a filing cabinet, but there was no evidence of undue exertion. She merely noticed that her arm and shoulder ached, that she was unable to raise her arm above her shoulder, and that her shoulder-blade was prominent. There was no tenderness along the course of the nerve. *X*-ray examination of the cervical region revealed no abnormalities. Macgregor[4] suggests the analogy between this condition and facial paralysis of the peripheral type.

The position of physiological rest for the serratus magnus is assumed when the hand of the affected side is carried across the chest and placed on the opposite shoulder. To maintain this position Mackenzie states that the "collar and cuff" sling is satisfactory, and he shows illustrations of good results following its use. It

would seem, however, that the affected shoulder is not sufficiently fixed, but may swing backwards either by gravity when the patient lies down or by the voluntary action of the rhomboidei and the trapezius. To overcome this difficulty H. Houldsworth, orthopaedic technician for Victoria Hospital, designed for the second patient a sling which uses the opposite shoulder as a fixed point, thereby maintaining the serratus magnus at rest at all times (see Figure).



The clover leaf sling, showing the three loops and the fixed point C.

A single strip of 1¼ in. webbing five or six feet in length is looped and sewn at the point C, allowing one long end (A) to pass around the neck and a short end (B) to encircle the wrist At the point C two buckles are sewn in place to receive the ends A and B. The first loop is passed over the shoulder of the unaffected side so that the point C corresponds approximately to the middle of the clavicle. It can be made to measure for the individual, or can be made in quantities (if occasion ever warranted it) merely by allowing a large loop that will slip over any shoulder and then taking a tuck in it to fit the individual. It may be lined with chamois leather. The finished sling consists of three loops, encircling the unaffected shoulder, the neck, and the wrist of the affected side, and maintains a fixed point C. It is light, inexpensive, and efficient. Graduated exercises as outlined by Mackenzie are then commenced. After four months' disability the second patient had improved sufficiently in two weeks of this regime to raise her arm above her head, and since that time her progress has been steady.

Tournay and Kraus make no mention of treatment, but state that the prognosis is not good. That the outlook is not so unfavourable is further borne out by the results in the first patient mentioned above. His paralysis was of three months' duration. He rested his arm for a couple of weeks, and then did not return for fifteen months. In the meantime he continued exercising and now has no functional disability, and his recovery is essentially complete. In long-standing cases contraction of the latissimus dorsi and the pectoralis major may require consideration, for these muscles act as powerful opponents delaying recovery.

Summary

1. The prognosis of isolated paralysis of the serratus magnus is not necessarily unfavourable.

2. The results will be better when Mackenzie's principles are understood and applied.

3. An improved "clover leaf" sling is described which maintains the serratus magnus in the position of physiological rest.

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Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

SPONTANEOUS RUPTURE OF THROMBOSED LATERAL SINUS

Cases which convenience compels me to continue to call "spontaneous" rupture of the wall of a thrombosed lateral sinus with complete recovery are so rare that the following seems worth recording.

History of Case

On May 12th, 1933, a boy, aged 8, was admitted to the York County Hospital. There was a history that six weeks previously he had had measles, and about four weeks before his right ear had discharged. This appeared to have dried up, but on May 11th he was reported to have developed a high temperature, over 104° F., with what seemed to be a rigor.

I saw the patient soon after admission. He was obviously seriously ill, and the soft tissues over the right mastoid were greatly swollen; on operation they were about an inch thick. I opened the mastoid and found an abscess cavity, with the sinus bare in the cavity and apparently covered with granulations. As I suspected thrombosis of the lateral sinus I exposed it further up and down, put a needle into it, and found that it was thrombosed. I opened it up and down and removed a clot which completely blocked the lumen. I did not tie the jugular. Examination with a probe of the portion of the sinus wall which seemed to be covered with granulations revealed that there was an opening in the wall on the anterior aspect, about an inch in length, into the abscess cavity in the mastoid. I incised the drum membrane.

The child made an uninterrupted recovery, including the regaining of normal hearing, and was discharged with wound of mastoid and of drum membrane completely healed on June 21st.

The Librarian of the Royal Society of Medicine kindly searched through the literature for me, and found only one record of a similar case. This was reported at a meeting of the Austrian Otological Society in March 1922, by Ignatius Hofer, and an account of it appeared in the *Monatschrift für Ohrenheilkunde* for May, 1922. This case seems to have been almost identical with my own, except that it was operated on at a much later stage and after all general symptoms, including raised temperature, had disappeared, and there was a fistula through the bone under the periosteum of the mastoid, through which pus from a mastoid abscess was issuing. All serious immediate danger to life had apparently been over for some time; rigors had been observed two months before. In my case there was high temperature with rigor the day before I operated. The end-result of both was similar.

Both these cases would appear to show a spontaneous effort of nature to deal with a septic thrombosis of a lateral sinus on the lines on which it is dealt with by operation—namely, by free opening and drainage. In Hofer's case the effort seems to have been well on the way to success when operation was performed. In my case the child was in a bad way, and, but for operation, the issue would have been more than doubtful, though a case is described by G. Charousek in the *Medicinische Klinik* for July 8th, 1927, of a "Spontaneously Healed Otogenic Sinus Thrombosis," in which the thrombosis extended to the jugular, subclavian, axillary, and doubtfully to the ophthalmic veins, and which resulted in complete recovery without other operation than the opening of the mastoid abscess. There is a passing reference to the occurrence of breakdown of the sinus wall in Politzer's and in Ballenger's textbooks, but without description of cases.

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URTICARIA COMPLICATED BY CHICKEN-POX

Although under ordinary conditions the differential diagnosis between strophulus (lichen urticatus) and chicken-pox presents no particular difficulties, none the less cases occasionally occur the exact nature of which even the most experienced practitioner may find it difficult to determine.

The following case represents this possibility. A small boy about three years of age was sent to me at the Infants Hospital with a request from the doctor who was looking after the case for assistance in the treatment, since for the last four months he had been suffering from an attack of urticaria which had defied all efforts at cure. My first impression was that it was an ordinary case of urticaria with secondary infection. There were papules, some of which were vesicated, a few umbilicated, and others pustular. The rash, however, was present on the scalp and on the face, unusual sites for urticarial eruptions. Moreover, I found two ulcerated spots on the hard palate quite characteristic of varicella. I felt convinced, therefore, that this was an instance of the superposition of varicella on a chronic case of urticaria, and this diagnosis was confirmed, *inter alia*, by the discovery that the father of the child was at the time suffering from an acute attack of shingles.

London, W. ERIC PRITCHARD, M.D., F.R.C.P.

Reports of Societies

MAGIC IN MEDICINE

In the Section of the History of Medicine of the Royal Society of Medicine on November 1st, Professor H. BURGER of Amsterdam gave an address on "The Doctor, the Quack, and the Appetite of the Public for Magic in Medicine." Sir STCLAIR THOMSON introduced Professor Burger as one who had been three times president of the Dutch Medical Association, and was permanent secretary of the International Congress.

Professor BURGER said that it was curious and a little disappointing that the public appreciation of the medical profession had not grown to the extent which might have been expected in a time of unprecedented effulgence of medical science. The progress of medicine during the last hundred years had been greater than in all the preceding centuries put together. Intuition and dogma had given place to investigation and experiment, and results had been obtained which medical men in times gone by could not have foreseen in their wildest dreams. Bacteriology had caused a tremendous revolution, the aseptic treatment of wounds had arisen, and a whole series of surgical specialisms had found an endless field. Yet public appreciation of the medical profession had not moved along lines parallel with this astonishing growth, and multitudes still followed the plausible quack. People who would not think of entrusting a broken clock to any but a skilled watchmaker entrusted their bodies to unqualified practitioners. The reason was that deep in the mind there lay a conviction that the medical art was a divine gift which might exist and be efficient without science or standing. It was true that Nature, the great healer, did not differentiate between quacks and medical experts, though the quack never omitted to put a feather in his own cap if his ally brought off a cure. Those who saw in the problem of quackery nothing but deception on the one hand and stupidity on the other passed by the essentials of the matter. They failed to appreciate in both disease and healing the importance of the personal element, and the influence of the mind on the body. When, after weeks of ailing in a dim sick-room, the patient was removed to the country, the immediate change which took place was not only to be ascribed to the action of air on the lungs and blood, but also in great part to the action on the mind of the patient. The personality of some physicians was to their patients like a healing sun. They were "physicians by the grace of God." Their presence at the sick-bed promised recovery, and indeed produced it in many cases. *Coué, whom no one considered an impostor,* effected his cures not by his theory, but by his personality, his humanity, and the joyous hope which he radiated through his patients.

All this gave the quack a much firmer position than it gave the doctor. The quack could play the optimist in all circumstances, prophesying a cure in the most grave diseases. His conscience did not burden him, and if at the end of the promised time the cure had not been established—well, it was an extraordinarily stubborn case and demanded further treatment; and if that too was unavailing, the result was due to the long bungling of his predecessors, the doctors. Cures which occurred in the practice of a doctor made by no means the impression that they did when they occurred in the practice of a quack. The doctor who effected the cure had done no more than his duty. Was not the cure of the sick his profession? In the case of the quack, failures, mistakes, absurdities, were not laid to his account. *After all, he was a quack.* But when he effected a cure the fame of it went from tongue to tongue and became more marvellous on the journey. A loutish country bumpkin for years managed to attract a stream of people with real or imaginary ills to a small village in the east of Holland. They never suspected him of medical knowledge, but their hopes were fixed in his innate gift of healing. Those who returned from him uncomforted never spoke of their adventure, but those who were cured spread his praises far and wide. Imagine a baroness from the Hague getting rid in this way of a nervous spasm, or a minister of State who had been afflicted with a characteristic cough suddenly being able to hold forth without his sugar and water. About forty years ago in Amsterdam the lecturer was a witness of the spectacular art of Sequah, a British or American mystery healer, who, after sounding a trumpet, caused cripples to walk away unsupported. Sequah drove about in a four-in-hand attended by liveried servants, and he made a great impression. But the Dutch Society for the Prevention of Quackery made inquiries, and found that things went ill afterwards for the poor creatures who had been "cured" in public. Professor Burger also related the more recent story of one of the most amazing wizardries, that of one Zeileis, in a village in Bohemia, who pretended to cure crowds of people by submitting them momentarily to *x* rays and high-frequency, "intensified by radium," and with helium lamps. The working of mass suggestion was wonderful, and crowds of people were literally driven through this "healing hall."

The present generation was more learned than its predecessors, but not more sensible. Superstition was not openly confessed, but was deeply ingrained. Women of standing and culture who suffered from rheumatism believed—with hesitation, but still they believed for a time—in the healing properties of an East Indian amulet bracelet. Was not the struggle against quackery a hopeless task? Did not even the gods fight stupidity in vain? No hope need be entertained from the instruction of the public in the structure of the body and the nature of disease. The danger of "a little learning" was nowhere more applicable. Even students in their first clinical lessons felt in their own bodies the most horrible diseases. But the appetite of the public for magic had not only a comical side, but a very sinister one. What bitter disillusionment it must bring about! How often the fear of such a thing as cancer must be artificially aroused and the patient kept in suspense for years! The medical practitioner, with all his faults and imperfections, was distinguished from the quack by the fact that his honest ambition was the good of his patients. Professor Burger mentioned that in his own country the judges showed unlimited patience towards quacks, and attached great value to the statements of witnesses who declared themselves benefited. He was willing to assume that there were quacks who believed honestly that they possessed the gift of healing, or had an exaggerated belief in the efficacy of a certain mode of treatment; indeed, that was found among qualified practitioners as well. Some quacks no doubt were driven to practise their art from sheer love

of their neighbours. But these of the better sort were a negligible minority in the great army of quacks. He had himself been concerned with the particular group of quacks who exploited deafness, and it was most depressing to find year after year large sums going into their pockets from people who could not afford it, and who had no more chance of restoration than the drowning man who clutched at a straw. He was not sanguine enough to believe that the quack evil could ever be eradicated, but the suppression of exploitation of the afflictions of the people by deception of the most contemptible kind was an urgent necessity.

Sir StClair Thomson said that the depressing thing was that the belief in quackery was part of the everlasting outfit of human nature. Sir Norman Angell had recently written that "man is still, in spite of all evidence to the contrary, a partially reasonable animal, and if he is reasoned with cogently enough, persuasively enough, and often enough, he will in the end give heed." But the fact remained that he would still go the way of the quack. Sir Thomas Barlow and Mr. Warren Low spoke in complimentary terms of Professor Burger's address, and of the contribution of his country to medicine and to civilization, and Mrs. Singer, Dr. M. B. Ray, and Dr. E. Stolkind gave some illustrations of quackery which had come within their experience.

Dr. C. O. Hawthorne expressed the view that no attempt should be made on the part of the qualified profession to put down unqualified practitioners by force of law, for he believed that it was better that people should be allowed to act foolishly than driven to act wisely. Moreover, any attempt to put down unqualified practice on the part of the profession would at once be ascribed to the desire of the profession to compel sick people into its own consulting rooms. But he argued strongly that it was in the public interest that there should be no possibility of mistake on the part of citizens as between those who had been medically trained and those who had not. When that distinction had been clearly established, then he was all for freedom and for allowing people, with their eyes open, to choose their own advisers. Dr. Leonard Findlay suggested that the more educated the public, the more gullible it was, and he attributed the persistence of quackery to some extent to the amazing growth of science, which had bred the popular idea that nothing was impossible. Dr. A. Cawadias pointed out that quacks and apostolic healers had played a great part in the history of medicine. They had originated or kept alive certain therapeutic methods. Psychotherapy started with a cultivated physician, Mesmer, who, however, was hounded out of Vienna and Paris; and his work fell into the hands of quacks, until it was rescued by Charcot and developed by Charcot's great disciple Freud. Hydropathy, a sun treatment, and electrotherapy were all developed by quacks before they entered official medicine. Osteopaths, so long as they were crude and unscientific, had a great vogue, but now that the osteopath was becoming scientific he was being superseded in popular favour by the chiropractor. What physicians often forgot was that in life, and especially in medicine, there was an irrational element which would break the scientific physician if he did not take heed of it and perhaps make it approach a little more to his Apollonian ideal of order.

THE FIGHT AGAINST CANCER

In the Section of Surgery of the Royal Society of Medicine, on November 1st, the new president, Professor George Gask, delivered his address from the chair, taking as his subject "The Strategy of the Fight against Cancer."

Professor Gask said that in the past the fight against cancer had been of the nature of guerrilla warfare. An unbiased observer might have deduced from the attitude of the profession a certain indifference or even casualness about its methods. It was time to mobilize, equip, and distribute the forces of medicine according to a plan, even if that plan were to include only the compilation of mass statistics and some form of concerted effort among the bodies interested. In order to develop that argument in a logical manner a base-line must be taken—namely, an ascertainment of the value of the present methods of cancer treatment. At St. Bartholomew's since 1922 a follow-up department had been in operation in order to secure information as to the value of the treatment, among other things, of carcinoma of the breast and of the tongue. Professor Gask then showed a number of graphs based on the statistics from St. Bartholomew's and from other sources. Among 286 patients operated on at St. Bartholomew's for cancer of the breast there had been a crude survival rate of 36 per cent. at the end of five years. There was a heavy death rate during the first year after operation, a rather less heavy one during the second year, after which the rate became less abrupt. The figure, 36 per cent., was a trifle too unfavourable, because the deaths during the five years included deaths from other causes besides the cancer. Therefore it was possible to say that the survival rate after amputation of the breast for cancer was 40 per cent. at the end of five years. Figures from other sources in this country were not very different, and those for a large surgical clinic in Berlin showed a survival rate of 35 per cent. Among 185 patients with cancer of the breast treated at St. Bartholomew's with interstitial radium the survival rate was 32 per cent. at the end of five years. As for carcinoma of the tongue, the result of the treatment of 108 patients by operation showed the disappointing figure of 25 per cent. as the survival rate after five years. In the late Sir Henry Butlin's series of 197 cases of cancer of the tongue, 55 patients were alive after three years, and the Mayo Clinic showed a survival rate of 24.4 per cent. at the end of five years. Among thirty-eight patients with cancer of the tongue treated by radium there was again a survival rate after five years of 25 per cent. The results from the Radiumhemmet at Stockholm, relating to fifty cases, showed a five-year survival rate of 32 per cent. With regard to cancer of the uterus here again figures derived from different sources indicated a survival rate of about 35 per cent. five years after operation. Bonney's figures, showing a survival rate of 41.6 per cent., were the best in this country. In radiotherapy for cancer of the uterus the result was similar—about 35 per cent. Therefore it seemed fair to say that with present methods a survival rate higher than 40 per cent. after five years could not be expected. These results were not nearly good enough. What was to be done? He submitted that the first thing needed was mass statistics on a sufficiently large scale to find out accurately the value of the present methods of treatment for cancer in all sites. To this end a follow-up department should be regarded as being as necessary a part of the modern hospital as the out-patients' hall. It would follow that all hospitals must keep their records on a uniform basis. There was also need for some sort of co-operation between the various bodies interested in cancer, such as the Imperial Cancer Research Organization, the Cancer Hospital, the Middlesex Hospital Cancer Research Department, the British Empire Cancer Campaign, and many other bodies in London and the provinces. It might be argued as against co-operation that we were an individualistic people and hated to be controlled; also that research could not be produced to order, and, again, that nature worked by creating an infinite number of types, and that the best results would follow from entirely unrestricted and individual work. But he believed that man was capable of extending his powers almost indefinitely by using the experience of others. He was of opinion that there was a field for both individual effort and organized effort. There was no lack of money for this purpose, and to find the scholars for research work was much more difficult than to find the funds. So far as treatment was concerned, the arguments in favour of organized effort were almost overwhelming. They all believed that cancer was a local disease for a certain time, and that so long as it was local it could be eradicated. But they did not know the stage at which cancer became a general disease, and this could not be foretold. It did not appear that surgery could be expected to do very much more than it had done, while the end-results with radium were not very much better. In other words, those concerned with the treatment of cancer were defeated by the secondary growths. They had no adequate means of treating the secondary growths, and they urgently

required them. If this was conceded, what line of strategy should be taken? A very promising line appeared to lie in treatment by mass radiation. It was well known that there was a prospect in a short time of a large mass of radium becoming available for experimental purposes in this country. There was also a possibility of a higher voltage *x*-ray apparatus. Therefore parallel experiments could be made, with surgery, interstitial radium, beam therapy, and *x*-ray therapy, and with combinations of the four. It would not be difficult to devise an experiment to find out the value of these four or more treatments in a comparatively short space of time—say, five years. But concerted effort was needed. Free cancer clinics about the country certainly ought to be tried. It would be very desirable that every person in the country should have an annual overhaul, but this at the present time was a counsel of perfection. Then it was suggested that one or more institutions should be set up in this country to investigate various forms of treatment. If it was agreed that the treatment of cancer was not yet all that was desired, that something more should be done in order to improve it, and that some form of concerted effort between various bodies interested in the treatment of cancer was called for, he would suggest that the Ministry of Health, the two Royal Colleges, the Medical Research Council, and perhaps other bodies, such as the British Empire Cancer Campaign, should meet to discuss the desirability of setting up some small organization with powers to bring about co-operation and concerted action on a large scale between all concerned.

Sir HOLBURT WARING, in moving a vote of thanks to Professor Gask, said that he did not think it was quite opportune at that meeting to discuss the many points which had been raised, but the council of the Royal Society of Medicine should be asked, when the address had been printed, to call a special meeting of the section which could be devoted to a set discussion. The main theme had been the need for concerted efforts at treatment and the investigation of results, but it was just as important to have concerted efforts in trying to elucidate the cause of the disease.

PSYCHOLOGY AND DELINQUENCY

Sir EDWARD MARLAY SAMSON presided at the annual general meeting and conference of the Magistrates' Association, held at the Guildhall, London, on October 25th. Sir PERCY GREENAWAY, the Lord Mayor, in opening the proceedings, spoke of the importance to the magistrate of the new Children Act. Enriched by a quarter of a century's experience of the working of the Children Act, 1908—"the Children's Charter"—and by the counsel of the association, the new Act would, he said, bring into the lives of the young new hope and higher ideals.

Dr. R. D. GILLESPIE, opening a discussion on medical and psychological aspects of delinquency, explained that delinquency represented the reaction to social and family environment on the one hand and Nature on the other, and that it was the duty of the psychiatrist to discover the reason for the lack of adjustment of the offender and if possible to set it right. The psychological outlook was not subversive of ordinary notions of responsibility and punishment, for, like any science, psychology became humanitarian only by accident. In psychology punishment was judged solely by its results, and it was the business of the psychologist to estimate these results as quantitatively as possible. The psychologist's aim in punishing was not to penalize but to canalize, turning the misused energy from delinquency into some other and healthier channel. The psychologist desired to know in what particular way he should treat certain kinds of delinquents, and what particular home or arrangement gave the best results. He could only gain his end by examining the institutions which existed at present and by making his future recommendations accordingly. Lengthy expert knowledge of an offender and systematic inquiry into all the circumstances of his case were indispensable to the scientific approach.

Dr. HELEN BOYLE pressed for further information on the reasons why respectable and experienced men and women suddenly fell into criminal ways, became inebriate, or committed suicide. She bewailed that, although the new Act provided new help for the court, it did not provide for examination by the psychiatrist, and that the circular of the Home Office dismissed medical examination in five lines. She begged magistrates to accept the willing help of medical men and women in reading the chart of the offender's mind and pointing out the hidden rocks. Every one of the magistrates with whom she had discussed the subject agreed that the advice of the psychiatrist was helpful in some cases, but they varied in their views on the indication. One had assured her that he could always tell by the delinquent's behaviour and appearance whether he was mentally wrong. In fact, appearance was most deceptive, and a dementia praecox case could appear perfectly normal and rational. The seriousness of an offence was not a criterion of the social menace of the offender; a dementia praecox patient had been charged with loitering and had been treated leniently, but a year later he had shot and killed two constables. Investigation of his mental state would have shown that he had delusions of persecution directed to the police. Some magistrates with whom she had discussed the problem admitted the value of medical examination, but doubted whether it could be made a routine measure. Her suggestion was that it should be voluntary for an adult first offender and obligatory on recidivists and children. It was important to distinguish between examination and treatment, for treatment often had to take a long time. Prison doctors should have some experience of the psychological approach.

Sir ROBERT ARMSTRONG-JONES maintained that justices of ripe years and long experience were as well suited to work in the juvenile courts as younger and recently appointed justices, and that women were not more necessary than men. Prison discipline was an excellent regime for delinquents; they did not relapse or return. The psychiatrist puzzled him; he quoted a long list of descriptions of offenders who "must not be punished." Justices, he said, should not give up the privileges of their position to the psycho-analyst. Mrs. P. E. CUSDEN complained that more use was not made of the temporary treatment provisions of the Mental Treatment Act, 1930. She maintained that statistics disproved Sir Robert's suggestion that prison was a preventive institution. Once it became known to delinquents, it lost its deterrent effect. A lady member of the Worthing Bench said that it was greatly assisted by the mental out-patient clinic, which was visited weekly by a physician from the mental hospital. Mr. G. B. ASH (Weymouth) quoted Julian Huxley's statement that the cards of life were dealt at the moment of conception, and Lord Dawson's that the pituitary gland governed the destination of a man. He said that as he grew older he hesitated to punish any one for anything.

Mr. CLAUD MULLINS asked whether Dr. Gillespie or Dr. Boyle could quote any experiences of cure, as opposed to diagnosis, of the sexual offender. In North London, he said, he was deeply concerned with this problem, in which diagnosis could not help the Bench. In the two years he had been a magistrate every instinct of his system had been offended at the thought of sending such offenders as the exhibitionist and the homosexual to gaol. In the absence of some assurance that cure could be effected, he had to sentence them. He had sent many such cases to two psychological clinics in London, but so far he was still looking for an assurance that these patients could be cured. Dr. GILLESPIE replied that cure took a long time and needed money; the problem was largely an economic one.

Dr. HELEN BOYLE, also in reply, pointed out that most women saw much more of children than did men, and that children were more accustomed to opening their minds to women. The word psycho-analysis should not, she said, be used in connexion with delinquents, for it gave the public an entirely wrong idea.

The CHAIRMAN, in closing the proceedings, said that magistrates would welcome the assistance of those who gave skilled observation to their young delinquents and could help them to elucidate their problems. It was the duty of magistrates to see that the "small misguided

Reviews

MECHANISM OF NERVOUS ACTION

Professor E. D. Adrian, in his latest book *The Mechanism of Nervous Action*,[1] has given us a clear summary of the development of electrophysiology, a subject for which he himself has been largely responsible. He first describes briefly the various instruments which have been used to detect and record nerve action currents, laying, of course, special emphasis on the colossal advance which vacuum tube amplifiers have introduced. The enormous amplification thus obtained, together with the use of Matthew's moving iron oscillograph, has produced some beautiful demonstrations of nervous activity. Records of nerve impulses in single nerve fibres have been repeatedly obtained, and it is this which gives us valuable information concerning fundamental factors such as the relationship between intensity of stimulation and frequency of action current response.

Professor Adrian discusses the difference in response of various sense organs, and emphasizes the importance of adaptation as an explanation of some of these differences. For instance, there is the very rapid adaptation to stimuli of tactile endings, on the one hand, and the very slow adaptation of the postural end-organs on the other. When one considers the range of response in single nerve fibres one can appreciate more fully the wonderful grading of effects produced by simultaneous stimulation of many hundreds of nerve fibres. The problem raised by Wever and Bray's work on the auditory nerve is briefly discussed, and Professor Adrian emphasizes the difficulty of investigating such a nerve in which single fibres cannot be examined. In the chapter on pain, which is a subject as difficult of approach to the physiologist as to the clinician, Professor Adrian suggests that the afferent, slowly conducting, non-medullated nerve fibres (described by Ranson) conduct only noxious stimuli, and that certain small medullated fibres may conduct pressure or painful stimuli according to the intensity of stimulation. But it is obvious that a study of the peripheral pain mechanisms is only a part, possibly a small part, of the whole picture. And our knowledge of central mechanisms is negligible. Professor Adrian's work on the mode of discharge of motor impulses has provided us with a very simple explanation of the electromyogram. When impulses which reach the muscle are of low frequency each motor unit responds by an incomplete tetanus, but owing to the asynchronous working of these units a smooth contraction results. As the frequency of impulses arriving at the muscle increases, the motor nerve cells work more in unison, and the contraction is smooth now because there is a close approach to complete tetanus.

This book gives us an authoritative account of one of the most important methods of physiological investigation of to-day and an admirable survey of the results so far obtained. Professor Adrian is the pioneer of such work in this country, and this book is a contribution very worthy of such an authority.

HYGIENE IN FRANCE

Jules Courmont's *Précis d'Hygiène*,[2] edited by P. Courmont and A. Rochaix, has been brought up to date and considerably expanded, especially in epidemiology, prophylaxis, and social medicine. It is frankly stated in the book that in matters of hygiene France at present lags behind the other Great Powers of the world. Her public health Acts are well planned, but suffer from defects in working, partly through lack of initiative on the side of the local authority, partly owing to the natural indiscipline of the French nation.

In the section on infant hygiene breast-feeding is strongly urged. It is the absolute duty of the mother to suckle her infant. By law in France no mother may suckle another child unless her own infant, if alive, is at least 7 months old. While the causes and the prevention of infant mortality are accorded full consideration maternal mortality is dealt with in less detail than is usual nowadays in English textbooks. For the destruction of pathogenic organisms in cow's milk intended for infants the Soxhlet method of sterilization is preferred to pasteurization. In the section on school hygiene the aims set forth are for the most part the same as in England though in France the regular medical inspection of school children is operative only in a few large towns. In the section on food it is indicated that the use of antiseptics in food preservation should be forbidden. The part played by the vitamins in nutrition and growth is lightly handled for a work of the size.

In the section on habitations the vitiation of air in occupied rooms is ascribed to carbonic acid gas and not as generally held in England, to rise of temperature and added moisture. For the disposal of dry refuse from houses a duplex system is advised, under which garbage and ashes are kept separate. Incineration, favoured in England, is less suited to conditions in France, where household dry refuse has a low fuel value. The introduction of hygienic methods of refuse disposal in France generally has in many cases been prevented by the opposition of the rag-pickers' combines, which enjoy special privileges under binding agreements. In the article on sewage the *fosses fixes* are depicted and deplored. The activated sludge method of purification is rather briefly noted. The section on potable water is comprehensive. The gelatin count and the *Bacillus coli* reaction are cited as the tests of bacteriological purity, but the bacterial standard for a high-grade water is not expressly laid down.

In the brief but vigorous section on hospitals stress is laid on the need for single-bed wards in general hospitals: one-third at least of the beds in such hospitals should be so arranged. Segregation is proper not only for cases of infection occurring, but also for noisy and delirious patients, and those undergoing interrogation on admission. It is required especially for the dying, regarding whom the question is put, *N'est-ce pas un scandale que chez nous les malades meurent dans le salle commune?* Strong objection is stated also to the pavilion system for fever hospitals. The individual isolation of every case is the only way. Concurrent and terminal disinfection are contrasted, the former being classed as essential, the latter regarded as less important and often illusory. In the section on infectious diseases the aetiology, epidemiology, and prophylaxis of the separate specific fevers are set forth with completeness. In this extensive part of the work, which is a treatise in itself, we have observed no omissions of consequence. The English reader will doubtless note with becoming concern that "any country which still has epidemics of small-pox must be regarded as far behind in hygienic enterprise"! The concluding section, which is entitled "The Great Social Scourges," deals in turn with tuberculosis, syphilis, cancer, and alcohol.

While the book is of interest by reason of the wide range of its information it enlists at the same time sympathetic attention by its earnest call for hygienic action, inspired by a clear conviction of the vital importance of hygiene to France. A progressive policy in

[1] *The Mechanism of Nervous Action*. By E. D. Adrian, M.D., D.Sc., F.R.S., F.R.C.P. Electrical Studies of the Neurons. London: H. Milford. Oxford University Press. 1932. (Pp. x + 103; 35 figures. 10s. 6d. net.)

[2] *Précis d'Hygiène*. Par Professor Jules Courmont. Quatrième édition, revue et corrigée par P. Courmont et A. Rochaix. Paris: Masson et Cie. (Pp. xi + 956; 225 figures. 65 fr.; bound, 80 fr.)

... Monday, ... the undersigned ... Applications should ... registered. ... per annum. ... must be fully qualified ...

hygiene, it is thought, will arrest the existing tendency to depopulation, which, if continued, may one day prompt another attack on the enfeebled country by her more prolific neighbours. The message may be summed up in the words, *En hygiène il faut savoir et vouloir*, one of the terse and apt phrases in which the work abounds.

A CONSPECTUS OF BIOCHEMISTRY

We welcome the second volume of the *Annual Review of Biochemistry*,[3] a publication edited by Professor J. M. Luck of Stanford University, California. It contains twenty-five reviews of subjects of outstanding biochemical importance, and represents a serious attempt to tackle the difficult problem that has been created by the extraordinary post-war growth of scientific literature. All branches of science suffer in this respect, but the flood of biochemical literature is such that it threatens to drown biochemistry. Rather more than half the articles are contributed from North America; the remainder come from various countries in Europe. All the contributors are well-known authorities on the subjects chosen by the editor.

Three thousand papers, dealing with the advances made in certain aspects of biochemistry during the last one or two years, are surveyed, and the editor estimates that more than twice this number really deserve mention. The total yearly output of papers in biochemistry is not known, but an indication is afforded by the fact that the subject of vitamins occupies approximately one-tenth of the annual review, whilst in one year about 1,000 papers are written on this subject. It would appear, therefore, that the number of papers published on biochemistry each year exceeds 10,000. Since it is obviously impossible for any single person to cover this range of literature, authoritative summaries provide the only means by which workers in biochemistry can keep in touch with advances made outside their particular fields; and the same applies to other sciences, for which similar reviews will in the future play an increasingly important part. The volume edited by Professor Luck appears to us to be one of the most successful attempts yet made to provide regularly such a summary, and the articles contained in it maintain a uniformly high standard of excellence. Modern medicine may be said to be founded on biochemistry, and a considerable proportion of the volume is devoted to subjects of direct or indirect importance to medicine. This volume will do much to ease the task of all workers in biochemical subjects.

DIATHERMY IN MEDICINE

Appearing in its second edition, Dr. Paul Duhem's "Diathermy and its Uses in Medicine"[4] has been enlarged and completely revised. As the title implies, the book is concerned with the purely medical aspects of diathermy, surgical uses being set aside for consideration in a later work. What makes the present volume of exceptional merit is that the information given has been drawn from the author's personal observations during his own work and long experience of diathermy. Mathematical and physical theories are omitted, with the result that from cover to cover the book is essentially practical.

Having discussed the principal types of apparatus and the nature of the oscillating circuit, the author describes in detail the technique of treatment. He stresses the importance of careful regulation of the current and the employment of currents of low intensity, failure in treatment being frequently due to "pushing" currents of too high intensities. The resistance of the skin to high-frequency currents being low, Dr. Duhem deprecates the unnecessary practice of applying folds of wet lint between electrodes and the skin. He is enthusiastic about the usefulness of diathermy in rheumatic conditions and gout, and has had more success than is usual in treating these disorders. In the differential diagnosis of temporomandibular arthritis and trigeminal neuralgia he claims that diathermy can be relied on to give positive information, because it tends to aggravate the neuralgia, whereas it alleviates arthritis. In many circulatory disturbances—haemorrhoids and Raynaud's disease, for example—diathermy, applied carefully, has in his hands given great relief, which is often permanent if occasional courses of treatment are persisted in.

Altogether this is a most comprehensive, though precise, account of medical diathermy and its application in many conditions of disease and ill-health. It will interest and stimulate specialist and practitioner alike to whom the language forms no barrier to its perusal.

INFRA-RED PHOTOGRAPHY

Photography by means of the invisible infra-red rays—about 7,600 Angstrōm units and upwards—is not a new discovery. Results were achieved before the end of last century on much the same lines as are being followed now. The importance of the recent developments lies in the improvement which has been achieved in the materials and their manufacture at a price within the means of the commercial—and even the amateur—photographer. Readers of the *Times* are by now familiar with the possibilities of the infra-red plate and filter for landscape photography, but Mr. Olaf Bloch, the head of the research laboratories at Ilford, has carried the work into innumerable other spheres. A little book[5] by one of his colleagues, Dr. S. O. Rawling, gives a concise summary of the scope of the method, and full instructions to enable the photographer to use it. One of the most striking of its uses is in the differentiation of textile materials of apparently the same colour. A number of samples of black woollen cloth, photographed together by infra-red light, will give a wide range of reflectivity, from light grey to deep jet. Similar bright colours also yield very different photographs, especially the greens and blues. It naturally follows from this that it is possible to choose cloths for their heat-reflecting or heat-absorbing properties. Old manuscripts censored by the Inquisition have given up their secrets, the censor's ink being transparent to the infra-red ray and the original ink being opaque.

The extraordinary way in which the camera will penetrate atmospheric haze has been of great use in long-distance photography and aerial surveying. Dr. Rawling's book reproduces the "world's record long-distance snapshot," taken by Captain A. W. Stevens in California at a height of 23,000 feet, showing Mount Shasta 331 miles away. Astronomers have been assisted by a means of photographing stars obscured by the large nebulae and discriminating to some extent in the quality of light received from stars. Professional cinematographers often wish to take imitation moonlight scenes; this they can do by under-exposing on infra-red sensitive film. As the speed of the emulsions is increased by research their use in cinematography will be extended. Clinically the plate will show a number of skin conditions and abnormalities of the peripheral circulation which are not apparent to the naked eye or the ordinary plate. Some notable work has also been done in photomicrography. Dr. Rawling

[3] *Annual Review of Biochemistry*. Vol. ii. Edited by J. Murray Luck. London: H. K. Lewis and Co., Ltd.; California: Stanford University Press. 1933. (Pp. 564. 25s. net.)

[4] *La Diathermie et ses Applications Médicales*. Par Dr. Paul Duhem. Deuxième édition. Les actualités physio-thérapiques. Paris: Gauthier-Villars. 1933. (Pp. 147; 37 figures. 20 fr.)

[5] *Infra-red Photography*. By S. O. Rawling, D.Sc., F.I.C., F.R.P.S. "Technique" Series. London: Blackie and Son, Ltd. 1933. (Pp. x + 57; 28 figures. 3s. 6d.)

has made the subject comprehensible to anyone with a knowledge of the elements of photography, while his descriptions, assisted by the instructions and tables in the appendix, will enable the expert to repeat the results which have already been attained, and to experiment for himself.

THE HUMAN SKELETON

During the twenty years which have elapsed since the first edition of *The Anatomy of the Human Skeleton*[6] was published it has taken its place as a standard work, and we welcome the latest edition of this excellent monograph.

There is an increasing tendency in the teaching of anatomy to omit details of purely academic interest, and the medical student does not to-day devote as much time to bones as in the past. The fact remains, however, that a sound knowledge of osteology is an essential basis for the study of general anatomy, and we do not know of a better introduction to this study than Professor J. E. FRAZER'S book. The present edition follows in detail the broad plan of its predecessors, the preliminary chapter—with its outline of the general structure and development of bones in relation to their surroundings and function—being particularly helpful to the student. Of the detailed descriptions of individual bones perhaps the most useful are those in the sections dealing with the limbs. The scheme adopted is to give a formal description of the bone, and then to build up on this the overlying fasciae and muscles. Full attention is paid to those factors, whether of development or of function, which are associated with the special characters of the bone concerned. These, and sundry points of comparative anatomy, are dealt with as they arise in the course of the description, and add much to the interest and the usefulness of the book. The text is supplemented by excellent illustrations, many of which are in colour, and the student is given a series of pictures of the same bones, from which he cannot fail, incidentally, to learn a good deal of general anatomy.

This is a book we can recommend to all students of anatomy and to those interested in the mechanics of muscle action, while among those preparing for the higher examinations, such as the primary F.R.C.S., it has for long been deservedly popular.

[6] *The Anatomy of the Human Skeleton.* By J. E. Frazer, D.Sc., F.R.C.S. Third edition. London: J. and A. Churchill. 1933. (Pp. viii + 292; 219 figures. 28s.)

Notes on Books

A small book on pathological technique[7] has been written for the Student's Aid Series by Dr. D. H. HALER. The student seems to be expected to require more "aids" towards the understanding of pathology than any other branch of medical science, for previous authors have already provided an *Aids to Pathology* and an *Aids to Practical Pathology*. No other branch of medical science has been expounded so generously in this series. However, there is room for several different methods of presentation of so big a subject, and Dr. Haler's book will be a useful guide to the technique of pathological tests.

It is, we think, not improbable that many readers will be misled by the German title of Dr. SCHLIEPHAKE'S book, *Kurzwellentherapie*[8] (short-wave therapy), into thinking that it is a treatise on high-voltage *x*-ray and radium therapy. This is by no means the case; it is really a very excellent little monograph upon short-wave diathermy, and can be cordially recommended to all interested in the subject.

[7] *Aids to Pathological Technique.* By D. H. Haler, M.B. London: Baillière, Tindall and Cox. 1933. (Pp. x + 183; 18 figures. 3s. 6d.)

[8] *Kurzwellentherapie.* Von Dr. E. Schliephake. Jena: G. Fischer. (Pp. xii + 174; 120 figures. RM.10; Geb. RM.11.50.)

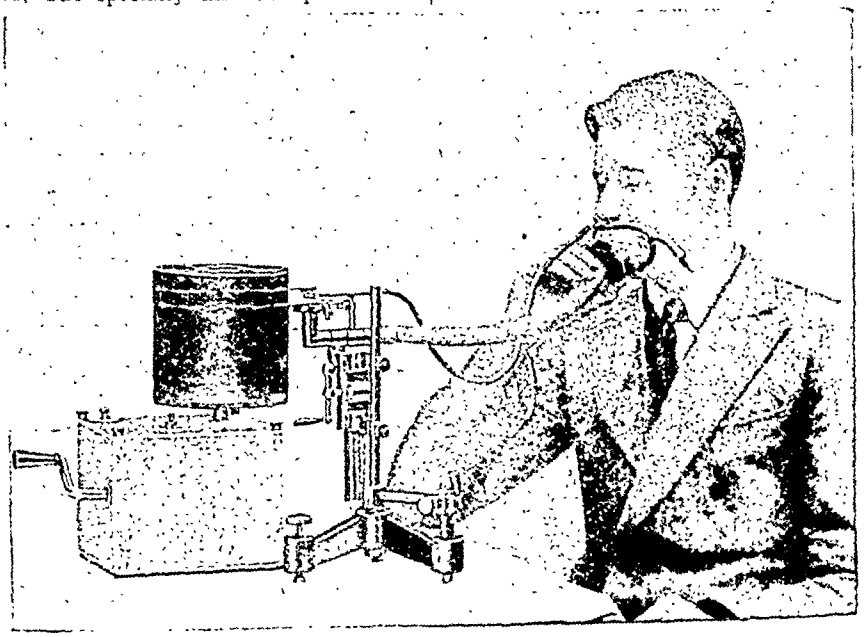
Preparations and Appliances

APPARATUS FOR STUDY OF SPEECH

Professor E. W. SCRIPTURE, M.D., writes:

The need for accurate methods of studying speech, not only in direct speech troubles, but specially also in speech disturbances as manifestations of various diseases, has brought about the development of sensitive and accurate apparatus for recording speech.

A system of apparatus for registering the movements of the air in speech, developed by many years of experiment, is shown in the accompanying figure. The puffs and breaths of air from the mouth pass to a membrane of oil-silk and are registered on a kymograph. The nose current can also be registered. The method is a very sensitive one. The minutest variations in the action of the larynx and the other speech organs appear in the registrations.



This method is in constant use in the West End Hospital for Nervous Diseases, London, for the detection of disseminated sclerosis and related conditions.[1] It has also been found possible to diagnose epilepsy as a specific disease, and to differentiate it from other conditions with which it is confused. Particularly striking is the fact that many cases diagnosed as epilepsy turn out to be cases of disseminated sclerosis with special sclerotic attacks.[2] Every minute alteration of the action of the tongue or of the velum shows itself in the registrations. Of special interest is the fact that the diagnosis of general progressive paralysis can be settled by such registrations,[3] and the improvement under the malaria treatment can be followed.

The apparatus finds constant use in connexion with three clinics. A promising field for future use lies in the instruction of the deaf.

The apparatus is supplied complete by John Bell and Croyden, Wigmore Street, London, W.1.

REFERENCES

[1] Janvrin and Worster-Drought: Diagnosis of Disseminated Sclerosis by Graphic Registration and Film Tracks. *Lancet*, 1932, ii, 1384.

[2] Scripture and Janvrin: Attacks and Ataxia in Disseminated Sclerosis (in press).

[3] Janvrin and Worster-Drought: The Graphic Method of Speech Analysis in Early General Paralysis. *Medical Press*, 1930, cxxx, 85.

THREE ADAPTABLE SPLINTS FOR FRACTURES OF THE UPPER EXTREMITY

Mr. Zachary Cope, F.R.C.S., writes:

Most fractures of the upper extremity are treated without confining the patient to bed. The great variation of opinion and practice as to the best method of dealing with any particular fracture is good evidence that there is no single satisfactory method to suit all cases. Unless he is an expert in plaster work the doctor who lives some distance from a large town may have to stock a great number of splints if he hopes to be ready to treat successfully fractures of the arm.

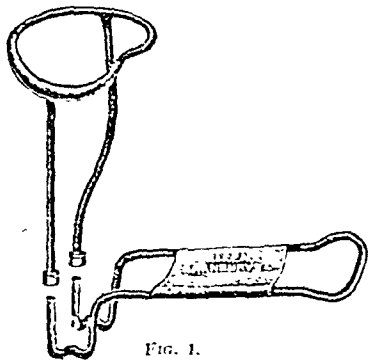


Fig. 1.

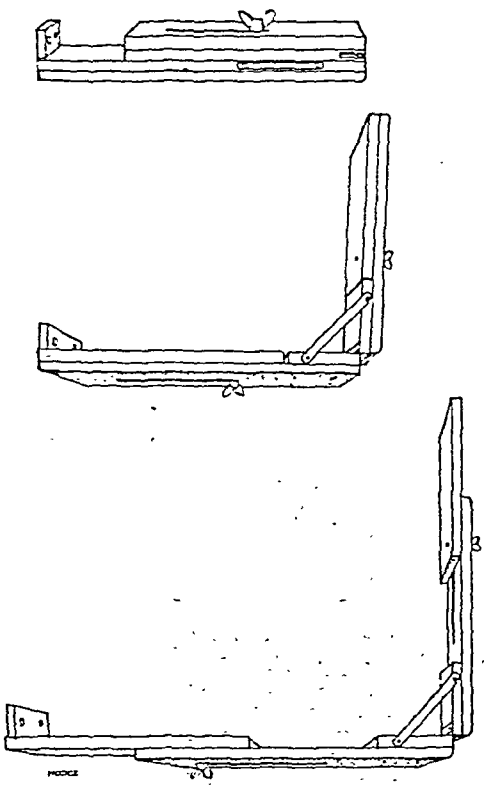


Fig. 2.

Different splints are usually needed for right and left arms. Recognizing this difficulty, and with a view to the convenience of the practitioner I devised some years ago three adaptable splints, with the aid of which any ordinary fracture of the upper extremity of either side may be successfully treated. All can be used for either right or left arm, and two are also adaptable for size and position. The first is a modified Jones's elbow splint, the second a posterior rectangular wooden splint, and the third a metal modified Carr's splint.

1. Robert Jones's elbow splint (Fig. 1) can be used for fractures of either the humerus or bones of the forearm, though if the abducted position is required confinement to bed may be necessary. I have modified this splint so that it can be used for either arm. This is done by making the upper part detachable from the lower by means of a screw nut on each upright iron. By turning the upper part round and refixing, the splint is adapted to the other side of the body. I believe a splint somewhat after the same lines has also been devised in the United States, but I have never seen it, nor did I know of it when I had this splint made for me.

2. The posterior rectangular foldable splint (Fig. 2) is suitable for fractures of one or both bones of the forearm. It allows of the fully supinated position being maintained. The splint is sufficiently explained by the accompanying diagrams. It has the advantage that it can be used for either arm, can be lengthened in either of its segments to suit different-sized limbs, allows of extension of the forearm by means of tapes or cords put round or through the small upright at the end, and is very light. When the lengthening is needed the inequality is made good by padding.

3. The defects of the ordinary wooden Carr's splint are obvious. It can only be used for the particular side of the body for which it was made. The cylindrical bar at the end is nearly always made too small to permit of a comfortable grip. It is made of rigid material for a wrist midway between flexion and extension, and does not readily permit forward or backward departures from this neutral position. It is well known that when the small lower fragment of the radius has a perpetual tendency to be displaced backwards the wrist should for a time be fixed in a flexed position, whilst in the majority of cases, when union has begun, dorsiflexion at the wrist is a convenient position. The splint I have devised permits of these varied positions (Figs. 3 and 4). It is made

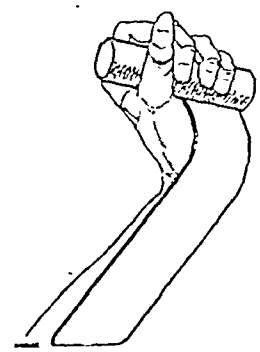


Fig. 3.

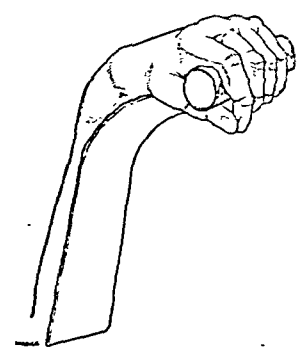


Fig. 4.

of aluminium and has a large cylindrical end placed so that equal portions project on each side of the splint. This permits the splint to be used for either forearm. The material allows the splint to be bent into positions which enable the hand to be put up in a position of either extension or flexion. Though I am informed that this splint is very widely used through the country it has never before been described in a journal.

I wish to thank the Editor of the Oxford Medical Publications for permission to use blocks and to describe the splints, which are detailed in *Some Principles of Minor Surgery*. I also wish to thank Messrs. Allen and Hanburys, who make these splints for me, for permission to use blocks.

The Glucoside Lanadigin

The preparation pandigal (Beiersdorf Ltd., Welwyn Garden City) contains the glucoside lanadigin, which is obtained from *Digitalis lanata*. It is a matter of extreme difficulty to obtain from the common foxglove, *Digitalis purpurea*, a pure glucoside which is sufficiently soluble to permit of intravenous injection, but *Digitalis lanata* contains a glucoside which can be isolated as a pure crystalline substance, and forms a stable watery solution. The discovery of this glucoside is an advance that probably will prove to be of considerable therapeutic importance. Pandigal is supplied in ampoules (1 c.cm. = 0.1 mg. glucoside) for intravenous injection; in solution (1 c.cm. = 0.4 mg. glucoside) for oral administration; in suppositories (each contains 0.3 mg. glucoside); and in tablets (each contains 0.4 mg. glucoside). The makers state that tests have shown that the solutions of the glucoside maintain their full pharmacological activity for eighteen months.

A MEDICAL COUNCIL FOR INDIA

THE ROAD TO RECIPROCITY REOPENED

After long delays the Bill to establish a Medical Council for British India, originally introduced in 1931, has been passed by the Legislative Assembly. The function of the new Council will be to secure a uniform minimum standard for the higher qualifications of Indian universities and to arrange schemes of reciprocity with the medical authorities of other countries. It will be a council of medical education only, not, like our own General Medical Council, of registration also. As first drafted the Bill provided for the establishment of an all-India *Medical Register*, but this proposal aroused opposition in certain quarters, and seemed likely to imperil the prospects of the measure. A Select Committee to which the Bill was referred abandoned the idea of such a register, and this and other amendments have been accepted by the Assembly. The present provincial registers—registers maintained under the Act of a local legislature regulating the admission of practitioners—remain unaffected, and thus a troublesome duplication, with unnecessary and invidious double appeals in disciplinary matters, will be avoided. The Council will endeavour to ensure the "sufficiency" of Indian medical degrees and to safeguard their international status. The provincial councils, even if their primary concern were the maintenance of university standards, obviously could not co-ordinate the standards of universities in the different provinces.

The Facts Recalled

The conception of an all-India Medical Council is not by any means new. One of the earliest proposals in this direction was voiced by Dr. Rama Rau of Madras, and more than one Bill has been prepared during the past ten years wherein such a Council figured. The story of the difficulties experienced by the qualifying authorities in India in satisfying the requirements of the General Medical Council up to the time of withdrawal of recognition was fully set out in these columns on March 15th, 1930, and since one may hope that it will presently become only of historical interest, no more than its bare outlines need be recalled. As far back as 1892 Indian medical degrees began to be recognized in this country as entitling their holders to have their names on the *Register*. Shortly after the war the attention of the General Medical Council was called to a discrepancy between regulation and practice in the teaching of midwifery at certain Indian universities, and the difficulty, which might have been adjustable at first, gradually extended. In 1922, and again in 1926, Sir Norman Walker, then the chairman of the Examinations Committee of the General Medical Council, visited the Indian universities. The Council also appointed an inspector, Sir Richard Needham, to attend and report on the examinations, and on the basis of his reports extended the recognition of Indian degrees from year to year. It was felt, however, that this was only a temporary expedient, and that the time had come when India should give some guarantee of uniformity through an authoritative body with which the Council in London could consult. The idea of an all-India Medical Council was received favourably in India, but it was suggested on this side that as some time must elapse before such a body could be established a commissioner of medical qualifications and standards should in the meantime be appointed by the Government of India. To this certain parties in the Legislative Assembly objected as reflecting on Indian prestige, and, the proposals having broken down, the General Medical Council, being without means of ascertaining how far in fact its requirements were fulfilled, was unable to continue recognition for the time being of the medical qualifications and standards of the universities of Bombay, Calcutta, Lucknow, Madras, and Punjab.

Shortly after this the Government of India called a conference, attended by representatives of the provincial Governments and of the Indian universities, when there was general agreement as to the desirability of establishing an all-India Council. A Bill was prepared, but owing to the pressure of business in the Assembly could not be proceeded with until early in the present year, when, after some rather lively debate, it was referred to a Select Committee of fifteen persons, of whom two were Europeans —namely, Sir Frank Noyce, member of the Executive Council of the Governor-General, and Sir John Megaw, director-general of the Indian Medical Service. The Bill underwent certain changes of substance at the hands of the Select Committee, though not of such a character as to require its republication, and, as amended, it passed the Legislative Assembly on September 20th.

Constitution and Powers of the New Council

The Medical Council for British India, to be set up under this measure, will consist of one member, nominated by the local Government, from each province, being a resident therein, possessing a recognized medical qualification, and enrolled on the provincial register if one such is maintained in his province; one member, also medically qualified, and having had at least four years' teaching experience in medicine, from each British Indian university, his election to be, not by the medical faculty alone, but by the whole senate or corresponding body; one member for each provincial register, to be elected directly by the graduate—not the licentiate—members thereon; and three members to be nominated by the Governor-General in Council. The last-named, it appears, may be lay persons, and it is not strictly laid down in the text that the direct representatives of the graduates must be graduates themselves. The members will hold office for five years, and the president for the first four years will be nominated by the Governor-General in Council.

The following medical qualifications granted by medical institutions in India are to be recognized for the purposes of the Act:

University		*Qualification*
Allahabad*	...	M.B., B.S.
Bombay	...	L.M.S.; M.B., B.S.; M.D.; M.S.
Calcutta	...	L.M.S.; M.B.; M.D.; M.S.; M.O.
Lucknow	...	M.B., B.S.
Madras	....	L.M.S.; M.B., C.M.; M.B., B.S.; M.D.
Punjab	...	L.M.S.; M.B.; M.D.; M.S.

Any institution whose medical qualification is not included may apply to the Governor-General in Council for recognition, and if this is accorded the schedule may be amended in that respect. The Council is also required to make arrangements at once for the inspection of the medical courses and examinations of the universities of Patna, Rangoon, and Andhra (whose degrees have never been registrable in the United Kingdom), and to submit recommendations regarding the inclusion of their qualifications. It is made clear that the omission of their qualifications conveys no reflection on their present standards, and the removal of the anomaly, if such a course appears justified, must be one of the first duties of the Council.

The crucial task of the Council will be to secure uniform standards in such widely separated provincial institutions.

* No longer now functions, being incorporated with Lucknow.

With this end in view every medical institution in India which grants a recognised qualification will be required to furnish information as to its courses of study and examinations and the conditions which are imposed on those who seek its degrees The Council will appoint medical inspectors to attend and report on all examinations If it appears that the standards in any institution are not sufficient representations may be made to the Governor General in Council, who will transmit them to the local Government of the province, and after due inquiry and every opportunity for explanation, an entry may be made in the schedule that the medical qualification in question is only to be recognized if it was granted before a certain specified date Thus the Council, while not controlling the teaching and examining bodies, which are independent and autonomous, will be able, with this disciplinary possibility in the background, to ensure that due heed is given to its recommendations The General Medical Council in its relation to the licensing bodies in this country is in the same position It can, by reporting to the Privy Council, bring about the suspension of the right of registration of any qualification, although, of course, the likelihood of such an event is nowadays remote

Reciprocity

The second principal function of the new Council, to arrange reciprocity with medical authorities in other countries is to be met by setting up another schedule comprising the qualifications which admit to the *Medical Register* of the United Kingdom including its Colonial and Foreign Lists These are to be recognized for the purposes of the Act, and entitle their holders to enrolment on any provincial register, the only real consideration, in the absence of an all India register, which India has to offer to a reciprocating country

Under the scheme worked out by the Select Committee there will be a temporary arrangement for four years to be followed by a permanent arrangement The qualifications granted by medical bodies outside India will have statutory recognition, in the first place, for four years only After that time any qualification which has not been covered by an approved scheme of reciprocity will automatically disappear from the schedule It is considered that four years is long enough for the Council to complete negotiations with the authorities of the other countries concerned The results of the successful negotiations, having been reported to the Governor General in Council—who will have the last word in the matter, though it is not expected that he will interfere with the Council's decisions—will then be embodied in a resolution specifying the qualifications approved for continued recognition in India All qualifications not included in the system of reciprocity will become invalid, though the interests of persons who took up practice or appointments on the basis of the transitional recognition will be safeguarded

The comments of the General Medical Council on this arrangement when it meets this month will be awaited with interest The Executive Committee, which acts in these matters with plenary powers as if it were the Council itself, considered the first draft Bill in November, 1931, and described it as a well-directed effort to establish by statute a body designed to maintain a satisfactory minimum standard of qualification It considered that it would conduce to the improvement of Indian medical education, and serve the best interests both internal and external of Indian medicine in general The draft of course, has since been altered in important respects As for a resumption of reciprocity the words of Sir Donald MacAlister, then President of the General Medical Council, may be quoted, they were spoken just before it was decided to refuse recognition

> When the Government of India is in a position to supply such guarantees [of sufficiency] by means of satisfactory reports from a legally constituted all India Medical Council the Executive Committee will give applications from Indian universities transmitted by the Government of India its careful and sympathetic consideration

The Position of Licentiates

One very present difficulty in setting up a body of this kind in India relates to the conditions of Indian practice, especially to the licentiates, holders of diplomas of local licensing bodies, who far outnumber the medical graduates, and fill an important place in the medical service, covering vast areas of rural India Their names are on the provincial registers, in order to give them a certain status with the public authorities, and to distinguish them from unqualified persons Their curriculum, however is in need of regulation, improvement, and standardization, and their courses of instruction and examination have not, we believe, been recognized by any Indian university Had an all India register been set up it would either have had to be confined to graduates, to the exclusion of licentiates or else divided into two parts in either case conveying what the licentiates would regard as a stigma Those who spoke for the licentiates petitioned for inclusion, and organized some opposition to the measure when it appeared that inclusion was not to be granted The matter has been appeased to some extent by the proposal to drop the all India register entirely At the same time it is pointed out that it is still open to the licentiates to press for an improvement in the standards of their courses and examinations so as to secure the inclusion of their qualifications in the first schedule of the new Act In the final debate in the Assembly it was suggested by one member of the Select Committee, Dr R D Dalal, that the new Council might well institute a careful inquiry into the education of licentiates in the various provinces, and lay down a minimum standard likely to be acceptable to other countries with which reciprocity is claimed, and then, when that standard has been reached in a province, application can be made to the Council for recognition

The creation of a responsible and co ordinating central authority for India will be regarded sympathetically by all concerned with medical education, and it is to be hoped that the Council will proceed with its difficult task without undue delay or frustration Its success would go far to reassure the public in this country that recognized Indian medical degrees do guarantee a standard of proficiency sufficient for British practice It is all important that the graduates from India's centres of professional training should be able to go out into the world and meet no shadow of reproach

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The College of Physicians of Philadelphia announces that the next award of the Alvarenga prize amounting to about 300 dollars, will be made on July 14th, 1934, provided that an essay deemed worthy of the prize shall have been offered The essay (typewritten in English) may be upon any subject in medicine, but must be accompanied by an assurance that it has not appeared previously in print in any form, and has not been presented elsewhere in competition for a prize Essays must be received by the secretary of the College by May 1st Each essay must be sent without signature, but plainly marked with a motto, and accompanied by a sealed envelope having on its outside the motto, and within the author's name and address

THE RADIUM INSTITUTE

REPORT FOR 1932

The report of the Radium Institute, London, for 1932 contains three features of special interest. The first is that a scheme for research on massive radium therapy has been put on foot, and that 5 grams of radium element have been loaned for this purpose by the Union Minière du Haut Katanga. If considered desirable the amount of radium so available will be increased to 10 grams. The second feature of interest is in connexion with the radium treatment of carcinoma of the cervix uteri, while the third is concerned with the treatment of metastatic glandular deposits in the neck.

During the past twelve months modifications have been adopted in the technique which has been in use for three years. As before, both intracavitary and vaginal applicators are used; but while the details of the intrauterine application remain unchanged, modifications have been made in the vaginal applicators whereby it has been found possible to increase the dosage while increasing the filtration, so that the limits of tissue tolerance are not exceeded.

Vaginal Applicators

For this purpose new sets of vaginal applicators have been designed which are either spherical or cylindrical in form; in the latter the cylinders have rounded ends, so that the pressure on the vaginal mucous membrane is more evenly distributed. The spheres are made of vulcanite, and are 17 mm. in diameter; each is perforated through the centre by a cylindrical channel 7 mm. in diameter. Into this fits a platinum container with a wall thickness of 1.5 mm.; its length is 7 mm., and it is secured in place by a vulcanite plug fitting into each end of the perforation in which it lies. The platinum cell can be filled with any desired amount of radon, which is contained in glass capillary tubes; the spheres are then tied up in sterile gauze. Sterilization is effected by placing the spheres in spirit for three hours.

The cylindrical bakelite capsules have rounded ends and a wall thickness of 5 mm., and contain a platinum tube 2.2 cm. long, in which the glass radon tubes are placed. As in the case of the spherical applicators the thickness of platinum is 1.5 mm.

The activity of the vaginal applicators has been increased from 10 milligrams of radium to 15 millicuries of radon, but the same intrauterine container is used as before. This consists of a gum-elastic sheath 8 cm. long and 0.8 cm. in diameter, and holds three radium tubes in tandem, each containing 10 mg. of radium element. The radium tubes have a wall thickness of 1.5 mm., while an additional screen of 2 mm. of gum-elastic is provided by the sheath in which the radium tubes are placed.

Technique of Application

For routine procedure the uterine applicator and three or four vaginal applicators are inserted under gas-and-oxygen anaesthesia and allowed to remain in position for forty-eight hours. The combined application is repeated after a week; but between these two doses a further vaginal application is made forty-eight hours after the first. This is carried out with the patient in the knee-chest position under the influence of scopolamine and omnopon. This technique gives a dose of 2,880 milligram-hours to the uterus as before; the vaginal dose is, however, increased from 5,040 milligram-hours to the equivalent of 5,500 to 7,300 milligram-hours, according as three or four vaginal capsules are used. It has been found that with the increased screenage the increased dose can be given over a period of nine days without either local damage or injury to the rectal mucosa.

The vaginal applicators are fitted with a small hole into which metal holders can be screwed; the holders are about 8 inches long, and by their means the applicators can be held accurately in position by an assistant while the vagina is packed. The new applicators have been found to be much more convenient in use than those formerly employed, and it is proposed to substitute radium for radon as soon as a sufficient supply is available.

Treatment of Metastases in Neck

The history of the methods of treatment adopted for metastatic glands of the neck is very interesting, and the results achieved by the latest technique seem to hold out more promise of success than any heretofore adopted. It is well known that the problem of metastatic deposits in the cervical glands has been one of the most difficult which have had to be encountered in the treatment of such conditions as, for example, carcinoma of the tongue: the following chronological summary of the methods used in treating cervical metastases will therefore be of interest.

1. The earliest method consisted in employing flat applicators at a distance of 0.5 cm., about 250 mg. of radium element being used, and the application being kept in position for periods of fifteen hours for three or four days. This form of treatment was merely palliative, and was repeated at intervals of three months. Temporary disappearance of metastases sometimes occurred, but "cures" were the exception.

2. In a later method, the distance of the radium applicators was increased to 1.5 cm., and the radium was distributed in small units on the surface of Columbia paste plaques. Sometimes the interstitial use of radium or radon needles was employed as an additional measure. Again the results were commonly only of temporary value.

3. A further development was the use of Columbia paste plaques 2 cm. in thickness on which the small units of radium were disposed. Approximately 2 mg. per square centimetre were applied for a total period of 160 hours, twenty hours' irradiation being given daily. The results, though better than those previously obtained, were still far from satisfactory.

4. A year ago a further modification of technique was adopted. This consisted in the employment of a small number of high content tubes with an increased skin distance. The method was first tried in treating large fixed masses in the neck. With a skin distance of 4 cm. it was found that in two cases large fixed glandular masses disappeared completely. So far the method has been confined to inoperable cases, but the results seem to justify its extension and further investigation.

A Columbia paste collar is made 2 cm. in thickness, and the radio-active tubes are mounted on blocks of balsa wood 2 cm. thick. The tubes are 4.5 cm. long and the filter is 2.5 mm. of lead: the lead tubes are attached to the wood blocks by means of elastic, and the blocks are then secured to the collar. The position of the tubes varies, but generally four tubes are employed, and are arranged on the four sides of a square, the area of which varies from 64 to 144 square centimetres. The upper tube is parallel to and at the level of the lower ramus of the mandible in cases in which the superior deep cervical glands are involved. The time of exposure has gradually been increased, and treatment is now given for ten hours a day on twenty consecutive days. Each tube contains 50 mc. of radon, and is made up to its original content every morning. The dose given is 280 mc.d.; and the subsequent reaction is severe, a destructive dermatitis occurring over a wide area, while the patients usually feel ill for from two to three weeks. The skin usually heals in from six to eight weeks, but this, of course, depends upon the severity of the reaction.

The number of cases in which sufficient time has been allowed to elapse since treatment for any estimate of its effect to be made is still quite small; nevertheless, the results show an improvement on any hitherto obtained, and the principles involved in the method are worthy of study and more extended investigation.

These are the chief features of general interest in the report, the main body of which is occupied by various statistical tables dealing with the cases treated; but mention must also be made of the interesting little final section on surface applicators and their construction, which is contributed by Mr. W. L. S. Alton, F.I.C., the director of the chemical and physical laboratories.

British Medical Journal

SATURDAY, NOVEMBER 11th, 1933

CHRONIC DISEASE AND THE COMMUNITY

There can be little doubt that an extension of community care for those suffering from chronic disease will be one of the developments of the public health services in the not distant future. To an important extent, of course, this care is already given. Chronic mental disease, tuberculosis, and the care of the blind have for years been the subjects of recognized branches of the service. More recently children suffering from crippling conditions other than tuberculosis, and from chronic heart disease, have become the recipients of organized public care, and the aged and infirm have for long constituted a large proportion of those for whom public assistance has been provided under the Poor Law and in other ways. There remains, however, a vast amount of chronic disease with which the organized public health service has not yet concerned itself, which makes great inroads upon national efficiency, and which yet might be greatly ameliorated to the benefit of the public as well as of the individual if it were effectively dealt with. In its medical, social, and economic aspects the subject of chronic disease has scarcely yet been considered as a whole by any large community.

Opportunely there has been published on behalf of the Welfare Council of New York City a report on chronic illness in that city by Mary C. Jarrett.[1] It is in two volumes, the first of which is concerned mainly with the problems of chronic illness and general statistics with regard to its prevalence, while part of the same volume and the whole of the second are concerned with the agencies and institutions, municipal and voluntary, available for relief and care. This latter aspect of the matter may be reserved for future comment; but the statistics given as to the nature and extent of chronic illness in New York, and the problems to which such prevalence gives rise there and elsewhere, are worthy of immediate attention. For the purpose of the inquiry, those subject to the census were defined as "persons who have been or are likely to be incapacitated by disease for a period of at least three months—that is, unable to follow the daily routine of the average normal person—whose incapacity will probably continue for an indefinite period"; and cases of pulmonary tuberculosis, mental disease, and blindness and deafness were excluded as being already within the public notice. Some 20,700 cases were recorded, and it is estimated that this represents one-third of those who are chronically ill (under the definition) in the entire city. This gives a ratio of approximately 1 per cent. of the population as being disabled by chronic disease. Only one-fifth of the ascertained patients were over 70 years of age, about one-half were under 40, and about one-third were children under 16. One-fourth of the children were not yet 6 years old. The majority of the cases were ambulant, only 30 per cent. of the adults and 15 per cent. of the children being confined to bed or to wheel-chairs. The outlook for recovery was favourable in one-fourth of the children and one-tenth of the adults under 60 years of age. Three-fifths of the individuals needed medical care, but of these only one-third required hospital care.

The picture so presented is somewhat different from that which is frequently envisaged when chronic disease is the subject of cursory consideration. The "aged and infirm" are by no means the only persons—they are not even predominantly the persons—concerned. Nor is "chronic" synonymous with "incurable." In many of the cases "cure" even in its relatively narrow sense may be hoped for; in a large number both efficiency and comfort may be restored and maintained within a suitable communal environment, and such a connotation of the word "cure" cannot be considered as unreasonable. Again, the extent of the problem is shown to be more widespread than has commonly been realized. In the community under examination not only at a given time was one person in every hundred incapacitated by chronic illness, but it is estimated that in the course of their lives one person in every ten has been so incapacitated. Many statistics are given in the report as to distribution of chronic disease among the different age groups—children under 16 years of age, young adults between 16 and 40, the middle-aged between 40 and 60, and between 60 and 70, and the aged over 70 years—and with regard to the various conditions which are the principal causes of chronic incapacity—orthopaedic conditions (due in the main to tuberculosis and infantile paralysis), heart disease, rheumatic diseases, cancer, neurological diseases (including epilepsy and encephalitis, but not mental disorders), diabetes mellitus, and drug addiction. Such statistics for New York City would probably be found not to correspond exactly with similar statistics compiled for London, for England, or for Great Britain. Here, too, most severe cases of encephalitis and of epilepsy are dealt with in association with mental deficiency; and it is to be hoped that drug addiction is a much less important factor with us than in the United States of America. Nevertheless, the general picture in both countries must be very similar, and, as a statement of the problem confronting the community, this report on chronic disease in New York City should be very instructive here as there.

It is clear that this problem is not simply a medical one. Its social and economic aspects are of the highest significance. In the New York census the yearly income of 71 per cent. of the families of five or more members containing a patient incapacitated by chronic illness was below a minimum for health and decency for a family of that size, and that of 92 per cent. was below a standard budget for a skilled workman's family:

[1] *Chronic Illness in New York City*. By Mary C. Jarrett. Vol. i. *The Problems of Chronic Illness*. Vol. ii. *The Care of the Chronic Sick by Different Types of Voluntary Agency*. London: H. Milford, Oxford University Press. (29s. net.)

knowledge will legalize any transaction except the splitting of a fee between a resident and a non-resident physician. The penalties vary from a minimum of 100 dollars to a maximum of 1,000 dollars for the first offence, with the alternative in some States of imprisonment for thirty days to twelve months. In a number of States the licence is automatically revoked after the first offence and in others after the second, while in nearly every State it may be revoked at the discretion of the revocation agency. Only two States provide for recovery of the fee by the patient. In Tennessee the patient may sue for treble the value, and if the patient does not bring an action for two years his right of action is transferred to the State. Colorado and Wisconsin have preventive regulations concerning physicians' accounts. In Colorado a joint bill must summarize the items charged by each physician, and in Wisconsin each practitioner must render a separate bill. In Colorado the State Board of Medical Examiners assists in enforcing the Act and receives any fines collected under it—an arrangement which, on the face of it, appears to be open to criticism. In Kentucky the "seller" is protected by a rule of law which compels him to testify to matters concerning the fee, but does not regard him as an accomplice or allow him to be incriminated by his own evidence. Wisconsin bars from future practice or consultation any physician who treats one of its citizens in an adjoining State and pays another physician for referring him. The director of the Bureau of Legal Medicine of the American Medical Association informs us in a covering letter that he cannot give any information on the extent to which these enactments have checked fee-splitting. To the English eye they suggest several difficulties of interpretation; it seems doubtful whether the principles of common law, together with the Prevention of Corruption Act, do not meet the case at least as well as *ad hoc* legislation.

DRUG TREATMENT OF ANGINA PECTORIS

A clear idea of the relation of the different grades of cardiac pain, from slight to severe occlusion of the coronary arteries, has, in Dr. Parkinson's words, led to a shift of attention from the "anginal death" to the "anginal life." The milder attacks of effort pain are practically within the patient's control when he is aided in the regulation of his life by his doctor. Established cases of typical angina—though the attacks are often relieved by the familiar capsules and tablets—demand, as Clifford Allbutt said, "infinite pains to prevent another attack, as each one paves the way to the next." These infinite pains are required, not for a prescription or two, but for a thorough reconditioning of the lives of these individuals, whose temperaments are often their heart's worst enemy. Who can feel surprised, however, if ambitious patients or members of a busy profession have set off along another blind alley in the desire for a short cut? It is with regret, not untinged with relief, that we may relegate more bottles of medicine to the top shelf; for there is no escaping the conclusion reached by Drs. Evans and Hoyle[1] in the cardiac department of the London Hospital, that not one of the sixteen drugs they tested was even worthy of a trial in the routine treatment of the chronic stages of the disease. Many will agree with their view that the nature of the underlying cause of angina pectoris alone would tend to make the quest for a satisfactory form of drug treatment unlikely of attainment. A short account of their methods should be of interest as an example of well-controlled experiments, for which there is infinite room in clinical medicine. In a study extending over a period of two years and a half, some ninety patients suffering from recurrent angina (from which syphilis and coronary thrombosis were carefully excluded) were made to attend fortnightly, so that various drugs could be administered over periods of two and four weeks or longer. In each case a placebo consisting of sodium bicarbonate with different flavourings was given for a period between the administration of the old and the new drugs. Sixteen drugs were tried, and the list included sodium nitrite, mannitol hexanitrate, erythrol tetranitrate, potassium iodide, luminal, chloral, morphine, papaverine, phenacetine, diuretin, calcium diuretin, euphylline, belladonna, digitalis, lacarnol, and harmol. This list may be seen to cover the ordinary ground required by the clinician. The result showed that a measure of improvement appeared to follow from every remedy tried, but that this improvement was perhaps rather less than that during the period of treatment with the placebo mixture. The apparent efficacy of these drugs can be explained by natural variations in the severity of the symptoms. Though they regard the evidence as scarcely convincing, Drs. Evans and Hoyle have some reason to think that chloral, morphine, and phenacetine had a trifling influence in controlling the group incidence of the attacks. It is not altogether pleasing to our self-respect when we reflect on the passage of time since Matthew[1] clearly stated that he had only succeeded in lowering the blood pressure by nitroglycerin for forty minutes and by erythrol tetranitrate and mannitol for not more than six hours. The practitioner should therefore avoid a too strict reliance on drugs in chronic anginal cases, and approach the problem more fundamentally by drastically limiting the diet in the matter of lipoids (and in some cases protein too), and by substituting fresh air and graduated physical exercise for the strain and worry of ambition and office life.

[1] Evans, William, and Hoyle, Clifford: *Quart. Journ. Med.* (New Series), ii, 211.

RESEARCH IN MENTAL HOSPITALS

Part II of the nineteenth annual report of the Board of Control[2] constitutes in some measure a survey of the various forms of research work in progress in sixty-four mental hospitals in England and Wales in 1932. Bacteriological and pathological investigations remain well to the fore, as in previous issues, and in this respect the volume forms a useful index to papers which have been published in various periodicals or as pamphlets. In this and in other ways a handy reference book is available, although the amount of space devoted to clinical considerations is relatively small. Therapeutics is more in evidence, and such subjects as malaria therapy or the action of the newer drugs in forms of neurosis are represented by useful

[1] *Quart. Journ. Med.* (Old Series), ii, 261.

[2] Lunacy and Mental Deficiency. Nineteenth Annual Report of the Board of Control for the Year 1932. Part II. London: H.M. Stationery Office. 1933. (3s. net.)

references From the Birmingham Joint Board of Research for Mental Disease comes again a record of work in connexion with the incidence and treatment of nasopharyngeal sepsis, particularly relating to the sphenoidal sinus, inflammation of which was found to be part of a pansinusitis, or a multisinusitis in no fewer than 970 out of 1,001 cases Evidence was also obtained of the special neurotoxic action of *B pfeiffer*, which, it appears can be exercised in cases showing no evidence of inflammatory response to its presence A report from the Cardiff City Mental Hospital on continuous bath therapy, especially in schizophrenia, brings out the point that quite prolonged periods in the baths are essential in most cases Thus, in the agitated phase of chronic melancholia, from forty-four to seventy-eight days were required, in chronic schizophrenia the average was forty-six days, although some patients continued for more than 150 days, while in the toxic exhaustive type of patients the hydrotherapy ranged from twelve to sixty days In some of the longer periods short intervals of a few days without baths were introduced where deemed advisable Sunlight treatment, tried also at this institution, is thought to owe much of its beneficial effect to psychological action on more suggestible patients Ephedrine administration was attended by negative results on the whole at the West Riding Mental Hospital (Wadsley, Sheffield) when applied to the treatment of Parkinsonian oculogyric attacks As a criterion of success it is held that in this condition, unless any given substance produces an interval of complete freedom for longer than three weeks, or continues to keep down the number of attacks at its minimum for more than six or eight weeks, or causes considerable lessening of the duration and severity of the attacks, it cannot be held to have any material influence on the condition Experiments with "reinforced analysis" in four cases of psychosis were made at the London County Mental Hospital, Bexley, auto suggestion being introduced with the patient in a hypnoid state Definite indications were obtained of the production of valuable alterations in the hallucinations The report contains also lists of the various types of institution available in different parts of the country for voluntary, temporary, and permanent patients suffering from mental disorder

CENTENARY OF MUNICH MEDICAL SOCIETY

The *Münchener medizinische Wochenschrift* for October 27th appears as a "Festnummer" to celebrate the centenary of the foundation of the "Aerztlichen Vereins in München" Munich had just 80,000 inhabitants in 1833, and there were 112 doctors, or one to every 925 of the population, yet 450 died without having received any medical attendance. On October 28th, 1833, twenty of the doctors met They determined to found a little book club, elected a president and a secretary, and fixed the annual subscription of 12 florins of a debased currency They bought a few books and one or two medical periodicals, which they circulated among themselves The venture prospered, the university professors joined, and from a mere friendly club it developed into a well-recognized medical society There were formal discussions, but the original purpose was not lost sight of, and the library continued to be a special feature of the society The bitter year of 1848, like the period of the European war, left its mark upon the society Rudolf Virchow, for instance, in 1849 was elected a corresponding member, but not without opposition, for his revolutionary ideas cost him three black balls out of the fifteen votes cast for him Many other names once familiar as household words to physiologists of a former generation figure in the annals of the society There is an account of Justus Liebig and of the growth of the Munich school of metabolism Pettenkofer and Voit figure largely, for they were the real founders of experimental hygiene Max Pettenkofer lived to be 84, and was for long the apostle of public health in Germany For him cholera was a disease of the soil, while others said the cause lay in drinking-water The discussions of the two schools were held at Munich, and must have been well worth attending, for they often became heated Pettenkofer adhered to his opinion, and even when Koch demonstrated the comma bacillus in 1883 Pettenkofer remained unconvinced With dramatic gesture and impassioned speech he drank some of the water containing the bacilli, and by good fortune sustained no harm The centenary number is well illustrated with portraits of many of the former members of the society and with pictures of its premises

A SEASONABLE APPEAL

Once again Sir Thomas Barlow, as president of the Royal Medical Benevolent Fund, has addressed to us a letter (published at page 890) asking for help in a good cause The Fund wishes to make a Christmas gift of 30s to all its annuitants and to the poorest of its grantees The beneficiaries, on whose behalf Sir Thomas appeals to our readers, are either infirm or invalid doctors, or widows or daughters of deceased medical men, whose total incomes are not even £100 a year His appeal is the more moving because of the quiet terms in which it is written We hope that all who can contribute will do so without delay

A Royal Medal has been awarded by the President and Council of the Royal Society to Dr P P Laidlaw, F R S, pathologist on the staff of the Medical Research Council, for his work on diseases due to viruses, including that on the cause and prevention of distemper in dogs The Copley Medal has been awarded to Professor Theobald Smith, M D, a foreign member of the Royal Society, and Director Emeritus of the Department of Animal Pathology at the Rockefeller Institute of Medical Research

We regret to announce the death, at the age of 73, of Mr E E Maddox of Bournemouth, who presided over the Section of *Ophthalmology* at the Eastbourne meeting of the British Medical Association in 1931, and had been nominated by his colleagues for the same office at next year's Annual Meeting at Bournemouth

The next session of the General Medical Council will open on Tuesday, November 28th, at 2 p m, when the President, Sir Norman Walker, will take the chair and give an address The Council will continue to sit from day to day until the termination of its business.

ANAESTHESIA IN MIDWIFERY

A LONDON EXPERIMENT

The London County Council sanctioned in the early part of last year the experimental engagement of six extra assistant medical officers for the purpose of administering, in the Council's hospitals, light anaesthesia in normal labour. The six officers took up their engagements in July, 1932, and the engagements, originally for six months, have since been three times renewed. The choice of anaesthetic was left to the discretion of the medical superintendent, and chloroform, gas and oxygen, ether and ethyl chloride, and nembutal, alone or in combination with sedatives, have all been given extensive trial. In the eight hospitals to which special anaesthetists were for varying periods attached 3,729 patients were delivered under light anaesthesia up to April, 1933. The unanimous opinion of the medical superintendents of these hospitals is that a properly chosen and administered anaesthetic does not materially delay labour and has no detrimental effect on mother or child. At one hospital only was it considered that a slight, but definite, delay occurred. Even at two hospitals originally selected which were found unsuitable for the experiment, and from which the anaesthetists had to be withdrawn, no actual detriment to the patient was alleged. In only two cases in the whole series was it suggested that a necessity for forceps might have been due to the anaesthetic. Of other complications associated by certain obstetricians with the use of maternal anaesthesia there has been no trace, nor has any increase of puerperal morbidity been noted in any hospital.

As for the relative merits of the anaesthetics employed, it is reported that no one method stands out from the others, but all have their advocates. The records have incidentally shown the great value of analgesics in labour. The skilful administration of chloral or morphine, alone or in combination, has proved invaluable for conserving the patients' strength, diminishing fear and shock, and blunting the recollection of labour. In April, 1932, the use of crushable chloroform capsules containing 20 minims of chloroform was sanctioned. The use of these was ultimately adopted in fifteen of the Council's hospitals, and has become increasingly popular. All the hospitals concerned, with one exception, presented a favourable report. Out of 1,121 patients whose opinion was recorded, 613 considered the capsules of great use, 446 of some use, and only 62 reported that they had been of no use. In no instance was it alleged that their employment led to the application of forceps. The only substantial disadvantage was found to be that a number of patients were noisy and difficult to control, a trouble easily surmounted under hospital conditions, but a serious consideration for midwives in private practice. The administration of the capsules has been delegated to the maternity sisters and their deputies under certain defined conditions. They were administered in 2,643 cases.

In a report on the experiment the Central Public Health Committee states that anaesthesia in labour is still outside the experience of the class of woman coming into municipal hospitals, and to many of them it is associated with obstetrical disasters. The suggestion of its use arouses a fear that the doctor anticipates an abnormal labour. There is also a curious belief current that a woman is doing something morally wrong in evading the pain of labour. By the women who manage to overcome their initial fears anaesthesia is received with deep gratitude. As a result of two years' experience, during which period a total of 4,540 cases (including the 3,729 delivered at hospitals to which special anaesthetists were attached) have received light anaesthesia in normal labour, it is considered that the experiment has justified itself. The demand from the women concerned was sufficiently strong and widespread to make the offer of some form of anaesthesia in normal labour an urgent public question. The obstetrical difficulties were much less than anticipated, though the administrative difficulties were greater, for the irregular distribution of the births over the twenty-four hours made it impossible to ensure that an anaesthetist was always available, and this form of administration is not readily combined with other duties. It is considered that the use of crushable chloroform capsules or some safe and simple equivalent should be relied upon as the usual method of anaesthesia for normal cases, where the medical superintendent is willing to delegate this duty to the senior nursing staff. The duty of administering or supervising the administration of analgesics and anaesthetics should be regarded as part of the normal duty of a medical officer in charge of a maternity ward.

MEDICAL AND SANITARY REPORTS FROM OVER-SEAS

A wealth of information about health conditions in the individual Colonies within the British Empire may be found in the annual medical and sanitary reports issued by the various Colonial Governments, but very few libraries here or over-seas have complete files of these publications, so that the information they contain is not easy of access. Some kind of authoritative summary of these medical reports has therefore long been needed, and the Bureau of Hygiene and Tropical Diseases has recently taken over the responsibility of preparing such summaries and issuing them as special supplements to its *Tropical Diseases Bulletin*. So far two such annual supplements, dealing with the reports for the years 1929 and 1930, have appeared. A third supplement, to the *Tropical Diseases Bulletin* for October, 1933, has just been published, summarizing the medical and sanitary reports from British Colonies, Protectorates, and Dependencies for 1931. It contains detailed summaries written by Dr. H. Harold Scott, the assistant director of the bureau, of reports from forty-nine Colonies, mostly tropical or sub-tropical, and follows a general arrangement, giving for each country the year's record of vital statistics, maternity and child welfare work, school hygiene, general sanitation, housing and town planning, etc., followed by particulars of the incidence of diseases such as malaria, enteric fever, leprosy, yellow fever, trypanosomiasis, yaws, and syphilis, and the measures taken locally to combat them. Information is also given about special health campaigns, and investigations carried out in the various Government laboratories, or in the field into problems associated with diseases met with in the particular Colony.

Thus the compilation provides a means for analysing the various factors that affect the physical well-being of European and native communities throughout the scattered colonial Empire, and records the organized efforts of the various administrations to improve the health conditions in their own localities. Its primary objective is to keep medical and research officers and administrative officers in any one region informed of work done in other parts of the Empire, but the information it contains should also prove useful for those visiting the Colonies and Dependencies on a pleasure trip, or those intending to reside and take up work there, in that they may see what are the prevalent diseases they may meet with and take precautions against, and the present state of health of the countries in which they propose to sojourn.

The supplement should be of value also to those who, though themselves living in England or in other temperate climates, do business in the Colonies, more particularly insurance offices, actuaries, etc. For the more ready conveyance of information of a kind likely to be required by this latter class of reader a table has been added, giving in more succinct form the vital statistics and other cognate data relating to the various Colonies.

Copies may be had (price 5s.) from the Bureau of Hygiene and Tropical Diseases, Keppel Street, W.C.1.

THE BED BUG

PREVENTION OF HOUSE INFESTATION

The Department of Health for Scotland has done well to issue a treatise on the bed bug written by Dr William Gunn of the Public Health Department of Glasgow.[1] Lest it be thought that the work of Dr Gunn is merely of academic interest, let it be said at once that the study was undertaken by him for public health purposes. Although the subject is not one of universal concern, it is nevertheless of importance to public health departments, particularly in connexion with slum clearance and the occupation of new houses by slum dwellers. The fact that many houses are occupied which are bug infested does not redound to the credit of our civilization, and the practical problem which Dr Gunn endeavours to solve is how to rid houses of bugs. It may appear at first glance that the solution of the trouble is merely a matter of housewifery, but Dr Gunn explains that a knowledge of the life history and habits of the bed bug is essential for the conduct of a continual campaign against this pest.

It is interesting to observe that blood is the only food of the bug. It is a popular superstition that bugs feed only by night, but Dr Gunn's observations show that they will attack their human victims even in bright sunshine. Bugs can live without food for a long period—as long as six months in some of Dr Gunn's experiments. It might appear from this fact that if a house were left empty for a sufficiently long period all bugs would die, but to keep a house empty for a longer period than six months does not appear to be an economic solution of the difficulty.

A study of the general habits and breeding places of these insects was also undertaken. Their most favoured retreats are cracks in the walls or spaces behind wood near beds, crevices around rusty nails in wooden structures, the ends of mattresses which have not been disturbed for a while in bed making, the back of wallpaper, within picture frames, the under surfaces of chair seats; behind skirting boards and round the joints of iron bedsteads, especially if these are open or loosely fitting. Indeed, there appears to be no end to the type of shelter which bed bugs may select, but they are invariably places which are left undisturbed by cleansing operations. Such being the case it will be observed that in rehousing schemes it is necessary to insist on the cleanliness of places likely to be a retreat for bugs. This means that the housewife has to adopt for a while at least a higher standard and more caution with respect to cleanliness where there is fear of bug infestation than where no such fear exists.

Dr Gunn shows that sulphur dioxide and hydrocyanic acid gas are poisonous to these insects as well as to the eggs if the gases are in concentrated doses, but he adds that it would be unsafe to guarantee disinfestation by the means of a single fumigation by gas, because some eggs, especially those well protected in crevices, are almost certain to escape destruction. For this reason it would appear necessary to fumigate again within two weeks. Hydrocyanic acid, however, is not advisable for use in connexion with bug infestation on account of its danger to human beings.

The prevention of bug infestation where slum dwellers are transferred to new houses is based on (1) the disinfestation of the articles which they transfer to the houses and (2) the keeping clean of the new houses. The method adopted for the prevention of transference to new houses is outlined by Dr Gunn. Every article to be transferred is thoroughly cleansed. Reliance is placed mainly on thorough scrubbing and cleansing of all articles with soap and hot water, with washing soda added, and not on the use of odorous disinfectants. A cheap disinfectant may be added in connexion with the use of the scrubbing brush, but this is merely added as an encouragement and to engender a sense of efficiency. The tenants are warned not to take with them to their new house infested articles of furniture or worthless pictures, and particularly not to embellish the new house with second hand furniture. It is also insisted that in the new house care and supervision require to be continued, as it may happen that all bugs and eggs were not destroyed before the removal from the old house.

With regard to the disinfestation of the occupied house the principles are much the same. The process includes the dismantling and cleansing of infested pictures, the disinfection of all bedding by steam, the dismantling and thorough washing of bedsteads, the removal of picture rails and skirting boards and wallpaper, and the fumigation of the house by sulphur dioxide in the proportion of 20 fluid ounces of liquefied sulphur dioxide to 1,200 cubic feet of space. The use of the painter's blow-lamp where the woodwork or skirting boards have been removed is advised, and particularly scrubbing with warm water, soap, and washing soda. The importance of the structure of the house in relation to infestation is emphasized by Dr Gunn. Papering the walls is to be discouraged. The wooden picture rail and its bedding of wood in the wall should be abolished, and the skirting boards should be replaced by a skirting of cement. These structural improvements have greatly assisted disinfestation because the bug is easily observed and checked at a stage before serious spread can occur.

Dr Gunn's paper is teeming with knowledge and should be in the hands of every medical officer of health and sanitary inspector, as well as in those of housing inspectors of local authorities and all who are responsible for the management of new housing estates. The correct attitude to the bug problem is that of prevention. Prevention can be secured if a system of inspection and supervision and help for the housewife is inaugurated before and after removal to new houses. In the words of Dr Gunn, "The main duty"—that is, of keeping the house free from bugs and clean, "rests upon the occupants, but they must be guided and watched or assisted, and, if need be prosecuted." They should be taught not to rely on disinfectants, cheap or costly, to do their work for them, and the virtues of methodical house cleaning and of soap and water properly applied are given first place among the insect pest preventatives."

[1] *The Bed Bug (Cimex lectularius). Prevention of House Infestation.* A Study for Public Health Purposes. By William C. Gunn, M.D., D.P.H., senior assistant medical officer, Public Health Department, Glasgow. (H.M. Stationery Office. 1933. 9d. net.)

DANGEROUS DRUGS REGULATIONS

The Home Secretary gives notice that he proposes after the expiration of forty days from November 3rd 1933 to make Regulations under Section 7 of the Dangerous Drugs Act 1920 and subsection (3) of Section 2 of the Dangerous Drugs Act 1932 for controlling the manufacture possession and wholesale distribution of methylmorphine (commonly known as codeine) ethylmorphine (commonly known as dionin) and their respective salts. The object of the Regulations is to implement in respect of the aforesaid drugs the provisions of the Geneva Convention of 1931 which require that the existing control of the trade in dangerous drugs shall be extended to the wholesale trade in these drugs as from January 1st next. The draft Regulations do not affect the distribution of the drugs by persons other than wholesale druggists or possession of the drugs by any person in quantities of less than one pound avoirdupois. Copies may be obtained on application to the Under Secretary of State, Home Office, Whitehall, S.W.1.

The Home Secretary has appointed Mr Daniel Patterson Blades, K.C., Sheriff of Forfarshire, to be Legal Assessor to the Medical and Dental Tribunals for Scotland constituted under the Dangerous Drugs (Consolidation) Regulations 1928 in place of Mr John Cowan, K.C., who has resigned.

France

[From our Correspondent in Paris]

EMILE ROUX

Pierre Paul Emile Roux passed away peacefully on November 3rd, at the Pasteur Institute in Paris, where he had spent a lifetime and created a tradition of impersonal loyalty to science which must seem almost unattainable to the ordinary mortal. Writing of him in *Excelsior*, Professor Léon Bernard has crystallized the feelings of those who knew him best in the following terms:

"This man, whose self-effacing modesty was that of a saint, whose sole passion was for the welfare of others, combined in his person the highest spiritual qualities, verging on the superhuman, with a transcendent rectitude of judgement and intellectual range. He had no peer in the lucid and concise expression of thought, in terms at once limpid and striking."

The chronic pulmonary disease which dogged Roux's footsteps for some thirty years failed to divert him from the course he had set himself. He had, it is true, to delegate many of his administrative duties to others, and in the conduct of much laborious research to rely on the spade-work of younger and stronger men. But he retained his insight into the heart of things to the end, and it may be that, having perforce to take a bird's-eye view of certain problems, his failing health gave him a perspective he would not otherwise have enjoyed. His instincts of an anchorite must often have clashed with his profound sense of duty. He presided over numberless meetings, commissions, etc., was president of the Conseil Supérieur d'Hygiène Publique de France, was the arbiter against whose judgements in scientific matters no one would dream of appealing, and was the chief spokesman at the Academy of Medicine whenever matters vital to medicine and the welfare of humanity were at stake. Everyone knew him, and he knew everyone. Yet he was at heart a sensitive recluse, most at his ease in that barely furnished room, with its simple iron bed, in the Pasteur Institute. His fare was of the simplest, and his few needs were ministered to by the nuns, who worshipped him. Though everyone in the medical world in Paris was familiar with that tall, gaunt figure, the scarf taking the place of a collar, the hollow cheeks, the sallow complexion, and the absent-minded eyes of the Director of the Pasteur Institute, few knew the full history of his career, and fewer still could form any definite picture of the personality of the man himself. Roux was as poor a publicist as he was brilliant in research. Much, if not most, of his work was given to the world under the name of some colleague, and though he has made medical history, medical historians have passed him by. One has only to consult medical works of reference dealing with Roux's period and subjects to realize how poor a propagandist Roux was where his own claims to fame were concerned.

The main features of Roux's career may be traced in a few lines. He was born on December 17th, 1853, in the provinces (Charente), where his father was a schoolmaster, and where he spent his childhood. His early years in medicine were also provincial. But he was still quite young when he came to Paris and was introduced to Pasteur. In 1878 he was admitted to Pasteur's laboratory in the Ecole Normale. He was also attached as a laboratory worker for some time to the Hôtel-Dieu. From 1878 to the year of his death he was engaged in researches of almost infinite variety. His name is associated in particular with chicken cholera, the vaccination of sheep and cattle against anthrax, cholera, which he studied in 1883 in Egypt, rabies, tuberculosis, tuberculin, and, above all, diphtheria. Roux's work on diphtheria was so brilliant and decisive that it deserves special mention. It has indeed been said that "in all the years since the publication of Roux's and Martin's work [on the serum therapy of diphtheria] little has been added to the evidence."[1] In this field Roux worked with Yersin, with whom he published three memoirs. In the first, published in 1888, they described the methods of isolating the diphtheria bacillus based on the technique and culture medium of Loeffler. They noted the highly important fact that, if death did not supervene too quickly in rabbits, they were often paralysed. From these and other observations they concluded that the bacillus of diphtheria produces a poison locally. They were the first to prepare this poison—diphtheria toxin—by forcing well-grown bouillon cultures of diphtheria bacilli through a Chamberland filter. Although the filtrate was sterile, its injection into animals provoked the symptoms caused by the living culture, but no false membrane. In small doses the toxin in the bouillon culture frequently gave rise to paralysis. Hence the conclusion that Loeffler's bacillus must indeed be the virus of diphtheria. This most important observation was further discussed in a second memoir, published in 1889, in which a detailed and accurate account was given of the conditions under which the toxin was produced. An elaborate study of the pathogenic action of the toxin was made on dogs, rabbits, guinea-pigs, rats, mice, and pigeons. Very large doses of toxin, heated to 100° C. and injected intravenously, caused enfeeblement and even paralysis in rabbits. The poison which survived this high temperature was, it would seem, similar to that demonstrable in the organs and urine of diphtheria patients. It was argued that diphtheria toxin was to be classed with enzymes, and that the toxicity of a culture was not to be confounded with its virulence. In their third memoir, published in 1890, they dealt largely with the demonstration of diphtheria bacilli as a guide to the diagnosis of diphtheria, and they were the first to describe in detail that technique which, with slight modifications, has been subsequently followed. They also came to the conclusion that the bacilli underwent marked changes during an attack of diphtheria, and that the difference between virulent and non-virulent diphtheria was one of degree rather than of kind. Their discovery of diphtheria toxin was soon confirmed by other workers, who did not, however, at once agree over the relation claimed between the paralytic phenomena in rabbits and human beings. Roux and Martin were the first to employ horses for the preparation of antitoxin.

Only a few months ago Roux embarked on a campaign for more effective public health work throughout France the lacunae in which he found large and numerous. He was also keenly interested in the impending reform of the medical curriculum, and was much distressed over the prospect of a new generation of doctors bereft of the benefits of a classical education.

[1] *Diphtheria*. Published by the Medical Research Council in 1923.

The Departmental Committee on Food Standards, which is considering the question whether it is desirable that the law should be altered so as to enable definitions of standards to be prescribed, has lately heard evidence from representatives of the Society of Public Analysts, the Parliamentary Committee on Food and Health, the Scottish branch of the Society of Medical Officers of Health and a number of other bodies. The meetings were presided over by Sir Frederick J. Willis, the chairman. The secretary of the committee is Mr. W. J. Peete of the Ministry of Health, Whitehall, S.W.1, to whom all communications should be addressed.

Scotland

Reform of the Medical Curriculum

At a meeting of students held in the Edinburgh Students' Union on October 30th, to discuss the requirements of the present medical curriculum, a resolution was adopted expressing approval of the findings and recommendations of the committee of the British Medical Association on the subject of medical education. Dr. F. J. C. Herrald, president of the Students' Representative Council, who presided at the meeting, said that the minds of medical men and medical students had been agitated for some time by the need for urging reform in medical education. This movement did not appear to concern one school only; the four Scottish universities had held meetings to discuss the matter in the last two years, and at St. Mary's Hospital, London, there had been a similar agitation. Dr. C. M. Wilson, dean of St. Mary's Hospital Medical School, said that in this matter of the curriculum he believed there was a necessity for evolution, not revolution. There were two views as to what should be the principle of a medical curriculum. Many people believed that a student should collect and store as many facts as possible in five or six years, while others considered that the five years of the student's life might be more profitably spent in developing his reasoning powers, training and testing habits of thought, and persuading him to use his natural gifts. The latter also believed that the safety of the public was to be found only in the perpetual activity of a disciplined mind, and that the medical schools had become too exclusively concerned with the mechanical acquisition of facts. It was generally agreed that many things in the present curriculum could not possibly encourage thought, and that these things should be got rid of. He did not contend that all this detail had no value, but only that the value which it had was not sufficient compensation for leaving the student without a moment for reflection. Surgeons complained that students when they came into the wards shed their anatomy like a worn-out garment, and when the surgeons complained to the anatomists, and asked whether students would not remember their anatomy better if its clinical applications were pointed out, they were told that anatomy must be taught as a pure science. He believed that a reform of the examination system would remove many of the evils for which the curriculum was now blamed. Dr. Elliot Dickson said there was general agreement that the object of a medical curriculum was to turn out general practitioners, not specialists. The ideal of the profession was in the first place to prevent disease, and in the second to cure disease and to relieve suffering. The prevention of disease as applied to the individual could only be carried out by the family doctor, who saw patients in the earliest manifestations of illness. The minimum requirements for the family doctor were that his general education must be of a high standard; that he must acquire a sound knowledge of the elementary medical sciences, in which the teaching should, as far as possible, be of an applied character; that he must acquire a knowledge of the physical signs of disease, and should be familiar with the symptoms of common diseases and with their appropriate treatment; he should also have a reasonably thorough practical knowledge of midwifery and minor psychoses. The details of a curriculum designed to meet such requirements were given in the interim report of the British Medical Association Committee on Medical Education. During the clinical years more time and attention should be given to practical work, and specialist subjects should not be pursued beyond the stage at which they might be regarded as being immediately necessary for the general practitioner. No lengthening of the present curriculum was necessary if it began after registration with anatomy and physiology. Dr. Wilkie Millar said that in his opinion drastic changes in the curriculum were necessary. It was wholly unnecessary for the student to acquire such an amount of detail in anatomy, physiology, pathology, and bacteriology as was at present the case. Far too little time was available for practical work, and the present system did not give students time for cultivating their own powers of observation and thinking under the general guidance of their teachers. There was a special need for reviving the dispensary system of training, which was formerly a prominent and valuable feature in the Edinburgh medical school, and which gave the student experience and confidence. Dr. Philip Dalgleish said there was no doubt that graduates generally felt that the present system of medical education was very unsatisfactory. Student medicine to-day was far too largely a matter of scientific facts and reactions from which the human factor was almost entirely omitted. Dr. Chalmers Watson said that the subject was one of international importance, and in the last few months had been discussed by leading German, French, and Austrian medical men. It was clear that the necessary reforms would not be obtained without some shattering of present idols. They must have the courage to jettison superfluous medical knowledge which seldom proved useful in practice.

Henderson Trust Lecture

The twelfth annual lecture under the William Ramsay Henderson Trust was delivered at Edinburgh by Dr. J. Shaw Bolton, professor of psychiatry in the University of Leeds, on November 3rd. The Trust is an old one, founded over one hundred years ago for the promotion of phrenology. Dr. Hamilton C. Marr presided, and the lecturer took as his subject "The Cortical Localization of Cerebral Function." He said that his object was to collate from various sources the available facts bearing on cerebral function, and to present these as a concrete whole on a histological basis. He illustrated the neopallium in a series of primitive mammals, to indicate its gradual development during the rise in the mammalian scale up to man. He then showed the development of fissures in the human brain from mid-foetal life to birth, indicating the increasing depth of the outer cell or pyramidal layer of the cortex as development proceeded. At an early stage the pre-Rolandic or motor cells were already developed, and occupied a much greater proportionate area than they did in the adult brain; the motor function of the brain had thus a paramount position, while the sensory took a second place. The fissure of Rolando exactly divided the psychomotor part of the cerebrum from the sensori-psychic part. The large anterior portion of the pre-frontal area existed in man alone, while the next part of the frontal area was common to man and apes. The lecturer showed the great increase in relative area and depth of the outer cortex which occurred in passing from the dog to the monkey and on to man. This portion of the cortex, he said, was concerned with educability in the acquisition of skilled motor accomplishments, including speech. A number of slides were exhibited indicating various grades of under-development of the cerebrum in mental deficiency, and the severe wasting of the psychomotor areas that occurred in dementia. Dr. Bolton also drew attention to the recent experiments on apes by Fulton, Jacobsen, and Kennard, which provided experimental confirmation as to the functions of the motor, pre-motor, and frontal areas. He concluded that, from the development of the brain, man differed from lower animals in the possession of a much more complicated capacity for sustained attention and individual motor educability, including the employment of language, spoken and written. Some types of mental disease were the

natural consequence of overstepping the limits of capability and of durability, and must be regarded as the penalty paid by man for the gift of volition, and as evidence of the relatively recent evolution of this capability.

Children's New Convalescent Home

The new quarters of the Scottish Convalescent Home for Sick Children, in a converted mansion house at Milngavie, about seven miles north-west of Glasgow, were opened by the Marchioness of Ailsa on November 1st. The home will be called after the Glasgow inventor, the late Professor Archibald Barr, who bequeathed the estate and house for this purpose. An endowment fund is to be established out of the balance available, and it is expected that the small sum necessary to complete £20,000 will be presented. The home has accommodation for twenty-six beds. During the past year in the former building at Greenfaulds 399 children received convalescent treatment.

England and Wales

University of Durham College of Medicine, Newcastle-on-Tyne

On August 5th, 1933 (p. 259), we printed the summary of conclusions set out in the report of Sir Amherst Selby-Bigge to the Chancellor of the University of Durham. We published also the resolutions adopted by the Governing Body arising out of the recommendations in that report. The annual court of governors of the University of Durham College of Medicine, Newcastle-on-Tyne, was held on November 1st, and after its conclusion the following official note of the proceedings was issued to the Press:

"The annual court of governors was held this day, Mr. R. G. E. Mortimer in the chair. It was a largely attended meeting. Mr. Mortimer was reappointed chairman and Sir Thomas Oliver vice-chairman. The accounts and balance sheet for the year 1932-3 were received, and the treasurer, Sir Joseph Reed, was thanked for his services. In presenting the report of the Council for the year 1932-3, the Chairman of Council (Sir Robert Bolam) made reference to the continued prosperity of the school and the steady increase in the number of students. He said that the laboratory accommodation was overtaxed, and that all laboratory classes were duplicated. The Council had considered and had resolved to launch a general appeal for funds for new buildings in order to cope with the demand for accommodation. A certain very satisfactory response had already been made, and at a suitable time a general effort would be made. The auditors, Messrs. Price, Waterhouse and Co., were reappointed. A committee consisting of four members of the Court and four members of the Court who were also members of Council was appointed to consider the recommendations of Sir Amherst Selby-Bigge as to the emendation of the constitution as shown in the Articles of Association of the College or alternative draft provisions of a Royal Charter as may be deemed wise, and to report to the Court. The Court further resolved to invite the Chancellor of the University to nominate three additional members conversant with university practice elsewhere, one of whom should be designated by the Chancellor to act as chairman of the committee. The members appointed on the committee were: Lord Armstrong, Dr. J. W. Leech, M.P. (Lord Mayor of the city), Mr. J. R. Andrews (chairman of the Stewards' Committee of Freemen), Mr. Charles Williams (the Director of Education for Northumberland), Sir Joseph Reed (Treasurer), Sir Robert Bolam (Chairman of Council), Professor Stuart McDonald (Dean), and Dr. W. E. Hume. The report of the committee consisting of Sir Francis Blake, Councillor Angus Watson, and Professor P. J. Heawood, appointed by the Court on July 14th, 1933, to confer with Professor H. J. Hutchens was considered. The Court ultimately resolved, on the motion of Sir Robert Bolam, seconded by Professor Heawood: 'That this Court of Governors offers its best thanks to Sir Francis Blake, Councillor Angus Watson, and Professor P. J. Heawood for their labours in connexion with the report presented to-day, expresses its approval thereof, and recommends its terms to Council. The Court is of opinion that further negotiations for a settlement with Professor Hutchens must be conditional on his undertaking as a term of the settlement to abandon any legal proceedings in the matter of all his claims, but that subject to this condition the Council would be justified in negotiating a final settlement with him on terms equivalent to those suggested in the committee's report.' The Court dissolved at 6.30 p.m. after a three hours' sitting."

In the *Newcastle Evening Chronicle* of October 31st there appeared a paragraph impugning the accuracy of an extract from the *Daily Telegraph* of July 10th (p. 4, column 3, "London Late Edition"), quoted in the *British Medical Journal* of July 15th. As soon as this matter was brought to our notice we communicated with the Editor of the *Newcastle Evening Chronicle*, who promptly apologized, and on November 4th he published a withdrawal of the statement in question, and expressed regret "that we should have inadvertently misrepresented the *British Medical Journal*."

Protection of London's Milk Supply

A report on the bacterial content of the milk supply coming into London was made to the London County Council at its meeting on October 31st. It was pointed out that an entirely new position in regard to tuberculous milk has arisen from the practice adopted in receiving country milk at depots, where it is bulked and transported to London in large glass-lined tanks, each holding some 3,000 gallons. These tanks are filled with milk bulked from a large number of different herds, so that it is difficult to trace infected samples to their source, and the addition of tuberculous milk from one farm infects the whole contents of the tank. The results of the examination of milk coming to London show that from 1907, when examination for tubercle was first systematically undertaken, to the earlier war period there was a steady annual decline in the number of samples found to be tuberculous. It rose during the later period of the war, but again fell markedly, and for about a decade remained at very low levels. Of recent years it has risen again steadily, and in 1932 9.3 per cent. of samples of churn milk, or 10.9 of all samples, including tank milk, were found to be infected. In consequence of these results, and as about 40 per cent. of London's milk supply now arrives in tanks, an investigation was recently undertaken to ascertain on a more extended scale the proportion of tanks containing tuberculous milk. Of eighteen tanks examined fifteen contained tubercle bacilli, and of these fifteen tubercle positives seven were positive with 1 c.cm. suspension, equivalent to 50 c.cm. of milk, but negative with smaller quantities, five were positive with 1/10 c.cm. suspension, equivalent to 5 c.cm. of milk, but negative with 1/100 c.cm. suspension, and three were positive with 1/100 c.cm. suspension, equivalent to 0.5 c.cm. of milk. With regard to *B. coli* and other organisms in the tank milks, the milk from eleven out of eighteen tanks had *B. coli* in 1/10,000 c.cm., and the milk from fourteen had total organism counts, including bacteria both harmful and harmless, of over one million per cubic centimetre. The highest total organism count recorded in the series was 64 millions per c.cm. Grade A milk under the Special Designations Order may contain only 200,000 organisms per cubic centimetre, and no *B. coli* in 1/10 c.cm. It must be clearly pointed out, however, that these results apply only to the milk as it arrives in London, and not to the milk as it reaches the consumer. Practically all the tank milk comes to the big dairy firms, who pasteurize it on its receipt in London, after the sampling by the Council. An examination of 282 samples of retail milk purchased over the counter resulted in nine samples showing the presence of tubercle bacilli. These samples were taken at random mostly from small shops, and included milk sent to London in both tanks and churns, and the presumption is that those containing tubercle bacilli had not been pasteurized.

least not effectively. Inferences drawn from these samples could not be extended to the milk supplied by the large firms, to whom comes practically all the tank milk. Ten companies now use tanks to bring milk into London. With the exception of one, which supplies only sterilized milk, all the companies pasteurized by the "holder" process tank milks on arrival in London. Provided that the pasteurizing process is efficiently conducted, the risk of tubercle infection from tank milks must be very small. But the Central Public Health Committee is of opinion that, nevertheless, the demand for a milk supply which is clean, uncontaminated, and non-infective in its natural condition is a very proper one, and should be met as far as possible. The report adds that it is clear that the usefulness of sampling in London for the biological test is largely negatived if the results are not followed up, and that this is impossible in the case of tank milk sampled in London. Some action would, however, be possible if the provincial authorities took samples, for examination, at the depots before the tanks are filled, and it is proposed to ask the Minister of Agriculture to consider what steps should be taken to overcome the difficulties created by modern methods of milk transport.

Cardiff Tuberculosis Conference

An account of the nineteenth annual conference of the National Association for the Prevention of Tuberculosis, which was held in the summer at Cardiff, appeared in the *Journal* of July 22nd (p. 165). The *Transactions* of this conference have now been published,[1] and comprise verbatim reports of the various speeches and discussions. An outstanding feature of this volume is the space devoted to the consideration of environmental factors in connexion with the spread of tuberculosis, and the details now afforded with regard to such widely different areas as Tyneside, Cardiff, Stockton-on-Tees, Glasgow, Papworth and Preston Hall, and Wales generally, will have a special interest and value for those concerned with tuberculosis work in any of its branches. The second main topic of the conference—namely, bovine infection—was approached through a number of papers, which are here reproduced in full. There is thus brought together a summary of recent knowledge about these two important aspects of the tuberculosis campaign which cannot fail to be of general assistance to investigators and promote further researches. There is also in the volume much information about the part played by infection, including the way in which the individual patient acquires the disease in the first place, the mode of its spread in his body, and the conditions which retard or accelerate its extension.

Sir Charles Kenderdine

Sir Charles Kenderdine, K.B.E., who was director of artificial limb supplies and chairman of the advisory council on artificial limbs at the Ministry of Pensions from 1917 to 1920, has relinquished his appointment as honorary secretary and treasurer of Queen Mary's (Roehampton) Hospital, and has been invited to become a governor of the hospital. During his term of office at the Ministry of Pensions the standardization of component parts of artificial legs was accomplished, and in a very large measure the work attached to the development and provision of the improved light metal limbs for ex-Service men and others fell upon the director. Sir Charles Kenderdine was one of the founders of Queen Mary's (Roehampton) Hospital for sailors, soldiers, and airmen who lost their limbs in the war, where approximately 25,000 officers and other ranks have been fitted with their first and second limbs, and attendances for renewals and repairs of limbs have been approximately 50,000. The facilities of the institution and the experience gained by the surgeons in artificial limb fitting are now available for a limited number of civilian cases, particularly employees of railway companies who suffer amputation through accidents, also such cases from the hospitals under the control of the London County Council and from voluntary hospitals. Sir Charles Kenderdine was also a founder and honorary secretary and treasurer of the Queen's Hospital, Sidcup, for the treatment of facial and jaw injuries incurred in the war, where over 5,000 officers and men were dealt with.

[1] National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock Square, W.C.1.

India

Health Services in North-West Frontier Province

The Government of the North-West Frontier Province has published a commentary on the annual statements of the hospitals and dispensaries in this part of India in 1932. Despite financial difficulties, progress was made in bringing increased medical facilities within reach of the population. A scheme for establishment of visiting medical centres was put into operation at the beginning of November in that year; the medical officers in charge of civil dispensaries were placed in visiting charge of certain neighbouring villages, where they afforded medical aid on one or two days in each week to the rural inhabitants. In the thirty-seven villages thus covered centres were established for the surrounding areas, and the total number of patients benefited was 19,579 during the two months. In spite of the obvious difficulties arising from the absence of the medical officers from their own dispensaries, where the people had learned to expect to find them, the scheme worked well, and, until funds permit the institution of more dispensaries, it will be continued for the present. During 1933 a trial is being given also to a scheme of subsidizing private medical practitioners who are willing to settle in such remoter areas. Three new dispensaries were opened in 1932 in outlying parts of the districts, and two in tribal territories. Special attention has been paid to the needs of women by the appointment of two more female sub-assistant surgeons, who have been posted to the tahsil headquarters hospitals at Swabi and Nowshera. The number of patients treated in all the various hospitals and dispensaries rose from 1,319,867 in 1931 to 1,524,981 in the year under review. A large proportion of the work was conducted in private non-aided hospitals, and the excellence of their service is gratefully acknowledged. Voluntary contributions towards the cost of Government institutions are lower than they should be, one reason assigned for this being a prevalent impression that the upkeep of these hospitals and dispensaries is solely a Government matter, and that any money contributed voluntarily is merely saving Government money. The need is felt for some energetic and powerful personality who would devote himself to publishing appeals and educating the native public as regards their responsibility in the work of helping the hospitals to cope with the immense volume of human suffering. Even at the Lady Reading Hospital, Peshawar, which is more generously supported than some, there is urgent need of extra staff to cope with the steadily increasing work, as also for the provision of medical supplies in greater abundance. Colonel C. I. Brierley, I.M.S., Inspector-General of Civil Hospitals in the Province, mentions also in this report that tuberculosis is increasing in the areas under his supervision, and refers to a plan now under consideration for establishing a sanatorium and a hospital at Haripur.

the result of my experience I am determined that if I have to be operated on for gall-stones, even by such an expert as Professor Wilkie, I shall stipulate that if my gall-bladder contains apparently healthy bile and no gross disease of its wall, cholecystotomy without drainage shall be performed. I will take the one in fourteen chance of the stones re-forming.—I am, etc.,

London, W.1, Nov. 6th. VICTOR BONNEY.

Testimonials

SIR,—I am glad Dr. Robert Hutchison has registered a protest against the testimonial farce. It is my experience also that the candidate rarely acknowledges the receipt of his testimonial, which he has usually demanded by return of post. But I sympathize with the candidate who has to ask for documents which are required, while knowing that little attention will be paid to them. For anyone who has served on selection boards knows that testimonials really carry no weight and are scarcely looked at as a rule.

A comic incident in my student days occurs to me. A man was delighted to receive a glowing testimonial from a member of the staff and showed it to a friend, saying he had no idea he had produced so favourable an impression. To his chagrin his friend produced an identically worded one from his pocket. This amused me the more as I happened to have exactly the same one in my own pocket.—I am, etc.,

Cambridge, Nov. 4th. W. LANGDON BROWN.

Milk and Tuberculosis

SIR,—According to a report published in several of the newspapers of October 19th one of the speakers at a recent meeting of the British Dairy Farmers' Association informed his audience that "the talk of conveying bovine tuberculosis to human beings by milk was all humbug." To protect the public from this misleading and inaccurate statement we desire to put on record the following propositions as established beyond reach of challenge:

1. That raw milk as at present distributed for human consumption shows on an average presence of living tubercle bacilli in some 6 to 7 per cent. of the specimens examined.

2. That about 2,000 children die annually from tuberculous infection of bovine origin, while many others suffer disabling and deforming illnesses.

3. That these disasters are due mainly, if not entirely, to the infection of children through the milk supply. And

4. That pasteurization properly performed, or failing this boiling of the milk, reduces the risk of tuberculous and other milk-borne infections to the vanishing point.

For these propositions there exists a body of well-authenticated evidence, and the public interest demands that they shall be plainly stated and authoritatively affirmed.—We are, etc.,

DAWSON OF PENN.
HORDER.
MOYNIHAN.
Members of the People's League of Health's Bovine Tuberculosis Committee. FREDERICK T. G. HOBDAY.
WILLIAM G. SAVAGE.
London, Oct. 26th.

SIR,—Dr. A. G. Newell's letter (*Journal*, October 28th, p. 799) suggests—if I have not again misinterpreted it—that tuberculosis is mainly disseminated by milk which (1) gives rise to disease due to bovine bacilli in children, and (2) possibly causes disease in later life by virtue of mutation of bacilli to human type. Examination of the relative incidence of both types in tuberculous *disease* in children (as opposed to infection, where the type of organism cannot be ascertained) shows that the human organism predominates, except in cervical glandular disease, where about 50 per cent. of cases are bovine in origin. With regard to mutation of type, there is much clinical and bacteriological evidence against it and very little in favour. Even if it were a mutant of the bovine bacillus, the human organism (unlike other mutants) has lost none of its virulence for the human subject, and is transmitted from person to person without diminution of pathogenicity. It follows that the question of mutation is of no practical importance.

In conclusion, I agree that a clean milk supply is very desirable, but doubt its ability to influence the morbidity rate of tubercle. In my opinion, the attainment of a tubercle-free bovine population, while not shedding any light on the question of mutation of type, might give some idea as to how far our acquired immunity is the result of subclinical infection with bovine bacilli in childhood.—I am, etc.,

Dundee, Oct. 30th. G. WALKER.

Rest in the Treatment of Coronary Thrombosis

SIR,—Dr. W. M. Feldman's letter (*Journal*, October 28th, p. 796) on rest in coronary thrombosis raises many interesting points. That myocardial rest is essential in the condition I think everyone admits, but I would point out that myocardial rest should involve many factors other than mere physical rest of the patient by keeping him in bed. The viscosity of the blood, blood volume, the degree of peripheral constriction, may all be mentioned. From many observations and experiments which I have made in these cases I am convinced that *coronary thrombosis is simply a local manifestation of a general blood condition*, my conception of the condition being that, owing to various causes, one of which is certainly fatigue, we get an increasing viscosity and an increased coagulability of the blood, which puts an increasing load on the heart, and results in myocardial overwork and fatigue. The circulation thus becomes slowed, and when this slowing reaches a certain point the blood tends to clot at any place in the vascular system where there is a damaged vessel—for example, the coronary artery if it is sclerosed, the axillary if that is damaged, or a varicose vein.

I have accumulated much evidence in support of this, both from direct examination of the blood and from the histories of cases. With some I think I dealt fully in my St. Cyres Lecture. When coronary thrombosis occurs the more rapid the unloading of the heart the better, and if the thrombosis is the result of a gradually occurring blood change it is to the condition of the blood itself that attention should be directed. Bleeding the patient as quickly as possible after the onset of the condition will not only give relief from pain, but will directly relieve the myocardium, not only by temporarily altering the blood volume but by decreasing the viscosity of the blood for a longer period.

If the above is correct the procuring of cardiac rest merely by resting the patient and doping him with morphine, without paying any attention to the immediate cardiac load, is obviously unsound. Physical rest is essential up to a point, but over-physical rest without attention to the blood condition is more likely to result in further slowing of the circulation and extension of the thrombosis than anything else. The type of case in which prolonged rest, using the word "rest" in the broadest possible sense, is essential is the one that is characterized by

prolonged or recurrent pain, a very weak, feeble, or absent first heart sound, a weak, small, rapid pulse, a low blood pressure (below 100), an extensive pericardial rub, multiple extrasystoles, and a grossly modified electrocardiogram in all leads.—I am, etc.,

London, W.1, Nov. 2nd. J. STRICKLAND GOODALL.

Acclimatization to Oxygen Want

SIR,—Dr. Raymond Greene, in a very interesting and unique article in the *Daily Telegraph* of October 24th, describes the loss of stamina experienced by the recent Everest climbers near their goal. He states that, owing to longer acclimatization, the climbers this year were much easier as regards respiration when approaching 28,000 feet, requiring only two or three breaths for each step forward compared with ten breaths required in the previous expeditions. I have always believed that some distinguished physiologists, both in this country and in America, have placed too much stress upon the importance of respiration as the deciding factor in power of acclimatization to want of oxygen. In 1927 (*Journ. Physiol.*, lxii, 335) I carried out a series of experiments on various kinds of animals which proved that regulation of breathing does not play the chief part in acclimatization. These experiments showed that in cats and rabbits the breathing was affected to a similar extent, yet the cats did not acclimatize at all, whilst rabbits exhibited great powers of resistance to oxygen want.

Dr. Greene also points out that all the climbers exhibited deterioration, and he is inclined to think that other privations—for example, cold, wind, uncomfortable and often sordid conditions of life, snow, nervous strain, and monotony—play a part, and he suggests that chronic shortage of oxygen may not be the important cause of this deterioration. I tested this point some years ago and found that my animals, although suffering none of the above trials—except the want of oxygen—all showed deterioration similar to that described for the climbers. Oxygen want is therefore the chief cause of the deterioration. Further, if the oxygen want is pushed too far, the deterioration persists in the animals. Great care is thus required when the climbers show evidence of deterioration.

My experiments have been carried further than those of other research workers and than any of the Everest expeditions, some of my animals having survived after eight days under oxygen pressure equivalent to an altitude of 30,000 feet. The conclusions are that, however well acclimatized the animals may be, the best of them reveal marked lowering of oxygen tension in the tissues, which is held responsible for the loss of weight, pathological changes, and progressive deterioration. The main factor in deciding final power of acclimatization to oxygen deficiency is the heart muscle. All organs must be, and are, affected, but the heart is the organ which decides to what level the oxygen tension in the tissues will fall. This conclusion is reached after about ten years' experiments dealing with oxygen want in the tissues, produced not only by low oxygen pressure but also by chronic carbon monoxide poisoning; the details of these experiments have been published. Some mice, very carefully and slowly acclimatized to 0.3 per cent. carbon monoxide in the inspired air, maintain their growth and body weight but lose fertility. Thus they cannot be said to be fully acclimatized. In these mice the heart is much hypertrophied, probably due in part to increased viscosity of blood produced by the great increase in red corpuscles. This hypertrophy indicates strain upon the heart, and undoubtedly such hypertrophy could be similarly produced in carefully graded experiments with low oxygen pressure in the air, which also causes increase of red corpuscles. Dilatation of the heart occurs in the latter case, and also precedes the hypertrophy in the carbon monoxide experiments.—I am, etc.,

J. ARGYLL CAMPBELL.

National Institute for Medical Research, Hampstead, N.W.3, Oct. 30th.

The Growing Eye

SIR,—As I was unable to be present at the Dublin Meeting may I be allowed to make a few comments on Dr. Arnold Sorsby's very interesting paper on "The Control of School Myopia," published in your issue of October 21st?

At birth a baby's eye is usually hypermetropic merely to the extent of +3 D, although the axial length is only about 16 mm. and Weiss says that it attains its standard length (more than 24 mm.) at the age of 8. The diameter or width of the cornea has nothing to do with its refraction, which only depends upon the curvature of its surface, and although this measurement can be easily made with an ophthalmometer I am not aware of any measurements having been made. It is quite probable that the cornea of a baby is far more curved than that of an adult. The lens of a baby we know to be very small and far more spheroidal in shape than that of an adult. As the baby's lens is much more curved than a fully grown lens it is obvious that it must be of much higher power. Priestley Smith has taught us that the growth of the lens on its capsular surface is normally continuous throughout the whole period of life; hence the lens is steadily increasing in size and its anterior and posterior surfaces are becoming less curved—that is, the lens is decreasing in power.

It is clear that the refracting power of the eye is decreasing while the length of the eye is increasing in the first decade, so that we cannot assume that the anterior segment of the eye undergoes no change in its refractive power. However, as the accepted latest constants of the eye are only to be found in a few of the more recent books, it will be well to give the formula for the correction of an ametropia due to an excess or defect in axial length of the standard eye.

We know that in any refracting system which forms an image at q of an object at p the following relation between the height of the image (i) and that of the object (o) holds:

$$\frac{i}{o} = \frac{F'}{F' - p} = \frac{F' - q}{F'} \quad \therefore (F' - q) = \frac{F'F'}{F' - p}$$

But $F' - q$ is the excess (L) or defect in length of the eye, and as the correcting lens is theoretically assumed to be 15.7 mm. in front of the cornea—that is, in the first focal plane of the eye (F')—and as the power of the correcting lens for distance must be such that its focal distance must be p, the distance of the *punctum remotum* from the lens, D or $\frac{1,000}{F' - p}$, must be the dioptric strength of the correction. We have then

$$L = \frac{(17.054)(-22.785)}{F' - p} = -0.388575 \text{ D}$$

For practical purposes we may take $L = -0.39$ D, and $D = -2.57$ L. If the eye be 8 mm. too short, L is negative and D is over +20 dioptres, but as the correction must be made in the eye itself a corneal contact lens of 30 D would be required and a still higher addition in power to the lens of the eye, if the cornea remained of standard curvature. Dr. Sorsby's figures are quite correct, but I suggest that the decrease in refractive power of the eye in early childhood is due to both corneal and lenticular changes due to growth.—I am, etc.,

A. S. PERCIVAL.

Shenley, Woking, Oct. 31st.

every student has at least some concrete knowledge of bodily structures from his work in the dissecting room. Whereas the nature and structure of the mental processes are a *terra incognita* that is rendered all the more deceptive and obscure from the almost universal illusion of educated men (of which Dr. Ross provides a timely example) that the processes of the mind are an open book for all who run to read.

There is no other way, unfortunately, of dissolving this illusion and of converting theoretical opinion into empirical knowledge except by the way of individual analysis. It is, of course, possible to demonstrate selected case histories as examples of this or that theory of unconscious causation; but when students make the discovery, as eventually they surely will, that the empirical foundation of what has been taught them is to a large extent not only questionable, but absent, there will be a perfectly understandable and disastrous recoil. In science there should be no false currency.

It is not a question in the least, as Dr. Ross supposes, of the authority of one school versus another. If it were merely a question of authority I should say with him, "A plague o' both your houses." The truth is that psychological research is leading us to question whether the postulates which are presupposed as self-evident in the realm of natural science are also valid for the realm of the psyche. This question cannot be decided out of hand; but, to my mind, it would be a great error if medicine became responsible for a psychology which, through the inadequacy of its basic postulates, became increasingly impotent to deal with essential human problems. The inherent difficulty of practical demonstration could be dealt with only by limiting analytical preparation to those who intended to practise as psychotherapists.

Dr. Ross has enumerated revered names of the past who achieved therapeutic results without any knowledge of deep analysis. There were also honoured names in surgery before the knowledge of asepsis. But it can scarcely be believed that a Déjerine or a Janet coming to the maturity of his powers at this present time would be tempted to ignore the incalculable potentialities of psychological insight offered by the systematic analysis of dreams and fantasies. To have gained a standpoint from undeniable facts of one's experience is not forthwith to be identified with the state of a hypnotized subject, as Dr. Ross seems to suggest; nor does it render one incapable of critical detachment.

Beyond all the warfare of opinion there is surely a vast and almost unexplored territory to be experienced by daring minds. What we know of this obscure realm is its merest fringe. The welter of opinion and speculation that already swells our libraries is really but the measure of our ignorance. For the present, therefore, it is better to know our own ignorance than to pretend that all this opinionating is scientific knowledge.—I am, etc.,

H. GODWIN BAYNES.

London, N.W.1, Oct. 31st.

*** This correspondence is now closed.—ED., *B.M.J.*

Parotid Cysts and Tumours

SIR,—Mr. Mintzman's report, on page 820 of the *British Medical Journal* of November 4th, recalls an unusual case of parotid tumour (not a cyst) encountered by me a few months ago at the Hampstead General Hospital.

A slowly growing mass, the size of a small walnut, had existed for two years in the lower part of the left parotid region of a young man of 28, and had been diagnosed as a sebaceous cyst. This diagnosis seemed erroneous, because the tumour was entirely deep to the skin, which was freely movable over it. Although the possibility of a parotid tumour occurred to me, I considered the mass to be probably a branchial remnant.

At operation, under local anaesthesia, an attempt neatly to shell it out failed, and ended in a deep incision into tissue which microscopically strongly suggested parotid gland. An immediate biopsy by Dr. Rickward Lane elicited the report "salivary gland."

The patient was left with a cigarette drain in one end of the sutured wound, and I was left with an uncomfortable foreboding of an intractable salivary fistula. But the wound healed by first intention.—I am, etc.,

H. LAWSON WHALE, M.D., F.R.C.S.

London, W.1, Nov. 6th.

SIR,—I have read with interest the article of Mr. J. Mintzman on a case of parotid cyst. A closely similar case occurred in my surgical practice during the month of September of this year.

The patient, a man aged 68, had a soft swelling in the parotid gland on the right side, about the size of a medium-sized orange. A diagnosis of a mixed parotid tumour had been made and was confirmed by me. There was no sign of malignancy present, but as the tumour was getting larger it was decided that operative intervention was necessary. At operation a large tumour was found in the substance of the parotid gland, and dissected out. When cut into after the operation the tumour was discovered to be a cyst containing thick brown fluid. The pathological report stated that the cyst wall was lined by a single layer of flattened epithelium, outside which was a fibrous coat. On the outside of the fibrous coat were attached some fragments of parotid salivary gland. After the operation the wound healed well. The patient was, however, left with a partial facial palsy. During the operation the facial nerve was not seen at all.

As regards the nature of this cyst I am inclined to consider that it was originally a mixed parotid tumour which had broken down and degenerated. The textbooks of surgery, although they mention parotid cysts, are lacking in describing their origin. There is not much evidence that these cysts are true retention cysts.—I am, etc.,

MAURICE LEE, F.R.C.S.,
Honorary Surgical Registrar, Royal Waterloo Hospital for Women and Children.

November 6th.

Christine Murrell Memorial

SIR,—Many friends and associates of the late Dr. Christine Murrell will wish to give expression to their affection and gratitude in a way that will perpetuate her memory and at the same time help to carry forward the work of which she was so enthusiastic a pioneer. The St. Marylebone Health Society is shortly going to build a new infant welfare centre and day nursery on the site of the centre where Dr. Murrell started an infant consultation in 1907, worked for eighteen years, and then became honorary consulting physician. This land has been presented by Captain the Hon. Gerald M. Portman. It is felt that the memorial to Dr. Murrell could take no better form than a contribution to the permanent equipment of part of this building, with which it is hoped to associate her name.

Contributions will be gratefully received by Mrs. Russell Brain, 31, St. John's Wood Park, London, N.W.8. Cheques should be made out to "Christine Murrell Memorial Fund," and crossed "Westminster Bank, St. John's Wood, N.W.8."—We are, etc.,

E. HONOR BONE.
R. LANGDON-DOWN.
MARIE LAWSON.
MABEL L. RAMSAY.
*** ERIC PRITCHARD.
CHARLES PORTER.
SOPHIA SEFKINGS FRIEL.
GRACE BUCKLEY.
MARY MOSTYN BIRD.
STELLA BRAIN.

November 6th.

Obituary

SIR GEORGE MAKINS, G.C.M.G., C.B., LL.D., F.R.C.S.

Consulting Surgeon, St. Thomas's Hospital; Past President, Royal College of Surgeons of England

The news of the death of Sir George Makins will be received with profound and widespread regret. He passed away on November 2nd, after a three weeks' illness, and on the day of the completion of his eightieth year.

His father was a medical man, but his chief interests lay in chemistry and metallurgy, and he was adviser to the Mint in matters concerning the coinage; he also became Master of the Apothecaries' Society in 1889. George Henry Makins was educated at the King's School, Gloucester, and in 1871 he joined St. Thomas's Medical School, starting work in the dissecting room under Rainey, with William Anderson as demonstrator. He qualified at the Apothecaries' Hall in 1875, taking the M.R.C.S. in the same year and the L.R.C.P. in 1876. After qualifying he had a somewhat varied experience, his first appointment being at Bethlem Hospital, where he started his lifelong friendship with George Savage, and this was followed by a house-surgeoncy at the Seamen's Hospital, Greenwich, under Davies Colley. He then returned to St. Thomas's Hospital, first as house-physician to Bristowe and Stone, and then as house-surgeon to Mason and MacCormac. After this he studied for a time at Halle and Vienna, and on returning to London he worked with Roy at the Brown Institute. Even at this early stage in his career his judgement and aptitude for affairs were such that MacCormac asked him to act under him as secretary to the International Medical Congress held in London in 1881. This was a very arduous task, but Makins always looked back on it as having given him a valuable introduction to many notable people. These appointments and this varied experience preceded his real apprenticeship to surgery, which began with his election as resident assistant surgeon at St. Thomas's in 1883, R. Percy Smith being his colleague on the medical side. Both of them had a common interest in music, Smith playing the piano and Makins the 'cello. This interest in music was a solace to him throughout his life. The resident assistant surgeoncy was then as now one of the blue ribands in surgery for a rising man, though in those days the actual amount of operating was immensely less than is the case nowadays. It was terminated by his marriage in May, 1885, to Mrs. Fellowes, one of the hospital sisters. She was a daughter of General Vesey Kirkland and widow of Major-General E. Fellowes. Her widespread sympathies and varied fields of activity made her known and loved by people of all classes, and those who had the privilege of her friendship will preserve an abiding memory of a gracious lady who shared in her husband's interests and career to the very last.



Soon after his marriage he moved to Queen Street, Mayfair, and as surgical registrar to St. Thomas's and assistant surgeon to the Evelina Hospital and to the Great Northern Hospital; he was fairly launched on his career as a London surgeon. In 1887 he was elected assistant surgeon to St. Thomas's, and in addition to his hospital work he at once started teaching in the anatomy department, attending in the dissecting room for five afternoons a week, from 1887 until 1899, when he succeeded R. W. Reid as lecturer, sharing the lectures with William Anderson. He always felt that he had devoted too much time to anatomy, time which he could have devoted more profitably to surgery. His gifts for managing men and affairs were soon appreciated, and within four years of joining the staff he was elected to succeed Nettleship as dean of the Medical School. He was both conservative and constructive, and it was he who evolved the scheme for the building of the two wings to the Medical School at St. Thomas's.

At the outbreak of the Boer war he proceeded to South Africa, in company with Sir William MacCormac, as a civilian consulting surgeon. He reached the Cape in November, 1899, and treated the wounded at the base and front during the fighting about the Modder River and during Roberts's advance to Bloemfontein and Pretoria. It was at this time that he commenced his study of wounds of blood vessels. Cuthbert Wallace was also out there, and was to be associated with him again in the great war. Lady Makins, who had seen military service before this war, also went to South Africa and helped to nurse the wounded. They both returned home in 1900, and his experiences of military surgery were collected in a book, entitled *Surgical Experiences in South Africa*. This book had a great success, and it became the textbook of the Staff College. It was republished in 1913, and was largely used in France, Germany, and elsewhere. From the time of his return from South Africa to the outbreak of the great war Makins was in the full flood of a great success with a big practice, regular hospital work, attendance at medical societies' meetings, examinerships for the Royal College of Surgeons, the Navy, the Army, and the Indian Medical Service, and with a reputation for sagacity and willing helpfulness which inevitably brought him into active touch with most of the medical problems of that time. His social interests and his popularity were shown by his election as a member of the Sydenham Dining Club and of the Wilkes XV Club, of which he was chairman up to the time of his death. He was also an old member of the United Hospitals Club (St. Thomas's and Guy's), and he and Golding Bird were the chairmen at the centenary dinner of that club in February, 1928.

In June, 1901, he was invested with the insignia of C.B. by H.M. King Edward VII. In July, 1903, he was elected a member of the Council of the Royal College of Surgeons, and this he held until 1920. In 1909 he paid a visit to the United States. In 1910 he was appointed treasurer of the International Medical Congress in conjunction with Sir Dyce Duckworth, and in the same year he moved to 49, Upper Brook Street. In 1913 his appointment as surgeon to St. Thomas's terminated, but his colleagues paid him the unusual honour of electing him emeritus professor for a further period of two years, with a limited number of beds.

At the commencement of the great war Makins was fully occupied working for the British Red Cross at Devonshire House, but in September, 1914, he left for France as consulting surgeon, with Bowlby for a colleague. He landed at St. Nazaire, and gradually made his way to Paris, where he worked in the British hospitals. From there he moved with G.H.Q. to St. Omer. After a comparatively short time at Boulogne, at which place he was helped by Burghard and Sargent, he finally took over the supervision of the newly established hospital centres at Camiers and Etaples. There he established a research ward wherein new methods of wound treatment were put to the trial. From there he often made trips up the line to the front, where he was always heartily welcomed. In July, 1917, he left France, having been accorded the supreme position in British surgery in his election as President of the Royal College of Surgeons; but an invitation from the Government of India to be chairman of a Commission to report on the British station hospitals there involved an absence from his presidential duties of seven months, during which time Charters Symonds acted for him. He was made brevet lieutenant-general, and travelled over 11,000 miles in his special train in India, inspecting and reporting on hospitals all over the country. While in India he first heard of the great distinction which the King had conferred upon him, in promoting him to be Grand Commander of St. Michael and St. George. He returned home from India in March, 1918, retiring from the service with the honorary rank of major-general. He resumed his duties as President of the College, performing them with great dignity and efficiency.

His long absences in France and in India, involving as they did a complete break in his private work, decided him to retire altogether from active practice, so in 1919 he left Brook Street and moved to Wilton Place. In the same year he received what he regarded as perhaps the greatest compliment of his life—a special dinner to him from the whole of the profession. In 1922 he was elected a director of the Clerical, Medical, and General Life Assurance Society, and this he retained until his death. He enjoyed this work very much, and always looked forward to the weekly board meeting with pleasure. His flair for affairs and the confidence he inspired in circles other than medical are well exemplified in his connexion with the Athenaeum. He was appointed a member of the executive committee of the club, and finally its chairman. It was during his chairmanship that the difficult problem of adding an additional story to the building was undertaken, and over this Makins spent a great amount of time and trouble.

In many other ways Makins did good work for his profession. He was a member of the Grand Committee of Governors of St. Thomas's, and finally one of the four almoners. He was also a very active member of the council of the Nightingale Fund at St. Thomas's. For many years he was treasurer of the Imperial Cancer Research Fund, and he was also chairman of the Distribution Committee of the Hospital Sunday Fund. He was always interested in post-graduate education, and was a member of the Athlone Committee. Among his many other distinctions he was made honorary LL.D. by the universities of Cambridge and Aberdeen in 1920. He was also awarded the honorary gold medal of the College of Surgeons in 1929 in recognition of his great services. He had been a member of the British Medical Association for close on fifty years. At the Annual Meeting in 1895 he was vice-president of the Section of Anatomy, and at the meeting in London in 1910 vice-president of the Section of Surgery, over which Section he presided at the Cambridge Meeting in 1920. In 1925-6 he was a member of the Association's Committee on Post-Graduate Education.

Perhaps the first thing that should be said of Makins is that he was the best-loved man in his profession, yet he was not a man who courted popularity; the dignity and reserve of his character forbade that, but the universal esteem in which he was held in whatever branch of work or service he undertook is a remarkable tribute to the essential greatness of his character. His thoughts, his actions, and his whole life were devoted to his profession and to St. Thomas's Hospital. A life so many-sided in its activities must be reviewed in some detail, and, naturally, his characteristics as a surgeon come first. He stood in the first rank; he was skilful, imperturbable, conservative, but resourceful. The many operations that he performed on colleagues, doctors, nurses, and their relations are a measure of the implicit confidence placed in his skill and judgement. A distinguished American surgeon once said of him: "He is a man one would choose to operate on oneself or one's family." His judgement was outstanding, and there are many who must have thanked him for operations he refused to do. Modest, unassuming, and capable, he won the highest place at his own hospital and among the profession at large, and it is not to be wondered at that he achieved a large surgical practice.

His high sense of public duty is obvious when one considers the immense amount of work he did on committees. In council he was cautious but constructive, but he could be very determined when he had once made up his mind, though the making of it up cost him anxious thought, and he sometimes spoke of the courage required even in small things, referring to himself as a "die-hard." He disliked argument, and if he disagreed with you he did so with a smile on his face. He had known many people, and was a mine of information about them. It was a pleasure to hear his endless store of anecdote, almost always starting with "I recollect," and delivered in that quiet, deliberate, and distinctive voice.

His appearance was very impressive; his innumerable wrinkles, his serenity, his striking features, gave an expression of great dignity and wisdom, but his smile was best of all. He had many little traits and peculiarities that his friends will love to recall. He said quaint things in a quaint and unexpected way. He was a climber and a dry-fly fisherman. He would go fishing in Norway with H. P. Hawkins, E. F. White, and others, and shooting with his old friend Sir John Rose Bradford in Wales, and the qualities here required seemed to be carried into his life. He was a town dweller, but he loved a garden and flowers, and he extended to them the care and skill that he bestowed on patients. Many will remember him in his gamekeeper's cottage at Hurstbourne, set on a knoll in a beautiful park in Hampshire, with the stream and the poplars in the distance; the fishing that he shared with his friends Savage and Sharkey; the annual cricket match he arranged with his hospital and the local talent; and the hospitality of Lady Makins and himself. They occupied this cottage from 1905 to 1920, and in 1924 he built a house at Oxhey, where he surrounded himself with flowers, starting from a bare field. Here he employed a gardener, whom he kept on though the gardener's diminishing strength failed to keep down the weeds. Nearby was a golf course, where he often played a foursome, and he would

laughingly say that the united ages of the participants were close on 400 years His final illness will never be forgotten by those who looked after him His cool courage his detachment, and his quiet humour were remarkable, while the peculiar distinction which was so characteristic of him throughout the whole of his life never forsook him to the end

It is hard to realize that Makins will be seen among us no more, but the man, his kindly and serene nature, his wisdom, and his smile, will long survive in the minds of those who knew and loved him

[The photograph reproduced is by Russell London

SIR ALEXANDER HOUSTON, K B E, C V O

D Sc M B F R S

Director of Water Examinations Metropolitan Water Board

Almost immediately after the announcement that Sir Alexander Houston had asked, on grounds of ill health, to be retired from the service of the Metropolitan Water Board at the end of the year came the news of his death, which took place at his home at Hampstead on October 29th



Alexander Cruikshank Houston was born in 1865, the son of an officer in the Indian Medical Service He was educated at Harborne, Warwickshire, and at Edinburgh and took his medical qualifications at Edinburgh University in 1889, going on to take the B Sc (Public Health) in 1891 and the D Sc in the following year. In that year also he gained the Gunning Victoria Jubilee Alison Prize in public health and medical jurisprudence For many years after embarking on his professional career he served the Local Government Board, now replaced by the Ministry of Health, in superintending a number of investigations, the first and most prolonged of which concerned lead poisoning due to moorland water supplies It was probably from this experience that his lifelong interest in water purification dated During this period also he worked for the London County Council on sewage disposal experiments at Crossness and Barking, a task which occupied him for two years, and for the same public body he investigated the bacteriology of milk, of watercress, and other foodstuffs When the Royal Commission on Sewage Disposal was set up in 1899 he served it as bacteriologist

All this was preliminary to the great work of his life, which began in 1905, when he was appointed director of water examinations of the Metropolitan Water Board, a post he held until his death He had previously been engaged as one of the experts in the arbitration proceedings arising out of the formation of the Board The Board was constituted to amalgamate eight companies which had been supplying London with water and to carry on the water undertakings of certain of the local authorities Within a few months of taking control the Board decided to establish a central laboratory for the chemical and bacteriological examination of the water supply, and of this department Sir Alexander Houston was chosen as the head It was a task for which he was excellently fitted by his previous training, and one also which appealed to his imagination "Water London" is an area extending from Ware, in Hertfordshire, nearly to Sevenoaks, in Kent, and westward as far as Ealing and Sunbury It comprises the Thames and the Lea as the principal sources of supply, and with a daily average output of 260 million gallons maintains some 1,200,000 separate domestic or business services Anyone who had the privilege of hearing Sir Alexander Houston lecture on his favourite subject, "The Watch on the River," with a description of the great reservoirs and filtration plants at Staines and elsewhere, realized how deeply he felt the responsibility of supplying a highly purified water to a population of seven millions That old water lord of London, Sir Hugh Myddelton, who in the reign of James I brought the New River from Hertfordshire to the metropolis, had in Sir Alexander Houston a worthy successor Houston's annual reports to his Board, the subject of lengthy reviews in these pages, were not merely memorandums of technical information, but were infused with the spirit of romance in the best sense of that often misapplied word He had a gifted pen, and contributed a good deal to scientific journals on water supply, sewage disposal, and food purification His monographs on 'Rivers as Sources of Water Supply' and 'Rural Water Supplies and their Purification' are classics in their line But most of his writing was in the form of reports to his own and other public authorities

No one in this country spoke with greater authority on the protection of water sources and the purification of supplies, and the steady work done over a period of twenty-eight years has been of the greatest value not only to the Metropolitan Water Board, but to other water authorities and to the cause of public health generally When he reached the age of compulsory retirement—namely, 65—he was retained in the interests of the public service and it was the hope of the Board that he would continue in his post for some years The report made by the Water Examination Committee to the Board when it was announced that for health reasons he must give up at the end of the year stated that "there can be little doubt that his world reputation as an expert has lightened the grave responsibilities of the Board as regards the safety of the metropolitan water supply, and tended to create a sense of security amongst those who watch over the health of the metropolis," and the Board itself placed on record its appreciation of his eminent, zealous, and devoted services

From time to time he was spared for other work He took part in the Belfast health inquiry in 1907, and was

bacteriologist to the Lincoln Corporation on the occasion of the typhoid epidemic in that city in 1905. In 1907 he served as British representative on the international commission of three experts to inquire into the quality of the Cairo water supply, and with the late Sir Alexander Binnie he reported on the water supply of Ottawa in 1913. He was an examiner in chemistry and physics for the Diploma in Public Health at Oxford University. Two years ago he was elected a Fellow of the Royal Society. Sir Alexander was a member of the British Medical Association, which he joined in 1906. In 1918 he was created Knight of the Order of the British Empire and Commander of the Victorian Order in the following year.

[The photograph reproduced is by Russell, London.]

FREDERICK JOSEPH WALDO, M.D., D.P.H.

Late Coroner for the City of London and Borough of Southwark

Dr. Frederick Joseph Waldo, who died at his house in Holland Park on November 2nd, was born in 1852, and was educated at Clifton, St. John's College, Cambridge, and St. Bartholomew's Hospital. In 1879 he obtained the diploma M.R.C.S., and in the following year graduated M.B. Cantab. He proceeded M.D. in 1884. Among his earlier appointments were those of house-physician to St. Bartholomew's Hospital and physician to out-patients at the Chelsea Hospital for Women. He was also connected with the City of London Chest Hospital and the East London Hospital for Children. He worked in the research laboratories of Pasteur in Paris, Koch in Berlin, and Pettenkofer in Munich. In 1896 he was called to the Bar by the Middle Temple. He was the first medical officer of health for the Inner and Middle Temples and the parish of St. George's, Southwark. He was also tutor in public health at St. Bartholomew's Hospital. In 1901 he was appointed City Coroner, which post he held until 1932, and became subsequently a J.P. for the County of London. There have been frequent references in these columns indicating the importance Dr. Waldo attached to his unique power as City Coroner of holding inquests on cases of fire, a duty which devolved upon him under the Fire Inquests Act, which is peculiar to the City. One of his chief desires was to see this power extended to coroners throughout the country. He reported that his insistence on an inquiry being held in every case of fire had brought about an immediate reduction in the number of City fires, and he contended that the certainty of an inquest being held in every case was a great deterrent to the endangering of lives and property by arson. He took an active part in the proceedings of the Medico-Legal Society, and was a past president and honorary secretary of the Coroners' Society. He was created a Knight of Grace of the Order of the Hospital of St. John of Jerusalem in England. He was a lecturer in medical jurisprudence to the Council of Legal Education in 1904, and four years previously had been Milroy lecturer at the Royal College of Physicians of London. An early publication of his that attracted much notice was "The Klosowski (Chapman) Antimony Poisoning Case," contributed to these columns in 1904. His special bent for historical research was evidenced in his article on the ancient office of coroner in the *Transactions of the Medico-Legal Society* in 1912, as well as in "The City of London Fire Inquests: their History, Working, and Results," which was published in the same year in the *Transactions of the Insurance Institute of London*. In 1920–1 he was Master of the Plumbers' Company, and was the author of the *History of the Worshipful Company of Plumbers of the City of London*, second edition, 1923.

A correspondent writes:

Dr. Waldo was the youngest son of Henry Waldo of Bristol, his family being of Huguenot descent. At Clifton he won the mile and hurdles. After spending some years in Paris and Germany, under Pasteur and Koch, he started private practice in Kensington, but his heart inclined towards public health and sanitation, and as medical officer of health for Southwark for many years he did excellent work in getting rid of unhealthy areas in that borough. When the post of medical officer of health for the City of London became vacant, he found himself for final selection with his old friend Dr. W. H. Collingridge (M.O.H., Port of London), in whose favour he retired, and the City coronership becoming vacant shortly afterwards, he was elected to that office with little opposition. Just previously he had married, so at about 50 years of age his domestic life was changed. It is probable that had he remained in bacteriological or research work he would have made a distinguished name in these branches of science, and he brought to his coroner's work the same thoroughness and keen investigation which characterized his previous activities. If his inquiries seemed sometimes prolonged, and wandered outside the scope of the inquiry, his intense love of detail and conscientious investigation must be the excuse. He was always patient and sympathetic with witnesses, but somewhat prolix in his observations to the jurors. Like some other coroners he liked to see his inquests properly reported, and would himself send reports of his cases to Editors with an embroidery that in 1907 landed a professional journal in damages for libel for some thousands of pounds. He wrote various treatises, including two on the history of the office of coroner and on fire inquests, which involved much original research, and his tenacious methods of investigation were exceedingly unpleasant for witnesses in suspected arson inquests. Dr. Waldo took a great interest in ambulance work, and was made a Knight of the Order of St. John of Jerusalem. His health was excellent, like that of all his family, and he played golf regularly till recent years. His eldest brother is a practising medical man in Bristol, aged 87 years.

WILFRID FAIRCLOUGH, M.B., B.S.

Hexham, Northumberland

Dr. Wilfrid Fairclough, who died, at the age of 52, on October 19th, after a short final illness, received his medical education at the University of Durham College of Medicine and at the Royal Victoria Infirmary, Newcastle-on-Tyne. He graduated M.B., B.S. University of Durham in 1906. He had a distinguished career as a student, and gained the Charlton Scholarship, also the much coveted Goyder Scholarship, which is for the best clinical student of his year. After spending six months as accident house-surgeon at the Royal Victoria Infirmary, he was house-surgeon to the late Mr. A. M. Martin. He was assistant to the late Dr. Andrew Smith of Whickham, and then joined Dr. Kendall of Hexham as junior partner. After his return from the war, on Dr. Kendall's retirement, he became senior partner, and Dr. Hurley joined the practice. He was granted the three war medals: "1914 Star," General Service medal, and the Allied medal for his war service. He was honorary secretary of the Hexham Division of the British Medical Association for seven years and chairman for six.

Mr. R. J. Willan writes: Dr. Fairclough was one of the most remarkable practitioners I have known. He was so good, his knowledge was so remarkable, he appeared to be a specialist in everything. He was equally at home with medical and surgical problems. He had a large outlook on life, and his personality was such that he was always on the most cordial terms with the other practitioners in his town and district. He was the soul of honour, and inspired love, affection, and confidence wherever he went. Nothing was a trouble to him, and

his services were willingly available for sick patients at any time, night or day, whatever their financial status During the last two years of his life he had ill health This was attributed partly to diphtheria contracted while a house surgeon and partly to dysentery acquired when serving at Gallipoli during the great war He was the very best embodiment of a medical practitioner The esteem in which he was held by the whole community was testified to at his funeral by the crowded congregation in Hexham Abbey to do honour to his memory Despite the size of the church a large number were unable to obtain seats As he had lived and practised so was he regarded He leaves a wife one daughter, and two sons

Dr Monica Bell writes By Dr Fairclough's death the whole district round Hexham lost a friend in every sense of the word Intensely loyal to all his colleagues, always ready to give his advice and help ungrudgingly, never too tired, though he worked so hard, to come out to see a case at any time of the day or night, he inspired confidence in the doctor he was helping and in the patient as well He had a tremendous human interest in his patients and they felt as we did, that they had not merely a skilled doctor, but a true friend He had a great sense of humour, and never in the ten years I knew him so well did I ever see him ruffled in temper, or out of patience, or too hurried to stop and give me a word of help and encouragement

Dr R A McK Dickson writes Fairclough very rapidly developed a large country practice by his outstanding ability and soundness of diagnosis During the war he was actively engaged in the R A M C in Gallipoli, Egypt, and France He contracted dysentery at this time, which undoubtedly caused much of his later ill health, and probably hastened his untimely end at the age of 52 After the war Dr Fairclough returned to Hexham, where his services were widely sought after, in a large rural area, not only by his patients, but by many colleagues in neighbouring country towns and districts By these latter he was held in the very highest esteem, an inspiration and ever present help to his younger fellow practitioners, whom he was always ready to help and encourage For many years he was secretary and chairman of the Hexham Branch of the British Medical Association, and held the post of certifying factory surgeon for the district in which he practised It was a sad thing to see his exceptional ability and love of his work so often marred by many breakdowns in health but his splendid courage and cheerfulness in these many trials were an example to all In the more intimate circle of his home Dr Fairclough's personality and charm were never to be forgotten His love for children, animals flowers, and all the beauties of nature he carried with him wherever he went Widely read, not only in current and historical medical literature, but in the classics also, it can be well said that Wilfrid Fairclough got the best out of life, and radiated it to everyone Quiet and retiring by nature, he shunned publicity in all its forms His early death is a tragic loss to all who were privileged to know him

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Dr Lewis Evan Parkhurst, who died recently at his home in Brackley, Northants at the age of 69, had been a member of the British Medical Association since 1896 He was educated at the Magdalen College Schools at Brackley and Oxford, Jesus College, Oxford, and St Mary's Hospital, where he gained the first open scholarship He graduated M B, B Ch in 1891, and proceeded M D three years later After holding house and other appointments at St Mary's Hospital, he returned to Brackley, where he devoted the rest of his life to general practice although handicapped by chronic illness throughout A good speaker, he took an active part in local affairs He was a keen student of Brackley history, and was particularly interested in the church A strong sense of humour, facility of expression, and a gift for friendship endeared him to his colleagues and patients He contributed articles on surgical and dermatological subjects to the medical journals

Dr Arthur Lionel Baly, who died on October 31st, was born in 1880, and received his medical education at Cambridge and University College Hospital In 1906 he obtained the diplomas M R C S, L R C P, and was then appointed house physician to the Victoria Park Hospital for Diseases of the Chest He subsequently became assistant medical officer at Lambeth Infirmary, and in 1911 was promoted to be superintendent, the name of the institution being changed shortly afterwards to Lambeth Hospital An active personality, Dr Baly entered with enthusiasm into the reform of the Poor Law administration locally, and played a prominent part in social work in Lambeth and in London generally For many years he was honorary medical officer to the Amateur Boxing Association, and did much to encourage this branch of athletics, particularly in the Boy Scout movement He was a founder of the Fitzroy Lodge Athletic Club, and devoted his spare time largely to amateur boxing in the metropolis

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With the death at the age of 64 of Dr Elizabeth Knight of Hampstead, shortly after a motor accident at Brighton, there passed one of the pioneers of the women's suffrage movement Her medical education was obtained at the London School of Medicine for Women, and she graduated M B Lond in 1904 She subsequently held appointments at the Evelina Hospital, the Waterloo Hospital for Children and Women, and Mount Vernon Hospital A militant suffragette in the early years of this century, she was prosecuted several times, and was once imprisoned Since 1907 she had been a member of the British Medical Association

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The Rede Lecture, which was postponed from the Easter term will be delivered by Sir Charles Sherrington Honorary Fellow of Gonville and Caius College, Waynflete Professor of Physiology and Fellow of Magdalen College in the University of Oxford at 5 p m, on Thursday, November 23rd in the Senate House His subject is 'Brain and its Mechanism'

Dr A E Barclay has been reappointed University Lecturer in Medical Radiology and Electrology from November 1st, 1933 to September 30th, 1936

Dr Graham Smith Dr Drury, and Sir F G Hopkins have been appointed members of the M D Committee

The *Cambridge University Reporter* for October 31st (p 236) contains an account of the discussion in the Senate House on October 24th of the amended report of the Syndicate on Medical Courses and Examinations (*British Medical Journal* July 1st p 29) The recommendations of the Syndicate will come up for approval at the congregation on November 17th at 2 p m

At a congregation held on November 4th the following medical degrees were conferred

M D—N L White H F Griffiths H B Stallard
M B, B Chir—L K Wills A G Cross
M B—O N Trowell

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The annual meeting of the Fellows and Members of the Royal College of Surgeons of England will be held at the College Lincoln's Inn Fields W C on Thursday November 16th, at 3 p m when a report from the Council will be submitted Fellows and Members can obtain copies of the report on application to the secretary and their names will be placed on the list of those to whom the report is sent annually, if so desired A copy of the agenda will be issued on or after November 10th to any Fellow or Member applying for one

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BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

The next examination for the membership will be held in January 1934 Particulars may be obtained from Professor W Fletcher Shaw, honorary secretary, at 58 Queen Anne Street London W 1

Medical Notes in Parliament

[From our Parliamentary Correspondent]

Parliament resumed its sittings on November 7th, when the House of Commons discussed disarmament. The session is to end next week; a new session will open with the King's Speech on November 21st.

Mr. Shakespeare announced on November 7th that up to October 31st 236 local authorities in England and Wales had submitted to the Ministry of Health resolutions declaring 1,265 areas, comprising 32,839 houses, to be clearance areas; 878 clearance and compulsory purchase orders affecting 23,012 houses were submitted for confirmation, and 519 orders made by 139 local authorities affecting 13,133 houses were confirmed.

The Road and Rail Traffic Bill

In the House of Lords on November 7th the Marquess of Londonderry moved the second reading of the Road and Rail Traffic Bill, which has already passed through the House of Commons. He said that while the Bill did not represent a final solution of the problems connected with the transport industry, it was a substantial contribution to the advancement of public safety and convenience and of a better and more economical organization of inland transport.

Lord Luke called attention to the serious position in which many voluntary hospitals were placed by being called on to treat large numbers of road motor accidents. Owing to their accommodation being occupied with such cases local patients had to wait considerable periods for admission. The hospitals did not ask that motorists should pay anything towards the cost of their buildings or equipment; what they asked was that they should be paid their out-of-pocket expenses for treatment. At present hospitals were only able to obtain payment of a small proportion of those expenses. He did not believe that motorists, if they really understood the position, would like to see these poor hospitals continuing to play the Good Samaritan in this way. No Road Traffic Bill could be considered satisfactory unless it enabled the hospitals to get back their out-of-pocket expenses incurred in treating road accidents. The Earl of Plymouth said that the question raised by Lord Luke in regard to the hospitals had been discussed on several occasions in that House. He knew that the representations which Lord Luke had made were always in the mind of the Minister, and what he had said would certainly receive consideration.

The Bill was read a second time.

Out-Relief Figures.—The total number of persons in receipt of out-relief in England and Wales (excluding persons in receipt of domiciliary medical relief only) at September 26th, 1931, was 786,771. The corresponding number on October 21st last was 1,106,871.

The Services

DEATHS IN THE SERVICES

Staff Surgeon William Thompson, R.N. (ret.), died at the Royal Naval Hospital, Yarmouth, on October 27th. He was the son of the late Robert Acheson Thompson of Sandville, County Kerry, and was educated in Dublin, where he took the L.R.C.S.I. in 1874 and the L.K.Q.C.P. in 1875. Entering the Navy soon after qualification, he retired as staff surgeon on March 31st, 1888. As surgeon of H.M.S. *Active* he served in the Naval Brigade in the Zulu war of 1879, was present at the action of Inyezane on January 22nd, 1879, formed part of the garrison at Ekowe with Colonel Pearson's column, and took part in the advance on Fort Durnford, was mentioned in dispatches, and received the medal for the Zulu war, with a clasp.

Lieut.-Colonel George Arthur Theodore Bray, D.S.O., R.A.M.C. (ret.), died at Ealing on October 30th, aged 69. He was born at Kaskemhook, South Africa, on April 27th, 1864, the son of the late Major-General C. F. C. Bray, was educated at King's College Hospital, and took the M.R.C.S., L.R.C.P.Lond. in 1888. After serving as house-surgeon at King's College Hospital, he entered the R.A.M.C. as surgeon on July 29th, 1890, became lieutenant-colonel on November 13th, 1912, and retired on April 27th, 1919. He was seconded for service in the Egyptian Army from February 11th, 1898, to December 20th, 1899. He served in the Nile campaign of 1898, was present at the battle of Khartum, was mentioned in dispatches in the *London Gazette* of September 30th, 1898, and received the medal, along with the Egyptian medal with a clasp; in the South African War from 1899 to 1902, taking part in operations in Cape Colony and in the Orange River Colony, and received the King's and Queen's medals, with two clasps to each; and in the war of 1914-18, in France and Egypt, was mentioned in dispatches in the *London Gazette* of October 7th, 1918, and received the D.S.O. in 1918. After retirement he served as recruiting medical officer at Bristol in 1919-20. In 1905 he married Angela, daughter of Dr. Thomas Laffan of Cashel, Tipperary, and had one son and two daughters.

Lieut.-Colonel William Stewart Nealor, Indian Medical Service, died at Maymyo, Upper Burma, on October 7th, aged 53. He was born on April 20th, 1880, was educated at Bart's, and took the M.R.C.S., L.R.C.P.Lond. in 1905, and later took the D.T.M. and H. of the London Colleges in 1929. He entered the R.A.M.C. as lieutenant on January 31st, 1905, became captain after three years' service, and joined the I.M.S. on March 31st, 1911, exchanging with Captain, now Lieut.-Colonel, C. J. Coppinger. He became lieutenant-colonel after twenty years' service, and was placed on the selected list for promotion on August 30th, 1931. He spent his service in military employment. During the war of 1914-18 he served in Iraq in 1914-16.

Major Charles Louis Richard Ronayne, R.A.M.C. (ret.), died on September 3rd, aged 58. He was born on April 20th, 1875, and was educated at Trinity College, Dublin, where he graduated M.B., B.Ch., and B.A.O. in 1900. Entering the R.A.M.C. as lieutenant on June 21st, 1900, he attained the rank of major on June 21st, 1912, and retired on August 11th, 1921.

Medical News

The Malcolm Morris Memorial Lecture to be given by Dr. R. O. Moon under the auspices of the Chadwick Trust, at Manson House, 26, Portland Place, on Tuesday, November 14th, at 5.30 p.m., will be devoted to a review of the present housing problem in relation to public health. The chair will be taken by Sir James Crichton-Browne. Admission free, without ticket.

A meeting of the Hunterian Society will be held at the Cutlers' Hall, Warwick Lane, E.C., on Monday, November 20th at 9 p.m., when Mr. P. J. Hannon, M.P., Dr. J. D. Rolleston, Dr. W. J. O'Donovan, M.P., and Mr. J. Hugh Edwards will open a discussion on: "That Alcohol is of Value to the Citizen." Fellows may bring non-medical guests (including ladies) to the meeting.

A lecture on "Ergot and Ergotism" will be given by Professor George Barger, M.A., D.Sc., F.R.S., before the Pharmaceutical Society of Great Britain, 17, Bloomsbury Square, W.C., on Tuesday, November 14th. The chair will be taken by the president at 8.30 p.m. Members are invited to attend with friends.

At a meeting of the Royal Sanitary Institute on November 24th, at Darlington, there will be discussions on "Water Supplies—Mechanical Filtration," to be opened by Mr. E. Minors, and on "The Co-ordination of Health Services," to be opened by Dr. G. A. Dawson.

The next quarterly meeting of the Royal Medico-Psychological Association will be held at 11, Chandos Street, W., on Tuesday, November 21st, at 2.30 p.m., when Dr. W. M. Ford-Robertson will read a paper on "The Blood Differential Picture in Mental Disorder, with Special Reference to 'The Lymphatic Reaction.'"

A variation of the usual type of Chadwick Lecture will be the "Bossom Gift" symposium on "The One Pipe System of House Drainage in Theory and Practice" to be held at the London School of Hygiene, Keppel Street, W.C., on Tuesday, November 21st, at 8 p.m. Mr. Alfred Bossom, M.P., under whose gift the Chadwick Trustees have arranged the symposium, will preside. The opener will be Dr. Charles Porter, president of the Society of Medical Officers of Health, on the historic, legal, and hygienic aspects of the one pipe question, followed by Mr. W. H. Draper on the technical problems.

We are asked to announce that admission to the special Saturday morning session on November 25th of the forthcoming Conference on Mental Health will not now be confined to medical magistrates. This session, at which Lord Horder is to preside and the subject for discussion is "The Medical Attitude to Crime," will be open to all medical men and women on presentation of visiting card. Full particulars may be obtained from the National Council for Mental Hygiene, 78, Chandos House, Palmer Street, London, S.W.1.

The annual dinner of the Prince of Wales's Hospital Reunion Association will be held at the Trocadero Restaurant on Thursday, November 23rd, at 8 p.m., when Mr. William Ibbotson will occupy the chair. (Price of dinner, exclusive of wines, 12s. 6d., to be paid in advance.) Applications to the honorary secretary, Dr. Bertram H. Jones, 47, Queen Anne Street, W., stating number of guests.

The ninetieth half-yearly dinner of the Aberdeen University Club, London, will be held at the Trocadero Restaurant at 7.30 p.m. on Thursday, November 23rd, under the chairmanship of Mrs. K. F. Trail, J.P., LL.D. The secretary's address is 9, Addison Gardens, W.14.

The next meeting of the Royal Microscopical Society will be held at British Medical Association House, Tavistock Square, W.C., on Wednesday, November 15th, at 5.30 p.m. Papers will be read by Professor D. M. Blair, Dr. F. Davies, Dr. W. E. Williams, and Mr. J. E. Barnard, F.R.S.

The annual clinical "At Home" of the Royal Dental Hospital of London will be held at the hospital (32, Leicester Square, W.C.) on Saturday, November 25th, at 2 p.m. The dinner of past and present students will take place at 7.30 p.m. at the Trocadero, when Mr. J. G. Turner, F.R.C.S., will preside.

A symposium on "Bread and Milk" has been arranged by the Food Group of the Society of Chemical Industry, to be held in the Hall of the British Medical Association, Tavistock Square, W.C., on November 23rd and 24th. It will be divided into three sessions under the respective presidencies of Professor W. W. Jameson, Sir John Russell, and Professor H. E. Armstrong.

The Fellowship of Medicine, 1, Wimpole Street, W.1, announces that a course of four lectures has been arranged by the London Child Guidance Clinic, to be given at British Medical Association House, Tavistock Square, W.C. The first two lectures, by Dr. William Moodie, will take place at 8.30 p.m. on November 13th and 15th. A week-end course in gynaecology has been arranged at the Samaritan Hospital for Women, Marylebone Road, on November 18th and 19th. There will be a fortnight's course in chest diseases at the City of London Hospital, Victoria Park, from November 13th to 25th. Other forthcoming courses include: venereal disease at the London Lock Hospital, November 13th to December 9th (afternoons and evenings); proctology at St. Mark's Hospital, November 20th to 25th; evening course in rheumatism, at the British Red Cross Clinic, November 21st to December 7th (Tuesdays and Thursdays at 8 p.m.); diseases of infants at the Infants Hospital, November 27th to December 9th; dermatology at the Blackfriars Skin Hospital, November 27th to December 9th. Individual clinics are available daily in various branches of medicine and surgery. Courses, etc., arranged by the Fellowship of Medicine are open only to members and associates.

The National Institute for the Blind has endorsed a resolution passed by the National Association of Blind Workers, deprecating the sale of cheap spectacles by departmental stores. The resolution urges that action should be taken by the Ministry of Health.

A conference of tuberculosis care workers was held at Tonbridge on November 2nd. Miss E. M. Allatt of the Kent Community Council presided and Colonel A. G. Barham, chairman of the Health Committee of the Kent Community Council, spoke. Dr. Harley Williams gave an address on the need for continuity of care in tuberculosis work.

On November 2nd Sir Richard Gregory, Bt., Editor of *Nature*, was admitted a Fellow of the Royal Society, upon his election under Statute 12, as one who has "rendered conspicuous service to the cause of science."

The Jewish Health Organization of Great Britain (Woburn House, Upper Woburn Place, W.C.) has arranged a series of popular lectures on health subjects, to be given at the Whitechapel Art Gallery, High Street, E.1, on Saturdays at 8.30 p.m., from November 18th, 1933, to January 13th, 1934. Admission free.

The autumn number of the *University of Edinburgh Journal* (Oliver and Boyd, 1s.) includes a long article on George Saintsbury, contributed by Professor Blyth Webster, a note on Thomas Carlyle by Sir J. M. Barrie, Chancellor of the University, and an account of some Edinburgh professors of "the weighty 'eighties," by Dr. David Rorie.

Election of Direct Representative upon the G.M.C.

At the Council meeting of the British Medical Association on Wednesday, November 8th, it was announced that Dr. H. Guy Dain of Birmingham had been approached to offer himself as a candidate for the vacancy among direct representatives for England and Wales upon the General Medical Council, caused by the death of Dr. Christine Murrell; and that Dr. Dain had consented to stand.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

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The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

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The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 24361 Edinburgh).

QUERIES AND ANSWERS

Recurrent Sebaceous Cysts

Dr. W. HASTINGS HARDY (South Croydon) writes: I will be very grateful for any information as to how I may prevent the recurrence of a sebaceous cyst. During the past seven years I have removed five complete and unbroken cysts, each time the size of half a grain of wheat, from the same place in a young woman now 25 years of age. They have occurred between the bridge of the nose and the inner canthus of the right eye. Fearing to leave a mark or a scar I have merely swabbed out the small cavity left after removal with strong antiseptics. Now another cyst is ripe for removal in identically the same place. Curiously enough, between October 14th, 1926, and April 9th, 1931, I removed thirty-one cysts from the scalp of the patient's father. These cysts varied in size from that of a small seed to that of a pigeon's egg. Some of these thirty-one may have recurred—it is difficult to say—but thirty of them were removed unbroken.

Recurrent Cellulitis of Lip

"J." writes: I should be glad to receive suggestions for the treatment of a case of recurrent cellulitis of the lip in a woman aged 58. The condition began several years ago with an erysipeloid, spreading, red, inflamed area, involving the upper lip and one side of the cheek. It subsided with fomentations to leave a smaller indurated area. It flares up at intervals of a few months, but never completely returns to normal. The lip appears permanently thickened. Artificial dentures are worn.

Hyperidrosis

Dr. D. M. MACDONALD (Alloa) writes: In reply to Dr. Adamson (October 28th, p. 806) and various other correspondents: The strength of constant current is 15 to 20 milliamperes for twenty minutes once or twice a week, the positive pole in the hand or on the back and the negative applied to the axilla. Hyperidrosis of the palms, an equally distressing malady, may be treated in the same way.

Vehicle Sickness

"E. H. D." writes from Australia in reply to "Yorkshire" (June 24th, 1933, p. 1138): I have prescribed chloretone capsules (5 grains) for car and train sickness with a fair amount of success. Take one capsule three-quarters of an hour before the journey begins, and, for a longer journey, repeat in three hours. In one case of train sickness 2 oz. of glucose brought complete relief within twenty minutes. Glucose is incidentally worth trying in many different kinds of nausea and vomiting, and is pleasantly taken in orange juice or dissolved in water with 4 grams of tartaric acid to the ounce of glucose. That "Yorkshire's" patient has suffered all her life suggests to me that glucose will be useful.

Income Tax

Car Allowances: Depreciation

"B.M./G.M., M.B." bought a car for £182 in May, 1927. What can he claim for depreciation as for the income tax year 1933–4?

*** On the basis of 20 per cent. allowance on written-down value the amounts which could have been claimed are as follows:

For 1928–29,	£182 at 20 per cent.	... ...	= £36
1929–30,	£182 – £36 = £146 at 20 per cent.		= £29
1930–31,	£146 – £29 = £117	,, ,,	= £23
1931–32,	£117 – £23 = £94	,, ,,	= £19
1932–33,	£94 – £19 = £75	,, ,,	= £15
1933–34,	£75 – £15 = £60	,, ,,	= £12

We advise our correspondent to communicate with his inspector of taxes, stating his desire to claim the allowances for past years as an "error or omission" in his return. The figures shown above should be set out in detail.

LETTERS, NOTES, ETC.

Procreation after Prostatectomy

Mr. ALEX. E. ROCHE, F.R.C.S. (London, W.1), writes: In the *Epitome* of November 4th (para. 315), we read that, according to A. P. Mathé and E. de la Peña, in a series of 147 selected cases of prostatic hypertrophy treated by transurethral resection "procreative capacity was not affected in the least." Since paternity following successful prostatectomy performed by other than transurethral methods is of extremely exceptional occurrence and doubtful proof, the unimpaired maintenance of previous procreative capacity after transurethral prostatectomy must be counted to the distinct advantage of this operative route if, indeed, it is an advantage that sexa- and septuagenarians should procreate. But what is the procreative capacity of the average patient who is prostatectomized? He usually has not a recent train of squalling babes to his credit. In fact, I do not remember one such. And how otherwise are we to judge of procreative capacity? By their fruits ye shall know them. If one considers the ages of their legitimate offspring the vast majority of candidates for prostatectomy are found to have been for many years resting on their procreative laurels, and their wives are usually beyond the child-bearing age. If the statement that "procreative capacity was not affected in the least" merely means that, in the great majority of cases it was *nil* after, as before, the operation, then the statement is not worth making, and there is no advantage, from the procreative point of view, in transurethral, as opposed to suprapubic, prostatectomy.

Recovery Wards

A correspondent writing in the October issue of the *St. Thomas's Hospital Gazette* stresses the need for "recovery wards" in his own hospital for the reception of patients "coming round" from operations. He suggests that two recovery wards should be set apart for this purpose, and that post-operation cases should go straight there from the theatre; they would remain in the recovery ward from one to five days, as occasion demanded. Of the present system he writes: "The stertorous breathing and other sounds that accompany recovery from deep anaesthesia are always distressing, and the average patient, who cannot discriminate between a major and a minor operation, frequently suffers intense unnecessary anxiety, as he is constantly reminded so grimly of his imminent ordeal. In cases of Graves's disease especially, when the patient is sometimes unavoidably lying in a surgical ward for upwards of a week for pre-operative treatment, the mental tension must be appalling. And for convalescents sleep is often made difficult by these constant disturbances."

The Skin as a "Balancer"

Dr. L. E. HERTSLEY (Natal) writes: We speak freely of hormone imbalance, and we are beginning to recognize some of the signs and symptoms of the condition. By so doing we imply the existence of something which partially or completely controls the interrelationships of the internal secretions of the body. Is there any organ in the body which can and does act as a hormone balancer? Frankly, we do not know. What are the qualifications for such a position? Presumably, it should possess most of the following characteristics: (1) glandular in function, with continuous and vigorous secreting powers; (2) having a reasonably stable physiological tonus; (3) in intimate relationship with the autonomic nervous system; (4) subject to considerable changes, physiological and pathological; (5) easily reached and affected by afferent impulses; and (6) quickly affecting other organs. In my book on *Skin, its Uses in Six Phases*, published in 1929, I suggested that this organ fulfils practically all these conditions, and may well serve as the hormone balancer of the body. I am not aware that this theory has been seriously considered by any scientific observer, so venture to raise the point again in the hope that some trained mind may commence the necessary investigations. The glandular character of the skin does not need to be stressed, but perhaps the following points are not generally known. In an average man weighing 150 lb. the surface of the skin measures 2,800 square inches, and each square inch carries from 500 to 2,500 sweat pores. This means that there are from two to three million sweat glands. They have an estimated secreting surface of 1,080 square metres, and the ducts have a total measurement of three miles! The quantity of sweat given off varies from 1½ pints to 2½ gallons in a day. A healthy man usually excretes 2 lb. in weight in six hours. The sebaceous glands are some 650,000 in number. Their ducts usually open into the hair follicles. They are found all over the skin, except on the palms and soles and on the backs of the distal phalanges. Of chemical constituents, the skin and its secretions are said to contain the following: keratin, kerato-hyalin, eleidin, melanin, ergosterol, cholesterol, olein, palmitin, stearin, lipase, phosphatase, diastase, triptase, urea, ptomaines, enzymes, urates, creatinine, amino-acids, ethereal sulphates, sodium chloride, phosphates, sulphates, calcium, potassium, etc. This being the case, it is a little difficult to suggest where the search for the new hormone should commence! The restoration of so many cases to health by "heliation," or sun-bathing, may surely be partly (or wholly) explained by the consequent improvement of skin health and the development of its normal hormone, which may act as the desired "balancer." The problem is a complicated one, but should prove all the more tempting to some of our younger scientists, who ever seek fresh fields to conquer.

Messrs. Watson and Sons (Electro-Medical) Ltd. announce the publication of the second edition of their twenty-page booklet on surgical diathermy. It contains a full description of their "chirotherm" apparatus, with instructions for use, general hints, and other relevant information, including a list of bibliographical references.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 41, 42, 43, 46, and 47 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 44 and 45.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 255.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

329 Dynamic Dilatation of the Thoracic Aorta

R. H. Bayley (*Amer. Heart Journ.*, June, 1933, p. 585) defines dynamic dilatation as a condition in which there is an increase in the lumen of the aorta without structural disease of its wall. This may occur as a result of alteration in the normal cardiovascular dynamics, the enlargement being sufficiently pronounced to produce suprasternal pulsation and sometimes relative aortic incompetence. Dynamic dilatation is not uncommon in young individuals affected with rheumatic aortic insufficiency, exophthalmic goitre, or cardiac neurosis. The author gives an account of three patients showing dilatation of rheumatic origin. In an investigation of eighty hospital cases of rheumatic aortic incompetence, it was found on *x*-ray examination that 8 per cent. had definite enlargement of the aortic arch. One of these patients with clinical aortic dilatation came to necropsy and was found to have a hypoplastic aorta. In rheumatic disease of the aorta the lesions are chiefly confined to the adventitia; this no doubt explains why no permanent dilatation occurs as a result of rheumatic involvement, and why rheumatic aneurysm is invariably of the mycotic type. In a series of sixty-four necropsies on patients suffering from rheumatic heart disease only one showed microscopical evidence of aortitis, and nineteen of the patients with aortic insufficiency had hypoplasia of the aorta. Among 263 cases of exophthalmic goitre between the ages of 14 and 31, 12 per cent. showed enlargement of the aortic arch, the dilatation not being so striking as in the rheumatic group. In a smaller group of cardiac neuroses the abnormality was observed in 9 per cent. It is believed that dynamic dilatation is far more common than the literature would indicate, and that it is of great importance because of the frequency with which it is mistaken for aneurysm.

330 Chronic Gastritis

N. Henning (*Med. Welt*, July 22nd, 1933, p. 1029) reviews modern knowledge of this condition, discusses aetiology, and summarizes his observations on 700 cases. Chronic gastritis, he states, is mainly a disease of the earlier years of adult life. Periodicity is much less characteristic for gastritis than for ulcer. Not infrequently severe haemorrhages occur in cases of gastritis without ulcer. The main symptom is almost continuous pain in the epigastrium, which is characteristically aggravated by mechanical factors—for example, filling of stomach, walking, lifting, or bending. Vomiting, "acidity," and digestive disturbances are not striking features. The tongue is not a good guide, but generally the teeth or gums show caries or pyorrhoea. Palpation of the epigastrium induces pain. The tendency is towards diminution of gastric acid or even achylia. Microscopical examination of the fasting stomach contents may be negative, or may show some increase in leucocytes. Usually there is an increased amount of mucus. No hard-and-fast rule can be laid down as to the type of acid curve which follows the fractional test meal. *X*-rays and gastroscopy are of great assistance in diagnosis. Treatment should be directed to limitation of exogenous factors, such as alcohol and tobacco, and search must be made for inflammatory foci in the mouth, gall-bladder, prostate—genital adnexa in the female—etc. In the absence of evidence as to aetiology, local treatment is applied—warm moist compresses, and gastric lavage. In the case of hypertrophic changes, erosions, or small ulcers, the author uses 1/4 to 2 per cent. silver solutions for lavage. When the mucous surface is foul he uses 1/2 per cent. hydrogen peroxide or lime-water. Sometimes atropine must be given, and in some cases HCl produces astonishing improvement. Diet should consist of soups, etc., rich in carbohydrate, with some butter to enrich the mixture; to this, eggs may later be added, and gradually the patient proceeds to meat and cellulose-poor vegetables. Alcohol, coffee, coarse bread, and coarse vegetables are forbidden. Surgical intervention may become necessary in cases of stenosis, suspicion of carcinoma, haemorrhages, etc.

331 Gastro-duodenal Ulcers

Reviewing the work of numerous investigators as to the origin of gastro-duodenal ulcers, R. Leriche (*Presse Méd.*, August 5th, 1933, p. 1234) reiterates his previous hypothesis that the crux of this question lies in the physiology of, and alterations in, the gastric mucus. Though certain ulcers are easily cured by simple medication, others appear to be incurable, and recur even after radical operations; this, Leriche claims, is due to not excising the actual anatomical lesion. He also believes that recurrence is due to persistence of an original single ulcer, that infection is not a causal factor, but that acidity plays an important aetiological part. The ulcer is only the last stage of a disease, perhaps more functional than anatomical, and the causal agent is very possibly a gastritis. The elective sites of these ulcers are the lesser curvature, antrum, and pylorus—that is, the zone of the glands with alkaline mucus which normally protects the antro-duodenal mucosa from the action of the acid gastric juice. Gastro-duodenal ulcers appear to be peptic ones developed on an alkaline mucosa, of which the specialized mucus has been modified by previous lesions of the mucosa due to hyperacidity, the peptic action being consequent on an abnormal excito-secretion of the fundus caused by antral lesions; the antrum is thus the site of origin of reactions ending in ulcer formation. The theory that an ulcer results from a suppression of Boldyreff's reflex is controverted. Believing that ulcers are caused by antral lesions which lessen the protective power of the mucus and cause hyperacidity of the fundal zone, Leriche maintains that operation should aim not only at excision of the ulcer, but at removing all antral stagnation and the acidogenous reflex. Thus he recommends excision of the entire antrum by an extensive gastrectomy, including the lesser curvature.

Surgery

332 Tuberculous Anal Fistula

C. L. Martin (*Journ. Amer. Med. Assoc.*, July 15th, 1933, p. 201) maintains that anal fistulas of tuberculous causation will heal after an adequate operation, provided that reasonable care is directed to the concomitant pulmonary disease. The removal of the septic focus, indeed, benefits the patient, especially if the area of suppuration is fairly large. Toxaemia is reduced, and the patient sleeps better. Martin bases these conclusions on seventy-five cases of fistula operations performed in the last five years. All the patients had pulmonary tuberculosis, and with only two exceptions it was active. In sixty-three cases the pulmonary disease had preceded the fistula by a few weeks to thirteen years; in ten cases the fistula had appeared before the lung involvement was suspected. Tuberculous granulation tissue was not found in any fistula which had had a longer duration than five years, and whether the process in these cases was primarily of tuberculous aetiology was undiscoverable. In the author's series the criterion of such infection is taken as the finding of tuberculous granulation tissue, and 56 per cent. of his cases proved positive. Martin states that the diagnosis in these cases must depend on the histopathological examination, because the gross, the clinical, and the bacteriological findings are indefinite or of no value. He believes that the percentage of tuberculous origins in fistulas occurring in the course of pulmonary tuberculosis is above 72. In 87 per cent. of the patients with pul-

monary tuberculosis on whom an operation for the removal of a fistula was performed the subsequent healing was complete. The remaining 13 per cent. were advanced cases, but, despite this fact, healing was proceeding in 10.4 per cent. of these up to the time of death. Other hints given by the author are that perianal abscess in a tuberculous patient should be incised as soon as it is diagnosed, and that if a sinus or fistula persists it should be operated on as soon as the general condition permits. He states that although no marked gain in weight is observable in some patients, a gradual improvement generally follows. In his series sixteen patients (20.1 per cent.) were made temporarily worse by the operation. Very few, however, had a marked reaction, and nearly all were suffering from large fistulas in advanced pulmonary disease. Even in this group the final results were good. No patient was made permanently worse by the operation.

333 Torsion of the Great Omentum

M. RENY (*Bull. et Mém. Soc. Nat. de Chir.*, July 15th, 1933, p. 1115), who reports a case of this condition in a woman of 36 years, emphasizes the extreme difficulty in making a correct pre-operative diagnosis owing to the fact that torsion of the great omentum is so frequently confused with appendicitis. Out of a series of 138 cases the diagnosis was exact in only eleven. In torsion, pain is usually acute, sharp, and intermittent, vomiting is rare or absent, constipation is not complete, rigidity is not marked, and there is no hyperaesthesia of the skin and no localized pain at any fixed point. The contours of the swelling are not well defined, but it is usually more elongated than an inflammatory swelling. The temperature may be normal. Diagnosis is difficult, as all the above characteristics are seldom found in the same patient. The mortality rate for cases of torsion of the great omentum is given as about 13 per cent.

334 Insulin in Surgery

G. BÜTTNER (*Med. Welt*, August 19th, 1933, p. 1137) discusses the surgical indications for prescribing insulin. He insists that it should be given with glucose before and after any operation on a diabetic. Recovery from surgical complications is more rapid under a well-balanced caloric sugar-containing diet; this increases the patient's power of resistance and the healing power of his constitution. The author has seen septic gangrene of the toes, accompanied by cellulitis of the leg and lymphangitis extending to the groin; and a carbuncle, four inches in diameter (in a comatose patient, when the slightest surgical intervention portended certain death), undergo spontaneous demarcation, following insulin-glucose treatment. In cases of deficient hepatic function, insulin-glucose transfusion should also be employed, in order to prevent the occurrence of "hepatic coma."

Therapeutics

335 Harmful Effects of Salt-free Diets

R. BAUER (*Wien. klin. Woch.*, July 7th, 1933, p. 854) draws attention to certain dangers which accompany a drastic restriction of the intake of salt. Salt-poor and salt-free diets are commonly employed in the treatment of hypertension, obesity, inflammatory diseases, some types of diabetes, and more recently—in the form of Gerson's diet in [illegible] has not a of migraine and tuberculosis. The credit. In fact, I do[illegible]cture of hypochloraemia, which otherwise are we to [illegible]ued vomiting or diarrhoea, has their fruits ye shall kn[illegible]f gastric and intestinal stenosis, of their legitimate offspr[illegible]yperemesis gravidarum, and in for prostatectomy are fou[illegible] on their procreati[illegible] with diets very poor in salt. [illegible]he child-ere is an associated r[illegible]se in the [illegible] capacity [illegible]od and a rise in the alkaline [illegible] in the gre[illegible]he alkaline side. In severe [illegible]he operation be mistaken for uraemic [illegible] there is n[illegible] nitrogen is not easy to [illegible]ew, in transu[illegible]y. that when the organism is depleted of salt, and hence of water, there occurs an increased breakdown of protein, which, in the presence of a fundamentally deranged kidney, leads to a rise in blood non-protein nitrogen. The symptom-complex may, it is thought, be precipitated, in cases on low salt intake, by diaphoresis, by diuresis, by gastric lavage, or even by paracentesis in cases of ascites. If, in ignorance of the basic cause, methods such as restriction of protein or infusion of glucose be attempted, no amelioration of the symptoms is attained. The only treatment, according to Bauer, is sodium chloride, administered by any available route.

336 Use of Anti-streptococcal Serum

J. P. WEILL (*Thèse de Paris*, 1933, No. 216) records fifty-one cases of various streptococcal infections with only two deaths in patients aged from 4 days to 65 years treated by injections of Vincent's refined and concentrated anti-streptococcal serum. The serum, which should be given as early as possible and in large doses, especially at the beginning of the treatment, may be injected subcutaneously, intramuscularly, or intravenously, and the injections should be continued until the certainty of recovery is established.

337 Rapid Immunization against Diphtheria

H. W. STRAUS (*Journ. Amer. Med. Assoc.*, July 15th, 1933, p. 192) used a concentrated diphtheria toxoid incorporated in hydrous wool fat for active immunization, and obtained immunity in 99 per cent. of 103 persons within two months following a single injection. In the majority of cases immunity developed in from three to four weeks and in one case as early as two weeks. The slow absorption and elimination afforded by the hydrous wool was probably mainly responsible for the good results obtained. The practical advantages of this method are the early development of immunity which it produces and the need of only a single injection.

Radiology

338 Short-wave Radiotherapy

H. DAUSSET (*Rev. d'Actinol. et de Physiothér.*, May-June, 1933, p. 216) discusses the technique involved in the employment of short waves of 12 to 20 metres produced by high-frequency apparatus, basing his conclusions on a personal study of 150 cases. He describes particularly the steps taken in applying to a patient rays of 15 to 18 metres, varying the individual dose from 400 to 800 watts according to the clinical indications. With this dosage it proved difficult to avoid some degree of burning during the stage of increased perspiration thus evoked; moreover, a long period of treatment was entailed. Dausset therefore used more often a dosage of 200 to 400 watts, which had a lessened pyrexial action while still securing the effects due to the impinging on the skin and tissues of high-frequency currents. He also tried a third technique, 300 to 400 watts being directed locally to such regions as the head, knee, sciatic region, or liver. The charge of empiricism can still, he thinks, be justly brought against all these methods, and future investigations must be directed to the study of the mechanism whereby are produced such undoubtedly beneficial sequels as follow deep thermal changes. Moreover, attention should be paid to the improvement of protective measures against skin and subcutaneous burning, and to the specific employment of these waves in mouth and liver disorders. Dausset mentions encouraging results obtained in resistant sciatica by directing the short waves from the thermax apparatus in small doses, the patient being so disposed as to bring the sciatic nerve into a situation in which the electrodes will be perpendicular to it. He has also found that falling out of the hair is often arrested in patients under short-wave treatment. In endocrine disturbances the treatment has proved effective in his hands, and mention is made of

a case of generalized cellulitis with thyroid deficiency in which it proved effective after specific opotherapy had failed. Dausset gives a long list of conditions in which short-wave therapy has proved beneficial in his own experience. He considers that this line of treatment is still in its infancy, and needs a greater measure of scientific precision as regards dosage and clinical indications than has yet been defined. One important matter awaiting elucidation is the degree of clinical benefit which is attributable to the passage of the rays through the tissues, independent of any thermal effects which they produce.

339 Modified Heliotherapy

C. H. Brody (*Bull. de l'Acad. de Méd.*, July 18th, 1933, p. 111) believes that certain views now commonly held regarding heliotherapy are erroneous. Cure does not depend absolutely on the degree of pigmentation, and the appearance of sudden, intense pigmentation is of serious prognosis, especially in cachetic cases. Pigmentation is only a phenomenon *accompanying* solar treatment, and is not the cause of cure. Brody maintains that the allergic state of the organism is a factor, and insists that the duration of daily exposures to the sun should be considerably reduced, otherwise the pigmentation becomes too intense, the photosensibility of the patient diminishes rapidly, immunity is established relatively quickly, and treatment is needlessly prolonged. In his opinion superpigmentation, superdosage, solar supersaturation, and continuous treatment are responsible for the lengthy duration of the classical method, necessitating many months, even years, of hospitalization. The daily exposure, depending on the climate, should not exceed one hour, the anterior surface of the body being exposed for thirty minutes and the posterior for the same time. This is maintained for three months, when the treatment is discontinued. Cessation of treatment should not be sudden, but the doses should be progressively reduced. In some cases treatment is given for three days and stopped for two; good results have been thus obtained. Brody combines heliotherapy with actinotherapy, giving the former in the morning and the latter in the evening. The use of different apparatuses (arc lamp, mercury vapour lamp, etc.), and exposures of different parts of the body, are advantageous. The employment of perpendicular heliotherapy is strongly advocated, the advantages of this being the suppression of the angle of incidence and consequently of the angle of reflection of the solar rays in the ordinary method.

340 Limitations of Gastro-duodenal Radiography

A. Dumont (*Le Scalpel*, June 24th, 1933, p. 945) discusses certain limitations to radiography in the diagnosis of gastric and duodenal conditions. The only truly pathognomonic sign is the niche, which must always be looked for. The stomach being of the same density as its surroundings, the thickness of its walls cannot be learnt by radiography. An ulcer can only be detected if sufficiently deep to form an excrescence on the mould (barium meal); even then a ray tangential to its surface (a radiograph in profile) is necessary. In thin or normal subjects in an erect posture this is obtained by placing the patient obliquely or in profile. In obese subjects placed erect the ulcer is undetectable; sometimes favourable results are obtained if the dorsal position is assumed. When the barium meal is very small it fills only the spaces between the mucosal folds, leaving the apices of the latter clear. Dumont gives a limited amount (not more than 250 c.cm.), and by palpation and moving the patient works the barium into all parts of the stomach. Sometimes it is arrested at the edge of a niche, and thus the existence of the latter is demonstrated. In hypertonic stomachs the barium rises rapidly in the gastric cavity. If the ingestion be stopped, the walls and mucosal folds can be examined after palpation, and sometimes a niche on the posterior surface is revealed. In dilated organs the barium accumulates in the fundus, and palpation is necessary to examine the walls and folds. By adopting the dorsal position the barium flows into the upper part of the stomach, which can then be explored. In the ventral posture the antrum is brought into explorable relief. The folds should be examined, since they take a radiated form around an ulcer. Dumont believes that a diagnosis of adhesion of an ulcer to adjoining structures is most difficult. Concerning the differential diagnosis between ulcer and tumour, he considers that the radiological signs are sufficiently characteristic in lesions distant from the pylorus; in other lesions he prefers to make a diagnosis simply of an existing lesion without further differentiation. In the diagnosis of duodenal ulcer the importance of the mucosal folds is emphasized. Normal folds are fine, approximated, and parallel to the great axis of the bulb, while those of a swollen mucosa are much larger with great intervening spaces. The multiple anatomical dispositions of the duodenum must also be considered—for example, if the second part lies directly behind the bulb and antrum the upper limb is seen in miniature and false images of niches are given.

Obstetrics and Gynaecology

341 Ectopic Pregnancy

An analysis of 108 cases of ectopic pregnancy has led J. F. Curran and R. H. Goodale (*New England Journ. Med.*, July 27th, 1933, p. 189) to emphasize the importance of obtaining a careful history, and performing a scrupulous physical examination when this condition is suspected. A review of their cases showed that all the patients gave a history of menstrual irregularity with abdominal pain, ranging from the colicky to the knife-like type. All had pain when the cervix was moved. In addition, the ruptured cases presented the signs of internal haemorrhage, such as weak pulse, pallor, sweating, bulging in a cul-de-sac, and occasional shifting dullness in the flanks. As regards diagnosis, while the Aschheim-Zondek test for pregnancy may be a real aid, its employment is often impracticable because of the inevitable delay of at least twelve hours. The authors, therefore, prefer the van den Bergh test, as described by Dumphy and Fallon, in which a positive delayed direct reaction, obtainable in a few minutes, indicates the presence of free blood. The vaginal bleeding in ectopic gestation is usually slighter than that in the case of an intrauterine pregnancy with threatened abortion; moreover, the discharge is dribbling, and brownish red. The cramp pains are usually severe at the outset, and very sharp and stabbing on one side. If there is much blood in the cul-de-sac there is also pain on defaecation. The treatment in this series of cases was excision of the affected tube, with supportive treatment in the form of saline infusions or blood transfusion. No evidence was obtained to support Polak's suggestion that repeated pregnancies may increase the liability to ectopic gestation. In the 108 cases there were six deaths: two patients died from paralytic ileus, one from thrombosis of the left common iliac vein with lung infarction, and two as the result of delayed surgery. Of the two latter deaths, there had evidently been in one instance a severe haemorrhage before the admission of the patient into hospital, surgery being attempted only as a last resort. A delayed diagnosis led to a fatal result in the other case.

342 Subtotal and Total Hysterectomy

With a view to assessing the relative merits of hysterectomy with and without conservation of the cervix, C. D. Read and A. C. Bell (*Journ. Obstet. and Gynaecol. British Empire*, August, 1933, p. 749) review a series of 2,344 consecutive cases at the Chelsea Hospital for Women in the ten-year period 1922 to 1931 inclusive. The supravaginal operation was performed in 1,739 instances (74.2 per cent.), the remainder being subjected to the total procedure. There were 359 morbid cases in the subtotal group (20.6 per cent.) and thirty-seven deaths, a mortality

rate of 2.1 per cent. In the total hysterectomy group the morbid cases numbered 164 (27.1 per cent.), and there were nineteen deaths, representing a percentage mortality of 3.1. The authors formulate the following conclusions. Each of the two operations has a definite place in gynaecological surgery. The immediate operative mortality is higher for the total than for the subtotal operation. The morbidity rate over all operations is higher after total hysterectomy; there is, however, only a slight difference when benign conditions of the uterus are alone taken into consideration. The sequels of the subtotal procedure are more numerous and of more serious consequence than those of the total operation. Taking into consideration the remote deaths due to these sequels, the remote mortality rate of the subtotal operation is raised appreciably. Most of the late sequels could be anticipated by a more accurate investigation of the cervix before operation, and by the more frequent employment of exploratory curetting to exclude malignant disease. The more general use of post-operative massage and exercises might diminish the incidence of pulmonary embolism. Reactionary haemorrhage and urinary fistulae very rarely occurred. In the total operation the use of silk in the neighbourhood of the vaginal vault offers a definite risk of sinus formation. The routine employment of total hysterectomy is not advocated, but the scope of the subtotal form is thought to be distinctly limited. The fact that few women who have borne children have completely healthy cervices should lead to the more general use of the total operation. The subtotal form is indicated for nulliparae with healthy cervices, when hysterectomy is required for a benign condition; in a few benign cases when the general condition of the patient is poor; and in benign cases when the operator is relatively inexperienced in gynaecological surgery. The total operation is demanded when the cervix is unhealthy; in cases of diseased appendages it removes the inevitably involved cervix, and provides vaginal drainage.

Pathology

343 Immunity in Experimental Syphilis

H. GROSZMANN (*Zeit. f. Immunitäts.*, July 20th, 1933, p. 495), before describing his own experiments, reviews the present position. Untreated rabbits in the late stage of syphilis usually show a chancre-immunity to the homologous strain, even though there is no general immunity. This chancre-immunity, or failure to react locally to superinfection, develops about eight weeks after the primary inoculation, and is fully developed after about three months. For its development a primary infection with a virulent strain and a good local reaction are necessary; full chancre-immunity does not usually follow primary infection with a weakly virulent strain or a symptomless infection. Syphilitic rabbits treated with salvarsan within forty-five days after infection only exceptionally develop a chancre-immunity; those treated forty-five to ninety days after infection frequently do, while those treated later than ninety days after infection almost invariably do. Real divergence of opinion, however, comes in over the existence of a general spirochaeticidal immunity in rabbits treated in the late stage of the disease. To throw some light on this problem the author carried out experiments in reinfecting after treatment in the late stage of the disease, using in most instances the same strain as that with which the original infection was brought about. Twenty-seven rabbits, infected with human syphilitic virus 118 days to 4½ years previously, were treated with large doses of neosalvarsan (three doses of 0.15 mg. per kilogram at intervals of a week). Twenty-nine days after the last dose they were reinfected intratesticularly or intravenously. Only one animal showed any local lesion after intratesticular reinfection. About seven to nineteen months after reinfection the animals were killed, and the glands, testicles, and viscera were inoculated into normal rabbits. In only five of the reinfected animals were spirochaetes found by this method. This experiment suggests that it is possible to produce a general immunity by adequate treatment, even in the late stages of syphilis. But it is probable that such a general immunity lasts for only a short time, because in a further experiment in which the reinfecting dose was given five and a half to seventeen months after treatment, every one of six rabbits was subsequently proved to contain living spirochaetes in its organs.

344 A "Metabolic Hormone" from the Pituitary Gland

H. MAGISTRIS (*Wien. klin. Woch.*, July 21st, 1933, p. 998) describes the preparation, properties, and physiological action of a new anterior pituitary hormone. It is stated that there can be little doubt that the anterior or adenohypophysis elaborates at least *four hormones*—namely, a growth-controlling, a follicle-ripening, a luteinizing, and a metabolism-controlling hormone. It is pointed out that most commercial preparations of anterior pituitary are mixtures of these hormones, so that interpretation of their action is impossible. The hormone controlling certain metabolic activities is prepared by this author as follows: glands from calves are obtained immediately after killing and the anterior lobes are dissected out and dropped into an acetone mixture. After continued extraction for some two days the gland residues are cut up into fine pieces, dried in a vacuum desiccator over calcium chloride, and finely pulverized. The grey-white powder thus obtained is active. It is extracted with sterile distilled water and centrifuged. The water-soluble part is freed from protein by physical methods, and the resultant solution contains the hormone. The activity of the hormone is demonstrated by its action on rabbits. The unit is taken as the minimum amount which, in a two-kilogram male rabbit, doubles the acetone bodies in the blood in five hours. It is shown that this hormone is distinct from the sex hormone, and that it does not produce its effect by a thyrotropic action. The metabolic hormone is soluble in water and dilute alcohol, but insoluble in ether, chloroform, and absolute alcohol. In animals it lowers the basal metabolic rate and increases the specific dynamic action of protein. It is present in small amounts in other organs, but nowhere so richly as in the anterior pituitary body. It is considered that the effects on metabolism produced by posterior lobe extracts are mainly due to the presence of the metabolic hormone of the anterior lobe. This hormone is also present in blood, in the *euglobulin fraction* of serum; it is increased in quantity after fatty meals, and during starvation, thus accounting for the ketosis which appears in these circumstances. The name "ovophysin" is proposed for it.

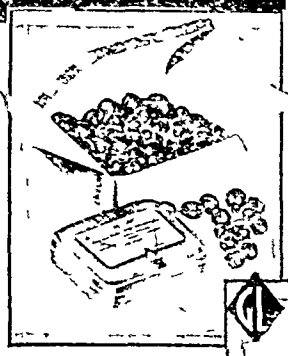
345 Bacteriology of Rheumatic Polyarthritis

HARTLEBEN (*Münch. med. Woch.*, July 21st, 1933, p. 1131) observes that the origin of rheumatic polyarthritis is not yet understood. He thinks it most probable that the disease is due to an infection, but whether there is a specific bacterium, and, if so, how this micro-organism attacks the joints, is as yet unknown. Many species of bacteria have been incriminated—particularly various staphylococci and streptococci, especially *Streptococcus viridans*. After reviewing the recent work of several American bacteriologists, Hartleben concludes as follows: His own investigation of blood cultures from thirty-one patients suffering from acute and chronic infective polyarthritis has been entirely negative. In no single instance could streptococci be cultivated from patients' blood by incubation up to ten days. One tube showed some contamination with *Staphylococcus albus*, but other control tubes were entirely negative. As the result of his observations, he is inclined to think at present that the new culture methods described by the American cannot be expected to give the required results, nor, he believes, would they with any certainty yield a culture of streptococci or other infective organisms from the blood of rheumatic patients. Meanwhile, other German observers have also recorded entirely negative results with Gray and Gowen's technique.

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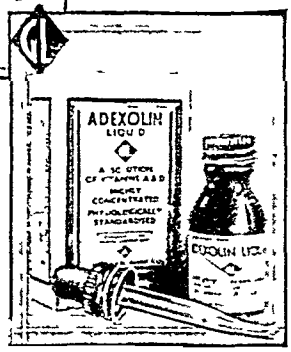
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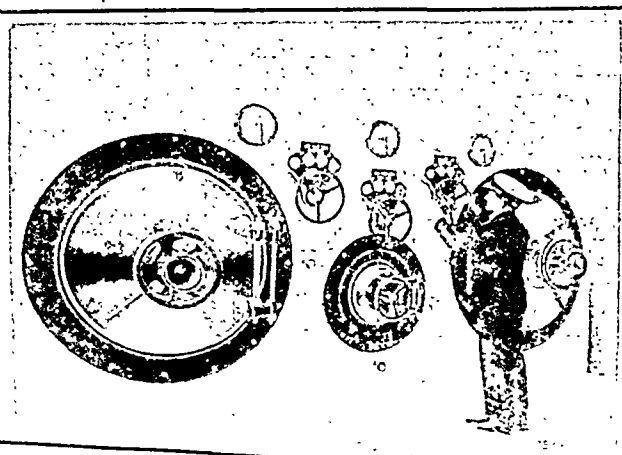
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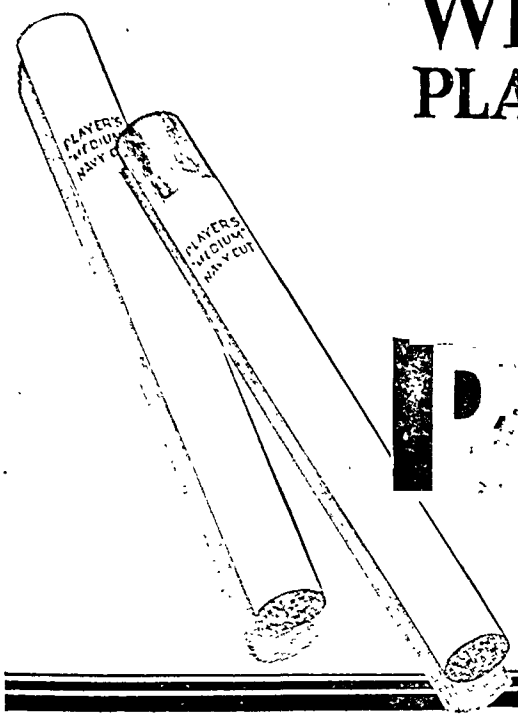
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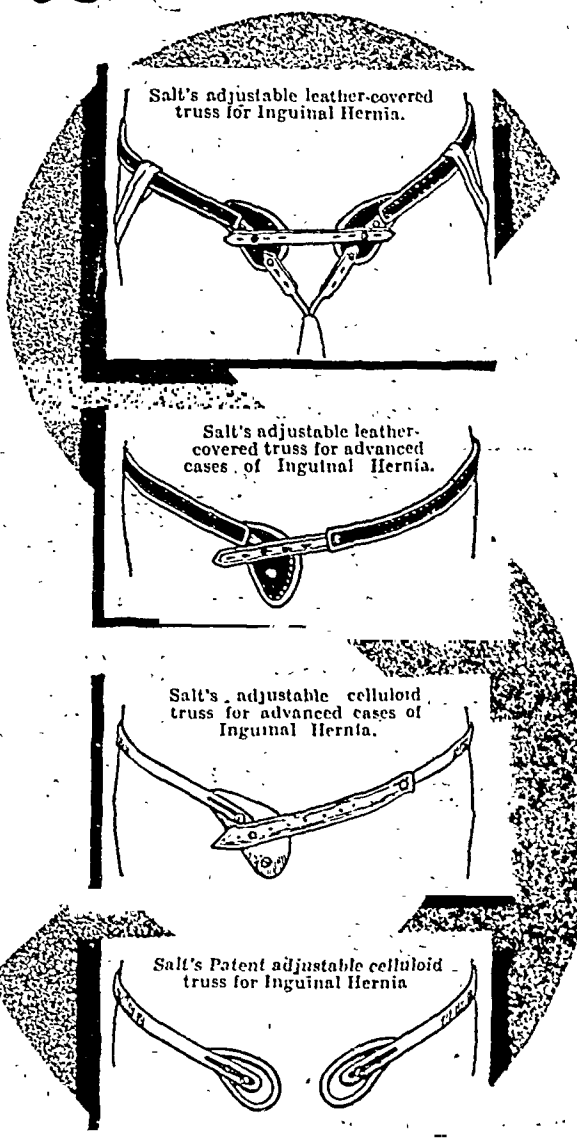
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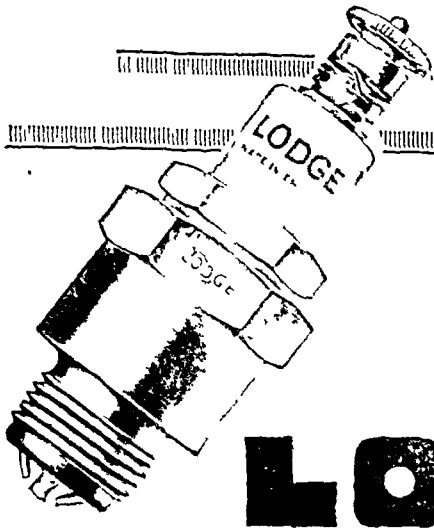
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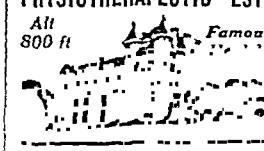
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Telegrams: "PSYCHOLIA, LONDON." *Telephone*: RODNEY 4731—4732

FOR THE TREATMENT OF MENTAL DISORDERS.

Also completely detached Villas for mild cases, with private suites if desired. Voluntary patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Putting Greens, Bowls, Croquet, Squash Rackets, and all indoor amusements, including Wireless and other Concerts. Occupational Therapy, Callisthenics, and Dancing Classes, X-ray and Actino-therapy. Prolonged Immersion Baths, Operating Theatre, Pathological Laboratory, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician: Dr. HUBERT JAMES NORMAN, assisted by three Medical Officers, also resident and visiting Consultants.

An illustrated Prospectus, giving fees which are strictly moderate, may be obtained upon application to the Secretary.

The Convalescent Branch is HOVE VILLA, BRIGHTON, and is 200 feet above sea-level.

THE RESIDENTIAL TREATMENT OF ALCOHOLISM & DRUG ADDICTION

RENDLESHAM HALL

(Postal Address)—WOODBRIDGE, SUFFOLK

Rendlesham Hall which is open to receive patients, is essentially a Sanatorium Its daily life and routine are that of an ordinary comfortable holiday or health resort, or of a large country house. Each patient has all the privileges of a guest consistent with the prescribed medical treatment.

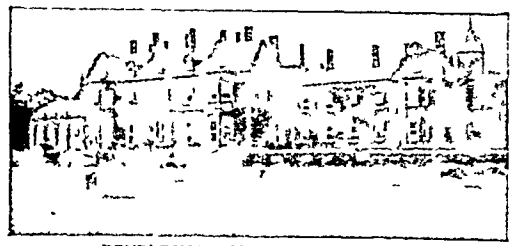
Rendlesham Hall has 45 bedrooms, and about 450 acres of gardens and park. It has also a private nine-hole golf course, tennis and croquet lawns, and bowling green

Illustrated booklet giving particulars as to terms, etc., can be had on application to the

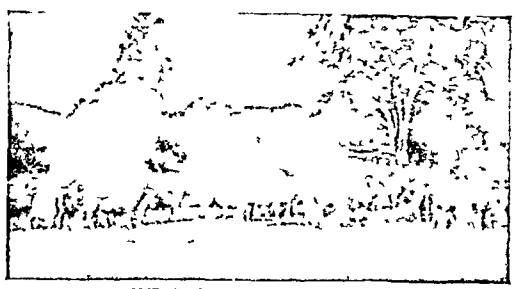
RESIDENT MEDICAL SUPERINTENDENT.

Telegrams and Telephone: Wickham Market 16.
(Trunk Calls from London)

Proprietors The Norwood Sanatorium Limited



RENDLESHAM HALL—SOUTH VIEW



SHEEP ON THE GOLF LINKS.

The MAUDSLEY HOSPITAL

DENMARK HILL, S.E 5

Telephone RODNEY 2101—4

A CLINIC instituted by the London County Council for Treatment of MENTAL and CURABLE MENTAL DISORDER Voluntary patients ONLY received

NEW OUT PATIENTS MEN — Mondays and Thursdays 2 p m WOMEN—Tuesdays and Fridays 2 p m CHILDREN—Mondays and Fridays 10 a m

IN PATIENTS (a) 229 beds (both sexes) in wards or separate rooms including 35 beds in a ward of King's College Hospital which is in use as a temporary annex of the Maudsley Hospital (b) 13 private rooms (for ladies) with special sitting rooms, garden, and dietary

TERMS

(a) £5 a week but in case of patients with a legal settlement in the County of London a less sum may be charged according to means

(b) £6 6s a week.

Terms include (with rare exceptions) all forms of treatment for which unusual facilities exist —there being a staff of consultant specialists, and the central laboratory of London County Mental Hospitals being attached to the Hospital

Inquiries of EDWARD MAPOTHER M D F R C P F R C S, Medical Superintendent

ALCOHOLISM & OTHER DRUG HABITS.

THE HARE NURSING HOME

As founded and established by the late Dr FRANCIS HARE for 20 years Med Supt of the Norwood Sanatorium and author of Alcoholism' etc , for the *treatment of ALCOHOLISM* other Drug Habits Insomnia Neurasthenia, Functional Nervous Disorders

"THE OLD HILL HOUSE," CHISLEHURST, KENT

Fees 5—10 guineas Ample amusements 25 bedrooms Annexe for mild cases Quiet and pleasant situation

Ladies and gentlemen admitted for treatment

For Prospectus etc write or phone WALTER F MASEFIELD M D M R C S D P H Barrister at Law (Res Med Supt) Author of The Alcohol Habit

'Phone Chislehurst 451 *Telegrams* Masters Chislehurst

CALDECOTE HALL

Nr. NUNEATON, WARWICKSHIRE.

'Phone NUNEATON 241.

Particulars may also be had from the Secretary, 40 Marsham Street London S W 1

ALCOHOLISM, NEURASTHENIA, Etc.

(For Men)

At this beautifully situated country mansion in Warwickshire (2 hr from London on L M S R) the residential treatment of Alcoholism Neurasthenia Insomnia and Nervous breakdown is *carried out on the most modern principles* under the supervision of the Res Med Supt Recreation and graduated occupational therapy are available in the extensive secluded grounds Prospectus from V E CARVER M D, D P M Resident Medical Superintendent

ALCOHOLISM, DRUG HABIT, NEURASTHENIA, etc.

BAY MOUNT, PAIGNTON.

ESTABLISHED 1922. *Phone* PAIGNTON 5110

A comfortable private HOME charmingly situated overlooking Torbay near Torquay Main line 3½ hours from Paddington Both Ladies and Gentlemen admitted as voluntary patients

The treatment is the outcome of many years experience and besides removing all craving for drink and drugs, it has a tonic action on the system, and the general health is improved Alcohol and drugs reduced gradually without suffering

FUNCTIONAL NERVOUS DISEASES AND NEURASTHENIA are also treated with excellent results Cases with insomnia depression, etc do especially well

Exceptionally good climate and ample and varied amusement Moderate inclusive terms Prospectus etc, from STANFORD PAPE M B, Ch B, Res Med Supt Bay Mount Paignton

FENSTANTON,

CHRISTCHURCH ROAD, STREATHAM HILL, S W 2

A Private Home for the Care and Treatment of a limited number of Ladies with Mental and Nervous Disorders Separate accommodation for Voluntary Patients Large Mansion with 12 acres of ground (See *Medical Directory* p 2294) Apply, J H EAPLE M D Resident Physician Telephone Tulse Hill 7181

STRETTON HOUSE,

Church Stretton, Shropshire

A PRIVATE HOME for the treatment of Gentlemen suffering from Mental or Nervous Illness including the allied disorders of Alcoholism and the Drug Habit All types of early Mental and Nervous cases are received without certificates as Voluntary Patients under the provisions of the Mental Treatment Act, 1930 Bracing Hill country See *Medical Directory*, p 2314—Apply to Medical Superintendent 'Phone 10 P O Church Stretton

NORMANSFIELD

For Mental Defectives of either sex.

Under private management.

Apply to Dr. Langdon Down.

Normansfield, Teddington.

THE GRANGE,

near ROTHERHAM

A HOUSE Licensed for the reception of a limited number of Ladies suffering from Nervous and Mental disorders Both certified and voluntary patients received Approved for temporary Patients This is a large country house, with beautiful grounds and park, five miles from Sheffield Tel No. 40030 Ecclesfield Res Phys. GILBERT E. MOULD I R C P M R C S Sheffield Station Grange Lane L. & N E Rly



BRIDGE OF ALLAN SPA

MINERAL WATERS with high Calcium, Iodine and Bromine Content. Indicated in Rheumatism, Gastric Complaints, Asthma, Bronchitis, Debility, etc. Hydrotherapy, Electrotherapy, Massage, Inhalation, Intestinal Lavage.

Full particulars from Spa Director.
Covered communication with Allan Water & Spa Hotel.

BRIDGE OF ALLAN, STIRLINGSHIRE

UNIVERSITY EXAMINATION POSTAL INSTITUTION

17, RED LION SQ., LONDON, W.C.1.
(FOUNDED IN 1882.)

Principal: Mr. E. S. WEYMOUTH, M.A.(Lond.).
POSTAL OR ORAL PREPARATION FOR ALL MEDICAL EXAMINATIONS.

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Preparation for the above; also for Medical Preliminary, and all examinations leading up to M.R.C.S., L.R.C.P., or M.B. of various Universities; also for M.R.C.P.(Edin.), D.P.M., D.O.M.S.; D.T.M. & H., D.L.O., D.G.O., D.M.R.E., M.M.S.A., L.M.S.S.A., etc. Many successes.

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MEDICAL PROSPECTUS (48pp.)

CONTENTS:—The method and the cost of entering the Medical Profession. *Particulars of all Medical Examinations*, Postal Courses, and Oral Classes. Suggestions for the Higher Medical Exam... the Higher Surgical... for the Special Diplo... Courses. Openings... ting theses.

Medical Prospectus gratis along with list of Tutors, etc., on application to the *Principal*, Mr. E. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6313.)

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1880. Cases, non-resident, treated at 39, Earl's Court Square, S.W.5, and in residence, in the Summer holidays, at Miss BEHNKE'S house on the Chilterns.

"Pre-eminent success in the education and treatment of stammering and other speech defects."—"Times."
"Is roughly physiological principles."—"Lancet."
"The method is scientifically correct and perfectly effective."—"Guy's Hospital Gazette."

STAMMERING, CLEFT PALATE SPEECH, LISPING, 3/8 of Miss BEHNKE, 39, Earl's Court Sq., S.W.5.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

Dr. WILLIAM G. SAVAGE will deliver the MITCHELL LECTURE on Tuesday, November 14th, at 5 o'clock, at the College, Pall Mall East, S.W.1.

Subject: "*Human Tuberculosis of Bovine Origin.*"

Any Member of the Medical Profession admitted on presentation of card.

By Order of the President,
H. M. BARLOW, Secretary.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Notice is hereby given that the Council, on December 14th next will proceed to the election of a Member of the Court of Examiners.

Fellows of the College desirous of becoming candidates for the office must make application in writing to the Secretary on or before Wednesday, December 6th.

S. FORREST COWELL,
Nov. 11th, 1933. Secretary.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE

(UNIVERSITY OF LIVERPOOL.)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 2nd, 1933, and January 3rd, 1934, and for the Diploma in Tropical Hygiene on January 11th and April 26th, 1934. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars, apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

SCHOOLS for BOYS and GIRLS

TUTORS FOR ALL EXAMS.

Messrs. J. & J. PATON having an up-to-date Knowledge of the BEST SCHOOLS and TUTORS in this Country and on the Continent, will be pleased to AID PARENTS in their choice by sending (free of charge) prospectuses and TRUSTWORTHY INFORMATION and ADVICE.

The age of the pupil, district preferred, and rough idea of fees should be given.

J. & J. PATON, Educational Agents, 143, Cannon St., London, E.C.4. Tel.: Mansion House 5053.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

A SERIES OF WEEKLY DEMONSTRATIONS for medical practitioners has been arranged in the various hospitals of Glasgow from November till May. A COURSE OF LECTURES will also be given in the Faculty Hall weekly from November till February. In addition some SPECIAL COURSES are offered and CLINICAL ASSISTANTSHIPS are available in several of the hospitals. The syllabus may be had on application to the Secretary, Post-Graduate Medical Association, The University, Glasgow.

F.R.C.S.(Edin.).

PREP. COURSE with daily Lecture-Demonstrations of Museum Specimens of Surg., Path., for next Exam., will commence shortly. POSTAL TUITION at any time.—Further parties., H. C. ORRIN, F.R.C.S., Surgeons' Hall, Edinburgh.

MEDICAL CORRESPONDENCE COLLEGE,

19, Welbeck Street, London, W.1.

CONJOINT BOARD EXAMINATIONS

Candidates taking the First, Second, or Final Conjoint Examinations should make sure of passing at the first attempt by enrolling for the short intensive Revision Courses of the College.

POSTAL, ORAL, PRACTICAL, CLINICAL COURSES.
MICROSCOPE AND MUSEUM WORK.

Highly qualified Tutors with accurate knowledge of the special features of these examinations.

Write at once for booklet, "How to Pass the Conjoint Board Examinations." Sent free on application.

Address: **The Secretary,**
MEDICAL CORRESPONDENCE COLLEGE,
19, Welbeck Street, London, W.1.

DIPLOMA IN OPHTHALMOLOGY
DIPLOMA IN RADIOLOGY
DIPLOMA IN LARYNGOLOGY AND OTOLOGY

Short Intensive Revision Courses, Oral and Postal, in preparation for these Diplomas.

For full details write SECRETARY, Medical Correspondence College, 19, Welbeck Street, W.1.

MASTERY OF MIDWIFERY.

Examinations for the Diploma of the Mastery of Midwifery of the Society of Apothecaries of London will be held beginning Monday, November 20th, 1933, and Monday, May 21st, 1934.

For regulations, apply to the Registrar of the Society, Water Lane, E.C.4.

Preliminary Examinations.

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

STAMMERING.

Mr. A. C. SCHNELLE receives resident and daily pupils. Twenty-three years' continued success. Apply for prospectus—119, Bedford Court Mansions, London, W.C.1. 'Phone: Museum 3665.

UNIVERSITY OF BRISTOL

The University invites applications for the CHAIR OF ANATOMY vacant in August, 1934.

Full particulars may be obtained from the undersigned, with whom application should be lodged not later than December 31st, 1933.

WINIFRED SHAPLAND,
Secretary & Registrar.

Post-Graduate Teaching, West London Hospital.

Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave," and for those wishing to take a course under the "Grant-aided Scheme for Post-Graduate Study by Insurance Practitioners."—Anæsthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

Prospectus from the DEAN, West London Hospital, Hammersmith, W.6.

POST-GRADUATE COURSES:

Open only to Members of the Fellowship of Medicine. Annual Subscription £1 1s.

GYNÆCOLOGY (Samaritan Hospital, November 18th and 19th, all day); PROCTOLOGY (St. Mark's Hospital, November 20th to 25th, all day); RHEUMATISM (British Red Cross Clinic, November 21st to December 7th, Tuesdays and Thursdays at 8 p.m.); INFANTS' DISEASES (Infants Hospital, November 27th to December 9th, afternoons); DERMATOLOGY (Blackfriars Skin Hospital, November 27th to December 9th, afternoons); LONDON CHILD GUIDANCE CLINIC (Four Lectures at B.M.A. House, November 15th, 15th, 20th, and 22nd, at 8.30 p.m.); DEBATE: Thursday, December 7th, at 8.30 p.m., at Manson House 26, Portland Place, on *Tonsil Operations (full details ready shortly).*

Apply—FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.1. (Langham 4266)

CITY OF MANCHESTER

PUBLIC HEALTH DEPARTMENT

BOOTH HALL HOSPITAL

APPOINTMENT OF ASSISTANT MEDICAL OFFICER

The Public Health Committee invites applications from qualified Medical Men for the position of Assistant Medical Officer at the Booth Hall Hospital for Children (760 beds), Charlestown Road, Blackley, Manchester.

Every applicant must be a registered Medical Practitioner and unmarried.

Preference will be given to applicants with previous hospital experience and good surgical experience.

The hospital is a recognised training school for nurses and is equipped with all modern hospital requirements.

Salary £250 per annum, with board, residence, and laundry *in addition*, subject to the terms and conditions of the Manchester Corporation Grading Scheme No. bonus.

The appointment will be made, in the first instance, for a period of six months.

Applications, stating fully the age, training, qualifications, and experience of the candidates, with copies of three recent testimonials, and endorsed on the envelope "Assistant Medical Officer, Booth Hall Hospital," must be addressed to the Medical Officer of Health, Civic Buildings, 1, *Mount Street, Manchester, 2, and not to* members of the Committee or Council, and must be received by him not later than Saturday, November 18th.

The candidate appointed will be required to commence duty as soon as possible after appointment, to devote the whole of his time to the duties of the position, to pass a medical examination, to contribute to the Corporation Superannuation Fund and to execute the Deed of Service.

Canvassing in any form, oral or written, direct or indirect, is prohibited.

F. E. WARBRICK HOWELL,
Town Hall, *Town Clerk.*
Manchester, 2. Nov. 6th, 1933.

COUNTY BOROUGH OF WEST HAM

PUBLIC ASSISTANCE COMMITTEE.

The Council invite applications for the appointment of TWO TEMPORARY DISTRICT MEDICAL OFFICERS (part time) for a period *of twelve months*, one for the New Town Ward, and one for a part of the Tidal Basin Ward, at a salary in each case of £270 per annum, subject to the *appropriate abatement in accordance* with the resolutions of the Council for the time being in force, at present 2½ per cent from the first £200 and 5% per cent from the next £100.

Candidates must be fully qualified and registered medical practitioners, and should reside in or as near their districts as practicable. All drugs, medicines, and appliances will be provided by the Council.

The persons appointed must work under the *administrative control of the* Medical Officer of Health, and furnish to him such returns and information as may be required, and must carry out in general *the relative conditions* laid down by the Ministry of Health.

Further information and forms upon which application must be made can be obtained from the Medical Officer of Health, *Municipal Health* Offices, 88, Romford Road, Stratford, E.15, and *must* be returned to the Town Clerk, Town Hall, West Ham, E.15, not later than November 18th.

CHARLES E. CRANFIELD,
Public Assistance Offices, Town Clerk.
Union Road, Leyton-stone, E.11.
November 2nd, 1933.

RURAL DISTRICT OF GUILDFORD
RURAL DISTRICT OF HAMBLEDON.
URBAN DISTRICT OF HASLEMERE

APPOINTMENT OF MEDICAL OFFICER OF HEALTH

Applications are invited for the combined appointment of Medical Officer of Health for the above Districts.

Candidates must be fully qualified to undertake the duties, holding a Diploma of Public Health or State Medicine, and *must* be under 45 years of age.

The combined salary inclusive of all emoluments will be £800 per annum, rising by biennial increments of £50 to a maximum of £1,000 per annum, plus a travelling allowance of £200 *per annum*.

The post is designated for the purposes of the Local Government and Other Officers' Superannuation Act, 1922, and the appointment will be made subject to a medical examination, and *to the approval* of the Minister of Health in accordance with the provisions of the Public Health (Officers) Act, 1921, and the Sanitary Officers Order, 1926.

The person appointed will be required to devote his whole time to the duties of the office.

Office accommodation will be provided at the offices of the Guildford Rural District Council, Millmead House, Guildford, together with clerical assistance, if necessary.

Applications, together with copies of three *recent testimonials, must reach the Clerk of the* Guildford Rural District Council, Millmead House, Guildford, not later than the first post on Monday, November 27th.

The successful candidate will be required to commence duties on April 1st 1934.

Canvassing Members of the above authorities, *directly* or indirectly, will disqualify.

Dated this 3rd day of November, 1933.

E. W. SELLINGS,
Clerk of the Guildford Rural District Council.
HUGH A. MERRIMAN,
Clerk of the Hambledon Rural District Council.
A. G. WHITCHER,
Clerk of the Haslemere Urban District Council.

DEVON COUNTY COUNCIL

SCHOOL MEDICAL INSPECTOR.

The Education Committee invite applications from registered Medical Practitioners for the appointment of a *School Medical Inspector* (Okehampton Area).

The salary, which is in accordance with the Ashwith Scale, will be £500, rising by annual increments of £25 to £700. The appointment will be subject to three *month's notice on either* side.

The successful candidate must provide a motor car for his work. Travelling and subsistence allowances will be paid in accordance with the Devon County Council Scale.

Candidates must possess a Diploma in Public Health, or its equivalent, and have had previous experience in the work of School Medical Inspection. Preference will be given to candidates who have also had experience in the duties of a *District Medical Officer of Health.*

The person appointed will be required to pass a medical examination, and to contribute to [illegible] established by *the County Council* and Other Officers

ribed form, obtain- not not be returned), sho at, and delivered to, 4, Barnfield Crescent, Exeter, not later than 10 a.m. on Monday, November 20th.

L. MEREDITH DAVIES,
County Medical Officer.

DORSET COUNTY COUNCIL

ASSISTANT MEDICAL OFFICERS

The Council invite applications from registered Medical Practitioners for the appointments of Two Male Assistant Medical Officers. Age limit 40 years.

Applicants must have had at least three years' experience *since qualification*. The possession of the D.P.H. and previous experience in refractions, tuberculosis, and child welfare will be considered important additional qualifications.

Salary £500 per annum, rising, subject to satisfactory service, by annual increments of £25 to £700, plus travelling and out of pocket expenses according to the County Scale.

The officers appointed will be required to devote their whole time to the service of the County, to act under the direction of the County Medical Officer, and perform such duties in connexion with the Council's Health services as may be allotted to them, including the Medical Inspection of School Children.

The successful candidates will be required to pass a *medical examination*, and the appointments will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, the statutory contributions to the Superannuation Fund being deducted from the salaries.

Applications, *in candidates' own handwriting*, on forms to be obtained from the undersigned, accompanied by copies of not more than three recent testimonials, and endorsed "Assistant Medical Officer," must be received by me not later than Saturday, November 25th.

Canvassing in any form will disqualify.

County Offices, J. LESLIE TORR,
Dorchester. Clerk of the County Council.
October 28th, 1933.

DORSET COUNTY COUNCIL

COUNTY MEDICAL OFFICER OF HEALTH

Applications are invited from registered Medical Practitioners (male) holding the Diploma in Public Health, for the above appointment.

Salary £1,100 per annum, plus travelling and out-of-pocket expenses in accordance with the County Scale. Staff and Offices provided.

Age *limit* for applicants holding a pensionable post 50 years; otherwise 40 years.

The officer appointed will be required to reside at *Dorchester* and devote his whole time to the duties of the office, acting generally as the head of all the County Health Medical Services.

The successful candidate *will* be required *to* pass a medical examination, and the appointment will be subject to the provisions of the [illegible] and Other Officers Superannuatory contribution Fund being de-

Applications, on forms to be obtained from the undersigned, accompanied by copies of not more than three *recent testimonials*, and endorsed "County Medical Officer," must be received by me not later than Saturday, November 25th.

Canvassing in any form will disqualify.

County Offices, J. LESLIE *TORR*,
Dorchester. Clerk of the County Council.
October 28th, 1933.

COUNTY BOROUGH OF SWANSEA.

ASSISTANT SCHOOL DENTAL OFFICER

Applications are invited for the appointment of Assistant School Dental Officer. Salary £450 rising by annual increments of £25 to £550.

Applications, on special forms to be obtained from the Medical Officer of *Health*, Public Health Offices, Swansea, to be received not later *than December 2nd.*

NOT CLASSIFIED.

BEDFORDSHIRE. — CHARMING RURAL district. Doctor offers comfortable HOME to senile or delicate persons, either sex. Every care and attention guaranteed.—Address, No. 7773, B.M.A. House, Tavistock Square, W.C.1.

DOCTOR, WHO HAS DISPOSED OF PRACtice seeks TUBERULOSIS WORK where Tuberculin is used. Prev. exp. also in Bact. & E. & T. work. Salaried Partnership considered. Short engagements taken, preferably in London. —Mountview 4931. 22, Stanhope Road, N.6.

DOCTOR CAN RECEIVE RESIDENT PATIENT (non-mental). Beautiful secluded home in Wilts. Every modern convenience, etc.— Address, No. 7785, B.M.A. House, Tavistock Square, W.C.1.

OWNER OF 25 H.P. SUNBEAM LANDAUlette, in finest condition, offers to SHARE USE of CAR, and expenses of same. Privately used only, with careful chauffeur who has been many years in her employ. References given and required. Would suite Doctor.—Address, No. 7784 B.M.A. House, Tavistock Sq., W.C.1.

PRIVATE HOTEL, 3 MINUTES WEST London Hospital.—Capt. and Mrs. Rogers offer first-class BOARD-RESIDENCE at 25, Castelnau, Barnes, S.W.13. Terms from 2½ gns. Well recommended.—Riverside 3371.

REQUIRED IN LONDON BY WIDOW, NOT young, large UNFURNISHED ROOM in Bachelor Doctor's house in EXCHANGE for LIGHT DUTIES. Hospitality. No salary. Maid kept.—Address, No. 7767, B.M.A. House, Tavistock Square, W.C.1.

TO DERMATOLOGISTS. — RADIOGRAPHER, qualified in electro-therapeutics, with capital DESIRES WORKING ARRANGEMENT in a good-class district. Can provide all necessary apparatus.—Write, Box 182, Frost-Smith Advg., 64, Finsbury Pavement, E.C.2.

ASSISTANCIES.

WANTED.—ASSISTANTSHIP IN VIEW FOR Partnership, after March 30th, 1934, M.B., Ch.B., D.T.M., ex H.S., H.P.; total abstainer; G.P., priv. and panel (4,000) patients, Assistant, 3 years' experience. British Indian, Aryan race, 6' 1", aet. 30. Worthy credentials. —No. 7752, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — ASSISTANT FOR MIXED Practice in Midland City. Salary £400, with furnished rooms and attendance. Petrol allowance if own car. Good prospects of early partnership and succession (if desired) to suitable man with capital. — Address, No. 7774, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANT, MALE, UNmarried, Protestant, age about 30, in Liverpool. Salary £350 per annum, with furnished rooms, coal, light, and attendance. Usual bond. State full particulars and refs.— No. 7766, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — ASSISTANTSHIP WITH VIEW or PARTNERSHIP, by ex Bart's H.P. and Casualty H.P. Cambridge and Conjoint qualifications. Age 29. English, Christian. Considerable Locum experience. — Address, No. 7764, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, PART-TIME ASSISTANTSHIP by Indian Post-Graduate Student, M.B., D.P.H., D.T.M., with few years' Hospital experience. Attends London Hospital every morning; free after mid-day.—Address, No. 7783, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — INDOOR, SINGLE, MALE ASSISTANT for Manchester. Must be ex H.S. Salary £300 per annum. Dispenser and book-keeper kept. Able to drive car. Send photo., age, religion, etc.—Address, No. 7765, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — OUTDOOR ASSISTANTSHIP, view Partnership or early succession, by M.B., B.Ch., Hons. Graduate, ex H.S. and H.P. Five years' experience of G.P. Age 31 years. Own car. Capital available.—Address, No. 7761, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY.—INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view, good salaries. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

WANTED IMMEDIATELY, INDOOR ASSISTANT, large Lancashire Practice. Salary £300, rising to £365. Car provided. Must have hospital experience.—Address, No. 7707, B.M.A. House, Tavistock Square, W.C.1.

WANTED, — INDOOR ASSISTANT FOR general Practice, Lady, newly qualified, might suit. State age, height, send references. Usual bond.—Address, No. 7768, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — OUTDOOR ASSISTANTSHIP (South of England preferred) or LOCUMS by ex H.S., H.P., 4 years' experience G.P. Available now. London.—Address, No. 7779, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANCY REQUIRED BY M.B., CH.B. (Hons. Grad.), married, aet. 33 years; ex H.S. and H.P., and Post-Graduate midwifery. Exper. G.P. Anaesthetist. Strict abstainer. Well received. Ex. testimonials. State salary.— No. 7790, B.M.A. House, Tavistock Sq., W.C.1.

ASSISTANTSHIP WANTED BY M.R.C.S., L.R.C.P., ex H.S., H.P. and C.O.; aged 26. Few months' experience in general practice. English, Jew, and single.—Address, No. 7778, B.M.A. House, Tavistock Square, W.C.1.

DR. COLLINS, VERY EXPERIENCED, KEEN, energetic, reliable, hard worker, seeks ASSISTANTSHIP, in or out, preferably charge and live Branch Surgery. Keen midwifery and anaesthetics.—Address, 109, Ringlow Park Rd., Swinton, Manchester.

FOR BUSY PRACTITIONERS. — M.R.C.P., F.R.C.S., reading for examination, is free every evening and week-end; aged 31, experienced practitioner, and would gladly ASSIST in specialist or general practice.—Address, No. 7661, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL WOMAN (ELDERLY) WHO HAD retired, but is obliged to seek work again. Could ASSIST in a Practice, or do a Light LOCUM, with no midwifery. — Address, No. 7786, B.M.A. House, Tavistock Square, W.C.1.

M.R.C.P.(EDIN.), INDIAN, .32, EXP. G.P., panel, and hospital, motorist, desires ASSISTANTSHIP or LOCUM engagement. Free now. — Address, No. 7759, B.M.A. House, Tavistock Square, W.C.1.

PATHOLOGICAL AND BACTERIOLOGICAL LABORATORY ASSISTANTS ASSOCIATION.—Pathologists and Bacteriologists requiring SKILLED CERTIFICATED LABORATORY ASSISTANTS are invited to communicate with M. GOODING, Hon. Sec., "Moelfre," 10, Holbeck Grove, Victoria Park, Manchester. No fees.

TREATY PORT IN CHINA. — ASSISTANT, with view to Partnership. The two partners in an old-established Practice in a British and American community require early in 1934 a JUNIOR ASSISTANT. He must be under 30 years of age, unmarried, have good health and have first-class recommendations from his medical school and hospital staff. Preference will be given to one who has just finished an H.S. appointment.

Particulars from Address, No. 7754, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIPS.

WANTED.—PARTNERSHIP (PRELIMINARY ASSISTANTSHIP preferred) by Oxford University Graduate and St. Thomas's. Aged 33, single, 3½ years' Hospital and G.P. experience. Capital available.—Address, No. 7756, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — THIRD PARTNER IN MIXED Practice doing £3,600. Good-class neighbourhood, 15 miles from Charing Cross. 1/4 share at 2 years' purchase. Short prelim. Assistantship. — Address, No. 7776, B.M.A. House, Tavistock Square, W.C.1.

LEEDS.—A QUARTER SHARE OF £3,890, with panel of over 3,000 for immediate disposal at 2 years' purchase. Good appointments. Same family sixty years. Excellent modern doctor's house, good garden, main road. —"Doctor," c/o 101a, Whitehall Road, Leeds.

LONDON, S.E.—PARTNER WANTED FOR A well-established Practice. Receipts nearly £900 p.a. Guarantee income of £6 per week. Premium £450, payable only £200 down. Excellent opportunity.—Apply, PEACOCK & HADLEY LTD., 19, Craven Street, Strand, W.C.2.

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EXP. G.P. AND PANEL; SEVERAL YEARS on Hon. Surg. staff of Children's Hospital. Recently sold own Practice. Willing do LOCUMS. Own car if desired.—Address, No. 7566, B.M.A. House, Tavistock Square, W.C.1.

LOCUM WANTED BY PRACTITIONER, WITH H.P. and H.S. experience. Age 25, unmarried, British. Can drive car. Free now.— Address, No. 7777, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

WANTED, FOR TEA GARDEN AND OTHER work in India, a fully qualified ENGLISH DOCTOR, preferably with a London degree and training in tropical medicine. Salary Rs.1,400/ 1,750 per month, with free bungalow and allowances.—Write, giving full particulars, Address, No. 7787, B.M.A. House, Tavistock Sq., W.C.1.

A LADY DISPENSER - BOOKKEEPER supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations. — Write, wire, or 'phone (Bayswater 0969), Secretary, 7, Westbourne Park Road, W.2.

DISPENSER - BOOKKEEPER, LADY, HALL, experienced panel, general practice, desires POST with Doctor or firm of Doctors. Good testimonials. — B. A. THORNTON, 6, Langford Place, St. John's Wood, N.W.8. Telephone: Maida Vale 3816.

DISPENSER - BOOKKEEPER, QUALIFIED (Hall), DESIRES POST with Doctor. Excellent experience private practice, firm, hospital, book-keeping, filing, first aid. Southern counties preferred, but not essential.—Address, No. 7791, B.M.A. House, Tavistock Sq., W.C.1.

DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeuse-Dispensers, are invited to write, wire, or 'phone Temple Bar 5858, THE DISPENSERS' BUREAU, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

DOCTOR'S DAUGHTER SEEKS EMPLOYMENT, London. Experienced Doctor's receptionist-chauffeuse, 2 years' hospital training, age 24, hard worker.—Reply, 23, Bridge Road, London, W.6; or Riverside 5330.

GENTLEWOMAN, YOUNG, REQUIRES POST as SECRETARY-RECEPTIONIST to Doctor or Dentist.—Write, Miss M. MAWBY, c/o 62, Burnway, Hornchurch, Essex.

GORDON HALL SCHOOL OF PHARMACY, Drayton House, W.C., trains WOMEN IN PHARMACY AND DISPENSING, and can supply experienced Dispenser - Secretaries. Apply Principals. 'Phone: Museum 3950. Sessions: October—January, and April.

LADY (AGE 40) REQUIRES POST AS HOUSEKEEPER to Doctor or other professional man. Has had previous experience in similar post. Good references. — Address, No. 7760, B.M.A. House, Tavistock Square, W.C.1.

TEMPORARY ASSISTANT MEDICAL OFFICER OF HEALTH wanted for a Metropolitan Borough, commencing December, 1933. B.M.A. salary. Applications, stating name, age, address, qualifications, and experience, to Box W881, WILLINGS, 86, Strand, W.C.2.

THE HOME SECRETARY ANNOUNCES A vacancy for a MEDICAL INSPECTOR OF FACTORIES (male). Salary at present rate £726, rising to £1,043. Candidates should be between 25 and 40 years of age. Appointment is subject to the usual Civil Service conditions as to retirement, pension, etc. Medical Inspectors are required to reside in such places in Great Britain as the Home Secretary may from time to time direct. Further information and forms of application may be obtained on request, preferably by post card, from the Industrial Division, Home Office, London, S.W.1. The last date for receipt of completed applications is December 4th.

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 85, Eccleston Square, S.W.1 (Telephone: Victoria 2722), supplies qualified Dispensers, Book-keepers, Laboratory Assistants, Sanitary Assistants, Male Nurses, Mental and Special Treatment Orderlies, Dental Clerk Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

TYPEWRITING, DUPLICATING, AND TRANSlations. Experts in Medical work. TESTIMONIALS, THESES, etc., copied in style that commands attention. Accuracy guaranteed.— WOBURN BUREAU, 3, Upper Woburn Pl., W.C.1. (Adjoining B.M.A. House.) Euston 1775.

PRACTICES.

WANTED IMMEDIATELY, PRACTICE IN any part of London with panel of 2,000 to 4,000. Good premium will be paid. Ample cash available. *Replies in confidence.*—Address, No. 7588, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — PRACTICE IN LONDON OR suburbs yielding from £1,500 up, with a minimum panel of 1,500. Suitable house essential. — Address, No. 7575, B.M.A. House, Tavistock Square, W.C.1.

WANTED TO PURHASE, SOUND AND genuine PRACTICE. Any class, any size, London or suburb. Strictly confidential. Cash available for house and practice.—Address, No. 7762, B.M.A. House, Tavistock Square, W.C.1.

WANTED IN DERBY, LEICESTER OR other large town—PRACTICE income £500—£1,000 a year. House or partial. Several applicants to be found immediate. Apply HEDLEY & CO HALIFAX, LTD, 19 Craven Street Strand W C 2

WANTED—IN EARLY SPRING BY WELL qualified graduate, for health reasons, PRACTICE of £300 to £500 in pleasant country. Midlands, Thames Valley or Home Counties preferred. Full particulars to principal only—Address, No 7757, B M A House, Tavistock Sq, W C 1

WANTED—PRACTICE OR PARTNERSHIP town or country, by medical officer of health, 3 years to run, with view to purchase. Excellent testimonials. Personal interview by appointment—Address No 7758, B M A House, Tavistock Sq, W C 1

WANTED — PRACTICE IN OR NEAR London, by principal, £1,000 to £1,500 p a; full particulars of saleable goodwill, etc. Good introduction essential. Strictly confidential. Ample capital — Address No 7763, B M A House, Tavistock Square, W C 1

CASH OFFERED FOR PRACTICE WITH dispensing; must be value approximately £1,000 in London. Absolutely genuine. Principal (39) in London 12 years, and has excellent midwifery. Medium size house essential. Strictly confidential—Address, Dr. 13 Wimpole Road, N W 3

DOCTOR OF EVANGELICAL VIEWS WISHES to dispose of small growing PRACTICE in south of England to Baptist man. Panel 320. House rented at £70 p.a. Premium £375—Address No 7775, B M A House Tavistock Square W C 1

EXETER, DEVON — WELL ESTABLISHED practice offered. PRACTICE in X-ray, Radium and Physical treatment for cancer, rheumatism (late arthritis) etc. £3,000 first class equipment at valuation. Time to be left or sold if vacancy. Assistant carrying on—Apply MICHELL, 18 Castle Street, Exeter

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FOR SALE, UNOPPOSED COUNTRY PRACTICE. Average income £1,200 p.a., panel 700. House garden and paddock for sale or to let. Particulars—Address No 7769, B M A House Tavistock Square, W C 1

KENSINGTON—MIXED-CLASS NUCLEUS OF PRACTICE for sale; surgery 20/- resident caretaker 5/- p.w., panel 30; steadily increasing working-class flats to be built near by, already paying expense. Low premium, to include first-rate equipment accepted for quick sale — Address No 7782, B M A House, Tavistock Square W C 1

LANCS—LARGE TOWN—OLD ESTABLISHED PRACTICE. Receipts £950 p.a., including panel 1,140. Nice house, rent £60 p.a. Premium £1,100. Accountant's report available—Apply PEACOCK & HADLEY, LTD, 19, Craven Street, Strand W C 2

MANCHESTER—OLD ESTABLISHED PRACTICE. Good house, garage, and £60 on lease. Receipts £650 increasing. Panel 780. Price 1½ years purchase, part deferred—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6 Brown Street

NUMBER OF SMALL PRACTICES AT VERY low premium. Steps in every case. Good chances for any one with small capital. London, coast, and country—Apply PEACOCK & HADLEY LTD, 19, Craven Street, Strand W C 2

TO PURCHASERS — DO NOT BUY without expert assistance. With 50 yrs experience Mr PERCIVAL TURNER can advise in all cases. Terms free on application to 4 Adam St Strand W C 2. Telephone Temple Bar 9011. Telegrams 'Epsomian, London'

WELL-QUALIFIED MEDICAL MAN REquires non-dispensing PRACTICE in Scarborough, Lancaster, Chester, Macclesfield, Shrewsbury, or other good town. Capital available—Address, No 7771, B M A House, Tavistock Square W C 1

YORKS — OLD ESTABLISHED — RECEIPTS over £800, great scope. Nice house, garden, garage, rent £80. Panel 700, increasing. Price £1,250 or offer, part deferred—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6 Brown Street

HOUSES CONSULTING ROOMS

A GROUND FLOOR CONSULTING ROOM recently redecorated in well appointed house, near Harley St; whole or part time use. A Bedroom also available at same address. Rent very moderate—Address No 7781, B.M.A. House, Tavistock Square, W C 1.

COWAN BAY—TO LET TEMPORARY OR permanent, tastefully FURNISHED HOUSE, Paxton Charmingly situated on the promenade, 2 large reception rooms, 4 bedrooms (all bedroom overlook the sea), kitchen, bath, etc, outhouses, electric light in every room, every modern convenience. Highly recommended. Three guineas weekly—Apply, HEADMISTRESS, College School

CONSULTING ROOMS TO LET — HARLEY Street and Mayfair districts. Particulars sent on application. Those having consulting rooms to let should send particulars to ELGOOD & CO, 10 Henrietta Street, Cavendish Square W 1. Langham 2501

DENTAL SURGEON WISHES TO RENT *Room in Dr's house in good position* in or within London suburbs — Address No 7789 B M A House Tavistock Square, W C 1

GLASGOW — CONSULTING ROOM WITH dressing room to let in Woodside Place. Use of waiting room, attendance, etc—All particulars from Messrs A J C A GRAHAM, 198 West George St, Glasgow, C 2

HARLEY STREET (ADJOINING) — HANDsome SUITE of TWO ROOMS fully equipped for Surgical or Gynaecological work. Use of waiting room, attendance, etc, £25 p.a. part time — Address, No 7717, B M A House, Tavistock Square W C 1

HARLEY STREET—TWO DOORS FROM— Only £50 p.a. required. Secure part time use of handsome CONSULTING ROOM with waiting room and every convenience — Address No 7798 B M A House Tavistock Square W C 1

KINGSTON BYPASS — SURGERY FULLY equipped, TO BE LET at once, rent 27/6 or at a sacrifice—Address No 7788, B M A House, Tavistock Square, W C 1

SOUTH COAST—FASHIONABLE HAMPSHIRE *Resort*. Freehold CORNER HOUSE. Good *will from uninterrupted medical occupation*. Educational facilities. 3 reception, 4 bed (and c). Brick built garage. Low garden. Price £1,800 — Address No 7608, B M A House, Tavistock Square, W C 1

TO LET — COMMODIOUS GROUND FLOOR Self-contained FLAT in populous part of Sheffield. *Fine old well-known house. Suit* Doctor. Garage, garden, good locality—Address No 7758, B M A House, Tavistock Sq W C 1

TO RADIOLOGISTS OR ELECTRO-THERAPists—An exceptionally fine SUITE of TWO very large ROOMS on first floor with dark room in basement in best part of Devonshire Street. Low rent—Address No 7569, B M A House Tavistock Square W C 1

WHEN YOU COME TO LONDON STAY AT THE HAMPDEN RESIDENTIAL CLUB FOR GENTLEMEN, Hampden Street, N W 1. Close King's Cross and Euston. 300 bedrooms 12/6—25/- p.w., includ baths, attend & boot cleaning. All meals à la carte in dining room. *Mod tariff. Large club rms., reading rm. studs* for students. Illus prosp., Sec Euston 2244/5

WIMPOLE STREET—PART TIME CONSULTING ROOM (large). Use of *waiting room* £100. Also Bachelor Service Flat very well furnished sitting room, bedroom and bathroom (constant hot water). *Lift. 5 gns per week*—No 222, B M A House, Tavistock Sq, W C 1

WOMAN DOCTOR'S SMALL MODERN HOUSE FOR SALE or TO LET furnished or unfurnished. Ex position, rapidly growing *neighbourhood, nr Liverpool*. No *premium* for small Nucleus Practice. Suitable man or woman—No 7780 B M A House, Tavistock Sq W C 1

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DOCTOR WILL EXCHANGE DIATHERMY machine for MICROSCOPE or sell. Also, new Hanovia Sunlight, A C 105 £30—Address No 7753, B M A House, Tavistock Square, W C 1

THE PROPRIETORS OF BRITISH PATENT No 24525 relating to a device to be worn by infants to avoid the possibility of suffocation whilst sleeping are DESIROUS OF DISPOSING of the ENTIRE RIGHTS — Enquiries to Address, No 7772 B M A House, Tavistock Square, W C 1

X-Ray Set at Half-Price

Slightly used Victor 30 mA. WARD TROLLEY SET in such good condition it carries a 12-month electrical guarantee as new. A complete plant in one unit, compact for small quarters. Mounted on rubber-tyred wheels, can be easily moved about to bedside or theatre. Simple to operate, and gives consistently good results, due to incorporation of Victor Stabilizer. For immediate disposal (with Victor Flat Bucky Diaphragm) at half price. For particulars Address No 7751, B.M.A. House, Tavistock Square, W.C.1.

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Full particulars upon request

We have given satisfaction to hundreds of Medical Practitioners. Why not let us supply your requirements?

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APPOINTMENTS—Contd

ROYAL FREE HOSPITAL & LONDON (R F H) SCHOOL OF MEDICINE FOR WOMEN

OBSTETRICAL AND GYNAECOLOGICAL UNIT

Applications are invited from registered Medical Practitioners for the following appointment vacant on January 1st 1934

SENIOR ASSISTANT, part time £350 (The present holder is an applicant and is eligible for re-appointment)

THIRD ASSISTANT, full time £270 with residence

Applications accompanied by copies of not more than three testimonials and the names of not more than two persons to whom reference can be made, should reach one of the undersigned from whom further particulars may be obtained by the first post on Friday November 24th. Nine copies of all documents must be furnished

REGINALD R GARRATT Secretary
Royal Free Hospital, W C 1

LOUIE M BROOKS Warden & Secretary
London (R F H) School of Medicine for Women W C 1

UNIVERSITY COLLEGE HOSPITAL
Gower Street W C 1

Application are invited for the post of OBSTETRIC REGISTRAR for an initial period of one year from January 1st, 1934 and should reach the Secretary by noon on November 30th. Total emoluments £125 per annum, including fees for lectures to Nurses.

The successful candidate will be permitted to hold concurrently the post of Assistant in the Obstetric Unit if selected for that appointment.

UNIVERSITY COLLEGE HOSPITAL,
Gower Street, W C 1

Applications are invited for the appointment of HONORARY ANAESTHETIST for duty on Saturday mornings at the National Dental Hospital, Great Portland Street W 1 (Dental Department of University College Hospital). Applications accompanied by evidence of fitness for the post should reach the Secretary by noon on Tuesday, November 21st.

NORTHAMPTON GENERAL HOSPITAL.
(253 Beds.)

There are vacancies now for a House Surgeon for one of the GENERAL HONORARY SURGEONS, and for a CASUALTY OFFICER, British nationality. Salary for the House Surgeon, £150 per annum, and for the Casualty Officer £120 per annum, with board, residence, and laundry.

The successful candidates will be appointed for the period ending March 31st, 1934, and will be eligible for re-election for a further period of six months.

Candidates must be duly qualified and registered.

Applications, stating age, sex, qualifications, etc., with copies of testimonials, to reach the undersigned not later than first post on Wednesday, the 22nd instant.

H. ST. JOHN WOOD,
Nov. 3rd, 1933. Secretary-Supt.

CHESTERFIELD AND NORTH DERBYSHIRE ROYAL HOSPITAL.
(220 Surgical and Medical Beds.)

RESIDENT SURGICAL OFFICER.

Applications are invited from fully qualified men for the above post. Candidates must have held previous resident appointments.

The appointment is for twelve months. Salary at the rate of £300 per annum, with board, apartments, and laundry.

Applications, stating age, with copies of three recent testimonials, should be sent to the undersigned on or before Thursday, November 16th.

G. SUNNUCK,
Nov. 6th, 1933. Supt. & Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

HOUSE PHYSICIAN required January 1st, 1934.

CASUALTY OFFICER required January 6th, 1934. Some Dermatological work additional.

Six months' appointments. Salary at the rate of £100 per year, with board, lodging, and laundry.

Applications must be made on forms to be obtained from the undersigned, and must be sent in with copies of not more than four testimonials, on or before November 30th.

CHARLES H. BESSELL,
Nov. 1st, 1933. Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.
Telephone: Bishopsgate 4633.

CLINICAL ASSISTANT required December 1st in the Orthopaedic Department. Attendance every Thursday at 1.30 p.m. for Out-patients and occasionally in the Operating Theatre on Saturdays at 9.30 a.m. Lunch provided. Honorarium 5s. per attendance to cover expenses. Applications, stating age, qualifications, and experience, should be addressed to the undersigned on or before November 18th.

CHARLES H. BESSELL,
November 1st, 1933. Secretary.

CHELSEA HOSPITAL FOR WOMEN, Arthur Street, S.W.3.

There will be a vacancy for a JUNIOR HOUSE SURGEON (male) on January 1st, 1934. Appointment for six months, salary £100 p.a. He will be expected to proceed to the Senior post (six months, salary £120 p.a.) at the end of his term of office.

Candidates must be duly registered and preferably unmarried. Applications, accompanied by copies of three testimonials, should be sent not later than Thursday, November 30th, to the Secretary, HERBERT H. JENNINGS.

QUEEN'S HOSPITAL, BIRMINGHAM.

Applications are invited for the post of RESIDENT MEDICAL REGISTRAR.

Salary at the rate of £200 per annum, together with board, apartments, and laundry.

The appointment in the first instance will be made for the period ending September 30th, 1934, with eligibility for re-election.

Full particulars can be obtained from the undersigned to whom applications should be sent at once or at latest by Saturday, November 18th, 1933.

G. HURFORD,
Nov. 1st, 1933. House Governor.

CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE.

Required RESIDENT RADIOLOGICAL ASSISTANT (male) for duty in the X-ray Department (diagnostic and therapeutic), and for duty as resident. Candidates must possess the D.M.R.E. or other Radiological diploma. Salary at £275 p.a. (£125 in respect of Radiological duty and £150 as Resident, with residence, board, and washing). Appointment for six months, renewable. Applications, with copies of testimonials, to reach the Secretary, 33 Barton Arcade, Manchester, by November 24th.

HULL ROYAL INFIRMARY.
(370 Beds.)

Applications are invited from registered Medical Practitioners for the post of CASUALTY OFFICER (male), vacant now.

Salary at the rate of £150 per annum, plus residence, board, and laundry.

The officer appointed will work mainly under the direction of the Resident Surgical Officer.

The appointment will be for six months, but will at any time be determinable by one month's notice on either side.

Applications, stating age, qualifications, and nationality, together with copies of testimonials, should be addressed to the undersigned.

R. J. CARLESS,
Nov. 3rd, 1933. House Governor.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS,
Victoria Park, E.2.
('Bus, Tram, and Rail, Cambridge Heath, L. & N.E. Railway.)

Applications (with copies of three testimonials) are invited to be sent to the undersigned on or before Friday, December 8th, for *the following posts, subject to the rules and* by-laws of the Hospital:

RESIDENT MEDICAL OFFICER (male) for one year from January 1st, 1934. Salary £250 per annum and emoluments.

HOUSE PHYSICIAN (male) for six months from January 1st, 1934. Salary at the rate of £100 per annum.

Board, residence, and laundry provided.

GEORGE WATTS, Secretary.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS,
Victoria Park, E.2.
('Bus, Tram, and Rail, Cambridge Heath, L. & N.E. Railway).

The Committee invite applications for the post of ASSISTANT SURGEON. An honorarium is attached to the post. Applications should be forwarded to the undersigned on or before Monday, November 27th.

GEORGE WATTS, Secretary.

KING EDWARD VII HOSPITAL, WINDSOR.
(181 Beds.)

TWO HOUSE SURGEONS required in January, 1934, for six months. Applicants must be fully qualified men or women and registered. (One preferably to have had Ear, Nose, and Throat experience.)

Salary at the rate of £100 per annum, *together with board, residence, and laundry.*

Applications, stating age, qualifications, and experience, accompanied by testimonials, should be sent to the undersigned not later than November 30th.

A. E. CHURCHER, Secretary.

KING GEORGE HOSPITAL, ILFORD
(8 miles from London). (150 Beds.)

Applications are invited for the appointment of RESIDENT MEDICAL OFFICER, with supervision over five House Officers. Candidates must hold the Fellowship of a Royal College of Surgeons; salary £250 per annum; appointment for one year from January 1st, 1934, with eligibility for re-appointment. Further particulars may be obtained from the undersigned, to whom applications, with copies of testimonials, should be sent not later than Tuesday, December 5th.

G. AUSTIN HEPWORTH, Secretary.

THE ROYAL DENTAL HOSPITAL OF LONDON, 32, Leicester Square, W.C.2.

There is a vacancy for the post of HONORARY MEDICAL OFFICER in charge of the Electro-Therapeutic Department of this Hospital. Candidates are requested to send in forty copies of applications and testimonials, *stating age, experience, and qualifications, not later than* November 28th, to the Secretary-Superintendent, from whom *all particulars can be obtained.*

TAUNTON AND SOMERSET HOSPITAL, TAUNTON.

An HONORARY PHYSICIAN, resident sufficiently near to the Hospital to enable him to discharge his duties, will be elected by the Joint Committee at an early date.

Applications, with qualifications and testimonials, to be sent on or before December 10th next, to F. J. J. STACEY, Secretary.

Personal canvassing will disqualify.

THE MIDDLESEX HOSPITAL, W.1.

Whole-time non-resident medical man required as ASSISTANT in the Department of Radium Therapy. Appointment in the first instance for 12 months. Salary according to previous clinical and radiological experience.

Applications, with copies of testimonials, should be submitted by Wednesday, Nov. 15th.

S. R. C. PLIMSOLL, *Secretary Supt.*

WOKING AND DISTRICT VICTORIA HOSPITAL.
(General Hospital—50 Beds.)

Male or Female RESIDENT MEDICAL OFFICER (unmarried) required for January 1st, 1934. Applicants must be doubly qualified and registered. Salary £120 per annum, with board, residence, and laundry.

Appointment for six months and renewable for further six months.

Applications, stating age, etc., and accompanied by copies of recent testimonials, to be addressed to the Hon. Secretary, from whom all particulars may be obtained. They must be received *on or before* November 20th.

Personal canvassing not allowed.

MANSFIELD AND DISTRICT HOSPITAL.

The Board of Management of the above Hospital (135 beds) invite applications for the post of HOUSE SURGEON (male).

Duties to commence December 1st next.

Salary at the rate of £150 per *annum*, with residence, board, and laundry.

The appointment is for six months, and is renewable.

The Resident Staff consists of a Resident Surgical Officer and two House Surgeons.

Applications, accompanied by not more than three recent testimonials, to be sent to the undersigned.

Dated this 6th day of November, 1933.

C. J. ADAMS, Secretary.

THE BOLTON ROYAL INFIRMARY.
(301 Beds, including Two Auxiliary Hospitals.)

Applications are invited from ladies and gentlemen, having a registered Medical and Surgical qualifications, the posts of THREE HOUSE SURGEONS, the chief duty of one to be Anaesthetist.

Salary £125 per annum each, with board, residence, and attendance.

Applications, stating age, nationality, and previous experience, together with copies of testimonials, should be forwarded to the undersigned not later than Monday, November 20th.

ALBERT E. BRISCOE, Secretary.

THE ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN,
Waterloo Road, S.E.1.

There will be a vacancy on December 1st, for a HOUSE SURGEON (male) at the above Hospital. The appointment is in the first instance for a period of six months. Salary at the rate of £100 per annum, with board and residence.

Application, with copies of testimonials, should be forwarded, not later than Tuesday morning, November 21st, to the Secretary at the above address, from whom further particulars can be obtained.

ROYAL UNITED HOSPITAL, BATH.

OUT-PATIENT AND CASUALTY OFFICER required for December 1st. The appointment offers opportunity of experience in medicine and surgery. Salary £150 per annum, with board, residence, and laundry.

Appointment for six months, and candidates must be male, unmarried, and of British nationality.

Applications, with copies of three testimonials, to be addressed to the undersigned by Nov. 17th.

J. LAWRENCE MEARS, Secretary-Supt.

ROYAL UNITED HOSPITAL, BATH.

HOUSE SURGEON required for December 1st. Duties include general Surgical, and Ear, Nose, and Throat work. Salary £150 per annum, board, residence, and laundry.

The appointment is for six months, and candidates must be male, unmarried, and of British nationality.

Applications, with copies of three testimonials, to be addressed to the undersigned by Nov. 17th.

J. LAWRENCE MEARS, Secretary-Supt.

BIRMINGHAM AND MIDLAND HOSPITAL FOR WOMEN.

The Committee invite applications for the post of ACTING HONORARY SURGEON AND REGISTRAR, which becomes vacant on January 1st next. Candidates must hold the qualification of F.R.C.S.England. Full particulars may be obtained from, and applications, *with copies* of testimonials, should be sent on or before December 9th, to HUGH C. ASTON, 45, Newhall Street, Birmingham.

BIRMINGHAM AND MIDLAND HOSPITAL FOR WOMEN.

HOUSE SURGEON (man or woman) wanted for six months from January 1st, 1934. Salary to be at the rate of £75 per annum. Applications, with full particulars and copies of testimonials, to be sent not later than November 18th, to HUGH C. ASTON, 45, Newhall Street, Birmingham.

THE GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION, GLOUCESTER (210 Beds)

TWO HOUSE SURGEONS (male) fully qualified. Salary £150 per annum, with board, residence, and laundry.

The appointments are for six months which may be extended for similar periods by re-election from time to time.

Applications, stating age, qualifications and experience with copies of not less than three recent testimonials, should be sent to the undersigned not later than November 22nd.

One elected candidate will be required to enter upon his duties on January 1st next and the other on January 17th.

J. J. SIMONS, Secretary.

November 2nd, 1933.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL.

Applications are invited for the posts of HOUSE SURGEONS (Two) (one unmarried) at this Hospital's Central Branch at BLOCK-LEY HILL, STANMORE, MIDDLESEX. 270 beds, 160 cases of general tuberculosis. Salary £150 per annum with board, quarters and laundry. The appointments are for six months, renewable for a further period of six months on the recommendation of the Medical Board. Duties to commence December 1st and January 1st respectively. Applications with copies of testimonials should be sent to the Secretary, 234 Great Portland Street, W.1, not later than November 23rd.

THE LIVERPOOL RADIUM INSTITUTE AND HOSPITAL FOR CANCER

The Committee of Management invite applications for the following additional posts on the staff of the New Hospital:

TWO HONORARY SURGEONS.
ONE HONORARY GYNAECOLOGIST.

Applicants should possess a senior surgical qualification.

Applications should be addressed to the Chairman, Selection Committee, The Liverpool Radium Institute, on or before November 18th, and may be accompanied by not more than three testimonials.

F. GOODACRE, Secretary.

ROYAL DEVON AND EXETER HOSPITAL, EXETER

Applications are invited for the post of HONORARY MEDICAL OFFICER in charge of the Radiological and Electrical Department at this Hospital. Particulars as to duties, etc., may be obtained from the undersigned.

Applications, together with certificate of registration and original testimonials with thirty copies, should be delivered to the undersigned on or before Tuesday, November 28th.

S. S. COLE, Secretary.

N.B.—No canvassing permitted.

ROYAL ALEXANDRA HOSPITAL FOR SICK CHILDREN, BRIGHTON (100 Beds)

HOUSE SURGEON (male) required. Salary at the rate of £100 per annum with board, lodging and washing. Good experience including Sun-ray Treatment. No canvassing.

To commence duty on December 3rd.

Applications, in writing accompanied by testimonials, should be sent on or before November 25th to PERCY F. SPOONER, Secretary, Duke Road, Brighton.

November 5th, 1933.

CITY OF LONDON MATERNITY HOSPITAL
City Road, London, E.C.1

Applications invited for fully qualified male candidates for the post of ASSISTANT RESIDENT MEDICAL OFFICER vacant January 1st next. Three months' appointment at £80 p.a. If satisfactory, appointee becomes Senior for three months at £100 p.a.

Twelve copies of application and testimonial should reach the undersigned by December 2nd.

RALPH B. CANNINGS, Secretary.

KING GEORGE HOSPITAL, ILFORD
(8 miles from London)

The appointment of HONORARY OPHTHALMIC SURGEON to this Hospital has become vacant. Applications are invited and the advertisement for an Assistant Ophthalmic Surgeon is hereby cancelled. Further particulars may be obtained from the undersigned to whom applications should be addressed not later than November 15th, 1933.

WESTMINSTER HOSPITAL,
Broad Sanctuary, S.W.1

There is an immediate vacancy for a HOUSE SURGEON to the Ear, Nose, and Throat and Eye Departments. The appointment is for six months (non-resident) and the salary is at the rate of £104 per annum.

Applications should be submitted immediately to the undersigned.

CHARLES M. POWER, Secretary.

ROYAL VICTORIA AND WEST HANTS HOSPITAL, BOURNEMOUTH

The Board of Management will after the expiration of one month, proceed to appoint an HONORARY ASSISTANT BACTERIOLOGIST AND BIOCHEMIST.

Applicants must be registered according to the provisions of the Medical Act. Applications, stating qualifications, age, and experience, should be sent to the undersigned by Nov. 25th. Canvassing personally or otherwise will disqualify.

GORDON M. SAUL,
November 6th, 1933. Secretary.

ROYAL BERKSHIRE HOSPITAL READING

RESIDENT ANAESTHETIST (Male) required as from December 2nd.

The candidate must be fully qualified and registered. Remuneration at the rate of £150 per annum with board, residence, and laundry. Applications with copies of testimonials to be sent to the undersigned on or before Monday, November 20th.

F. A. LYON, Secretary.

ST. ALBANS AND MID HERTS HOSPITAL AND DISPENSARY,
Church Crescent, ST. ALBANS

Applications are invited for the post of RESIDENT HOUSE SURGEON. Salary £150 per annum with board, residence, and laundry. This will become vacant on December 1st. Applications to be sent to the Secretary, St. Albans and Mid Herts Hospital, No. 38 St. Peter's Street, St. Albans.

November 6th, 1933.

CHELMSFORD AND ESSEX HOSPITAL AND DISPENSARY, Union Road, CHELMSFORD

RESIDENT MEDICAL OFFICER required (male). Salary at the rate of £150 per annum with board, lodging and laundry. Hospital contains 120 beds. Applications to be sent to the Secretary, Chelmsford and Essex Hospital, not later than Tuesday, November 21st.

CHESTER ROYAL INFIRMARY
(212 Beds)

HOUSE PHYSICIAN (male) required for December 1st. Salary £150 per annum, with board, lodging and washing. Application list closes November 22nd. Application forms may be obtained from W. H. GRACE, M.D., M.R.C.P., Hon. Superintendent of Resident Medical Staff.

THE SHEFFIELD ROYAL HOSPITAL

Applications are invited for a Full-time CLINICAL ASSISTANT in the Ophthalmic Department for a period of six months. Salary at the rate of £400 per annum non-resident. The successful candidate will be required to commence duty at once.

W. H. BOOTH, Supt. & Secretary.

BRAMWOOD HOUSE HOSPITAL FOR MENTAL AND NERVOUS DISORDERS
near GLOUCESTER

Required SECOND ASSISTANT MEDICAL OFFICER (Male). Commencing salary £350 per annum with board, residence and laundry. Applications with copies of three recent testimonials to be sent to the Medical Supt.

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Vacancy occurs for HONORARY ASSISTANT PHYSICIAN for Clinics Mondays, at 1.30 p.m., and Wednesday at 1.30 and 5 p.m. Applications should be sent to the Secretary.

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WANTED BY M.D., D.P.H., AGED 45, A 1st class PRACTICE in Kent, Surrey, Sussex, or Hants., Tunbridge Wells district specially desired. Income £1,000—£1,500. Ample capital available.—No. 2483.

WANTED BY M.B., CHB. AGED 44, PRACTICE of £1,800 p.a. in mixed country town not too far North. House with at least 4 bed and garden to rent. £3,000 capital ready.—No. 1811.

WANTED IN LONDON NEAR WEST END preferably St. John's Wood, Hampstead, Bayswater, etc., neighbourhoods. Panel at least 1,500 and cash practice. Income about £2,000 p.a. Capital of £5,000 ready to invest.—No. 901.

LONDON, NR. EUSTON.—DEATH VACANCY.—About £900 has been £2,000. Scope for suitable man. Non-panel. Fees 5/6 to 42/. Midwifery refused at last. Lock-up Surgery on rental, or whole house if desired. Books available. Widow open to any reasonable suggestion.—No. 9231.

POPULAR LANCS. RESORT.—HALF SHARE in Practice of £2,550. Panel worth £430. Fees 5/ to 10/6. Midwifery 3½ to 5 guineas. Good house, 2 recep., 4 bedrooms, etc., and separate professional access. On rental. Half share, 2 years purchase, 2/3 down.—No. 9230.

LONDON, S.W.—HALF SHARE IN PRACTICE of £2,200—£2,300 p.a., with panel of 2,500. Midwifery discouraged. Fees 5 to 4 gns. Visits 3/6 to 7/6. Corner house in good position with 2 recep. and 5 bedrooms, surgery, garage, etc. Premium for half share £2,500.—No. 9218.

NORTH WALES.—OVER £600 P.A. ON. Coast. Old-estab. mixed PRACTICE. Panel about 200. Appointment worth now £33. Visits 5/ to 10/6 or more. Large house with 3 recep., 6 bedrooms, etc. Rent only £65. Premium required for goodwill only £800 cash.—No. 9227.

EASTERN COUNTY.—AVERAGE £1,190 P.A., with small panel. Very old-established Town PRACTICE. Fees 7/6 and 5/. Mids. £4 4s. House, with 3 recep., 4 bedrooms, and dressing. Sep. Surgery, etc., and garden. For sale. Premium £2,200 payable as agreed.—No. 9225.

LONDON, N.—WELL ESTABLISHED IN-creasing PRACTICE. Receipts last year £1,250. Panel 670. No midwifery, but ample scope. Car not necessary. Visits 3/6 to 7/6. Surgery 2/6—3/6. Premises in main road, comprise cons. and wait. rooms, and 7 living rooms. Rent on lease at £150 p.a., or sell leasehold. Premium for goodwill £2,000.—No. 9224.

SURREY TOWN.—ABOUT £600 P.A. AP-pointment £100. Visiting fees 5/ to 21/. Scope at lower fees. Midwifery £4 4s. up. Some panel. Corner house with 3 recep., 4 bedrooms, 1¼ acre of garden and good garage to rent. Premium £1,200.—No. 9223.

SPA PRACTICE.—ENGLAND.—AVERAGE NOW £380. Normally about £1,000 decreased through ill-health etc. Fees £1 1s. and £2 2s. Corner house in good position, 2 recep., con. 5 bedrooms, etc. Small garden. Rent £100. Premium £600, offers considered.—No. 9222.

EAST YORKS.—OUTSKIRTS OF TOWN.—PRACTICE estimated at £960 p.a. Established 18 months, and increasing rapidly. Panel 250 at present. Visits 3/6 up. Maternity £2 10s. up. Good house (6 bed, 2 recep., surgery, etc.) and garden. Premium for good will £1,200, with house at £70, or £2,000 house and practice. Suit man or woman.—No. 9213.

PARTNERSHIP.—CENTRAL LONDON.—HALF-share. Old-estab. Receipts about £1,000 p.a. Panel 240. Fees 5/ to 21/. Single man, aged about 30 preferred. Flat available or could reside elsewhere. Premium for quick sale £500.—No. 9207.

EAST COAST.—CASH RECEIPTS LAST 17 months £509. Panel 120, increasing, fees 5/6 up. House 2 recep., 3 bed., bathroom, surg., and waiting. Rent £70 p.a. Premium £360.—No. 9206.

ASSISTANTS REQUIRED.—SUFFOLK. GOOD mixed-class Practice £250—£300 all found. GLAMORGAN. Indoor £250—£300. HONG KONG. $800 per month. Young man, 26/28, able to undertake Eye work. LONDON, S.W. £6 6s. per week and free flat and light.

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HOME COUNTIES (Coast).—Old-established PRACTICE situated in growing locality. Choice of two houses on rental. Receipts approximately £2,700 p.a. Panel about 1,700. Good appointments. Suitable for two friends in Partnership. Premium 2 years' purchase.

ESSEX (Country Town).—Very old-established good-class G.P. Excellent house to be rented at £100 p.a., or freehold may be bought. Receipts approximately £1,620 p.a. Panel 1,051. Three appointments. Suitable only for Surgeon. Premium £3,236 8s.

LANCS (Nr. Manchester).—Very old-established mixed G.P. Semi-detached corner house to be rented on lease at £65 p.a. Two Branch Surgeries. Receipts average £1,720 p.a. Panel 992. Scope for Surgery. Premium £2,300.

NORTH-WEST COAST.—Old-established good-class residential PRACTICE. Excellent detached house in own grounds to be rented on lease. Receipts approximately £2,800. Fees 5/- to 1 guinea. Scope for surgery. Premium 1 year's purchase.

BIRMINGHAM.—Good middle-class NUCLEUS. Receipts £500 p.a. Panel 250, increasing. Excellent all-round scope. Extensive building operations taking place. House (specially built for doctor's use, with large garden and garage) for sale or may be rented at £100 p.a.

LONDON, S.W.—Mixed suburban Cash and Panel PRACTICE. Semi-detached house to be rented on lease (16 years) at £50 p.a. (or lease may be purchased. Receipts approximately £410 p.a. Panel 460. Excellent scope. One appointment. Premium £600.

SUSSEX.—PARTNERSHIP in very old-established middle-class Practice in South Coast seaside resort. Accommodation to be rented on lease at £80 p.a. This year's receipts £2,000. Appointments. Panel over 800. Premium for one-half share £2,300.

LONDON.—Old-established mixed middle and working-class G.P. House to be rented on lease. Average receipts nearly £1,000 p.a. Panel 1,180 (increasing). Fees 2/6 up. Two appointments. Premium to include certain furniture, etc. 2 years' purchase.

LANCS (Seaport Town).—Mixed middle and working-class PRACTICE. Good house to rent on lease. Receipts approximately £1,000. Panel 500. Appointments. Premium 1½ years' purchase.

SOUTH COAST.—Well-established select G.P. Excellent freehold house (3 reception rooms, 4 bedrooms, garage, etc.). Receipts approx. £800 p.a. Premium 2 years' purhase. For freehold house £1,750 (a suitable mortgage could be arranged).

WARWICKSHIRE.—Old-established unopposed Country PRACTICE in pleasant surroundings. Excellent modern freehold house (especially built for Doctor), with large garden and garage. Receipts approximately £500. Panel nearly 500. One appointment. Premium £500. Freehold house £1,500 (part may remain on mortgage).

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3. MIDLANDS. — Unopposed Country PRACTICE. Panel 480. Receipts about £500 p.a. One appointment. Good scope for young man. Premium £500. Good house.
4. HEREFORD. — Unopposed Country PRACTICE in delightful district. Old-established. Receipts average nearly £600 p.a. Panel 400. Good house. All sports.
5. SUBURB OF WELSH CITY.—Small, good-class PRACTICE in attractive district. Receipts about £280 p.a. Panel recently started. Good house, electric light, garden, etc. Premium for house and Practice, £1,500 or nearest offer.
6. LANCASHIRE.—PRACTICE for sale in City. Panel about 1,200. Receipts last year £940. Old-established. Scope. House to rent. Premium 1¼ years' purchase or nearest offer.
7. BERKSHIRE. — Mixed PRACTICE held by lady Doctor. Country Town. Panel 90. Receipts last year £154. Premium £150. Bungalow for sale or rent.

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2. LANCS. — Industrial PRACTICE. Receipts about £625 p.a. Panel about 500. Good house, 5 beds, garage, etc.
3. SOUTH COAST. — Middle and lower class PRACTICE. Receipts for last four years average £632. Panel 542. Nice house, 5 beds., etc.
4. SOUTH WALES.—Well-estab. mixed PRACTICE. Receipts about £725. Suitable house, with garden and garage.

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DORSET.—Old-established mixed PRACTICE in good district Average cash receipts £1,200 p.a., excluding appointments £100 p.a. Panel 1,256 Scope for increase Excellent semi-detached house, 3 reception, 4 bedrooms, garage, and garden Price £1,300 Premium—Practice—1½ years' purchase.—No 510

LANCS TOWN, near MANCHESTER.—Mixed PRACTICE in Industrial district Cash receipts last year £1,275 Panel about 1,000 Good house, 2 reception, 3 bedrooms, 3 professional rooms (separate entrance), garage Rent £60 p.a. on lease Premium, best offer.—No 509

NORTH-EAST COAST.—Better working and middle-class PRACTICE in large town Cash receipts last year £1,509, including £850 from panel, club, and appointment Panel 1,200 Central Surgery, with good living accommodation Price (freehold) £1,150 Premium—Practice—2 years' purchase Long introduction, if desired.—No 511.

NORTH WEST COAST. — PARTNERSHIP in middle and upper working-class Practice in popular seaside resort Cash receipts last year £2,552. Panel 820 Scope for increase Good house (on sea front), 2 reception, 4 bedrooms, 3 professional rooms, garage, and small garden. For sale, or may be rented for two years. Cottage Hospital Premium—one half share—2 years' purchase.—No 512

DEATH VACANCY.—MANCHESTER.—Old-established middle and better working-class PRACTICE. Cash receipts last year £2,061. Panel—not encouraged—over 600 Excellent detached house, 2 reception, 6 bedrooms, 3 professional rooms (separate entrance). Garage and garden Premium—Practice—1 year's purchase.—No 507.

NEAR NORTH-WEST COAST.—Country PRACTICE of over £800 p.a. in beautiful district Panel 329 Scope Good sport Premium best offer.—No 477.

MANCHESTER.—Mixed PRACTICE in residential suburb. Average cash receipts £780 p.a. Panel 700 District developing. Scope. Good house, 2 reception, 5 bedrooms, garage, and garden. Premium 1½ years' purchase.—No 483

NORTH-WEST COAST.—Large residential and seaside town.—Old-established PRACTICE Cash receipts about £1,200 p.a. Panel 1,500 Excellent detached corner house (freehold), 3 professional rooms, 5 bedrooms, and 2 reception rooms, garage, and good garden for sale. Premium—Practice—1½ years' purchase.—No 417

LEEDS.—PARTNERSHIP in very old-established Practice. Gross receipts last year £3,890. Panel of over 3,000, and appointments Specially constructed modern house on main road with large garden To be sold or rented. Premium—2/8 share—2 years' purchase.—No 513.

CO. DURHAM.—LARGE TOWN.—Old-established mixed PRACTICE, averaging over £800 p.a. Panel 600. Scope Good house, 2 reception, 4 bedrooms, 3 professional rooms. Garage and garden Premium £950.—No 422.

MEDICAL WOMAN'S PRACTICE.—MANCHESTER Cash receipts over £600 p.a. Panel 450 Scope Good house to rent in main road, 3 reception, 6 bedrooms, garage Premium—best offer.—No 330.

OPHTHALMIC PRACTICE of over £1,600 p.a. in an important town on North East Coast. Excellent scope for well-qualified man Large house in good condition for sale.—No 491

MANCHESTER.—Old-established mixed PRACTICE. Cash receipts last year £660 Panel 788 Scope. Good corner house, 2 recep., 4 bedrooms, garage Rent £60 p.a. Premium 1½ years' purchase Could be worked along with another small Practice for sale, quite near, doing £300 p.a., with a panel of 350.—No 437

WARWICKSHIRE.—Country PRACTICE in delightful district Cash receipts approx. £500 p.a. Panel 479 Scope Modern house (built for doctor), 3 reception 6 bedrooms, garage, and large garden, with orchard, for sale Sport of all kinds Premium £500 Vendor retiring.—No 480

DERBY. — Small old-established PRACTICE, capable of considerable increase Average cash receipts £530 p.a. Panel 509 Excellent modern house, 3 reception, 5 bedrooms, and garden For sale or to rent. Premium — Practice — £500 Vendor retiring.—No 486

MEDICAL WOMAN'S PRACTICE — SCOTLAND.—Country District Cash receipts last year £565 Panel 100 Convenient detached house, 2 reception, 3 bed., garage, and large garden.—No 506

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LARGE LANCS TOWN. — Very old-established middle-class PRACTICE, averaging last 2 years £3,047 p.a. Panel 500 Appointments £300 p.a. Partnership with succession in 12-18 months suggested. Good semi-detached house, 3 reception, 6 bedrooms, garage, and garden. For sale or would rent on lease Vendor retiring Premium 1½ years' purchase.—No 464

LANCS TOWN, eight miles from Manchester. — Old-established mixed PRACTICE, averaging £700 p.a. Panel 639 Scope for increase District rapidly developing Good house, 2 reception, 3 bedrooms, garage, and garden (separate entrance to surgery) Premium—Practice and house—£1,350.—No 493

MANCHESTER.—Mixed PRACTICE, averaging £1,000 p.a. Appointments (transferable) £200—£250 p.a. Panel 850. Good corner house, 2 reception, 3 bedrooms, 3 professional rooms; garage and small garden Prem.—Practice—1½ yrs.' pur.—No. 492

LARGE LANCS TOWN, near Manchester. — Small PRACTICE, capable of great increase Cash receipts last year £442. Panel 150. Good corner house, 3 reception, 5 bedrooms, garage Net rent £30 p.a. Premium £400. Vendor retiring.—No. 482.

NR. MANCHESTER.—Small PRACTICE of over £500 p.a. Panel 778 Scope for increase House, 2 reception, 4 bedrooms, and professional rooms Rent £35 p.a. Prem., best offer.—No 484.

ASSISTANTS and LOCUMTENENTS (male and female) SHOULD REGISTER AT ONCE FOR ENGAGEMENTS.

All communications to be addressed to the Branch Manager, BRITISH MEDICAL BUREAU, 33, CROSS ST., MANCHESTER, 2.

British Medical Bureau

(THE SCHOLASTIC, CLERICAL & MEDICAL ASSOCIATION LTD.)
(FOUNDED 1880.)

12, Stratford Place,
Oxford Street, W.1.

Tele. Address: Triform, Wesdo—London.
Telephone: Mayfair {1782 1783

The Association has long been favourably known to the members of the Medical Profession as a thoroughly trustworthy and successful Agency for the transaction of every description of Medical, Scholastic and Accountancy business, and the BRITISH MEDICAL ASSOCIATION has every confidence in recommending its members to consult Mr. A. V STOREY, the General Manager, in all transactions requiring the services of a Medical Agent.

Members of the British Medical Association may take advantage of a reduced scale of charges applicable to them.

The business undertaken by the British Medical Bureau is divided under the following heads:—

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Medical Practitioners wishing to dispose of Practices, or desiring to take Partners, are advised to negotiate the business through the British Medical Bureau. Vendors may depend upon receiving introductions only to eligible and bona-fide purchasers. All information is treated in strictest confidence. Full and trustworthy information regarding Practices, Partnerships, etc., for disposal, supplied gratis to Purchasers.

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Assistants and Locum Tenens can be secured at short notice. It is the foremost aim of the British Medical Bureau to ensure that only the most Trustworthy and Reliable Locums and Assistants are sent out.

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Medical Men wishing to receive Resident Patients should enrol their names on the books of the British Medical Bureau. A large number of Patients are placed yearly through this medium.

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Practices and Partnerships for Disposal. **Full particulars sent free.**

1 S. MIDLANDS. — PARTNERSHIP IN OLD-ESTABLISHED Practice of about £3,300 p.a. in growing Country Town. Panel 1,986. Visits 5/- (cash), 6/6, 7/6, 10/6. Not much midwifery. Choice of houses. Considerable scope for increase as building is going on at a great rate. Premium one-half share two years' purchase, cash.

2 WITHIN 15 MILES OF LONDON.—PARTNERSHIP IN SOUND old-established Practice in important and growing Town. Cash receipts average £5,257 p.a., including appointment and clubs, and panel 3,800. Visiting fees 4/- to 10/6 (few 5/-). Small detached house (2 large bedrooms), etc., for sale or rent. Premium one-fourth share, two years' purchase. Good Hospital.

3 S. MIDLANDS. — PARTNERSHIP IN WELL-ESTABLISHED Prac[illegible] £2,650 p.a., in small Country Town, in[illegible]strict. Panel 1,750. Visits 3/6 to £1 [illegible] or night work. Very suitable house can be rented or purchased. Premium one-third share £1,750.

4 SHROPSHIRE.—WELL-ESTABLISHED PRACTICE, AVERAGing £700 p.a., in pleasant Market Town. Panel 170. House available to rent. Scope for increase. Premium one and a half years' purchase.

5 NORTHAMPTONSHIRE. — PARTNERSHIP IN OLD-ESTABlished Practice, averaging £1,718 p.a., in small town. Panel 1,930. Good scope for young energetic man. Premium for three-eighths share two years' purchase.

6 KENT COAST.—NUCLEUS OF PRACTICE (HELD BY MEDICAL Woman), in small pleasant Town. Panel and Public Medical Service recently started. Visits 5/- to 10/6, medicine extra. No midwifery. Well-situated house (5 bedrooms), central heating, electric light, good garden, and garage, to rent. Scope for increase as building is going on. Good local Hospital. Reasonable offer entertained.

7 E. MIDLANDS.—VERY OLD-ESTABLISHED AND EASILY worked Country PRACTICE about 8 miles from the County Town. Cash receipts average between £650 and £700 p.a., including panel about 600. Suitable house, with 4 bedrooms, electric light, garage, and garden for sale or rent. Scope for young energetic man. Premium one year's purchase.

8 LONDON, E.—OLD-ESTABLISHED PRACTICE OF £250 P.A. in the Forest Gate district. Panel 60. No midwifery. Modern house (5 bedrooms) in good residential part. Electric light and heating and nice garden for sale or rent. Scope for increase. Premium £385.

9 N. DEVON. — OLD-ESTABLISHED PRACTICE IN PIcturesquely situated Watering Place. Receipts average £1,173 p.a., including panel 474. Excellently situated house in very good state of repair both inside and out, containing 8 bedrooms, etc. Price of leasehold £800. The Practice is particularly suitable for one not too robust or young who needs country life. Salmon, river, and sea fishing, hunting, etc. Cottage Hospital. Premium £1,850.

10 PARTNERSHIP IN OPHTHALMIC PRACTICE IN FIRST-RATE town. Applicants should be F.R.C.S. Eng., aged 30—40, and experienced.

11 [illegible] PARTNERSHIP IN WELL-ESTABLISHED [illegible] and [illegible] good Suburb. Panel over 1,200, rap[illegible] house to rent. Excellent scope and unrivalled prospects for the right man. Premium for share worth about £800 p.a., £1,350.

12 RIVIERA.—SEASON PRACTICE ABOUT £800 P.A. CAPABLE of large increase. Premium £2,500.

13 LONDON, S.W.—WELL-ESTABLISHED OPHTHALMIC PRACTICE averaging £900 p.a. in Suburban District. Fee for consultation and examination £1 1s. Well-situated house to be sold or let. Premium £1,200.

14 S. WALES. — PRACTICE BETWEEN £250—£300 P.A. IN beautifully situated village about 4 miles from important town. Small panel. Nice house (6 bedrooms), electric light, gas, and company's water. Garage and garden. Premium house and Practice only £1,500 for quick sale.

15 W. OF ENGLAND.—PARTNERSHIP IN OLD-ESTABLISHED Practice over £2,200 p.a. in County Town. Panel about 1,000. Visiting fees 5/- to £1 11s. 6d. Suitable house available. Excellent educational facilities. Premium one-half share two years' purchase. Exceedingly good prospects for well-qualified physician (preferably a M.R.C.P.) with opportunity of getting on staff of Hospital in near future.

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Practices and Partnerships for Disposal (continued).

16 ITALY — SEASON PRACTICE — OLD ESTABLISHED AND easily worked. Receipts season 1932/3 £1,015. Fees 12 6 to 25. No midwifery, and practically no night work. Nice flat in good position to rent. Considerable scope. Premium one and one third years' purchase.

17 LONDON, S.E.—LOCK UP PRACTICE OF ABOUT £350 P.A. in Suburban District within 5 miles of Charing Cross. Panel 320. Premises consisting of Surgery and Waiting Room on ground floor, to rent on lease. Premium £500, or near offer.

18 N. OF ENGLAND—SPA PRACTICE, AVERAGING £380 P.A. in famous Health Resort. Fees £1 1s. and £2 2s., occasionally 10/6. Semi-detached corner house (5—6 bedrooms) in best part which can be rented. Premium £500.

19 SHROPSHIRE BORDER — WELL-ESTABLISHED PRACTICE in large Industrial Village amidst beautiful country. Income about £700 p.a., including panel, rapidly increasing. Small detached modern house (4 bedrooms) with electric light, gas, for sale or rent. All kinds of sport. Cottage Hospital. Premium £800. Would suit either Medical Man or Medical Woman.

20 PRIVATE MENTAL HOME (FOR LADIES ONLY)—EXCEPTIONALLY nice house and ground. A considerable sum required for the purchase. Further particulars on application.

21 SURREY — PARTNERSHIP IN SOUND OLD ESTABLISHED good mixed-class Practice about £2,650 p.a. in the Croydon area. Small panel. Very little midwifery. Scope for increase. Premium one half share 2 years' purchase.

22 NORTHANTS—WELL-ESTABLISHED COUNTRY PRACTICE within 80 miles of London and easy distance of several good towns. Income about £1,300 p.a. including £550 from panel and clubs. Delightful house (6 bedrooms) with garages and very good garden for sale. Opposition weak. Very nice country and all kinds of sport. Scope for increase. Premium £2,450.

23 MIDDLESEX — MIXED WORKING CLASS PRACTICE OF about £1,020 p.a. in rapidly growing district within 10 miles of the Marble Arch. Panel about 1,120. Corner house (5 bedrooms), with garage and fair sized garden, for sale. Scope for increase. Premium £2,000.

24 KENSINGTON — WELL ESTABLISHED HIGH CLASS NON-dispensing PRACTICE. Cash receipts past three years averaged £1,618 p.a. No panel. Visits 10/6, 12/6 and 15/. Residence contains 4 bedrooms, consulting room, etc., to rent on lease. Premium £3,000.

25 S. COAST—NON-DISPENSING PRACTICE AVERAGING OVER £450 p.a. in well known Health Resort. Panel 250. Visits 3/6 to 10. House in excellent position facing sea, and containing 6 bedrooms, etc. Price of freehold £2,400. Premium for Practice £400.

26 LONDON, E.C.—OLD ESTABLISHED PRACTICE OF ABOUT £1,650 p.a., including appointments, panel and Public Medical Service worth over £500 p.a. Visits 2/6 to 7/6. Practically *no midwifery. Introduction* up to 12 months will be given. Premium £1,500.

27 N.E. COAST—OLD ESTABLISHED PRACTICE IN SEAPORT Town. Cash receipts average £1,260 p.a. including appointments worth £130 p.a. and a panel of 1,115. Corner house (4 bedrooms), with separate surgery accommodation. Premium for House and Practice £2,600.

28 SHROPSHIRE & CHESHIRE BORDERS—OLD ESTABLISHED PRACTICE averaging £1,035 p.a. in Market Town. Panel 850. Visits 3/6 to £1 1s., medicine sometimes extra. Detached house (5 bedrooms, attics, etc.) with garage and old world garden for sale. Educational facilities. All kinds of sport. Well equipped Cottage Hospital and opportunity for one keen on Surgery. *Premium* £1,580.

29 BIRMINGHAM—WELL-ESTABLISHED GROWING PRACTICE in good Suburb. Cash receipts last year £1,400. Panel nearly 1,200 rapidly increasing. House on Key Site. No other resident Practitioner allowed on Estate. Good reason for selling. Building going on in immediate vicinity (600 maisonettes being erected in near future). Price of house £525, £250 deposit, rest in rent. Premium for Practice £2,400.

30 N. OF ENGLAND—OLD ESTABLISHED MIXED CLASS PRACTICE in large growing residential suburb of important town. Cash receipts average £1,450 p.a., including appointments and panel 677. Charming modern corner residence. Good introduction. Premium two years' purchase.

31 S. WALES—SMALL PRACTICE IN A COLLIERY DISTRICT doing about £150 p.a. Accommodation to rent. Scope for young energetic man. Premium £150.

32 S. COAST—A WELL-ESTABLISHED PRACTICE OVER £1,000 p.a. in popular Resort. Panel 850. Excellent scope. Premium two years' purchase.

33 N. KENSINGTON—PRACTICE OF ABOUT £300 P.A. PANEL 200. Corner house to rent. Premium £475.

34 NOTTINGHAM—SMALL PRACTICE OF ABOUT £225 P.A. Panel 200. Corner house (4 bedrooms). Rent £60 p.a. Premium £500.

35 EASTERN COUNTIES—COUNTY TOWN—VERY OLD ESTABlished middle and upper class PRACTICE averaging £1,190 p.a. Panel 120. Visiting fees 7/6 to 15/6. Ten roomed house in good residential part with garage and garden for sale. Scope. *Premium* £2,200.

36 LONDON, S.W.—WELL-ESTABLISHED EYE, EAR, NOSE AND Throat Connection in Suburban District. Cash receipts last twelve months £432 (mostly from Eye work) including appointment worth about £120 p.a. *Corner detached non basement* house (7 bedrooms) with garages and very nice garden. Price of freehold and Practice, £2,350.

37 GLOUCESTERSHIRE.—PARTNERSHIP IN VERY OLD ESTABlished Practice of nearly £1,750 p.a. in small town in beautiful part of the country. Panel over 1,550. Fees average 7/6. *Premium one half share 2 years' purchase.*

38 FAMOUS INLAND WATERING PLACE AND HEALTH Resort—Well established non-dispensing PRACTICE. Receipts last three years averaged £986 p.a., including a select Panel of 280. Fees 5/ to £1 1s. Particularly attractive house with large garden, for sale. Scope. Premium £750.

39 SUFFOLK AND NORFOLK BORDERS—PRACTICE OVER £300 in Market Town. Panel 87. Nice house (6 bedrooms), garage and good-sized garden. Price of freehold £850. Excellent school. Plenty of sport. Cottage Hospital. Premium £450.

40 LONDON, E.—CASH AND PANEL PRACTICE OF OVER £600 p.a. in *populous district*. Panel 590. Small house to rent on lease. Premium £800.

41 LONDON, W.—GOOD MIDDLE CLASS PRACTICE £400 P.A. in suburb within easy access of the West End. Panel over 100. *Attractive double fronted house with nice garden for sale. Scope* for increase. Premium 1½ years' purchase.

42 HOME COUNTIES — OPHTHALMIC PRACTICE BETWEEN £300 and £400 p.a. in desirable Residential Town under 15 miles from London. Good detached house (4 bedrooms) with large garden for sale. Good reasons for plenty of scope for increase. *Premium* £300.

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Accountancy and legal services furnished by the Agency, where desired, at moderate inclusive charges. No charge is made to Principals for the introduction of Locum Tenens or Assistants.

1. SOUTH WALES.—HOSPITAL TOWN.—PARTNERSHIP.—A one-third share with succession to the whole Practice in three to six years as agreed is offered in a very old-established good middle-class Practice situated in a pleasant town with attractive surrounding country. Gross cash receipts average over £2,300 p.a. Selected panel of 200. Appointments worth about £60 to £70 p.a. Fees: advice and medicine 3/6 to 7/-, visits 5/- to 21/-. Not much midwifery, from 8 guineas. Suitable small house. Garden and garage. Can be rented. Sport of all kinds. Premium for share 2 years' purchase. It is essential that the ingoing Partner should have a good knowledge of Medicine, and preferably hold the M.R.C.P.
2. HOME COUNTIES.—PARTNERSHIP.—A one-third share (with increase later) is offered in a very good old-established mixed-class Practice having considerable scope for increase. Situated in country town; beautiful residential neighbourhood within 35 miles of London. Gross cash receipts for last three years average £2,636; panel 1,750. Visits 3/6 to 21/-. Suitable house can be rented on lease at £100 p.a. Premium for share £1,750.
3. NORTH DEVON.—FAVOURITE SEASIDE RESORT.—Very old-established PRACTICE held 10 years by Vendor. Cash receipts average £1,173 p.a., *including appointment* (transferable) worth over £100 and panel producing £340. House has ample accommodation (8 bedrooms, etc.). Vendor's leasehold property having about 35 years to run. Price £800. Premium £1,850.
4. *WITHIN* 150 MILES NORTH OF LONDON.—COUNTY TOWN.—Old-established mixed-class PRACTICE averaging nearly £1,100 p.a., including panel of 118. House contains consulting and waiting rooms (separate entrance), lounge, 2 reception rooms, 4 bedrooms (2 fitted with hot and cold water basins), dressing room, bathroom, etc. Garden of 1/4 acre. Large garage. Electric light. Vendor's freehold. Price £2,000, part on mortgage. Premium £2,200.
5. KENT.—PARTNERSHIP.—A one-third share (with increase up to one-half later) is offered, after a preliminary assistantship, in very old-established good middle and working-class Practice producing approximately £2,400 p.a. Panel of 1,375. Fees 3/6 to 10/6. Appointments worth over £350 p.a. *Premium for share 2 years' purchase.* Purchaser should be preferably Scotch or English and able to undertake major surgery.
6. SOUTH-WEST OF ENGLAND. — FAVOURITE COAST TOWN. — Old-established good mixed-class non-dispensing PRACTICE, producing over £1,000 p.a., including panel of 1,470. Consultations 5/- to 10/6; visits 6/- to 12/6. Very moderate expenses. Delightful house, standing in its own grounds in best residential part, in good repair and conveniently arranged on two floors, containing 3 reception, 4 bedrooms, dressing room, 2 maids' rooms and sitting room. Separate entrance to professional rooms. Electric light. Garden. Garage. Premium for Practice and house £4,500.
7. WESTERN SUBURB.—Old-established better middle-class non-panel PRACTICE, in well-populated area, averaging for the last three years over £2,200. One appointment worth £80 p.a. Visits from 3/6 to 10/6. Not much midwifery. Suitable house, with 3 reception, 6 bedrooms, etc. Rent on lease £90 per annum. Premium £4,000 Good introduction given.
8. PARTNERSHIP. — HOME COUNTIES.—A one-fourth share is for *disposal (owing to the retirement of one of three Partners)* in an old-established good mixed-class Practice, in beautiful residential district within easy reach of London. Gross cash receipts approximately £3,400. Panel of 1,400. Well-situated small modern house, *with 2 reception, 3 bedrooms, etc.* Garden. Rent £59 p.a. Premium two years' purchase.
9. IMPORTANT INLAND SPA.—Old-established better-class non-dispensing PRACTICE, averaging about £380 p.a. Receipts have been considerably *more and the Practice could be increased, if desired.* Fees 1 and 2 guineas and occasionally half a guinea. House is a corner one in good residential district with ample accommodation, newly decorated. Can be rented on lease at £100 a year. Garden. Excellent *social and sporting facilities. Premium* £500.
10. SOUTH WALES.—Beautiful Country District within 4 miles of large town. Small PRACTICE, producing between £300 and £350 p.a., offering good scope. Visiting fees from 5/-. Very little midwifery or night work. Well-situated house, with well-kept garden, containing 2 reception, 3 good-sized bedrooms and servants' rooms. Electric light and gas throughout. Garage. Price for Practice and house £1,500.
11. PARTNERSHIP.—HOME COUNTIES.—A one-third *share, producing* approximately £900 p.a. is offered (after a Preliminary Assistantship) in an old-established mainly better-class Practice situated *in very attractive* county town within easy reach of London. *Ingoing Partner must be well qualified and experienced, accustomed to good-class work, married,* and between 30 and [illegible] years of age. *Premium for share 2 years' purchase.* Good local Hospital. Reason.
12. PARTNERSHIP.—FAVOURITE [illegible] *share (after a Preliminary Assistantship)* in an old-established good mixed-class Practice, which £1,500 p.a. is from panel. Fees midwifery. *Ingoing Partner must* [illegible] ESTABLISHED AND EASILY SOUTH COAST TOWN.—A one-sixth [illegible] the County Town. [illegible] and 40 [illegible] including [illegible] electric light, [illegible] energetic [illegible] Graduate, about 28 years of age, with good experience of general *practice. Premium* for share 2 years' purchase. Good scope for increase.
13. HANTS. — ASSISTANTSHIP with view to PARTNERSHIP, and *ultimate* SUCCESSION, is offered in an old-established Practice situated in very desirable district. Must be a Graduate, experienced, and about 30 years of age. Appointment either Indoor or Outdoor. Personal application if possible.
14. LONDON, SOUTH-WEST. — LOCK-UP SURGERY, situated in main thoroughfare, and bringing in £300 p.a., including panel of 200. Fees 2/6 to 5/-. Premises are in very good condition. Rent on lease £70 p.a., part let off at £52 p.a. Premium 2 years' purchase. Excellent scope for increase.
15. MIDLANDS.—Old-established middle and better-class PRACTICE in clean and attractive manufacturing city. Cash receipts average over £1,600 p.a., including appointment worth £165 (transferable) and panel of 1,220. Visits 5/- to 2 gns. Midwifery discouraged, fee 5 to 15 gns. Exceptionally good house in own grounds, with ample accommodation, fitted with every labour-saving device and economically run. Situated in best residential part. Cottage in the grounds is let at £37 a year. Price, freehold, £5,000 (£3,500 *on mortgage*) Premium £3,500. Scope for active man.
16. LADY DOCTOR'S PRACTICE. — LONDON, SOUTH-EAST.—The half share is offered in a well-established middle and working class Practice *averaging for the last three years* £1,188 p.a. Panel of about 600. Two appointments worth about £130 a year. Fees from 2/6. Small house, containing 1 reception room, 3 bedrooms, bathroom, etc., and professional rooms. Price for freehold £750. Premium for share *2 years' purchase. Ill health reason for sale. Preliminary assistant*ship of one to two months offered.
17. YORKSHIRE UNIVERSITY TOWN. — Old-established middle and working-class PRACTICE, averaging for the past three years £1,132 *Easily worked, and good scope for increase. Panel of over 1,000* Very light expenses. Good house with 2 reception, 5 bedrooms, etc., and separate surgery accommodation. Price for freehold £1,500. Premium, to include book debts, drugs, etc., £1,900.
18. EGYPT.—*Well-established PRACTICE, producing about* £950 p.a., and offering scope for increase. Fees 10/6 to 2 gns. Excellent accommodation can be rented at £16 10s. monthly. Premium, to include all furniture, drugs, drug bottles, instruments, etc., £2,000
19. EASTERN COUNTIES.—ASSISTANTSHIP with view to Partnership (after a preliminary period of six months at a salary of £440 p.a., with free house) is offered in an old-established good mixed-class Practice, situated in pleasant residential and agricultural district *within about 15 miles of the coast. Gross cash receipts approximately* £3,000. A third share is for disposal at a premium of 2 years' purch.
20. EASTERN COUNTIES. — FAVOURITE SEASIDE AND HOLIDAY RESORT. — Good mixed-class PRACTICE, established many years, producing for last twelve months £1,600. Panel *brings in* £300 p.a. and appointment worth £100 p.a. Fees 5/6 to 7/6, with medicine extra. Nice house, with 2 reception, 5 bedrooms, etc. Garage. Garden. Price for freehold £2,250. Golf, shooting, and other sport. Premium 1½ years' purchase.
21. OPHTHALMIC PRACTICE.—Within eighty miles of London.—Practice is increasing, and offers good scope for further development. Average gross cash receipts for the past three years £554. Last year over £700. Fees 1 to 2 guineas. Opposition slight. Choice of houses. Premium £700.
22. RIVIERA.—Old-established PRACTICE, the receipts from which have averaged over £1,600 p.a., but have decreased recently owing to Vendor's ill health. Very good prospects of *extension.* Fees from £1 1s. Very easy work. Suitable flat can be rented at £160 p.a. Premium £3,000.

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3. BUCKS, BERKS, or near locality.—Better-class PRACTICE, averaging about £1,500 p.a., with good scope. Panel not necessary. Amt.'s capital for *purchase of house and Practice.*
4. SOUTH OF ENGLAND.—Good town, with educational facilities. Income £1,200 to £1,800, with substantial panel. Fair-sized house, with garden.
5. *SOUTH COAST TOWN, or near locality.*—PRACTICE averaging about £1,500 p.a., with panel of 1,000 or thereabouts. *Small house, preferably on rental.* Capital available.
6. LONDON OR SUBURBS.—PRACTICE, producing £1,400 to £1,600 p.a., with panel of 1,500. Good house, with garden.
7. GOOD LONDON SUBURB or RESIDENTIAL DISTRICT within 3 miles of St. Pancras, in the County of London. Well-established PRACTICE producing about £1,500 p.a., with excellent [illegible] panel. Small convenient house sufficient. Early purchase. [illegible] (preferably a M.R.C.P.) Hospital in near future terms, to be afforded to approved [illegible]ership. Full details on application.

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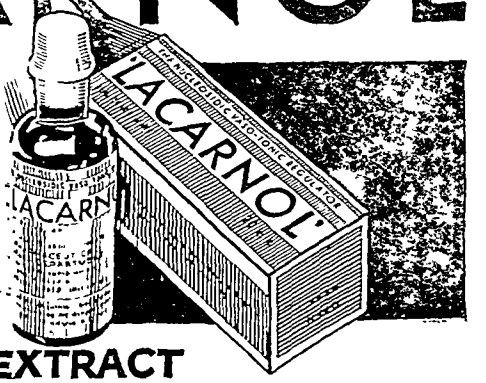
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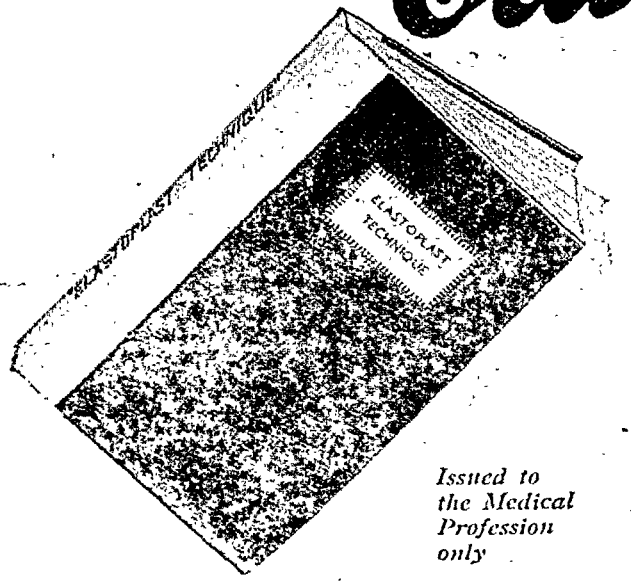
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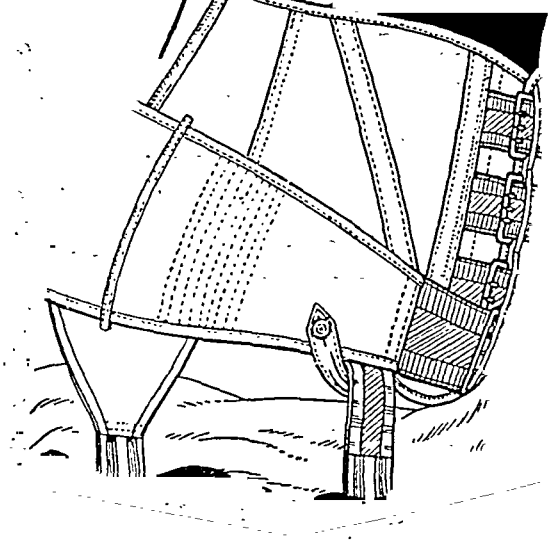
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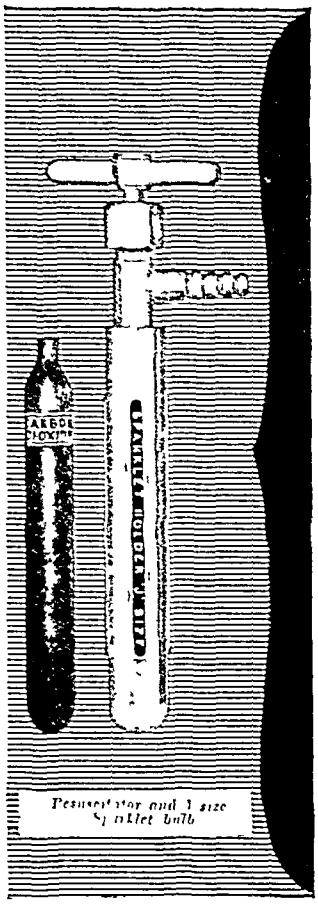
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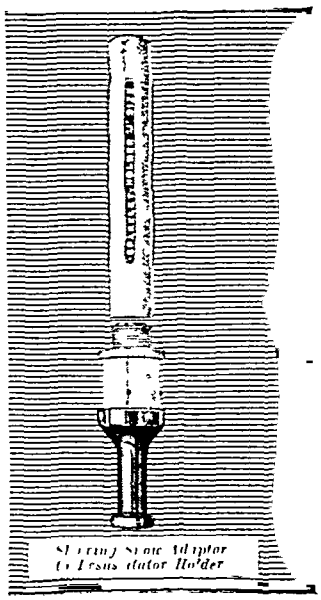
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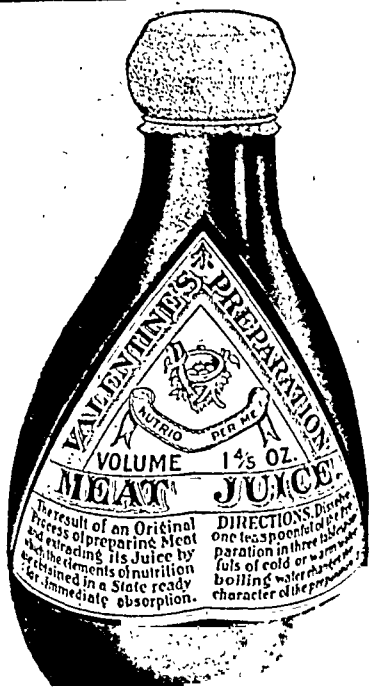
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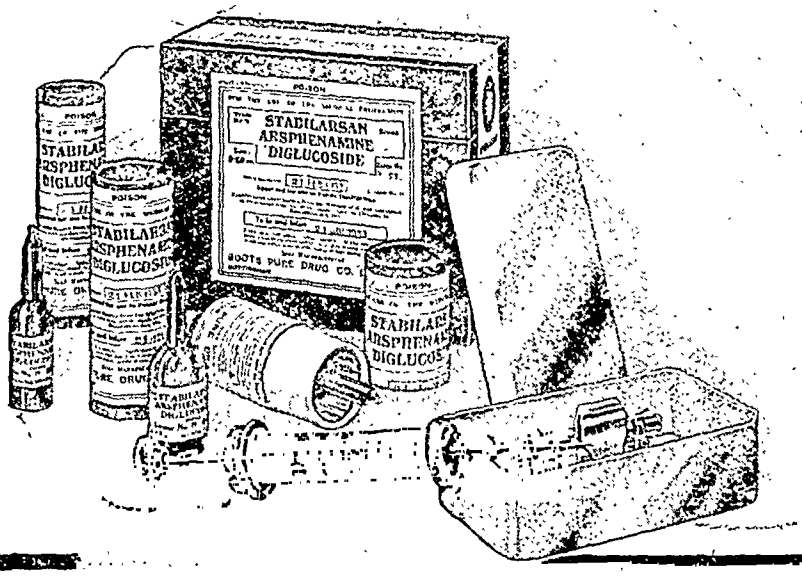
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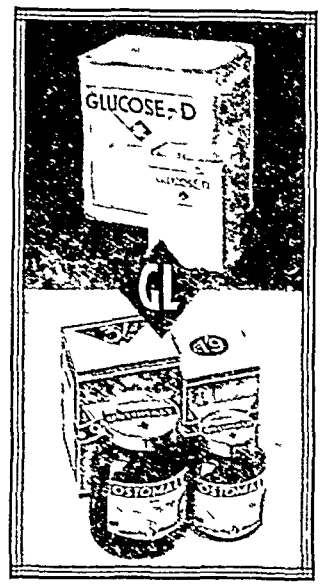
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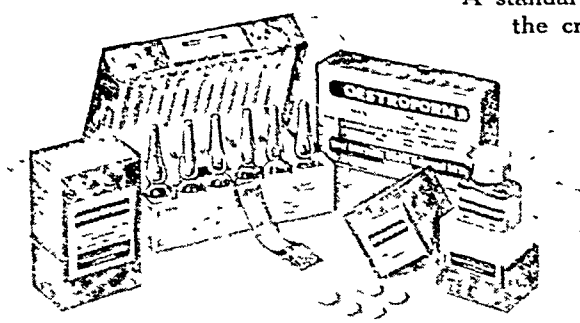
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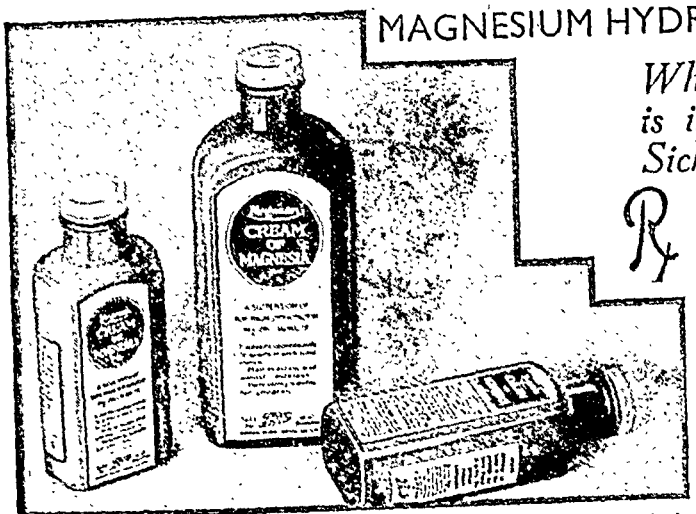
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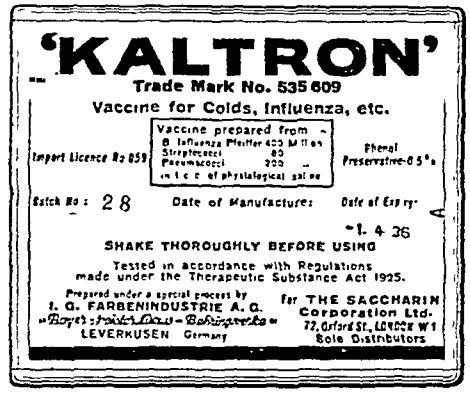
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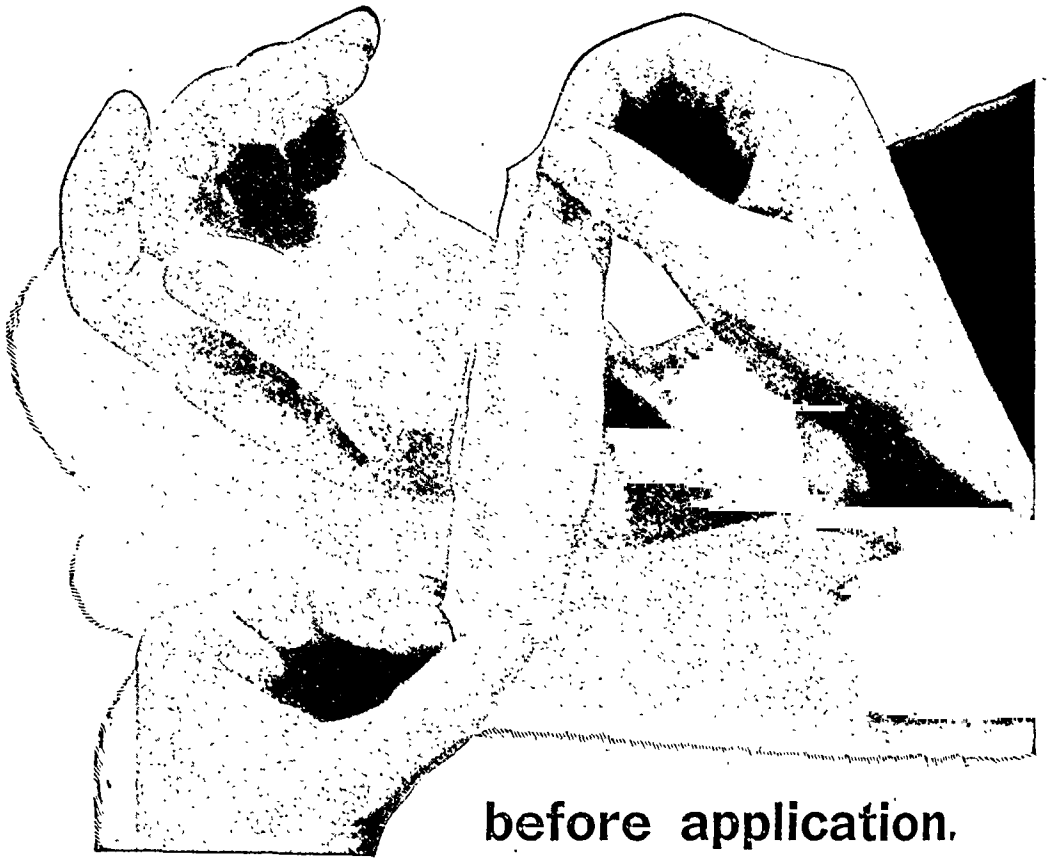
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The Mitchell Lecture

ON

HUMAN TUBERCULOSIS OF BOVINE ORIGIN

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON

BY

WILLIAM G. SAVAGE, M.D.

COUNTY MEDICAL OFFICER OF HEALTH, SOMERSET

My remarks will be confined to that part of human tuberculosis which is due to the activities of the bovine type of the tubercle bacillus. It is a definite, if limited, field which provides problems peculiar to itself, while the prevention of tuberculosis of bovine type is a subject of considerable complexity. Fortunately to-day one of our difficulties has been removed. We no longer have to guess without definite facts as to the share of the bovine tubercle bacillus in the total of human tuberculosis. The painstaking work of many bacteriologists, in particular that of the English Royal Commission on Tuberculosis, has enabled differentiation tests to be evolved which, with but a small margin of error, allow a definite diagnosis to be made upon any isolated tubercle bacillus as to whether it is a *human or a bovine strain.*

The only factor which might upset the accumulated data as to the distribution of the two types of bacilli in man is the possibility of mutation of one type into the other with long sojourn in a human environment. This conception received considerable stimulus in 1903 from von Behring, who advanced the view that ingestion of the tubercle bacillus, particularly the bovine bacillus, in infancy was responsible for most of the tuberculosis in later life. This view has recently been revived, but without much in the way of new facts to support it. Against it we have the important fact that no one has been able experimentally to change one type into the other, even by experiments extending over years, as has been done with human bacilli inoculated into the calf. Bacilli isolated from human tuberculous lesions are almost always one type or the other, and intermediate strains are comparatively infrequent. A. S. Griffith[1] considers that such strains represent "merely temporary or quasi-permanent variants of one or other of the two forms; they retain characteristics of the types from which they have been derived, and are often capable of complete reversion to the original type." This interesting possibility must be rejected at present as unsupported by any real evidence, and the higher incidence of the bovine type in childhood is amply explained by the different path of entry.

The incidence of the bovine type in man is based upon the differentiation, by cultural and inoculation tests, of a very large number of strains isolated from individual cases. Since the relative proportion varies both with the localized type of tuberculosis and with the age of the patients, the findings are best appreciated when both these factors are shown. For cases in England A. S. Griffith,[2] who is responsible for so much of our knowledge, gives the figures in Table I, bringing the earlier statistics up to date. A majority of the strains were isolated by him. For Scotland the bovine proportion is higher, as shown in Table II, taken from the same paper. The definitely higher incidence for Scotland is of great interest, but there does not appear to be any complete explanation.

In view of the preponderant share of the pulmonary type in tuberculosis the part played by the bovine bacillus in this variety is of especial interest. Griffith[3] in 1930 summarized the English figures and reported three out of 327 phthisical persons to be expectorating bovine tubercle bacilli. He concluded that in most cases the bacilli entered the body through the alimentary tract. Cumming and Foster,[4] in an interesting paper, report the following findings:

(*a*) Sputum from 211 unselected Bradford (Yorkshire) cases of pulmonary tuberculosis; six bovine strains, or 2·84 per cent.

(*b*) Sixty-five cases of pulmonary tuberculosis with definite clinical evidence of a previous glandular lesion eleven bovine strains, or 16·92 per cent.

(*c*) One hundred and eleven cases of pulmonary tuberculosis in children: three bovine strains, or 2·7 per cent.

(*d*) Eleven cases of pulmonary tuberculosis occurring in those likely to be much in contact with tuberculous cattle: two bovine strains, or 18·2 per cent.

In a later paper Cumming[5] increases the number of cases occurring in those in contact with tuberculous cattle to fourteen, and of these four strains were bovine, or 28·6 per cent. Their ages were respectively 28, 40, 32, and 27. It is of great interest that for three at least out of the four cases there was no direct evidence of any alimentary route infection. Lange[6] in Germany investigated forty cases of pulmonary tuberculosis, all of them patients whose occupations exposed them to infection from tuberculous cows. In eight cases (20 per cent.) bovine tubercle bacilli were found in the sputum. Both Cumming's and Lange's observations suggest direct air-borne infection. Griffith and Munro[7] give the figures for Scotland down to June, 1931, and these are the 548 cases shown in Table II. From these twenty-one bovine strains were isolated, or 3·8 per cent.

These are all recent observations, and they suggest that the prevalent view that pulmonary tuberculosis is almost invariably due to the human tubercle bacillus must be revised, and that an appreciable percentage must be ascribed to the bovine bacillus.

TABLE I.—*Statistics for England*

Variety of Tuberculosis	All Ages		0–4 Years		5–14 Years	
	No. of Cases	Percentage Bovine	No. of Cases	Percentage Bovine	No. of Cases	Percentage Bovine
Cervical glands ...	116	45.7	21	85.7	54	48.1
Lupus...	177	48.6	75	57.3	87	47.1
Meningeal	63	30.1	23	34.8	29	31·0
Bone and joint ...	520	18.0	88	27.3	351	13.5
Genito-urinary ...	23	17.4	—	—	3	33·3
Necropsies	183	22.3*	101	29.7†	55	14.3
Pulmonary	492	0·8	—	—	—	—
Miscellaneous ...	23	8.7	3	33·3	11	9.1

* Including 4 cases where "human" bacilli were also present.
† " 1 case " " " "
‡ " 1 " " " "

TABLE II.—*Statistics for Scotland*

Variety of Tuberculosis	All Ages		0–4 Years		5–14 Years	
	No. of Cases	Percentage Bovine	No. of Cases	Percentage Bovine	No. of Cases	Percentage Bovine
Cervical glands ..	144*	73·6	53	84.9	71	74.6
Lupus	13	53.8	3	100·0	5	60·0
Meningeal	15	13.3	12	16.7	3	—
Bone and joint ..	193	42.8	85	60.5	65	38.5
Genito-urinary ...	22	9.1	—	—	5	40.0
Necropsies	281	31.3	201	33.3‡	46	32·6
Pulmonary	548	3.8†	—	—	—	—
Miscellaneous ...	9	77·8	1	(100.0)	8	75.0

* Including Mitchell's cases in children whose ages were not stated.
† " 1 case where "human" bacilli were also present.
‡ " 2 cases " " "

Path of Entry of Infection

On the scientific side three points are of interest in relation to infections with the bovine tubercle bacillus—namely, the path of entry, the relative virulence to man of the human and bovine strains, and the dose of bovine bacilli required to infect. A study of the post-mortem findings in cases of tuberculosis due to the bovine bacillus demonstrates definitely, in the opinion of the experts who made them, that in almost every case the path of entry is by the alimentary tract, using the term widely to include pharyngeal infections, and not respiratory. An exception must be made, as already mentioned, for at least some of the pulmonary cases due to the bovine bacillus associated with workers among dairy cattle. For evidence in support, the various reports of A. S. Griffith and the work of Cobbett[8] may be mentioned. The recent comprehensive investigation of Blacklock[9] also affords a good deal of information. From his post-mortem material tubercle bacilli were isolated from ninety-four cases with primary lung lesions, and all were of the human type, while out of sixteen cases of primary thoracic tuberculosis without primary lung lesions thirteen were human and three were bovine strains. On the other hand, of sixty-six cases with primary abdominal lesions fifty-four (81.8 per cent.) were tubercle bacilli of bovine, and only twelve of human, type.

While bovine tubercle bacillus infections are usually through the intestines, with infection of the mesenteric glands, there is evidence that in a proportion of cases infection may occur through the tonsils. When the tonsils examined are from all sources, and largely from adults, the proportion found tuberculous is low, based upon histological examination. For example, Weller,[10] dealing with a series of 8,697 consecutive cases at the University of Michigan, found 204 positive (2.35 per cent.). MacCready and Crowe,[11] in a series of 3,260 post-operation cases from Johns Hopkins Hospital, found 138 positive (4.2 per cent.). Wilkinson,[12] from 10,000 cases of tonsils removed at the Mayo Clinic (1923-7) found only fifty-two tuberculous (0.52 per cent.). By guinea-pig inoculation methods results have often been higher. The highest figures are those of Mitchell[13]; he examined two series of cases. The first consisted of 106 tonsils removed from children affected by tuberculosis of the upper cervical glands; ninety-two were inoculated and twenty were positive (21 per cent.), the bovine bacillus being isolated in sixteen and the human type in four. In the second series of 100 cases of hypertrophied tonsils removed from children with no clinical evidence of tuberculosis anywhere, nine were positive (9 per cent.). The bovine bacillus was isolated in four, the human in two, and in three no determination was made, as the tubes were spoilt.

These and other investigations suggest that the tonsils may be an important portal of entry for the tubercle bacillus from infected milk. While such an invasion mostly results in tuberculosis of the cervical glands, it is possible that the bacilli may pass through without setting up any tubercle formation. MacCready and Crowe[11] followed up for many years fifty of their cases with tonsil tuberculosis but no general or local manifestations of the disease; tuberculosis subsequently developed in cervical glands in two cases, in the mediastinal glands in three, in the lungs in five, and in the bones and joints in two.

Virulence of Human and Bovine Strain

Although it is frequently asserted that the bovine strain is less virulent to man than the human tubercle bacillus, the evidence does not support the contention. Studied in the laboratory the bovine strain is far more virulent for all laboratory animals, and with monkeys no difference in virulence between the two strains can be detected. The fact that bovine lesions are largely confined to the more susceptible child is explained by the fact that the vehicle of infection (specifically infected milk) mainly operates during early childhood. I think it probable that the intestinal mucous membrane is more readily penetrated in early life—a view finding some support from our knowledge of permeability by bacteria at different ages—but I am not in a position to supply definite evidence in relation to the tubercle bacillus itself. The cases of bovine pulmonary tuberculosis in adults associated with dairy cattle show that, given the opportunity, infection can occur at any age.

The other argument—that bovine bacillus infections are localized—is only true to a very partial extent. Blacklock,[9] indeed, reports that severe lung lesions, generalized miliary tuberculosis, and cerebral tubercle were all commoner in the case of infections with human strains, while the more localized tuberculous peritonitis was more often found to be associated with the bovine type of infection. On the other hand, there are many cases of generalized tuberculosis due to the bovine strain. Much is explained by the path of entry, and it is noticeable that when the type of disease is pulmonary both Munro and Cumming and Foster find that for the bovine cases the prognosis is no better than with human bacillus. Indeed, Cumming and Foster incline to the view that a bovine origin is of unfavourable prognostic significance. Infection is much more difficult via the intestinal tract, and strains of considerable virulence are required to infect by that route. With a condition such as tuberculous cervical adenitis, due about equally to the two types, no clinician can demonstrate any difference in severity or probability of cure.

While we know from animal experiments that intestinal infection requires a much larger number of tubercle bacilli than when the route is respiratory, we have no precise information as to the numbers of bacilli necessary to infect man by the alimentary path. Such information would be of considerable practical interest. If a material number is required, either as a single infection or as the aggregate of a number of infections, the modern practice of mixing milk from many sources together may be a valuable means of diminishing bovine tuberculosis. It spreads the infection, since so much milk is contaminated, but on the other hand it dilutes it, and possibly to such an extent that the total infection is reduced. We do not know, in fact, whether the gain is greater than the loss as regards liability to spread bovine tuberculosis. The data as to infection through the tonsils has been mentioned because in my opinion it is probable that a smaller dose might be able to infect by that route. More precise information as regards dosage would be of great value.

Table III.—*Year 1931*

Type of Tuberculosis	Deaths under 5 Years	Percentage Bovine	Calculated Deaths of Bovine Origin	Deaths over 5 Years	Percentage Bovine	Calculated Deaths of Bovine Origin	All Ages Calculated Bovine Deaths
Respiratory ...	303	0	0	29,355	1	294	294
Nervous	1,286	34	437	1,312	20	262	699
Abdominal ...	291	80	235	800	33	267	502
Generalized ...	327	25	82	971	9	87	169
Other varieties ...	55	20	11	1,115	5	55	67
All kinds	2,265	33	765	33,553	2.9	966	1,731

That tubercle bacilli are frequently present in market milk is shown by examinations made all over the country. The findings from many areas have been published elsewhere,[14 15] and it is sufficient to mention that variations

of from 2 to 13 per cent positive may be found, with an average figure of 6 to 7 per cent of all raw market milk containing living virulent tubercle bacilli

An estimate of the *number of human deaths due to infection* with the bovine tubercle bacillus may be arrived at by utilizing the death returns in the Registrar-General's reports and calculating the bovine bacillus deaths from our knowledge of the percentage of bovine infections for each type of disease. The latter are only approximately accurate, but near enough for fairly reliable calculations to be made (Table III). The figures given in this table show about 1 per cent. respiratory and 23·3 per cent. non-respiratory deaths as due to the bovine tubercle bacillus.

Using the tables of the Registrar-General and calculating that 1 per cent. of the respiratory and 23 per cent. of the non-respiratory cases in each year are of bovine origin we obtain Table IV.

TABLE IV.—*Tuberculous Deaths in England and Wales, 1920-31*

Year	Respiratory Deaths	Non-respiratory Deaths	Bovine Origin		Calculated Total Deaths of Bovine Origin
			Respiratory	Non-respiratory	
1920	32,771	9,754	328	2,249	2,577
1921	33,565	9,175	335	2,110	2,445
1922	33,919	8,858	339	2,037	2,376
1923	32,097	8,891	320	1,999	2,319
1924	32,690	8,413	327	1,935	2,262
1925	32,283	8,005	324	1,841	2,165
1926	30,108	7,417	301	1,705	2,007
1927	31,685	7,107	310	1,635	1,945
1928	29,793	6,824	293	1,570	1,863
1929	31,425	6,565	315	1,510	1,825
1930	29,414	6,335	291	1,457	1,751
1931	29,658	6,163	297	1,419	1,716

This table is interesting as showing a marked and *progressive decline in the number of tuberculosis deaths* probably due to the bovine tubercle bacillus. The total, however, remains considerable. It has to be remembered that many of the tuberculous infections which show a high bovine bacillus incidence do not end in death. Many of these conditions cause a vast amount of suffering and ill-health quite unreflected in the death returns.

EXTENT OF BOVINE INFECTION IN MAN

Tables III and IV only refer to deaths, they give no *information as to the extent to which man is infected* with the bovine tubercle bacillus. The Pirquet and Mantoux tests supply data as to the extent to which any population is infected with the tubercle bacillus, but not as to the type of the bacillus. For example, to quote an investigation of the research department of the Brompton Hospital for Consumption and Diseases of the Chest,[16] *children under 15 attending the hospital* showed a positive tuberculosis reaction of 43·1 per cent., 23 per cent. were infected between 0 and 5 years, 39 per cent. between 5 and 10 years, and 58 per cent. between 10 and 15 years. The proportion due to the bovine bacillus was unknown.

Blacklock's[9] recent valuable study of definite and suspicious *tuberculous lesions occurring in a series of 1,800* consecutive post-mortems at the Royal Hospital for Sick Children, Glasgow, dealt with children aged 0 to 13 years, of whom 79·9 per cent. were under 2 years. In 386 cases Mantoux tests were also performed. Recasting several of his tables, I have compiled Table V.

TABLE V

Age	Cases Examined Post Mortem	Type of Tubercle Bacillus		Percentage of Each Type		Per-centage Mantoux +	Calculated Bovine Infections
		Human	Bovine	Human	Bovine		
0-6 months	873	20	5	2·25	0·57	7·3	1·6
6-12	331	30	9	9·07	2·72		
1-2 years	250	28	17	11·9	7·23	32·9	12·2
2-3	87	14	6	16·1	6·9	42·9	12·87
3-5	103	10	5	9·25	4·63	32·4	10·8
5-13	163	18	3	10·9	1·80	—	—

This table shows that for bovine infections nearly all the deaths, and presumably most of the infections, are in the 1 to 5 year period, thus picking out the milk-consuming years. In the last column of the table the rather unreliable assumption is made that the Mantoux tests run parallel as regards the type with the percentage of bovine bacilli isolated. It is an assumption which, however, is worth making, since it gives some idea as to the possible extent of bovine infections in the particular groups of children investigated.

These figures of bovine infections are very much lower than those of a much earlier investigation (1914)—namely, the 195 deaths from all causes in various hospitals in England (none specially devoted to the treatment of tuberculous patients) of children aged 2 to 10 years, studied by Eastwood, F. Griffith, and A. S. Griffith.[17] Their figures showed in the 2 to 3 year children 28·3 human and 13·4 bovine bacilli per cent., in the 3 to 5 year children 49·2 human and 8·2 bovine, and in the 5 to 10 year children 54·1 human and 10·3 bovine. The above figures illustrate clearly the important part played by the bovine tubercle bacillus as a cause of infection and of death in man, particularly in the child.

BOVINE TUBERCULOSIS AND DAIRY CATTLE

Data are not available covering the whole country, but there is a large mass of scattered information dealing with tuberculosis in cows from which three conclusions may be drawn. The first is that cows possess considerable natural resistance to tuberculosis, and this disease is most prevalent in the older animals. The percentage of cows found tuberculous steadily rises with age, so much so that eminent veterinary authorities have suggested the elimination from herds of all cows 10 years and over, since so many will be cases of advanced tuberculosis. At the other extreme, abattoir and other statistics show less than 1 per cent. of calves affected. The second conclusion is that on the basis of the tuberculin test the percentage of cows *infected with the* tubercle bacillus is extremely high. The distribution is rather variable, and may vary from 10 to 80 per cent., but for cows in England as a whole it cannot be put below 40 per cent. The third deduction is that there is no evidence that bovine tuberculosis is declining in this country.

The student of human tuberculosis familiar with the widespread tuberculization of the human population is not inclined to exaggerate the significance of mere infection, and asks for more information both as to the infectivity of these reacting animals and as to the clinical developments of the infection. Under existing conditions the initial infection proceeds to obtrusive clinical disease *in many cases.* The cow is subjected to gross aphysiological conditions due to the play of economic considerations. She has to produce 1,000 to 2,000 gallons of milk a year instead of the natural 150, and to produce a calf every year, and a calf at birth weighs, on an average, 35 to 40 kg., the greater part of which has to be provided

during the last four months of gestation. In addition, the feeding is frequently inadequate to compensate, while the conditions of housing often lower resistance and favour reinfection.

A material proportion of these infected cows develop definite tuberculosis and become " open " cases—that is, cases in which tubercle bacilli are excreted into the outer world from lungs, intestines, uterus, or udder. A study of findings in Germany shows that 2 to 3 per cent., or even higher, of all dairy cows are " open " cases. In England and Scotland we have the findings of veterinary surgeons in areas where routine veterinary inspection is carried out. I have tabulated these elsewhere, and they show that from 0.3 to 0.6 per cent. of dairy cows are clinically detectable cases of tuberculosis, all infectious. In addition, there are the considerable number of other animals, which by bacteriological investigation are shown to be infective, but which are not clinically detectable cases with any certitude. Taking both groups together I do not think we can put the figure below 1 per cent. at any one time, and this is probably an underestimate.

Applying this figure to the 40 per cent. of " reactors " it means that at any one time about 2.5 per cent. of them are infective.* This is not a high figure, but unfortunately we cannot distinguish by any readily applicable means those which are infective from those which are non-infective. The practical significance of this is demonstrated by the disastrous results which frequently follow from the introduction of a reactor, apparently perfectly healthy, into a tuberculosis-free herd of cows. Every veterinary authority condemns such a practice as highly dangerous. Infected dung is one source of the bacilli, and Williams and Hoy[18] found that out of 185 samples of dung from apparently healthy cows thirty-five (18 per cent.) gave positive results on guinea-pig inoculation. Illuminating examples of infectivity from healthy reactors are given by Fowler and Wright,[19] and they state: " One is forced to the conclusion that an animal which has but recently contracted the disease may form a vehicle for the infection of other stock which are in continued close contact with it." Infection of bovines may occur in many ways, but the most infectious type is the lung-infected animal.

As regards transmission from cow to man, while we cannot disregard manure and other vehicles, undoubtedly tuberculosis of the udder is the main source of infection of the milk supply. In the vast majority of cases udder tuberculosis is secondary as part of extensive tuberculosis elsewhere. I have examined hundreds of post-mortem records, made by competent veterinary surgeons, of animals killed because of udder tuberculosis and milk infection, and without exception there has been tuberculosis elsewhere, usually extensive and advanced. In routine veterinary inspection of dairy cattle the udder is invariably examined, and a tabulation of a large number of findings shows that about 0.13 per cent. of all dairy cows show clinically detectable tuberculosis of the udder. Unfortunately the first stages of udder tuberculosis, when tubercle bacilli are present in the milk, are not detectable by clinical examination. Such a stage may last for several months; for example, Ostertog gives particulars of two cases infective for eight and ten weeks respectively by bacteriological but not by clinical methods. I have come across a number of such animals. These positive cases have to be added, and I do not think we can estimate the proportion of infective udder cases at less than 0.2 per cent. of all dairy cattle. The number of tubercle bacilli excreted into the milk from an infected udder naturally varies enormously from a few bacilli to several hundred thousand per c.cm. according to the stage of involvement. The milk from one tuberculous udder may infect the whole of the milk from a very large number of cows.

Summing up these figures we have the serious problem of about 40 per cent. of our cows infected with the tubercle bacillus, with at least 1 per cent. of all cows actually infective at any one time and about one cow in 500 suffering from tuberculosis of the udder.

Prevention of Human Tuberculosis of Bovine Origin

The facts in the two previous sections are not new; they have been well known to the medical profession for years, and it is important to consider why, with so much lip service to preventive medicine, this heavy incidence of disease and death is allowed to continue. The subject is so large that I have only time to deal with general principles.

The primary reason why radical measures have never been adopted is economic. Tuberculosis is so widespread in dairy cattle that measures of elimination on an extensive national scale would not only be very costly, but would gravely embarrass agriculture and the continuance of an adequate milk supply. There is also another aspect which militates against progress. Our legislation adopts the illogical position that if a producer sells milk containing living tubercle bacilli, unless he can be shown to have been cognizant of the fact he is not fined, but on the contrary he is assisted out of the public purse to find the infecting cow, and is then compensated for her destruction. It is the only instance I know of where the vendor of a dangerous poisonous food is not penalized, but, on the contrary, is paid a fair measure of compensation. The spur to find a satisfactory solution of the tuberculosis problem is therefore absent, and naturally the cow owner does not take tuberculosis in his cattle very seriously. It is true experts tell him that merely as a disease of bovines it is sound business to deal with tuberculosis; but he does not believe it, or at any rate rarely acts on the belief. L. Jordan,[20] for example, puts the yearly loss, on the agricultural side alone, at from anything between £600,000 and £2,000,000.

The comparative unconcern of the agricultural interests to the dangers of tuberculous milk is well illustrated by the recent (1933) Report of the Reorganization Commission for Milk,[21] which proposes to pay higher prices for milk to producers on what it calls a " Roll of Accredited Producers," the conditions of which do not include a milk supply free from tubercle bacilli, much less a herd free from tuberculosis. In other words, its highest grade is not a safe milk supply.

The medical profession can do no other than demand that the milk supply which it is asked to recommend shall be a *safe* supply that will not spread disease; agricultural interests do not, for the most part, accept the obligation, while legislation supports the latter and does not require that a safe milk supply shall be provided. At the same time it is fair to point out that the difficulties of dealing with bovine tuberculosis are enormous, and I favour extensive financial assistance being given to the farmer to help him to eliminate it. Trade interests cannot, however, refuse such a safeguard as pasteurization and at the same time expect to be compensated for a cow which infects the milk supply. Obviously no trade can have it both ways—that is, resist a reliable method of protection and also claim immunity from punishment for spreading disease.

The wholesale elimination of all tuberculous cattle in this country is impracticable, simply on account of the

* Jordan, in a report just issued (Medical Research Council, No. 184, 1933), examined the milk from 636 " reactors," and 1.4 per cent. were excreting tubercle bacilli on the single occasion examined. All positive clinical cases were excluded. Allowing for this fact, and that the excretion of tubercle bacilli is intermittent, his figures are reasonably in accord with the 2.5 per cent. mentioned.

magnitude of the problem. It is being done on a widespread scale in the United States and in Canada, with most valuable results. It is practicable in those countries, since the average percentage of tuberculous cattle is about 4, or one-tenth of what it is in this country. On the other hand, it is feasible to adopt the principle of obtaining tuberculous-free herds on a regional scale, and the veterinary profession has done valuable work by elaborating schemes of this character, which time will not allow me to discuss. It is, however, pertinent to point out that the crux of their wide applicability really turns upon what we shall do with the not clinically affected "reactor"—that is, the cow which gives a positive reaction to the tuberculin test, but with no clinical signs of tuberculosis, usually a valuable animal and a good milker. To let drift to another herd (with or without branding) is no solution; to destroy without compensation would ruin the farmer, and make any scheme unworkable; to pay compensation acceptable to the owner is to so weight the cost that the scope of any scheme is bound to be very limited. These are the only three proposals ever made, but I venture to suggest a fourth.

The reactors with no clinical signs are mostly in good health, giving normal milk, and, as shown above, are not excreting tubercle bacilli or only very occasionally. There is considerable evidence that the majority of these animals, if placed under good conditions, show little or no progressive tuberculosis, and will for long periods yield normal milk free from tubercle bacilli. If their milk can be safeguarded, and if they can be prevented from infecting other cows, why slaughter such valuable animals? The scientific method is to keep the reactors together upon separate farms containing nothing but reactors. Periodical veterinary inspection would weed out any becoming clinical cases, and the cows would have to be kept (as all cows should be) under good open-air conditions. I see no objection to their milk being sold for human food in the open market, after being subjected to efficient pasteurization. Regular bacteriological tests, before and after pasteurization, would soon demonstrate the validity, as regards the safety factor, of any such scheme. The cows would produce calves in the ordinary way, and if the calves were brought up on Bang's principles and segregated in their own buildings and fed on heated milk they would grow up non-reactors, and would serve as that very necessary thing—a storehouse of non-reacting cows to complete the herds of non-tuberculous cows depleted by the removal of reactors. A very few such farms would quickly demonstrate whether my views are correct or not—that is, that tuberculin-reacting cows without clinical symptoms kept under good conditions do not in material numbers progress rapidly to cases of clinical tuberculosis requiring slaughter.

Certain practical points have to be considered. In my view the price paid to an owner for the reacting animal should be the price of a damaged cow, since obviously a cow infected with tuberculosis is not worth the price of a healthy cow. The exact figure is a matter for discussion, but as a basis of argument it might be called a two-thirds value, thus making the owner lose something like his share under the United States of America scheme. It may be suggested that such a herd of reactors with veterinary inspections, bacteriological tests, and pasteurization would necessitate milk charges above the normal economic price. The bacteriological testing should be done free by the county public health authorities as their share, while they would naturally supervise the pasteurization. In view of the fact that the herd only costs two-thirds of one of healthy animals, I believe the milk could be produced at current rates. The herds would naturally be of considerable size.

Under my proposals, instead of numerous herds made up of a mixture of reactors and non-reactors as at present, there should be herds in which the cows were non-reactors and herds in which they were all reactors. It may be contended that this is a retrograde step, and that I am actually inviting the public to consume milk from herds all the animals of which suffer from tuberculosis. Very little reflection will show how absurd is such a contention. At the present time most of our herds contain 40 to 50 per cent. of reacting animals, and the milk is sold without supervision or pasteurization. How infinitely less dangerous is the milk from a carefully watched herd with all the milk subjected to heat treatment which does kill tubercle bacilli. There is no comparison at all between the safety of the two milk supplies. This is only an outline of my proposals, but it is sufficient to indicate how a rapid advance could be made in eliminating bovine tuberculosis.

There are no legislative measures which deal with the reduction of bovine tuberculosis, and there is no evidence that this disease is diminishing. Such enactments as we have aim at making the milk supply less contaminated with tubercle bacilli than it is at present. I have discussed elsewhere such measures—the Tuberculosis Order, 1925, the Milk (Special Designations) Order, 1922, routine veterinary inspection of dairy cattle without tuberculin testing under the Milk and Dairies Order, 1926, bacteriological sampling of milk under the Milk and Dairies (Consolidation) Act, 1915, and other powers—and have shown how ineffective they are both in design and in results achieved. They diminish the danger from tubercle bacilli in milk in proportion to the money spent upon them, but at their best only give a reduction, not an elimination, of risk, and never a safe milk supply.

Judging from our present rate of progress the elimination of bovine tuberculosis is a pious hope for the far future, and we must look elsewhere for suitable measures to protect our milk supply not only from tubercle bacilli but from the numerous other diseases spread by infected milk. Fortunately there is a way of making the milk supply safe, and this without any demonstrable harm to its value to man as a food. Prolonged and detailed experiments, both in the laboratory and under practical working conditions, prove that the tubercle bacillus can be destroyed in milk by the application of heat. Given the same medium (milk) the two essential factors are time and temperature, and Park and others have shown that there is a definite time-temperature curve for the destruction of the tubercle bacillus. We can pick any combination of the two factors along that curve, adding something as a safety margin. Various practical considerations, including such matters as the coagulation of albumin, have led to the conclusion that a lower temperature with a longer time of exposure is more effective and reliable than very short exposures at comparatively high temperatures, and at present in this country the time-temperature combination included in the Ministry of Health definition of pasteurization is accepted as the most reliable. This combination is to hold the milk for not less than thirty minutes at a temperature of not less than 145° F. and not more than 150° F. In the United States of America a slightly lower temperature is accepted as sufficient. Such a time-temperature combination as accepted in England is effective to destroy the tubercle bacillus, and investigations show that the alterations in the composition of the milk are trivial and unimportant.[22 23]

The recommendation to pasteurize our milk supply meets with great opposition from certain sections of the industry, opposition based for the most part on economic grounds peculiar to the milk trade. The essential reason for opposition is its alleged effect upon the present methods of milk distribution. A discussion of these objections would be out of place in a scientific lecture. As a medical profession I do not think we can do otherwise, faced with the proved damage to mankind from raw infected

milk, than demand that any known practicable methods which will remove this danger should be put into operation. Pasteurization is not a new, untried experiment; it operates over a large part of the United States and Canada, and there is much evidence showing its extreme efficiency. One example may be quoted. Price[24] examined materials obtained from 320 cases of human tuberculosis, 100 being adults (15 years and over) and 220 children under 14 years. Of the adults the human type of tubercle bacillus was isolated from ninety-seven, the bovine type from two. The human type was isolated from 192 children, the bovine from thirty children. The two adults had both lived all their lives on a farm and had been accustomed to using raw milk. Without exception the children harbouring an infection with the bovine tubercle bacillus came from parts of the province of Ontario where pasteurization of milk was not carried out, and history invariably revealed the fact that the children had been fed on raw milk. The interesting feature of the investigation is that the cases were drawn from Toronto and from other parts of Ontario. In the city of Toronto milk pasteurization is compulsory, and has been rigidly enforced since 1915, but "not a single case of bovine infection has been encountered in the group of children brought up on the pasteurized milk of the district (1915 to 1930)." Less striking but nearer home, Blacklock[9] notes that of the twenty-one country children in his series with tuberculous cervical adenitis sixteen (76.2 per cent.) were infected with the bovine strain, while of the seven Glasgow city children only two (28.6 per cent.) were infected with the bovine bacillus. Over 80 per cent. of the milk supply in the Glasgow city area is pasteurized.

The medical profession should adopt a definite policy as regards the prevention of the infection of man with the bovine tubercle bacillus, and I venture to recommend the following as such a policy.

1. That the basic aim is the diminution and ultimate elimination of tuberculosis among our dairy herds so that cows entirely free from tuberculosis should be the sole source of milk and milk products for food consumption. This necessitates not only a new active policy, but a reconsideration of present practices, including the utility of the Tuberculosis Order, 1925, the possibility of giving more active encouragement to the producers of tuberculosis-free herds, whether "designated" or undesignated, a simpler and better nomenclature and administrative control for designated milks, and the enforcement of more hygienic methods in connexion with milk production.

2. That pending the elimination of bovine tuberculosis pasteurization should be adopted as a practical and scientific method to make our milk supply safe.

There are technical difficulties in the way of adopting at once a universal system of pasteurization, and my suggestion[25] as to procedure is that, as a first instalment, permissive powers should be granted to the larger urban authorities to require that all milk sold within their area shall either be derived from cows free from tuberculosis or be efficiently pasteurized or otherwise heat-treated by some process recognized as efficient by the Ministry of Health.

It may be mentioned that the special committee appointed by the People's League of Health,[15] which made a detailed investigation of the facts, has adopted these proposals as its main recommendations.

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THE RENAL ASPECTS OF ESSENTIAL VASCULAR HYPERTENSION

(HYPERPIESIA OF CLIFFORD ALLBUTT)*

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Sir Clifford Allbutt's definition[1] of hyperpiesia as "a disease which, *independent of the kidneys*, has its own characters, of which high arterial pressures, systolic and diastolic, seem to be the chief," emphasizes the essentially vascular nature of the disease and the secondary importance of the renal aspect. Persistent high arterial pressure leads to hypertrophy of the heart, and to characteristic degenerative lesions in the arterioles of many organs of the body[2 3 4 5 6]—of the kidney almost universally, of the retina, spleen, pancreas, liver, and brain frequently, of the gastro-intestinal tract, lungs, skin, myocardium, and skeletal muscles less often. Recent investigations,[7] however, have demonstrated the frequency of changes in the arterioles of skeletal muscles, especially in the severer type of the disease.

Sixty years ago Sir William Gull condemned the narrow pathology which regarded the kidney lesion as the *fons et origo* of this disease, which he and Sutton[8] called arterio-capillary fibrosis, emphasizing the widespread thickening of the arterioles (and erroneously of the capillaries) throughout the body and the fact that the kidneys merely shared in this generalized fibrosis. Never did Sir William Gull[8] plead more forcibly for a wider outlook on the pathology than in a clinical lecture to the students of Guy's Hospital, a lecture which has become one of the classics of medical literature. On that occasion there was on the table a museum specimen of a large hypertrophied heart and a very contracted kidney, mounted under Dr. Richard Bright's personal supervision to demonstrate that the wasting of the kidney had been the cause of the thickening of the heart.

"I think," said Sir William, "with all deference to so great an authority, that the systemic capillaries, and had it been possible, the entire man, should have been included in this vase, together with the heart and the kidneys, and then we should have had, I believe, a truer view of the cardiac hypertrophy and of the disease of the kidney."

* Read in the Section of Medicine at the Annual Meeting of the British Medical Association, Dublin, 1933.

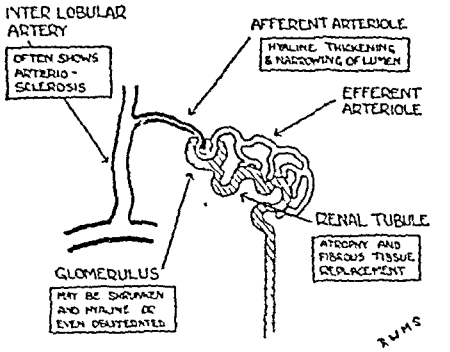
To-day it is accepted that both hypertrophied heart and shrunken kidney are the result of a common cause—namely, persistently raised arterial pressure, which is known as hyperpiesis or essential vascular hypertension

Even at the risk of wearisome repetition let me stress those points in the pathology which have an important bearing on my subject

1 Essential hypertension produces a characteristic lesion in the arterioles of many organs in the body

2 This lesion consists of a hyaline thickening of the sub-endothelial layer of the intima, leading to narrowing and sometimes to occlusion of the arteriole

3 This change is seen most frequently and to best advantage in the afferent arterioles of the kidney, and may lead to atrophy and obliteration of the glomeruli and tubules through deficient blood supply and disuse The interlobular arteries are also often affected (see figure).



Kidney of essential hypertension (arteriolosclerosis)

4 The number of glomeruli affected is relatively small in proportion to the number of arterioles which appear occluded [9] The impermeability of many of the arterioles is more histologically apparent than physiologically real Evidence has been produced by Hueck[10] that the hyaline material is of a semi-fluid consistency, which, yielding easily, offers little resistance to the flow of blood through the arteriole The circulation, too, is rendered more efficient by the raised blood pressure

5 Glomerular and tubular atrophy is patchy in character, with normal areas of kidney parenchyma between the islands of sclerosis

6 The kidney of essential hypertension, or the arteriolosclerotic kidney, so called from the characteristic lesions in its arterioles, must be clearly distinguished from the arteriosclerotic kidney, in which the renal artery and its branches share in that generalized arteriosclerosis so often present in the old This "senile" kidney, generally unaccompanied by hypertension, is of little, if any, clinical importance In the kidney of essential hypertension, especially if the subject be elderly, similar arteriosclerotic changes are often found in the renal artery and its main divisions, superadded to the arteriolar changes already described Gross[11] has demonstrated these vascular changes by *x* ray photographs after the injection of the renal artery with barium sulphate suspended in gelatin He describes the normal kidney as "a spreading chestnut tree," while the contracted hypertensive kidney suggests rather an aged and gnarled oak

The enormous reserve power possessed by the kidneys has been recognized since the classical experiments of Rose Bradford[12] in 1892 The brilliant researches of Richards[13] have demonstrated that while some glomeruli are active others are resting, the total number of renal units functioning at the same period being only a fraction of the huge number available, computed at some two millions In essential hypertension the destruction of glomerular and tubular tissue lags behind the arteriolar lesions, and is focal in nature and not diffuse In consequence, many years may elapse before sufficient glomerular tissue is affected to produce evidence of renal inadequacy This period of the disease, often unmarked by renal damage, Mahomed[14] referred to as "the pre-albuminuric stage of Bright's disease" As actual evidence of arteriosclerotic changes was still often wanting Huchard[15] named this initial period "presclerosis"

There is some evidence that nocturia may be the earliest symptom to raise the suspicion of renal mischief Riseman and Weiss[16] found this symptom in 25·9 per cent of 1,090 hypertensive cases in which cardiac, cerebral, or renal complications had not occurred, while in 500 cases presenting evidence of such complications Paullin, Bowcock, and Wood[17] found that nocturia was the most frequent symptom, occurring in 49 per cent It is, however, difficult to evaluate the importance of nocturia Acquired habits of nocturnal micturition, the fluid intake of the previous evening, and insomnia may be the underlying cause In males the consideration of prostatic enlargement must not be neglected Fishberg[18] considers that in the majority nocturia is of cardiac origin, the increased volume of the night urine being due to the improved circulation while the patient is at complete rest

Albuminuria is inconstant, often slight, and intermittent Janeway[19] found in his analysis of a series of cases of hypertensive cardiovascular disease that out of 246 cases alive 127, or 52 per cent, did not suffer from albuminuria, while out of 212 fatal cases albumin was absent in only thirty-eight, or 18 per cent The incidence of albuminuria becomes much more frequent as the disease progresses With the albumin may appear hyaline casts, while the presence of an occasional granular cast points to tubular degeneration Addis and Oliver,[20] who lay great stress on the examination of the urinary sediment, point out that the relatively small number of casts, of white blood corpuscles, and epithelial cells, and especially of red blood corpuscles, differentiates the inactive lesion due to slow vascular occlusion in the kidney of essential hypertension from the actively destructive processes at work in nephritis Glycosuria secondary to arteriosclerotic changes in the pancreas is not uncommon, but yields generally to dietetic treatment [21]

Polyuria does not intrude itself so noticeably as in chronic nephritis but if the quantity of urine be measured some slight increase will generally be found The various methods of testing the urine concentrating power of the kidneys are found to give results which, though sometimes lower than the average still fall within the normal limit The non-protein nitrogen of the blood is not raised

At necropsy, even after years of hypertension, the kidneys may appear almost normal, the microscope revealing only minimal arteriolar change On the other hand, dissection may reveal grievous structural damage in kidneys which, during life gave little evidence of functional derangement In his writings Richard Bright[22] himself several times remarked on this paradox

Differential Diagnosis

In essential hypertension the frequent presence of albumin in the urine during life and the contracted kidney found after death have caused much confusion, both clinically and pathologically, with chronic nephritis The majority of cases of so-called chronic interstitial nephritis are, in truth, examples of hypertension, while the remainder are examples of a focal glomerulonephritis with late development of renal failure and secondary arteriolosclerotic changes, as Shaw Dunn[23] has demonstrated One of the most important advances in our

knowledge of Bright's disease is the separation of hyperpiesia with secondary renal changes from hyperpiesis (high blood pressure) following primary nephritis. The differential diagnosis is of great importance, and arises in practice every day. It has been stressed by many writers.[24 25 26 27] Hyperpiesia is much the commoner condition, carries a much more favourable prognosis, and demands a different type of treatment. The diagnosis of essential hypertension is quite compatible with several decades of useful life ; the chronic nephritic is always in danger, and if renal insufficiency is progressive, as shown by a gradual lowering of the maximum specific gravity of the urine, death is rarely delayed beyond a year or two. The restrictions in diet and in mode of life, justifiable in a case of chronic nephritis, are unnecessary and even harmful in essential hypertension. The peace of mind and the renewal of hope which a confident and cheery prognosis affords to a non-nephritic hyperpietic are worth all the drugs in the *Pharmacopoeia* or the various much-vaunted proprietary remedies.

A patient of middle age complains of shortness of breath, of fatigue on exertion, of headache and dizziness, and, perhaps, of rising several times at night to pass urine. On examination are found an enlarged heart, a systolic blood pressure raised to over 200 mm. Hg, a diastolic of 120, and some sclerosis of the retinal arteries. The urine contains a slight cloud of albumin. If the specific gravity of this sample is above 1020 the case is, in all probability, one of hyperpiesia. But the sample is a casual one, passed perhaps on a cold day and after a meal generous in fluid intake, and the specific gravity may be low, say, 1010 or under. The concentrating power of the kidney is next investigated. This requires no complicated urinary analysis, since the information required can often be obtained by the systematic study of the specific gravity of the urine. A striking characteristic of the healthy kidney is its amazing capacity to adapt its work to the requirements of the body. A healthy individual who drinks little fluid or who sweats profusely passes a small quantity of urine of a high specific gravity. On the other hand, when much fluid is taken or when the weather is cold the same person passes larger quantities of urine of a lower concentration. Korányi[28] recognized that the fundamental evidence of impaired renal function is a loss of this " physiological flexibility," and in such cases the urine passed, regardless of the coexisting conditions, shows little variation in its range of specific gravity or in the amount secreted from hour to hour. Many methods of testing this power of accommodation have been introduced, chiefly modifications of the procedure described by Volhard.[29]

The vogue of renal tests involving some knowledge of biochemistry and the use of more or less complicated apparatus has frightened the general practitioner. He is inclined to regard the investigation of renal function as the province of the specialist. On the contrary, using the following procedure suggested by Calvert[30] in his range of urea concentration test, the only apparatus required is a reliable urinometer. The importance of the urinometer as a simple and reliable indicator of renal insufficiency within the scope of even the busiest practitioner cannot be too strongly stressed. The patient is instructed to take no fluid after 5 p.m., and at 11 p.m. to empty the bladder and discard the urine passed. At 7 a.m. the bladder is again emptied, and this specimen (A) is kept for examination. Immediately after micturition the patient drinks a large quantity of fluid, say two breakfast cups of weak tea without sugar and two glasses of water. Two hours later urine is again voided, and this specimen (B) is also sent for examination. In the normal kidney specimen A should be concentrated, having a high specific gravity 1025 and upwards ; failure to reach 1020 must be viewed with suspicion. Specimen B should have a low specific gravity, probably 1005 or under. Any fixation of the specific gravity, both specimens ranging below 1020, points to renal inefficiency—for example, 1007 to 1015 ; the nearer the fixation is to 1010, say 1009 to 1012, the more extensive the damage. Inability to concentrate urine above a specific gravity of 1010 represents maximum impairment of concentrating power. Apart from the vital information given by renal function tests there are many other points of value in the differential diagnosis as presented in the following table.

TABLE I

	Essential Hypertension	Chronic Nephritis
History ...	Often family history of cardio-renal cerebro-vascular disease.[31] Common at menopause	Sometimes previous history of acute or subacute nephritis
Age	Above 40	Below 40
Heart [32] ...	Cardiac hypertrophy more marked	Cardiac hypertrophy less marked
Blood pressure [33]	Higher average; often over 250 mm. Hg. May fluctuate with rest and other circumstances	Raised generally, but lower average and less fluctuation. May not be raised
Fundus [34 35]	Marked sclerosis in the retinal arteries. Arterio-venous compression striking feature. Discrete, sharp-edged exudates; Oedema less common. Retinitis may be unilateral. Haemorrhages commoner	Less sclerosis in retinal arteries. Cotton-wool patches and oedema more common. Always bilateral. Retinal detachment commoner
Oedema ...	No oedema, unless cardiac	Oedema may occur
Anaemia ...	*Generally absent*	*Often present*
Polyuria ...	Not obtrusive	Marked
Albumin ...	Inconstant and intermittent	Generally present
Urinary sediment [20]	Hyaline casts alone generally. Sometimes hyaline and granular. Red blood cells few in number	Both hyaline and granular casts; often excess of red blood corpuscles, white blood corpuscles, and epithelial cells
Blood urea...	Under 40 mg. per cent.	Over 40 mg. per cent.
Urea concentration	Over 2 per cent.	Under 2 per cent.
Fixation of specific gravity	No	Yes
Maximum specific gravity	1025 or over	1010 to 1020
Histology ...		Glomeruli primarily affected; arterioles secondarily
Prognosis ...	favourable	Depends on degree of renal insufficiency. Grave
Mode of death	Cardiac failure. Cerebral haemorrhage	Uraemia

Sir Clifford Allbutt,[36] in discussing this subject, wrote:

" One or two recent writers seem disposed to revert to the notion that these cases of hyperpiesia are but early stages of chronic renal disease—especially of primary contracted kidney. The clinical physician knows better. He sees, on the one hand, in young as well as in middle-aged persons, the weariness, the headache, the gradual impoverishment of the blood, the sallowing of the complexion, the puffy eyelid, symptoms becoming more and more distinct as the glomeruli are successively attacked, and these sufferers he contrasts with the non-renal hyperpietics ; active, well-coloured persons, free from nausea, headache, and all other symptoms of incipient uraemia. And in these it is that a blood examination reveals no excess of non-protein nitrogen."

This, then, is the clinical picture, as far as the kidney is concerned, in the great majority of cases of pure or benign essential hypertension: a slow development over a decade or two with a marked paucity of clinical or biochemical evidence of renal damage, death resulting from cardiac failure, cerebral haemorrhage, or from some unrelated disease.

The small minority of patients who develop marked renal insufficiency and die with uraemic symptoms

remains to be considered. Such cases furnish one of the still unsolved problems of renal pathology. Table II affords an index of the percentage who die a renal death.

TABLE II.—*Cause of Death in Essential Vascular Hypertension*

Observer	Cardiac Failure	Cerebral Haemorrhage	Renal Failure	Other Causes
Christian[37] ..	32 per cent.	25 per cent.	4.5 per cent.	38.5 per cent.
Bell and Clawson[38]	60·4 "	19.3 "	8.5 "	11 "
Granger[39] ...	53 "	31·5 "	5·5 "	11 "
Sir T. Lewis[40] .	"One in three, or rather more"	"One in four or five"	"Very few"	Less than 50 per cent.

It must be remembered that in hyperpiesia uraemic symptoms may be closely imitated by those of hypertensive encephalopathy. Probably in the past, before renal function tests were in general use, the convulsions characteristic of this latter condition were confused with uraemia.

In some cases cardiac failure is the precipitating cause. The arteriolar lesions in the kidney, almost constantly present and often of considerable extent and severity, make the kidneys a weak link in the circulation, and when cardiac failure sets in oliguria with a rise in the non-protein nitrogen in the blood follows, and even uraemic symptoms manifest themselves. Sir Clifford Allbutt[41] has emphasized this, and points out that uraemia is often but an episode in the disease, and, if the embarrassed circulation be relieved, may pass away. This type of renal insufficiency is easily recognized by the signs and symptoms of cardiac failure. As the concentrating powers of the kidney have not failed there is no lowering of the specific gravity of the urine although the amount passed is greatly decreased. An intercurrent infection, especially of the respiratory passages, may also produce a failure of renal function.

Theoretically, renal failure can be explained by the gradual destruction of more and more glomerular tissue. The kidney passes through what Fishberg[42] calls the stage of compensated hypofunction (increased flow of urine compensating for the decreased concentrating power of the kidney) to reach the condition of uncompensated hypofunction, characterized by scanty urine of low specific gravity and the rise of non-protein nitrogen in the blood. But though this is the natural course pursued in chronic nephritis, it is a relatively rare event in essential hypertension. Although a few cases of hyperpiesia may live for a surprising number of years with compensated hypofunction, yet marked polyuria and lowering of the maximum specific gravity should be viewed with grave suspicion as heralding the approach of what has been called "the malignant phase of essential hypertension." To Volhard and Fahr[43] we owe the idea of this malignant stage in the disease (malignant nephrosclerosis); in some 10 to 15 per cent. of their cases proliferative and exudative phenomena in the glomeruli, indicative of an acute or subacute nephritis, were superadded to the arteriolosclerotic changes already present. Hence the term "Kombinations form." To these changes, which Volhard and Fahr regarded as inflammatory in nature, the onset of uraemia was considered due. That such changes in the glomeruli do occur in varying degrees must be admitted, but most pathologists consider these as indicative not of an inflammatory process, but of a rapidly progressive arteriolar lesion, which grossly interferes with the circulation. Volhard and Fahr have modified their ideas as to the inflammatory aetiology of these changes. Fahr[44 45] considers the cause to be a rapidly developing necrosis of the arterioles, while Volhard[46] holds that the onset synchronizes with a generalized vaso-constriction of the arterioles of the body, producing pallor of the skin, glomerular ischaemia, and neuroretinitis.

In America, Keith[47] and his co-workers in the Mayo School have widened the definition of malignant hypertension to include not only cases characterized clinically by acutely progressive renal failure, but also those in which a persistent high blood pressure, especially diastolic, leads to a rapidly progressive arteriolar lesion widely spread throughout the body, including even the arterioles of skeletal muscle, and which, in its turn, produces severe neuro-retinitis and the rapid development of cerebral, cardiac, or renal symptoms or combinations of these. Hypertensive neuro-retinitis, characterized by papill-oedema and retinal signs similar to those formerly called "albuminuric retinitis," is often the first evidence of the onset of the malignant phase. The development of malignant hypertension is well exemplified by the case of B. H., a man of fine physique, one who worked and played hard and was moderate in neither his eating nor his drinking, and who enjoyed excellent health till the age of 47. Table III tells the story of his illness.

TABLE III

Date	Symptoms	Blood Pressure	Heart	Albumin	Renal Function	Remarks
November, 1927	Melaena, severe enough to require transfusion	—	—	—	—	Duodenal ulcer? Cirrhosis of liver?
March, 1928	"Too full blooded." Haemoglobin 105 per cent.	205/130	Nil	Trace	Normal	Diagnosis changed to essential hypertension. No evidence of polycythaemia vera
January, 1931	Failing sight. Hypertensive neuroretinitis	210/135	Apex beat 4 in. from mid-sternal line	Cloud	Normal	Onset of malignant phase of essential hypertension. Marked papill-oedema of disk
March, 1931	Haematemesis and melaena	220/120	5 in.	Cloud	Normal	—
January, 1932	Haemoptysis	240/150	6 in.	Marked cloud	Blood urea 40 mg. per cent.	Renal involvement manifesting itself
August, 1932	Nocturia; dyspnoea on exertion	230/170 Petechial haemorrhages under armlet 230/135	As above	Heavy cloud	Reduced concentration	Cardiac symptoms, steady rise of blood pressure, and advance in renal insufficiency
March, 1933	Haematuria. Nocturnal attacks of dyspnoea—cardiac or uraemic?		As above	Much albumin Many casts: granular — "renal failure" casts and blood casts	114 mg per cent Specific gravity fixed at 1010	Severe renal failure. Onset of haematuria ominous
April, 1933	Uraemic symptoms and death	—	—	—	—	Post-mortem was not obtained

This case illustrates the transition of a symptomless benign hypertension into the malignant phase, of which the first evidence was given by severe hypertensive neuro-retinitis. Frequent and severe haemorrhages from gastro-intestinal tract and lungs, and bleeding into retinae and skin, pointed to a widespread and severe degeneration of the arterioles. Blood pressure rose quickly, and evidence of cardiac involvement rapidly followed. Later the kidneys shared in the general debacle; the onset of haematuria should be especially noted, owing to its ominous clinical significance and its frequency in the malignant stage. Death occurred about one year after the onset of renal

damage and a little over two years from the discovery of the neuroretinitis. The evil prognosis accompanying either neuroretinitis or the onset of definite renal symptoms in hyperpiesia is well recognized.

The clinical association of hypertensive neuroretinitis with renal failure[48] on the one hand and with cerebral vascular catastrophes[49] on the other has been emphasized by many observers, and has a solid foundation in fact. Although it is true that neuroretinitis may exist for considerable periods with apparently normal renal function[50] (as in the case cited), and without evidence of cerebral arteriolosclerosis, yet, provided such cases be kept under observation, provided they be not carried off by cardiac failure or intercurrent malady, evidence of renal or cerebral damage will become manifest within a period of two years. The onset of neuro-retinopathy is the writing on the wall which proclaims the onset of the malignant and final phase of the disease. The pathological changes in disk and retina are but an index of co-ordinated arteriolar disease in other vascular fields.[51]

The arteriolar system of the body may be compared with the extended front line of the last war. Always under steady pressure, it is at any time liable to intensified attack. The line will yield first at the weakest point, the retinal area; but this is not a vital spot, and the line as a whole stands. As the strain is maintained the line gives at an area essential for its existence—cardiac, renal, or cerebral—with resulting disaster. As to the mysterious agency which causes this speeding up in the degeneration of the arterioles throughout the body, and converts a comparatively benign condition into a rapidly fatal one, we are still absolutely ignorant. Unless a case of malignant hypertension has been under observation before the onset of renal insufficiency it may be quite impossible to differentiate it, clinically or biochemically, from chronic nephritis. Even at necropsy, even after histological examination, pathologists may differ. But then indeed the problem is one of academic rather than of practical importance, for at this stage the prognosis is equally hopeless.

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REPORT ON TWO CASES OF PSITTACOSIS

BY

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With a Note on the Serological Investigation of the Two Cases by S. P. Bedson, M.D., M.Sc.

The two cases described occurred in Huddersfield during April, 1933, in the house of a local millowner. Resident in the house were the owner and his wife, their son, and two maids, one of whom (S. H.) and the mistress (E. H.) contracted the disease.

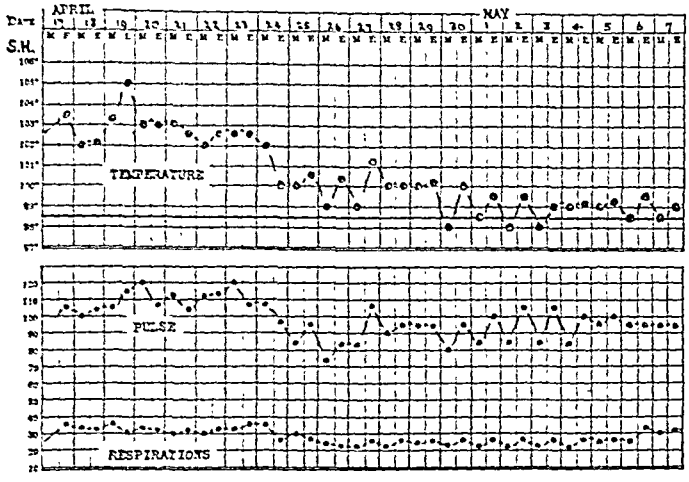
Case I

S. H., a female aged 41, had a chronic duodenal ulcer. On April 10th, 1933, she complained of chilliness and headache. She was first seen on April 12th, when her temperature was 103° F., and she was complaining of generalized aching, especially in the back, and of severe occipital headache. A troublesome dry cough was present, but except for a furred tongue there were no physical signs. On April 13th the air entry to the right base was diminished, but it was not until the 17th that definite signs of consolidation in the right base appeared. During this first week the temperature remained high, the pulse rate was not correspondingly raised, and the respiration rate was never more than 37. The aching passed away, an irritating cough with very little sputum persisted, the tongue remained thickly furred, and the bowels were loose. The patient had vivid hallucinations during this week. On April 19th the temperature reached 105° F., the pulse rate was 108, and the respiration rate 35.

On April 20th a Widal test was performed for typhoid, paratyphoid A and B, *B. aertrycke*, *B. enteritidis* Gaertner, and *Br. melitensis*; also the blood was cultured aerobically. The Widal reaction was negative for all except *Br. melitensis*, which organisms were agglutinated to a titre of 1 in 50, with slight agglutination to a titre of 1 in 125 after standing overnight. The blood culture proved sterile. At this stage, in view of the presence of several budgerigars in the house, an infection by psittacosis virus was thought to be possible. Accordingly sputum was collected on April 21st for bacteriological examination and for injection into mice as described later. No tubercle bacilli were detected in the sputum. Direct Gram films showed some streptococci and pneumococci, and cultures confirmed the presence of these organisms. On the same date the faeces were examined for organisms of the typhoid-paratyphoid groups, with negative results.

During the second week of illness the patient's general condition was poor. There was cyanosis at times, and the pulse was intermittent. Insomnia was troublesome, there was profuse perspiration, and the stools were frequent, fluid, and most offensive. On April 26th the temperature dropped

from 102° F. to 98.6° F. in four hours, the pulse rate from 120 to 76, and the respiration rate from 36 to 24, and the patient was collapsed. On April 27th a leucocyte count showed a leucopenia of 4,600 per c.mm., the differential count being 75 per cent. neutrophil polymorphs, 18 per cent. small lymphocytes, 2 per cent. eosinophils, and 5 per cent. transitional cells. The red cells showed some degree of polychromatic staining. The Widal test and a bacteriological examination of the faeces were repeated on this day. The



faeces again showed no abnormal organisms. The Widal reaction was also negative except for *Br. melitensis*, which was again agglutinated to a titre of 1 in 50, and it was thought that this was either an auto-agglutination—not a specific reaction—or that it was due to some prior infection. Notwithstanding, the milk supply was kindly investigated by the medical officer of health, Dr. John M. Gibson, and samples of blood and milk were sent for examination from the only suspected cow in the herd. These were examined bacteriologically and serologically for *Br. melitensis* and *B. abortus*, with negative results.

During the third week the general condition began to improve, though a mitral systolic bruit was heard for the first time, and the pulse rate tended to be somewhat higher. On May 8th the patient had some epigastric discomfort and vomited; the vomit contained altered blood and some red blood cells. Convalescence has been prolonged.

Case II

E. H., aged 48, had had encephalitis lethargica in 1923, and as a result had a persistent useless cough and a tic involving the levator ani muscles. She had also had attacks of cholecystitis. She first became ill on April 13th, 1933; her temperature was then 99.4° F. She complained of general aching, but not much headache. The irritating cough was much intensified, the sputum being extremely scanty, and on one or two occasions "rusty." There was insomnia, anorexia, constipation, and abdominal distension, and the tongue was thickly furred. No physical signs were detected in the lungs during the first week. The temperature rose daily, reaching 104.4° F. on the fifth day, with a pulse rate of 80 and a respiration rate of 32.

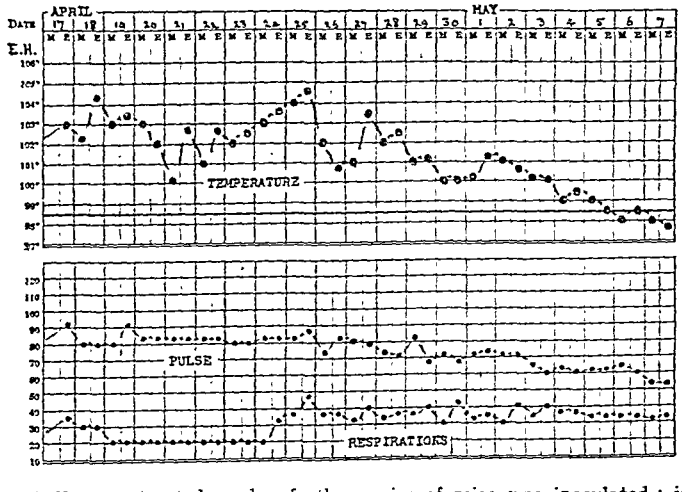
On April 24th, the eleventh day of illness, crepitations were heard at the left apex, and a patch of consolidation developed; another patch was later detected at the left base. During the second week the general condition became worse, and she presented, clinically, the appearance of typical typhoid. The temperature remained high, the pulse rate was disproportionately slow, and the respiration rate increased. The tongue was coated and the constipation gave way to diarrhoea, with very offensive fluid stools, closely resembling the "pea-soup" stools of typhoid. Blood was present in the stools on several occasions. There were a few doubtful and transient "rose spots." The patient was very voluble, often delirious, and suffered from hallucinations. During this week it was noticed that she was somewhat deaf and mentally dull. Her speech was noticeably slower than normal, and there was cyanosis at times.

The typhoid state persisted into the third week, when the temperature fell by lysis: the pulse rate, which throughout the second week was about 72, became slower still, and on the twentieth day of illness was 48. The respiration rate, which had shown extraordinary variations, became slower, and reached 24 on the twenty-eighth day. During the third week she developed cystitis; this was a lighting-up of a long-standing infection. Convalescence was protracted but satisfactory.

A parallel series of pathological investigations was carried out as in Case I. The findings were similar. *On April 24th the Widal reaction was* positive for *Br. melitensis* in a dilution 1 in 25, and on April 27th it was positive, 1 in 25, for both *Br. melitensis* and *B. abortus*, and, as in Case I, this was not regarded as a specific agglutination. The leucocyte count showed a leucopenia, the figures being 5,800 per c.mm., with 81 per cent. polymorphs, 16 per cent. lymphocytes, and 3 per cent. transitional cells. The red cells, as in Case I, showed some slight degree of polychromasia. The urine was examined by Ehrlich's diazo test, with negative results. There was heavy pus and *B. coli* infection in the urine.

Treatment of the Sputum for Inoculation into Mice

The sputum from both cases, collected on April 21st, was treated separately in the following manner. It was ground up with sterile sand, and filtered through a Seitz filter; the filtrate was tested for sterility, and 1 c.cm. was inoculated into the peritoneum of three mice. When these died, the spleens, livers, and lungs were similarly



treated, and a further series of mice was inoculated; in this way the presence of a filterable virus, capable of killing mice, was demonstrated. Passage was obtained through more than six generations of mice in the case of S. H., and through four generations in the case of E. H. In addition to inoculation of the spleens and livers, etc., from each series of mice, histological examination of these organs was carried out. Care was taken to show that the mice were not dying from bacterial infection.

The features common to all the mice which died from what was assumed to be the effect of the virus were as

follows. The liver showed marked fatty changes, with areas of focal necrosis, and around the areas of necrosis infiltration by lymphocytes and polymorphonuclear cells; there was also diffuse necrosis of the cells. The spleen was congested and showed a marked endothelial-celled proliferation, while there was often some flaky lymph to be seen in the peritoneum, and the intestines appeared congested. Cultures from the peritoneum, however, proved sterile.

The order in which the various series of mice died was interesting. Three mice were inoculated with the filtered sputum of "S. H." on April 23rd and all died on May 1st—that is, on the tenth day after inoculation. Retransmissions were made from the spleen, livers, etc., of these animals to three sets of two mice. The two mice from one set and one mouse from another died on May 5th; these were not retransmitted. The remaining three mice died on May 15th; retransmissions were made from these on May 16th, all of which died on May 18th. Three further rapid transmissions were obtained, after which the virus seemed to lose virulence, and mice, since inoculated, have remained alive to September, 1933. Whether this loss of virulence was in any way due to the storage of the livers and spleens of the last series in the ice-chest for several days before reinoculation we do not know.

In the case of the sputum from "E. H." the virus obtained never reached the same degree of virulence, the first set of mice inoculated not dying for thirty days, and no set of retransmissions dying in less five days. Moreover, this strain suffered the same fate as that from "S. H." after it had been stored for some days in the ice-chest.

When the first set of mice died on May 1st inquiries into the antecedents of the budgerigars elicited the following facts. The birds, about ten in number, were bought from a local dealer in February and were home bred. In March, 1933, one of the hens was "egg-bound" and died. To replace this bird another hen was obtained from Blackpool, and the mate of this hen became ill and died at the end of March. Both "S. H." and "E. H." handled this bird before and after death. The period of incubation in these cases appears to be ten and thirteen days respectively (approx.). From these investigations there seems little reason to doubt that the two cases described were cases of psittacosis, and confirmation of the diagnosis was obtained from the complement-fixation tests carried out by Dr. S. P. Bedson, to whom and to Dr. E. L. Sturdee of the Ministry of Health we are much indebted for help and suggestions.

SEROLOGICAL INVESTIGATION

It is now well established that viricidal antibody is developed in response to infection with a filterable virus. The presence of this antibody can be demonstrated not only by the neutralization reaction, but also by such purely test-tube reactions as agglutination, precipitation, and complement-fixation in current use in bacteriology. In psittacosis the neutralizing power of human convalescent serums is of an extremely low order,[1] and one would hardly have expected the complement-fixation reaction to be of any use, since in the case of most viricidal serums neutralization is more readily demonstrated than complement-fixation. However, one or two tentative experiments[2] suggested that convalescent psittacosis serums might fix complement specifically, despite the absence of detectable neutralizing power, and subsequent work has fully confirmed this.[1] The reaction is not given by every case, but a positive result in a carefully controlled test is of undoubted significance and the reaction a valuable aid to diagnosis.

Technique of the Test.—The technique of the complement-fixation reaction for psittacosis is carried out according to the method devised for viruses by Bedson and Bland.[3] Specific antigen consists of a 5 per cent. suspension of virulent mouse spleen in phosphate buffer or saline. A control antigen, made from normal mouse spleen or the spleen of a mouse suffering from some other virus infection such as ectromelia, is invariably used. This control antigen is of particular importance, because serums from individuals with a positive Wassermann reaction will give a false positive result with the psittacosis antigen; they fix complement equally well with the control antigen, however, and so reveal themselves. A known positive serum and one or more normal serums are included in the test.

Result of Test.—Serums were collected from these two cases on the fourteenth day of disease. The complement-fixation reactions tabulated below show that both serums contained psittacosis antibody, and leave little doubt that these were both cases of psittacosis.

Serum		2 M.H.D. Complement +		
Designation	Dilution	5 per cent. Virulent Mouse Spleen in Phosphate	5 per cent. Normal Mouse Spleen in Phosphate	Saline
S. H.	1/1	++++ / +++	− / −	− / −
	1/2	++++ / +++		
	1/4	++++ / ++++		
E.H.	1/1	++++ / +++	− / −	− / −
	1/2	++++ / +++		
	1/4	++++ / ++++		
P. 112 (Hyperimmune guinea-pig)	1/4	++++ / ++++	− / −	− / −
N. 21 (Normal human)	1/1	− / −	− / −	− / −
N. 22 (Wassermann negative)	1/1	− / −	− / −	− / −
Saline		− / −	− / −	− / −

Degrees of fixation indicated by signs ++++, +++, and so on to −. Two readings taken, one after 30 minutes at 37° C. (upper row), and a second after standing overnight at room temperature (lower row).

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CHORIONIC CARCINOMA

BY

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M.C.O.G.

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Individual cases of this rare condition seem worth recording, as it is only by collating such reports that the full clinical picture and the results of treatment can be obtained. Chorionic carcinoma varies much in malignancy, but the highly malignant type predominates. The case here described followed a hydatidiform mole, and has remained free from recurrence five years after operation.

The patient, a woman of 32, who had had a normal confinement in 1920 and no previous illness, was admitted to Northampton General Hospital on April 5th, 1928, with a history of slight uterine haemorrhage for seven weeks, followed by two floodings; her last menstrual period had occurred fourteen weeks previously. When admitted she was in poor condition. The uterus reached 1 inch above the umbilicus, and was smooth and symmetrical. The cervix admitted one finger, and a boggy structure was felt; some vesicles escaped,

and the diagnosis of hydatidiform mole was thus easily made. Under ether anaesthesia a large hydatidiform mole and a foetus of about three months were evacuated; a hot flavine douche and pituitrin were administered. Recovery was uneventful.

The presence of a foetus is quite exceptional, and is evidence that the chorion must have functioned well for several weeks before abnormal epithelial proliferation began. The mole itself was large, but *all the vesicles composing it were minute*. It is usual in such cases for the vesicles to vary in size from a few millimetres to one or two centimetres in diameter, and I interpreted this as indicating great epithelial activity. I do not know if this signifies a greater liability to the development of chorionic carcinoma, but I suspected that it did, as there was so much evidence of growth and division. I urged the patient to submit to hysterectomy, although I had previously seen several cases of hydatidiform mole and had not considered that any of them required this method of treatment. The patient refused hysterectomy and even curettage, and went home on April 16th. I warned her and her doctor of the possible sequel, and asked that she might at once be sent into hospital if any bleeding recurred.

The patient was readmitted to hospital on May 13th at 3 p.m., with the following notes from her doctor: "She remained well until April 27th, when she had haemorrhage, which persisted fairly freely for twenty-four hours and ceased entirely in a week. Haemorrhage recurred at 3 a.m. to-day, and was considerable. The uterus was definitely distended with clots, which could be manually expressed." When I saw her soon after admission she was blanched and collapsed; the pulse was 144, temperature 96.2°, but haemorrhage had ceased. The foot of the bed was raised on 18-inch blocks, warmth was supplied, and saline and glucose administered per rectum this method being chosen as less likely to restart bleeding. The uterus was palpably enlarged, the cervix and vagina were healthy, and no other swelling was felt.

HYSTERECTOMY

I was so strongly of opinion that the bleeding came from a chorionic carcinoma and not retained products that I decided not to risk further haemorrhage or dissemination by exploring the cavity, but to perform hysterectomy as soon as her condition permitted. A blood count the following day showed red cells 1,970,000 per c.mm. and haemoglobin 30 per cent. I gave a blood transfusion of twenty-five ounces with marked improvement, but the following day she was still unfit to undergo an operation, so I gave a second blood transfusion of sixteen ounces. On May 17th the pulse was down to 72, and her condition was quite good.

Under a general anaesthetic the vagina was swabbed out with violet-green and the cervix closed with a mattress suture. The abdomen was opened by a subumbilical incision. The uterus was about the size of an eight weeks' pregnancy; there was no sign of growth on its peritoneal surface, or invading the broad ligaments or glands, nor were there any metastases in the abdomen. I performed an ordinary panhysterectomy, including the Fallopian tubes. Although it is usually recommended to remove the tubes and ovaries with the uterus in this condition I retained the ovaries because chorionic carcinoma differs from other types of carcinoma in the absence of spread by lymphatic permeation[1]; also this was an early growth in a young subject and I believed these ovaries were safe, and the advantages of preserving them were considerable. Recovery was uneventful, and the patient was very well when discharged to a convalescent home on the fifteenth day.

The Specimen.—The uterus contained a soft, dark-red growth, ovoid in shape, measuring 3 cm. by 1.8 cm. by 1.4 cm., and arising in the posterior wall of the body; its lowest point was 1 cm. above the internal os. It protruded into the uterine cavity, and was in part covered with mucous membrane; at its centre it invaded the uterine wall for half its thickness. No vesicles of the preceding mole were present.

The microscopical report by Dr. Eric H. Shaw was as follows. "Section of the uterus shows the structure of a chorionic carcinoma. The muscle wall is infiltrated with large cells from Langhans's layer. There are some small syncytial masses, and there appears to be one formed chorionic villus. There is a large amount of blood among the cell masses."

The patient is perfectly well and free from all signs of recurrence now, five years after the operation, and has gained slightly in weight.

COMMENTARY

Interesting features of this case are:

1. All the vesicles of the preceding hydatidiform mole were minute; this indicated great epithelial activity and suggested malignancy.

2. Severe and almost fatal haemorrhage, necessitating two blood transfusions, occurred in an early and operable stage of the growth.

3. The preservation of both ovaries when panhysterectomy was performed, though it is not suggested that this conservatism would always be justifiable.

As regards operative technique, I would emphasize the necessity of first closing the cervix with a mattress suture, so as to eliminate the risk of implanting cancer cells in the pelvic tissues during the removal of the uterus. The vessels and broad ligaments should be doubly clamped before any traction or manipulation of the uterus is permitted, or minute fragments of this soft growth may be disseminated through the veins.

REFERENCE

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TREATMENT OF THE SEVERER CASES OF FRACTURED NASAL BONES

BY

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HONORARY EAR, NOSE, AND THROAT SURGEON TO NEWCASTLE GENERAL AND WALLSEND DISTRICT HOSPITALS, N.S.W.; AND CRANIO-CERVICAL SURGEON TO MATER MISERICORDIAE HOSPITAL, N.S.W.

By far the majority of fractured nasal bones are associated with rotation of the separated portions around a more or less vertical axis. There is usually not a very great tendency for the bridge to collapse. In the severer cases, however, where the bones are comminuted, the bridge often collapses, and means of treatment which would have been satisfactory in the milder cases would be unsuitable. In either case the importance of starting treatment early cannot be overestimated, and the day the injury is received is not too early to begin it.

The principles involved are: (1) to mobilize the parts so that they can be kept in the correct position without tension; and (2) to retain the parts in the corrected position until there is no tendency for the deformity to recur. These principles are comparatively easily satisfied where treatment has commenced early, but where more than a day or two has passed the difficulties increase rapidly. Mobilization is already present in recent cases, but where it is not it must be obtained by gripping the fragments with special forceps—one blade being in, and the other outside, *the nasal fossa*—and with it moving the fragments until they can easily be placed in any position required. When bony union has occurred, however, means of dealing with the deformity other than that to be described must be used. Fixation can be

remarked that he had never had a season with less dislocation of office work due to fever among the office clerks than during the period since September last year. It was also interesting to note that last year was not a year of low rainfall, but was actually the highest recorded at Brighton for six years. Further, the decrease in malaria was not coincident with any decrease in general sickness, for 669 cases of all diseases were recorded at Brighton dispensary in October, as compared with 615 in September. Hence there was a slight increase in general sickness during October, whereas malaria declined markedly.

Encouraged by these results, but at the same time unwilling to accept them at their face value after only one experiment, Dr. Gribben had repeated the mass treatment this year, this time in the latter half of June, in an endeavour to cut short the July epidemic. On this occasion 9,740 tablets of plasmoquine were distributed to 2,710 people, all of whom received the two weeks' treatment. The results again had been good, For July there had been a decrease of 31.25 per cent.—ninety-six cases in July, 1932, and sixty-six in July this year. This reduction was not quite so marked as that following the plasmoquinization of last year, but it had to be remembered that malaria over the south end of the island was more rife in 1933 than last year. Cases of malaria in the southern districts of the island numbered 752 in July, 1932, and 969 in July, 1933. These figures did not represent the total number of cases, since malaria was not notifiable, but they afforded a reliable means of comparison. It was evident that, whereas malaria had declined in Brighton by 31.25 per cent., the incidence for the southern end of the island as a whole, including Brighton, had increased by 28.6 per cent. Hence it was clear that this year's decrease was actually quite as pronounced as that of last year.

From these two experiments, concluded Dr. Gribben, it would appear that plasmoquinization of a population, if fairly thoroughly undertaken, could alleviate and cut short an epidemic of malaria, provided that the time of onset could be accurately foreseen. The method was simple and easy of application, consisting as it did of the administration of plasmoquine tablets, two per adult, in two successive weeks. It was possible that the good effects of plasmoquinization might last for two months. Dr. Gribben believed that the cases of malaria which occurred after plasmoquinization were less virulent. This belief was founded both on clinical appearance and on blood examination. Plasmoquinization should be of a particular benefit in places (such as in the tea industry of Assam) where the time of highest activity on the plantation coincided with the time of the highest incidence of malaria. This line of prophylaxis was no new suggestion, but the results in Dr. Gribben's two experiments had been so good that he felt justified in recording them.

Reports of Societies

ANAESTHESIA IN GYNAECOLOGY

The opening meeting of the Section of Anaesthetics of the Royal Society of Medicine was held on November 3rd, when Dr. H. P. FAIRLIE delivered his presidential address on "Anaesthesia in Gynaecology."

The president began by stating his reasons for having modified his views on the employment of chloroform in this type of work. He found he was using it less on account of its immediate and delayed risk. Gynaecological operations he divided into two classes—the minor and the major. For both classes he advocated the giving of morphine and nembutal orally as a premedication. For the minor operations he contrasted the relative advantages of ethylene and oxygen, planocain given as a spinal anaesthetic, and sodium evipan administered intravenously. The latter drug he found rather uncertain in its action, but suitable for short operations. For the major operations he favoured ether with oxygen, or spinal anaesthesia with percaine.

Many of the members took part in the discussion which followed, and interesting accounts were given of experiences with sodium evipan. The value of percaine as compared with stovaine as a spinal anaesthetic was also discussed, as well as the technique of giving the former drug.

FOETAL MALFORMATIONS

At a meeting of the North of England Obstetrical and Gynaecological Society, held at Manchester on October 27th, with the president, Mr. LEYLAND ROBINSON, in the chair, Mr. P. W. MALPAS (Liverpool) read a paper on the aetiology of foetal malformations. He said that the paper was based upon a series of 294 foetal malformations which had occurred in a series of 13,964 deliveries. The object of his inquiry had been to obtain reliable data of the incidence of, and aetiological factors concerned with, malformations in general, and also to attempt to decide whether the malformations were of genetic or environmental origin. The total incidence of malformations in his series was 2.11 per cent. The age incidence of the several malformations was then dealt with, and it was found that in the case of certain malformations—notably anencephalus, hydrocephalus, hare-lip and cleft palate, mongolism, and congenital heart disease—the incidence of the malformations showed a steady increase with the age of the mother. On the other hand, such malformations as spina bifida, talipes, and hypospadias showed no variation of frequency with the mother's age, and the incidence in the various age groups was such as might be expected on the basis of random selection. The second part of the paper dealt with the relation of the malformations to the parity of the mothers. The incidence of anencephalus, hydrocephalus, hare-lip and cleft palate, mongolism, and heart disease was found to increase with increasing parity, while club-foot, hypospadias, and spina bifida proved to have no such relationship to parity, with the possible exception of hypospadias, which showed an unusually high incidence in primiparae—75 per cent. This figure was too high to be explained on the basis of random genetic selection. Details of the ages of the fathers were obtained in some cases, but in no instance was there noted a marked discrepancy between the respective ages of the two parents. Information as to the presence or absence of consanguinity between the parents was obtained in 104 instances, but in none of these 104 cases was there any consanguinity between the parents of the malformed foetus. In the series there was only one instance of a malformation with a known hereditary bias—a case of web toes, in which both mother and maternal grandfather had a similar malformation. There were eleven instances of previous malformations occurring in the children born to the parents of the malformed foetus, and the incidence of a previous malformation was 4 per cent., a higher figure than the normal 2 per cent. incidence of malformations. The recurrent factor was higher in the case of spina bifida, anencephalus, and hydrocephalus than with other malformations. In this regard the frequency with which a given malformation is followed later by another type of malformation appears to show from another standpoint that most of the malformations dealt with cannot be due to the action of specific groups of genetic factors, and reinforces the view that they are mostly attributable to the interplay of environmental factors. In the whole series of malformations it was found that 175 were males and 185 females. Anencephalus showed the high proportion of sixty-nine females to twenty-one males, and iniencephalus was the only other malformation in which an excess of females occurred. The paper touched on various other maternal factors involved. Syphilis appeared to bear some relationship to the production of malformations, particularly of hydrocephalus. Among the mothers there was very definite evidence of poor physique, and in many there was an unduly high percentage of feeble-mindedness or a low standard of living. There appeared to be a slight relationship between sterility and the subsequent chance of a malformed foetus. Mr. Malpas concluded that while

some malformations were of genetic origin, the greater number were either caused by or conditioned by maternal environmental factors, and chief among these were age and parity of the mothers The paper was illustrated by numerous statistical tables.

Case Records and Specimens

Dr. J. W. BRIDE (Manchester) described a specimen of advanced extrauterine pregnancy.

The history was that of a primigravida, aged 29 years, who had attended the ante-natal clinic at St. Mary's Hospitals for the first time at the seventh month She had given a history of severe attacks of pain in the left iliac fossa in the early months of pregnancy, and had had a slight show at the third month. She was admitted to hospital at the eighth month owing to a history of slight continuous haemorrhage, and the diagnosis of a dead foetus and possible placenta praevia was made Induction was attempted both medicinally and by hydrostatic bag, and later the cavity of the uterus was explored and found to be empty. A radiograph was then taken, and this revealed an extrauterine pregnancy Laparotomy was performed and a macerated foetus removed. It was possible to remove the placental cotyledons, but Dr. Bride thought it advisable to leave the bulk of the chorion behind, and the sac was marsupialized and packed with gauze and a large tube drain Recovery was uneventful.

Dr. J W BURNS (Liverpool) exhibited a specimen for diagnosis

The patient a multipara aged 63, had come to hospital complaining of a lump, which caused a considerable discomfort both in walking and in sitting. Twelve years previously hysterectomy had been performed and she had been advised to return for a second operation to remove the tumour, which Dr. Burns exhibited, but this she had not done. On examination there was a mass which at first sight looked like a procidentia, with two large and oedematous lips Further examination showed that the mass involved the clitoris and the anterior portions of the labia minora The vaginal introitus and the vaginal walls were not involved The specimen showed three distinct tumours: (1) one about the size of a hen's egg situated just below the mons veneris, (2) a tumour somewhat smaller lying below and in front, (3) one below the enlarged clitoris Microscopical sections showed the first tumour to have a covering of squamous epithelium, a fibrous tissue wall, and a cavity lined by a single layer of columnar epithelium The content was pure blood The microscopical appearances of the other tumours were somewhat similar, each had a definite capsule, and there did not appear to be any communication between the tumours

Professor DANIEL DOUGAL (Manchester) described three cases. The first was a ruptured pseudo-myxomatous cyst complicating pregnancy and labour.

The history was that the patient had been first seen at the thirty-ninth week, and had given a history of rapid increase in the size of the abdomen during the previous few weeks, associated with severe pressure symptoms. On examination the abdomen was found enormously distended and with a marked fluid thrill The foetus could be felt lying longitudinally in the right lower part of the abdomen A diagnosis of acute hydramnios was made and medicinal induction of labour decided upon Labour commenced shortly afterwards, and on rupture of the membranes only a small quantity of liquor escaped The patient continued in slow labour for two days, but when the cervix was fully dilated the presenting breech was still high The diagnosis was then modified to hydramnios in the upper sac of a twin pregnancy. Paracentesis was decided upon, on puncture of the abdomen, however, no amniotic fluid escaped, but only a little blood-stained colloid material. This revealed the presence of an ovarian cyst, and when laparotomy was performed a ruptured pseudo-myxomatous cyst was discovered arising from the left ovary A living child was delivered by Caesarean section, and the uterus and tumour removed by subtotal hysterectomy. The patient eventually made a good recovery.

The second case was one of sarcoma of the cervix developing in the puerperium, and the third an endothelioma of the ovary removed five months after delivery

Mr. W. W. KING (Sheffield) described a case of intermittent evacuation of ascitic fluid by the vagina, simulating urinary incontinence.

The patient, aged 57, had complained of incontinence of urine for more than a year, which had been particularly troublesome at night. The fluid tended to come away on exertion, especially on bending, and at times came away in floods on stooping. Previous micturition did not prevent the passage of what she thought to be urine. On examination an abdominal tumour, the size of a four months' pregnancy, was discovered, which was hard and mobile, and which was thought to be a uterine myoma. Some free fluid could be detected in the abdominal cavity. Pelvic examination revealed a small cystocele, and the uterus normal in size and attached to the abdominal tumour by a pedicle No cause for the incontinence of urine was found. On examination under anaesthesia a little fluid was found in the vagina flowing out through the cervix, and about half an ounce was collected for examination Laparotomy revealed a fibroma of the right ovary the size of a four months' pregnancy, and there was a moderate amount of clear ascitic fluid in the peritoneal cavity. Total hysterectomy with removal of both ovaries was performed. Examination of the fluid collected from the vagina showed it to be ascitic fluid, and this apparently had been escaping through the Fallopian tubes and uterus The patient made a good recovery, and was completely cured

SURGERY OF THE COLON

An open meeting of the London Association of Medical Women's Federation was held on October 24th, when Professor D. P. D. WILKIE gave an address on the surgery of the colon.

Professor Wilkie began by remarking that disorders of the large bowel were among the commonest ailments which in general practice called for treatment From the standpoints both of physiology and of pathology the colon could be divided into two parts—the proximal part reaching to the middle of the transverse colon, which was absorptive and therefore freely supplied with blood and lymph vessels, and the distal part, retentive and thus relatively poor in blood and lymph supply Operations on the colon were rendered difficult and, unless special care was taken, dangerous, because of its thin sacculated wall, its infective content, and the tendency to gaseous fermentation within its lumen To be successful, surgery must take cognizance of these special features and be planned accordingly. In the proximal colon, he said, variations in development were compatible with perfect health It was derangement of function and not of anatomical position which interfered with health If the proximal colon was regarded as a second stomach, numerous and suggestive resemblances were to be found The ileum represented the oesophagus, the caecum the gastric fundus, the caecal colon the body of the stomach and the pyloric antrum, and the caeco-colic tract the pyloric canal: just as in the stomach, pathological changes were to be found for the most part in the lesser curvature and pyloric canal Thus, simple ulcer was practically always found on the medial border of the caecal colon, just above the ileo caecal valve, and carcinoma at the caeco colic sphincteric area In the caecum there was a tendency to non obstructing fungoid carcinoma, associated with marked anaemia, a condition strictly comparable with the fungoid growths of the gastric fundus. In the caeco colic region of the ascending colon carcinoma of the scirrhous constricting type was common, as it was in the pyloric canal Speaking of the treatment of simple anomalies and disorders of the proximal part of the colon, Professor Wilkie said that surgeons were apt to adopt too readily a mechanical outlook on finding an unduly mobile colon, to fix it, a tacked-down colon, to free it, a dilated caecum, to plicate it, or even excise it As more was learnt about the physiology of the colon and its disorders, particularly those of its nervous mechanism, such operations would become less and less frequently performed. In the distal colon anomalies of development were not so common, but two were outstanding. One was the presence of a very long loop of pelvic colon with a narrow intersigmoid angle, a condition which predisposed to recurring volvulus, best treated by resection of the greater part of the loop with end-to-end anastomosis; the other, the congenital megacolon of Hirschsprung, due to an incoordination of its nervous mechanism, a condition which, having defied a great variety of methods of surgical attack, had now yielded to ablation of the sympathetic nerve supply of

the segment of the colon involved. The occurrence of small diverticula in the wall of the distal part of the colon had long been recognized by pathologists. It was, however, only some twenty years ago that attention was drawn to the not infrequent occurrence of a tumour-like mass in the region of the pelvic colon, liable to be confused with carcinoma. This was an inflammatory pericolitis resulting from a leakage of micro-organisms through thin-walled diverticula in the colon. In its acute phase the condition—which had been aptly likened to a left-sided appendicitis—should, said the speaker, be treated on expectant lines unless a localized abscess developed and required opening. Occasionally, when only a small and accessible portion of the colon was involved, as demonstrated by radiography, the diseased portion might be resected. Malignant growths were of frequent occurrence and usually of slow growth; lymphatic involvement was relatively a late feature. They offered, therefore, a most hopeful field for radical surgery. In a few cases early dissemination to the liver or peritoneum might preclude removal; these cases, however, were exceptional, and formed but a small percentage of the total. It was thus of prime importance that in this, the most curable form of visceral carcinoma, we should strive on the one hand to get reasonably early diagnosis, and on the other to render our operative procedure as free from risk as is possible. Professor Wilkie proceeded to give statistics of 181 cases of carcinoma of the colon on which he had operated. The average length of history was over one year. In eighty cases the growth was irremovable by reason of metastases, and a palliative operation was all that was possible. In twenty cases a lateral anastomosis, short-circuiting the growth, was possible; in fifty-six cases a colostomy above the growth was performed; in four cases nothing could be done. In 101 cases a radical operation was performed.

In conclusion, Professor Wilkie spoke of the location of growth and described operative treatment suited to different types of cases. Avoidance of tension was the watchword of colon resection. He emphasized the importance of complete mobilization of the portion of the colon concerned; the division of the taenia on the colon if end-to-end anastomosis was decided on; the insertion of one row only of interrupted linen Lembert sutures in order to avoid, as far as possible, interference with the blood supply of the approximated cut margins; and a caecostomy opening to ensure that no gaseous distension of the colon occurred during the first week after operation. If these conditions were fulfilled the post-operative course should, he stated, be uneventful. Twilight sleep with spinal anaesthesia gave perfect relaxation and rendered the operation easier and safer than any form of general anaesthetic. A follow-up of the 101 cases in which Professor Wilkie had performed partial colostomy for carcinoma showed that forty-one patients were alive and well over three years after operation. As many of these were in a desperate condition when first seen it was clear that, even with the relatively late recognition of the disease which at present obtained, encouraging results from operation might be anticipated.

ULCERATIVE COLITIS

At a meeting of the Liverpool Medical Institution on November 2nd, with the president, Dr. H. R. HURTER, in the chair, Dr. EDMUND SPRIGGS read a paper on chronic ulceration of the colon.

Dr. Spriggs, in a detailed account of his clinical experience of the disease, with special reference to the treatment and prognosis of forty-two cases treated in seventeen years, said that thirty-five of these patients were alive to date, the majority living normal lives: thirteen had been suffering from amoebiasis, a fact which was not discovered in several of them until after admission. The mortality was far below that in published statistics from general hospitals, and the prognosis for normal moderate activity as well as for life much better. The average period of treatment was three months. The fact that most of the cases responded well to treatment proved that their betterment was not due to an accidental remission. Dr. Spriggs stressed the value of examination with the microscope, sigmoidoscope, and *x* rays, and said that vaccines and serums had not, in most instances, proved more advantageous than the older methods of rest and diet, medicines, and douching. The main factor was daily close nursing and medical care.

Professor JOHN HAY, referring to the type of case admitted into the general hospitals, said that he classed ulcerative colitis among the dangerous diseases; in the more severe forms he considered it a deadly disease. In his experience transfusion was life-saving, and should never be delayed if on examination the degree of anaemia had reached a dangerously low level. Persistent vomiting, although not a common feature, was sometimes a serious difficulty, since success depended upon an adequate and proper diet. There was a real danger of vitamin starvation if by any chance the need for adequate vitamins in the diet was overlooked. The occasional presence of achalasia of the upper sphincter of the oesophagus was an interesting symptom. In the more acute stages with pyrexia and rapid heart rate anything in the nature of lavage of the bowel was detrimental, and reliance must then be placed upon opium to diminish the discomfort and frequency of the motions.

Professor HAY, mentioning his recent visit to America, said that he had found there a widespread tendency to discredit Barger's theory and an increasing belief in the dysenteric origin of chronic ulcerative colitis. Paulson of Washington had read a paper in which the chief point was that continued haemorrhage tended to kill all organisms except the cocci. These were found in the stools, not because they were causative, but because they alone survived. In Mount Sinai Hospital, in 40 per cent. of the cases, a bacteriophage specific for the dysenteric organism had been demonstrated. The trend of opinion seemed to be against operative intervention, except in certain well-defined conditions.

Dr. ROBERT COOPE said that the search for some specific bacteriological cause of ulcerative colitis tended to direct emphasis away from the fact that the large intestine itself was a delicate organ, easily damaged, and, when damaged, not restored to health without thoughtful and long-continued care. Now and again some special form of treatment might give results that seemed dramatic enough; but always it was important to visualize the condition of the bowel itself, to be awake to the fact that already serious damage might be done even while symptoms and the appearance of the stools were not very alarming, and to ensure that, during treatment, the bowel was given the conditions under which it might have the best chance of gaining and maintaining recovery. Careful insight into the history of most of the cases that reached an advanced stage would reveal symptoms that should have demanded *full* investigation years before: attacks of liquid diarrhoea, with mucus and with stools that under the microscope could be seen to contain pus; attacks which recurred, in spite of treatment, long before there was any obvious passing of blood, and which depended upon the early pathology of chronic ulcerative colitis. If every acute or subacute inflammation of the colon warned one of the possibility of future trouble, just as an appendix attack (not operated upon) kept one on the *qui vive*, there would be fewer advanced and desperate cases of ulcerative colitis. Moreover, once an attack of colitis had occurred, the delicate large bowel needed to be guarded from irritation, and both diet and drugs were important to this end. Dr. Coope wished to emphasize particularly the disadvantage of allowing undigested and partially digested meat fibre to reach the large bowel, there to putrefy. Examination of the stools and urine afforded a simple control of this: it was a practical point, in that the products of intestinal putrefaction could seriously irritate and damage the large bowel. Furthermore, during convalescence it might be wise to keep a patient off meat diet for many months.

Dr. R. W. BROOKFIELD alluded to two unusual complications observed by him in cases of ulcerative colitis. In one patient extensive sloughing of the abdominal wall had followed the application of Scott's dressing for a few

hours, and had led to a fatal result. In another, bilateral suppurative parotitis due to the *Staphylococcus aureus* had occurred. The patient recovered. He mentioned the great difficulty sometimes experienced in diagnosing ulcerative colitis from intestinal tuberculosis. In one case, in which *x-ray examinations of chest and abdomen* yielded negative results, tubercle bacilli had been repeatedly searched for in the faeces, and were only found after digestion of the latter with "antiformin." In a small series of cases he had found no instance of complete achlorhydria. This was in marked contrast to the large group of diarrhoeas typified by the recurrent attacks of diarrhoea met with—for example, in pernicious anaemia and subacute combined sclerosis—where achlorhydria was an important aetiological factor.

MIND OF THE EAST AFRICAN NATIVE

At a meeting of the Eugenics Society on November 7th, with Professor RUGGLES GATES in the chair, Dr. H. L. Gordon of Nairobi delivered an address on "Amentia in the East African Native." He used the word "amentia" *to mean mental deficiency, whether idiocy, imbecility,* or feeble-mindedness. This condition, he said, had not hitherto been looked for in East Africa, and there was no less ignorance concerning the normal mind of the native. To obtain some knowledge of the normal mind and brain was a necessary preliminary to any understanding of the ament, and therefore two parallel lines of inquiry were instituted, one on the living (towards the expenses of which a grant was made by the British Medical Association) and the other on the dead, the latter being conducted by Dr. F. W. Vint in the Government Medical Research Laboratory. It was not pretended that the work did more than touch the fringe of a big unknown territory. Many of the obstacles to the ascertainment of amentia in East Africa, said Dr. Gordon, were due to the newness of the colonial administration. There was, for example, no registration of native births and deaths, while family, personal, and medical histories were practically never obtainable. Perhaps it was fortunate, on the other hand, that there were no legal or educational definitions of amentia to be considered. He had made bold to draw public attention in Kenya to the need for scientific research on the subject, and in this he was supported by the then governor, Sir Edward Grigg, and at home by an appeal by Sir Hubert Bond that an investigation should be made upon the normal and abnormal mind of a simple race before its simplicity had been complicated by the entrance of civilization. In 1928 Professor R. J. A. Berry had republished his method for the diagnosis of amentia in the European, and this seemed suitable for application to the conditions encountered in East Africa. The first step, made available through official courtesy, was the examination of 219 male juveniles in Nairobi reformatory, who were there for various offences, ranging from theft to murder. Of those examined, 86 per cent. were found to be aments, and the 14 per cent. of normals could not be fitted into European ideas of normality without the creation of a low-grade normal and, lower still, a borderline normal. It was clear that this alarming result was due in large proportion to the use of European standards on another race, and that East African standards were necessary.

The survey suggested that the secret of some racial differences between European and East African might be largely in the grey matter or cortex of the brain. A series of unselected male natives, representative of the racial average, was then taken and examined. About half of these were raw natives, the others had had some education or previous contact with civilization. The immediate object was to obtain data as to cubic capacity of the brain, estimated by head measurements, weight, height, grip, and vital capacity. A total was reached of 3,444 cases. Actual ages being rarely obtainable, each individual was given his estimated year, and the ages ranged from 9 to 30, all those over 20 being classed as adults. The results were embodied in tables of percentiles, corresponding to the tables used in Berry's method for the European, and were at least approximate guides to the range of normality and the frontiers of abnormality at each year-group. There were some forty tribes in Kenya, but none were true negro, all showing a certain mixture of Hamitic blood. The Bantu division of the negroes was predominant in the series. Taking the adult group (numbering 1,290 individuals) the lowest brain capacity in the series was 1,064 c.cm., and the highest 1,670, the average being 1,316, or 165 lower than the average (1,481) given for the European. In Dr. Gordon's experience senility in the African native might be expected any year after 35, and Dr. Vint, in 2,000 post-mortem examinations, had never been able to estimate an age over 60. This seemed to support the belief in the early decay of the native. The native brain appeared to reach its maximum before the age of 18, and to decrease gradually thereafter. Between the ages of 10 and 20 the average yearly growth of brain in the European was said to be 17.7 c.cm.; in the native it was only 8.5. Dr. Gordon drew attention to the rapid cerebral development in the European after puberty as compared with the poor development in the native. Up to puberty the East African boy was bright and malleable, but after puberty he disappointed by a lack of development—this was during the very period when the average European adolescent was developing rapidly. If only the problem of why the native did not develop after puberty as the European did could be solved, a definite step would be taken towards the ascertainment of the cause of racial backwardness.

A small series of adult males, consisting of fifty-one "educated," forty-six mentally disordered, forty-six mentally deficient, and twenty-two criminal, were also examined by Berry's method. The percentile curve for the "educated" series ran clear above the previously ascertained average for the 1,290 unselected adults; that for the mentally disordered ran in and out of the other; that for the criminals hovered below it; and that for the aments was constantly well below. The question was why the curve for the "educated" East African should be constantly inferior to the curve for the average European. It might be that even the best of the natives were on a lower level than the Europeans, but that answer might be too glib, because it did not allow for the importance of environmental influences. Dr. Vint, examining post mortem a series of 100 brains of adult male natives, had, however, arrived at results strengthening the belief that the difference rested upon an organic basis. Although the numbers were small, certain new and significant indications of racial difference between East African and European appeared to emerge from the statistical facts and to suggest a biological basis. Hitherto it had been believed that environment, or nurture, was the only cause of racial backwardness. This inquiry, said Dr Gordon, had done no more than point a small finger at heredity, or nature, though some possibly important environmental influences had still to be explored. He submitted that the most hopeful path to the social advance of a backward race lay in research by the sciences interested in the question of racial backwardness, an investigation never yet undertaken. This was the only justifiable conclusion from the inquiry now reported, and the research was urged as a pressing necessity in view of the fact that cerebral deficiency of the average of a race under British trusteeship had medical, legal, social, and administrative aspects of imperial importance.

At the meeting of the Medical Society of Individual Psychology held on November 9th, the chairman, Dr. JAMES YOUNG, paid a tribute to the memory of the late Dr. F. G. Crookshank, who was honorary secretary and editor of the society. Dr. M. BEVAN-BROWN, in opening a discussion on the "Relationship of Psychology to General Medicine," referred to the present prominence of the problem of the introduction of psychology into the medical curriculum, and suggested that the problem was incorrectly stated: a more accurate statement would be the reintroduction or replacement of psychology in the curriculum.

Reviews

AN OUTLINE OF IMMUNITY

The chapters on immunity in *The Principles of Bacteriology and Immunity* by Topley and Wilson were generally accepted as a valuable exposition of the subject; now Professor TOPLEY has extended and rewritten this material as a separate book, *An Outline of Immunity*.[1] In this book he discusses the invasion of a host, the mechanisms employed by host and invader in their struggle, the relative importance of the mechanisms of defence, the resulting degree of protection of individuals and of an infected herd, the influence of environment on resistance, and the ways in which we can affect the struggle. It would be difficult to do justice to the range and completeness of the book without going through the contents chapter by chapter; here it is only possible to mention some of the more outstanding features.

The chapter on serological reactions between antigens and antibodies takes only forty-five pages, but it gives an extremely clear summary of modern knowledge of the subject, with discussions of the relation of specificity to chemical structures, the unity of antibodies, and the applicability of the classical theories. There has been in the last ten years a great development of our knowledge of the antigenic constituents of bacteria. These are discussed in relation to their presence in different bacterial types and species and their connexion with defensive mechanisms. The appearance of natural antibodies, such as those demonstrated by the Schick and Dick tests, gives rise to a discussion of the relation of such antibodies to previous undiagnosed infections. This question of latent infections appears again in the discussion of the immunity that is found in the surviving individuals of an infected herd, and in the discussion of the value of agglutinin reactions in relation to diagnosis. An interesting example of the latter is the frequency of the occurrence of agglutinins for *B. abortus* in the serum of persons who have to deal with cattle. An unbiased account is given of the applications of immunity, active and passive, to treatment.

One of the chief difficulties in writing such a book as this, even after the enormous literature has been mastered, is to avoid being swamped by a mass of detail. Professor Topley has succeeded in giving a very thorough account of the work that has been done in the various fields while retaining a perspective and a continuous line of thought. In the preface he regrets that immunity, in spite of its obvious and growing practical importance, should be inadequately taught to medical students. Some explanation of this inadequate teaching may be seen in the second chapter. The results found in immunity are, as a rule, not striking, and can be appraised only by statistical methods. With the overcrowded state of the curriculum, medical students can only take in information that can be presented in a striking form; they have neither time nor patience for a thoughtful approach by the methods so admirably outlined by Professor Topley.

"SURGERY WITHOUT TEARS"

The Art of Surgery,[2] by H. S. SOUTTAR, was first published in 1928, and now a second edition has appeared. As the author observes in his preface, the rapid advance of surgery demands the constant revision of textbooks if the student is to be kept fully informed of the latest advances in the art. Mr. Souttar has always been an original thinker, and there is certainly nothing stereotyped about this remarkable book. That does not mean that the teaching is in any way unorthodox, but that in the method of its presentation it strikes an entirely new note so far as a medical textbook is concerned. The printing is in a large, clear type, the size and weight are convenient for the reader to hold comfortably, and the wide margin to the page, with the many thumb-nail illustrations, makes it singularly attractive to the eye, and dissipates that feeling of oppression which the old, closely printed, stodgy textbook too often conjured up. The style is delightfully clear, and relieved by frequent flashes of humour, the author's vigorous personality being stamped on every page. In spite of the absence of formidable tables and classifications by numbers, not an essential is lacking. The author has shown much skill in deciding what to leave out as well as what to put in.

At the commencement of each chapter a brief description of the surgical anatomy of the region of the body under review is given and appropriately illustrated. A special feature is made of the pathology of the diseases and injuries described, not by a wearisome recital of details, but by stressing those essentials without which there can be no intelligent appreciation of the processes involved. The teaching is, as it should be in a book of this kind, dogmatic, and enlivened by glimpses of the author's own wide practical experience. We have only been able to discover one misprint—on page 47 "chromic acid" is spoken of where obviously "chromic acid" is intended. The author is perhaps too fond of applying the adjective "hideous" to every deformity he mentions, but perhaps this is rather a captious criticism to make. To the student overburdened by the present-day curriculum this book may be confidently recommended as in truth "surgery without tears," and one which he should take a real pleasure in digesting.

A MEDICAL ENCYCLOPAEDIA

Seven volumes of an ambitiously planned work entitled *The Cyclopedia of Medicine*[3] have been issued, the first dated 1931, and with a promise of five more volumes yet to come. The editor-in-chief, Dr. G. M. PIERSOL, sets out in a preface the origin and aims of this contribution to medical literature, explaining how much it owes to the late Dr. Charles E. de M. Sajous, founder and first editor of another encyclopaedia of practical medicine. Dr. Piersol has been aided by Dr. E. L. Bortz as assistant editor, with a group of five "chief associate editors" and a further eighteen "associate editors." Each volume appears to contain between 900 and 1,000 pages; the paper is of good quality, the printing clear, with two columns to the page; the illustrations are well reproduced with interleaved special plates, some of them coloured, and the binding is satisfactory, though the general finish is dull.

A large number of contributors, not only from the United States but also from Europe and from other parts of the American Continent, have been enlisted to give their expert knowledge, and not only are references to the literature freely given at the end of the majority of monographs, but throughout many of the contributions short abstracts from the current literature are included as insertions in smaller type. The arrangement of the whole work is on an alphabetical basis, and vol. vii ends with "lactic acid," which would appear to leave more than half the alphabet for less than half of the total

[1] *An Outline of Immunity*. By W. W. C. Topley, M.A., M.D. London: E. Arnold and Co. 1933. (Pp. 415; illustrated. 18s. net.)
[2] *The Art of Surgery*. By H. S. Souttar, D.M., F.R.C.S. Second edition. London: Wm Heinemann (Medical Books) Ltd. 1933. (Pp. 630; illustrated. 30s.)
[3] *The Cyclopedia of Medicine*. First seven volumes. Editor-in-chief: G. M. Piersol, B.S., M.D. Amply illustrated with cuts and full-page black and colour plates. Philadelphia: F. A. Davis Company. 1933. (120 dollars.)

work. Each volume begins with a list of contents, and the weakness of the strictly alphabetical arrangement becomes at once apparent. Seeking for information on "anaemia" (and after the initial difficulty of finding this spelt as "anemia") the reader is referred to "Blood, Diseases of," and on turning up this in vol. ii he is further referred to "Hematology," which is in vol. vi. The search will have been worth while, however, for there is a very complete section on the blood from every possible aspect, and it is gratifying to find contributions here from Professor J. Barcroft and Dr. J. W. Pickering. Blood chemistry is sandwiched between other aspects of haematology in a rather unexpected way, but it does certainly serve to give a complete survey of the subject. Other attempts at random sampling have for the most part given satisfactory results. It is difficult, however, to understand why in vol. i there should be a section on "animal extracts" of over 100 pages and a bibliography of 454 references, while in vol. v another enormous section on "endocrine glands" repeats at any rate quite an appreciable amount of what has already been set out.

Inspection of the monographs in a haphazard fashion indicates that, despite the difficulties inherent in the production of a many-volumed work, the contributors have managed to keep up to date, and we note the suggestion that when the whole set is completed a supplement will be issued from time to time to embody changes and advances necessitating modifications of the subject-matter of the encyclopaedia.

PHYSIOLOGY OF ACTINOTHERAPY

The series of monographs issued by the American Chemical Society are well known to workers in many fields of scientific research as affording comprehensive, up-to-date, and reliable information on the varied subjects of which they treat. In the latest addition to the series, *The Physiological Effects of Radiant Energy*,[4] Professor LAURENS covers a remarkably wide field—so wide in fact that his book is rather an encyclopaedia than a textbook in the ordinary sense of the term. The type of radiation considered covers the spectrum from the infra-red to the ultra-violet regions. Physics occupies eighty pages, and includes spectrography, meteorological information, and a consideration of the various sources from which such radiations are obtained.

In the chapter on the action of radiation upon the skin, the subject is treated from the clinical as well as from the more purely academic aspect, and careful analyses are given of the penetration of the skin by rays of different wave-lengths and of their action. The effects produced in certain pathological conditions are reviewed, as well as the action on various types of wounds. As regards the alleged prophylactic action of ultra-violet rays in arresting damage when heavy therapeutic doses of *x* rays are to be administered, this is considered by the author to be "definitely disproven" by the work of MacKee and Andrews (1925). In considering the use of ultra-violet radiation as a therapeutic agent for the treatment of *x*-ray burns, while admitting that it may have beneficial effects in improving the circulation and stimulating the formation of granulation tissue, the author nevertheless regards it as an agent seldom to be used, and then only with extreme caution. We think it might have conduced to clearness of exposition if the clinical material had been relegated to another volume, and perhaps presented in a more critical and compact form.

The effects on the eye, circulatory system, and blood form the subject-matter of other sections, while that on metabolism—occupying over two hundred pages—is exhaustive, including as it does sections on plants and descriptions of animal experiments. The bibliography is arranged alphabetically, and occupies sixteen closely printed pages. This is distinctly a book of reference, and will undoubtedly be a mine of information to those undertaking research in the various branches of the extensive field covered.

[4] *The Physiological Effects of Radiant Energy*. By Professor H. Laurens, Ph.D. An American Chemical Society Monograph. New York: The Chemical Catalog Company, Inc. 1933. (Pp. 610; 104 figures. 6 dollars.)

MEAT AND ITS INSPECTION

Meat holds a time-honoured place as the proper fare of the robust and vigorous, furnishing them with the strength required for heavy tasks. The hard manual worker and the athlete both put their trust in meat. Science, too, recognizes meat as an excellent source of protein, and, apart altogether from any biological or other virtues it may be surmised to possess, it is to most an agreeable form of nourishment and therefore widely consumed. Good meat should be mature, well bled, and free from disease, whether of bacterial origin or due to metazoan parasites. In order to ensure that meat is good the most certain method is the competent examination of the carcass at the time of slaughter. Valuable guidance for this important work is afforded by Dr. LEIGHTON'S handbook,[5] which now reaches its second edition. The book presents the current meat regulations which supply the code for dealing with carcasses. There are lucid comments on points arising, and helpful observations are made on the management of public abattoirs and private slaughterhouses. The second edition fully maintains the character of its predecessor as a reliable manual for meat inspectors. It is at the same time a compendium of useful information which may interest medical officers of health.

PHILOSOPHY OF A PHYSICIAN

The interests of a physician sometimes appear to cover the whole field of human activity—*Homo sum; humani nihil a me alienum puto*—and a recent book[6] comes as an agreeable reminder of this familiar tradition. Dr. F. PARKES WEBER has brought together in the German language a number of essays that have already appeared in English during the last thirty years. They cover, indeed, a great variety of topics, such as action and counteraction in pathology and therapeutics, self-acting and living, vicious circles, dreams, witchcraft, Freudian explanations, free will and heredity, games of chance, the use of shock, the exchange of bodily and mental conditions, and many others. Behind this diversity there is a suggestion of unity, such as the poets have expressed:

> "Life, like a dome of many-co'oured glass,
> Stains the white radiance of Eternity."

The work takes its title and its main philosophic interest and meaning from the concluding chapter—"Reflections on Nature, the Conduct of Life and Duty, from the Evolutionary Standpoint." The soul or psyche is the affective side of thought and feeling. Man must not abuse Nature, of which he is a part, with its greater happenings and wider laws. And Nature is not, as we have been told, blindly destructive. There are, even as Paley held, no parts without purpose; and Keith in recent years has shown, on evolutionary grounds, how hollow are the statements that have been made about "useless organs," for Nature always works for adaptation and balance.

[5] *Meat Inspection*. By Gerard Leighton, O.B.E., M.D. Second edition. London and Edinburgh: Wm. Hodge and Co., Ltd. 1933. (Pp. 137. 6s. net.)

[6] *Gedanken Eines Arztes über Seele, Natur und Gott*. Von Dr. Parkes Weber. Stuttgart: F. Enke. 1933. (Pp. 124. Geh. RM.4, Geb. RM.5.20.)

It seems inevitable in all consideration of conduct to return to the old discussion of free will, of which Dr. Parkes Weber is an unhesitating champion. Man can hardly have a brain without the power of using it. Free will, even in a minute quantity, and partly attributable, as he believes, to hereditary transmission, has something like a ferment action upon the individual and upon others. The powerful suggestive and conditional reflexes may play the part of microphone or loud speaker. From this standpoint education and environment become, indeed, mighty influences. In this chain of thought there seems to be an implicit argument that Nature, in its widest sense including the all, is one with God, or at least able, in Goethe's words, to "Weave for God the garment thou knowest Him by." The philosophy of Bishop Paulinus in the fourth century—*Vera est vivere vita Deo*—may therefore be translated, "To follow lower instincts is death; true life is according to higher impulses and reason." For evolutionary teaching, notwithstanding the fear of Darwin and Huxley, has led to the same ethical goal. Both Herbert Spencer and C. A. Mercier upheld the dual obligation—that human life must be regulated according to man's duty to himself along the lines of instinct, such as self-preservation, and also according to his duty to his fellow-men, often against instinct. The highest form of religion inculcates, as a supreme duty, loving one's neighbour as oneself. So may evolutionary philosophy and religion agree. It is a curious reflection that within a single lifetime human thought, trained in scientific method, can return in a full circle, and that what appeared total eclipse may prove the rising of a new light.

Notes on Books

In his work entitled America and Medicine,[7] Dr. HENRY E. SIGERIST, who has succeeded Professor William Welch in the chair of the history of medicine at Johns Hopkins University, has presented an excellent description of the important contribution to medicine by North America before and after the formation of the United States. The work consists of nine chapters, devoted respectively to primitive medicine in North America, the colonial period, the United States, biographical sketches of the pioneers from John Morgan (1735) to Osler, medical education, the doctor and the patient, hospitals and nursing, prophylaxis, with special reference to the public health service, the campaign against tuberculosis, typhoid fever, and venereal and tropical diseases, infant welfare, and mental hygiene, periodical medical examination, and lastly a description of the various scientific institutions in the United States connected with medical research. The text is liberally interspersed with portraits, illustrations of hospitals, medical schools, and scientific institutes, and two maps of the east and western parts of the United States are appended.

The fifth edition of *Allen's Commercial Organic Analysis*[8] is now completed by the issue of the tenth volume. The whole work is a compendium of analytical methods applicable to organic compounds. It contains also such general information relating to the material to be analysed as may be needed for the interpretation of the result of an analysis, or may otherwise require attention. The methods described include the well-tried and approved processes, many of which are in common use, and also those which, for various reasons, are seldom employed. Some of these are methods which have perhaps not been put into practice by any but their originators, who devised them to meet singular conditions, and they may afford valuable guidance to practice in other singular conditions. The book is accordingly replete with information of a most useful kind. The tenth volume contains sections on the proteins of blood, the vitamins, the hormones, woods and charcoals, and pectic substances. It also contains the general index to all the ten volumes. Previous editions of Allen's work have been greatly valued by a numerous class of workers. The fifth edition includes the most recent information available, and fully sustains the reputation for usefulness gained by its predecessors.

A second edition of RAYMOND A. KELSER'S *Manual of Veterinary Bacteriology*,[9] has now appeared, and the advance of knowledge is reflected in the substantial revision which has been found to be necessary. Pleomorphism, at first regarded as an interesting phenomenon of slight importance, has led, however, to investigations which seem now to be capable of revealing new aspects of disease in man and animals, and the new edition contains, therefore, a special chapter on bacterial variation which indicates how highly complex are the characteristics of many a species which was once considered simple. Many of the dissociative phenomena have still to be explained, and very diverse opinions are still held, but the summary here provided should be very helpful to those who have been unable to follow the various discoveries and to appreciate the reasons for the present clash of views. Among other changes may be noted the adoption of the term *Brucella* for organisms of the infectious abortion-undulant fever group. The more important serological tests are discussed in detail, and the preparation of various veterinary biological products is described. Chapters are also devoted to the pathogenic fungi and the protozoa. As a responsible textbook and work of reference Kelser's manual will no doubt enjoy a further lease of popularity in its new edition.

Mr. FRANK OLDHAM has written a short account of *Thomas Young: Philosopher and Physician*[10] whose epitaph in Westminster Abbey describes him as "alike eminent in almost every branch of human learning." His achievements may thus be somewhat difficult for one man to deal with adequately unless he takes the trouble to verify his references. The author is evidently more at home in physics than in its singular sister physic, for when mentioning Thomas Young's election as physician to St. George's Hospital, he discovers that this post had been "held some years before by Dr. Hunter, the greatest of the physicians of Young's student days." As no physician of this name has ever been on the staff of this hospital, John Hunter is probably shot at; another new but unfortunate statement is that "he was not genial." With Mr. Oldham's example to warn him the reviewer will not attempt criticism of the account of Young's work in physics.

The St. Andrews Ambulance Association has published a new *Ambulance Hand Book*[11] by Dr. E. G. GERSTENBERG, Dr. J. B. GAYLOR, and Lieut.-Colonel W. C. GUNN. This is to replace a former volume now out of date, and the present production appears to be in every way a new book. It follows the usual lines in such handbooks, being arranged in sections which can be taken to form a course of ten lectures. The necessary anatomy and physiology are described in direct association with the first-aid measures which they are held to explain and elucidate, and there are well-chosen illustrations to make difficult parts of the subject clear. A photographic supplement gives a very good idea of bandaging, etc., while an appendix contains a useful account of the Thomas splint and a reprint of a small book on *Protection of the Civil Population in Chemical Warfare*, issued by the St. John Ambulance Association. Although somewhat fuller than the manuals used commonly in England this remains a handy volume, which should prove deservedly popular in Scotland.

[7] *Amerika und die Medizin*. Von Dr. Henry E. Sigerist. Leipzig: Georg Thieme. 1933. (Pp. 352. RM.8.50; Geb. M.9.60.)

[8] *Allen's Commercial Organic Analysis*. By C. Ainsworth Mitchell and different contributors. Fifth edition. Vol. x. London: J. and A. Churchill. 1933. (Pp. 817. 32s.)

[9] *Manual of Veterinary Bacteriology*. By R. A. Kelser, D.V.M., A.M., Ph.D. Second edition. London: Baillière, Tindall and Cox. 1933. (Pp. ix + 552; 93 figures. 27s. 6d.)

[10] *Thomas Young: Philosopher and Physician*. By Frank Oldham, M.A., B.Sc. London: Edward Arnold and Co. 1933. (Pp. 159, illustrated. 6s. net.)

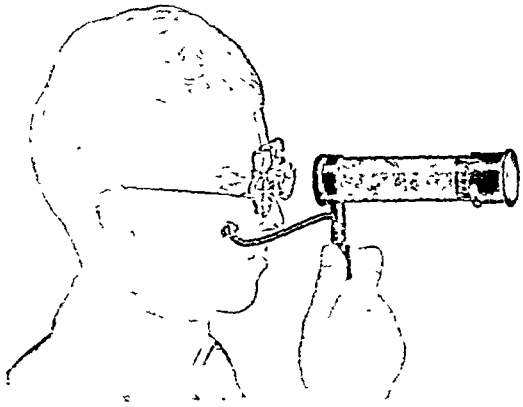
[11] *Ambulance Hand Book*. By E. G. Gerstenberg, M.B., Ch.B., J. B. Gaylor, M.A., B.Sc., and W. C. Gunn, T.D., M.D. Glasgow: St. Andrews Ambulance Association. 1933. (Pp. 448; illustrated. 2s. 6d.)

Preparations and Appliances

AN OPTOMETER*

Mr. J. D. M. CARDELL (London) writes: This name is now generally applied to an instrument for measuring the position of the near-point, and hence the range of accommodation, but in its earlier and perhaps wider meaning it becomes essentially an instrument for the measurement of a refractive condition. No novelty can be claimed for the underlying principle, but it has been abandoned for so many years that its reintroduction is due. The instruments now in use enable the surgeon to measure the refractive condition of a patient both objectively and subjectively, provided that the patient is able to come to his consulting room or clinic. The patient who has to be visited, through infirmity or illness, and the post-operation patient, introduce a difficulty which it is the aim of the present instrument to overcome. It is generally possible to carry out an objective examination, but a subjective test is often impossible, or conditions are such that the test has little value owing to restricted distances, lighting difficulties, or discomfort to the patient.

The present instrument consists of a tube having at the one *end a collimating lens and at the other a cap containing a*



reduced photographic reproduction of a test type. The reduction is such that the letters subtend the same angles to the eye as do their full size masters at six metres. Caps containing astigmatic tests of reduced size are interchangeable with those containing the ordinary test types; they are directly pushed on, or pulled off, the tube, and can be rotated into any meridian, the exact position being indicated by a scale of degrees on the tube. At the lens end of the tube there is a short rod with its end bent upwards, the bent end carrying a rocking metal pad which will rest beneath the eye of the patient. When in position there is a space of some three inches between the end of the tube carrying the lens and the patient's eye, so that there is ample room for a trial frame and for the manipulation of a crossed cylinder.

The surgeon first looks down the tube with the cap containing the test type in position, directing it towards the window or lamp to be used as the source of illumination. If a lamp is used it is of great importance that he should be exactly the same distance from the source of illumination as the patient will be during the examination. He is thus able to determine which line of type represents 6/6 for any particular lighting condition. The patient is then directed to hold the instrument before the eye to be examined, with the metal pad pressed firmly on the bone below the lower orbital margin, and to look straight down the tube. The trial frame is placed in position upon the patient and the other eye occluded. The subjective test is then carried out in the surgeon's usual routine manner, regarding the image of the miniature type as seen by the patient as if it were a distant type. If the surgeon is accustomed to use some form of rotating or stationary diagram as a subjective astigmatic test he will probably find that a miniature of it is available, since there is a wide series from which to choose; any test capable of being photographed can be reproduced. Those who prefer to use the test type and crossed cylinder will find that this method can be easily and accurately carried out.

There are two causes of error for which some compensation may have to be made. The patient, knowing that the letters are comparatively near to him, will tend to accommodate to some extent, notwithstanding the effect of the collimating lens; further, there is a tendency for an object which is seen through a tube to appear to be smaller than it is. When the tube contains a magnifying lens system this effect still exists, but appears as an apparent reduction in magnification. The decision on the part of the surgeon of the line of letters to be regarded as corresponding to standard visual acuity in view of conditions of illumination allows for these and other sources of error as well. Although the findings of the instrument may be subject to these errors, it will be found a great convenience, and will give very helpful information when dealing with the bed-ridden patient. As it weighs less than 8 oz. it can be held easily by a patient who is not very strong. Being less than ten inches in length and two and a half inches in width it does not occupy much space in the visiting surgeon's case.

The instrument has been made by Messrs. Rayner and Keeler, Ltd., 100, New Bond Street, W.1.

* This instrument was described by Mr. Cardell at the Annual Meeting of the British Medical Association at Dublin this year, and a short report on it will be found under "Section Proceedings" in the *Journal* of August 19th (p. 347).

OIL OF SANDALWOOD

We have received from the Trade Commissioner of Mysore in London a specimen of oil of sandalwood, as prepared under the control of the Mysore Government, together with a brochure giving the salient facts regarding the chemistry of this oil. The brochure points out that the official titles oleum santali and oil of sandalwood, and the official abbreviation of Ol. santal., are specified in the *British Pharmacopoeia* to refer to oil distilled from the wood of *Santalum album*, and that if these titles are used in a prescription it is only this oil that may legally be supplied.

The bulk of the world's supply of true oil of sandalwood is distilled by the Mysore Government. There are, however, many other oils known to commerce to which is applied the name oil of sandalwood, with a qualification as to the origin of the oil. The brochure explains the specific chemical characteristics of genuine sandalwood oil, which contains over 90 per cent. of santalol, which is a sesquiterpene alcohol. It is stated that none of the other oils termed oil of sandalwood *contain anything near this quantity of santalol*.

Oil of sandalwood is a drug of ancient repute in the treatment of gonorrhoea and various forms of cystitis, but in recent years many synthetic urinary antiseptics have been introduced. It is, however, *important to realize that the value of oil of* sandalwood can only be judged from the action of the genuine product.

TITROL OIL

Reference was made a few months ago (*British Medical Journal*, 1933, i, 966) to the volatile oil titrol which had been isolated from the Australian "ti" or tea tree and which had been shown to possess valuable germicidal properties. The Australian Essential Oils Ltd. have placed on the market two preparations: first the pure titrol oil and secondly a preparation containing 40 per cent. titrol oil with a soap base, this latter is termed "melasol" in Australia and "titrol solution" in England. The manufacturers provide a brochure containing reports of laboratory tests and clinical experience. The clinical reports are enthusiastic and show that the preparations have been found extremely useful in dental, medical, and surgical practice. The oil is a powerful disinfectant, but is non-poisonous and non-irritant, and has been used successfully in a very wide range of septic conditions. The titrol solution, when diluted, has also been found of value for irrigation of the bladder and the urethra.

ANTI-PNEUMOCOCCUS SERUM

Approximately half of all cases of lobar pneumonia in various parts of the world are caused by pneumococcus Type I or II. Therefore many physicians wish to give mixed I + II serum immediately the patient is seen. For this purpose "Wellcome" brand concentrated anti-pneumococcus serum, Type I + II, is available. Each phial of the mixed concentrated serum contains 10,000 units of each antitoxin. The type of the infecting cause is ascertained, and if it belongs to Type I or II the appropriate serum is used for treatment. Both concentrated and unconcentrated anti-pneumococcus serums of each type are issued.

British Medical Journal

SATURDAY, NOVEMBER 18th, 1933

THERAPEUTICS OF MALARIA

A report[1] issued this year by the Health Organization of the League of Nations, written by Colonel S. P. James and adopted by a group of experts—namely, de Langen, Mühlens, Nocht, Pittaluga, and Ed. Sergent—supplies a critical summary of the present position of our knowledge regarding the prophylaxis and treatment of malaria by means of quinine and the synthetic preparations plasmoquine, atebrin (erion), and other drugs. Since the discovery of quinine it has been realized for years that large numbers of people who suffer from malaria in poverty-stricken countries never get any specific treatment for the disease. The cost of quinine was only one of the many reasons why people live and die without the drug.

All available information on cheaper preparations composed of mixtures of cinchona alkaloids commonly used as antimalarial remedies was collected by the Commission, and it is suggested that, instead of "cinchona febrifuge," which in the past has been applied to alkaloid mixtures of very different compositions, a new standardized preparation containing all the alkaloids in cinchona bark should be recommended for general use. This new preparation, for which the name "totaquinina" has been proposed, should be standardized to contain 70 per cent. total alkaloids, of which not less than 15 per cent. must be quinine. The amount of amorphous alkaloids must not exceed 20 per cent., mineral matter not more than 5 per cent., and water not more than 5 per cent. A study of all experimental observations reveals the fact that there is no satisfactory drug in existence which will, when taken in prophylactic doses, prevent the contraction of malaria after the bites of infected mosquitos. Plasmoquine, according to James, when administered in the maximum therapeutic doses which can be tolerated for eight days or more (0.08 gram, reduced if necessary on account of toxic symptoms to 0.06 gram from the fourth day onwards), has the same effect as a true causal prophylactic should have. Smaller doses than this do not prevent infection after the bites of mosquitos, and, as the prophylactic dose is too near the toxic dose to be safely taken for more than a few days, it is obvious that this preparation is of little value in the prevention of malaria.

The Commission does not recommend plasmoquine either alone or in combination with quinine for the treatment of malaria. Recently it has been shown in Rumania that 60 per cent. of cases treated with 0.06 to 0.08 gram of plasmoquine daily developed cyanosis, fatigue, profuse perspiration, or cardiac symptoms. Further, smaller doses of plasmoquine (0.02 gram) in combination with quinine have little or no curative action on asexual forms of the malarial parasites, and consequently it is difficult to justify the use of this drug in the acute stages of a primary attack. Atebrin, hydroquinine bihydrochloride, "malarcan" (a preparation of hydroquinine), "cinchona febrifuge," and various salts of quinine have no true prophylactic action. In clinical attacks of malaria it is interesting to note that quinine has little or no action on the parasites until a febrile attack is imminent or has already occurred. The drug has no appreciable effect when given during the incubation period, and has little effect when given on the first or even second day of "initial fever." The drug is much more effective after the patient has had several paroxysms of fever, and its effect is greatest when the fever and parasites are beginning to decline as a result of the natural defensive mechanism which human beings possess. To give large doses of quinine indiscriminately to all cases of malaria is a grave error. Relapses are much more readily controlled by quinine than are the primary attacks. After five to seven days' treatment of an acute case quinine should be stopped, and, if the patient has a recrudescence, it should be given again for five to seven days or until symptoms and parasites disappear. There is no advantage in continuing a drug during the parasite-free period. Treatment, however intensive, with quinine or with any of the new synthetic preparations, is not *therapia magna sterilisans*. It is evident that there has been a tendency in the past for some physicians to give too much quinine and to prolong the treatment unnecessarily.

As a prophylactic against clinical malaria the Commission is of the opinion that quinine is effective for the purpose, and that it is the best drug to use. The correct plan is to prescribe 0.4 gram (6 grains) as a daily dose. The daily dose should be taken throughout the period of residence in a malarious area and, to avoid relapses, for several months after leaving it. Atebrin in a daily dose of one tablet (0.1 gram) is also effective as a clinical prophylactic, but it cannot be used ordinarily for the purpose, as even this small dose quickly colours the skin yellow. It might be emphasized that this clinical prophylaxis, consisting of about 5 grains of quinine daily, has been in use in our colonies for years; there is therefore no novelty in the recommendation of the Commission. It would seem that the new preparation atebrin, which is pleasant to take and of low toxicity, is as efficient as quinine in the control of malarial paroxysms. The usual doses are three tablets (each containing 0.1 gram) daily by the mouth for five to seven days. In cases with severe vomiting or other malignant symptoms the drug can be given intravenously or intramuscularly. A suitable dose for intravenous administration is 0.3 gram in 5 c.cm. of normal saline. It is not assumed that atebrin is a substitute for quinine, but it can be regarded as an additional weapon for use in particular circumstances and for special purposes. Although it is well recognized that malignant tertian malaria reacts quickly to

[1] Quarterly Bulletin of the Health Organization of the League of Nations. Allen and Unwin (League of Nations Publications Department). June, 1933. (2s.)

quinine, it has been shown that certain strains of this parasite in special localities are resistant to it. Colonel James has demonstrated that such resistant strains of *P. falciparum* may be successfully treated with atebrin.

The Commission condemns the practice of treating ordinary cases of malaria with intramuscular injections of quinine, but recommends intravenous quinine in serious cases of malignant tertian associated with persistent vomiting or threatened coma. Quinine bihydrochloride, 0.6 gram, dissolved in 5 c.cm. of physiological saline, is a suitable dose for intravenous medication. Since neither quinine nor atebrin nor any other drug is capable of bringing about complete sterilization of the malarial parasites in man, it cannot therefore prevent with any degree of certainty the occurrence of relapses. The gametocytes of *P. vivax* and *P. malariae* are almost as susceptible to the action of quinine as the asexual parasites themselves; but where *P. falciparum* is concerned quinine does not affect the crescents. It does, however, produce a reduction in their numbers by its action on the asexual forms. Plasmoquine, although having no effect on the asexual forms of *P. falciparum*, can destroy mature crescents, but cannot prevent their formation. The action of atebrin on gametocytes is probably the same as that of quinine. Hydroquinine is apparently superior to quinine in its action on the asexual cycle of malaria, and the proprietary drugs "malarcan" and "tebetren" probably depend for their efficacy on the presence of this substance.

MEDICAL TREATMENT OF CHOLECYSTITIS

The medical treatment of biliary infection scarcely attracts the attention it deserves from practitioners, and it still seems to be held by many that the treatment of cholecystitis means inevitably the intervention of the surgeon. Acute cholecystitis is a very common disease—quite as common as acute appendicitis—but there is a very definite difference in the immediate danger confronting the patient in the two conditions. Whereas in acute appendicitis the narrow and inflamed appendix may readily rupture and cause peritonitis, this is a rarity in the wide and distensible gall-bladder. Acute suppurative cholecystitis is so seldom met with that the treatment of acute cholecystitis is nearly always medical and expectant. Recurrent attacks of cholecystitis are, of course, likely to result in the formation of gall-stones, and then the intervention of the surgeon may be urgently required at any time, since in spite of the quacks who flourish and who still claim to dissolve gall-stones there is no method of getting rid of them by any medical means. The medical treatment of acute cholecystitis is thus an important problem for the physician, and all his efforts must be directed to bringing about a permanent cure.

These remarks may serve as an introduction to an interesting article by Dr. P. Destree[1] on the medical treatment of affections of the biliary tract. Destree points out that the two most important aetiological factors are (1) microbic infection, and (2) slow emptying of the biliary tract. Medical treatment consists in influencing these two factors, but there is a well-marked difference in procedure in acute cholecystitis and in the latent or chronic cases of the disease. During the acute stage the indications are to avoid any treatment which would increase the biliary flow or put the gall-bladder into active contraction—in other words, physiological rest is required. In the latent or chronic stages, on the other hand, the indications are to augment the fluidity of the bile and increase its rate of outflow. How are these to be brought about? In acute cholecystitis Destree advises atropine or adrenaline in full doses, both of which he believes have, through the vagus and the sympathetic, the power of diminishing the contractions of the gall-bladder. For the pain morphine is, of course, the only drug, but according to Destree opium given by the mouth acts even better than by hypodermic injection. He recommends particularly an intestinal injection of twenty to twenty-five drops of laudanum in 150 c.cm. of water, which is rapidly absorbed by the intestinal mucosa. If, however, as the pharmacologists now tell us, the action of opium is entirely central, it is hard to see how this method can be preferred to injection. The only other method recommended in the acute stage is a hot application over the right hypogastrium. To deal with the infecting organism, Destree supports strongly the claims of sodium salicylate as the most efficient biliary antiseptic, but prefers hexamine in the very acute stage, since sodium salicylate encourages the gall-bladder to empty. These recommendations include for Destree everything for the acute stage, which should pass off in three to four days. If fever continues, and especially if rigors supervene, suppurative cholecystitis must be suspected, and surgical measures are then indicated.

For the chronic or latent cases of cholecystitis the treatment is almost the opposite of that described above. Here the indications are to increase the tonus of the gall-bladder, diminish the biliary stasis in the ducts and gall-bladder, increase the fluidity of the bile, and deal with the microbic infection. The drugs of value are those which induce contraction of the gall-bladder, such as magnesium sulphate, olive oil, pilocarpine, and fatty foods such as eggs and butter. Among the cholagogues increasing the biliary outflow and making it fluid are atophan, bile acids, sodium salicylate, calomel, podophyllin, and mineral waters. As antiseptic drugs sodium salicylate and hexamine are the only ones advised. For the chronic and latent cases Destree is a believer in a strict dietary regime in order to diminish the amount of cholesterol ingested, and so, in his view, to diminish the chance of subsequent cholelithiasis. He cites as foodstuffs especially rich in cholesterol and so to be avoided, eggs, tripe, liver, blood, and brain. But he admits that eggs are at times useful as cholagogues by reason of their effect in emptying the gall-bladder. From the fact that the gall-bladder empties

[1] *La Scalpel*, 1932, lxxxv, 1261.

after meals, he advises more frequent but smaller meals than usual. The question of the interdiction on fats is a difficult one, but fatty meals may, it is true, tend to raise the blood cholesterol, if only for a short time. In Destree's view butter is the least objectionable. On the whole his recommendations are well founded, and will meet with approval by most physicians.

MODE OF ACTION OF SNAKE VENOMS

The fourteenth annual report of the Walter and Eliza Hall Institute of Research in Pathology and Medicine, Melbourne, relating to the twelve months ending June 30th, 1933, deals particularly with the work which has been in progress on snake venoms. Three papers have been published in the *Australian Journal of Experimental Biology and Medical Science* on the curare-like action of Australian snake venom on frogs and mammals. By amplifying nervous impulses passing down the phrenic nerve, and recording them with a loud speaker, it was shown that, after the failure of respiratory movements which ordinarily causes death by asphyxia in animals poisoned by snake venoms, the respiratory centres were still active. Impulses could be heard passing down the phrenic nerves, although curarization of the diaphragm was well advanced if not always complete. That these impulses indicated the continuance of activity of the nervous centres of respiration was shown by their absence when the spinal cord was severed high in the cervical region, or when the bulbar region was subjected to a local anaesthetic, and by their disappearance in apnoea, however induced, as well as by the changes produced in them by drugs having a central depressant action, and by their increased intensity under the influence of CO_2 or asphyxia or following injection of drugs with a stimulant action on the respiratory centres. Evidence was obtained that these snake venoms might have some direct central action, but it was apparent that such slight central effects played no important part in causing death. It was also demonstrated in these investigations that curarization induced by the action of the venoms of the copperhead and tiger-snakes could be reversed by the monovalent antivenines prepared by Dr. F. G. Morgan at the Commonwealth Serum Laboratories, provided that the venoms were allowed to operate previously for only short periods. This reversibility was much more difficult to demonstrate than the corresponding phenomenon in the case of cobra venom. The added direct effect of Australian snake venoms on the diaphragm muscle proved to be very difficult to reverse when well established ; indeed, there was no clear evidence of its reversibility. If long periods of unopposed action were allowed to tiger-snake venom, this direct effect on muscle irritability became fully developed, but short periods of unopposed action of tiger-snake or copperhead venoms could be efficiently counteracted by the administration of sufficient antivenine and the maintenance of prolonged artificial respiration. It appears, therefore, that these venoms are predominantly muscle poisons, and that any action that they may have on the central nervous system is very slight and indirect. Comparison of their haemolytic powers revealed that in order of potency in this respect the venoms of the black snake and copperhead came first, being comparable with that of the cobra ; the venoms of the tiger-snake and death-adder came next, being much less active, and that of the brown snake last. It was shown that haemolysis by Australian snake venoms was essentially similar to that caused by other venoms, depending upon the presence of a lecithinase acting at the limiting surface of the corpuscle, and being subject to the same ionic influences as is cobra venom. Complement plays an insignificant part in the process. Inhibition by serum is a frequent phenomenon in haemolysis by Australian venoms. It is probably not due to deviation of the venom to the serum, but to an interaction of venom and serum at the limiting surface of the cells. Apparently the whole serum-protein-lipoid complex is essential to this phenomenon, since opposite effects are produced by serum proteins deprived of their lipoids, whereas the lipoids alone invariably activate haemolysis. Work has been continued on the fractionation of snake venoms, and by a special evaporation process fractions have been obtained of high toxicity though containing only traces of thrombin. Using a method of preferential adsorption, a "neurotoxin" of high potency was finally recovered as a white powder. In the course of this work use was made of coramine to counter excessive dosage of anaesthetics. It was found to intensify the motor phrenic impulses in animals in which the respiratory centres had been depressed, and the phrenic impulses weakened or abolished, by excess of anaesthetic. It had, however, only a temporary and trivial action in respiratory failure due to overdosage with the barbituric acid derivatives dial and amytal. It was sometimes, but not invariably, successful in overcoming histamine shock produced in animals anaesthetized with ether. Coramine, greatly vaunted as a cardiac stimulant, appears to have little direct effect upon the normal mammalian heart muscle, nor does it seem to owe its successful clinical application in cardiac disease to any improvement of nutrition by increasing the flow through the coronary vessels.

NEW METHOD OF TRANSFUSING BLOOD

Considerable (and, for once, apparently well-deserved) publicity has been enjoyed by a device which is nothing less than an artificial heart. It was demonstrated earlier this year at a meeting of the French Academy of Medicine. An account of this demonstration, including pictures of the "heart," is to be found in the *Bulletin de l'Académie de Médecine* (tome cix, No. 9, 1933). The demonstrators, Dr. V. Pauchet and Dr. A. Bécart, claim for their "heart" almost all the qualities of its prototype. It is said to have vastly simplified blood transfusion. The "heart" connects two tubes with each other. Each is fitted with a hollow needle, one for the vein of a donor and the other for the recipient's vein. The tubing is of gum-elastic, not red or black rubber. Owing to the special character of the metal and to the walls of the tubing being coated with paraffin, there is no inducement for the blood to clot during its brief circulation through the "heart," which beats at a rate of sixty a minute. Though there are no valves it is impossible for the circulation to be reversed or for bubbles of air to enter it. The very simplicity of the mechanism

of the instrument is, to a certain extent, a guarantee against disordered action, lack of cleanliness, or any other complaint to which hearts, natural as well as artificial, may be liable. The machinery is worked by a small 1/50 h.p. engine, provided with a device for regulating the rate at which the apparatus works and for indicating the amount of blood transfused at any moment. The directness of this transfusion enables the operator to dispense with solutions which have to be added to the blood to prevent its clotting during more tardy processes of transfusion. It will be interesting to follow during the next few years the fate of this invention, which at first sight is more suggestive of Mr. H. G. Wells's flights of imagination than those of the instrument maker.

MEDICINE IN INDIA

The political difficulties that have resulted in India from the intrusion of Western methods and ideas into an ancient but rigid civilization are only too well known. In his book on *Indigenous Drugs of India*, reviewed in our issue of July 8th, Lieut.-Colonel R. N. Chopra shows that similar causes have produced remarkably similar effects in the medical field. The Ayurvedic system of medicine is one of the most ancient in the world, and in the first millennium B.C. it was a rapidly growing system well in advance of the knowledge possessed by countries which did not use it. It probably did much to mould Greek and Arabic medicine, and therefore has claims to be considered as at least a part of the basis upon which European medical science grew. This system, however, began to decay before the beginning of the Christian era, advance in knowledge ceased, while many branches passed into the control of the priests, with the result that drugs and herbs were replaced by charms and amulets. The Muslim invaders of Hindustan brought with them their own Yunani system of medicine, which had been founded partly on the Ayurvedic system, but which had advanced under the stimulus of Greek culture, despite its final stagnation. Arabic medicine thus became the official medical science of India, and the decay of the Ayurvedic system was hastened. The advent of European medicine relegated the Arabic system to the same level as the Ayurvedic. Hence, modern India has European medicine as its official system, with two older systems still in existence and extensively practised. European medicine is still in the progressive stage of an art based on inductive science, whereas the older systems long ago passed beyond this stage and now are founded on authority. Consequently they are not only dead, but in a fairly advanced stage of decay. There is little prospect of Western medicine, in its present form, replacing the older systems among the mass of the population, because it is far too expensive. The provision of adequate medical attention for the poorer classes of Great Britain is notoriously difficult. In India, however, the average income is less than one-tenth of that in this country, and it is generally estimated that not more than 10 per cent. of the Indian population have access to Western medicine. The indigenous systems cater for the remainder of the people, who amount to about one sixth of the world's population. The chief obstacle to the spread of Western medicine in India is the economic difficulty. It is idle to expect any rapid and specific cure for such a trouble, but every measure that will help in any way deserves careful consideration. Colonel Chopra is anxious to reduce the cost of India's drug bill by encouraging the development of indigenous drugs. It is surprising to learn that the value of Indian drugs exported (42 lakhs of rupees) is only one-fifth of the value of the imports (202 lakhs). Moreover, the value of the proprietary and patent medicines imported is equal to the total value of the drugs exported—the popularity of secret remedies, and the economic waste involved in their import are subjects that have already attracted the notice of the authorities. Colonel Chopra would encourage the production of drugs in India, and, by thus reducing the drug bill as a whole, make possible a wider use of Western medicine. He and his co-workers are engaged in a laborious study of the substances used in indigenous medicine. The difficulties of this work have been enormous, for medicinal properties have been ascribed to almost every plant and shrub growing in India, and even the identification of the plants referred to is usually a matter of great difficulty. The discovery of ephedrine, as the result of a similar search through Chinese materia medica, suggests that important alkaloids may still await identification.

THE MIND AND BRAIN OF THE KENYA NATIVE

The exact value of the mental equipment of socially backward tribes in various parts of the world is a subject on which the most contrary opinions are expressed. In an investigation, partly financed by a grant from the British Medical Association, into the nature of amentia among natives in Kenya Colony Dr. H. L. Gordon found himself compelled to embark on the difficult task of establishing standards for the normal mind of the tribe-men. The results so far arrived at were described recently in an address by Dr. Gordon to the Eugenics Society, of which a report appears at page 923. A series of over 3,000 unselected male natives, representative of the racial average, was examined as to certain physical and psychological attributes, following the method of Professor R. J. A. Berry for the diagnosis of amentia in the European. The findings, embodied in tables of percentiles corresponding to the tables used in Berry's method, seem to show a definite cerebral deficiency in the native as compared with the European. After experiment with various types of mental test three performance tests and the Porteous maze test were selected for the examination of groups, admittedly small, of "educated," mentally disordered, mentally deficient and criminal natives, and the results were submitted to statistical scrutiny. On comparing these with the standards for the average normal European certain significant indications of racial difference, with a biological basis, between the East African native and the European appeared to emerge. The average mental age of the group of "educated" natives was 10·5 years. Another point was that some of the so-called stigmata of mental deficiency in the European appear to be racial characteristics in the native, and that simian and also secondary sexual characters seem to be frequent among the latter.

During the course of the investigation the difficult question of the applicability to African natives of the social criterion in diagnosis of amentia inevitably arose, and gave rise to the query whether members of a backward race should be judged by the standards of the civilization with which they may be brought into contact or by standards of their own race found for it by the civilization. Concurrently with Dr. Gordon's work a parallel investigation was carried out by Dr. F. W. Vint, pathologist in the Medical Service of Kenya, who examined histologically the brains of 100 natives, representative of the average population. The results are shortly to appear in the *Journal of Anatomy*, but Dr. Gordon was able to state that the anatomical findings seem to strengthen greatly the belief that the conclusions drawn from examination of living subjects rest upon an organic basis in the cerebrum. A difference in biological level may well be the foundation of racial backwardness and be contributed to by both nature and nurture. None will disagree with the conclusion that wide team research is a "pressing necessity." Medical, legal, educational, and social questions make this a matter of imperial importance," said Dr. Gordon: "A conception of scientific colonization is not now beyond the range of statesmanship, and may well become incorporated amongst the national ideals which distinguish British trusteeship for weaker peoples."

ACUTE PNEUMOCOCCAL NEPHRITIS

It is well known that acute nephritis, in the cases in which some microbic cause can be definitely recognized, is generally due to streptococcal infection. The question has always been of interest as to whether other pyogenic organisms, and particularly those which also inhabit the nasopharynx, may be the primary cause of acute renal damage. Blackman and Rake[1] have investigated this problem, and their results are of clinical interest. It appears from their studies that chronic pneumococcal infections may give rise to severe renal damage in infants and very young children, but they were quite unable to find evidence of acute diffuse nephritis in any adult who had been the subject of pneumococcal infection. In infants acute diffuse pneumococcal nephritis may follow prolonged infections such as empyema, pericarditis, otitis media, and meningitis. The changes as particularly described in nine infants and very young children, ranging in age from 4 months to 3 years, are both glomerular and tubal. In the glomeruli hyaline thrombi are numerous, and haemorrhage into Bowman's capsule is frequently seen. Necrosis of individual cells of the convoluted tubules is a striking feature, just as in the commoner streptococcal form of acute nephritis. In none of the cases investigated were chronic lesions found, but this was not to be expected in view of the duration of the disease. The clinical lesson to be drawn is, therefore, that, whereas in adolescents and adults pneumococcal nephritis is practically unknown, the possibility of this serious complication must always be kept in view in the numerous pneumococcal infections of long duration which occur in infancy.

[1] *Bull. Johns Hopkins Hosp.*, 1932, li, 217.

BRITISH POST-GRADUATE MEDICAL SCHOOL

The Governing Body of the British Post-Graduate Medical School has appointed as Dean of the School Dr. Malcolm Henry MacKeith, Fellow of Magdalen College and Dean of the Medical School, Oxford University. Dr. MacKeith will take up his duties in the New Year. The foundation stone of the new post-graduate school, which will adjoin and be associated with the London County Council Hospital in Ducane Road, Hammersmith, was laid by the Chancellor of the Exchequer, Mr. Neville Chamberlain, on July 17th last. It is hoped that the school will be open to students towards the end of 1934. Further announcements will be made in due course.

ELECTION OF DIRECT REPRESENTATIVE ON THE G.M.C.

In addition to Dr. H. Guy Dain of Birmingham the following have been approached to offer themselves as candidates for the vacancy, caused by the death of Dr. Christine Murrell, as direct representative for England and Wales on the General Medical Council, and have consented to stand: Lady Florence Barrett, London; Dr. A. Clarke Begg, Swansea; Mr. H. G. Hogarth, Nottingham; Dr. S. Morton Mackenzie, Dorking; Dr. J. S. Manson, Warrington; Dr. L. A. Parry, Hove; Dr. H. Vickers, Harrow; and Dr. Ernest Ward, Torquay.

RETIREMENT OF SIR LEONARD ROGERS

We have to announce that Sir Leonard Rogers, F.R.S., medical adviser to the Secretary of State for India, and President of the India Office Medical Board, having reached the age limit, retired from these offices on November 14th. He is succeeded by Sir John Megaw, Director-General of the Indian Medical Service. It is understood that Sir Leonard Rogers will continue his research work and his work for the British Empire Leprosy Relief Association.

At the quarterly meeting of the Grand Council of the British Empire Cancer Campaign, held at 12, Grosvenor Crescent on November 13th, with (in the absence of Lord Reading) Sir Holburt Waring in the chair, a letter was read from the Duke of York expressing satisfaction at the acceptance of his plan to make a special appeal for the Campaign on Empire Day. Professor W. S. Lazarus-Barlow was elected to the scientific advisory committee, and the appointment of Dr. R. G. Canti as honorary secretary to the scientific committees was confirmed. Professor E. Mellanby was elected to the Grand Council. The Grand Council drew attention to the fact that essays on "The biological effects and mode of action of radiations upon malignant and other cells," for the 1933 Garton Prize and Medal, should reach the offices of the Campaign not later than December 31st next. The following grants, totalling £14,380, were made for the calendar year 1934: Middlesex Hospital, £5,400; Cancer Hospital, £2,700; St. Bartholomew's Hospital, £2,250; St. Mark's Hospital, £540; Marie Curie Hospital, £540; the Radon Centre at the Middlesex Hospital (through the Medical Research Council), £350; Mount Vernon Hospital, £900; Strangeways Research Laboratory, Cambridge, £350; Westminster Hospital Annexe, £300; Mr. I. Hieger (at the Cancer Hospital), £550; Dr. P. R. Peacock (Glasgow Royal Cancer Hospital), £300; and Dr. Alexander Haddow (University of Edinburgh), £200.

THE SOUTH AFRICAN MEDICAL CONGRESS, CAPETOWN, 1933

[From a Correspondent]

The twenty-seventh South African Medical Congress, the sixth Annual Scientific Meeting since the union of the profession in South Africa into one organization, was held during the last week of September in the University Buildings at Groote Schuur. The congress was opened by Vice-Admiral E. R. G. R. Evans, Commander-in-Chief of the Africa Station, better known, perhaps, as "Evans of the *Broke*," and more recently in connexion with the Bechuanaland "incident." In a humorous speech he said: "Thank God and the profession we have got past the days of elementary surgery, when the ship's captain, compelled to amputate a leg, took *The Seaman's Medical Guide*, read a little bit and sawed a little bit, and then read a bit more and sawed a bit more, until finally the leg came off, when he had to give the patient a stiff dose of brandy while he read again how to complete the job." Several bright tales about rough-and-ready medical practice on shipboard in the early days put the congress in a cheerful mood preparatory to tackling the heavier fare which was to follow.

The Presidential Address

Dr. E. Barnard Fuller, in his presidential address, sought to show how a study of primitive peoples, their psychology, and their attitude towards disease, might help us better to appreciate how halting have been the steps mankind has trodden, and further to realize how much of this primitive psychology still clings to us. When one realized, he said, the mass of superstition with which our primitive ancestors were surrounded there was little wonder that so much wrong thinking about disease still existed. The medical profession had to endeavour to wean mankind from a state of uncritical credulity in a matter of disease. A man would take his broken watch to a trained watchmaker, but he would often be prepared to let anyone advise him as to health. This might seem extraordinary until it was remembered that in ancient times sick persons were exposed in the market place, so that they might receive advice from the passers-by. The primitive psychology involved in this ancient custom still held sway; hence the strength to-day of the faith-healer and the quack. With no sense of responsibility, and generally blissfully ignorant of his subject, he made impressive statements about disease which had a curious effect on the sick individual. His frequent success was due to the remarkable control of both normal and abnormal physiological functions by the mental factor. The technical side of the art of the medical profession was advancing by leaps and bounds, but were we quite sure that amid the glamour of all these advances we were not losing some of the psychological grip which we should hold on humanity, thereby giving loopholes for superstitions and quackery to regain some of their influence? The old general practitioner was disappearing, and his modern counterpart, who was constantly forced to hand his patient over to the specialist, did not as yet quite fill his place. The modern specialist rarely gripped the psyche of his patient. Dr. Fuller said he hoped that the time would come when the would-be specialist would be required to spend some preliminary years in general practice.

The Plenary Sessions

Owing to the amount of scientific material to be dealt with during the week, the congress was divided up into Sections on medicine, surgery, gynaecology and obstetrics, public health, and special subjects. These Sections met simultaneously in various rooms of the University, but, as in previous years, plenary sessions were held on subjects of general interest to the profession as a whole. Three subjects were discussed in these sessions. Diet in relation to health in South Africa was dealt with in a symposium; the papers being contributed by Dr. F. W. Fox, biochemist to the South African Institute for Medical Research, Dr. E. H. Cluver, assistant health officer for the Union of South Africa, and Dr. L. J. Braun, consultant physician in Johannesburg. Dr. Fox put forward a strong plea for a nutritional survey in the Union. This would include an investigation into the chemical, biological, and economic values of the foods at present in use in South Africa; examination of the work already done for improving our food resources—such as the work of the soil survey; a study of the best use of food already produced—with a view, for example, to preventing waste during preparation, drying, canning, and transport; the study of Bantu foods and food customs, which would lead to a better understanding of the particular deficiencies existing in different areas, and to increased knowledge concerning the considerable number of wild plants, roots, salts, fish, and even insects, which were used as food; and consideration of the nutritive possibilities of plants recently introduced, such as the soya bean. Such a survey, he said, would gradually accumulate data of great value in dealing with the particular food problems of a given area. The congress was strongly impressed by this plea, and it passed a resolution "That in view of the great importance of nutrition as a factor in public health, Federal Council be asked to consider the question of the organization of a nutritional survey of the food problems and resources of South Africa." Dr. Cluver drew attention to the grave malnutrition among the eight million Bantus and the quarter of a million "poor whites," which resulted from the almost exclusive dietary of maize-meal or other starchy food. The Native Reserves of the Union, in spite of their large populations, were unable to supply all the labour needed by the gold-mining industry. At very considerable expense native labour had to be recruited outside the Union, because of the large proportion of the young native male adults of the Union unfit for mine labour. The necessity for supplementing the starchy dietary with the requisite protein- and vitamin-containing substances was urged, particularly in the case of pregnant and nursing mothers and young children, among both white and black. Dr. Braun gave an interesting account of diet in relation to disease. He found that diseases and nutritional disturbances in hospital and private practice differed in no way from those occurring in other parts of the world.

The second plenary session was opened by Dr. C. J. Albertyn with a paper on "Medico-legal Problems of General Practice." He described in detail the various medico-legal problems with which practitioners in the Union had to deal, and ended with a plea for the institution locally of a post similar to that held by Sir Bernard Spilsbury in England. He considered that the need for such an expert was great. It could best be filled by the appointment of a man who had done the actual field work in South Africa; only local experience would enable such as officer to carry out his duties efficiently. Thus the difficult question with which the general practitioner was often confronted, whether a given person was coloured, could only be answered by a South African.

During the third plenary session the very important problem of the prevention of maternal mortality in urban and rural areas was discussed, after the subject had been introduced in a paper by Dr. D. J. Malan of Durban, and the discussion opened by Dr. A. Simpson Wells of Capetown. The present division of responsibility for the control of maternal welfare between the central Government of the Union and the provincial administrations came in for much adverse criticism. Finally a motion was passed to the effect that the whole control should be concentrated in the Public Health Department of the Union. Another important motion was passed—namely, "That the Medical Association of South Africa (B.M.A.), recognizing with alarm the high mortality and great loss of life among young women throughout the Union as the result of childbirth, urges the Government to form a national midwifery service for rural and urban areas, and to make arrangements for the instruction of the public in the importance of ante-natal examination and cognate matters."

The Work of the Sections

The sectional papers covered a great variety of subjects. Of particular interest were those read at a joint meeting of the Sections of Medicine and Public Health.

Members of the Union's veterinary services had been invited to contribute papers, and these were of a very high standard. Great advances have been made in the Union in the study of animal diseases, and contributions from the alert members of the Institution at Onderstepoort, in Pretoria, are always treated with great respect. Dr. P. J. du Toit, director of the Union's veterinary services, took as his subject "Common Problems in Veterinary Science and Human Medicine." Dr. G. de Kock, deputy director, in an address on "Bovine Tuberculosis in Relation to Public Health," had valuable information to impart as the result of his work in connexion with an extensive experiment carried out in Durban, where an attempt was made to free all dairy herds in a certain area from tuberculosis infection. The outcome of the discussion was the following resolution: "That it is desirable that research be undertaken in the different centres of the Union to ascertain the relative incidence of bovine and human tuberculosis amongst the population." It was also decided that a combined session should be held at future congresses to include representatives from veterinary science in discussions relative to the common fields of comparative medicine and pathology.

Health Aspects of Aviation.—In a paper on "Medical and Health Aspects of Aviation in the Union," Sir E. N. Thornton, who is Director of Medical Services as well as Secretary for Public Health, pointed out that faster transport, while bringing South Africa nearer to its neighbours, also brought it nearer to those neighbours' diseases, and epidemiological history had shown clearly the relation between travel and the spread of disease. The Office International d'Hygiène Publique had been studying the subject exhaustively for several years, and its draft convention provided a world code of conduct in dealing with yellow fever, plague, small-pox, typhus, and cholera comparable to that prescribed on sea and land by the International Sanitary Convention of 1926, and formulated, as far as possible, the maximum frontier action permissible for the purpose of controlling the introduction of infectious diseases by aircraft. A conference last year was unanimously in favour of all African States represented adopting the convention. The danger about which the Union authorities were chiefly concerned was the introduction of yellow fever from areas in the north of Africa, where it is endemic. It had become clear, however, that the spread of this disease by aeroplane was unlikely. Yellow fever was transmitted under natural conditions only from actual human cases bitten by the mosquito in the first three days of the illness; the transmitting agent was the domestic mosquito, which remained in, or in the immediate vicinity of, the house where it was fed. After feeding upon an infected case it had to survive for at least twelve days before it could transmit the virus to another person; the longest period the ubiquitous *Aëdes aegypti* could exist in an aeroplane had been shown to be less than four days. Proper use of suitable insecticides easily freed aeroplanes of mosquitos. The simple procedures proposed by the convention should entirely eliminate the very slight risk of yellow fever being introduced into Eastern or Southern Africa by carriage of the insect vector in aircraft. Mosquito surveys were being made in Southern Africa, and Sir Edward was able to give the congress the comforting assurance that in Capetown, at any rate, there were no *Aëdes* capable of causing an outbreak of yellow fever.

Social Functions

The social functions provided by a very active Entertainments Committee were an undoubted success, certainly, at times, at the expense of the more solemn scientific fare provided. After the opening ceremony a reception was held in the University grounds, where the Principal of the University, Sir Carruthers Beattie, along with Lady Beattie and Dr. and Mrs. Fuller, received the guests. The same evening a special programme was provided for delegates at the Alhambra Theatre. The following afternoon the entertainment was transferred to the National Botanical Gardens in the depth of the mountains at Kirstenbosch, and in the evening there was a civic reception at the City Hall. On Wednesday afternoon the President and Mrs. Fuller gave a garden party at the Western Province Sports Club, Kelvin Grove, which was followed in the evening by the congress banquet at the Rio Grand Hotel, Muizenberg. Excursions to picturesque regions of the Cape Peninsula occupied Thursday afternoon, and at night the congress dance was held in the Jameson Hall. A large number of delegates attended the reception at Admiralty House, Simonstown, on Friday, as the guests of Vice-Admiral and Mrs. Evans, while others went to Paarl as the guests of the Drakenstein Division of the Cape Western Branch of the Association.

The gold medal of the Association for meritorious services was formally presented to Dr. A. J. Orenstein, the first President of the united association, at the opening ceremony. He has been succeeded as President by Mr. Lindsay Sandes of Capetown.

Very pleasing was the trades exhibition, which was well organized. Among the well-known firms represented were Bayer Products, Ltd., London; Allen and Hanburys (Africa) Limited; Genatosan, Ltd.; Parke, Davis and Co.; Burroughs Wellcome and Co.; Sharp and Dohme, Philadelphia; and H. J. Heinz Company. In addition, attractive stands had been erected by numerous firms which operate only in South Africa.

THE BRITISH HEALTH RESORTS ASSOCIATION

The annual general meeting of the British Health Resorts Association, which was formed a year ago to interest the public and the medical profession in the health provisions and attractions of our home resorts, was held on November 10th, under the chairmanship of Lord Meston, the president.

In a report presented by Dr. Alfred Cox, the general secretary, the names of about a score of health resorts subscribing to the Association were supplied. The Ministry of Health had given an assurance of its benevolent attitude towards the movement, and the influence of the Association had been greatly strengthened through the appointment of representatives on its medical advisory committee by the two Royal Colleges, the British Medical Association, the Spa Practitioners Group of the Association, the Society of Medical Officers of Health, and the British Spas Federation. The committee was a purely medical body, containing many eminent men who were specially interested in physical medicine. The Association had taken over as its official handbook the publication on health resorts which had for many years formed part of the *Medical Directory*, Dr. Fortescue Fox continuing as editor, and the 1934 edition would contain many new features and more authoritative information. It was the desire of the council to send a copy to every practising doctor. The report also mentioned the various local conferences which have been held, and concluded: "It is still as necessary as ever to press the claims of the home health resorts on the public, for in spite of the difficulties of the exchange and the depression in trade, much money is still being spent in the pursuit of health abroad which could be spent in this country with equal benefit to the health seekers and great encouragement to home industry." Complaint was made of insufficient income and of the backwardness of some local authorities in subscribing, although they stood to benefit largely by the work of the Association.

Lord Meston said that the task of establishing the Association had not been easy. It was not working for its own advantage, but for the advantage of the British public, although it was true that the conversion of a large number of people to the more extended and systematic use of the curative resources of this country would undoubtedly mean advantages to the health resorts which it might be difficult for them to secure by their individual propaganda. The council had done itself the honour of electing Sir Humphry Rolleston as an honorary member, and Lord Dundonald, Lord Riddell, and Lord Horder as vice-presidents. Lord Meston also said how greatly the Association was obliged to Dr. Cox. It had been fortunate in obtaining the help of

one whose name was always to be associated with medical organization in this country, and with singular skill he had devoted himself to a task which had been heavy and at times discouraging: his work had been of inestimable value to the Association and, through it, to the country at large. A general discussion then took place, in which many representatives of health resorts participated, and ways and means were explored for bringing in a greater volume of financial support to the Association. It was stated that a conference had taken place with other associations concerned with the development of British resorts, and the conclusion had been reached that there was no duplication of aim, and a joint consultative committee had been set up to ensure co-ordination and non-overlapping of effort.

Lord Horder said that the organization was extremely well designed, and the reading of the annual report had afforded him great satisfaction. Financially, however, some concern must be felt as to the future. The question of funds was not the job of the medical advisory committee, but its members would feel great regret if the venture did not go on to complete success. The function of the doctors on that committee was a double one. They advised the executive on all matters having a medical bearing, but also, in personal contact with their patients, they were able to interest them in British health resorts, and the reaction of the patients was quite favourable. Dr. E. P. Poulton urged that municipalities considering extensions of their health facilities should consult the medical profession. The medical advisory committee would be pleased to give advice in all such cases.

Dr. Cox said that, financially, the Association was working "from hand to mouth," and unless a steady—not large—income was guaranteed it had no business to go on. The Association had done good service in making people realize that the health industry of the country was one that ought to be supported, and much greater service awaited it, but if the movement came to an end for lack of funds it would not be resuscitated in this generation. The medical profession would not be likely to enter again into a movement to help the local authorities.

Lord Meston, in closing the discussion, said that suggestions made as to altering the basis of subscription would be considered by the executive committee. The job of the Association was to place before the public, and especially the medical profession, the fullest information as regards the different resorts and their special characteristics, so that practitioners would be better able to advise their patients.

PUBLIC HEALTH ADMINISTRATION ON MERSEYSIDE

"Merseyside," although it might include Runcorn and other places, has come to mean Liverpool and its satellites—if they will forgive the term—Birkenhead, Bootle, and Wallasey. The name is a convenient one for a district which covers a radius of ten miles from St. George's Hall, and whose population largely serves the commerce of the sea. The University of Liverpool has been carrying out a social survey of this district, doing on a slighter scale what Charles Booth did for London many years ago. Half a dozen interim reports have already appeared, on housing, education, and other social factors, and the seventh, written by Mr. P. A. Wilson, tutor in political theory at the University, deals with public health administration.[1]

As each of the reports is separately issued it might have been well to repeat certain basic facts about this area, as, for example, the population and density. It is not all of the same character, for while Liverpool, Birkenhead, and Bootle may be classed together, Wallasey stands apart. Her population, of less than 100,000, is not much more than eighteen to the acre, while that of Bootle is nearer forty. Wallasey is almost slumless, so that the medical officers there are working on a far more tractable problem than elsewhere. This is reflected in the tables of infant mortality, where the figure for Wallasey is well below that for England and Wales. On the other hand, the figures for Liverpool, Bootle, and Birkenhead are above the country's average. In countering infant mortality Wallasey was ahead of the rest of the country even before the war, and it is now distinctly farther ahead, while other towns of Merseyside have dropped farther behind. This implies no reflection on the health committees and medical officers of these towns, for it is now realized that infant mortality is affected as much by environment as by administration. And this can be said to the credit of Liverpool, Bootle, and Birkenhead—that their average annual maternal mortality for the period 1925-31 is respectively 3.9, 3.7, and 3.8 per 1,000 births, while for England and Wales the figure is 4.2.

On the basis of a comparison of these four boroughs the author finds some reason to doubt the optimistic tone of the report of the Chief Medical Officer to the Board of Education, who has declared that the depressed state of industry and the need for national economy do not appear to have exerted as yet any measurable physical ill effect upon the child population. But in Bootle and Birkenhead—places not dissimilar, though the population of the former is little more than half that of the latter—the percentage of children in 1931 found on routine school inspection to require treatment for any defect was 30.4 in the former and only 7.8 in the latter. Is it reasonable to suppose that Bootle children are four times as unhealthy as Birkenhead children? The percentage found to be suffering from malnutrition was only 0.07 at Birkenhead (at Wallasey no children were found so suffering at all), and 2.36 at Bootle. Again, is it reasonable to suppose that Bootle children are thirty times as undernourished as those of her neighbour? In the secondary schools of Bootle 23 per cent. of the children were found to have some defect, and in Birkenhead only 10 per cent. The differences must be due, not to essential factors, but to different standards of ascertainment. Whether the results of the application of these varying standards even themselves out over the country so as to give a just approximation to the real position is a question which cannot yet be answered.

The "Penny in the Pound" Scheme

The author of the survey gives an account of the Merseyside "Penny in the Pound" fund, which was devised some years ago to preserve the voluntary hospitals and to introduce an element of insurance into the contributions that the hospitals demand from patients who can afford to pay. The scheme embraces twenty-two voluntary hospitals, and aims at bringing within its ambit every firm which has not an independent scheme of its own, as have Lever Brothers and the railway companies. The membership of the fund is open to all manual workers and to any non-manual worker whose income is below a certain figure. Contributions are at the rate of 1d. for each £ of wages or salary—a sum in most cases deducted at the source by the employers, who add a proportionate contribution of their own. The total number of individual contributors is 275,000. The author points out, however, that although this scheme enables the voluntary hospitals to tap a source of income not previously accessible, it also increases the pressure upon their accommodation by putting the contributors in a position to claim as of right benefits which it was previously in the power of the hospitals to confer or withhold. He thinks that the preservation of the independence of the voluntary hospitals is the least likely to be realized of any of the aims of the founders of the fund.

The total cost of public health work in the four boroughs, including national health insurance, voluntary hospitals, the amount spent in medical relief, and the strictly municipal health services, approaches £3,500,000 a year. One perplexing feature of the table which the author furnishes is that the expenditure on the municipally administered "personal" services—maternity and child welfare, school medical services, tuberculosis, and so forth—in Liverpool is out of all proportion to what it is in the other boroughs. In Liverpool it is 13s. 7d. per head of population, and only 8s. 2d. in Bootle and 9s. 8d. in Birkenhead. The discrepancy is not explained, but

[1] Copies of the report are obtainable, price 7d., post free, from the secretary of the survey, 19, Abercromby Square, Liverpool.

lest it be thought that municipal administration is unwarrantably extravagant in Liverpool, attention is drawn to the terrible legacy of overcrowding and bad social conditions which she inherits from the past and to the wealth and population of the city, which have made experiments possible in fields where other authorities have not felt able to venture.

THE PHARMACY AND POISONS ACT, 1933

In the course of a lecture on the Pharmacy and Poisons Act, 1933, given to the Exeter and District Branch of the Pharmaceutical Society on November 15th, Mr. H. WIPPELL GADD remarked that the Act was not only of considerable length and great intricacy, but, like most modern statutes, it was largely an enabling Act, to be extended and completed by Rules and Regulations, for the making of which it gave large powers to various authorities, and particularly to the Home Secretary. He then briefly mentioned various sections of the Act, indicating their general effect and the changes that they would make in the existing law. The paramount aim of all such legislation, and the standard by which it must be judged, was its effect upon the public health and safety, and divergent opinions had been expressed as to the probable effect of the new Act in these respects. It should be noted at once that the Act, as a whole, was not yet in force. It would only become so as and when settled by Orders in Council, which fixed different dates for the coming into operation of different parts of the Act.

After dealing with the first sixteen sections, Mr. Wippell Gadd said that Section 17 provided that the Home Secretary should cause the Poisons Board to prepare and submit to him for his approval a list of the substances to be treated as poisons for the purposes of the Act. The list was to be divided into two parts, and it must be emphasized at once that these did not correspond with the two parts of the present Poisons Schedule. On the contrary, it would seem that most, if not all, of the substances now in Parts I and II of the Schedule would be in the new Part I, and would have to be signed for when purchased by retail. The new Part II would consist of "poisons" sold by certain other traders in addition to "authorized sellers of poisons." Section 21 provided that every local authority must keep a list of persons who, not being entitled to sell poisons included in Part I, would be entitled to sell poisons in Part II. The Home Secretary was empowered to make rules for the purposes of this Section, but as it stood it would seem that any person might have his name entered upon the list unless the local authority had sufficient reason relating either to him personally or to his premises, to refuse to put him on the list. This section therefore provided a much wider concession than the old form of licensing under Section II of the Poisons and Pharmacy Act, 1908, and it was to be hoped that strict rules would be made to prohibit, for example, a local authority from putting on its list the name of any person who kept a food shop or was in some other way personally or by reason of the nature of his premises or the character of his business obviously unfitted to sell poisons. With regard to the substances likely to be made poisons in the new Part II, it was laid down that regard should be had to the desirability of restricting that part to articles in common use, or likely to come into common use for purposes other than the treatment of human ailments, and which it was reasonably necessary to include in Part II if the public were to have adequate facilities for obtaining them. In these times of commercial enterprise and easy and rapid means of communication and transport it was difficult to name any poison in common use for the obtaining of which the public had not adequate facilities in practically all parts of the country, but there were many which, if sold in ordinary shops by persons with only an elementary knowledge of their properties, would become a grave public menace. It was imperative, therefore, that public opinion should be focused on the necessity of keeping this part as short and exclusive as possible.

THE POISONS BOARD

The Home Secretary announced, on November 8th, the constitution of the Poisons Board established under Section 16 of the Pharmacy and Poisons Act, 1933. The members of the Board are as follows, the appointing authority in each case being indicated between parentheses:

Sir Gerald Bellhouse (chairman), Sir Walter Greaves-Lord, K.C., Sir William Lobjoit, Mr. M. H. Whitelegge (Home Secretary); Mr. J. M. Johnston, F.R.C.S.Ed. (Secretary of State for Scotland); Mr. J. N. Beckett, Dr. G. F. McCleary (Minister of Health); Mr. H. E. Dale (Minister of Agriculture); Sir Robert Robertson, F.R.S. (or deputy) (*ex officio* as Government Chemist); Mr. J. H. Franklin, Mr. H. N. Linstead, Mr. G. A. Mallinson, Mr. E. T. Neathercoat, Mr. P. Sparks (Pharmaceutical Society of Great Britain); Sir William Willcox, M.D. (Royal College of Physicians of London); Professor R. Stockman, M.D. (Royal College of Physicians of Edinburgh); Professor Sydney Smith, M.D. (General Medical Council); Dr. G. Roche Lynch (Council of the Institute of Chemistry of Great Britain and Ireland); Dr. J. W. Bone (British Medical Association).

The duties of the Board are to prepare for the approval of the Secretary of State a list of the substances which are to be treated as poisons for the purposes of the Act, and generally to advise him in regard to the rules to be made for the control of poisons.

Scotland

Health of Scotland

The report of the Registrar-General for Scotland[1] for the year 1932 shows that the number of births and the birth rate per 1,000 were the lowest recorded in any year since the beginning of national registration. The number of deaths and the death rate were greater than the corresponding figures for the previous year, but below the average for the preceding five years. The infantile mortality was greater than that for 1931, and also slightly in excess of the average for the previous five years. The mortality from the principal epidemic diseases was slightly above that for 1931, but below the average for the preceding five years. The death rate from tuberculosis showed a further decline, while that from malignant disease again showed an increase. The maternal deaths and death rate were also higher than those for the previous year, but slightly below the average for the previous five years. The principal causes of death were: heart disease 14.6 per cent. of the total, malignant disease 11.3, apoplexy 10.9, pneumonia 8.2, tuberculosis 6.2, diseases of early infancy 5.2, and bronchitis 5.2. The estimated population of Scotland at the middle of 1932 was 4,883,000; this was an increase of approximately 40,000. The number of births registered during the year was 91,000—males 46,579 and females 44,421. Since the year 1876, when the birth rate reached the highest point ever recorded—namely, 35.62 per 1,000 of the population—the general trend has been downwards, with the exception of a post-war rise, reaching 28.07 per 1,000 in 1920. With regard to variations in different parts of the country, the highest birth rates were in Port Glasgow 25.8, Coatbridge 24, and Hamilton 23, and in the counties of Lanark, West Lothian, and Wigtown with rates of 20.7, 20.5, and 20.3 respectively. The lowest birth rates were: Zetland 12.7, Berwick 12.5, and Peebles 13. With regard to deaths, the number registered during the year was 66,045, giving an annual death rate per 1,000 of 13.53; this is practically one-half of that recorded just over fifty years ago. The death rate showed a direct relation to urbanization, for in landward districts the rate was 12.01 per 1,000,

[1] Seventy-eighth Annual Report of the Registrar-General for Scotland. H.M. Stationery Office, 120, George Street, Edinburgh. (3s. 6d. net.)

in small burghs 12·46, and in large burghs 14·82. The highest death rates in the large burghs were 16·3 in Glasgow, 16·1 in Coatbridge, and 15·9 in Port Glasgow, the lowest were in Dumfries 12·8, Arbroath 12·7, and Dunfermline 11·2. As regards deaths from the principal epidemic diseases, *influenza* accounted for 1,724, measles for 892, whooping cough for 459, diphtheria for 368, scarlet fever for 250, and cerebro-spinal fever for 229. Deaths from tuberculosis numbered 4,123, the highest figures being recorded from large burghs, and varying from 130 per 100,000 in Dumfries to 45 in Arbroath, the average death rate was 84. Deaths from diabetes numbered 666, an increase of 6 over the figure for 1931, but the death rate of 14 per 100,000 was the same. Deaths from malignant disease numbered 7,458, an increase of 300 over the figure for 1931. There were 9,023 deaths from diseases of the nervous system—including 6,640 from the various types of apoplexy—and 11,100 from diseases of the circulatory system, of which 9,622 were attributed to heart disease. Disorders of the respiratory system (excluding tuberculosis and influenza) accounted for 9,816 deaths. There were 576 deaths from diseases of pregnancy and childbirth, or 31 more than in the previous year, the principal cause of death being puerperal sepsis, which accounted for 243 deaths, or 35 more than in 1931. There were also 131 deaths associated with pregnancy or parturition, but not classified as such. Deaths attributed to violence numbered 2,811, of which 648 were due to accidents connected with motor vehicles, an increase of 21 over those in 1931. With regard to infantile mortality, the most important causes of death were congenital defects, pneumonia, diarrhœa, bronchitis, measles, whooping cough, and convulsions. The total number of deaths of children under 5 years was 11,226, an increase of 376 as compared with 1931. An appendix to the report deals with the mortality from exophthalmic goitre, which has been shown to be substantially *increasing in America*. In the years 1911–30 deaths from exophthalmic goitre in Scotland numbered 116 males and 1,254 females, the disease thus accounting for less than 1 in 4,000 of the deaths from all causes in the case of males, and less than 1 in 400 in the case of females. The death rate, irrespective of age, from this cause was lower in both sexes in Scotland than in England and Wales. In Scotland the heaviest death rate is recorded at ages from 45 to 54, whereas in England and Wales the heaviest death rate is recorded in the succeeding ten years of life.

Insanity in Scotland

The nineteenth annual report of the General Board of Control for Scotland[1] for the year 1932 shows that at the beginning of the present year the number of insane persons in Scotland, exclusive of those maintained at home by their natural guardians, was 19,411. This included the inmates of training schools for imbecile children, and of the criminal lunatic department of Perth Prison, and was a decrease of 61 on the figure for the previous year. The total number of persons admitted voluntarily to asylums during the year was 803, while the total number resident was 1,056. The number of patients discharged recovered was 167 private patients and 856 pauper patients, while the number of private patients discharged unrecovered, excluding transfers, was 107, and the number of pauper patients so discharged was 284. The number of private patients who died during 1932 was 218, and of pauper patients 1,169. The death rate for patients in establishments was 7·7 per cent. of the average number resident for the year, as against 7·8 per cent. in 1931. During 1932 the number of patients discharged on probation was 128, 12 of these were *finally discharged as recovered*, 37 *returned to asylums*, and 3 died. The number of escapes from establishments was 110, of these, 41 were brought back within twenty-four hours, 37 within a week, 8 after a week and at the end of twenty-eight days from the dates of escape, and 24 were still absent. The total number of accidents *reported* was 185, or 24 more than in 1931, of these, 14 ended fatally, death in 7 cases being due to suicide. Attention is drawn in the report to the fact that since the year 1858 the number of lunatics under the jurisdiction of the Board has increased 235 per cent., while the increase in the population during the same period has been 62 per cent. With the exception of two years there has been an increase not only in the annual numbers but in the ratio to the population. Attention is also drawn to the serious shortage of asylum accommodation for pauper lunatics in Scotland and to the decline in the boarding out of patients who have ceased to require asylum care, and who might safely and with advantage be placed under guardianship in private dwellings. The report points out that these two matters are very closely related. Considerable economy might be secured by boarding out, under suitable guardianship, patients who did not require and did not benefit by the costly curative treatment in an asylum, and who were not dangerous either to themselves or to the public. This boarding out system has in Scotland stood the test of many years experience, and the hope is expressed that in the near future legislation may be obtained under which the Board will have power, in every case where the interests of a patient require it, to order the transfer of such a patient from one asylum to another or to private guardianship. The report shows that there has been a considerable net increase in lunacy in Scotland during the period 1901–31, this incidence being highest in the rural areas, particularly in the North of Scotland, where the highest rate of 626 per 100 000 of the population is recorded in the Inverness area; the lowest rate for the whole of Scotland of 223 per 100 000 is recorded for the burgh of Kilmarnock. Reference is made to the value of occupation and particularly of congenial outdoor occupation *in the treatment* of the insane. With the object of encouraging the latter the Board has been given statutory powers to permit various *local* asylum authorities to acquire land. While employment out of doors has been recognized as of the greatest value, many patients have been found who could not, or would not take part in work on asylum farms and gardens, and for these in recent years occupational classes in various arts and crafts have been given by experienced teachers. The object of asylum treatment is *to restore* patients to a condition of mind which will enable them to resume their place in the general community, and the value of occupation whether at their ordinary or some other form of work, is evident, although in consequence of trade depression and unemployment difficulty has occurred in securing the employment essential for the maintenance of the mental health of discharged patients. An experiment has recently been tried with success in encouraging discharged patients to keep in touch with their institutions, and to take an interest in the resident patients by assisting in their sports and amusements. It is suggested that it would greatly assist the patient's return to normal conditions of life after discharge if, for his benefit, it were possible to accumulate, during residence in the asylum, a fund representing the value of work performed, this might be a further inducement to patients to take part in some form of occupation, with much benefit to their general health.

[1] Nineteenth Annual Report of the General Board of Control for Scotland. H.M. Stationery Office, 120 George Street, Edinburgh. (1s. 6d. net.)

Treatment of Chorea by Induced Pyrexia

SIR,—Dr. Cheetham's article on the treatment of chorea by induced pyrexia (*Journal*, November 4th, p. 815) raises a point of considerable importance. He commences by regretting the difficulty of obtaining complete rest in such cases, although with an active carditis, or the fear of one in the near future, that is our one therapeutic aim. Four typical cases are then detailed and conclusions drawn. These conclusions are: (*a*) that the treatment does shorten the duration of choreic movements; (*b*) does not prevent recurrence; (*c*) appears to have no beneficial action on a coexistent carditis. Dr. Cheetham then compares chorea with acute rheumatism. One would admittedly not allow a patient to leave bed as soon as the arthritis and pyrexia had been controlled by salicylates, were a carditis obvious or not. Finally—and here I would quarrel with the logic of the author's conclusion—he says: "It is clear that the use of artificial pyrexia has a very limited place in the treatment of chorea."

Surely, however, the logical conclusion to the argument should be that if the method is successful it should find its place not as in any way curative therapy, but as a means of obtaining the cardiac rest so desirable and so difficult of attainment with incessant movement, the subsequent management of the case being entirely comparable to that of an acute rheumatism the arthritis and pyrexia of which have been "controlled" by salicylates. Lucy Sutton, as reported by Bateman (*British Medical Journal*, June 10th, 1933, p. 1003), would seem not to admit the exact comparison between "controlled" chorea and "controlled" acute rheumatism. Dr. Huxley Fish (*ibid.*, November 4th, p. 816) admits the comparison, but says: "If the cases are to be kept recumbent for a long time after the movements have ceased, the value of the treatment seems doubtful." However, as the pyrexial element of a raised pulse rate in acute rheumatism may be abolished by salicylates and that much cardiac rest gained, so is there also a real gain if the "exertion" element of the choreic's pulse rate may be abolished by artificial temporary pyrexia, even though the method be no more radical than the use of salicylates. I would suggest that records of sleeping and waking pulse rates over periods before, during, and after treatment would be a valuable method of assessing the difference between control cases receiving the ordinary sedatives and those rendered pyrexial.

I have no personal experience of the treatment under discussion, and I should greatly value details as to the number of cases of which Dr. Cheetham's Cases 1 to 4 were respectively examples.

There is gradually accumulating evidence that the chorea in a certain proportion of cases may be terminated by artificial pyrexia, but it would seem that by expecting too much those who advocate or have tried the method may end by claiming too little.—I am, etc.,

F. HARWOOD STEVENSON, M.D.,
Registrar for Diseases of Children,
Guy's Hospital.

London, S.W.19, Nov. 7th.

SIR,—In the two papers by Drs. J. W. Cheetham and Huxley Fish in the *Journal* of November 4th (pp. 815, 816) the essential point seems to be the pyrexia induced by T.A.B. vaccine. In every case cited the symptoms are cut short, but there is no evidence that cardiac complications are avoided, and this is the vital crux of the matter. Of course, what we want is a stock vaccine for the treatment of acute rheumatism and chorea, and we must wait for the bacteriologist to give us this. The valvular disease of the heart is all-important, as this lasts for life. The only preventive for this, at present, seems prolonged rest. But if we could cut short the acute symptoms of chorea, valvular disease might not occur in 50 per cent. of cases, as it does now. Surely similar but much better and surer results could be obtained by long-lasting hot-air baths; and no added toxaemia would be imposed on the unfortunate patient.—I am, etc.,

Hove, Nov. 7th. ALEXANDER ORLEBAR.

Treatment of Fractures of the Spine

SIR,—May I endorse Professor W. S. Haughton's comments on the first-aid treatment of fractures of the spine (*Journal*, October 28th, p. 774)? The method of face-down transportation which I described in 1930 is now widely adopted, and is not only taught in the industrial centres of Liverpool, Leeds, and elsewhere, but has been advocated by H.M. Medical Inspector of Mines, the St. John Ambulance Brigade in Ireland, and the Royal Army Medical College. The value of the routine is now well proved. In some cases comminution of the vertebral body has been accompanied by dislocation of the inter-articular joints, fracture of the pedicles, or paraplegia—evidence in themselves that there has been considerable displacement and angulation of the spine: nevertheless, *x*-ray photographs taken immediately on admission to hospital have shown that the displacement has already been reduced. No surgeon who has seen a fracture of the spine reduced in the conscious patient, who has seen the kyphosis vanish before his eyes as the spine was hyperextended, can doubt that the deformity which so smoothly and easily disappeared in hyperextension would just as easily increase in flexion.

I am frequently receiving reports of fractures of the spine with paraplegia completely cured by immediate reduction of the fracture, and there can be no doubt that many of the cases which at one time were thought to be irrecoverable are actually recoverable, the paraplegia being due to compression and not to severance of the cord. In my own series the paraplegia has recovered in 70 per cent. of fracture-dislocations of the lumbar spine. In some cases of recovery, slight ankle-clonus or an extensor (Babinski) response to plantar stimulation has remained permanently, proving that the paraplegia was not a matter of "spinal shock" or concussion, but that it was a severe organic injury, the catastrophe of permanent incontinence and paralysis having only just been averted. It is obvious that in such a case the slightest increase in the displacement from further flexion of the spine would have resulted in severance and not merely compression and anaemia of the cord.

So long as the spine is immobilized in the hyperextended position the actual technique of reduction is of relatively little importance. The method used by Professor Haughton, first described by Davis and reported in London by Böhler, is perfectly effective, but it demands considerable endurance on the part of the patient, who is practically suspended from the roof of the theatre by the heels for over thirty minutes. Moreover, a plaster jacket is preferable to a plaster bed, because frequent change of position is advisable in order to prevent pressure sores, to avoid hypostasis and pulmonary congestion, and to alleviate stasis in the urinary tract. By the heel-suspension method it is easy to make a plaster bed, but difficult to apply a jacket which extends high enough over the chest to control deformity. My own method, which was evolved quite independently, and reported at the same London meeting (*British Medical Journal*, February 21st, 1931), has the value of simplicity and rapidity, the whole procedure being completed in ten minutes. It is of interest that Böhler himself has now discarded the heel-suspension method, and is reducing fractures of the spine

EDINBURGH | Monday, November 27th. | ... unassigned on or before | Applications ... ward, residence, and family

by my method (*Rapport de 2ieme Congres International de Chirurg. et Orthopedique, Londres*, 1933, p 52)—I am, etc,

Liverpool Nov 7th R WATSON JONES

SIR,—Mr W S Haughton (*Journal*, October 28th, p 774) refers to the courage of Sir John Lumsden in making an order that all cases of suspected fracture in the thoracic or lumbar spine shall be transported face downwards Leeds General Infirmary has issued a circular making a similar request No surgeon who has had any experience in dealing with such cases can have any doubt that the method described by Mr Haughton is the correct one, and that it is of the utmost importance to the surgeon who deals with these cases in hospital that they should be brought to him in the best possible condition The handling and transport of these cases is very often in the hands of those who have undergone first aid training Unfortunately, the St John Ambulance organization has recently forbidden its doctors to teach the prone method and its workers to practise the method It would appear that the reason for doing this is that such teaching is not officially recognized by them It is a very grave matter that the sufferers from this serious injury must continue to have something less than the best done for them because the application of the correct method is regarded as a breach of discipline

Until the obvious truth dawns on those responsible for the teaching, are we to continue to allow the sufferers from fractured spine to have their injuries aggravated? As a profession we should declare in no uncertain terms what we are convinced is the truth, and dogmatically insist that "first aiders" must be taught that fractures of the thoracic and lumbar spine must be transported in the prone position—I am, etc,

Teddington Middlesex, Nov 10th THOMAS E A STOWELL, F R C S

Fusion Operations on the Hip

SIR,—I must thank Mr A S Blundell Bankart for his letter in the *Journal* of November 4th (p 844), for the paper I read at Dublin had to be so brief that undue dogmatism could hardly be avoided Undoubtedly a free excision of the local disease is an alternative, but so far as our end results go it has not proved so reliable as arthrodesis In the second table in my paper it will be seen that of ninety three major operations for tuberculosis of the hip fifteen were wide excision In eleven of these cases there has been time to judge of the results, though about half of them have not yet passed the five year limit and thus cannot be considered end results But of these eleven cases, two have had to have amputation on account of severe recurrent disease and three patients have died—one of a post operative complication, and two, years after the operation, of other tuberculous lesions

I think the feeling that prompted my dogmatism was that in tuberculosis, operations can only be assessed by end results, and that in such end results as I had arthrodesis had proved better than wide excision But technical improvements in wide excision may well lead to its serving a more useful purpose

At present I do a wide excision in cases where the bone disease is too extensive to make arthrodesis practicable but in which there is no septic complication The radiograms of such a case appear as Fig 2 in my paper In this case the disease was mainly acetabular, but very widespread My technique differed from that of Mr Bankart in that I removed the head and neck, the whole of the acetabulum, and the infected area of the ilium, but left a bridge of bone behind the acetabulum to retain the continuity of the pelvis The operation was done on August 9th, 1932, and the patient healed per primam She has free movement, 90 degrees of flexion, and walks well with a weight bearing calliper—I am, etc,

Oxford, Nov 13th G R GIRDLESTONE

Anaesthetics in Midwifery

SIR,—In your account (*Journal* November 4th, p 841) of the opening by Mrs Stanley Baldwin of the new Royal Maternity Hospital at Belfast, on October 23rd, she is reported to have said that, as regards the administration of anaesthetics to women in labour, the poor mother has hitherto never been considered

This statement induced me to look up one of my old midwifery record books, and taking the seven and a half years prior to the end of 1914, when things became abnormal, I found that out of 2,016 cases attended no less than 33·8 per cent received chloroform, omitting those cases in which the baby was born before the doctor's arrival, and in which, presumably the mother's sufferings were neither severe nor prolonged In the latter portion of the period in question a fair number of other women were given morphine and hyoscine The patients were in the main the wives—or sweetheart—of wage earners, and the standard fee was one guinea, with a shilling off to the handswoman' This fee covered attendance for a minimum period of ten days after the confinement, and often the fee had to be booked," and, alas! over many of these accounts there had to be inscribed the mystic words 'reward hereafter

I am satisfied that my experience could be reproduced from scores of industrial practices in our large towns, and it does not seem to support the statement that the poor mother has never been considered in the past—at least when she has elected to be attended by a medical practitioner in her own home In any case, it must be remembered that even in these degenerate days there are many women who scorn an analgesic when in travail, and who prefer to see it through and who thereby secure, as a rule a speedier and safer delivery—I am, etc,

Harrogate Nov 6th ADAM FULTON

SIR—I have been reading the report of the London County Council experiment in anaesthesia in midwifery published in the *Journal* of November 11th (p 884) The report states that 'as for the relative merits of the anaesthetics no one method stands out Later we read that out of 1 121 patients whose opinion was recorded as to the use of chloroform capsules only 613 considered the capsules of great use Yet every experienced anaesthetist knows that he can obtain 100 per cent complete success by means of nitrous oxide oxygen technique Surely these figures themselves show how far superior is nitrous oxide oxygen anaesthesia and analgesia to chloroform for maternity work

That chloroform capsules are of the greatest possible use no one will deny, and we must all be deeply grateful to their inventor Yet while making use of chloroform in the meantime, we should endeavour to overcome all those difficulties which at the present time prevent the general adoption throughout the country of some form of nitrous oxide analgesia and anaesthesia in maternity work No other anaesthetic is so sure, so pleasant, or so safe—I am, etc,

New Barnet, Nov 12th JOHN ELAM

SIR,—Dr Oxley's insistence on the great importance of avoiding *re* administration of chloroform in midwifery practice reminds me of perhaps as good as "tip" as any I ever got from a nurse As soon as the cord was divided she said "I suppose you would like to get your [perineal]

stitches *in place* now? " (that is, while the patient was still " under " the chloroform). Many years after, as proof reader, I suggested to the late Dr. Dudley Buxton that he might advocate this procedure in his book, but he declined, saying, " My book is on anaesthetics, and not on midwifery " !—I am, etc.,

BERESFORD KINGSFORD, M.D.
Consulting Anaesthetist, University College Hospital.

London, N.W.11, Nov. 13th.

SIR,—Dr. Oxley says, in your issue of November 11th (p. 894), that he does not fall into either of the two classes into which I divided my critics, but I am very surprised that Dr. Oxley, with all his experience on the Departmental Committee, should read just one paragraph and use it to misrepresent the facts so blatantly. I hope one day he will spare time to read the whole paper, and also to read the article in the same issue (p. 884) in which the London County Council records 4,540 cases (including 2,643 where capsules were administered by maternity sisters) without any ill effects whatsoever.—I am, etc.,

London, W.1, Nov. 13th. LOUIS CARNAC RIVETT.

Maternal Mortality

SIR,—I have read Dr. T. L. Paget's interesting account of maternal mortality in New Zealand (*Journal*, October 21st, p. 739), and the effective technique adopted by him to reduce it. The idea underlying my present inquiry is this: Is it necessary to make civilized childbirth more and more complicated and expensive, and is there no simple way to render it both efficient and safe?

We are all agreed that sepsis is responsible for the greater number of maternal deaths, and my contention is that sepsis does not arise when the pelvis fits the child's head, when pelvic joints are capable of normal expansion, when the position adopted for the act of birth does not delay birth unreasonably, and when free drainage of uterus is allowed during the puerperium, which cannot be done lying down. My article in the July number of *Archives d'Electricité Médicale*, illustrated by radiograms of pelves, shows the enlargement of the area enclosed by the pelvis in the crouching position. But when Dr. Paget states that he regrets to say that my remarks on the Maoris in New Zealand as regards maternal mortality are erroneous, I must reply with extracts from *The Maori*, by Elsdon Best, published by the Board of Maori Ethnological Research. In the past the Maori woman had her child easily, out of doors with only a grass shelter, and Best quotes from a Maori source dated 1893:

" Women of the Maori folk did not die in childbirth (formerly), although a native woman might give birth to many children yet she would not in any case die. Maori women were of fine proportion and healthy and wise in matters pertaining to childbirth). Now they die emanate from European foods. In other words, and now they be ed."

F. HARWOOD STEVENS,
Registrar for Diseases of
Guy's Hospital.

London, S.W.19, Nov. 7th.

In the two papers by Drs. J. W. Cheetham and ... in the *Journal* of November 4th (pp. 815, 816) ... as to be the pyrexia induced by ... case cited the symptoms are ... hence that cardiac complica... crux of the matter. ... for the treat... and we must ... The valvular ... lasts for life.

Zealand and Polynesia, in addition to the field work done by the women, posture dances, in which there was a constant lateral movement of the hips in time to the rhythm of the dance, were a marked feature, and suggest, moreover, that these dances were practised by the women from childhood upwards, and may have provided the necessary exercise. The Maori is like the negress, who in natural surroundings bears her children with ease, but as Whitridge Williams states, speaking of the negress in large American cities, " were it not for the greater compressibility of the negro infant's head there would be more Caesarean sections needed among them for deformed pelvis than among any other class of the community." He adds that it is probably due to the bad food and imperfect hygiene under which the coloured women live in large cities.

In a paper published in the *Journal* of November 21st, 1931, I drew attention to the connexion between teeth and pelvis, and Elsdon Best describes the perfect teeth of former days and the decayed teeth of the Maori now living the civilized life. I hope Dr. Paget will tell us more—especially as regards modern Maori teeth and the practice of squatting for the morning toilet. My best thanks are due to Dr. Violet Hastings of Auckland, N.Z., who for several years past has kept me supplied with notes on this very interesting subject.—I am, etc.,

Benouville, Calvados, Oct. 27th. KATHLEEN VAUGHAN.

Primary Thrombosis of the Axillary Vein

SIR,—I have read with interest the letters following my note in the *Journal* of September 16th (p. 535) on primary thrombosis of the axillary vein.

Dr. C. H. S. Taylor's suggestion in your issue of November 4th (p. 818) that the thrombus may sometimes originate in the subclavian vein and from thence spread to the axillary vein was of particular interest. As a result of their experimental work, Pearce Gould and Patey consider that the thrombus is due to a tear of the delicate subclavio-axillary valve, caused by contraction of the subclavius muscle in the long axis of the vein. If this view is correct, then it is reasonable to suppose that the thrombus, commencing at the junction, may spread to both or either vein. This would appear to explain Dr. Taylor's two cases without invoking any further anatomical theory.—I am, etc.,

Liverpool, Nov. 6th. J. COSBIE ROSS.

Pathology of Coronary Thrombosis

SIR,—Leriche,[1] in common with many of the older experimentalists, found that ligature of the descending branch of the left coronary artery produced ventricular fibrillation. Leriche found that the onset of fibrillation could be prevented by the local injection of novocain into the tissue surrounding the artery. My own experimental work leads me to a somewhat similar conclusion.

The case of coronary thrombosis recorded by Dr. B. S. Cran in your issue of November 4th (p. 821) serves in some respects as a parallel to Leriche's experiments. The patient was shielded from the local nervous disturbance caused by an obstruction of the artery, and survived until the ischaemic factor led to his death. It would be of interest to know if a detailed examination to apply ... nous path from the myocardium to the central chest to control ... such a case might reveal the cause of evolved quite independently.

London meeting (*British Medical* ... RENCE O'SHAUGHNESSY.
1931), has the value of simplicity and ... Congress of
procedure being completed in ten minutes
interest that Böhler himself has now discarded
suspension method, and is reducing fractures of the

est in the Treatment of Coronary Thrombosis

SIR,—The letters published in the *Journal* of October 8th and November 11th raise many points of interest oncerning the subject of coronary thrombosis. It seems xtraordinary that the literature on this subject does ot pay any attention to the danger of coitus in this ondition. Coronary thrombosis so frequently attacks ales when their virility is unimpaired that we must nsist upon strict continence in patients who have symp- oms of this disease. Liberal administration of one or ther of the barbiturates will be found very useful in liminishing libido.—I am, etc ,

London, W.1, Nov. 11th. JOHN H. HANNAN, M.D.

The Common Cold

SIR,—If we feel shame at the comment in your leading article on November 4th (p. 831) that failure to cure the common cold is " the commonest reproach flung at the medical profession," may that not be due to failure to appreciate the significance of the common cold, for the causes of this respiratory tract response seem to be almost as many and as widespread as the alimentary tract responses. As with those, we have to look not only for immediate causes but also for remote causes. Sometimes we can recognize a purpose ; at other times it appears purposeless. If the common cold is a disease then it is the only ailment I have experienced which may aid one in giving a good prognostic outlook, both as to the immediate disability and the general health of the individual.

There is a general assumption that common colds and influenza are distinct entities. How are they so differentiated? After a study of the problem for fifteen years, with the records of a few hundreds of households and a few thousand individuals, I know of no clinical grounds on which respiratory tract reactions can be so classified. A distinction might be made on the predominance of objective or subjective symptoms, or on the degree of fever present, but all such distinctions break down when examined from the point of view of affinity of infection. There does appear to be one of degree. At one end of the scale there is the patient who is in little danger himself but much danger to those in his neighbourhood ; and, at the other end, there is the patient in great danger himself but of little danger to others.

Another point: bacteriological research is valuable, but so far as epidemics are concerned may it not be that the findings are of more academic interest than of practical value? When a claim is put forward for a particular virus, bacillus, or combination of both, should it not be limited to the assertion that the particular virus, bacillus, or combination is capable of producing an influenzal reaction? Without disputing the findings in any influenza epidemic, is there any reason why it should be accepted as the cause of previous epidemics, or assumed that it will be the cause of the next? There are many other points I would like to query, but space forbids.—I am, etc.,

Halifax, Nov. 13th. A. GARVIE.

Alcoholic Neuritis a Deficiency Disease?

SIR,—The similarity of the symptoms of beri-beri and alcoholic neuritis, referred to in your interesting annotation in the *Journal* of November 4th (p. 835), has induced me for several years past to treat all cases of peripheral neuritis admitted into Dalrymple House, and indeed many others who are suffering from the effects of alcohol excess, with preparations rich in B vitamins. I usually add liberal supplies of marmite and bemax to their diet. In cases of Korsakoff's syndrome, and in some of those where there have been mental symptoms without neuritis, the results of this form of treatment have been most satisfactory.—I am, etc..

Dalrymple House, Rickmansworth, Nov. 7th. F. S. D. HOGG.

Deaths from Pellagra

SIR,—I am utterly at a loss to comprehend the scientific method by which Dr. Leslie Harris (*Journal*, October 7th, p. 665) defends his preposterous statement that in any recent year there have been as many as 30,000 deaths from pellagra in this country. He ignores complacently our official statistics, which give a maximum mortality of 6,969 in 1928, or a rate of 6.1 per 100,000. Applied to the whole country this would imply a total mortality from pellagra for that year of 7,314, which is the highest figure we have ever reached, the disease since that time having shown a persistent tendency towards a decline.

I have gone over the figures from 1910 onwards, as tabulated by our Census Office, and find that the 1928 rate has never been exceeded. I give the deaths since 1910 as officially recorded by the Census Officer as a matter of record.

Mortality from Pellagra in the United States Registration Area, 1910–32

Year	Deaths	Year	Deaths	Year	Deaths
1910	368	1918	2,794	1926	5,954
1911	659	1919	2,806	1927	5,418
1912	674	1920	2,322	1928	6,969
1913	1,015	1921	2,541	1929	6,703
1914	1,550	1922	2,610	1930	6,332
1915	2,843	1923	2,352	1931	5,099
1916	2,399	1924	2,347	1932	3,694
1917	3,665	1925	3,344		

No one has a right to broadly guess at a mortality figure and then defend it as a statement of fact. Dr. Harris does not seem to know the difference between the death rate and the actual number of deaths, for he twice confused the issue by speaking of the average death rate when he meant the actual number of deaths. This is an inexcusable error in a discussion of this kind.

I have been familiar with the pellagra situation in this country since the first recorded outbreak in epidemic form at Mt. Vernon Asylum in Alabama in 1907. A report upon this was made by Dr. Searcy, with whom I visited Mt. Vernon soon after the outbreak, when there were eighty cases under treatment, with a large mortality. As a probable conservatively estimated mortality on the basis of registration returns for the last five years, there have been about 30,000 deaths from pellagra in this country during 1928–32, or just about the number alleged to have occurred during a single year by Dr. Harris. It would be a wrongful indictment of our medical profession to assume that a large number of cases of pellagra during recent years has been reported under other titles as the result of false diagnosis. In an editorial on pellagra in the *Journal of the American Medical Association* of October 1st, 1927, it is stated that the number of recorded cases of pellagra was increased as the result of the recently flooded areas of the lower Mississippi Valley. The number of pellagra cases in that area was estimated at 20,000 in 1924 and the reported deaths 1,020. The ratio of twenty cases to one death is generally accepted in this country. On that basis the maximum number of cases in 1928 would be 146,280. Dr. Harris estimated the case incidence for 1927 as 120,000 and the mortality rate as 40 per cent. I am quite sure we have never had a fatality rate of

40 per cent. in our experience in this country, since most of the cases are of a mild type, yielding easily to curative processes.

Our death rate from pellagra has for a number of years been measurably in excess of that of Italy. I give in the following table the Italian experience with rates per 100,000, 1887–1928.

Mortality from Pellagra in Italy, 1887–1928
Rate per 100,000

Year	Deaths	Year	Deaths	Year	Deaths	Year	Deaths
1887-9	11.5	19.5-7	6.0	1917	1 9	1923	0.4
1890-2	13.4	1908-10	4 0	1918	1.8	1924	0 4
1893-5	10.2	1911-13	3.1	1919	1.5	1925	0 3
1896-8	10.4	1914	2 0	1920	0.9	1926	0 3
1899-1901	11.0	1915	2 2	1921	0.6	1927	0.2
1902-4	7 5	1916	2.2	1922	0.5	1928	0.2

Thus pellagra in Italy as a mortality factor of importance has practically come to an end. The actual number of deaths from pellagra in Italy in 1928 was only eighty-five, against an average of 4,095 in 1890–2.

Vital statistics in this country have probably reached as high a degree of perfection as in any other large country of the world, and there seems not the slightest reason for believing that the actual mortality from pellagra is decidedly unrecorded or attributed to other causes. There is one factor, however, which is often overlooked, and that is the classification of joint causes of death in which pellagra was considered of secondary importance in the final diagnosis. Fortunately we have an exact record for 1925 to enable us to estimate how far this factor should require consideration. During 1925 the total number of deaths involving pellagra but recorded under other titles was 187. The principal diseases to which preference was given in the death certificate were: tuberculosis, all forms, 67 ; cancer, all forms, 27 ; diseases of the digestive system, 10 ; external causes or accidents, etc., 27. Hence, as a general principle, the seriousness of pellagra is fully recognizable in this country in the classification of diseases, and the final tabulation of the Census Office is accurate and conclusive. In other words, we never had 30,000 deaths from pellagra in this country in any one year, and no playing with figures or prejudiced interpretation can make it so.—I am, etc.,

Wellesley Hills, Massachusetts, U.S.A., Oct. 26th. FREDERICK L. HOFFMAN.

The Testimonial Farce

SIR,—Most teachers will sympathize with Dr. Robert Hutchison's dislike of writing testimonials, but not all will agree in his condemnation of them. It may be that different teachers have varying elasticities of conscience, and even different vocabularies, but honest testimonials usually convey an efficient message, and there is little difficulty in recognizing testimony which tries to convert an ugly duckling into a majestic swan. If a university or school is to be an Alma Mater it is difficult to see how its component staff of teachers can avoid offering some testimony regarding its students. I am not seeking to defend testimonials, but I do not think that a record and a personal interview are sufficient to select candidates.

As dean of the medical faculty in two universities it has been my privilege to watch the earlier careers of medical graduates. Some of them have aspired to the at Y[illegible] the pro[illegible] walks of the profession, and not a few have sought experience in other schools and hospitals. They medical m[illegible] for advertised appointments, and, when it I have said [illegible] of the sacro-iliac [illegible] mitted, have called on electors. Often they maintaining this [illegible] ed coldly and the interrogation has been negligible, and eventually a candidate with, as far as an outsider could judge, an inferior record has been elect[illegible] In these cases neither record nor personality seems to have played any part ; nor, indeed, in these cases would testimonials have been helpful. But something should be done regarding advertised appointments which are " open " only in name. They are a cause, not only of disappointment to meritorious candidates, but also of considerable expense, which often can be ill afforded. If Dr. Hutchison could use his influence to stop misrepresentation of this kind he would earn the gratitude of many aspiring graduates yet uncapped, and incidentally would save the time of many teachers who might be asked to write supporting testimonies.

Dr. Hutchison asks, " Are testimonials *ever* of any value? ". I can assure him that on one occasion they were. After an election to a certain university chair one of my fellow electors told me that he had been mainly influenced by the testimonial of a man of world-wide reputation in favour of the successful candidate, whose record was certainly not equal to that of some others applying for the post ; and I had reason to believe that this was also true of other co-electors.

Dr. Hutchison's postscript grouse is very human. The experience has been the lot of most of us. But the seeker after testimonials is human too, and his apparent ingratitude may be due to two minds having more than one thought regarding his abilities. That, at least, is my consoling hypothesis.—I am etc.,

Sidmouth, Nov. 6th. C. R. MARSHALL.

Labour in the African Negro

SIR,—In discussing obstetrical difficulties many writers point out the African negro as an example of normal easy labour, in contradistinction to civilized Europeans. For example, Dr. Kathleen Vaughan (*Journal*, November 21st, 1931, p. 940, and August 15th, 1931, p. 311) states that " the negress in natural surroundings had her children with ease." Dr. H. W. Hewetson (*Journal*, August 19th, 1933, p. 358) states also that " childbirth in African negro mothers is a thing to marvel at—that is, for Europeans." I believe such statements are entirely misleading, and should only be made when particular tribes, etc., are mentioned. Below I quote figures from three East and Central African hospitals which make one doubt the reliability of such statements.

In the first 200 maternity cases at the Pumwani Native Maternity Hospital in Nairobi, Kenya, there were six forceps (3 per cent.) and four craniotomies (2 per cent.), making a total of 5 per cent. difficult deliveries, according to Dr. G. V. Anderson (*Kenya and East African Medical Journal*, June, 1929, p. 68). In the Friends African Mission Hospital, located in the Kavirondo Reserve, we have had 779 deliveries in eight and a half years. Of these, 166 were forceps (21.3 per cent.), and thirty-four craniotomies (4.3 per cent.), making a total of 200 difficult deliveries (25.6 per cent.) These natives live in a reserve, and do not have any enervating civilized influences, as they might be accused of having in Nairobi or Kampala. Our high percentage is also due to the fact that we have an ambulance service. In the Mengo Hospital, near Kampala, Uganda, they have had 3,575 deliveries from 1925 to 1931. Among these there were 301 forceps (8.4 per cent.), eighty-six craniotomies (2.4 per cent.), and seventy-two Caesarean sections (2 per cent.), making a total of 459 difficult deliveries (12.8 per cent.), according to Sir Albert Cook (*East African Medical Journal*, February, 1933, p. 322).

One immediately wonders how the tale of easy deliveries started. I do not know, unless it is due to the fact that the mother who does have an easy birth does appear at

work shortly, and soon has another baby to increase the idea of easy labour in her husband's employer's mind, while her unlucky sister with a smaller pelvis and a difficult delivery often does not survive to have another difficult labour. In either case the latter does not appear at work immediately, and hence is not seen by her employer, and no dramatic impression is made on a European mind.—I am, etc.,

R. B. MICHENER, M.D.,
Friends African Mission Hospital,
Kaimosi, P.O. Kisumu, Kenya.

October 15th.

The Milk Supply

SIR,—May I submit these points for consideration? The objective is uncontaminated milk from healthy cows. The health of the cows depends on the quality of the milk required. The quality of the milk required depends on the education of the public. The education of the public during the past ten years has been to the effect that pasteurization is necessary and that pasteurized milk is safer than, and just as wholesome as, the best raw milk. The best raw milk is certified milk; the pasteurization of certified milk is not allowed.

It has been suggested that all milk except certified and Grade A (T.T.) should be pasteurized, and that this should be enforced by the Government. If this is carried out then the public health authorities will be in this difficulty: on the one hand they cannot rest content with a supply of pasteurized dirty milk from diseased herds; on the other hand any increase in the number of healthy (tubercle and *abortus* tested) herds depends on an increase in the demand for the milk from these herds, so that the authorities will have to persuade the public to choose certified milk rather than pasteurized milk; they will have to deny their own teaching and tell the public that certified milk is better than pasteurized milk. There is only one way out of this difficulty: the producers of certified milk must be allowed to pasteurize their milk, and, of course, they must be allowed the higher price that is more than justified by the better value. If the Ministry of Health would go as far as this then the whole force of propaganda could be directed to increasing the sale of clean milk from healthy cows. The competition of healthy cows is the best method of getting rid of diseased cows. Pasteurization is necessary, but the responsibility of the Government for a policy is not discharged by making pasteurization compulsory.—I am, etc.,

R. L. KITCHING.

Wetherby, Nov. 12th.

Tuberculosis an Economic Problem

SIR,—As one who is still undergoing treatment for pulmonary tuberculosis, it is refreshing to read that at least one specialist considers the problem of tuberculosis is often as much economic and social as medical, and that patients put off coming to a doctor for advice because they are afraid of losing their employment. He has hit the nail right on the head, but he might have added that many patients with early disease leave sanatoriums and return to work before they are fit for the same economic reason.

Specialists in tuberculosis are so busy splitting hairs over the classification of tuberculous lesions and the so-called difficulties in diagnosis that they cannot see the wood for trees. Solve the economic problem and the problem of tuberculosis will be solved. It does a man no good to know his lesions can be classified as *x*, *y*, or *z*, but it would do him power of good and encourage him to persevere with his eatment if he knew that suitable work awaited him at end of it.—I am, etc.,

A. S. M.

November 9th.

"Venules" in Blood Culture

SIR,—Up to a year ago it was the custom in this laboratory on receiving "venules" containing blood for culture to put them straight into the incubator. Not being satisfied with the results, particularly in cases of suspected undulant fever, it occurred to me that the fault was probably due to insufficient oxygen in the "venule." Accordingly, I altered my routine, and made a practice of removing the rubber stopper from the "venule" and substituting a plug of sterile cotton-wool, taking the usual aseptic precautions. Since then I have had excellent results. With the use of one of the glucose broth "venules" the *Brucella melitensis* can now be cultured in a much shorter time and a better growth obtained than by employing some of the special media recommended. Similar results have been noted with other organisms. This method has been in use for over a year, and in no case has there been a contamination. As these "venules" are so convenient to work with, I recommend this slight modification.—I am, etc.,

W. P. E. MCINTYRE, M.D.,
Medical Officer in Charge of Laboratory,
Royal Naval Hospital, Malta.

November 1st.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The Raymond Horton-Smith Prize for 1932-3 has been awarded to G. D. Kersley, M.B., B.Chir., Gonville and Caius, for his thesis on "Fragillitas Ossium and Allied Conditions." *Proxime accessit.*—J. H. B. Martin, M.D., B.Chir., Emmanuel, for his thesis "On the Fibrosis of the Lung Associated with Pulmonary Asbestosis."

UNIVERSITY OF LONDON

At its meeting on November 8th, with Lord Macmillan in the chair, the University Court learnt with gratification of grants made by two more of the City Companies towards the Ceremonial Hall to be built on the University's new site in Bloomsbury.

BOSTOCK SCHOLARSHIP FOR WOMEN

At a meeting of the Senate on October 25th a scheme was approved for the award of the Bostock Scholarship, tenable at the London (Royal Free Hospital) School of Medicine for Women.

The following degrees were conferred:

Ph.D. in Biochemistry—Margaret Honora Roscoe (Lister Institute of Preventive Medicine), for a thesis entitled "The Distribution of Vitamin B Complex." Ph.D. Degree in Physiology—Frank George Young (University College), for a thesis entitled "The Behaviour of Liver Glycogen in Experimental Animals."

AMENDMENT OF REGULATIONS FOR AWARD OF GOLD MEDAL AT MEDICAL EXAMINATIONS

The regulations relating to the award of a University Medal at the M.D. Examination (Red Book, 1933-4, p. 227; Blue Book, September, 1933, p. 273) and the M.S. Examination (Red Book, p. 232; Blue Book, p. 278) were amended by the addition of the following footnote: "A candidate may, if he so desire, take books to the value of £20, selected by the candidate and approved by the University, instead of the Medal." It was resolved that the Diploma in Psychological Medicine be designated a Post-graduate Diploma. Dr. A. Thomas was appointed a Governor of the University College of Wales (Aberystwyth), and Sir William Collins a Governor of the Royal Sanitary Institute and Sanitary Inspectors Examination Joint Board.

The Brown Institution Lectures for 1933, entitled "Present-day Problems in Bacteriology," will be delivered by Professor F. W. Twort, F.R.S., at the London School of Hygiene and Tropical Medicine on December 13th, 14th, 15th, 18th, and 19th, at 5 p.m. Admission free, without ticket.

Subject to the submission of a satisfactory scheme of study, M. P. Ellis, M.D., F.R.C.S., of the Golden Square Throat, Nose, and Ear Hospital, has been appointed to the Geoffrey E. Duveen Travelling Studentship for 1933-4, of the value

health insurance scheme was threatened. The cut made in 1926 had nothing to do with the subsequent enfeebling of the financial basis of the scheme. The last valuation report had resulted in the reduction of the additional benefits of 6,250,000 people, and the cessation of additional benefits for 4,250,000 people. The Government in 1932 had reverted to the pre-1928 system of excusing the unemployed half their arrears. That still left the approved societies with the burden of £1,000,000 a year for arrears, which was as much as the societies could bear without disaster. As long as a man remained in insurance he could draw medical benefit and maternity benefits in spite of a whole year of unemployment and apart from any payment of arrears. A minimum of twenty weeks of work and contribution would always give an insured person some cash benefit. Earlier this year he had suggested to a conference of approved societies that to help the position for unemployed who were getting into arrears they should use their surpluses. About half the societies and branches had set aside funds, amounting in all to £1,000,000, to provide this additional benefit. He had made arrangements for allowing those in arrears to pay by instalments, and he now proposed to extend the period of grace from November 30th to March 31st in the year following. On the question of medical benefit for those going out of insurance at the end of the current year, Sir Hilton said that the Government had to decide whether it was going to maintain this great national institution as an insurance scheme or not. Those who at the end of this year went out of insurance did not lose medical treatment. They would receive the same medical treatment as any unemployed person who had not been in insurance, and the same treatment as in many cases their own dependants had relied upon throughout the period of unemployment. It would be the duty of the local authorities to see that the services were adequate, and the Ministry of Health would make sure that these authorities did provide adequate services. He thought that the cost to the local authorities had been much exaggerated during the present debate. He believed that the fears that the number of people affected would prove more than 80,000 were groundless. In many small districts and areas such persons would continue to be attended by the same doctor as when they were on the panel. In larger areas, where there were well-organized public health and public assistance services, the staff and scientific equipment of the new hospital organization would provide very efficient services. The objection that the lately insured person would cease to have his free choice of doctor was substantial, but it could be met, because it was perfectly open to the local authority to make use of the panel system for its public assistance organization. Experiments had been made in that direction in Newcastle-upon-Tyne, East Ham, and Wiltshire. If any local authority desired to make use of a panel system in its area for the unemployed who came out of insurance the sanction of the Ministry of Health would not be lacking.

Mr. GORDON MACDONALD said it was possible for a contributor to safeguard his interests by a voluntary payment of £3 7s. 6d. per year, but that was impossible to those who were likely to go out of insurance at the end of the year after having had a very lean time for six or seven years. Mr. CLARRY said that voluntary institutions and hospitals were already feeling the strain, and that the lapse of unemployed persons from medical benefit would make the situation more difficult. Mr. LOGAN understood that the Minister proposed to send down instructions to the larger communities that, owing to the great influx of panel patients who would come on to the Poor Law, the municipalities would be allowed to arrange for panel doctors to attend not only panel patients but Poor Law patients as well. Mr. Logan thought the Minister in this was going outside the Act of Parliament which dealt with insured persons. There was nothing in the Act which authorized the Minister to make a concession up to next March regarding the arrears of benefits. It was true that persons who were due to lapse could get the benefit of a panel doctor at the cost of their society, which would have to pay 8s. 6d. per annum, but the society should not bear the cost. The Minister had not dealt with the appointment of medical officers to take the place of panel doctors beyond saying that the question would have to be considered by the local authorities. What the Government was doing would dislocate the national service of doctors. Seeing that the Minister of Labour had not brought in a Bill dealing with labour and insurance, Mr. Logan asked whether national health insurance would also be brought up to date by bringing the boy and girl under the health insurance scheme immediately they left school. The question of benefit could easily be arranged, as the children could go through a probationary period.

Sir RICHARD MELLER said that with regard to those persons who at the end of this year would fall out of medical benefit it would be improper to impose upon the health insurance scheme a burden which was properly borne by the Public Assistance Committees of the country. If there had been something undesirable in the medical system under Public Assistance authorities the House would have heard something of it from the Opposition. He had too much respect for the medical men of this country to believe that there was going to be a differentiation between one patient who was a panel patient and another who had come by way of the Public Assistance Committee. The Minister had heartened those who were concerned with medical service as administered by public health authorities by saying it was possible for arrangements to be made with panel patients throughout the country so that personal service with a limited choice might be available. He associated this with a proposal made on the previous day in connexion with medical service in Kent—that there should be a widening of the private practice of the medical insurance practitioner. The country should have in private practice to-day a public medical service such as was contemplated under the health insurance scheme.

Sir FRANCIS FREMANTLE said he was sorry Sir Richard Meller seemed to consider that as long as any man, woman, or child had medical attendance of a certain quality that would suffice. Sir Richard seemed to think that medical attendance was like dealing out a bottle of medicine, which could be done quite as well by the Poor Law doctor as by the panel doctor. He (Sir Francis) would not depreciate the work of the Poor Law medical officers, but there were parts of the country where local authorities and Public Assistance Committees had inherited old appointments and systems from the old guardians, and where arrangements went on from decade to decade. The Poor Law authorities secured by no means the best men in the profession locally to undertake this poorly paid and hard-worked employment. The result, as everyone knew, was that the Poor Law medical service was not the equivalent of the panel service. This was not because the individuals were different. They were not another grade of men. But under the Poor Law there was a fixed appointment of one man or two men in any particular area, and everyone had to go to the appointed doctor, and to no other. Under the panel system the choice of doctors gave a kind of free trade in medical practice, which was all to the good. He was delighted to hear from the Minister that in three areas the Public Assistance Committees had adopted the open choice method of medical attendance. He hoped the country was arriving at an ideal—that there should be only one system of medical attendance under the State, which would be the open choice method, open to all medical practitioners who undertook the terms of the panel. Those terms should be open to every individual who came within national health insurance, or public assistance, or any other service which might be created—for example, under the unemployment insurance scheme. This was really a reform of great magnitude in the improvement of the medical service and the health of the people. Would it not be possible for Sir Hilton Young to hasten its general application? If he secured its adoption throughout the country he would get an improvement in the health of the people, and would do away with the grievance that people who had been insured under one system had to go to another set of medical men, who did not understand their conditions.

Mr. ARTHUR GREENWOOD said that under voluntary insurance actuarial considerations were final, but that in a compulsory scheme, to which people had to contribute and to which the State made grants, contributions were merely a poll tax in another form. The principle of insurance might have to go in the face of wider social considerations. It was useless for the Minister to talk about areas where panel doctors were now used for Poor Law purposes. The Labour Opposition objected to the contact with the Poor Law, not the quality of the service. If Sir Francis Fremantle was

able to mobilize all the panel doctors it would be the same, because there would be a new contact with the Poor Law, and nothing was more hateful than that to a working-class family.

Mr. SHAKESPEARE, replying for the Government, said that even in Lancashire there were approved societies and branches providing money to pay the arrears of their members. By asking that the State should bear the cost of medical benefit the Opposition was now proposing that it should bear £2,500,000 extra. The 80,000 men whose medical rights would be exhausted at the end of this year would be treated like the 500,000 persons who fell out of insurance every year, and like those who had never been in insurance. On the average about one-quarter would claim for some form of sickness or be incapacitated by some form of sickness during the year. About 20,000 or 30,000 would at some time in the year have recourse to the district medical service. He denied that the district medical service was inferior to the panel service. In any county borough divided into medical districts the general practitioners themselves carried on the district medical work. When a man went to the public assistance for medical treatment he might even be sent back to his own panel doctor if not he would, in the majority of cases, be sent to somebody else's panel doctor. The operation of the panel for the district medical service was still experimental, and if any real difficulties arose in it Sir Hilton Young would do his best to meet them. Mr. Shakespeare asked the House to maintain the distinction between health insurance and poor relief.

The motion proposed by Mr. George Hall was then defeated by 161 to 48 votes.

University Degrees Bill

In the House of Lords, on November 8th, the University Degrees Bill was set down for committee. Lord JESSEL said he would not ask the House to go into committee at this point. The debates upon this Bill and upon the previous University Spurious Degrees (Prohibition of Use and Issue) Bill had shown how much importance was attached to the conferment of university degrees. The Joint Standing Committee of Convocations, representing the graduates of Birmingham, Bristol, Durham, Leeds, Liverpool, Manchester, and Sheffield, had approved the principle. Lord Irwin, the Minister of Education, had approved the present Bill. He (Lord Jessel) had given an undertaking that unless that Bill was approved by the older universities he would withdraw it. In September the Universities Bureau of the British Empire, representing not only the universities of Great Britain and Northern Ireland but also those of the Irish Free State and all other Empire universities, said the new Bill did not quite meet its view. The Association of Scientific Workers had agreed to meet him and see whether they could come to a conclusion on the matter. He hoped the result of that meeting would be another Bill which, in its final shape, would have the approval of all parties concerned. He moved that the Bill be withdrawn. The House concurred in the withdrawal.

Compensation for Road Accidents

The Road Traffic (Compensation for Accidents) Bill came before the House of Lords on report on November 9th. Lord DANESFORT moved that the report on amendments made in select committee be received. Lord HANWORTH called attention to provisions introduced into Clause 5 with regard to remuneration of solicitors endeavouring to procure damages for clients who had met with accidents on the roads. Lord HALSBURY offered an explanation, and the House then took the Bill on report. On Clause 1 Lord SANDHURST moved to leave out the word "motor," so as to extend the operation of the Bill to accidents caused by horsed vehicles and other traffic not propelled by motors. He said it was a common fallacy that all accidents were due to the motorist. In 1932 of the persons killed who were not actually riding in motor vehicles over 25 per cent. were killed by vehicles that were not motor vehicles. The last road census taken at over one hundred points throughout the country showed that horse traffic, which was less than 1 per cent. of all traffic, was actually responsible for nearly 3½ per cent. of the deaths. Of 206,500 people injured by vehicles of all kinds in 1932, 43,500 were injured by vehicles other than motors. Why should those 43,500 be placed in a more unfortunate position under the Bill? Lord IVEAGH, speaking as chairman of the committee which had considered the Bill, said that the amendment went contrary to the principle adopted by the House nine months ago, which was that the motor vehicle should be made responsible. After further debate the House decided by 34 to 8 that the word "motor" should stand part of the clause. Lord HALSBURY moved to alter the wording of the Bill so as to provide that damages should be recoverable not only from the owner of the motor vehicle but from the person using or driving. The amendment was withdrawn. Lord Halsbury then moved to leave out the words "without proof of negligence or intention or other cause of action as though the injury had been caused by his wilful act, neglect, or default, except where the injury was solely due to the negligence of the injured person." The House decided by 25 votes to 2 that the words proposed to be left out should remain part of the Bill. The LORD CHANCELLOR said this division disclosed that there were fewer than thirty peers present, so under the Standing Orders he was obliged to adjourn the debate to the next sitting of the House. The debate was due to be resumed in the House of Lords on November 13th, but was postponed. On the same day the Road Traffic (Emergency Treatment) Bill was reported with amendments from a select committee of the House of Lords, and the report of the committee was ordered to be printed. (See this week's *Supplement*, p. 264.)

In committee on November 14th the House of Lords extended the Road and Rail Traffic Bill to provide compensation to hospitals for treatment of road accident cases. To cover this the long title of the Bill was extended. Lord LUKE moved to insert a new clause amending Section 36 of the Road Traffic Act, which relates to policies of insurance. This new clause proposed that, where any payment was made, with or without admission of liability, under a policy of insurance or by the owner of a vehicle in respect of death or bodily injury arising out of the use of a motor vehicle on a road, and the dead or injured person had received treatment from a hospital as an in-patient or out patient, the insurer or owner should pay to the hospital the expenses reasonably incurred in such treatment up to £50 for each person so treated as an in-patient, or £5 for an out-patient. In calculating these expenses moneys received by the hospital in payment of a specific charge were to be deducted, but not moneys received under any contributory scheme. For the purposes of the clause institutions carried on for profit were excluded, and the cost of treating in-patients was to be taken as the average daily amount of cost for each in patient and for maintenance of hospital and staff. Lord Luke said that at present many hospitals situated near the great highways were occupied with motor accident cases to the exclusion of those patients for whom the hospitals were originally provided. A clause in similar terms had been included in Lord Danesfort's Road Traffic (Compensation for Accidents) Bill, but as that Bill could not be passed at an early date and the hospitals could not wait, he hoped that the Government would agree to this new clause being inserted in the present Bill. Lord GREVILLE said that he was treasurer of one of the larger London hospitals, and he felt that he would be neglecting his duty if he did not ask the House to accept this new clause. In 30 per cent. of the cases they did not receive any payment at all for motor accident treatment. The limit at present was £25, but in one case the cost to the hospital was £125. He agreed that the new clause only dealt with the fringe of the subject, but it provided some alleviation of the position of the hospitals which was long overdue.

The Earl of DERBY said he was also intimately connected with hospitals, and he could substantiate everything that had been said by Lord Luke and Lord Greville. At present the treatment of motor accident cases was an intolerable burden on the hospitals. He thought, however, that the present Bill was an inappropriate measure in which to incorporate such a clause. The clause was incorporated in Lord Danesfort's Bill, and he hoped that that Bill would be passed into law. He also hoped that the Government would give an assurance that that measure had its sympathy, and that it would do all it could to secure its passage. Earl HOWE said that road users had great sympathy with the hospitals in this

matter, and one hated to think that they were not properly remunerated for the treatment of motor accident cases. At the same time, the question was a very difficult one. He was told that the voluntary hospitals of the country were out of pocket in respect of the cost of the treatment of these cases to the extent of no less a sum than £150,000 a year at least. If the House passed this clause they would still not completely cure the trouble. They ought to go into the matter far more fully than they were able to do on that occasion. This clause might mean an increase in insurance premiums all round, which would be a serious burden on motorists, who were not all rich men.

The Marquess of READING said, as far as he understood, Lord Danesfort's Bill had not the faintest chance of being passed in the House of Commons. He hoped, therefore, that the Government would give some reason why it should not deal with the matter in the present Bill. The Earl of DONOUGHMORE said that it was regarded as essential by the hospitals that a proposal on these lines should be adopted at the earliest possible moment. Lord PONSONBY supported the new clause. The Marquess of LONDONDERRY said the House of Commons might feel that a provision of this kind was not germane to the Bill.

The new clause was agreed to without a division, and at a later stage Lord LUKE moved an alteration of the title of the Bill consequent on the passing of the new clause.

The committee stage of the Bill was concluded. Subsequent stages were taken later in the week.

Road Accidents

Replying to Dr. Salter on November 9th, Mr. STANLEY stated he was about to issue for general information a preliminary analysis of the road accidents which had occurred in the first six months of this year. He proposed to take this information into immediate consideration, and to examine what further steps were possible to reduce the present rate of death and injury upon the roads. In reply to Mr. Cadogan on November 13th he said the Home Secretary had asked for a return from all police forces in England and Wales of the number of accidents for the first nine months of this year. These figures would be available in a day or two.

In reply to Captain Dower, on November 8th, Mr. DOUGLAS HACKING stated that during the last four months the number of road accidents involving death or personal injury in the Metropolitan and City Police districts was as follows:

	Fatal Accidents	Number of Persons Killed	Accidents Involving Personal Injury	Number of Persons Injured
July, 1933	124	129	4,902	5,519
August, 1933... ...	118	121	4,657	5,373
September, 1933 ...	129	135	4,780	5,433
October, 1933 (provisional)	104	107	4,127	4 611
Total	475	492	18,466	21,016

In reply to Dr. Salter, on November 9th, Sir J. GILMOUR said that during the first ten months of 1933 one member of the Metropolitan Police Force had been killed and 374 received injury in street accidents while on duty. Of those injured, 179 had to be placed on the sick list.

Mr. STANLEY told Mr. Guy, on November 9th, that public service vehicles which operated as express or contract carriages were required, under existing regulations, to carry first-aid outfits. He was not satisfied there was sufficient justification for placing a similar obligation on the owners of all motor vehicles.

Rural Water Supplies

Sir HILTON YOUNG told Dr. Fremantle, on November 9th, that he would bear in mind his suggestion that in preparing their annual reports for next year medical officers of health should be asked to make a special study of water supplies in rural areas, so that a statement could be obtained of what was practicably possible and what was required all over the country. In reply to the questions of other members, the Minister said he was *anxious* that every effort should be made to improve the water supplies in areas inadequately served, and he was aware that in some cases, generally in rural areas, the difficulty was one of cost. Powers of financial contribution had been conferred on rural district councils and county councils by the Local Government Act, 1929. Very few actual complaints of water shortage were made by local authorities to the Ministry of Health last summer. In some thirty instances investigations were made by his officers, in addition to inquiries made by inspectors at all visits to local areas. Towns generally met the drought in a successful manner; the difficulties were mainly in rural areas. Outside those rural areas the experience of the last drought was a striking testimony to the excellent provision generally made by water undertakers. In a special circular he had urged rural district councils and county councils to make full use of their new powers of financially aiding the provision of water schemes.

Food Poisoning in Nottingham City Mental Hospital.—Sir HILTON YOUNG informed Mr. Thorne, on November 9th, that the Board of Control had received a report from the medical superintendent of the Nottingham City Mental Hospital concerning the death of a patient and the serious illness of other patients caused by food poisoning. A medical commissioner of the Board was investigating the matter at the hospital. Pending investigation the Minister could not express any opinion.

Dried and Liquid Eggs.—On November 9th Sir HILTON YOUNG stated, in reply to Sir A. M. Samuel, that dried and liquid eggs intended for human consumption were subject to examination both on importation into this country and on any occasion on which they were placed on retail sale. Eggs which before importation were intended for industrial purposes only were frequently labelled as "inedible."

London Refuse.—Sir HILTON YOUNG told Mr. McEntee on November 9th that the advisory committee on London refuse had done a large amount of work, but had not yet completed its survey of present conditions: it hoped to do so and to make its report on the disposal of house refuse possibly by next Easter.

Report on Medical Branches of Defence Services.—Sir VIVIAN HENDERSON asked, on November 13th, what action the Prime Minister proposed to take on the report of the Committee on the Medical Branches of the Defence Services. Mr. RAMSAY MACDONALD, in reply, said certain aspects of the report required further consideration. There would be no avoidable delay in reaching a conclusion.

Out-relief Figures.—On October 21st last the number of persons—men, women, and children—in receipt of poor relief in England and Wales, excluding rate-aided patients in mental hospitals, persons in receipt of domiciliary medical relief only, and casuals, was 1,290,345. The corresponding figure for the same date in 1932 was 1,236,983.

The Services

QUEEN ALEXANDRA'S HOSPITAL FOR OFFICERS

Lord Melchett presided at the fourteenth annual reunion dinner of Queen Alexandra's Hospital for Officers, on November 10th, at the Criterion Restaurant, when fifty former patients and members of the nursing staff sat down to dinner. Lord Horder was the guest of honour. During the evening a message of good wishes was received from H.R.H. the Princess Victoria. The health of the patients was proposed by the chairman, and Major H. C. Few responded. The health of the matron (Miss Sinzininex, R.R.C.) was proposed by Mr. C. S. Williamson. The health of Mr. Herbert Paterson (surgeon in charge) and Mrs. Paterson (honorary quartermaster) was proposed by Mr. Owen Roberts. The health of the guest was proposed by the chairman.

Obituary

E E MADDOX, M D, F R C S Ed

Consulting Ophthalmic Surgeon Royal Victoria and West Hants Hospital Bournemouth

By the death of Ernest Edmund Maddox one more notable link between modern ophthalmic medicine and the past is severed, and one more of the great original thinkers and teachers is lost to us Educated at Mill Hill School, Ernest Maddox then went to Edinburgh University, where he graduated M B, C M in 1882, M D in 1889, and became F R C S Ed in 1894 He had a distinguished career as a student, and he gave early promise of the high quality of literary work which was to follow by publishing an article on The Accommodation and Convergence of the Eyes which gained him in 1884 the Syme Surgical Fellowship The first ten years or so of his professional life were spent in Edinburgh, where he held the appointments of resident physician and assistant ophthalmic surgeon to the Royal Infirmary, and also of tutor in ophthalmology to the University During this time he was associated with Argyll Robertson and Berry A long period of ill health, however, terminated his connexion with his university city, where he was undoubtedly marked out for great distinction Though laid aside from practice his intensely active mind was busy with the result that he published several books and articles during the subsequent years Upon recovery he removed to Bournemouth, where he was appointed honorary ophthalmic surgeon to the Royal Victoria Hospital (as it was then), later he was the first ophthalmic surgeon to the Boscombe and West Hants Hospital From small beginnings he built up there a large and successful eye department



Of his books, *The Clinical Use of Prisms* reached five editions, and was for many years the standard book of reference on the subject This was followed later by a book, *The Ocular Muscles*, which was translated into German, and reached a second edition *Golden Rules of Refraction*, a little book now out of print, appeared later, and it was remarkable for the enormous amount of practical information contained within a small compass It was in very great demand, and reached a third edition Maddox was a student all his life, and in addition to the above mentioned books he contributed numerous valuable articles to the medical press He was very well known at the Ophthalmological Society meetings, and also at the British Medical Association Annual Meetings, where he contributed many papers and demonstrated new instruments which he had invented His name is known to every member of the profession in virtue of the "rod and wing" tests which he devised as a means of measuring latent errors of muscle balance His latest invention was the cheiroscope, an ingenious instrument which combines the use of the hand and the eye in the orthoptic training of squint in children It is now in use both in this country and in America in the numerous squint training clinics, which undoubtedly owe their origin to the interest which Maddox has succeeded in arousing in this most important matter Among his distinguished honours one may mention the Middlemore Medal and Prize of the British Medical Association, given for the best contributions to ophthalmology during the three years ending 1899, and the Doyne Memorial Medal of the Oxford Ophthalmological Congress in 1921, his subject on this occasion being heterophoria, on which he was recognized as one of the greatest authorities He was a member also of the Council, and vice president of the Ophthalmological Society of the United Kingdom He was vice president of the Ophthalmological Section of the British Medical Association in 1929, and was president of the same Section at the meeting held in Eastbourne in 1931 He was to have been president of this Section at the forthcoming British Medical Association meeting in Bournemouth in 1934

In his remarkable personality (writes a colleague) there were so many admirable qualities that it is difficult fairly to assess them He was modest to a degree, and to rich or poor of his patients he exhibited the same gentle, kindly, courteous manner He possessed in an extraordinary measure the power of gaining not only the trust and confidence, but the love of his patients, and he could in a most wonderful way soothe the fears of a nervous patient on the operating table He was a highly skilled surgeon, and even within a few weeks of his death he operated with the steady, sure hand of a master of the art On one occasion he was greatly pleased on being asked to open a discussion at the Ophthalmological Society about three years ago, when, in the letter of invitation, he was called "one of the youngest men in the profession" This was true in many ways as he kept abreast of all modern knowledge The guiding principle of his life was a deeply rooted and intensely sincere religion This coloured and influenced his every thought and action A colleague who stood at his graveside spoke of his "inflexible rectitude" This follows naturally from his religious beliefs, and was in every way characteristic of the man He was not one who obtruded his views upon others, but to those who knew him well the beauty and peace of his innermost thoughts were often revealed in quiet telling phrases He lived what he believed The Bible was his guide, and it had to be taken in its plain direct meaning His surgical skill and his clinical knowledge he attributed without cant to the same source, and perhaps one can pay him no greater tribute than to say that his faith proclaims its reality from the works it produced Maddox was undoubtedly one of the great men of the past age—kindly, dignified wise and skilful—and his passing is a great loss not only to the town of his adoption, but also to the profession and to the world in general

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L R SUTHERLAND LL D M B

Emeritus Professor of Pathology St Andrews University

The death occurred on November 6th after a short illness at his residence in Newport Fife of Dr L R Sutherland who was emeritus professor of pathology in the University of St Andrews

Lewis Robertson Sutherland was born in 1863 at Gibraltar, being a son of the late Rev Andrew Sutherland, and was educated at Glasgow University There he graduated M B, C M, with high commendation, in 1890, and he afterwards pursued his medical studies at Frankfurt and Berlin After a period as resident physician and surgeon in the Western Infirmary, Glasgow, he became assistant to the professor of pathology in Glasgow University, and at the same time acted as demonstrator of pathology in the Western Infirmary and as pathologist to the Royal Hospital for Sick Children, Glasgow In 1899 he was appointed to the recently established chair of pathology in University College, Dundee, which had been held for one year by Professor Robert Muir This position Professor Sutherland held for thirty-two years, and when he retired in 1932 the

University of St. Andrews conferred upon him the honorary degree of LL.D.

He acted as editor of the fourth and fifth editions of the well-known *Manual of Pathology* originally written by Professor Coats of Glasgow. He was married to a daughter of the late Sir William T. Gairdner, professor of medicine in the University of Glasgow, by whom he is survived, as well as by a family of one son and two daughters.

The late Dr. REGINALD THRELFALL BAILEY, medical superintendent of Mill Road Infirmary, Liverpool, was born in 1873, and received his medical education at Liverpool College, University, and Royal Infirmary, obtaining the diplomas M.R.C.S., L.R.C.P. in 1898. He then held the appointments of house-physician and house-surgeon in the Royal Infirmary, and posts in the ophthalmic, laryngological, aural, and lock departments. He was subsequently appointed medical superintendent, and at the outbreak of war was responsible for the converting of the institution into a military hospital, of which he became commanding officer. Between 1915 and 1919 more than 12,000 wounded sailors and soldiers were treated there, and nearly 4,000 operations were performed. From 1914 to 1916 he was medical officer to the 3rd West Lancs Brigade of the Royal Field Artillery. For these services he was awarded the M.B.E. After the war he converted the hospital back again into a civil institution, and from time to time introduced extensions and improvements. The whole of his medical lifework was bound up in the hospital. He was greatly interested in antiquarian studies, and was honorary librarian of the Historic Society of Lancashire and Cheshire, a member of the Antiquarian Society of Manchester, and also of the Liverpool Athenaeum. He was a member of the British Medical Association and of the Liverpool Medical Institution.

The following well-known foreign medical men have recently died: Geh. Hofrat Dr. ROBERT KRIEG, a Stuttgart laryngologist, aged 86; Dr. HANS PRINZHORN, the Frankfurt psychologist, aged 45; Dr. SANCHEZ BANUS, president of the school of medicine at Madrid and a prominent psychiatrist; Dr. GAETANO PARLAVECCHIO, professor of operative surgery at Palermo, aged 67; Professor GIOVANNI POLVERINI, an authority on infectious diseases, aged 61, who took part in the British Mission to India for the study of anti-plague serum; and Dr. LUCIEN NASS, editor and founder of the review *L'Hygiène Sociale*.

Medical News

The annual dinner of the Yorkshire Association of Graduates of the University of Glasgow will be held at the Queen's Hotel, Leeds, on Friday, November 24th, at 7.30 p.m. Sir Robert S. Rait, M.A., LL.D., Principal of the University, will be the chief guest of the evening. All graduates resident in Yorkshire are cordially invited; application for tickets should be made to the honorary secretary, Dr. Wm. MacAdam, 40, Park Square, Leeds, 1.

The British Science Guild announces that the Norman Lockyer Lecture, 1933, will be given on Thursday, November 23rd, at 4.30 p.m., by Professor E. V. Appleton, D.Sc., F.R.S., in the Goldsmiths' Hall, Foster Lane, E.C. His subject will be: "Empire communication." Tickets, for which there is no charge, are obtainable from the secretary, 6, John Street, Adelphi, W.C.

A course in infants' diseases, specially arranged for medical officers of welfare centres and others interested in nutritional disorders and dietetics, will be given at the Infants Hospital, Vincent Square, Westminster, from November 27th to December 8th. The fee is £3 3s. The names of qualified practitioners wishing to attend the course (number limited to fifteen) should be sent to the secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1, by November 24th. Cheques should be made payable to the Fellowship. Further courses at the Infants Hospital will be given as follows. April 9th to 21st; September 3rd to 15th; and November 26th to December 8th, 1934.

At the meeting of the Society of Medical Officers of Health at 1, Upper Montague Street, Russell Square, on Friday, November 24th, at 5 p.m., a discussion on "The Responsibility of the Local Authority towards the Blind" will be opened by Dr. E. K. Macdonald, medical officer of health, Stockport. The annual dinner of the society will be held at the May Fair Hotel, Berkeley Street, on Thursday, November 23rd, at 7.30 p.m. H.R.H. Princess Louise and the Minister of Health have consented to attend as the principal guests.

At the meeting of the Medico-Legal Society at 11, Chandos Street, W., on Thursday, November 23rd, at 8.30 p.m., Sir John Collie will open a discussion on the "Medical Aspect of Workmen's Compensation."

The next meeting of the Biochemical Society will be held on Friday afternoon, November 17th, at 3 p.m., at University College. Among the several communications to the meeting will be one by A. Canzanelli, C. R. Harington, and S. S. Randall on "The Configurative Relationship of Thyroxine and Tyrosine."

The fiftieth international post-graduate course of the Medical Faculty of Vienna will be held from November 27th to December 10th, and will consist of lectures, demonstrations, and practical clinical work relating to modern methods of diagnosis and treatment. The fee for the course is 50 Austrian schillings, and special railway fare reductions are obtainable. For further details application should be made to the secretary of the International Post-graduate Courses, Porzellangasse 22, Vienna IX.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that a course in proctology will be given at St. Mark's Hospital from November 20th to 25th. From November 21st to December 7th a course of six lecture-demonstrations will be given on Tuesday and Thursday evenings at 8 p.m. at the British Red Cross Clinic for Rheumatism. Other forthcoming courses are: diseases of infants, at the Infants Hospital, Vincent Square, November 27th to December 9th, and dermatology at the Blackfriars Skin Hospital, from November 27th to December 9th. A debate has been arranged for December 7th at 8.30 p.m. at the Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, W. The motion will be "That Operations for the Removal of Tonsils are too often Performed without Adequate Cause," and all members of the medical profession are invited to be present.

The symposium on "Bread and Milk" arranged by the Food Group of the Society of Chemical Industry, on November 23rd and 24th, in the Hall of the British Medical Association, Tavistock Square, will be divided into three sessions. The first will open at 2.30 p.m. on November 23rd, with Professor W. W. Jameson in the chair, and among the subjects for discussion will be the "Improvement of the Nation's Milk Supply," introduced by Professor H. D. Kay, and "Disease-producing Organisms in Milk," introduced by Professor E. T. Minett and E. J. Pulling; the second will be held at 10 a.m. on November 24th, when Sir John Russell will be in the chair; and the third at 2.30 p.m. on the same day, under the presidency of Professor H. E. Armstrong, when the speakers will include Professor J. C. Drummond on the "Nutritive Values of Raw and Pasteurized Milk," and Dr. D. W. Kent Jones on the "Bleaching and Improving of Flour." Invitations to attend may be obtained on application to the Honorary Secretary, Food Symposium, Society of Chemical Industry, 46, Finsbury Square, E.C.2.

Among the medical men elected mayors are: Mr. E. W. Lewis (Southport), Dr. Thomas Martin (Tenterden) re-elected, and Dr. E. Monks (Bolton). Mr. Lewis is also president-elect of the Lancashire and Cheshire Branch of the British Medical Association, and becomes president of the Branch next June, at the annual meeting to be held in Southport, by invitation of the Division (*vide Supplement*, November 11th, p. 253).

The tenth international medical tour, organized as heretofore by the Medical Society of the Mediterranean Coast, will start from Nice on Tuesday, December 26th, and end on Tuesday, January 2nd, 1934, at Cannes. The places to be visited include La Turbie, Roquebrune, Cap Martin, Mentone, Monaco, Beaulieu, Cap Ferrat, Villefranche, Vence, Grasse, Juan-les-Pins, Cap d'Antibes, and other well-known health and pleasure resorts. One incident of the tour will be the first meeting of the recently inaugurated International Institute of Solar, Terrestrial, and Cosmic Radiations. The fee for the tour is 1,000 francs, and further information may be obtained from the secretary of the Medical Society, 24, Rue Verdi, Nice. Another tour organized by this society will start from Cannes on December 31st, and visit Hyères, Aix, Marseilles, with an extension to Arles and St. Remy on January 6th and 7th, if desired.

A conference on birth control in Asia is being held at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on November 24th and 25th. Lord Horder is president of the conference, and will be supported by H.E. the Chinese Minister, Margaret Sanger, Baroness Ishimoto, Bertrand Russell, the Rani of Sherkot, the Rani Rajwade, Dr Wellington Koo, and others. Professor Carr-Saunders and Dr. Helena Wright will give addresses. Particulars may be had from the Birth Control International Information Centre, Parliament Mansions, S.W.1.

We have received the first issue, published in September, of *Bulletin der Schweiz Vereinigung für Krebsbekämpfung* (Bulletin of the Swiss Association for Combating Cancer). The bulletin, which will appear quarterly, will contain articles in German, French, and Italian, representing the work done by the different branches of the association in Switzerland. The annual subscription is 12 Swiss francs.

The Swiss Public Health Office has published a pamphlet in German and French containing a list of the public hospitals and sanatoriums in Switzerland, with the year of foundation, accommodation, number of admissions, and cost of upkeep during 1930 and 1931.

A Press bulletin issued from the Office of the High Commissioner of Canada states that further orders are expected to be placed shortly by the Ontario Government for Canadian radium intended for use at cancer and other clinics. Delay in the delivery of radium to the Provincial Department of Health was experienced owing to the necessity of sending it to England for filling into platinum needles. The strength of the radium-filled needles was measured at the Bureau of Standards at Ottawa, thus making it unnecessary to send them to Washington as in the past.

The Model Abattoir Society has chosen the report of the committee appointed by the Prime Minister in 1931 to consider "whether the present arrangements for the slaughtering of livestock for food are satisfactory from the economic standpoint" as the subject of the twelfth annual Benjamin Ward Richardson Memorial Lecture to be given by Professor J. Harry Jones, on November 30th, at 5.30 p.m., at the Royal Sanitary Institute.

The King has granted Major T. J. Hallinan, C.B.E., authority to wear the Insignia of the Fourth Class (Civil Division) of the Order of Al Rafidain, conferred upon him by the King of Iraq in recognition of valuable services rendered.

Dr. Sidney Gilford, J.P., has been unanimously elected vice-chairman of the Reading Insurance Committee for the ensuing year.

Colonel Sir A. Lisle Webb, late Director-General of Medical Services, Ministry of Pensions, has been appointed secretary and treasurer of Queen Mary's (Roehampton) Hospital, on the resignation of Sir Charles Kenderdine, which was announced in our last issue.

Sir Leonard Lyle has given £2,250 to Queen Mary's Hospital for the East End as a sign of his gratitude to the doctors responsible for the recovery of Lady Lyle. The money is to be used for research work in the pathological department of the hospital.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

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The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus Dublin*; telephone 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams *Associate, Edinburgh*, telephone 24361 Edinburgh).

QUERIES AND ANSWERS

Record Length of Umbilical Cord?

Dr. E. H. BRUCE FOX (Yealmpton) writes: A few days ago I was called in by a district nurse to extract a retained placenta. The male baby was some three to four weeks premature. When I had finished I measured the umbilical cord, after untying a complete knot, with the help of the nurse. It proved to be *fifty-one* inches long. Is this competing for the record? The baby weighed 3 lb. 2 oz., and seemed to me far more emaciated and puny than the prematurity would account for. Was the long cord responsible for this? The baby is alive. The mother was a total stranger to me, but I am informed that her health has been good.

Artificial Menopause

"FRANCISCUS" has read with interest Dr. Martindale's paper (*Journal*, November 11th, p. 857) on the artificial menopause. He asks for suggestions for the treatment of the regular recurring attacks of abdominal pain, repeated vomiting, nausea, and appalling headache which he has known to occur in several artificial menopause cases.

Vitamins and Salts in Potatoes

"W. J. B. S." (Birmingham) writes: What are the salts provided by the potato? Do these lie in the layers just under the skin, and is the vitamin C there mainly or entirely? Is not the prevalent peeling of potatoes before cooking them the biggest waste of essential elements of diet? Can the body produce vitamin A from the cooked potato as it can from carotene and green vegetables?

*** We are indebted to a correspondent for the following answer to "W. J. B. S.'s" inquiry. The chief mineral of potatoes is potassium and there is no reason to believe that it is especially concentrated under the skin. This probably applies also to the vitamin C. No difference was observable between the growth of laboratory animals fed either on "peelings" or on the inside of the potato. We eat potatoes for their starch and not for their proteins or mineral salts, and in the *well mixed diet* it does not matter whether they are peeled or not. There is no evidence that the body can produce vitamin A either from the cooked or the uncooked potato, so far as I am aware.

Impacted Third Molars

Dr. T. B. HEWSON (London, N.8) writes: Responding to Mr. Bowdler Henry's request for information in regard to impacted third molars, appearing in the *Journal* of November 4th, may I recall that there was an article by a Mr. A. M. Vodenie in the *New York Medical Journal* of November 8th, 1919, on "Impacted Lower Third Molars." The research to bring out the information therein contained evidently must have been, while not exhaustive, very considerable. This article mentions the assigned predisposing and exciting causes, signs, symptoms, and effects, local and general technique of removal, complications, etc.

Recurrent Cellulitis of Lip

Dr. D. PREISKEL (Clapton, E.) writes: "J." will probably find that the trouble is due to the streptococcus. A careful search should be instituted for small fissures in the naso-labial grooves, corners of the mouth, and behind the ears, whence reinfection usually occurs. If present, these fissures should be touched with the silver nitrate stick.

Income Tax

Appointment—Basis Year

"E. G." paid tax for 1932-3 on his earnings for that year—namely, £290. He has held his present appointment for thirteen months, and is earning £370 a year, and understands he is to be assessed on the current year's earnings again at £370. Is that correct?

*** The normal basis is the previous year, but when a new appointment is taken up the sequence is broken and for the first year of that appointment the current year's basis is applicable. This would seem to cover "E. G.'s" case. It may be added, perhaps, that where the new appointment is similar to the former the authorities frequently ignore the change when it is not to the prejudice of the taxpayer; in this case, however, the figures suggest that there was a substantial change in the nature of the employment in September, 1932, in which case the statutory rule, and the current year's basis, would apply.

Commencement of Practice

"DOUBTFUL" came into a new practice on January 14th, 1932; previously he had been doing locumtenent work from April, 1931. How should he be assessed?

*** (1) From the period from April, 1931, to January 14th, 1932, on the actual amount of his earnings as a locumtenent, apparently on £211. (2) As a proprietor of a practice his basis of assessment for the first year is the amount of the earnings of that year. That amount was apparently £397, so that, in addition to the £211 as locumtenent, he is also assessed for 1931-2 on 81/365 of £397—that is, £88—making £299 in all. The tax payable (assuming "Doubtful" is a bachelor and has no life assurance) would be £299 - (£100 + £60 =) £160—that is, £139 at 2s. 6d.—that is, £17 7s. 6d. For 1932-3 he is assessable on £397, the tax thereon being £33 12s. 6d.

Change in Appointment

"A. M. R." was appointed as assistant medical officer to a hospital in March, 1932; previously he was employed by the R.A.F. as a civilian medical practitioner. On what basis should his earnings be assessed for 1932-3?

*** The Finance Act, 1927, Section 45, provides that "when the person first held the office or employment . . . on some day in the year preceding the year of assessment . . . income tax shall be computed on the amount of the emoluments for the year of assessment." "A. M. R." is chargeable for 1932-3 in respect of the "office or employment" as assistant medical officer, and he first held that office, etc., in the year 1931-2—reckoning to April 5th, of course. Consequently he is chargeable on the amount of the emoluments for 1932-3.

LETTERS, NOTES, ETC.

Burial at Home

Dr. HY. DRAPER BISHOP (medical officer of health for Guernsey) writes: In your issue of September 30th you rightly say that "there is no legal obligation to bury dead bodies in a public burial ground or cemetery or any other place set apart for burials," and then proceed to enlarge upon the subject. In Guernsey this unrestricted power was held to be one with possibilities of danger, and, if I may use the words, allowed of a slovenly disposal of the dead. The Ordonnance of our Royal Court forbids the disposal of any dead body, except with the Court's permission, unless the conditions laid down for burial and cremation are complied with. The conditions for burial require that the corpse must be buried in a burial place recognized by the Royal Court. No application for any deviation from this condition has ever been received since the passing of the law. Our Cremation Ordonnance differs somewhat from the English law, in that the medical officer of health gives the second medical certificate, and the authority to cremate is given by one of the Crown law officers upon the completion of the documents required. Before our crematorium was started, some five years ago, there were several people who desired that after death their bodies should be buried at sea. As far as I know, all of them have now withdrawn this condition in favour of cremation. A body cast into the sea beyond territorial-waters, as it would naturally be if sea replaced earth burial, has as completely disappeared as if it had been cremated. In England it could be thus disposed of without any further formalities beyond the production of the registrar's permit to bury it. In Guernsey this could only be effected with the permission of the Royal Court, which would detail the conditions it considered necessary if it granted its permission. I feel sure that the conditions would be that the formalities required by the Cremation Ordonnance would have to be first fulfilled before burial at sea could take place.

Confidence Trick: A Warning

A correspondent living in the West Central district of London wishes to warn readers against a personable, dark-featured man—particularly apt to seek advice from Irish doctors—who played the following trick on him. Representing himself to be the nephew of an archbishop and an officer in the Free State Army, he consulted our correspondent professionally with a complaint of haemoptysis and a story of being on his way to Ireland. Apparently very ill, he agreed to go into a nursing home, where he proved himself to be a drug addict (with a preference for heroin), produced a daily rise of temperature, and had further attacks of "haemoptysis." Eventually he left the home, having abstracted money from two patients and paid neither account nor fees, and was not seen again. The police were communicated with, and subsequent information suggests that the trick has been played, with minor modifications for the past four years in different parts of the country.

Determination of Bilirubinaemia

A correspondent, referring to an *Epitome* abstract under the above heading (November 4th, para. 328), which describes the use of methylene-blue in a colorimetric test of serum, writes: There appears to be an omission, for it states that "methylene-blue is then gradually added to the *mixture* and shaken," whereas only serum is present.

*** There is no omission, but the sentence should have read ". . . is gradually added *and* the mixture shaken." The resulting colour should, of course, be emerald green and not blue, as stated.

The Bed Bug

Dr. EVA MCCALL (London, W.1) writes: Apropos of your review in the *Journal* of November 11th (p. 885) of Mr. Gunn's pamphlet on the bed bug, I recall a most entertaining and instructive lecture given by the late Sir Arthur Shipley on the subject of bugs in general. The lecture was delivered during the war, and he gave us a little verse which was as follows:

> "The lightning bug has wings of gold,
> The June bug wings of flame,
> The bed bug has no wings at all,
> But it *gets* there all the same!"

Food Education Society

In a letter calling attention to the emphasis laid by Sir George Newman, in his report on the state of the public health for 1932, upon faulty nutrition, Mr. Charles Hecht, honorary secretary, Food Education Society, 29, Gordon Square, W.C.1, announces that the following men have accepted the position of vice-presidents of the society: Dr. M. Bircher-Benner (Zürich), Professor M. Vogel (Dresden), Sir Robert McCarrison, Dr. Robert Hutchison, and Dr. G. E. Friend. A full report of Dr. M. Bircher-Benner's address on "The Prevention of Disease by Correct Feeding" may be obtained (post free 1s. 1d.) from the Food Education Society, 29, Gordon Square, W.C.1.

A booklet entitled *Elastoplast Technique* has been issued by Messrs. T. J. Smith and Nephew, Ltd., of Hull, who will send copies to members of the medical profession on request.

Vacancies

Notifications of offices vacant in universities, medical colleges and of vacant resident and other appointments at hospitals will be found at pages 46, 47, 48 49, 52, and 53 of the advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 50 and 51.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 267.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

346 Erythema Infectiosum

J Zikowsky (*Wien klin Woch* July 7th 1933, p 843) states that a big epidemic of this disease occurred in Vienna in 1930 seventy nine cases having been admitted to the infectious department of the Franz Josef Hospital alone The disease has since 1886, been recorded in Germany, Switzerland and France under different names (megalerythema epidemicum erythema variabile fifth disease') Starting in January the Vienna epidemic reached its height in February and March, showed a marked decline in April and May and came to an end in June The incidence was low in infants and young children, the majority of the patients being between 4 and 10 years of age—only four were over 14 Of the seventy nine patients forty eight were girls and thirty one boys The eruption usually appeared without any prodromal symptoms but was sometimes preceded by respiratory catarrh or gastro intestinal disturbance The rash first appeared on the face where it assumed the form of a butterfly leaving the mouth and chin free On the limbs it took on a circinate appearance while on the trunk it was either absent or consisted of isolated macules The temperature was little if at all raised The general condition was good There were no complications or sequelae The blood picture was characterized by a considerable eosinophilia, amounting in one case to 19 per cent The total number of white cells was normal, or but slightly increased, only a few plasma cells were to be found Erythema infectiosum, states Zikowsky, must be distinguished from rubella by the character of the eruption, the glandular enlargement, and the increase of plasma cells characteristic of the latter, from measles which has a long prodromal catarrhal stage and Koplik's spots from scarlet fever by the sore throat and character of the rash, from erythema multiforme, in which rise of temperature is higher and vascular and bullous forms are frequent and from toxic eruptions by the history and localization of the rash

347 Sudden Death from Bathing

P Verhoogen (*Bruxelles Medical*, August 13th, 1933, p 1165) dismisses as being purely hypothetical the usual ascribed causes of sudden fatalities during bathing, such as congestion from bathing when too hot or too soon after eating persistent thymus with associated cardiac syncope etc He believes that the real cause is a true anaphylaxis to thermic impressions He alludes to the appearance, in certain individuals, of cutaneous phenomena (urticaria, pruritus, etc), following the local application of cold These occur more frequently in nervous subjects and are indicative of an idiosyncrasy sometimes congenital and familial, but generally acquired Frequent repetition of this excitation in subjects usually exposed to cold can establish an allergy, occasionally very early in life, but generally at about 40 years When a large surface of the body is exposed to this excitant as in bathing, anaphylactic shock is caused with rapid vasomotor paralysis, sudden fall in arterial tension, sharp leucopenia and ultimate erythrolysis, myocardial weakness, and generalized muscular impotence A case is recorded as typical of this condition Usually this allergic state is unsuspected, Verhoogen believes however, that precursory symptoms are frequently present, which can be ascertained by a study of the patient's previous history As a prophylactic measure he advises that in such cases, cutaneous tests by the application of ice, etc, to the forearm be made and if positive bathing in cold water should be forbidden To desensitize the subject the usual preventives of anaphylactic shock (adrenaline, calcium chloride) may be employed The treatment of acute accidents is that of shock in general—intravenous injection of 1/4 mg of adrenaline hydrochlorate and administration of cardiovascular stimulants, the patient should be wrapped in hot blankets, and glucose serum and hot drinks be given

348 Poliomyelitis

P Krause (*Munch med Woch*, July 28th, 1933, p 1159) who believes in a relationship between poliomyelitis and some epidemic diseases of animals, states that an epidemic infection of fowls is often noted after an outbreak of poliomyelitis in Westphalia while human poliomyelitis bears some resemblance to Borna's acute encephalomyelitis of fowls The virus of poliomyelitis can be passaged through apes and can reproduce in them typical infantile paralysis Krause stresses the importance of a smaller and cheaper laboratory animal for diagnostic purposes Human carriers of virus have been demonstrated The clinical picture is variable—a generalized febrile disturbance, frequently with catarrh of the upper respiratory tract or gastro intestinal disturbance, being the common type of onset Tenderness over the spine is frequently present in this stage Lumbar puncture gives a clear fluid with a moderate pleocytosis, polymorphonuclears predominating in the early stages, lymphocytes later There is a normal sugar content, and a shift of the colloidal reaction to the left The diagnosis is confirmed by the onset of paralysis Krause considers that diagnosis in the pre paralytic stage is difficult and frequently impossible—less than 50 per cent can be diagnosed at this stage Treatment in the acute stage is largely symptomatic, absolute rest antipyretics and hexamine being routine measures The virus is thermosensitive *in vitro* and the author has found that applications of a hot peat preparation to the occiput or spine are useful Repeated lumbar puncture is helpful in the meningitic type The value of convalescent serum is debatable and the author hints at general agreement that it is useless once paralysis has occurred Serum should he believes, only be given intramuscularly, and never intrathecally

Surgery

349 Treatment of Central Dislocation of the Hip

According to O Winterstein (*Zentralbl f Chir* July 22nd, 1933, p 1710) outward pressure exercised from the cavity of the rectum is dangerous as a means of replacing a centrally dislocated head of the femur and should be reserved for reposition of fragments of the acetabulum after replacement of the femur In a case described in a man aged 67 the replaced head in spite of longitudinal extension resumed its central dislocation as soon as outward pressure on the thighbone was relaxed Five days after the accident a clamp was inserted in the great trochanter under local anaesthesia with the patient lying on the sound side it served to reduce the dislocation and was left in place with vertical extension, for three weeks For five weeks after its removal calcanean extension was employed The end result was excellent

350 Embolectomy of Extremities

Pearse, jun (*Ann of Surg*, July 1933, p 17) reports nine cases of peripheral embolism In two cases operation could not be carried out because of serious embolism elsewhere In the remaining cases embolectomy was performed and was successful in three cases Two patients died within forty eight hours from embolism in other regions, and two developed gangrene requiring amputation Discussing this condition, Pearse states that

embolism may occur at any age, and is almost equally distributed between the sexes. In nearly every case it is found at the bifurcation of a vessel, or at the origin of one of its large branches. In peripheral cases the symptoms are very characteristic and consist of excruciating pain, numbness, coldness, and paralysis of the part involved. The onset is sudden and may start at the site of lodgement of the embolus, but it soon involves the entire extremity distal to this point. This becomes cold, numb, and paralysed. Pallor, lowered temperature, decreased skin sensitivity, reduced or absent reflexes, and absent pulsation in the peripheral arteries are noted. The colour of the limb changes from a waxy pallor to a dark blue cyanosis in the distal part. In the late stages the hand or foot becomes shrunken, contracted, or even mummified. The object of operation is to localize, expose, and remove the embolus, but if this is not possible it may be found necessary to dissect out the artery in search of the embolus. Physical examination should serve to localize emboli in the larger vessels, though in the more peripheral locations *x*-ray localization by arteriography may be used. Early operation is of great importance, and within ten hours gives 40 per cent. of successful results. It was found that the embolus came from a primary heart disease in 69 per cent. of cases and from post-operative causes in 13 per cent.

351 Fracture of Humeral Neck

F. GREGERSEN (*Hospitalstidende*, July 6th, 1933, p. 769) re-examined in the autumn of 1931 seventy out of the 130 patients treated under ambulatory conditions for fracture of the neck of the humerus in Denmark over a period of nine years. The arm was immobilized by a bandage for only a few days. After four days passive movements and massage were instituted. After about a fortnight the passive movements were replaced by active movements. The average duration of treatment was five and a half weeks. As many as twenty-nine of the seventy cases were over the age of 60, and there were only seventeen patients under the age of 50. It was found that all but three had resumed their former occupations, and among the three there were two who were not obliged to return to work. Not one patient was in receipt of compensation for permanent disablement. In every case there was complete or almost complete freedom of movement at the shoulder-joint. In no case was there any limitation of abduction. In about half of all the cases there was, however, some limitation of inward rotation. This was observed only among the older patients, and not in any of the seventeen patients under the age of 50. So far from being inconvenienced by this limitation of inward rotation, none of the patients had even detected it. Skiagrams taken of all the seventy patients on re-examination showed good union in thirty, slight deformity in thirty-three, and great deformity in seven cases. In as many as thirty-six cases the *x* rays showed a slight flattening of the articular surface of the head of the humerus. In only one case was the new formation of osteophytes along the articular margin of the head of the humerus demonstrable, and even in this case there was no limitation of movement or discomfort on work. Gregersen concludes from these findings that early mobilization, with active and passive movements supplemented by massage, is a notable advance on the older system of prolonged immobilization.

352 G. KARFIOL (*Zentralbl. f. Chir.*, August 5th, 1933, p. 1818) treats fracture of the surgical neck of the humerus by Schanz's method, which he has found specially suitable for old people (aged 66 to 72). Under general anaesthesia a blunt pin is inserted into the head of the bone through a subacromial incision and a second in the upper end of the shaft through a lateral incision. The fracture being reduced and the humerus being inclined at about 80 degrees to the vertical in mid-rotation, a light plaster bandage is applied, including the projecting pins, from the shoulder to the elbow. A suitable abduction splint is applied, from which the forearm can be freed after a few days.

Therapeutics

353 Active Immunization against Scarlet Fever

H. G. BULL (*Journ. Amer. Med. Assoc.*, July 29th, 1933, p. 363) re-tested fifty children eight years after they had been actively immunized against scarlet fever and found that thirty-two (64 per cent.) were negative and eighteen (36 per cent.) slightly positive. Of the fifty children twenty-two had received three doses of diluted toxin, and after eight years ten of these were negative and twelve slightly positive. Twenty-eight had received five or six doses, and after eight years twenty-two were negative (78 per cent.) and six were slightly positive. Bull concludes that dilute toxin given in adequate doses confers immunity of at least eight years in a high percentage of persons susceptible to scarlet fever.

354 Haematuria during Insulin Treatment

A. J. JOOSTEN (*Nederl. Tijdschr. v. Geneesk.*, August 19th, 1933, p. 3779) records two cases of diabetes in boys aged 13 and 16, who developed haematuria in the precomatose stage while under treatment by insulin. Similar cases have been recorded in France by Roch and Martin, and Escalier. With the exception of Escalier's case, which occurred in a man aged 60, the patients have been young persons. The prognosis in such cases is favourable. The aetiology of the condition is obscure.

355 Treatment of Pruritus

C. BRUCK (*Deut. med. Woch.*, July 21st, 1933, p. 1132) describes the advantages of combining magnesium bromide (already much used in combination with amino-acetic acid) with the ethyl ester of carbonic acid in molecular proportions for the treatment of pruritus and other irritant conditions of the skin. The preparation is sold as "pulvis magnoboli" or in solution (magnobrollösung), and can be used either locally or generally. The author also claims excellent results with the drug in cases of urticaria, prurigo, drug exanthemata, eczema, neurodermatitis, and lichen rubra. Prompt cessation of the itching and a general sedative effect are obtained. Two teaspoonfuls of the powder are given three times daily in a wineglass of sweetened water after meals. The preparation has the added advantage of a laxative effect. In severe cases the drug may be given intramuscularly, subcutaneously, or intravenously, in doses of 10 c.cm. The injections are painless, are not followed by reactions, and may be continued for two or three days. It is suggested that the compound acts upon the sensory apparatus, and that the usual effects of magnesium on salt metabolism and the autonomic system are not in evidence.

Dermatology

356 Juvenile Polymorphous Acne

J. J. VITÓN, A. ALVAREZ, and E. VOTTA (*Semana Médica*, July 27th, 1933, p. 220) report manifest and rapid success in the treatment of juvenile poymorphous acne with minimal doses of tuberculin, and, comparing their results with those achieved by similar treatment of phlyctenular conjunctivitis and erythema nodosum, arrive at the following conclusions. All three diseases are produced by very minute embolisms of Koch's bacillus of extremely feeble virulence which are reduced *in situ* to complete disintegration (total lysis). The endotoxins thus liberated produce a reaction which may become a nodule erythema nodosum or a vesicle of keratitis. Local destruction of the bacilli is held to explain why local bacteriological examination is negative, and to account for the rapid action of tuberculin treatment in such cases. Some forms of retinal haemorrhage, iritis, and iridocyclitis are said to be due to an identical cause. Votta, one of the writers, having examined a series of acne lesions at all stages—papular, vesicular, pustular, and cicatricial—found in the

papules only (not in pustules, vesicles, or scars) an extraordinary number of multinuclear giant cells, surrounded by zones of epithelioid and lymphocyte elements exactly like those of outstanding tuberculosis. When stained these showed the presence of acid-resisting bacilli in sufficient number to confirm his suspicion that he was dealing with lesions of tuberculous origin. The writers of this "preliminary announcement" are convinced that juvenile acne is caused by a toxin infection from the bacillus of Koch.

357 Papular Urticaria

G. W. Bray (*Brit. Journ. Child. Dis.*, July-September, 1933, p. 180) records his observations on 200 cases of the condition, which was first described by Bateman in 1813 under the name of "lichen urticatus" and renamed "urticaria papulosa" by Hebra in 1856. The ages of Bray's patients ranged from a few days to 12 years, but 80 per cent. commenced before the age of 3 years and 95 per cent. before the age of 5 years. The distribution was fairly equal between the two sexes, as had been noted by other observers, ninety-four of Bray's cases being males and 106 females. The majority of the cases were confined to the warm months of the year. The diseases with which papular urticaria is most often confused are varicella, variola—as shown by Chalke (*British Medical Journal*, 1932, i, 7)—and also with scabies, Hebra's prurigo, insect bites, sweat rashes, lichen planus, papular eczema, and papular erythema multiforme. In most of Bray's cases two factors appeared to be involved, one dietary and the other thermal. The dietary factor comprised two groups of food—namely (1) fats, especially bacon fat and other pig products, vegetable oils and fats, and cod-liver oil; and (2) common foods such as fish, eggs, potatoes, oats, and chocolate in a small number of cases. The importance of the thermal factor is shown by the lesions generally appearing only in the warmer months, when the child is warm in bed or after a hot bath or exercise or as a sequel to feverish complaints. Treatment consists mainly in removal of fat from the diet and preventing the child from getting overheated. Internally pepsin and hydrochloric acid are beneficial. Locally naphthol ointment (1 per cent.) with a solution of coal tar (2 drachms) in calamine lotion (8 oz.) should be applied.

358 Erythema Nodosum

J. Brock (*Münch. med. Woch.*, July 14th, 1933, p. 1087) emphasizes the different significance of erythema nodosum in adults and children. The association of this condition with polyarthritic affections in the adult and its ready response to salicylates is well known, but recent investigations by Scandinavian workers have shown that in childhood this affection has a very special significance. Statistics gathered during the last twenty-five years in Gothenburg, where the disease was notifiable, show that the condition hardly occurs at all during infancy; after this period the frequency curve rises rapidly, and shows a broad maximum between the fourth and tenth years, after which it falls fairly steeply. Practically 100 per cent. of children with erythema nodosum give a positive reaction with tuberculin. A positive tuberculin reaction is the more significant the younger the subject showing it. At the same time, in the majority of these cases there is radiologically—and sometimes also clinically—demonstrable pulmonary tuberculosis. Examples are given of adult erythema nodosum in which the tuberculin reaction became positive only after the skin affection appeared. In the child the appearance of an erythema nodosum is, according to Brock, an index of a highly active tuberculosis process, and may be regarded as an autogenous tuberculin reaction. The author recommends that in such a case there should be instituted an immediate search for the focus both by clinical and by *x*-ray methods. In addition, it is essential to find the source of the infection in the neighbourhood, for the appearance of erythema nodosum is nearly always a sign of recent infection. Brock believes that the condition should not be regarded as a specific result of tuberculosis, since it also occurs in sepsis, after vaccination, and may, even in childhood, be of the rheumatoid variety. The point is that in children it is most frequently a tuberculous reaction. Cases are described by this author in support of this view.

359 Ammonium Chloride in Scleroderma

Surgical measures (parathyroidectomy or sympathectomy) have of late years been employed in the treatment of scleroderma. As Pautrier has shown that hypercalcaemia exists in scleroderma, and as ammonium chloride causes a urinary calcium elimination, R. Leriche and A. Jung (*Presse Méd.*, July 1st, 1933, p. 1041) tried this salt in a case of disseminated facial scleroderma of four months' duration, full details of which are given. The lesions were itchy and burning, and other symptoms were fatigue, emaciation and a high calcaemia. Surgery had not been resorted to, but numerous medicaments (including thyroid extract) had proved inefficacious. An acidifying diet was now instituted, and 3 grams of ammonium chloride were given daily. General and local improvement was noted in twenty days. A relapse occurred on cessation of this treatment and a return to endocrine therapy. After resuming the original diet and medicine, permanent cure resulted in about four months after the first appearance of the eruption. Mention is made of a case of scleroderma of the legs and feet, which was apparently cured after ligation of the thyroid artery. However, a recurrence occurred five months later on the malleolar region; this was completely cured by the administration of ammonium chloride. The mode of action of this salt is not precisely known. Hunter maintains that an acidifying diet doubles the urinary calcium elimination and markedly increases the titrable acidity and elimination of ammonia. Similarly, the acidosis caused by large doses of ammonium chloride may considerably increase calcium excretion, while the calcium of the stools does not vary. In tetanus this salt arrests the crises by a modification of the *p*H (acidification), leading to an increased calcium ionization, and also increases the amount of blood calcium. On the other hand, increase or decrease of the ionized and colloidal calcium is not accompanied by variations in the urinary calcium output.

Obstetrics and Gynaecology

360 Dangers of Intrauterine Pessaries

R. Keller (*La Gynécol.*, August, 1933, p. 417) condemns the employment of these instruments, many of which he has removed in a deeply eroded condition. The danger of sepsis is, he states, so obvious that legal prohibition of intrauterine pessaries has been recommended. In 1914 one writer published 250 cases of sepsis, with fifteen deaths. In 1924 another author reported 385 cases with seventeen deaths from peritonitis or septicaemia, sixty-two cases of septic abortion occurring while a pessary was being worn, seventy-five cases of septic endometritis, and sixty cases of metrorrhagia. Keller reports five personal cases, two of whom died from peritonitis. Although many patients retain these pessaries for years, they are, he considers, always in danger of sepsis. Normally, the uterine cavity is free from bacteria, while in the vagina they are very numerous. The glairy mucus of the cervical canal protects the endometrium from bacterial invasion. Keller states that when an intrauterine pessary is introduced this natural protection is destroyed, nor does the pessary invariably prevent conception. In reply to a "questionary" addressed to 175 physicians, they reported ninety-two cases of pregnancy occurring in spite of the presence of pessaries. These instruments have been used to induce abortion, but in seventy-eight cases sixty-one patients (approximately 80 per cent.) suffered subsequently from puerperal infection. The mechanism of the infective process is, he states, simple. The introduction of the pessary exposes the endometrium to bacterial invasion, while its continued presence causes ulceration of the mucosa.

These ulcers are invaded inevitably by bacteria that have traversed the cervical canal, unprotected as that is now, by the normal plug of mucus. Uterine contractions during menstruation tend to force the infected uterine secretions into the Fallopian tubes, as the pessary hinders their passage into the vagina. This, according to Keller, explains the frequent occurrence of salpingitis and pelvic or general peritonitis.

361 Myomectomy in Fibromatosis

A. HAMANT (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, July, 1933, p. 631) rebukes the prevailing tendency to favour hysterectomy as the correct treatment of uterine fibroids, since myomectomy is often adequate. He records a series of 156 myomectomies, all of which were successful except one in which the patient died a week later from cardiac trouble aggravated by influenza. The author considers this simpler procedure equally applicable in multiple fibromatosis; in twenty of these patients pregnancy subsequently ensued. In one instance labour was complicated by a transverse presentation, but it was uncertain whether the previous operation could be held accountable for this. In view of the relative simplicity of the procedure its freedom from unpleasant sequels, and particularly the obviation of a premature menopause with its distressing complications, Hamant thinks that there is much to be said in favour of the milder operation. Even when hysterectomy is not associated with removal of the uterine appendages, the menopause is, he states, not infrequently induced, and sometimes a second operation has to be performed. Ovarian grafting is, he finds, not always successful, a fact which renders still more unsatisfactory the complete hysterectomy operation.

362 Endometriosis Interna Uteri

R. T. v. JASCHKE (*Zentralbl. f. Gynäk.*, August 12th, 1933, p. 1858) confirms Halban's statement that a valuable sign in diagnosis of internal endometriosis of the uterus is the detection in a hard, uniformly enlarged uterus of a specially well-marked increase of volume during the premenstruum, with definite shrinkage after the period. Another sign, he states, is the absolute failure of curetting to control the bleeding temporarily in such a uterus—provided the fragments are found to show a hypertrophic mucosa with characters corresponding closely with the particular phase of the cycle. The writer does not agree with Seitz that severe dysmenorrhoea, of recent development and progressive severity, is a regular finding in internal endometriosis, even when combined with external endometriosis—for example, of the recto-vaginal septum.

363 Exercise and Menstruation

According to R. KLOTZ (*Deut. med. Woch.*, August 11th, 1933, p. 1252), while there is no ground for avoiding moderate muscular exertion during the menses, it should be forbidden to engage in sport or gymnastic exercises—especially competitive—at that time: swimming is said to be particularly noxious. The circulation in the true pelvis is a unit with its own neurovascular mechanism apart from the splanchnic system. During menstruation contraction of the cutaneous capillaries near the pelvis may seriously disorganize the pelvic circulation, giving rise to dysmenorrhoea, oligomenorrhoea, and ovarian dysfunction. A vagotonia is commonly present during the periods. According to the author over-exertion at the menses is particularly harmful in those with a labile vegetative nervous system.

364 Nephritis in Pregnancy

H. J. STANDER (*Amer. Journ. Obstet. and Gynecol.*, August, 1933, p. 183) advocates the termination of pregnancy in a patient suffering from chronic nephritis and the prevention of any subsequent pregnancy. He states that the gravity of the prognosis in this complication is indicated by the fact that the average maternal mortality occurring within ten years approximates 40 per cent. To secure the early recognition of nephritis, he advises the performance in any suspicious case of the urea clearance and fifteen-minute phenolsulphonephthalein tests. The creatinine excretion test may also be employed, although it measures the tubular rather than the glomerular functioning. The author believes that the strain of pregnancy invariably aggravates a pre-existing chronic nephritis, and advises that these tests should be applied at once in any case in which the blood pressure is 140/90 or higher, a differential diagnosis being necessary between chronic nephritis and eclampsia or a low renal threshold.

Pathology

365 Micro-sedimentation Test in Lung Tuberculosis

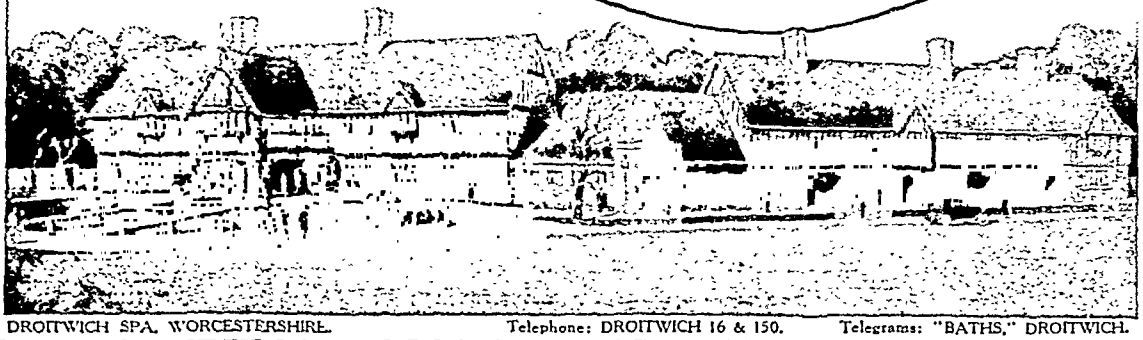
A. FRIEDLAENDER (*Ugeskrift for Laeger*, August 24th, 1933, p. 896) has practised the micro-blood-sedimentation test, as devised by Langer and Schmidt, in 100 tuberculin-positive children between the ages of 2 months and 12 years. In no case was the observation period less than a month. In a group of sixty-seven children with active pulmonary tuberculosis there were twenty-nine who, on admission to hospital, showed an increased rate of sedimentation. Among these twenty-nine there were seventeen in whom the sedimentation rate continued to be abnormally high throughout the observation period, whereas in the remaining twelve cases the rate gradually fell to normal. In fourteen cases in which the rate was normal on admission it rose gradually to a pathological degree in association with other signs of progress of the disease. There were also twenty-four patients who, though they presented definite clinical signs of active pulmonary tuberculosis, showed a normal sedimentation rate throughout the observation period. This observation detracts materially from the diagnostic value of the micro-sedimentation test. It is, however, of value to the prognosis; a steady rise of the sedimentation rate is not only confirmatory of the diagnosis of active disease, but is also indicative of an unfavourable prognosis. If this test is repeatedly normal in a Pirquet-positive child without clinical signs of active disease, it is warrantable to assume that the tuberculous condition is latent.

366 Factor enhancing Invasiveness of Bacteria

F. DURAN-REYNALS (*Journ. Exper. Med.*, August, 1933, p. 161), who has already shown that a factor can be extracted from a number of animal tissues—notably the testicle—which has the property of enhancing the invasiveness of certain pathogenic organisms, now brings evidence to suggest that a similar, if not identical, factor is formed by bacteria themselves. Most of the work has been carried out with staphylococci. Agar slope cultures, twenty-four hours old, were extracted each with 10 c.cm. of water; the resulting extract was then tested for its ability to increase the area of spread of Indian ink when injected intracutaneously into the rabbit. Altogether fifty-three strains of staphylococci, freshly isolated from pathological lesions, were studied. Based on the size of the local lesion produced when injected into the rabbit's skin, they were divided into three groups containing non-invasive, moderately invasive, and very invasive strains, respectively. It was found that the injection of extracts of the non-invasive strains had little effect on the spread of Indian ink through the skin, while extracts of the very invasive strains greatly increased its spread. Further work showed that the size of the skin lesion caused by the injection of one of the non-invasive strains could be considerably increased by the addition of extract from a very invasive strain. This action was not confined to staphylococci. Injection of a potent staphylococcal extract along with organisms such as streptococci, typhoid and dysentery bacilli, and *B. proteus* X 19 resulted in a lesion often two to four times as large as that caused by the organisms alone. The nature of the factor involved is under examination, as well as its importance in determining the virulence of bacteria.

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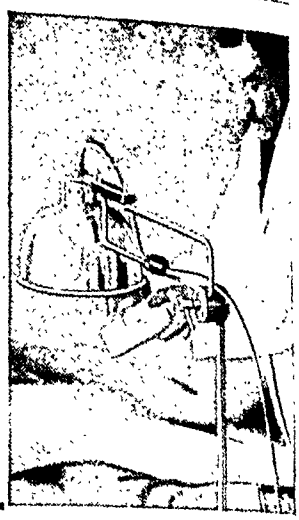
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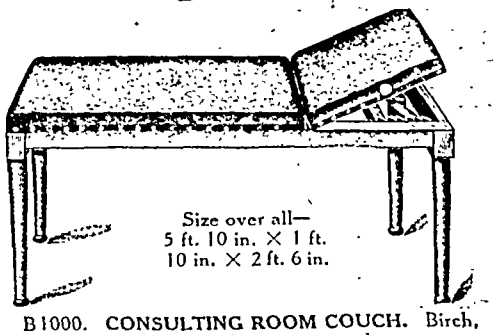
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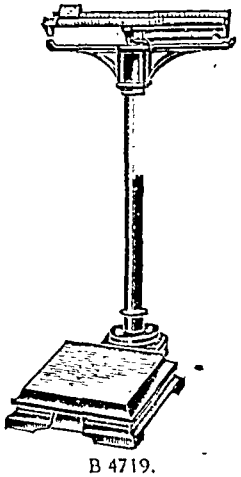
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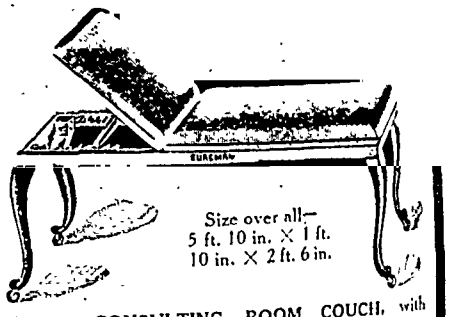


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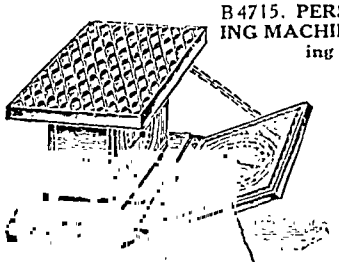


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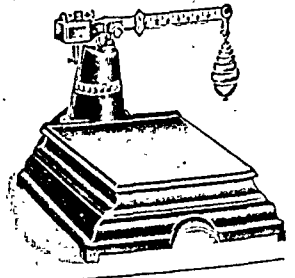


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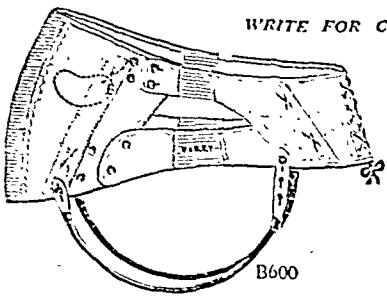
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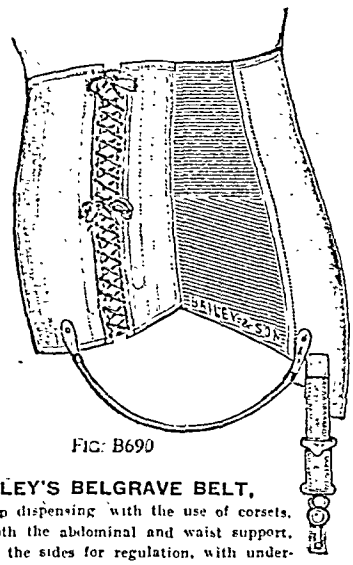


FIG. B690

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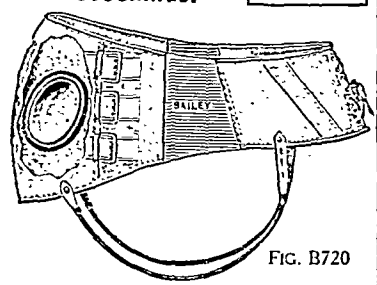


FIG. B720

(Showing Interior of Cup)

SPECIAL BELT FOR AFTER COLOSTOMY.

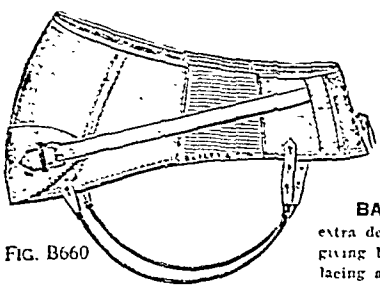
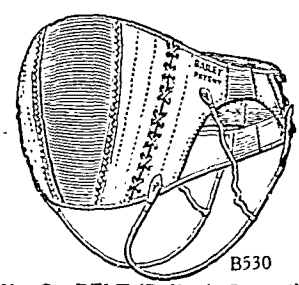


FIG. B660

BELT FOR ENTEROPTOSIS.



B530

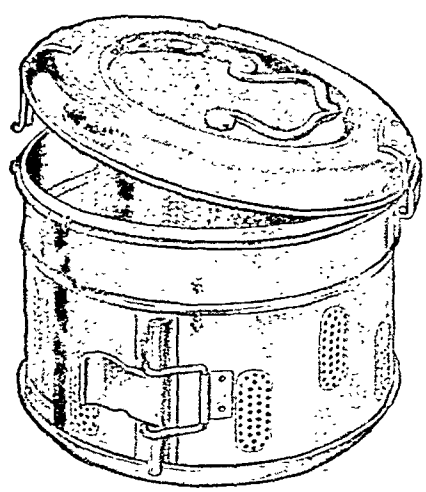
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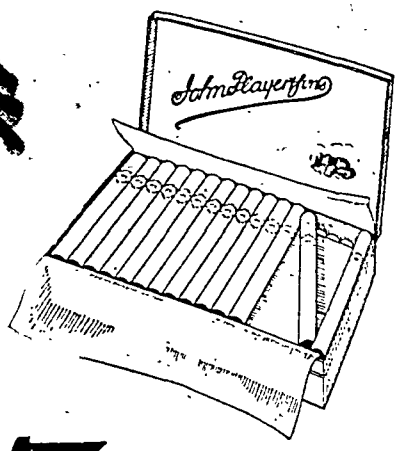
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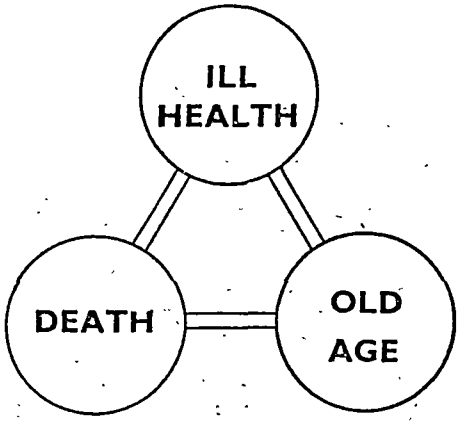


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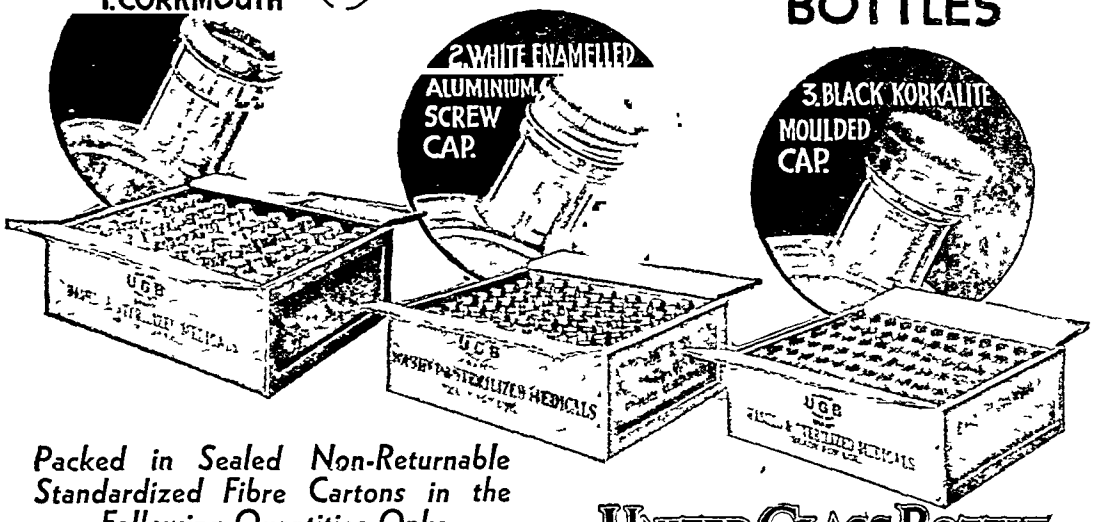
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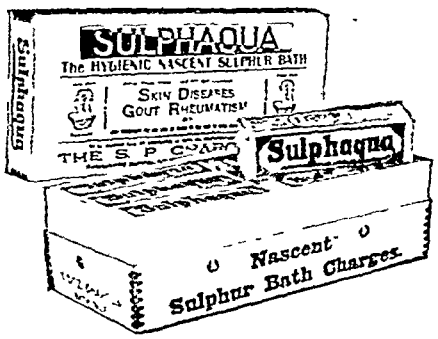
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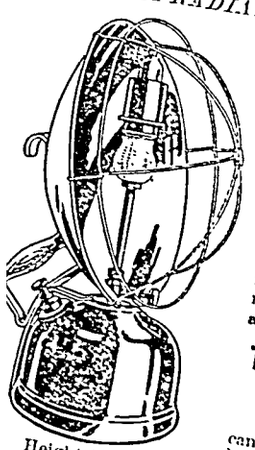
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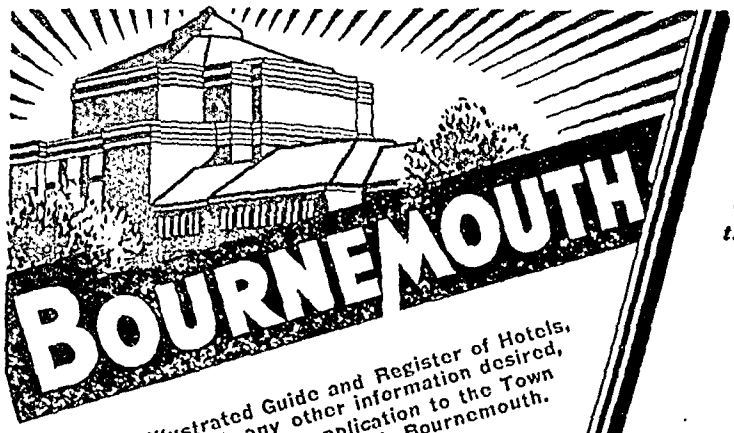
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The D.P.H. and how to obtain it.
The Diploma in Tropical Medicine.
The Diploma in Psychological Medicine.
The Diploma in Ophthalmology.
The Diploma in Laryngology.
The Mastery of Midwifery.

Do not fail to get a copy of this Book before commencing preparation for any Examination. It contains a large amount of valuable information. Dental Examinations in special dental guide.

Send for your copy now!

The Secretary,
MEDICAL CORRESPONDENCE COLLEGE,
19, Welbeck St., Cavendish Square, London, W.1.

Sir,—Please send me a copy of your "Guide to Medical Examinations" by return.

Name .....
Address .....
Examination in which interested .....

QUEEN CHARLOTTE'S MATERNITY HOSPITAL
MARYLEBONE ROAD, N.W.1

Medical Students and Qualified Practitioners admitted to the Practice of this Hospital. Unusual opportunities are afforded of seeing Obstetrical Complications and Operative Midwifery (about one half of the total admission being primiparous cases). Over 2,700 patients are admitted to the Wards annually, and in the Antenatal Department there are over 20,000 attendances per annum.

Certificates awarded as required by the various Examining Bodies.
For rules, fees, etc., apply, H. B. STOKES, Secretary-Superintendent.

EPILEPSY.

Attendance at school is a necessary part of the satisfactory treatment of Epilepsy in Children.

COLTHURST HOUSE SCHOOL

meets all the requirements of children of middle-class parentage. Extensions made necessary by the success of the school have created several vacancies.

Only bright and intelligent boys and girls are eligible for admission.

Apply to the Medical Supt., Colthurst House School, Warford, Alderley Edge.

LONDON COUNTY COUNCIL.

A COURSE OF LECTURES and PRACTICAL INSTRUCTION
for the
DIPLOMA IN PSYCHOLOGICAL MEDICINE
will be held at
THE MAUDSLEY HOSPITAL, Denmark Hill, S.E.5
(University of London)

The Course will begin on January 1st, 1934. Applications should be made to Dr. F. GOLLA, Director of the Central Pathological Laboratory, The Maudsley Hospital.

DIPLOMA IN GYNAECOLOGY AND OBSTETRICS
MASTERY OF MIDWIFERY
M.C.O.G.

Short Intensive Postal and Oral Revision Courses in preparation for these Diplomas.
Apply SECRETARY, Medical Correspondence College, 19, Welbeck Street, W.1.

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1880. Cases, non-resident, treated at 39, Earl's Court Square, S.W.5, and in residence, in the Summer holidays, at Miss BEHNKE'S house on the Chilterns.

"... and treatment ..."
—"Times"
—"Lancet"
... and perfectly.

STAMMERING, CLEFT PALATE SPEECH, LISPING, 3/9 at Miss BEHNKE, 39, Earl's Court Sq., S.W.5.

NORTH-EAST LONDON POST-GRADUATE COLLEGE.

PRINCE OF WALES'S GENERAL HOSPITAL, N.15.
The Practice of the Hospital is limited to Medical Practitioners. Particulars from J. BROWNING ALEXANDER, M.D., Dean.

F.R.C.S.(Edin.).

PREP. COURSE with daily Lecture Demonstrations of Museum Specimens of Surg., Path., for next Exam., will commence shortly. POSTAL TUITION at any time.—Further particulars, H. C. GRIFFIN, F.R.C.S., Surgeons' Hall, Edinburgh.

UNIVERSITY OF BRISTOL.

The University invites applications for the CHAIR OF ANATOMY vacant in August, 1934.
Full particulars may be obtained from the undersigned, with whom application should be lodged not later than December 31st, 1933.
WINIFRED SHAPLAND,
Secretary & Registrar.

UNIVERSITY EXAMINATION POSTAL INSTITUTION
17, RED LION SQ., LONDON, W.C.1.
(FOUNDED IN 1882.)

Principal Mr. F. S. WEYMOUTH, M.A. (Lond.)
POSTAL OR ORAL PREPARATION FOR ALL MEDICAL EXAMINATIONS.

SOME SUCCESSES.

M.D.(Lond.),	1901-32 (9 Gold Medallists during 1913-32)	368
M.S.(Lond.),	1901-32 (including 4 Gold Medallists)	22
M.B., B.S (Lond.),	*Final* 1918-32 (Completed Exam.)	206
F.R.C.S.(Eng.),	*Primary* 1919-32	146
	Final	155
M.R.C.P.(Lond.),	1919-32	215
D.P.H.	(*Various*) 1906-32 (Completed Exam.)	316
F.R.C.S. (Edin.),	1918-32	53
M.R.C.S., L.R.C.P.	*Final* 1919-32 (Completed Exam.)	456
M.D.	Various By Thesis	Numerous successes

Preparation for the above, also for Medical Preliminary, and all examinations leading up to M.R.C.S., L.R.C.P. or M.B. of various Universities, also for M.R.C.P. (Edin.), D.P.M., D.O.M.S., D.T.M. & H., D.L.O., D.G.O., D.M.R.E., M.M.S.A., L.M.S.S.A., etc. Many successes.

ORAL CLASSES.

M.R.C.P., M.D. Primary and Final F.R.C.S., F.R.C.S.(Edin.) also Final M.B., B.S., and M.R.C.S., L.R.C.P. Museum and Microscope Work. Also Private Tuition.

MEDICAL PROSPECTUS (48pp.)

CONTENTS.—The method and the cost of entering the Medical Profession. *Particulars of all Medical Examinations*, Postal Courses and Oral C... the Higher Medical ... for the Higher Sur... estions for the Special Diploma Examinations. Refresher Courses. Openings for Women. Hints for writing thesis.
Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, Mr. F. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6313.)

LIVERPOOL SCHOOL OF TROPICAL MEDICINE

(UNIVERSITY OF LIVERPOOL.)
COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 2nd, 1933, and January 3rd, 1934, and for the Diploma in Tropical Hygiene on January 11th and April 26th, 1934. (Candidates for the D.T.H. must possess the D.T.M. of this University.)
For particulars, apply to the Laboratory Secretary, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

JOINT NURSING & MIDWIVES' COUNCIL, NORTHERN IRELAND.

EXAMINERS FOR MIDWIVES.

The above Council being about to revise their list of Examiners, invite applications from registered Medical Practitioners, including women, who would be willing to act.
Preference will be given to applicants resident within reasonable distance of Belfast.
Particulars on application to the Registrar, 118, Great Victoria Street, Belfast, to whom applications should be sent not later than December 20th.

CHARTERED SOCIETY of MASSAGE & MEDICAL GYMNASTICS

President: LORD MOYNIHAN OF LEEDS, K.C.M.G., C.B., M.S., F.R.C.S.

Those requiring the services of

CHARTERED MASSEUSES & CHARTERED MASSEURS

can obtain full information from the Society's Bureau.

Hours 10-6.

Or from the—

Secretary (Dept. B.), C.S.M.M.G., Tavistock House (North), Tavistock Square, London, W.C.1. 'Phone: Euston 1676-7-8.

FOULERTON RESEARCH STUDENTSHIP.

The President and Council of the ROYAL SOCIETY OF LONDON propose to make an appointment to the FOULERTON RESEARCH STUDENTSHIP, which will fall vacant on April 1st, 1934. The duties of the Student will be to devote his whole time to research in medicine or the sciences contributory thereto, under the supervision and control of the Foulerton Research Fund Management Committee, to whom the Student will be required to report from time to time on the progress of his work. In exceptional cases the Committee may recommend for a Studentship the holder of a paid teaching post, but if such a candidate be appointed the Committee may recommend the payment of such stipend as they may think fit. The full stipend of the Studentship is £700 per annum, with provision for superannuation at a rate corresponding to that of the Federated Universities scheme.

The appointment will be made for three years in the first instance, subject to the fulfilment of the duties of the Student to the satisfaction of the Management Committee. The appointment may be further renewed annually up to a maximum term of six years. The Student may be of either sex, but he, his father and paternal grandfather must be, or have been at death, of British nationality, in accordance with the terms of the Trust.

An applicant for the Studentship must state his age and qualifications, the nationality of his male ancestry as above, the nature of the research in which it is proposed to engage, exact particulars of any other grants or endowments which he holds, and the place or institution in which it is proposed to carry out the specified research. The application should be accompanied by the names of two persons willing to act as referees and to give confidential information to the Committee concerning the applicant and his qualifications. Applicants from distant parts of the Empire should by preference nominate referees resident in Britain, but, if this is not practicable, may request other persons willing to act as referees to write directly and in confidence to the Secretary of the Royal Society. Open testimonials are not desired and will not be considered. Applications should be addressed to the Assistant Secretary, the Royal Society, Burlington House, London, W.1, and must reach the Royal Society not later than February 28th, 1934.

SURREY COUNTY COUNCIL.

THIRD ASSISTANT RESIDENT MEDICAL OFFICER (Male).

Third Assistant Medical Officer (male) required at County Sanatorium (300 beds), Milford, near Godalming. Resident experience in general hospital essential. Appointment is for six months, renewable for further six months. Salary £250 per annum, with board, lodging, and laundry. Appointment subject to the Standing Orders of the County Council. Forms of application from County Medical Officer, County Hall, Kingston-upon-Thames, to whom forms should be returned, with copies of three recent testimonials, by November 28th.

COUNTY BOROUGH OF SWANSEA.

ASSISTANT SCHOOL DENTAL OFFICER.

Applications are invited for the appointment of Assistant School Dental Officer. Salary £450 rising by annual increments of £25 to £550.

Applications, on special forms to be obtained from the Medical Officer of Health, Public Health Offices, Swansea, to be received not later than December 2nd.

BOROUGH OF CHELMSFORD.

SPECIALIST CONSULTANT—OBSTETRICS & GYNAECOLOGY.

The Council invite applications for the appointment of SPECIALIST CONSULTANT, to carry out special consultation work:

1. As a consultant in cases of puerperal fever or puerperal pyrexia.
2. As a consultant in cases of difficult labour.

A fee of three guineas per consultation will be paid, and in addition two guineas will be paid for time occupied in travelling, plus travelling expenses of sixpence per mile by day and one shilling per mile by night.

Applicants must be Fellows of one of the Royal Colleges of Surgeons of Great Britain, and must be attached to a Special Hospital for Diseases of Women, or to a Special Hospital for the conditions outlined above, or to a corresponding Special Department of a General Hospital.

The duties will consist of attending in consultation with medical practitioners—either general practitioners or the medical officer of the Council—in cases arising under the Puerperal Fever and Puerperal Pyrexia Regulations or in cases of difficult labour.

The gentlemen appointed will be required to provide his own locum tenens during holidays and absences.

Applications, stating experience and appointments held, with copies of three recent testimonials, should be made to the undersigned not later than 10 a.m., on November 30th, and marked "Specialist Consultant."

Public Health Dept., 89, Duke Street, Chelmsford. November 9th, 1933.

J. C. SLEIGH, Medical Officer of Health.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

CITY HOSPITAL FOR INFECTIOUS DISEASES.

RESIDENT MEDICAL ASSISTANT (MALE).

Wanted immediately, a Resident Medical Assistant (male), who holds a registrable qualification in Medicine and Surgery, and possesses a practical knowledge of Bacteriology. The holding of a previous resident appointment and some experience of general practice will be considered a recommendation.

Salary £350 per annum, subject to a temporary reduction of £10 18s. 9d., with board, lodging, etc.

The appointment is for the period of one year only.

Applications, on the prescribed form, which can be obtained on application to the Medical Officer of Health, Town Hall, Newcastle-upon-Tyne, must be submitted not later than Tuesday, November 28th.

November 14th, 1933.

BOROUGH OF WILLESDEN.

RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Resident Medical Officer at the WILLESDEN MUNICIPAL (FEVER) HOSPITAL. The salary will be at the rate of £250 per annum, with board, lodging, and laundry, and the appointment is for a period of twelve months. The Hospital admits all the notifiable diseases.

Applications, stating age, qualifications, and previous experience, with copies of three recent testimonials, to be sent to the Medical Superintendent, Willesden Municipal Hospital, Brentfield Road, Neasden, N.W.10.

November 7th, 1933.

E. A. PRATT, Town Clerk.

COUNTY COUNCIL OF ESSEX AND URBAN DISTRICT COUNCILS OF GRAYS THURROCK, PURFLEET AND TILBURY, AND RURAL DISTRICT COUNCIL OF ORSETT.

APPOINTMENTS OF ASSISTANT COUNTY MEDICAL OFFICER AND DEPUTY MEDICAL OFFICER OF HEALTH.

Applications for the following appointments are invited from duly qualified Medical Men, holding a Diploma of Public Health, and not over 45 years of age:

	Salary per annum £ s d
Assistant County Medical Officer	528 16 0
Deputy Medical Officer of Health for the Urban District of Grays Thurrock	13 12 0
Deputy Medical Officer of Health for the Urban District of Purfleet	12 12 0
Deputy Medical Officer of Health for the Urban District of Tilbury	106 0 0
Deputy Medical Officer of Health for the Rural District of Orsett	40 0 0
	£700 0 0

The salary as Assistant County Medical Officer will be subject to economy abatement according to the scale approved by the County Council.

The person appointed will be required to pass a medical examination, and to contribute to the funds established under the Local Government and Other Officers Superannuation Act, 1922.

An allowance will be made by the County Council for travelling expenses as Assistant County Medical Officer.

Further particulars of the appointments, together with prescribed forms of application, may be obtained from the undersigned John H. Goold, Shire Hall, Chelmsford.

JOHN H. GOOLD, Clerk of the County Council.

C. ASPLIN, Clerk to the Urban District Council of Grays Thurrock.

A. CATTON, Clerk to the Urban District Council of Purfleet.

H. WOOD, Clerk to the Urban District Council of Tilbury.

A. E. POOLE, Clerk to the Rural District Council of Orsett.

Shire Hall, Chelmsford. Nov. 6th, 1933.

THE HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.9.

TWO MEDICAL REGISTRARS REQUIRED.

Applications are invited for two posts of Medical Registrar, falling vacant on January 1st, 1934.

The posts are for one year, renewable for a further year. Honorarium £100.

Applications, which should be accompanied by copies of not more than three recent testimonials, should reach me by December 9th.

H. W. BURLEIGH, Secretary and General Superintendent.

THE HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.9.

HONORARY PSYCHIATRIST REQUIRED

Applications are invited for the post of Honorary Psychiatrist to the Hospital. The Honorary Psychiatrist to the Hospital. The Honorary Psychiatrist will be accompanied by copies of not more than three testimonials, and should reach me by December 9th.

H. W. BURLEIGH, Secretary and General Superintendent.

Monday, November 27th. ... signed on or before ... GEORGE WATTS, Secretary. ... Applications, with copies of testimonials, to be sent to the undersigned ... exam., residence, and famil...

ST MARY'S HOSPITAL, W 2

CASUALTY HOUSE SURGEON

Applications are invited from duly qualified candidates for the post of Casualty House Surgeon

Candidates must have been House Surgeons for a full period of office to this Hospital or to some other General Hospital approved by the Board

The salary is £100 per annum with board and residence and the appointment is for six months

Applications with copies of testimonials not exceeding three in number should reach the undersigned (from whom particulars of the duties may be obtained) on or before Saturday, November 25th

The successful candidate will be expected to take up the duties on December 1st

W PARKES House Governor

MANCHESTER ROYAL INFIRMARY

CHIEF ASSISTANT TO THE ORTHOPAEDIC UNIT (NON-RESIDENT)

The Board of Management invite applications from registered medical practitioners for the above appointment

The duties will be connected with the treatment of In and Out patients and require attendance on two full days per week

The appointment is for six months but will at any time be determinable by one months notice on either side

The Hospital is recognised by the Royal Colleges for the FRCS examinations

Applications giving particulars of age experience and nationality together with copies of testimonials should be addressed to the undersigned

R J CARLESS

November 13th 1933 House Governor

HULL ROYAL INFIRMARY
(370 Beds)

Applications are invited from registered Medical Practitioners for the post of CASUALTY OFFICER (male) vacant now

Salary at the rate of £150 per annum plus residence board and laundry

The officer appointed will work mainly under the direction of the Resident Surgical Officer

The appointment will be for six months but will at any time be determinable by one months notice on either side

Applications stating age qualifications and previous to-gether with copies of testimonials should be addressed to the undersigned

R J CARLESS

Nov 3rd 1933 House Governor

QUEEN CHARLOTTE'S MATERNITY HOSPITAL Marylebone Road, N W 1

MEDICAL OFFICER FOR ANTENATAL DEPT

The Committee of Management invite applications THIRD MEDICAL Department in Medicine of (a) Edinburgh or (b) Fellowship of the Physicians of London or (b) Fellowship of the Royal College of Surgeons of England Duties to be taken up as soon as possible Applications should be sent before December 1st to the undersigned from whom further particulars may be obtained

H B STOKES Secretary Supt

KING EDWARD VII SANATORIUM MIDHURST

The Council invite applications for the post of FIRST ASSISTANT MEDICAL OFFICER to the Institution Candidates must be duly qualified and registered and have had experience in tuberculosis work Some knowledge of after-care of patients following chest operations will be considered an advantage

Salary £450 per annum rising to £550 with board lodging and attendance

Applications with fourteen copies of not more than three recent testimonials to be sent on or before December 4th to the Secretary to the Council, 31, Davies Street, London, W 1

MILLER GENERAL HOSPITAL, Greenwich Road S E 10

Applications are invited for the following posts

HOUSE SURGEON Salary £100 per annum
HOUSE PHYSICIAN Salary £100 per annum
CASUALTY OFFICER Salary £150 per annum

Board residence and laundry are provided

OUTPATIENT OFFICER who is required to see Medical and Surgical cases Attendance daily (except Sunday) from 9 to 1 Tuesdays 9 to 5 Salary £150 per annum and lunch

Candidates (male) must be unmarried The appointments are for six months from January 1st next There are six Resident Officers

Applications stating age nationality, qualifications and experience accompanied by copies of not more than three recent testimonials to be sent to the Secretary not later than November 23rd

October 30th 1933

NORTHAMPTON GENERAL HOSPITAL (253 Beds)

There are vacancies now for a House Surgeon for one of the GENERAL HONORARY SURGEONS and for a CASUALTY OFFICER British nationality Salary for the House Surgeon £150 per annum and for the Casualty Officer £120 per annum, with board residence and laundry

The successful candidates will be appointed for the period ending March 31st 1934 and will be eligible for reelection for a further period of six months

Candidates must be duly qualified and registered

Applications stating age sex qualifications etc with copies of testimonials to reach the undersigned not later than first post on Wednesday the 22nd instant

H ST JOHN WOOD,
Nov 3rd 1933 Secretary Supt

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common S W 4 (140 Beds)

A General Hospital for Women and Children including Medical Surgical Ear Nose and Throat Ophthalmic Skin Urological Orthopaedic, and Venereal Diseases Departments

Applications are invited from fully qualified Medical Women for the undermentioned appointments

HOUSE PHYSICIAN HOUSE SURGEON each for a period of six months from January 1st, 1934

Salary at the rate of £100 per annum with board residence and laundry Candidates are requested to call on Members of the Hon Medical Staff before Saturday December 2nd by which date applications and copies of testimonials must reach the Secretary at the Hospital

THE GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION GLOUCESTER (216 Beds)

TWO HOUSE SURGEONS (male) fully qualified Salary £150 per annum with board residence and laundry

The appointments are for six months which may be extended for similar periods by reelection from time to time

Applications stating age qualifications and nationality with copies of not less than three recent testimonials should be sent to the undersigned not later than November 22nd

One elected candidate will be required to enter upon his duties on January 1st next and the other on January 17th

F J SIMONS Secretary

November 2nd 1933

EDINBURGH HOSPITAL FOR WOMEN AND CHILDREN Whitehouse Loan, EDINBURGH (56 Beds)

Applications are invited from fully qualified medical women for the post of JUNIOR HOUSE SURGEON rising to Senior House Surgeon after three months

Appointment is for six months from January 1st 1934 Honorarium at the rate of £25 per annum for first three months £30 per annum for second three months, with board residence and laundry

Applications with copies of testimonials to be sent to the Secretary 1, Brunt field Crescent Edinburgh on or before December 2nd

KING EDWARD VII HOSPITAL WINDSOR (181 Beds)

TWO HOUSE SURGEONS required in January 1934 for six months Applicants must be fully qualified men or women and registered (One preferably to have had Ear Nose, and Throat experience)

Salary at the rate of £100 per annum together with board residence and laundry

Applications stating age, qualifications and experience, accompanied by testimonials should be sent to the undersigned not later than November 30th

A E CHUPCHER Secretary

ANCOATS HOSPITAL, MANCHESTER

RESIDENT SURGICAL OFFICER

Applications are invited for the post of Resident Surgical Officer which becomes vacant on January 1st 1934

Appointment for twelve months Salary £200 per annum with board apartments etc Candidates holding an FRCS degree will be preferred

Applications stating age qualification previous experience, etc together with copies of three recent testimonials to be forwarded to the undersigned on or before December 1st next

By Order of the Board
HERBERT J DAFFORNE
Gen Supt & Secretary

ANCOATS HOSPITAL MANCHESTER

SURGICAL REGISTRAR or REGISTRARS required to assist the Honorary Staff in the Outpatient Surgical Clinics A small honorarium is paid

Applications are invited from qualified Medical Practitioners and should be forwarded to the undersigned on or before December 1st next stating age qualifications past experience together with copies of three recent testimonials

By Order of the Board
HERBERT J DAFFORNE
Gen Supt & Secretary

THE BOLTON ROYAL INFIRMARY (301 Beds including Two Auxiliary Hospitals)

Applications are invited from ladies and gentlemen having a registered Medical and Surgical qualification for the posts of THREE HOUSE SURGEONS the chief duty of one to be Anaesthetist

Salary £120 per annum each with board residence and attendance

Applications stating age nationality and previous experience together with copies of testimonials should be forwarded to the undersigned not later than Monday November 20th

ALBERT E BRISCOE Secretary

ALL SAINTS HOSPITAL FOR GENITO URINARY DISEASES
Austral Street, West Square, St George's Road S E 11

RESIDENT HOUSE SURGEON (male) required on January 1st 1934 for six months being three months as Junior House Surgeon with salary at £100 per annum followed by three months as Senior House Surgeon with salary at £150 per annum

Applications giving particulars of age experience qualifications and enclosing copies of three recent testimonials should reach me not later than November 30th

DEWSBURY AND DISTRICT GENERAL INFIRMARY DEWSBURY (200 Beds)

Applications are invited for the post of SENIOR HOUSE SURGEON and SECOND HOUSE SURGEON Salaries £200 and £150 respectively with board residence and laundry

Applications stating age hospital experience and which post applied for together with copies of recent testimonials to be sent to the undersigned before November 27th The appointments commence as from Jan 1st 1934

FRED SMITH Secretary Supt

HASLEMERE AND DISTRICT HOSPITAL HASLEMERE SURREY (30 Beds)

RESIDENT MEDICAL OFFICER (British) required immediately Appointment six months renewable Salary at rate of £150 p a with board residence and laundry

Applicants must be fully qualified registered and have had experience of Anaesthetics

Application stating age and Medical School to be sent before November 30th to—

C O TREW Secretary

BEDFORD COUNTY HOSPITAL (124 Beds)

SECOND HOUSE SURGEON (male) salary £140 fully qualified unmarried required for a term of not less than six months from December 2nd Board lodging and laundry

Applications stating age nationality, qualifications together with three recent testimonial to be sent to the Hon Secretary, Hon Medical Staff Committee as soon as possible

BURTON ON TRENT GENERAL INFIRMARY

Applications are invited for the post of CASUALTY OFFICER AND HOUSE PHYSICIAN (Male) Salary at the rate of £150 per annum with board residence and laundry

Applications stating age and qualifications, together with copies of testimonials to be sent to—

E W THORNLEY, Secretary

RURAL DISTRICT OF GUILDFORD. RURAL DISTRICT OF HAMBLEDON. URBAN DISTRICT OF HASLEMERE.

APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

Applications are invited for the combined appointment of Medical Officer of Health for the above Districts.

Candidates must be fully qualified to undertake the duties, holding a Diploma of Public Health or State Medicine, and must be under 45 years of age.

The combined salary inclusive of all emoluments will be £800 per annum, rising by biennial increments of £50 to a maximum of £1,000 per annum, plus a travelling allowance of £200 per annum.

The post is designated for the purposes of the Local Government and Other Officers Superannuation Act, 1922, and the appointment will be made subject to a medical examination, and to the approval of the Minister of Health in accordance with the provisions of the Public Health (Officers) Act, 1921, and the Sanitary Officers Order, 1926.

The person appointed will be required to devote his whole time to the duties of the office.

Office accommodation will be provided at the offices of the Guildford Rural District Council, Millmead House, Guildford, together with clerical assistance, if necessary.

Applications, together with copies of three recent testimonials, must reach the Clerk of the Guildford Rural District Council, Millmead House, Guildford, not later than the first post on Monday, November 27th.

The successful candidate will be required to commence duties on April 1st, 1934.

Canvassing Members of the above authorities, directly or indirectly, will disqualify.

Dated this 3rd day of November, 1933.

E. W. SELLINGS,
Clerk of the Guildford Rural District Council.
HUGH A. MERRIMAN,
Clerk of the Hambledon Rural District Council.
A. G. WHITCHER,
Clerk of the Haslemere Urban District Council.

WAREHAM AND PURBECK RURAL DISTRICT COUNCIL.

APPOINTMENT OF MEDICAL OFFICER OF HEALTH.
(Extended time for applications.)

Applications are invited for the appointment of Medical Officer of Health for the above District.

The appointment is a part-time one, and in the first instance, will be for the period ending March 31st, 1934, and subject to the approval of the Minister of Health.

Applicants should possess the qualifications required by Article 5 of the Sanitary Officers Order, 1926.

The salary will be at the rate of £140 per annum, and an allowance at the rate of £10 per annum will be paid for travelling expenses. The gentleman appointed will be appointed also as Medical Officer of the Council's Isolation Hospital at a salary at the rate of £15 per annum.

The salaries are subject to a temporary abatement of 2 per cent. in view of the National situation.

Applications, stating age, qualifications, and experience, accompanied by recent testimonials, should reach me not later than November 28th.

Council Offices, West Street, Wareham. Nov. 13th, 1933.
LIONEL H. WARD, Clerk to the Council.

BRACEBRIDGE MENTAL HOSPITAL, Near LINCOLN.

FOURTH ASSISTANT MEDICAL OFFICER.

The Committee of Visitors invite applications for the above whole-time appointment from ladies under 35 years of age, who are duly qualified and registered Medical Practitioners.

The commencing salary will be £350 per annum, plus the usual residential emoluments of board, lodging, laundry, and attendance, valued for superannuation purposes at £125 per annum. Subject to twelve months' service satisfactory to the Committee, an increase of £25 will be granted, and thereafter increases of £25 per annum, up to a maximum salary of £450 per annum. An additional £50 per annum will be paid on obtaining the D.P.M.

The successful candidate will be required to pass satisfactorily a medical examination, and to join the scheme under the Asylum Officers Superannuation Act, 1909. The appointment is subject to one month's notice on either side.

Preference will be given to a candidate who is interested in, and has had previous experience of, Pathology.

Applications, stating full particulars of qualifications, experience, and appointments held, accompanied by copies of three recent testimonials, must be addressed to the Medical Superintendent, Bracebridge Mental Hospital, near Lincoln, so as to be received not later than November 22nd.

COUNTY BOROUGH OF DARLINGTON.

DEPUTY MEDICAL OFFICER OF HEALTH.

Applications are invited from qualified Medical Practitioners, under 40 years of age, for the appointment of Deputy Medical Officer of Health, Venereal Diseases Medical Officer, and Assistant School Medical Officer.

Applicants must hold a special qualification in State Medicine or a Diploma of Public Health, and have had at least three years' post-graduate experience, especially in Venereal Diseases, Tuberculosis, Mental Deficiency, and School Medical work. The person appointed will be required to give full-time service to the Authority, to act under the direction of the Medical Officer of Health, and to carry out such duties as may from time to time be assigned to him. He will also be required to pass a medical examination, to contribute to the Superannuation Fund established under the Local Government and Other Officers Superannuation Act, 1922, and to reside within the County Borough. The appointment will be terminable by three months' notice on either side.

The salary is £650 per annum, rising, subject to satisfactory service, to £750 per annum, by annual increments of £25, any emoluments or other moneys received to be paid over to the Local Authority.

Application forms and particulars as to duties may be obtained from the Medical Officer of Health, Feethams, Darlington, to whom applications endorsed "Deputy Medical Officer of Health," together with copies of three recent testimonials, must be delivered not later than first post on Wednesday, November 22nd.

H. HOPKINS, Town Clerk.

Town Clerk's Office, Darlington.
November, 1933.

LONDON COUNTY COUNCIL.

RESIDENT MEDICAL SUPERINTENDENT required at LAMBETH HOSPITAL (1,390 Beds), Brook Street, Kennington. Person appointed will be under direction of Medical Officer of Health, and must assist at other Council establishments if required. Salary £1,400—£50—£1,650. Unfurnished quarters, free of rates, valued at £100 a year. Candidates other than members of Council's medical staff must be not over 55 years of age, and must be fully qualified medical practitioners for at least 5 years and have been house physician or house surgeon in a public general hospital and have experience of hospital administration. Remuneration and conditions subject to review.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Clerk of the Council, County Hall, S.E.1, returnable by Tuesday, November 21st. Canvassing disqualifies.

LONDON COUNTY COUNCIL.

Applications invited from medical practitioners of at least one year's standing for appointment as TEMPORARY DISTRICT MEDICAL OFFICER for medical relief district B in Area VIII (part of Southwark). Salary £200 a year. Candidate appointed will be required to reside in district. Salary is provisional and remuneration and conditions subject to review.

Application forms and further particulars obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 3a), County Hall, S.E.1, returnable by December 1st. Canvassing disqualifies.

LONDON COUNTY COUNCIL.

Applications invited for two positions of DIVISIONAL MEDICAL OFFICER. Duties primarily in connection with Council's Housing work. Candidates must possess a Public Health qualification. Salary £800 a year, by £50 to £1,000 a year. Scale and conditions subject to review. Forms of application, stamped addressed envelope necessary, obtainable from Clerk of the Council, County Hall, Westminster Bridge, S.E.1, and must be returned by December 4th. Canvassing disqualifies.

ROYAL BERKSHIRE HOSPITAL, READING.

RESIDENT ANAESTHETIST (Male) required as from December 2nd.

The candidates must be fully qualified and registered. Remuneration at the rate of £150 per annum, with board, residence, and laundry. Applications, with copies of testimonials, to be sent to the undersigned immediately.

F. A. LYON, Secretary.

LONGTON HOSPITAL, STOKE-ON-TRENT.

HOUSE SURGEON (male) required after Christmas. Commencing salary £160, with board, residence, and laundry, plus certain fees.

Applications, with copies of three recent testimonials, and stating nationality to be sent to the Chairman of Directors, Longton Hospital, Stoke-on-Trent, at once.

SURREY COUNTY COUNCIL.

ASSISTANT MEDICAL OFFICERS.
(Either sex.)

Applications are invited for the appointment of Two Assistant Medical Officers. Candidates may be either male or female, but preference will be given to a woman for one of the appointments. Applicants must possess a qualification in Public Health, and have had experience in the medical inspection of school children, and maternity and child welfare. The officers appointed will be required to undertake such other Public Health duties as may be allocated to them. They will be on the staff of the County Medical Officer of Health, must reside in the County of Surrey, and devote their whole time to the work. Salary £600 per annum, rising by annual increments of £25 to £700. Travelling expenses in accordance with the Council's scale will be allowed.

The appointments will be subject to the approval of the Ministry of Health and of the Board of Education, to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and to the Standing Orders of the Council, which provide, *inter alia*, that appointments may be determined at any time by three months' notice.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should be made on the prescribed form, and sent to the County Medical Officer of Health, County Hall, Kingston-upon-Thames, from whom copies of the application form may be obtained, and to whom any enquiries relating to the appointment should be addressed.

Last day of receipt of applications, Dec. 2nd.

Canvassing, directly or indirectly, will disqualify.

County Hall, Kingston-on-Thames. November 14th, 1933.
DUDLEY AUKLAND, Clerk of the Council.

BOROUGH AND PORT SANITARY DISTRICT OF LOWESTOFT.
(AMENDED ADVERTISEMENT.)

APPOINTMENT OF MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

The Town Council of Lowestoft hereby give notice that they intend at any early date to appoint a Medical Officer of Health and School Medical Officer for the above-named Borough and Port Sanitary District, and they invite applications for the appointment.

The salary will be at the rate of £800 per annum, which will be apportioned in respect of the various offices.

Further particulars of the duties, terms, and conditions of the appointment, together with a form of application, may be obtained by sending a stamped and addressed envelope to the undersigned. Application must be made on the prescribed form, and enclosed in a foolscap envelope, endorsed "Medical Officer," and must reach the undersigned not later than Monday, December 4th.

Canvassing, directly or indirectly, will be deemed a disqualification.

By Order,
Town Hall, Lowestoft. November 13th, 1933.
C. ASHTON STRAY, Town Clerk.

CITY OF SALFORD.

INFECTIOUS DISEASES HOSPITAL.

Applications are invited for the post of JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER (male). Salary £200 per annum, plus board, residence, and laundry. The appointment will be for one year. Form of application may be obtained from the Medical Officer of Health, 145, Regent Road, Salford, 5, Lancs, to whom it must be returned, endorsed "Junior Assistant Resident Medical Officer," not later than November 25th.

H. H. TOMSON, Town Clerk.

BOROUGH OF HYDE.

Applications from duly qualified persons are invited by the Borough Education Committee for the appointment of ANAESTHETIST at the School Dental Clinic. The fee payable will be £2 2s. per session not exceeding 1½ hours' duration.

Applications, stating age, qualifications, and experience, should be sent to the undersigned not later than December 2nd next.

F. W. CAMPBELL BROWN, School Medical Officer.

Public Health Dept., Town Hall, Hyde.
November 13th, 1933.

OLDHAM ROYAL INFIRMARY.

HOUSE SURGEON required for a period of six months. Salary at the rate of £175 per annum, with board, residence, and laundry.

Applications, stating age, experience, and qualifications, together with copies of three recent testimonials, must be forwarded to the undersigned not later than November 25th.

H. J. CLOET, *Gen. Supt.*

Monday, November 27th. GEORGE WATTS ... signed on or before ... Applications, ... residence, and laun... sent to the ...

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B M A House, Tavistock Square, W C 1 (in the case of Scottish appointments with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh)

(a) British Islands.

Town or District	Town or District	Town or District
CONTRACT PRACTICE	**CONTRACT PRACTICE** *(contd.)*	**PUBLIC HEALTH**
EBBW VALE, MON *(Workmen's Medical Society)*	MARDY, GLAMORGAN *(Workmen's Medical Scheme)*	KENT COUNTY COUNCIL FARNBOROUGH INSTITUTION HOSPITAL *(Resident Assistant Medical Officer)*
GILFACH GOCH, GLAMORGAN *(Workmen's Medical Scheme)*	NEATH AND DISTRICT *(Medical Aid Association)*	
LLWYNYPIA CLYDACH VALE, TONYPANDY, GLAMORGAN *(Workmen's Medical Scheme)*	OAKDALE, MON *(Medical Officer for Medical Aid Association)*	COUNTY BOROUGH OF SOUTH SHIELDS *(Assistant School Medical Officer)*
LOWESTOFT MEDICAL INSTITUTE *(Medical Officer)*	OGMORE VALLEY, GLAMORGAN *(Wyndham Colliery Medical Aid Society)* *(Workmen's Medical Scheme)*	HAPTON INSTITUTION AND CLEADON COTTAGE HOMES *(Medical Officer)*

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B M A House, Tavistock Square, W C 1

Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch
NEW SOUTH WALES *(All Friendly Society Appointments)*	Dr. J. G. HUNTER (Medical Secretary, New South Wales Branch), 135, Macquarie St., Sydney, N.S.W.	**QUEENSLAND** *(Brisbane Associated Friendly Societies Institute)* *(Toowoomba Associated Friendly Societies Medical Institute, Toowoomba)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane	**WELLINGTON, NEW ZEALAND** *(Contract Practice Appointments)*	Dr. G. F. V. ANSON (Hon. Sec. New Zealand Branch), British Medical Association, P.O. Box 196, Wellington, New Zealand
VICTORIA. *(All Institute or Medical Dispensaries)*	Dr. J. I. MAJOR (Hon. Sec. Victorian Branch, British Medical Association), Medical Society's Hall, East Melbourne, Victoria			**WESTERN AUSTRALIA.** *(Contract and Lodge Practices)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Tce., Perth, Western Australia

November 15th, 1933 By Order of the Council G. C. ANDERSON, Medical Secretary

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VICTORIA HOSPITAL, BLACKPOOL.

HOUSE SURGEON AND HOUSE PHYSICIAN (Male)

Applications are invited for the above posts from duly qualified Medical Practitioners with previous Hospital experience.

The appointments are for six months from January 1st, 1934. The House Surgeon will be Senior Resident Officer with a salary at the rate of £200 per annum. The House Physician whose duties will include the giving of Anæsthetics will have a salary at the rate of £200 per annum and he will be eligible for appointment as House Surgeon at the expiry of his term of office. Board, lodging and laundry will be provided in both cases.

Applications stating age, nationality, qualification and experience, together with not more than three recent testimonials, should be sent to the Hon. Secretary, endorsed "House Surgeon" or "House Physician," on or before November 22nd.

JOHN HACKING, Hon. Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

HOUSE PHYSICIAN required January 1st, 1934.

CASUALTY OFFICER required January 6th, 1934. Some Dermatological work additional.

Six months' appointments. Salary at the rate of £100 per year with board, lodging and laundry.

Applications must be made on forms to be obtained from the undersigned and must be sent in with copies of not more than four testimonials on or before November 30th.

CHARLES H. BENSELL, Secretary.

Nov. 1st, 1933.

ELIZABETH GARRETT ANDERSON HOSPITAL, Euston Road.

Wanted fully qualified Medical Women for the following post: HOUSE PHYSICIAN, OBSTETRIC ASSISTANT. THREE HOUSE SURGEONS. Appointments for six months from January 1st next. Salary at the rate of £50 per annum with board, residence and laundry. Application with copies of three testimonials to be sent to the undersigned by Wednesday, November 29th.

JEAN B. MURRAY, Secretary.

ELSIE INGLIS MEMORIAL MATERNITY HOSPITAL, Spring Gardens, EDINBURGH. (60 Beds.)

Applications are invited from fully qualified medical women for the post of DISTRICT MEDICAL OFFICER, rising to Senior House Surgeon after three months.

Appointment is for six months from January 1st, 1934. Honorarium at the rate of £80 per annum with board, residence and laundry.

Application with copies of testimonials to be sent to the Secretary, 1 Brunt Field Crescent, Edinburgh, on or before December 2nd.

GREAT YARMOUTH GENERAL HOSPITAL. (72 Beds.)

Applications are invited for the post of HOUSE SURGEON (one of two appointments). Applicants must be male and unmarried. Salary at the rate of £140 per annum, with board, residence and laundry.

Applications stating age and qualifications, together with copies of three recent testimonials, to be forwarded to the undersigned.

FRANK JENNINGS, Secretary.

THE BELGRAVE HOSPITAL FOR CHILDREN, Clapham Road, S.W.9.

The Committee of Management invite applications for the post of ASSISTANT PHYSICIAN. Candidates must be Graduates in Medicine of an English University and Fellows or Members of the Royal College of Physicians of London. There is an honorarium of 50 guineas per annum attached to the post. Applications with copies of testimonials must be delivered to the undersigned by Saturday, December 9th, from whom further information may be obtained.

By Order,
THOMAS CLAPHAM, Secretary.

ROYAL DEVON AND EXETER HOSPITAL, EXETER.

Applications are invited for the post of HONORARY MEDICAL OFFICER in charge of the Radiological and Electrical Department at this Hospital. Particulars as to duties, etc., may be obtained from the undersigned.

Application together with certificate of registration and original testimonials with thirty copies should be delivered to the undersigned on or before Tuesday, November 28th.

S. S. COLE, Secretary.

N.B.—No canvassing permitted.

CHESTER ROYAL INFIRMARY. (211 Beds.)

HOUSE PHYSICIAN (male) required for December 1st. Salary £150 per annum with board, lodging and washing. Application list closes November 22nd. Application form may be obtained from W. H. GRACE, M.D., M.R.C.P., Hon. Superintendent of Resident Medical Staff.

(Appointments continued on p. 52.)

British Medical Journal
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1
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NOT CLASSIFIED.

BEDFORDSHIRE. — CHARMING RURAL district. Doctor offers comfortable HOME to senile or delicate persons, either sex. Every care and attention guaranteed.—Address, No. 7773, B.M.A. House, Tavistock Square, W.C.1.

GOOD OPENING FOR DOCTOR.—APPLICATIONS are invited for proposed ERECTION OF HOUSE on new estate of approx. 1,000 houses. Outskirts of Bradford, Yorks.—Apply, R. J. PATCHETT, Ryfield Works, Clayton Heights, Bradford.

MR. C. F. BACON, R.N., RET.—THE WIDOW of the above would be very grateful if the London nerve specialist, who examined her husband on, or about, Oct. 14th, 1931, would COMMUNICATE with her at Boughton Lane, Loose, Maidstone, Kent.

RADIOLOGIST OFFERS PART-TIME USE OF full modern EQUIPMENT, rooms, and staff. Moderate rental. — Address, No. 7854, B.M.A. House, Tavistock Square, W.C.1.

THE WELLCOME MUSEUM OF MEDICAL SCIENCE at the WELLCOME RESEARCH INSTITUTION, 183-193, Euston Road, London, will be OPEN to STUDENTS on and after Monday, November 20th, from 10 a.m. to 5.30 p.m. (Saturdays: 10 a.m. to 12.30 p.m.) This Museum is available for all who are engaged in the study and practice of medicine; also, by arrangement with the Director, for teachers who may wish to demonstrate to their classes in any of the sections.

TO DERMATOLOGISTS. — RADIOGRAPHER, qualified in electro-therapeutics, with capital DESIRES WORKING ARRANGEMENT in a good-class district. Can provide all necessary apparatus.—Write, Box 182, Frost-Smith Advg., 64, Finsbury Pavement, E.C.2.

ASSISTANCIES.

WANTED.—A MARRIED ASSISTANT, WITH view to early Partnership, in a West of England well-established seaside Practice, where there are facilities for education. Applicant must be abstemious and of British nationality, and have available capital in the event of partnership. Excellent opportunity for keen worker. — Address, No. 7869, B.M.A. House, Tavistock Square, W.C.1.

WANTED BY G.P., WITH SEVEN YEARS' experience in general practice, ASSISTANTSHIP, indoor or outdoor. Town or country. Special exp. in [illegible] M.P., H.S., anaesthetist, etc. Able to drive car. Excel[illegible]ce now.—No. 7867, B.M.A. House, Tavistock Sq., W.C.1.

WANTED, AN ASSISTANT, WITH A definite view to Partnership in a Midland industrial Practice, near a large town. Applicant must be an Aberdeen Graduate and preferably *unmarried*. — *Address, No.* 7964, B.M.A. House, Tavistock Square, W.C.1.

WANTED BY M.B., CH.B., ASSISTANTSHIP, preferably with definite view partnership, in town practice. Glasgow Graduate, British nationality, Protestant, ex M.P., H.S., R.M.O., Maternity Hospital. Experienced in G.P.— No. 7957, B.M.A. House, Tavistock Sq., W.C.1.

WANTED.—ASSISTANT MALE INDOOR FOR General Practice near Birmingham. Newly qualified man would be suitable. Opportunities for further studies and good experience. — Address, No. 7870, B.M.A. House, Tavistock Square.

WANTED.—ASSISTANT, OUTDOOR, MALE, unmarried, English or Scotch, for mixed Practice in Midland City. Salary £400, with rooms and attendance. Petrol allowance if own car. — Address, No. 7871, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — INDOOR ASSISTANT, MALE, Protestant, Town Practice, E. Anglia. Must be keen, energetic, abstemious, able to drive car. Previous panel exper. not essential. Please state full particulars. — Address, No. 7953, B.M.A. House, Tavistock Square, W.C.1.

WANTED, DECEMBER 6TH, A SINGLE Female Junior ASSISTANT for Colliery Practice in South Wales. Good knowledge of midwifery and able to drive car. Salary £300, with furnished rooms and attendance.—Add., No. 7865, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — ASSISTANTSHIP BY WOMAN Doctor, 7 years' experience in private and panel practice, dispensing, anaesthetics. Able to drive car.—Address, No. 7883, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANT, OUTDOOR, FOR large panel and club Practice in the Midlands, *single, British. Car allowance.* Salary £350, all found. — Address, No. 7969, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY.—INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view, good salaries. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

ASSISTANT WANTED, NORTH-EAST London area, must be energetic, reliable, and recently qualified. Salary £350 to commence, with furnished rooms and attendance, unmarried, abstainer preferred. Usual bond. —No. 7877, B.M.A. House, Tavistock Sq., W.C.1.

ASSISTANTSHIP WANTED BY L.R.C.P.ED., L.R.C.S.Ed., L.R.F.P. & S.Glas., ex H.S. & H.P. experience in general practice (private and panel). Age 33. Excellent testimonials. Free December 1st. — Address, No. 7960, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP WANTED BY INDIAN, experienced in maternity work (12 months in Rotunda) and G.P. Young, energetic, abstainer. Excellent references. Free next week. —Address, No. 7855, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP, WITH DEFINITE VIEW, required by Glasgow M.B., Ch.B., age 30, married, keen, energetic, well experienced G.P. Own car. Free January 1st.—Address, No. 7881, B.M.A. House, Tavistock Square, W.C.1.

INDOOR ASSISTANT REQUIRED IMMEDIately, British, single, for country, South of England. £300, plus £50 car expenses. Write age, experience, religion, degrees, Oxford, Cambridge, or Edinburgh pref. Increase if suit.— No. 7864, B.M.A. House, Tavistock Sq., W.C.1.

M.B., CH.B. DESIRES ASSISTANTSHIP; ex H.P. and H.S. 1½ years' exper. G.P. Own car. Free December 3rd. — Address, No. 7858, B.M.A. House, Tavistock Square, W.C.1.

PRACTITIONER (NORTH LONDON), FREE mornings and afternoons, own car, would ASSIST other Doctor. Moderate remuneration. —Finchley 2103, or Address, No. 7962, B.M.A. House, Tavistock Square, W.C.1.

REQUIRED IMMEDIATELY. — ASSISTANT, single, recently qualified English or Scotsman, for permanent post in South Coast Town. Salary £300 indoor. Usual bond. State full partics., including age, height, religion, etc.— No. 7882, B.M.A. House, Tavistock Sq., W.C.1.

LOCUMS.

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BOURNEMOUTH TO PENZANCE.—EXPERIenced LOCUM undertakes Practices in coast towns. Must be chauffeur driven. Usual terms. Highest recent refs. Wide experience of practices.—Address, No. 7868, B.M.A. House, Tavistock Square, W.C.1.

EXPERIENCED PRACTITIONER AVAILABLE. Surgeries, or daily duties, short LOCUMS or PERMANENT PART-TIME. Life abstainer, active, own car. References if required.— "McK.," Elizabeth's, Warninglid, Haywards Heath.

MEDICAL POSTS, DISPENSERS, etc.

A LADY DISPENSER - BOOKKEEPER supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations. — Write, wire, or 'phone (Bayswater 0969), Secretary, 7, Westbourne Park Road, W.2.

DISPENSER - BOOKKEEPER, LADY, HALL, experienced panel, general practice, desires POST with Doctor or firm of Doctors. Good testimonials. — R. A. THORNTON, 6, Lauderdale Place, St. John's Wood, N.W.8. Telephone: Maida Vale 3816.

DISPENSER - BOOKKEEPER, QUALIFIED (Hall), DESIRES POST with Doctor, 11 years' experience general practice; three years' present post. Free December 11th. Personal interview. Excellent references.—"E.M.E.," Kevin, Hardwick Rd., Woburn Sands, Bucks.

DISPENSER - BOOKKEEPER, QUALIFIED (Hall) *DESIRES POST with Doctor.* Excellent experience, private practice, firm, hospital, book-keeping, filing, first aid. Southern counties preferred, but not essential.—Address, No. 7884, B.M.A. House, Tavistock Sq., W.C.1.

DOCTOR PERSONALLY RECOMMENDS educated gentlewoman as responsible and capable RECEPTIONIST-CHAUFFEUSE. Two years' clean license. Knowledge of nursing, with practical adaptability.—Address, No. 7850, B.M.A. House, Tavistock Square, W.C.1.

DOCTOR RECOMMENDS DISPENSER-BOOKKEEPER, ex service man, careful, reliable, abstainer, elderly. Convenient for London East, or place Eastwards from London. Free, whole or part-time. — Address, No. 7861, B.M.A. House, Tavistock Square, W.C.1.

DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeuse-Dispensers, are invited to write, wire, or 'phone Temple Bar 5858, The DISPENSERS' BUREAU, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

GENTLEWOMAN (DOCTOR'S WIDOW), capable, experienced, requires post as DISPENSER-SECRETARY, RECEPTIONIST, or otherwise. (Hall) certificate, Nursing, and other quals. Can drive. Would do Locum.— No. 7959, B.M.A. House, Tavistock Sq., W.C.1.

GORDON HALL SCHOOL OF PHARMACY, 9 Drayton House, W.C., trains WOMEN IN PHARMACY AND DISPENSING, and can supply experienced Dispenser-Secretaries. Apply Principals. 'Phone: Museum 3959. Sessions: October—January, and April.

LADY DISPENSER-BOOKKEEPER, QUALIfied (Hall), experience Hospital, private and panel work, REQUIRES temporary or permanent POST. Good testimonials.—Miss WELLS, 61, Abbey Rd. Mansions, St. John's Wood, N.W.8.

MEDICAL WOMAN *REQUIRES TEMPORARY* PART-TIME WORK in December and January. Good medical experience. Would like to assist general practitioner. South of England preferred.—Address, No. 7965, B.M.A. House, Tavistock Square, W.C.1.

RADIOGRAPHER, M.S.R., M.E. (GUY'S HOSpital) requires post as RADIOGRAPHER AND SECRETARY. 5 yrs.' Assistant Secretary at Hospital. 3 years' Radiographer. Business training, shorthand, typewriting, book-keeping.—No. 7853, B.M.A. House, Tavistock Sq., W.C.1.

RECEPTIONIST REQUIRES POSITION, Doctor or Dentist, Birmingham district. State registered Nurse, C.M.B., age 29.— Address, No. 7876, B.M.A. House, Tavistock Square, W.C.1.

S[illegible] LADY, DESIRES [illegible] years' business work. Well [illegible] experience. [illegible] interviewing.—Address, No. 7859, B.M.A. House, Tavistock Square, W.C.1.

SECRETARY-RECEPTIONIST POSITION TO Doctor, Dentist, REQUIRED by Lady. Recommended, reliable. Knowledge French, German. — Address, No. 7856, B.M.A. House, Tavistock Square, W.C.1.

TYPEWRITING, DUPLICATING, AND TRANSlations. Experts in Medical work. TESTIMONIALS, THESES, etc., copied in style that commands attention. Accuracy guaranteed.— WOBURN BUREAU, 3, Upper Woburn Pl., W.C.1. (Adjoining B.M.A. House.) Euston 1775.

THE GRIMSBY FISHING VESSEL OWNERS EXCHANGE COMPANY LIMITED invite applications for the post of MEDICAL OFFICER to their Company

The position will be a whole time one and the selected candidate must be prepared to undertake private practice Salary £600 per annum rising by annual increments of £50 to £800 Preference will be given to candidate with City Hospital experience and should include all of the conditions following shall injure Surgical qualifications and experience are essential Applicants must state when they can commence duties particulars of which will be supplied on application to the undersigned

Applications stating age which must not exceed 35 years qualification previous position and duties particulars of past service and experience and all other essential information accompanied by not less than three recent testimonials must be sent to the Fishing Company endorsed Medical Officer and addressed to the Chairman Medical Committee not later than Monday December 18th

Canvassing either directly or indirectly will be a disqualification

Auckland Ltd W J NOCTON
Fish Docks Secretary
Grimsby November 10th 1933

THE HOME SECRETARY ANNOUNCES A vacancy for a MEDICAL INSPECTOR OF FACTORIES (male) Salary at present rates £720 rising to £1 063 Candidate should be between 25 and 40 years of age Appointment subject to the usual Civil Service conditions as to retirement pension etc Medical Inspectors are required to reside in such places in Great Britain as the Home Secretary may from time to time direct Further information and forms of application may be obtained on request preferably by post card from the Industrial Department Home Office London SW1 The last date for receipt of completed applications is December 4th

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION 85 Ecclestone Square SW1 (Telephone Victoria 2722) supplies qualified Dispensers Bookkeeper Laboratory Assistants Secretarial Assistant Male Nurses Mental and Special Treatment Orderlies Dental Clerks Orderlies Porters Caretakers etc, without charge to prospective employers

PARTNERSHIPS

WANTED APPH 1934 BY CONJOINT London Hospital man PARTNERSHIP (with preliminary assistantship) or Practice in good-class district 10 miles of Charing Cross 5 years own Hospital appointments medical surgical skin and ante Ample cap available—No 7863 B M A House Tavistock Sq W C 1

WANTED—PARTNERSHIP (PRELIMINARY Assistantship) by experienced Medical Man South South West South East share to produce £700—£800 per annum substantial deposit balance out of receipts Individuality references also testimonials exchanged—Address No 7961 B M A House Tavistock Sq W C 1

WANTED—PARTNERSHIP OR PRACTICE with scope (preliminary assistantship) by M B Ch B aged 24 married 8 years experience capable well received Coast, country or country town preferred Capital available—No 7875 B M A House Tavistock Sq W C 1

MEDICAL WOMAN M D (LONDON) SEEKS PARTNERSHIP or PRACTICE Home Counties preferred 7 in year experience—Address No 7872 B M A House Tavistock Square W C 1

M R C S, L R C P AGED 45 CULTURED highest credentials 20 years experience general surgery in better class Practice (Colonies) requires PARTNERSHIP good-class Practice large town Southern Counties with scope for surgery Income about £1 000 p a Married 2 children Necessary capital available At present doing Postgraduate Course Full particulars — Address No 7860 B M A House Tavistock Square W C 1

PARTNERSHIP — SEVEN MILES FROM Charing Cross HALF SHARE offered in public residential practice established over three years Gross receipts £900 Parcel 800 Premium for share £900 Practice easily doubled with energetic partner Houses available rent or buy—Address No 7878, B M A House Tavistock Square W C 1

PARTNERSHIP REQUIRED (WITH PRELIMINARY Assistantship) married man age 34 nine years experience Hospital and G P Excellent testimonials Own car Well recommended Home Counties preferred but not essential —No 7991 B M A House Tavistock Sq W C 1

WEST COUNTRY — PARTNER WANTED SHARE worth approximately £450 to commence in country district — Address No 7880 B M A House Tavistock Square W C 1

PRACTICES

WANTED—PRACTICE OR PARTNERSHIP Town or country income approx £1 000 Good class Practice very essential English Medical Practitioner (married two children) London trained Premium by instalments—No 7885 B M A House Tavistock Sq W C 1

WANTED — GOOD CLASS PRACTICE OR PARTNERSHIP in Southern half of England by well qualified Graduate with ten years experience of own general practice Educational facilities most essential—Address No 7879 B M A House Tavistock Sq W C 1

WANTED IMMEDIATELY PRACTICE IN any part of London with panel of 2 000 to 4 000 Good premium will be paid Ample cash available Replies in confidence—Address No 7588 B M A House Tavistock Sq W C 1

WANTED — PRACTICE IN LONDON OR suburbs yielding from £1 500 up with a minimum panel of 1 500 Suitable house essential — Address No 7573 B M A House Tavistock Square W C 1

WANTED — PRACTICE IN LONDON OR Suburbs yielding £1 500 (half from panel) Would consider one year's assistantship with option to succession—Address No 7857 B M A House Tavistock Square W C 1

WANTED—PRACTICE OR PARTNERSHIP *town south coast or near* £800—£1 200 p a Suitable modern house essential Ample capital — Address No 7852 B M A House Tavistock Square, W C 1

WANTED — PRACTICE IN OR NEAR Wellington or mid Shropshire preferred About £1 500 half from panel Good house Capital available—Address No 7963 B M A House Tavistock Square W C 1

WANTED—PRACTICE IN WORKING CLASS district panel 1 500 to 2 000 London preferred Capital available about £3 000 —Address No 7957 B M A House, Tavistock Square W C 1

WANTED TO PURCHASE FOR CASH Small PRACTICE doing £800 to £1 500 in Baker Street or Kensington areas Reply in strict confidence—Address No 7873 B M A House Tavistock Square W C 1

DENTAL SURGEON EXPERIENCED IN Dental Radiology would like to hear of London district or suburbs suitable for Part time PRACTICE in Dental Radiology only—Address No 7955, B M A House Tavistock Square W C 1

EXETER, DEVON — WELL ESTABLISHED premier unopposed PRACTICE in X ray Radium and Electrical treatment for self producing (three years average) £3 092 first class equipment at valuation house to be let or sold death vacancy Assistant carrying on—Apply, MICHELMORES 18 Cathedral Yd Exeter

FOR SALE IN A COUNTY TOWN ON THE Coast of Southern Ireland a good-class PRACTICE doing about £1 000—Address No 7770 B M A House Tavistock Square W C 1

FOR SALE UNOPPOSED COUNTRY PRACTICE Average income £1 200 p a panel 700 House garden and paddock for sale or to let Particulars —Address No 7769 B M A House Tavistock Square W C 1

GENERAL PRACTICE 20 MINS NORTH Oxford Circus Average receipts £637 with branch Premium £950 Charming modern house 6 beds 3 reception rooms garage etc 1/4 acre productive garden Education facilities Rent 7 years £225—Address No 7851 B M A House Tavistock Sq W C 1

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LIVERPOOL — OLD ESTABLISHED PANEL and private PRACTICE Receipts £900 p a Panel 800 Plenty of scope Premium 1½ years Purchase Surgery to rent — THE WESTERN MEDICAL AGENCY 22 Clare Street Bristol 1

MANCHESTER—OLD ESTABLISHED PRACTICE for sale owner retiring Good house £77 Receipts over £700 Panel 600 excellent scope Price £800 cash — MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION 6 Brown Street

M D IS OPEN TO PURCHASE INSURANCE PRACTICE or PARTNERSHIP Replies in strict confidence — Address No 7874, B M A House Tavistock Square W C 1

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SOUTH COAST —GOOD CLASS PRACTICE in popular seaside resort Panel 942 Receipts average £620 p a One appointment Premium £1 000 Good house for sale or rent —THE WESTERN MEDICAL AGENCY, 22 Clare Street Bristol 1

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A GROUND FLOOR CONSULTING ROOM recently redecorated in well appointed house near Harley St whole or part time use A Bedroom also available at same address Rent very moderate—Address No 7781 B M A House Tavistock Square W C 1

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HARLEY STREET (ADJOINING) — HANDSOME SUITE of TWO ROOMS fully equipped for Surgical or Gynaecological work Use of waiting room attendance etc £250 p a part time — Address No 7917 B M A House, Tavistock Square W C 1

HARLEY STREET —TWO ROOMS FROM— Only £50 per annum secures part time use of handsome CONSULTING ROOM with waiting room and every convenience — Address No 7968 B M A House Tavistock Square W C 1

HARLEY STREET —CONSULTING ROOM TO Let Unusually well appointed house Ground floor Owners only other plate Secretary's room available—Address No 2304, B M A House Tavistock Square, W C 1

HARLEY ST —WOMAN (GYNAECOLOGIST) wishes CONSULTING ROOM furnished or unfurnished for one or occasionally terms from January 1st—Address No 7968 B M A House, Tavistock Square, W C 1

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HOVE.—TWO QUIET ROOMS, OVERLOOKING sea and gardens free, in top floor of Medical Woman's house. Suitable senile, chronic, or mental patient with attendant. Every care given and responsibility undertaken. References exchanged.—Address, No. 7956, B.M.A. House, Tavistock Square, W.C.1.

HOVE. — EXCELLENT CONSULTING AND WAITING ROOMS, with attendance, available for part-time use. — Address, No. 7955, B.M.A. House, Tavistock Square, W.C.1.

LLANDUDNO. — CONSULTING ROOM AND well-appointed WAITING ROOM TO LET in professional district. Suit visiting Specialist or Doctor. Secretary-Dispenser in attendance. Hot and cold water. Telephone, etc.—Apply, 12, South Parade, Llandudno.

LONDON (SUBURB). — SELF-CONTAINED WING in Doctor's charming old-world house. Large sitting-room, 2 bedrooms, kitchenette, bath, lavatory, electricity, gas, garage. Especially suitable for invalid with companion. Train, 'bus, accessible to tube. Moderate rent.—Add., No. 7852, B.M.A. House, Tavistock Sq., W.C.1.

RESERVED FOR A DOCTOR, CORNER FREEHOLD HOUSE, spacious rooms, hall, etc. Brick-built garage, opposite principal road from large completed estate. Must be passed for trains, trams, 'buses. Well-stocked gardens. Price £1,275.—OWNER, 64, Wood Lane, Isleworth, Middlesex.

SUITABLE FOR DOCTOR. — TWO LARGE ROOMS and SLIP ROOM, fitted water, gas, and electric light, ground floor, good position, main road. 30/- per week. Seen by appointment.—241, Upper Richmond Road, Putney, S.W.15.

WIMPOLE STREET.—PART-TIME CONSULTING ROOM (large). Use of waiting room, £100. Also Bachelor Service Flat, very well furnished sitting-room, bedroom, and bathroom (constant hot water), lift, 3½ gns. per week.—No. 222, B.M.A. House, Tavistock Sq., W.C.1.

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FOR SALE. — R.B.B. ULTRA-VIOLET LAMP for sale, prefect condition. £20 or offer. —Address, No. 7885, B.M.A. House, Tavistock Square, W.C.1.

APPOINTMENTS.—Contd.

THE CHILDREN'S HOSPITAL, BIRMINGHAM.

CASUALTY OFFICER.

The Committee of Management invites applications for the post of Casualty Officer, who shall be a registered Medical Practitioner, with previous hospital experience, and be a Fellow of one of the Royal Colleges of Surgeons.
The salary is £350 a year, rising by £25 a year to £400, with board, residence, and washing. It is required that the officer shall reside in the Hospital.
Details of the duties can be obtained on application to the undersigned, to whom applications, accompanied by proof of qualifications, should be sent by December 2nd.

HAROLD F. SHRIMPTON,
November 14th, 1933. House Governor.

WEST LONDON HOSPITAL, Hammersmith Road, W.6. (235 B.M.)

Required, ONE HOUSE PHYSICIAN and TWO HOUSE SURGEONS (Males). The duties of the House Physician include some work in the Neurological and Dermatological Departments. The duties of one House Surgeon include some work in the Genito-Urinary Department and of the other some work in the Gynæcological Department. These three appointments are tenable for six months from January 1st next, subject to one month's notice on either side. Salary at the rate of £100 per annum, with board, lodgings, and laundry allowance.
Candidates must be registered under the Medical Act. Applications (which must be made on printed forms, obtained from me) must reach me not later than first post Friday, December 8th. Selected candidates will be required to call upon such Members of the Medical Staff as directed, to be in attendance at the Medical Council Meeting on Friday, December 15th, at 4.30 p.m., and the House Committee Meeting at 5 p.m. the same day, when the appointments will be made.

H. A. MADGE, Secretary.

THE MENTAL HOSPITAL, WELLS, SOMERSET.

ASSISTANT MEDICAL OFFICER required (male), single, must be legally qualified and registered, previous experience not essential, a knowledge of Laboratory work a recommendation. Salary commencing £350 per annum, rising to £450, by annual increments of £25, is subject to temporary reductions in accordance with the recommendations for Mental Hospitals. An additional £50 per annum to the holder of the Diploma in Psychological Medicine or such addition would be available if an officer should subsequently take the Diploma. With board, apartments, laundry, and attendance. Subject to statutory deductions for superannuation purposes.
Applications to be sent not later than November 28th next, to the Medical Superintendent, stating age, qualifications, and previous experience (if any), marked in the top left hand corner "A.M.O."

NATIONAL TEMPERANCE HOSPITAL, Hampstead Road, N.W.1.

Applications are invited for the post of HOUSE PHYSICIAN (Male). The appointment will be for a period of six months at a salary of £100 per annum, and will date as from December 21st. Preference will be given to those who have held a resident post.
Candidates must submit applications, stating qualifications, age, etc., with copies of not more than three testimonials, by Friday, December 8th, addressed to the Secretary.

NATIONAL TEMPERANCE HOSPITAL, Hampstead Road, N.W.1.

Applications are invited for the post of HOUSE SURGEON (Male). The appointment will be for a period of six months at a salary of £100 per annum, and will date as from December 21st. Preference will be given to those who have held a resident post. Candidates must submit applications, stating qualifications, age, etc., with copies of not more than three testimonials, by Friday, December 8th, addressed to the Secretary.

NATIONAL TEMPERANCE HOSPITAL, Hampstead Road, N.W.1.

Applications are invited for the post of CASUALTY OFFICER (Male). The appointment will be for a period of six months at a salary of £120 per annum, and will date as from December 21st. Preference will be given to those who have held a resident post. Candidates must submit applications, stating qualifications, age, etc., with copies of not more than three testimonials, by Friday, December 8th, addressed to the Secretary.

MANCHESTER HOMŒOPATHIC DISPENSARY, Gt. Jackson St., MANCHESTER.

ASSISTANT MEDICAL OFFICER

Applications are invited for the above position which offers an opportunity for valuable experience with the certainty of a good Practice in due time. Salary £150 per annum.
Applications should be addressed to the Honorary Secretary, 35, Dale St., Manchester.

THE WOMEN'S HOSPITAL, Catharine Street, LIVERPOOL.

There is a vacancy for a HOUSE SURGEON at the above Hospital for a period of six months, commencing January 1st, 1934.
Salary at the rate of £100 per annum.
Applications to the Hon. Secretary of the Medical Board by December 9th.

QUEEN MARY'S HOSPITAL FOR THE EAST END, E.15
Telephone: Maryland 2616.

Applications are invited from fully qualified and registered Medical Men (only) for the following posts:

ONE RESIDENT MEDICAL OFFICER Salary £200 p.a.
TWO HOUSE SURGEONS Salary £120 p.a.
ONE HOUSE PHYSICIAN. Salary £120 p.a.
ONE OBSTETRIC HOUSE SURGEON Salary £120 p.a.
ONE HOUSE PHYSICIAN AND RESIDENT ANAESTHETIST Salary £120 p.a.
ONE CASUALTY OFFICER Salary £150 p.a.

The Hospital contains 217 beds, including 50 for Maternity patients, and there are several special departments.

Candidates, who should previously have held Hospital appointments, should send applications, accompanied by testimonials, to the undersigned, not later than Wednesday, November 29th.

The appointments will date from January 1st, 1934, and will be for six months, except in the case of the Resident Medical Officer, which appointment will be for 12 months.

RAPHAEL JACKSON (Major), Secretary.

QUEEN MARY'S HOSPITAL FOR THE EAST END, E.15

Applications are invited for the posts of DENTAL ANAESTHETISTS to the above Hospital.

Applications, accompanied by copies of testimonials, *from male candidates only*, should be forwarded to the undersigned on or before Wednesday, November 29th.

The Anaesthetists will be required to attend on Wednesday, Thursday, and Saturday mornings at 9 a.m., and the appointments each carry with them an honorarium of £25 p.a.

RAPHAEL JACKSON (Major), Secretary.

QUEEN MARY'S HOSPITAL FOR THE EAST END, E.15

Applications are invited for the post of HONORARY ASSISTANT RADIOLOGIST at the above Hospital.

Applicants must be registered Medical Practitioners *engaged solely* in the practice of Radiology. Applications, together with copies of not more than three recent testimonials, [illegible] to the undersigned on or

[illegible]

There will be a vacancy on *December 1st, for* a HOUSE SURGEON (male) at the above Hospital. The appointment is in the first instance, for a period of six months. Salary at the rate of £100 per annum, with board and residence.

Application, with copies of testimonials, should be forwarded, not later than Tuesday morning, November 21st, to the Secretary at the above address, from whom further particulars can be obtained.

THE PRINCESS BEATRICE HOSPITAL, Richmond Road, Earl's Court, S.W.5.
(General Hospital—80 Beds.)

RESIDENT MEDICAL OFFICER (Male) required to act as *House Physician and* Casualty Officer for six months as from December 15th. Salary at the rate of £110 per annum, with board, residence, and laundry. Previous resident experience essential. Applications to be *sent to the House* Governor, stating age and previous appointments, not later than Tuesday, November 28th, accompanied by copies of three recent testimonials.

CORNELIA AND EAST DORSET HOSPITAL, POOLE, DORSET. (107 Beds.)

HONORARY STAFF

ASSISTANT ANAESTHETIST.

The Committee of Management invite applications for the post of Assistant Anaesthetist (male) on the Honorary Staff of the Hospital.

Applications, stating age, qualifications, particulars of appointments held, and experience, together with copies of testimonials (which will not be returned), should reach the undersigned by November 25th.

E. S. FOLEY, Secretary.

COSSHAM MEMORIAL HOSPITAL, KINGSWOOD, BRISTOL.

Applications are invited for the post of RESIDENT MEDICAL OFFICER (Male) to commence duties on January 1st, 1934. Salary £150 p.a., with board, residence, and laundry.

To remain for six months in the first instance. Applicants should be British nationality, thoroughly qualified, and registered.

Applications not later than December 9th, to E. J. HAWKINS, Secretary.

ST. GEORGE'S HOSPITAL, S.W.1.

Applications are invited for the appointment of an ASSISTANT PHYSICIAN to the Skin Department. He must be a Graduate in Medicine and Surgery of a British University and a Fellow or Member of the Royal College of Physicians (London) and registered according to the Medical Act, 1858.

Applications should be sent to the undersigned not later than December 2nd next.

The Senior Assistant in the Department is a candidate for the post.

JAMES M. CHURCHFIELD, November 8th, 1933. Secretary.

ST. GEORGE'S HOSPITAL, S.W.1.

Applications are invited for the appointment of a PSYCHIATRIST to this Hospital. He must be a Graduate in Medicine and Surgery of a British University and a Fellow or Member of the Royal College of Physicians (London), and registered according to the Medical Act, 1858.

Applications should be sent to the undersigned, not later than December 2nd next.

The Senior Assistant in the Department is a candidate for the post.

JAMES M. CHURCHFIELD, November 8th, 1933. Secretary.

CHELSEA HOSPITAL FOR WOMEN, Arthur Street, S.W.3.

There will be a vacancy for a JUNIOR HOUSE SURGEON (male) on January 1st, 1934. Appointment for six months, salary £100 p.a. He will be expected to proceed to the Senior post (six months, salary £120 p.a.) at the end of his term of office.

Candidates must be duly registered and preferably unmarried. Applications, accompanied by copies of three testimonials, should be sent not later than Thursday, November 30th, to the Secretary, HERBERT H. JENNINGS.

KING GEORGE HOSPITAL, ILFORD
(8 miles from London) (150 Beds.)

Applications are invited for the appointment of RESIDENT MEDICAL OFFICER, with supervision over five House Officers. Candidates must hold the Fellowship of a Royal College of Surgeons, salary £250 per annum, appointment for one year from January 1st, 1934, with eligibility for re-appointment. Further particulars may be obtained from the undersigned, to whom applications, with copies of testimonials, should be sent not later than Tuesday, December 5th.

G. AUSTIN HEPWORTH, Secretary.

HOUNSLOW HOSPITAL, STAINES ROAD, HOUNSLOW, MIDDLESEX. (70 Beds.)

Wanted at once, JUNIOR HOUSE SURGEON, male, at £100 p.a., with board, residence, etc., for six months.

Also SENIOR HOUSE SURGEON on January 1st, 1934, at £150 p.a.

Applications, stating age, nationality, qualifications, and experience, and enclosing copies of three recent testimonials, should be sent forthwith (endorsed House Surgeon) to the Secretary, Hounslow Hospital.

MANCHESTER BABIES' HOSPITAL, Burnage Lane, Levenshulme, MANCHESTER. (80 Beds.)

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER. Appointment is for six months from January 1st, 1934. Salary at the rate of £50 per annum, with laundry.

Applications, together with copies of testimonials, to be sent to the undersigned, marked "J.R.M.O.," by December 4th.

LOUISE BAILEY, Secretary.

Telephone: WELBECK 2728
Telegrams: "ASSISTIAMO, LONDON."

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W. J. HICKS, *Secretary.*

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WANTED BY EX I.M.S., AET. 43, PRACTICE or PARTNERSHIP. £1,300/£1,500 p.a. Good-class with panel. Near London or South of England. Medium house to rent.—No. 1093.

WANTED BY M.D., B.S., AET. 30, PARTNERSHIP preferred or PRACTICE. Mid. class with panel. South of London. £1,000—£1,300. House to rent, schools, and sports. Capital to £3,000.—No. 2562.

WANTED BY M.D., D.P.H., AGED 45, A better class PRACTICE in Kent, Surrey, Sussex, or Hants., Tunbridge Wells district specially desired. Income £1,000—£1,500. Ample capital available.—No. 2485.

S. WALES TOWN.—£1,050 P.A., INCLUDING panel of 1,468 and some contract and club work. House, with 2 recep., 5 bed., bath, etc., 2 surgeries, etc. Small garden and 2 garages. Freehold and goodwill £1,750, but might rent.—No. 9184.

MIDLANDS.—SMALL TOWN WITHIN EASY reach of London. £1,800 or more. Panel over 1,600. Very old Practice. Good corner house, 3 recep., 5 bed., sep. Surgery, etc. To rent. Premium £2,850.—No. 9254.

WITHIN 20 MILES OF LONDON, NORTH Share in mixed and panel Practice, guaranteed at £600, with option to increase. Fees 5/- to 21/-. Small house to rent in rapidly growing district.—No. 9233.

CONSULTANT OPHTHALMIC PRACTICE.—Death Vacancy in West End, averaging nearly £800 p.a. Fees 1 and 2 gns. Premium one year's purchase.—No. 9232.

LONDON, NR. EUSTON.—DEATH VACANCY —About £900, has been £2,000. Scope for suitable man. Non-panel. Fees 3/6 to 42/- Midwifery refused of late. Lock-up Surgery on rental, or *whole house if desired*. Books available. Whole open to any reasonable suggestion.—No. 9231.

POPULAR LINCS RESORT.—HALF SHARE in Practice of £2,550. Panel worth £400. Fees 5/- to 10/6. Midwifery 3½ to 7 guineas. Good house, 2 recep., 4 bedrooms, etc., and sep. professional accom. On rental. Half share 2 years' purchase 2/3 down.—No. 9230.

NORTH WALES.—OVER £600 P.A. ON Coast. Old-estab. mixed PRACTICE. Panel about 200. Appointment worth now £53. Visits 5/- to 10/6 or more. Large house, with 3 recep., 6 bedrooms, etc. Rent only £65. Premium required for goodwill only £800 cash.—No. 9227.

EASTERN COUNTY.—AVERAGE £1,190 P.A. with small panel. Very old estab'lished Town PRACTICE. Fees 7/6 and 5/-. Mid. £4 4s. House, with 3 recep., 4 bedrooms and dressing. Sep. Surgery, etc., and garden. For sale. Premium £2,200 payable as agreed.—No. 9226.

LONDON, N.—WELL ESTABLISHED IN creasing PRACTICE. Receipts last year £1,250. Panel 670. No midwifery, but ample scope. Car not necessary. Visits 3/6 to 7/6. Surgery 2/6—3/6. Premises in main road comprise cons. and wait. rooms, and 7 living rooms. Rent on lease at £150 p.a., or sell leasehold. Premium for goodwill £2,000.—No. 9224.

SURREY TOWN.—ABOUT £600 P.A. AP pointment £100. Visiting fees 5/- to 21/- Scope at lower fees. Midwifery £4 4s. up. Some panel. Corner house, with 3 recep., 4 bedrooms, 1 4 acre of garden and good garage to rent. Premium £1,200.—No. 9223.

SPA PRACTICE.—ENGLAND.—AVERAGE NOW £380. Normally about £1,000 decreased through ill health etc. Fees £1 1s. and £2 2s. Corner house in good position, 2 recep., cons., 5 bedrooms, etc. Small garden. Rent £100. Premium £500.—No. 9222.

EAST COAST.—CASH RECEIPTS LAST 17 months £509. Panel 120, increasing, fees 3/6 up. House, 2 recep., 3 bed., bathroom, surg., and waiting. Rent £70 p.a. Premium £360.—No. 9205.

ASSISTANTS REQUIRED.—SUFFOLK. GOOD mixed-class Practice. £250-£300, all found. HONG KONG. $800 per month. Young man, 26/28, able to undertake Eye work. WARWICKSHIRE. £450 and house. LONDON, N. £300, all found.

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1 DEATH VACANCY.—OPHTHALMIC PRACTICE AVERAGING about £4,000 p.a. in favourite South Coast Resort. Fees £3 3s. and upwards. Efficient Locum Tenens in charge. Further particulars on application.

2 N. OF ENGLAND. — OLD-ESTABLISHED NON-DISPENSING PRACTICE, averaging £920 p.a., in important City. No panel. House (6 bedrooms, etc.) in best residential part with garage and walled-in garden to rent. Considerable scope for young energetic man. Premium £1,250.

3 S. MIDLANDS.—VERY OLD-ESTABLISHED COUNTRY PRACTICE, about £630 p.a., in beautiful part—about 25 miles from London. Panel 419. Excellent house (7 bedrooms) with central heating, electric light, main water, and new drainage. Garages and garden of over an acre, also orchard, and 13 acres of land to rent on lease. The property is admirably adapted for the reception of Resident Patients. Scope for increase. Premium one and a half years' purchase.

4 S. MIDLANDS. — PARTNERSHIP IN OLD-ESTABLISHED Practice of about £3,300 p.a. in growing Country Town. Panel 1,986. Visits 5/- (cash), 6/6, 7/6, 10/6. Not much midwifery. Choice of houses. Considerable scope for increase as building is going on at a great rate. Premium one-half share two years' purchase, cash.

5 WITHIN 15 MILES OF LONDON.—PARTNERSHIP IN SOUND old-established Practice in important and growing Town. Cash receipts average £5,257 p.a., including appointment and clubs, and panel 3,800. Visiting fees 4/- to 10/6 (few 5/-). Small detached house (2 large bedrooms), etc., for sale or rent. Premium one-fourth share, two years' purchase. Good Hospital.

6 S. MIDLANDS. — PARTNERSHIP IN WELL-ESTABLISHED Practice, averaging nearly £2,650 p.a., in small Country Town, in attractive residential district. Panel 1,750. Visits 3/6 to £1 1s. Not much midwifery or night work. Very suitable house can be rented or purchased. Premium one-third share £1,750.

7 SHROPSHIRE.—WELL-ESTABLISHED PRACTICE, AVERAGing £700 p.a., in pleasant Market Town. Panel 170. House available to rent. Scope for increase. Premium one and a half years' purchase.

8 NORTHAMPTONSHIRE. — PARTNERSHIP IN OLD ESTABlished Practice, averaging £1,718 p.a., in small town. Panel 1,930. Good scope for young energetic man. Premium for three-eighths share two years' purchase.

9 KENT COAST.—NUCLEUS OF PRACTICE (HELD BY MEDICAL Woman), in small pleasant Town. Panel and Public Medical Service recently started. Visits 5/- to 10/6, medicine extra. No midwifery. Well-situated house (5 bedrooms), central heating, electric light, good garden, and garage, to rent. Scope for increase as building is going on. Good local Hospital. Reasonable offer entertained.

10 MIDLANDS. — VERY OLD-ESTABLISHED AND EASILY worked Country PRACTICE about 8 miles from the County Town. Cash receipts average between £650 and £700 p.a., including panel about 600. Suitable house, with 4 bedrooms, electric light, garage, and garden for sale or rent. Scope for young energetic man. Premium one year's purchase.

11 LONDON, E.—OLD-ESTABLISHED PRACTICE OF £250 P.A. in the Forest Gate district. Panel 60. No midwifery. Modern house (5 bedrooms) in good residential part. Electric light and heating and nice garden for sale or rent. Scope for increase. Premium £385.

12 N. DEVON. — OLD-ESTABLISHED PRACTICE IN PICturesquely situated Watering Place. Receipts average £1,173 p.a., including panel 474. Excellently situated house in very good state of repair both inside and out, containing 8 bedrooms, etc. Price of leasehold £800. The Practice is particularly suitable for one not too robust or young who needs country life. Salmon, river, and sea fishing, hunting, etc. Cottage Hospital. Premium £1,850.

13 PARTNERSHIP IN OPHTHALMIC PRACTICE IN FIRST-RATE town. Applicants should be F.R.C.S. Eng., aged 30—40, and experienced.

14 BIRMINGHAM. — PARTNERSHIP IN WELL-ESTABLISHED and increasing Practice in good Suburb. Panel over 1,200, rapidly increasing. Suitable house to rent. Excellent scope and unrivalled prospects for the right man. Premium for share worth about £800 p.a., £1,350.

15 RIVIERA.—SEASON PRACTICE ABOUT £800 P.A. CAPABLE of large increase. Premium £2,500.

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Practices and Partnerships for Disposal (continued).

16 LONDON S W —WELL ESTABLISHED OPHTHALMIC PRACTICE averaging £900 p a in Suburban District Fee for consultation and examination £1 1s Well situated house to be sold or let Premium £1 200

17 S WALES — PRACTICE BETWEEN £250—£300 P A IN beautifully situated village about 4 miles from important town Small panel Nice house (6 bedrooms) electric light gas and company's water Garage and garden Premium house and Practice only £1 500 for quick sale

18 W OF ENGLAND —PARTNERSHIP IN OLD ESTABLISHED Practice over £2 200 p a in County Town Panel about 1 000 Visiting fees 5 to £1 11s 6d Suitable house available Excellent educational facilities Premium one half share two years purchase Exceedingly good prospects for well-qualified physician (preferably a M R C P) with opportunity of getting on staff of Hospital in near future

19 LONDON S E.—LOCK UP PRACTICE OF ABOUT £350 P A in Suburban District within 5 mile of Charing Cross Panel 320 Premises consisting of Surgery and Waiting Room on ground floor to rent on lease Premium £500 or near offer

20 N OF ENGLAND —SPA PRACTICE AVERAGING £380 P A in famous Health Resort Fee £1 1s and £2 2 occasionally 10 6 Semi-detached corner house (5—6 bedrooms) in best part which can be rented Premium £500

21 SHROPSHIRE BORDER — WELL-ESTABLISHED PRACTICE in large Industrial Village amidst beautiful country Income about £700 p a, including panel rapidly increasing Small detached modern house (4 bedrooms) with electric light Gas for sale or rent All kinds of sport Cottage Hospital Premium £800 Would suit either Medical Man or Medical Woman

22 PRIVATE MENTAL HOME (FOR LADIES ONLY)—EXCEPTIONALLY nice house and grounds A considerable sum required for the purchase Further particulars on application

23 SURREY — PARTNERSHIP IN SOUND OLD ESTABLISHED good middle class Practice about £2 650 p a in the Croydon area Small panel Very little midwifery Scope for increase Premium one half share 2 years purchase

24 MIDDLESEX — MIXED WORKING CLASS PRACTICE OF about £1,020 p a in rapidly growing district within 10 mile of the Marble Arch Panel about 1 120 Corner house (5 bedroom) with garage and fair sized garden, for sale Scope for increase Premium £2 000

25 S COAST—NON DISPENSING PRACTICE AVERAGING OVER £450 p a in well known Health Resort Panel 250 Visits 3 6 to 10/ House in excellent position facing sea, and containing 6 bedrooms etc Price of freehold £2 400 Premium for Practice £400

26 LONDON E C—OLD ESTABLISHED PRACTICE OF ABOUT £1 650 p a including appointments panel and Public Medical Service worth over £500 p a Visits 2 6 to 7 6 Practically no midwifery Introduction up to 12 months will be given Premium £1 500

27 N E COAST—OLD ESTABLISHED PRACTICE IN SEAPORT Town Cash receipts average £1 260 p a including appointments worth £130 p a and a panel of 1 115 Corner house (4 bedrooms) with separate surgery accommodation Premium for House and Practice £2 600

28 SHROPSHIRE & CHESHIRE BORDERS —OLD ESTABLISHED PRACTICE averaging £1 055 p a in Market Town Panel 850 *Visits 3/6 to £1 1s, medicine sometimes extra* Detached house (5 bedrooms attics etc) with garage and old world garden for sale Educational facilities All kinds of sport Well equipped Cottage Hospital and opportunity for one keen on Surgery Premium £1 580

29 BIRMINGHAM —WELL ESTABLISHED GROWING PRACTICE in good Suburb Cash receipts last year £1 400 Panel nearly 1 200 rapidly increasing House on key Site No other resident Practitioner allowed on Estate Good reason for selling Building going on in immediate vicinity (600 maisonettes being erected in near future Price of house £525, £250 deposit *rest in rent Premium for Practice £2,400*

30 N OF ENGLAND —OLD ESTABLISHED MIXED CLASS PRACTICE in large growing residential suburb of important town Cash receipts average £1,450 p a including appointments and panel 677 Charming modern corner residence Good introduction Premium two years purchase

31 S WALES—SMALL PRACTICE IN A COLLIERY DISTRICT doing about £150 p a Accommodation to rent Scope for young energetic man Premium £150

32 S COAST —A WELL-ESTABLISHED PRACTICE OVER £1 000 p a in popular Resort Panel 850 Excellent scope Premium two years purchase

33 N KENSINGTON —PRACTICE OF ABOUT £300 P A PANEL 200 Corner house to rent Premium £475

34 NOTTINGHAM —SMALL PRACTICE OF ABOUT £250 P A Panel 200 Corner house (4 bedrooms) Rent £60 p a Premium £500

35 EASTERN COUNTIES —COUNTY TOWN —VERY OLD ESTABLished middle and upper-class PRACTICE averaging £1 190 p a Panel 120 Visiting fees 7 6 to 15 6 Ten roomed house in good residential part with garage and garden for sale Scope Premium £2 200

36 LONDON S W —WELL ESTABLISHED EYE EAR, NOSE AND Throat Connection in Suburban District Cash receipts last twelve months £432 (mostly from Eye work) including appointment worth about £120 p a Corner detached non basement house (7 bedrooms) with garages and very nice garden Price of freehold and Practice £2 350

37 GLOUCESTERSHIRE —PARTNERSHIP IN VERY OLD ESTABlished Practice of nearly £1,750 p a in small town in beautiful part of the country Panel over 1 350 Fees average 7 6 Premium one half share 2 years' purchase

38 FAMOUS INLAND WATERING PLACE AND HEALTH Resort —Well established non dispensing PRACTICE. Receipts last three years averaged £986 p a including a select Panel of 280 Fees 5/ to £1 1s Particularly attractive house with large garden for sale Scope Premium £750

39 SUFFOLK AND NORFOLK BORDERS —PRACTICE OVER £300 in Market Town Panel 87 Nice house (6 bedrooms) garage and good sized garden Price of freehold £850 Excellent Practice Plenty of sport Cottage Hospital Premium £450

40 LONDON E —CASH AND PANEL PRACTICE OF OVER £600 p a in populous district Panel 590 Small house to rent on lease Premium £800

41 LONDON W —GOOD MIDDLE CLASS PRACTICE £400 P A in suburb within easy access of the West End Panel over 100 Attractive double fronted house with nice garden for sale Scope for increase Premium 1½ years' purchase

42 HOME COUNTIES — OPHTHALMIC PRACTICE BETWEEN £300 and £400 p a in desirable Residential Town under 15 miles from London Good detached house (4 bedrooms) with large garden for sale Good reasons for plenty of scope for increase Premium £300

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1. LANCS. — LARGE TOWN.—Very sound old-established middle and working-class PRACTICE, averaging for the last three years nearly £4,600 p.a., and for the immediate past six months £2,630. Panel of over 3,000. Appointments worth about £60 p.a. Fees 2/6 to 12/6. Not much midwifery. Good house on rental at £80 a year. Premium 1¾ years' purchase.
2. YORKS.—Very old-established middle and better-class PRACTICE, situated in a thriving manufacturing town (pop. 140,000). Held by Vendor 14 years who is *relinquishing through ill-health.* Cash receipts for past three years ending June last *average* over £1,200 p.a., including appointments (transferable) worth nearly £350 and panel producing £576. Pleasantly situated house (2 reception, 3 bedrooms, bathroom, etc.). Vendor's freehold. Price moderate. Premium £1,750.
3. HOME COUNTIES. — PARTNERSHIP.—A one-fourth share (with guaranteed minimum income of £600 p.a., and increase later as arranged) is *offered in old-established, good mixed-class* Practice situated in attractive residential market town within 20 miles of London. Gross cash receipts average approximately £2,000 p.a. Panel of about 1,150. Visits and medicine from 5/- upwards. Suitable small house available on rental at £65 a year. Premium for share 2 years' purchase. *Large scope for development.* Ingoing Partner, who should be between 28 and 30 years of age, must be experienced in Midwifery.
4. KENT.—*LARGE TOWN.—A one-third share is offered after a preliminary assistantship in a very old-established good mixed-class* PRACTICE, averaging £3,279 p.a. Panel of nearly 3,000. Fees 3/6 to 1 guinea. Suitable house can be rented at £100 a year. Sport of all kinds. Good schools. Premium for share 2 years' purchase. *Ingoing Partner should be married and have had at least five years'* general practice, and be preferably English or Scottish.
5. SOUTH WALES.—HOSPITAL TOWN.—PARTNERSHIP.—A one-third *share with succession to the whole Practice in three to six years as* agreed is offered in a very old-established good middle-class Practice situated in a pleasant town with attractive surrounding country. Gross cash receipts average over £2,300 p.a. Selected panel of 200. Appointments worth about £60 to £70 p.a. Fees: advice and medicine 3/6 to 7/-, visits 5/- to 21/-. Not much midwifery, from 5 guineas. Suitable small house. Garden and garage. Can be rented. Sport of all kinds. Premium for share 2 years' purchase. *It is essential that the ingoing Partner should have a good knowledge* of Medicine, and preferably hold the M.R.C.P.
6. HOME COUNTIES.—PARTNERSHIP.—A one-third share (with increase later) is offered in a very good old-established mixed-class Practice having considerable scope for increase. Situated in country town; beautiful residential neighbourhood within 35 miles of London. Gross cash receipts for last three years average £2,636; panel 1,750. Visits 3/6 to 21/-. Suitable house can be rented on lease at £100 p.a. *Premium for share* £1,750.
7. NORTH DEVON.—FAVOURITE SEASIDE RESORT.—Very old-established PRACTICE held 10 years by Vendor. Cash receipts average £1,173 p.a., including appointment (transferable) worth over £100 and panel producing £340. House has ample accommodation (8 bedrooms, etc.). Vendor's leasehold property having about 56 years to run. Price £800. Premium £1,850.
8. WITHIN 150 MILES NORTH OF LONDON.—COUNTY TOWN.—Old-*established mixed-class PRACTICE averaging nearly* £1,100 p.a., including panel of 118. House contains consulting and waiting rooms (separate entrance), lounge, 2 reception rooms, 4 bedrooms (2 fitted with hot and cold water basins), dressing room, bathroom, etc. Garden of 1/4 acre. Large garage. Electric light. Vendor's freehold. Price £2,000, part on mortgage. Premium £2,200.
9. KENT.—PARTNERSHIP.—A one-third share (with increase up to one-half later) is offered, after a preliminary assistantship, in very old-established good middle and working-class Practice producing approximately £2,400 p.a. Panel of 1,375. Fees 3/6 to 10/6. Appointments worth over £350 p.a. Premium for share 2 years' purchase. Purchaser should be preferably Scotch or English and able to undertake major surgery.
10. SOUTH-WEST OF ENGLAND. — FAVOURITE COAST TOWN.—Old-established good mixed-class non-dispensing PRACTICE, producing over £1,000 p.a., including panel of 1,470. Consultations 5/- to *10/6; visits 6/- to 12/6. Very moderate expenses. Delightful* house, standing in its own grounds in best residential part, in good repair and conveniently arranged on two floors, containing 3 reception, 4 bedrooms, dressing room, 2 *maids' rooms and sitting room.* Separate entrance to professional rooms. Electric light. Garden. Garage. Premium for Practice and house £4,500.
11. WESTERN SUBURB.—Old-established better middle-class non-panel PRACTICE, in well-populated area, averaging for the last three years over £2,200. *One appointment worth £80 p.a. Visits from* 3/6 to 10/6. Not much midwifery. Suitable house, with 3 reception, 6 bedrooms, etc. Rent on lease £90 per annum. Premium £4,000. Good introduction given.
12. PARTNERSHIP. — HOME COUNTIES.—A one-fourth share is for disposal (owing to the retirement of one of three Partners) in an old-established good mixed-class Practice, in beautiful residential district within easy reach of London. Gross cash receipts approximately £3,400. *Panel of 1,400. Well-situated small modern house,* with 2 reception, 3 bedrooms, etc. Garden. Rent £59 p.a. Premium two years' purchase.
13. IMPORTANT INLAND SPA.—Old-established better-class non-dispensing PRACTICE, averaging about £380 p.a. Receipts have been considerably more and the Practice could be increased, if desired. Fees 1 and 2 guineas and *occasionally half a guinea. House is a* corner one in good residential district with ample accommodation, newly decorated. *Can be rented on lease at £100 a year. Garden. Excellent social and sporting facilities.* Premium £500.
14. SOUTH WALES.—Beautiful Country District within 4 miles of large town. Small PRACTICE, producing between £300 and £350 p.a., offering good scope. Visiting fees from 5/-. Very little midwifery or night work. Well-situated house, with well-kept garden, containing 2 reception, 3 good-sized bedrooms and servants' rooms. Electric light and gas throughout. Garage. Price for Practice and house £1,500.
15. PARTNERSHIP.—HOME COUNTIES.—A one-third share, producing approximately £900 p.a. is offered (after a Preliminary Assistantship) in an old-established mainly better-class Practice *situated* in very attractive county town within easy reach of London. Ingoing Partner must be well qualified and experienced, accustomed to good-class work, married, and between 30 and 40 years of age. Premium for share 2 years' purchase.
16. HANTS. — ASSISTANTSHIP with view to PARTNERSHIP, and ultimate SUCCESSION, is offered in an old-established Practice situated in very desirable district. Must be a Graduate, experienced, and about 30 years of age. Appointment either Indoor or Outdoor. Personal application if possible.
17. LONDON, SOUTH-WEST. — LOCK-UP SURGERY, situated in main thoroughfare, and bringing in £300 p.a., including panel of 200. Fees 2/6 to 5/-. Premises are in very good condition. Rent on *lease £70 p.a., part let off at £52 p.a.* Premium 2 years' purchase. Excellent scope for increase.
18. MIDLANDS.—Old-established middle and better-class PRACTICE in *clean and attractive manufacturing city. Cash receipts* average over £1,600 p.a., including appointment worth £165 (transferable) and panel of 1,220. Visits 5/- to 2 gns. Midwifery discouraged, fees 5 to 15 gns. Exceptionally good house in *own grounds, with ample* accommodation, fitted with every labour-saving device and economically run. *Situated* in best residential part. Cottage in the grounds is let at £37 a year. Price, freehold, £5,000 (*£3,500 on mortgage*). Premium £3,500. Scope for active man.
19. LADY DOCTOR'S PRACTICE. — *LONDON, SOUTH-EAST.*—The half share is offered in a well-established middle and working class *Practice* averaging for the last three years £1,188 p.a. Panel of about 600. Two appointments worth about £130 a year. Fees from 2/6. Small house, containing 1 reception room, 3 bedrooms, bathroom, etc., and professional rooms. Price for freehold £750. Premium for share 2 years' purchase. Ill health reason for sale. Preliminary assistantship of one to two months offered.
20. YORKSHIRE UNIVERSITY TOWN. — *Old-established middle and working-class* PRACTICE, averaging for the past three years £1,132. Easily worked, and good scope for increase. Panel of over 1,000. Very light expenses. Good house with 2 reception, 5 bedrooms, etc., *and separate surgery accommodation.* Price for freehold £1,500. Premium, to include book debts, drugs, etc., £1,900.
21. EGYPT.—Well-established PRACTICE, producing about £950 p.a., and offering scope for increase. Fees 10/6 to 2 gns. Excellent accommodation *can be rented at £16 10s. monthly.* Premium, to include all furniture, drugs, drug bottles, instruments, etc., £2,000.
22. EASTERN COUNTIES.—ASSISTANTSHIP with view to Partnership (after a preliminary period of six months at a salary of £440 p.a., with free house) is offered in an old-established good mixed-class Practice, situated in pleasant residential and agricultural district within about 15 miles of the coast. Gross cash receipts approximately £3,000. A third share is for disposal at a premium of 2 years' purch.
23. EASTERN COUNTIES. — FAVOURITE SEASIDE AND HOLIDAY RESORT. — Good mixed-class PRACTICE, established many years, producing for last twelve months £1,600. Panel brings in £300 p.a. and appointment worth £100 p.a. *Fees 3/6 to 7/6,* with medicine extra. Nice house, with 2 reception, 5 bedrooms, etc. Garage. *Garden.* Price for freehold £2,250. Golf, shooting, and other sport. Premium 1¼ years' purchase.
24. OPHTHALMIC PRACTICE.—Within eighty miles of London.—Practice *is increasing, and offers* good scope for further development. Average gross cash receipts for the past three years £554. Last year over £700. Fees 1 to 2 guineas. Opposition slight. Choice of houses. Premium £700.
25. RIVIERA.—Old-established PRACTICE, the receipts from which have averaged over £1,600 p.a., but have decreased recently owing to Vendor's *ill health.* Very good *prospects of extension.* Fees from £1 1s. Very easy work. Suitable flat can be rented at £160 p.a. Premium £3,000.

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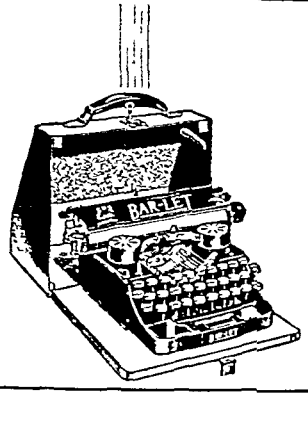
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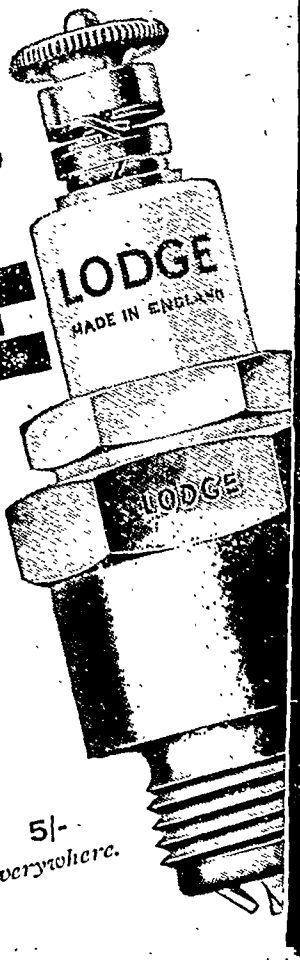
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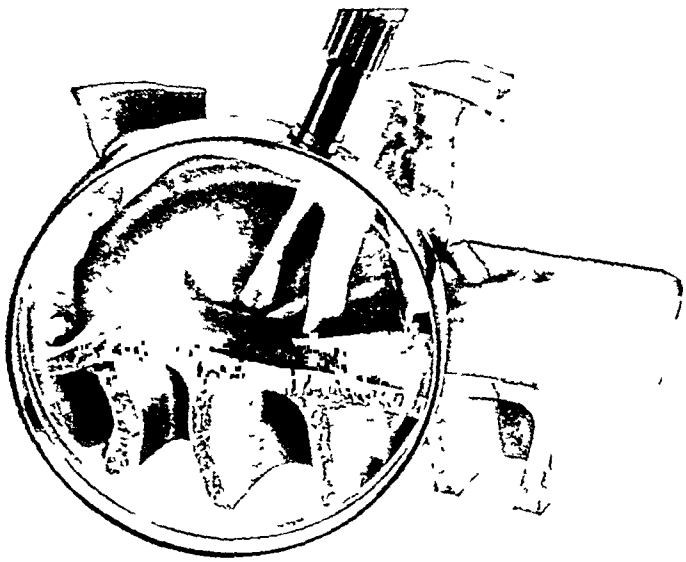
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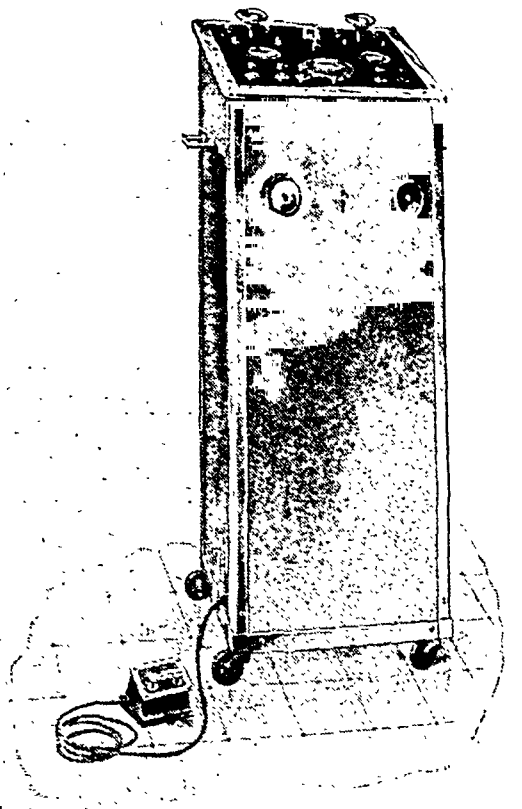
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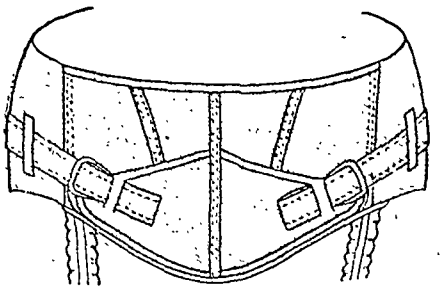
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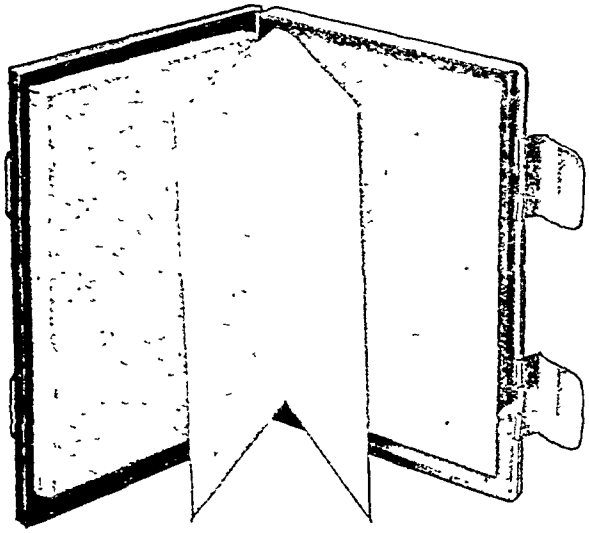
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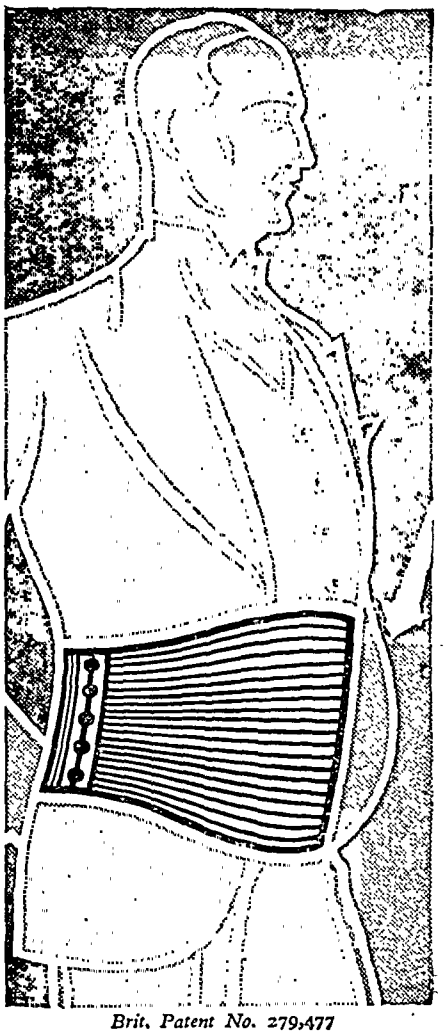
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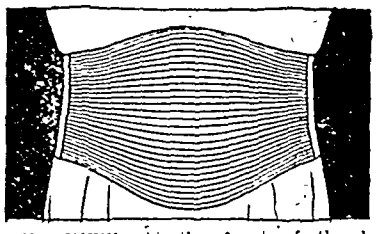
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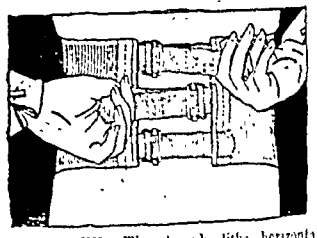
OBESITY.—The corrective and continuously massaging effect of the Linia Belt will contribute to your efforts to remove subcutaneous and intra-abdominal surplus fat. The increased pressure tends to diminish the polyphagia frequently symptomatic of those tending to become obese.

WHILE EXERCISING.—All men, especially those of middle age and older, will derive much support and protection against overstrain and possible hernia by wearing the Linia Belt while indulging in their usual sports or exercises.

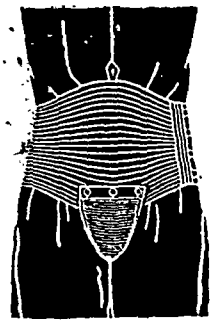
BROKEN DOWN POSTURE.—The Linia Belt is a valuable correcting influence to the habitual stoop, which gives to some men the appearance of being broken down. After a reasonable period, the lifting action of the front part accustoms the patient to the more normal abdominal position, and the strong pressure of the tough, elastic back straightens the shoulders, thus improving the entire carriage.



FRONT VIEW.—At the front of the belt the thin non-elastic tricot of great strength can be extended to the required depth, so that a gentle pressure is exerted on the full area of the abdomen.



BACK VIEW.—The tough, lithe, horizontal elastic of this special tricot can be regulated to the required tension by means of slide buckles. Thus its lifting and massaging powers are easily controlled.



More than 25 years of experiment and test have been spent in bringing the Linia Belt to its present state of perfection. The anatomically correct design and the open texture of the weave ensure that the Linia is the most hygienic belt obtainable. It is light, cool and easily washed.

Linia Belts are supplied with Jock Straps.

Easy to unfasten and wash, Linia Jock Straps are made in tricot like the front of the Linia Belts, but finer and thus more porous, while the tapes are entirely elastic, thus permitting absolute freedom of movement.

The Linia Belt

is on sale only at

J. ROUSSEL (Dept. M.E.), 173 REGENT STREET, W.1

(Special Branch for Men's Abdominal Belts)

MANCHESTER
8 King Street

BIRMINGHAM
Worcester Chambers, 14 New Street

SALTAIR SURGICAL SERVICE

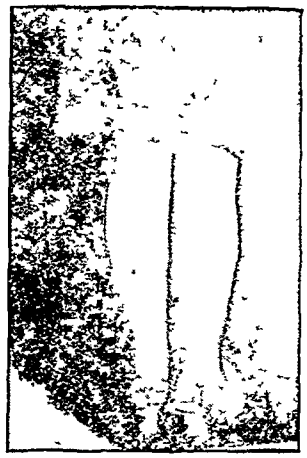
Guarantee
"We guarantee to alter exchange or accept the return of any appliance without cost ordered by the Medical Profession, if not found Suitable within fourteen days from date of supply."
Salt and Son Ltd.

A DANGER OF THE SOCIAL SEASON



obviated with SALT'S DRESS SILK ELASTIC HOSE

In these days of extensive social activity there is a distinct temptation for lady patients to discard elastic stockings, a process attendant with dangers that the Medical Man is anxious to prevent SALT'S DRESS SILK HOSE is the obvious prescription and adequately meets an urgent need.



INCONSPICUOUS IN WEAR

this Hose can be worn under ordinary Silk Stockings, and effectively prevents further Varicose development The SALTAIR range of Elastic Hosiery comprises ten qualities in eight colours for everyday wear, and details of these and the Special Dress Silk Hose are in SALT'S Hosiery book obtainable on request

London Consulting Rooms
"OAKLEY HOUSE,"
14-18, Bloomsbury Street, W C 1
Female fitters in attendance Mondays to Fridays
Orthopaedic Mechanician Wednesdays only
By Appointment

SURGICAL SERVICE
SALTAIR

SALT & SON LTD BIRMINGHAM 2

IN PERNICIOUS ANÆMIA

a liver extract containing five times the usual concentration

Pernaemon Forte is a non-protein fraction of mammalian liver, containing the anti-anæmic principle of Cohn and Castle in a five times concentrated solution. It is indicated in pernicious anæmia and pellagra.

Being free from protein, there are no contra-indications, while its use in high concentration eliminates the necessity for frequent injections.

Pernaemon is clinically tested in a British hospital on definite cases of pernicious anæmia before it is issued for sale.

Samples and full literature will gladly be sent on request to the address below.

PACKINGS

For injection

100 times more active than oral administration

Ampoules
3 x 2 c.c. - - 10/6

Or usual strength
6 x 2 c.c. - - 5/-

Also in powder and liquid forms

PERNAEMON

FORTE

Manufactured by

ORGANON LABORATORIES
I, GORDON SQUARE, LONDON, W.C.I

Producers of standardised biological products

Physical Fitness by Massage

Neglected by the Medical Profession for many years, Massage is now recognised as an essential for the successful treatment of fractures and injuries of the limbs. As a result of this use of massage, further study has shown its great value in the treatment of many other pathological conditions, including constipation, obesity, lumbago, sciatica, rheumatic torticollis and neurasthenia.



Study the comparative photographs on this page and note the kneading action of the NEDA.

The NEDA MASSAGER

APART FROM THERAPEUTIC MASSAGE YOUR PATIENTS will be grateful for your introduction of an easy means of physical fitness for the sedentary worker.

You will quickly appreciate the good effects to be derived from regular massage by watching the results in your patients, and you may care to use the NEDA yourself as a substitute for the exercise so often denied you by the stress of practice.

NEDA brings within reach of every patient the benefits of self-massage at home. Ever ready for immediate use this amazingly efficient apparatus reproduces the work of trained *human hands*—the same pliant lifting and ready control—giving the proven benefits of the same smooth "kneading" action.

25/-
COMPLETE

You will find it at Boots the Chemists, Lewis & Barrows, John Bell & Croyden.
Manufacturers: J. Redfern Ltd., 30 Bouverie Street, London, E.C.4.

A NATURAL AND SAFE METHOD OF RESTORING PHYSICAL FITNESS

The Scientific Contraceptive

Speton is a preparation that can be recommended with confidence by the Medical Profession.

References.

1. Some critical observations of various anti-conceptive remedies. Monthly Journal of Urology and Sexual Hygiene, iv, No. II.
2. The Spermicidal Powers of Chemical Contraceptives Journal of Hygiene, Vol. xxix, No. 3. Jan., 1930.
3. "The Chemistry and Physics of Contraceptives," Jonathan Cape, London, 1933, p. 288.
4. Dr. Steinhauser: On the biological behaviour of spermatozoa in respect to contraceptive agents, Bres'au, 1923.
5. Prof. Kionka: Pharmacological Examination of Speton.
6. "The Effects of Common Contraceptives on the Vaginal and Uterine Mucosa," Journ. Obst. Gynaecol., xxxviii, 1931, p 16.

Tubes of 12 tablets. *Samples and literature upon request.*

Sole Concessionaires for U.K. and Dominions:

COATES & COOPER, LIMITED, 94, CLERKENWELL ROAD, LONDON, E.C.1

SPETON

Manufactured by the Temmler Chemical Works.

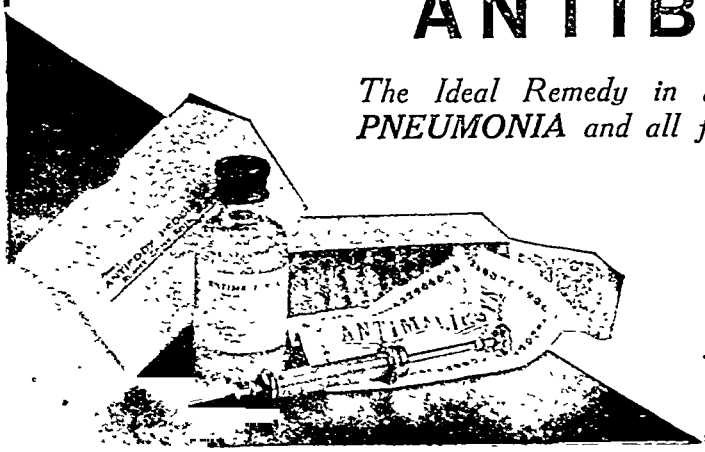
ANTIMALIGNYN

In cases of INOPERABLE CANCER

No claim is made that Antimalignyn is a cure for Cancer, but several cases so treated have returned to active life, being able to resume their employment.

50 c.c. Enough for one month's treatment ... £2 - 2 - 0

ANTIBACSYN



The Ideal Remedy in all stages of SEPSIS, in PNEUMONIA and all forms of Endotoxic Infection

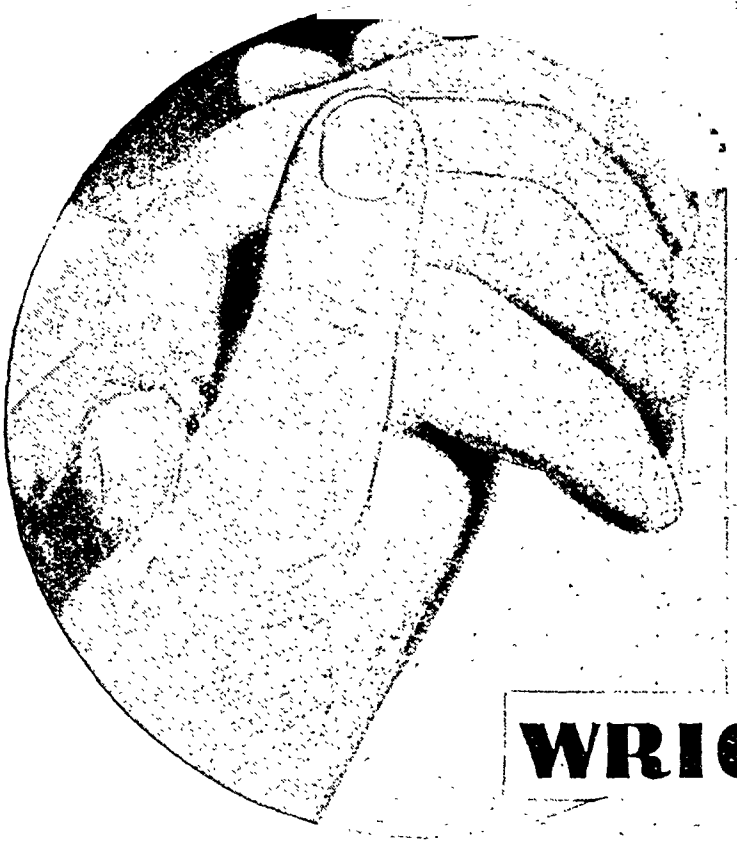
12½ c.c. ... 8/6
25 c.c. ... 16/-

The Laboratories of

ANTIBODY PRODUCTS LTD.
BUSHEY GROVE ROAD
WATFORD

'Phone: 4708 'Grams: Antiprods

INDIA: Endocrine Laboratory, Carton House, Simla.



HANDS Strong . . . Capable . . . and Clean. How important they are too; without safely cleansed hands grave risks are run to doctor and patient alike. As an antiseptic the pharmaceutical use of Coal Tar has the recommendation of the greatest Dermatologists.

Coal Tar can be applied most conveniently and easily to the skin through the use of Wright's Coal Tar Soap.

Hospitals and Nursing Homes find that Wright's meets the latest requirement of modern hygiene, whilst in the home it's a joy both to parents and children, because it keeps the skin so healthily fresh.

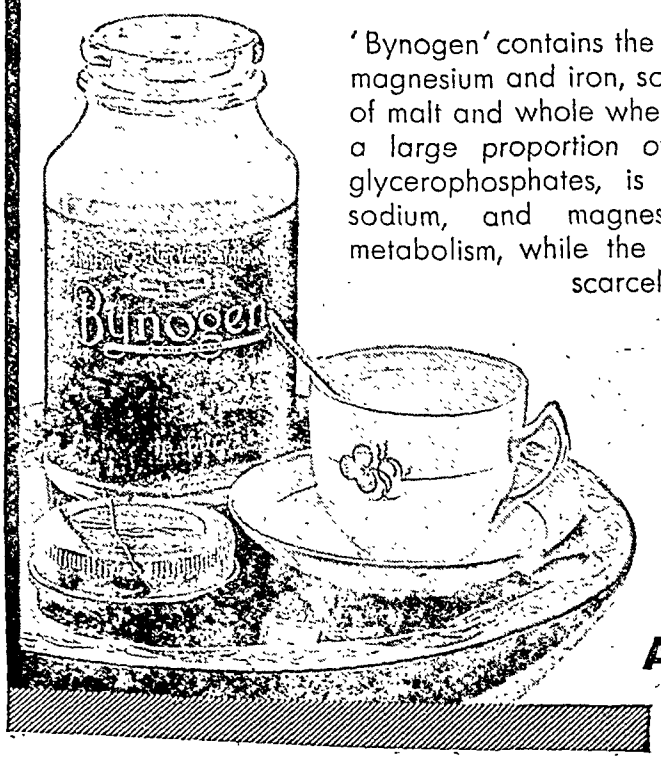
WRIGHT'S

coal tar **SOAP**

USE AND RECOMMEND IT FOR YOUR PATIENTS

'BYNOGEN'

Malt-Casein-Mineral Food



'Bynogen' contains the glycerophosphates of sodium, calcium, magnesium and iron, soluble milk proteins, and soluble extract of malt and whole wheat. The soluble milk proteins contain a large proportion of casein, which, in addition to the glycerophosphates, is a source of phosphorus. Calcium, sodium, and magnesium also play important parts in metabolism, while the necessity for iron in blood-formation scarcely calls for mention.

These constituents, with the nutritive malt extract, give 'Bynogen' its restorative value, and the agreeable flavour of this product is one of its points of superiority to most other products of its class.

In bottles at 3/- and 5/-, and tins at 9/-

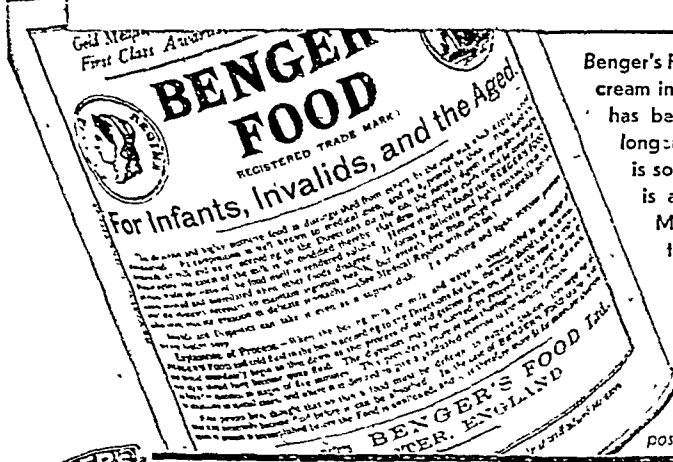
Allen & Hanburys Ltd.

London, E.2

Telephone: Bishopsgate 3201 (12 lines)

Telegrams: "Greenburys Beth London"

Benger's Food is specially devised to be used with fresh cow's milk



Benger's Food, when prepared, is a dainty food cream in which the tough curd of cow's milk has been broken down so that it can no longer form indigestible clots. Because it is so easy of assimilation Benger's Food is almost universally prescribed by the Medical Profession for enfeebled digestion, and for extreme conditions its prescription is almost standard. Benger's Food is so delicious that it is eaten with enjoyment by those who find milk, or diluted milk, unpalatable.

A Physician's sample and literature sent post free on request.

BENGER'S Food Real Trust Mark

BENGER'S FOOD, LTD., Otter Works, MANCHESTER, Eng.
NEW YORK U.S.A. 41, Maiden Lane. SYDNEY N.S.W. 240 George Street. CAPE TOWN S.A.: P.O. Box 722

Benger's Food, in sealed tins, is on sale throughout the world by Chemists, etc. M307

SULPHOSTAB

TRADE MARK BRAND

SULPHARSPHENAMINE



THE Arsphenamine compound recommended for deep subcutaneous or intramuscular administration in the treatment of Syphilis.

It possesses low toxicity, great stability and a solution is easily and rapidly prepared.

Particularly suitable for Congenital Syphilis.

Approved by the Ministry of Health for use in Public Institutions

Manufactured under Licence No. 19 Therapeutic Substances Act 1925

DOSES:

0.005 gm. to 0.90 gm. (24 doses)

Supplied in single ampoules and in boxes of ten ampoules.

Literature sent on request

WHOLESALE AND EXPORT DEPT

BOOTS PURE DRUG COMPANY LIMITED

NOTTINGHAM - - - ENGLAND

TELEPHONE: NOTTINGHAM 45501
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ACNE VULGARIS

Medisoap No. 18

Sulph. præcip. 10%
Betanaphthol 2½%

Local treatment by "Medisoap No. 18" and bathing with hot water is very effective in preventing the formation of pustules which leave scars when healed.

The scalp also should be included in the treatment, for which ten minutes lathering nightly usually proves sufficient.

Medisoaps are made by Chas. Midgley Ltd. and are sold by every Chemist

EVANS SONS LESCHER & WEBB LTD.

LIVERPOOL LONDON E.C.1 DUBLIN

WHY GIVE COD LIVER OIL

the old-fashioned way?



You know the importance of cod liver oil to growing children and expectant mothers. You know it is invaluable in cases of Rickets, Anæmia, Malnutrition, Infantile Weakness and Deficiency Diseases. You also know how difficult it is to administer owing to its sickening "fishy" taste.

Now, in White's Cod Liver Oil Concentrate Tablets, you can give *all* the benefits of C.L.O. in a natural, pleasant tablet form. White's Tablets are *not* a synthetic product, but are the unsaponifiable fraction of pure C.L.O. containing the full complement of Vitamins A and D. Each tablet is equal to a medicinal teaspoonful of pure C.L.O. and is guaranteed for stability and potency. The small bulk, great palatability and ready digestibility of White's Tablets are appreciated by patients of all ages.

Every physician interested in C.L.O. Medication is invited to send for a full Clinical Sample FREE from White's Laboratories Ltd. (Dept.2), 204, Thames House, Westminster, S.W.1.

White's BRAND COD LIVER OIL CONCENTRATE



TABLETS

'SEDOBROL'

BROMIDE BOUILLON TABLETS

"an admirable preparation with a wide sphere of usefulness"

Effective, palatable, always well tolerated

The Hoffmann-La Roche Chemical Works Ltd.
51, Bowes Road
London, N. 13

MIL-SAN

the scientific contraceptive
. . . its non-toxic character

It is taken as an essential by the producers of MIL-SAN that a contraceptive which members of the medical profession can prescribe with confidence and the public use with safety, must be non-toxic.

There must be no danger of toxic disturbance by absorption no matter how often the product is used nor for however long a period. Likewise, it must not contain any ingredient which would be unsafe if it fell into the hands of children or persons ignorant of its purpose.

This essential automatically rules out arsenical, mercurial and *quinine compounds and derivatives. The gynaecologists* who conducted the researches and tests were familiar with cases of toxic disturbances caused by these *ingredients, while instances* were known of fatal accidents arising from the accidental misuse of poisonous compounds.

MIL-SAN contains no poison and can occasion no toxic disturbance. Its contents are set *out in the literature sent on request* to all interested members of the medical profession.

MIL-SAN is non-injurious, is immediately effective, independent of temperature, moisture or foaming, and is simple and hygienic *to use. In manufacture, packing and application, there is no* contact with metal thus all contamination with metallic salts is avoided.

The NON-INJURIOUS character of MIL-SAN and its EFFECTIVENESS as a contraceptive were examined in advertisements in this journal on September 23rd and *October 21st respectively.* On December 16th its INDEPENDENCE OF VARIABLES will be made clear.

MIL-SAN Prices: Complete Outfit, 7/6; Refill Bottles, 5/-. Special Offer: Complete Outfit and 3 Refill Bottles, 21/-. (12 applications in each bottle.) Post free in Great Britain.

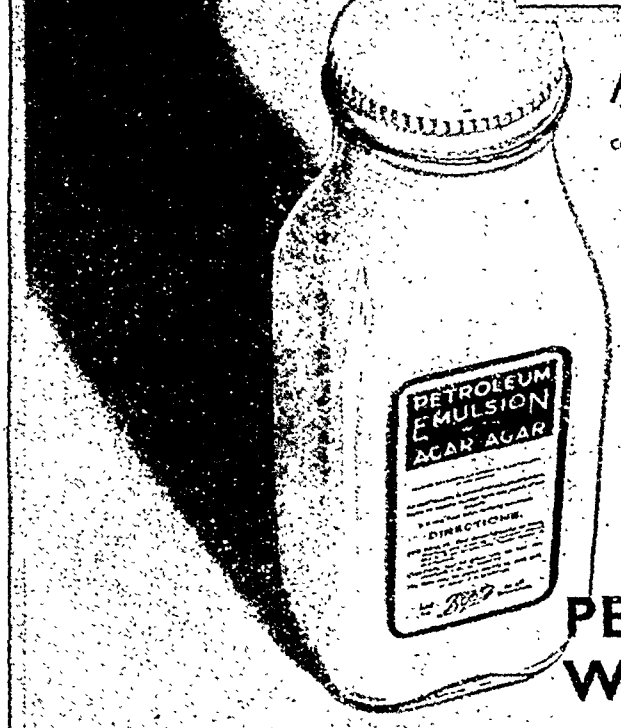
MIL-SAN Reed Trade Mark

MENOSINE LIMITED
24, MAPLE STREET, LONDON, W.1. MUSEUM 6760.

BOOTS PURE DRUG CO. LTD

NOTTINGHAM ENGLAND

Telephone: Nottingham 45501 Telegrams: Drug Nottingham



A BLAND palatable emulsion of pure liquid paraffin and agar-agar. Acting as a mechanical non-habit forming lubricant, it renders the faecal mass soft and promotes comfortable elimination.

PETROLEUM EMULSION WITH AGAR-AGAR

Blue Label **1/6** Per Bottle

Also supplied with Phenolphthalein for the treatment of habitual constipation and for patients who have been addicted to purgatives.

PETROLEUM EMULSION WITH AGAR-AGAR AND PHENOLPHTHALEIN

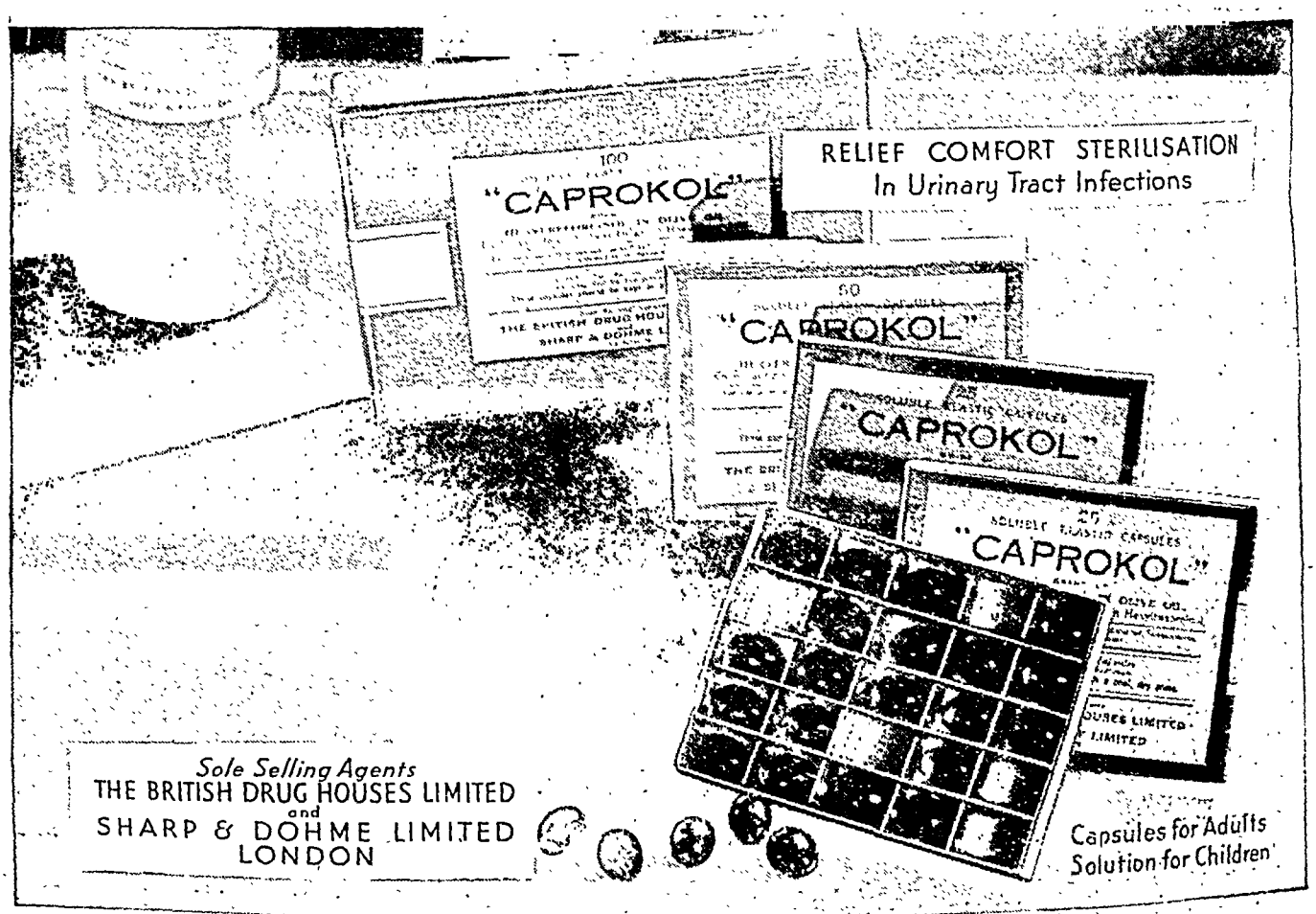
Green Label **1/6** Per Bottle

DISCOUNT TO THE MEDICAL PROFESSION

Obtainable from all Branches of Boots

PETROLEUM EMULSION WITH AGAR-AGAR

For the Treatment of Constipation



RELIEF COMFORT STERILISATION
In Urinary Tract Infections

Sole Selling Agents
THE BRITISH DRUG HOUSES LIMITED
and
SHARP & DOHME LIMITED
LONDON

Capsules for Adults
Solution for Children

Caprokol

ANAESTHETICS

Planocaine is a highly efficient anæsthetic for local, regional and spinal administration. Samples and literature sent on request.

PLANOCAINE

MAY & BAKER LTD
Battersea, London, S.W.11



IT IS BUT SELDOM THAT I FIND A PRODUCT WHICH REALLY STANDS OUT HEAD AND SHOULDERS ABOVE THE REST, BUT ODOL TOOTH PASTE CERTAINLY DOES

M B Ch B

Odol TOOTH PASTE 6d and 1/-

ODOL MOUTH WASH
1/6 2/6 3/6

ODOL MAKES TEETH WHITER — REMOVES TARTAR — PRESERVES THE ENAMEL — PREVENTS DECAY — DESTROYS GERMS — AND WHAT A REFRESHING FLAVOUR

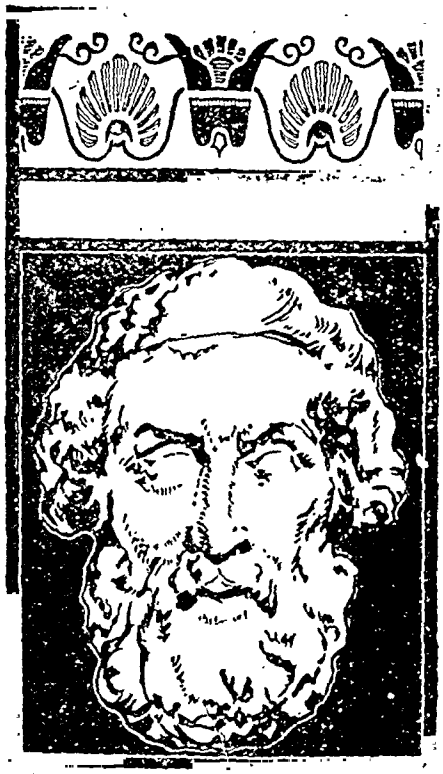
A new
specific
free from secondary effects

"ANOTAL" BRAND
TRADE MARK
ETHYLURETHANE OF PHENYLBENZOPYRIDIN-CARBOXYLIC ACID.

for
RHEUMATISM
GOUT, and
allied disorders

E. MERCK DARMSTADT
CHEMICAL WORKS

Samples and Literature sent on request to Medical Practitioners
H. R. NAPP LIMITED,
3 & 4, Clements Inn, LONDON W. C. 2 (Sole Concessionaires for the U. K. and Irish Free State)



BUST OF HOMER

Intestinal Atony

For establishing a natural daily evacuation of the bowels "Cristolax" offers a desirable form of treatment in every respect. It is not habit-forming and obviates the need of purgatives, which often produce harmful results.

Under the use of "Cristolax" tone is given to the digestive process, inspissation of the faeces prevented and a healthy condition of the bowel maintained. Further, no leakage of oil occurs from the rectum, as usually happens when liquid or semi-liquid forms of paraffin are used.

Briefly described, "Cristolax" is a digestant, lubricant, and bowel eliminant. It is in the form of fine granular crystals, presenting an attractive appearance. The taste is so very palatable that the product has been described as being "as nice as sugar-candy."

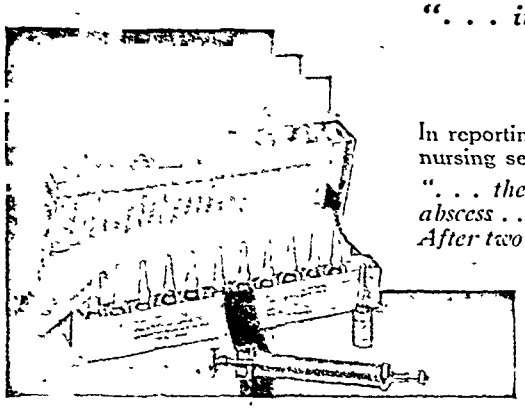
"CRISTOLAX" BRAND
MALT EXTRACT WITH PARAFFIN
Lubricant-Laxative-Nutrient-Digestive

A supply for Clinical trial sent free on request.

Of all Pharmacists, in bottles at 3/6 & 2/- each.

A. WANDER, LTD., 184, QUEEN'S GATE, LONDON, S.W.7

M 229



". . . it was a rather severe test for Manganese Butyrate B.D.H. . . ."

— — —, F.R.C.S.

In reporting upon a case of a hospital nurse who had been nursing septic cases, a well-known surgeon states that:—

". . . the girl had a very heavy infection . . . axillary abscess . . . many boils . . . acutely inflamed appendix. . . . After two injections of Manganese Butyrate B.D.H. . . . all her boils cleared away . . . later a huge abscess formed . . . which was opened under general anaesthesia . . . the incision healed and the patient is now quite free from boils. . . . It was a rather severe test for Manganese Butyrate B.D.H. . . . I am certain this helped her boils tremendously."

Manganese Butyrate B.D.H. is issued in ampoules and in rubber-capped vaccine bottles containing a solution ready for intramuscular injection.

MANGANESE BUTYRATE B.D.H.

Literature and sample on request

THE BRITISH DRUG HOUSES LTD. LONDON N-1 MB/16

CODOFORME BOTOL



A SAFE AND INSTANTANEOUS COUGH SEDATIVE IN TABLET FORM

In Tubes of 20 Tablets and Tins of 250 Tablets

CONTINENTAL LABORATORIES LTD. 30, Marsham St. London N.W.1

Victoria 2041. *Taxolabs, Soweest, London.*

"I write for two purposes.

(1) To acknowledge gratefully, the great benefit in health I have experienced from taking Bemax (one tablespoonful) at breakfast for four months.

I am a Graduate of Edinburgh University. Two years since, (I am now 67 years of age) I was a perfect wreck with so called 'rheumatism', and suffered great pain in muscles, especially the shoulder and hip girdles. I spent six weeks in a Nursing Home—had all teeth extracted—then had baths, etc., at a Spa. For nearly a year there was little betterment, I had not strength to step up on to a tramcar. All the muscles were utterly weak and flabby, and full of pain. Then I began taking Bemax, and soon pains lessened, and strength began to come back to my limbs. Now I am almost back to my old self—can walk several miles with comfort, do some hill climbing (slowly), stairs are no longer a terror, and best of all I am again able to give lectures, and engage in many public duties without undue fatigue.

All my friends speak of my improved appearance, I had been so thin and haggard.

My second reason for writing is to ask you to send me a copy of some of your past Reports, particularly 1, 4, 8 and 11.

I frequently give lectures to Women's Institutes and other bodies, on Health, Food Values, etc., and I have mentioned Bemax, but (now that I feel exactly like your rats!) I should like to make it more prominent. So I should like to have a few diagrams —using the facts in your Report—if I may, to convince my hearers in as memorable a way as possible, that Bemax is a very, very good thing that many of them ought to try.

Any Literature you send me will be welcome—especially any showing the rat before and after Bemax."

I am,
Yours very truly,
— — — (M.B. Ch.B.)

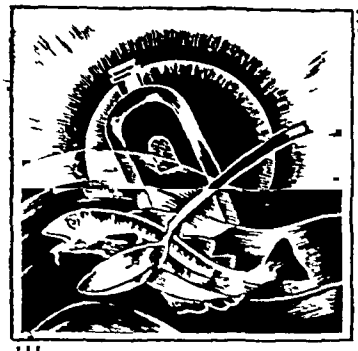
(This letter is reproduced by special permission.)

BEMAX—THE RICHEST NATURAL VITAMIN TONIC FOOD

2/6 size lasts an adult a month

Laboratory reports on BEMAX and a clinical sample for personal trial will be sent to any medical man on receipt of his professional card.

THE BEMAX LABORATORIES (Dept. B.M.J.), UPPER MALL, LONDON, W.6



Patients prefer Norwegian Medicinal Cod Liver Oil

because of its purity and because its taste is much less pronounced than that of other oils.

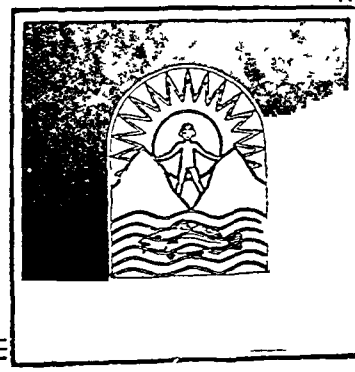
The latest scientific investigations made by Professor Poulsson at the Vitamin Institute of Oslo, show that the vitamin D content of Norwegian medicinal cod liver oil is as much as one hundred per cent. greater than that of the next best brands. That is why Norwegian medicinal cod liver oil is the most effective medicine against rickets.

Norwegian medicinal cod liver oil is also very rich in vitamin A; in addition it contains a substantial amount of iodine.

Norwegian Medicinal Cod Liver Oil

world famous for its high quality.

Printed matter will be sent on application to Reklamefondet for Norsk Medicintran, Postbox 226, Bergen, Norway



FABRITIUS, OSLO

45

UNITS OF VITAMIN B IN EVERY OUNCE OF BRAN

Recent laboratory experiments with commercially prepared bran show that it is a particularly suitable addition to the diet of persons who do not wish to put on weight as one ounce of bran contains 45 units of Vitamin B and *very few calories.*

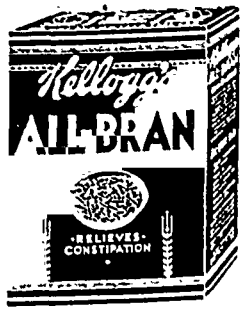
The "bulk" in Kellogg's ALL-BRAN is less than 8 per cent of its composition, the remainder being made up of carbohydrates, protein, fat and mineral salts. Special cooking, flavouring and crumbling processes make Kellogg's ALL-BRAN soft and palatable. Within the body it absorbs a large amount of moisture, forming a soft mass which gently clears the intestines of waste. Kellogg's is the original, 100% ALL-BRAN and is 100% effective.

Except in the cases of patients whose intestinal tracts are highly sensitive, or who suffer from intestinal conditions where the use of any form of fiber would be contra-indicated, Kellogg's ALL-BRAN may be safely prescribed. It may be served either as a cereal with cold milk or cream, or cooked into biscuits, bread, etc. A full-sized packet will be sent free to any doctor requesting it.

Composition of Kellogg's ALL-BRAN	
Total Carbohydrates	67.2
Protein	13.3
Fiber	7.6
Fat	2.6
Ash	7.6
Moisture	1.7
	100.0

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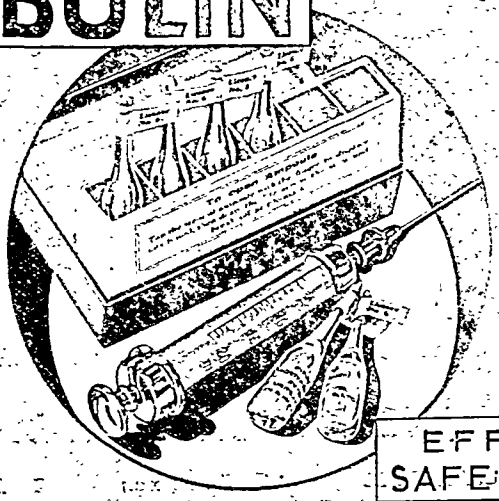
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ON

THE TRAUMATIC FACTOR IN ORGANIC NERVOUS DISEASE*

BY

WILFRED HARRIS, M.D., F.R.C.P.

The question as to the causal relationship between injuries to the head, back, trunk, or limbs and the subsequent development or aggravation of a pre-existing organic nervous disease has been much debated, and entirely contrary opinions have been expressed by various authors. In my opinion grave injustice is often done by the refusal of consultants to allow the possibility of cause and effect in progressive nervous disease following severe blows upon the head or spine. It will probably be conceded by all competent observers that epilepsy may be a direct sequel of, and dependent upon, an injury to the skull, whether this is a severe blow, a fractured skull, or a perforating wound such as a rifle bullet or shell wound. The injury to the brain in these three groups of cases is in order of increasing severity, and the actual injury to the nervous tissue will not be a matter of dispute in cases of fractured skull or perforating wound.

It is the first group of blows on the head of less severity, yet followed by recurrent epileptic fits, that may give cause for various opinions. The nature and severity of the blow and the interval before the first development of symptoms must be taken into account, together with other factors, such as heredity of epilepsy, fits in earlier life, antecedent syphilis, etc. I have seen in private practice two cases of recurrent epilepsy, which followed directly after a knock-out blow in boxing contests, in previously healthy, normal men. The lesion produced by the blow causing the concussion, or commotio cerebri, may not be demonstrable, but probably consists of numerous small ecchymoses or punctiform haemorrhages, comparable to a bruise on the surface of the brain or beneath.

What effect concussion may have directly upon the cerebral nerve cells, in the absence of haemorrhages, is speculative, but it is not difficult to imagine that the cell's delicate structure may receive some injury affecting its metabolism and function which may be permanent, and may even start progressive changes. A good instance of traumatic epilepsy is the following:

A road sweeper, aged 51, was knocked down in the street by a motor lorry on January 19th last, striking the back of his head on the road, and being unconscious for a few minutes, but the scalp was not cut. *X* rays showed a fracture of the base. A week later he collapsed, with seven fits in succession, and he has had five fits since. He had never had a fit previously in his life, nor were any known in his family.

Such a severe injury with fractured base may be assumed to cause contusion of the brain in one or more places, and adhesions may develop with a vascularized scar, causing the brain to adhere to the dura, and setting up an irritant focus, leading to epileptic fits. How such an injury can set up the multiple progressive lesions found in disseminated sclerosis is difficult to understand. Probably many cases can be explained by the actual disease being already latent; the effect of the injury is then to bring into prominence, and to hasten, the development of the disease.

Such is no doubt the order of events in cases of G.P.I. which develop rapidly after injury to the head or back, the antecedent neurosyphilis being latent, and possibly the nervous degeneration of G.P.I. might never develop if it were not for the immediate effects of the blow. On looking through my private case books I have found several cases of G.P.I. in which trauma appears clearly to have been a factor in the development of the symptoms. The following case is a good example.

A flying officer, aged 42, made a parachute descent in August last year, came down too fast, and bumped his head on the ground rather badly, being partially concussed and dazed, though he carried on with his work. The same night he had a severe headache. During the same week he became sleepy, slept during dinner, and in many ways did not know what he was doing. He slept badly at night, with horrible dreams. A week after his crash he got pains in his arms and legs and back, with the neck stiff, pain lasting for three days only. He reported sick two days later, and it was then observed that he was becoming very forgetful, developing curious ideas, wanting to breed racehorses, and he wanted a divorce from his wife, though they were really a devoted couple. He became very impatient and irritable, careless in his dress, and forgot to shave.

On examination on September 13th, 1932, his right knee-jerk was absent, though the pupils were active; some patchy analgesia of the legs and forearms. His utterance was normal, but the wife stated that his memory was not so good, though he had improved in his mental condition considerably. The cerebro-spinal fluid showed a strong positive Wassermann reaction, 36 cells per cubic millimetre, mainly lymphocytes, the Lange curve showing 555543100. He had been fully treated for syphilis twelve years before.

I treated him with malarial inoculation by mosquitos, sent from the Ministry of Health, and after sixteen days' incubation the temperature began to rise, and he had nine rigors in the next fortnight, the pyrexia then ceasing without quinine being administered. He has since made a steady recovery, though three months later, in December, the Lange test was still 5555543200, but the cells were reduced to 4 per cubic millimetre, and the Wassermann reaction about one-third the strength it had been in September. I have given him no further medicinal treatment, and he has been perfectly fit in every way since, with the exception of a recurrence of malarial pyrexia, and on August 29th, 1933, his cerebro-spinal fluid showed perfectly normal to the four tests: Wassermann negative, Lange 0000000000, and 2 cells per cubic millimetre with normal globulin.

In this patient there had been no mental symptoms before the injury; he was apparently in perfect health until the time of the blow, and it seems impossible to disagree with the view that the injury was the direct exciting cause of the development of the symptoms, though the condition of the cerebro-spinal fluid is clear evidence that the disease was latent. Whether in this or similar cases the disease would never have developed without such an exciting factor as an injury must, of course, always be speculative. No doubt severe worry and mental overstrain may have a similar accelerating effect in the development of general paralysis, of which I have seen more than one example.

If we look up the aetiology of various organic nervous diseases in textbooks of medicine or pathology the influence of trauma is usually scantily treated or not mentioned. In Osler's *Medicine*, edited by McCrae (eleventh edition, 1930, p. 1143), the following interesting, though brief, opinion on the effects of trauma is given:

"In rare cases following trauma and succeeding to symptoms which may have been regarded as neurasthenic or hysterical, there are organic changes which may prove fatal. That this occurs is demonstrated clearly by post-mortem examinations. The features upon which the greatest reliance can be placed as indicating organic change are optic atrophy, bladder symptoms, particularly in combination with tremor, paresis, and exaggerated reflexes." (I might also add the Babinski toe reflex.) "The anatomical changes are not very definite. When death follows spinal concussion within a few days there may be no apparent lesion, but in some instances

* Delivered at the Royal Society of Medicine, October, 1933.

the brain or cord showed punctiform haemorrhage. Edes reported four cases in which degeneration in the pyramidal tracts followed concussion or injury."

Again, in an article on progressive muscular atrophy, by Drs. Collier and Adie, in *A Textbook of the Practice of Medicine by Various Authors,* edited by F. W. Price (second edition, 1926), they say (p. 1579):

"Injury is an important exciting factor, and cases are not very uncommon in which progressive muscular atrophy of typical course immediately followed upon an injury, and commenced first in the region of the injury. We have twice seen this malady commence in the muscles of the back after a blow upon the spine. Commencement in a limb which has recently been injured is more frequent, and general traumatic influences, such as are occasioned by a fall, not very uncommonly precede the onset of symptoms in patients of later years; and the course of the disease in such cases is likely to be rapid."

These authors base their description of the clinical features of the disease upon an analysis of 500 cases which have come under observation at the National Hospital, London. On comparison of this article with their article on the same disease in the third edition of 1929 it is somewhat astounding to find that the whole article from beginning to end is word for word the same in the two editions, with the exception that when speaking of the aetiology of the disease in the latter edition an exactly contrary opinion as regards the effect of injury is expressed. In the 1929 edition they say (p. 1625):

"Injury has often been alleged to be an exciting factor in the development of this disease, and there are very many cases recorded which seem to support this contention. We have made a careful analysis of many cases in which there has been a history of injury which have come under our observation, and also of those in the literature, and have found that it is always a trivial injury, such as a slight knock, bruise, or strain, and never a severe injury, which has preceded the appearance of progressive muscular atrophy. This one fact clearly proves that injury cannot truly be in causal association with the disease, and, further, there is no conceivable pathological process by which a trivial injury, unaccompanied by any infective process, can bring about a universal and rapidly fatal dissolution of the nervous system. The probability is that the injury is in many cases due to the slight clumsiness and disability often produced by the oncoming disease, and that in other cases it is simply co-incidental."

The article in the recently published 1933 edition is also identical. No explanation is given in the last editions for this complete reversal of their opinion as regards the effect of trauma, although the whole article, with the exception of this paragraph on injury, is word for word the same in the two editions. They make no reference whatever to trauma as a factor in the development of disseminated sclerosis or of G.P.I., but their discussion of the subject of trauma in their article on progressive muscular atrophy may probably be taken as their expressed opinion to include other degenerative nervous lesions, and this view is perhaps that held by the majority of neurologists to-day.

To combat this materialistic view is one purpose of my present oration, and I would point out a serious error in the authors' argument, where they state that they have made a careful analysis of many cases with a history of injury which have come under their observation, and also of those in the literature, and have found that it is always a trivial injury, such as a slight knock, bruise, or strain, and never a severe injury, and they go on to state that this one fact clearly proves that injury cannot truly be in causal association with the disease, and, further, there is no conceivable pathological process by which a trivial injury, unaccompanied by any infective process, can bring about a universal and rapidly fatal dissolution of the nervous system. This latter statement is a clear instance of sophistry or special pleading in assuming that their present knowledge of pathological processes is final, and not to be enlarged by new facts and knowledge in the future, and indeed it shows a certain degree of want of vision.

From the very nature of the case it is impossible to prove whether injury has originated a progressive nervous disease, for it would be necessary to examine the brain and cord before the occurrence of the injury in order to prove that no latent disease was present. It is only by recording numbers of cases which bear upon the point, and considering each case upon its merits, that a careful and unbiased judgement can be reached. The cases which I shall refer to later on will be seen to have suffered serious blows, often causing unconsciousness, and not to be compared with the "slight knock, bruise, or strain" referred to in Collier and Adie's article. The following case of progressive muscular atrophy came under my observation for the first time in June, 1931.

The man was a railway porter, aged 35, in robust health in July, 1930, when he had an accident while wheeling a heavy case weighing 5 cwt., which fell off the barrow on to his right foot, bruising it very severely. No fracture was found on *x*-raying the foot, which was then put up in plaster-of-Paris a fortnight after the injury, for two weeks. From the time of the injury he complained of pain in his foot and up the front of the leg, which ached considerably, and there was weakness of dorsiflexion of the foot from the commencement. The foot was still swollen when the plaster was removed, and was very painful; signs of bruising persisted, and he went about on crutches. To put it shortly, he has never recovered the use of his leg, and it has always been painful, though he did light work at his own request for ten weeks during the winter of 1930. Pes cavus developed and the foot was wrenched under gas, and he then had massage, with a dropped foot, and gradually during the following months the muscles of his leg wasted below the knee and the foot dropped further.

When I saw him first, eleven months after the accident, there was considerable wasting of the dorsiflexors of the foot, with a steppage gait. The cerebro-spinal fluid was normal to all four tests, fibrillary tremors developed during the following winter, and in April, 1932, there were fibrillary tremors in both triceps muscles and in the extensors of the wrists and fingers.

In October, 1932, the pains were increasing so that he was unable to walk more than a few yards without pain in the legs, beginning in the right thigh, down the front of the leg, and across the sole, with sharp, stabbing pains which had begun a month after the operation for pes cavus. The right ankle was completely dropped, and extension of the ankle was weak. The extensors of the right thigh were also weak, and the left anterior tibial muscles were even more wasted than those on the right side; there was extensor plantar reflex on the left side, with flexor on the right, or injured, side. There were no bulbar symptoms, the conditions remaining much the same in the spring of this year.

It is evident that the man is developing amyotrophic lateral sclerosis, and the immediate onset of symptoms in the neighbourhood of a very severe injury to his foot is extremely suggestive of causal relationship between the injury and the subsequent disease. When the case was tried at the Middlesex Sessions, however, the man lost his case on a technicality—namely, that the medical referee in the country had previously given his decision that the injury had nothing whatever to do with the disease, without having heard any special evidence on the man's behalf. Such is the law, that that verdict was final, and that that point could not be reopened. Verily, as Bumble remarked, "The law is a ass."

What can be the causal connexion, if any, between such an injury and the subsequent disease? We know that injury to peripheral neurons produces chromolytic changes in the nerve cells in the spinal cord or posterior root ganglion connected with the peripheral nerve fibre that is injured, a metabolic change which can be recog-

mized microscopically, and is termed the "reaction à distance" by Marinesco. As that is indisputable it is conceivable that under certain circumstances further changes of a progressive nature may result, and as at the present time we know nothing whatever in reality of the pathology of progressive muscular atrophy, what right has any author to take up the point of view that there is no conceivable pathological process by which an injury, unaccompanied by any infective process, can bring about a universal and rapidly fatal dissolution of the nervous system?

Until we know more and have accurate knowledge of the pathological processes underlying such diseases as progressive muscular atrophy and disseminated sclerosis we have no right to deny the aetiological factor of trauma when the history of the case clearly shows a close time relation between the injury and the onset of the symptoms. During the war I saw a case of pituitary tumour develop directly after a man was injured in a bombing accident when at practice. Following the injury to his head, he suffered from continual headaches, later developing typical bitemporal hemianopic scotomata from the pituitary pressure, an acromegaloma of the pituitary being demonstrated by operation. Can this be passed off as pure coincidence, or was the injury partly responsible? My own view is that when symptoms develop directly after an injury in a previously healthy individual we have no right whatever to assume that the injury has no causal connexion with the development of the disease. In such case we should be assuming a supernatural knowledge, which is not yet vouchsafed even to the writers of articles in textbooks.

Cerebral Tumour

A history of previous injury is very frequent in cases of cerebral tumour, and it is always very difficult to decide what the connexion can be, if any. We have to consider the severity of the injury, the health of the individual at the time, and the lapse of time before the first development of symptoms. Indeed Drs. Collier and Adie, in their article on cerebral tumour, say (Price's *Medicine*, fourth edition, p. 1396):

> The relation between cephalic trauma and the first appearance of cerebral tumour is one which occurs much too often to be ignored, though it is likely in many of the cases in which this relation exists that the blow on the head has simply served to bring a pre-existing tumour into symptomatic prominence either by causing oedema or haemorrhage in its substance or vicinity.'

If in a healthy individual symptoms follow very shortly after an injury of some severity I should certainly be inclined to allow that the trauma had so affected the tissues of the brain as either to hasten the onset of symptoms due to a latent tumour by setting up haemorrhage, or oedema around it, or possibly even through some metabolic process of which we have no knowledge that the injury may even start the formation and development of tumour cells. The former alternative of injury hastening the development of symptoms hitherto latent will probably be accepted by most observers, the latter suggestion that tumour cells may arise *de novo* as the result of an injury is a field for entirely speculative argument, though it should be observed that we know that in many instances tumours such as scirrhus of the breast or epithelioma of the lip or tongue and elsewhere may arise as the direct result of local injury.

Disseminated Sclerosis

On analysing my private cases of disseminated sclerosis—a total of 234, seen in the last twenty-eight years—I have found sixteen cases in which definite chronic spinal sclerosis, mostly cases of typical disseminated sclerosis, has developed shortly after severe injuries to the back or head, several of whom were concussed and unconscious for a time varying from several minutes to several days. In two of these cases paroxysmal neuralgic trigeminal tic was a complication in each instance, antedating the symptoms of spinal sclerosis.

This group of 234 cases is, I consider, moderately certain as regards the diagnosis, because I have eliminated all cases in which there seemed to be a reasonable doubt. All these sixteen gave a strong history of injury—that is in 7 per cent. of all my cases. I will now give the details of the more striking of these cases as trauma has not, in English literature, usually been considered as a factor in the development of this disease, though many foreign writers have laid stress upon the aetiological factor of trauma. Oppenheim in his textbook on nervous diseases quotes many other German writers on this point.

Case 1.—A man aged 30, was wounded in 1916 in France by a rifle bullet which pierced his right shoulder coming out on the left side and causing paralysis of his legs and arms. The left arm and leg have never completely recovered but he made a fair recovery, though the legs were never completely strong again, though he was able to return to France. In January 1918 he was again wounded in the right shoulder by a shell and he was gassed in the summer of that year. He was demobilized in 1919. His legs have been weak ever since and his arms again began to lose power. Ever since the original injury in 1916 he has had weakness of sphincter control. He has gradually been getting weaker both in arms and legs since he was demobilized. Two and a half years ago he began to develop paroxysmal neuralgic tic of the right second and third divisions of the fifth nerve with typical spasms on eating, talking or handling the face. When I saw him last June he had an ataxic spastic gait with slightly staccato speech, ataxic nystagmus, and pallor of the right disk, the left arm and leg were weak, the left plantar extensor in type. I injected his Gasserian ganglion to arrest the neuralgia but the progress of the spinal sclerosis is likely to be continuous.

The diagnosis of disseminated sclerosis can hardly here be disputed, in view of the staccato speech, optic atrophy, nystagmus, and the spastic ataxy, and moreover the development of paroxysmal neuralgic tic as I have shown elsewhere is peculiar to disseminated sclerosis. Yet his paralysis dates from the actual bullet injury to the spinal cord and the weakness has been more or less progressive steadily since. How is it possible to deny in such a case the aetiological connexion between the original injury and the subsequent organic nervous disease?

We have no idea what is the pathological process that produces the nervous degeneration and islets of clerosis in the brain and cord in this disease. That injury had some direct causal connexion in this case I think must be agreed, but whether it accentuated a process already latent or whether it had started the disease *de novo* is entirely speculative.

Case 2.—A young man aged 21 had a bad fall from a motor bicycle damaging his right hip and shoulder. Within the same month he noticed pins and needles down both arms to his fingers on bending his neck forwards, making him giddy and nauseated. This symptom has been many times observed in the early history of disseminated sclerosis. After a year he became better and eighteen months later when writing he noticed numbness of the inner two fingers on his right hand which has never quite recovered and spread next day to the pads of the outer two fingers, his doctors telling him he was suffering from hysteria.

The following year he was involved in two taxi accidents in Paris within five days, a man being killed in the first accident and within a week or two he became staggery when he tried to run. Spinal tumour was suspected also by a neurologist at that time but he improved considerably after some months. When I saw him in 1926 he was ataxic with spastic physical signs, numbness and partial anaesthesia of

the inner left forearm, and blurred vision, with sphincter weakness.

Although this cannot be considered a demonstrable case of disseminated sclerosis, yet it is clearly one of organic nervous disease, which showed its first symptoms within a month after severe injury.

Case 3.—A woman, aged 49, seen by me in April, 1924, had had a severe fall six months previously, striking the back of her head on a lavatory basin. Ever since she had partial loss of control of both sphincters, with precipitancy. During the last six weeks she began to develop numbness and pins and needles on the left side of the breast down to the level of the foot, the left leg was weak, the left foot feeling cold, and it slightly dragged on walking. No affection of the arms. The knee-jerks were increased, the left greater than the right, the left plantar extensor, double ankle-clonus, abdominal reflexes absent, and slight sensory changes of hyperaesthesia to pin scratch on the left side of the leg and abdomen up to the eighth dorsal level. No nystagmus or diplopia.

As regards diagnosis, the immediate effect of the injury was to produce partial sphincter paralysis, and four and a half months later gradual progress of spastic weakness of the leg.

Disseminated sclerosis certainly seems the most likely explanation, although she was perfectly well before the injury.

Case 4.—Another war case was a man of 33, whom I saw in December, 1930. When aged 21 he crashed from a motor bicycle when carrying dispatches in France in May, 1918, falling forwards and, as he said, skidding on his chin. When he picked himself up he found that his left ankle was weak, and he has never recovered the strength of that leg, always dragging the foot. It was not until 1926, eight years after his injury, that his left hand began to be numb and weak. For the past eighteen months he has had bladder incontinence. The plantar reflexes were normal, and there was no increase of the deep reflexes. The abdominal reflexes were absent, and he had well-marked ataxic nystagmus of the right eye particularly. Three months after I saw him his right side became affected, with considerable sensory defect to changes of temperature, not readily discerning hot from cold.

The absent abdominal reflexes, with loss of sphincter control, and ataxic nystagmus coming on very gradually, are very suggestive of disseminated sclerosis, and the fact that the weakness of the leg dated from the actual injury in France is certainly suggestive of a severe blow upon the head having damaged the nervous system and started some progressive nervous degeneration, which probably is disseminated sclerosis.

Case 5.—Another war injury was in a woman, aged 60, whom I saw in June, 1931. Fourteen years previously, when she was aged 46, in December, 1917, her house in Clapham was struck by a bomb, and she was thrown violently across the room. Her husband at the same time was blown violently about, became epileptic, and died shortly afterwards. She began to get shaky, and soon became weak in walking, and the weakness has slowly increased since then. She is liable to attacks of trembling and inability to speak. On examination in June, 1931, she had a weak ataxic gait, though no ataxy of the arms. The knee-jerks and deep reflexes were normal, but the plantar reflexes were bilaterally extensor. There was some tremor of the body and head, and she was subject to emotional attacks. There was no nystagmus, and she was able to knit and to use her arms, but since then she has developed epileptic fits.

The violence of this injury is apparent, and without doubt the brain was contused and probably numerous punctiform haemorrhages in the cortex and meninges resulted, but the gradual development soon afterwards of shakiness and weakness of gait, later with ataxy and extensor plantars, and finally epilepsy, is an incontrovertible indication of the development of a chronic nervous disease as the sequel to the brain injury. Possibly this chronic sclerosis is of the disseminated type.

Case 6.—A girl of 22 was sitting at lunch in a restaurant in the City when a heavy ventilating propeller, with its attached motor, fell from the ceiling directly upon her head, causing her to fall forwards, eight months before I saw her in October, 1919. She was given brandy and encouraged to eat, but she was unable to do so. She felt ill, and left the restaurant and returned home. She felt sick after the blow, and on reaching home her head felt heavy and the neck ached; she was kept in bed for three days, and kept away from work for six weeks. She complained continually of headaches and pain in the neck, back, and head, nervousness, and crying attacks, with bad dreams at night, when she felt she was falling. She slept badly, and often had to go to bed on account of headaches and pain in the back. Her mind felt confused and muddled, her memory was bad, and she forgot appointments. She would shake and scream, and might jump out of bed in her sleep. She tired easily, complained of a constant funny feeling in the head "as though a wind were blowing on the brain." Her doctor told me that both she and her people were rather casual about the accident, and did not take it at first seriously.

When examined in April her knee-jerks were found to be exaggerated and her hands tremulous, the plantar reflexes being flexor. When I saw her in October, eight months after the accident, she said she felt giddy if she tried to dance, her knees giving way, and she had to stop at once. The pain in the head soon after the accident became limited to the left side, but she still screamed at night and slept badly, and she broke down crying in my room. On examination the knee-jerks were exaggerated, there was no weakness of the feet or legs, and no anaesthesia. The left plantar reflex was constantly extensor, and the right occasionally so. When I saw her a month later she then had constant bilateral extensor plantar reflexes, with absent abdominal reflexes, which fact was confirmed by Dr. James Collier, who saw her with me.

This is a clear case of a severe blow upon the head causing concussion, followed immediately by headaches and pains, and emotional attacks, bad dreams, etc., which are commonly associated with a diagnosis of neurasthenia; yet the absence of the abdominal reflexes, and the later development of bilateral extensor plantar reflexes, must be taken as incontrovertible evidence of progressive nervous degeneration, which very possibly may be disseminated sclerosis.

Case 7.—A hospital nurse, aged 26, fell heavily down some stone steps, becoming unconscious for half an hour. She was warded for two months on account of pain in the back, during which time it was noticed that she dropped things and limped on the right leg. Eighteen months later she left the hospital, still limping on the right leg, and she has never been well since, complaining of a dull ache in the back and dragging sensation with numbness of the right leg, and weakness on going upstairs. Her trouble at first was mistaken for hysteria.

When I saw her in 1916, eight years after her injury, she had an ataxic gait and weakness of the right foot, the knee and Achilles jerks were exaggerated, and bilateral extensor plantar reflexes were present. There was slight ataxy of both hands, especially the right, and there was bilateral optic atrophy. Bladder incontinence was present, and there was loss of vibration on the lower extremities and on the abdomen up to the fifth dorsal level.

Here again severe injury was followed at once by pains in the back, weakness of the arms and leg, and later development of definite symptoms of disseminated sclerosis. Are we to assume that here was a case of early disseminated sclerosis unrecognized, but, owing to her disease, she falls heavily, and injures her spine? In any case the symptoms were aggravated by the fall, and there is no reason to suggest that she was anything but perfectly healthy and normal before the injury. I cannot but believe that the development of disseminated sclerosis was directly due to the severe blow on her head and back, which caused severe concussion.

Case 8.—An unmarried lady, aged 51, was run into by a car in January, 1923, the wing of the car hitting her left shoulder, and knocking her down on to the ground, striking her right shoulder heavily. No bone was broken, and she picked herself up and was then taken home. The right arm was weak from the commencement, and she was unable to hold anything firmly, and would drop her cup and other articles. After some weeks the arms gradually recovered. Six months later she noticed that her legs seemed to drag, especially the right leg. When I saw her in October of the following year both knee-jerks were much exaggerated, the right greater than the left, with bilateral extensor plantar reflexes and right ankle-clonus, with loss of vibration sense on the right leg, but no other sensory symptoms, no sphincter weakness, and eyes normal.

Here again a woman in perfect health after a severe injury has temporary weakness of the arms, and six months later gradually progressing weakness of the legs of spastic type. Organic disease was certainly present, and its connexion with the injury is difficult to exclude. Disseminated sclerosis seems a strong probability.

Case 9.—A boy of 15 had a severe crash from a motor bicycle, and was unconscious for a short time. He was not allowed to play games for a time after his return to Clifton, but he afterwards played rackets for his school. Two and a half years after the accident he developed diplopia and during the last year weakness of his legs. When I saw him in April, 1924, he had an ataxic gait, bilateral extensor plantars, ataxy of the left hand, absence of the left abdominal reflex, slow scanning articulation, and marked nystagmus, both lateral and vertical. He died the following year, but no necropsy was permitted.

Diagnosis of disseminated sclerosis seems quite clear in this case, and though there is a history of severe concussion two and a half years before the first symptom of diplopia developed, the length of time is too great to assume a necessary connexion between the trauma and the subsequent disease, though the fact is suggestive when taken in conjunction with the numerous other cases of trauma preceding nervous disease.

Case 10.—A woman, aged 53, was badly concussed in a motor accident, being unconscious for a time. A fortnight later paroxysmal neuralgic tic of the left third division of the fifth nerve commenced. She had no doubt suffered from disseminated sclerosis for thirty-five years, and when I saw her in 1928 she was limping on the left leg, walking with a stick, with flaccid paralysis of the left ankle, and bilateral extensor plantars. She was sent to me on account of the trigeminal neuralgia, which was arrested by alcohol injection.

In this case it would appear that the severe injury was concerned in the starting of the trigeminal neuralgia in a case of chronic disseminated sclerosis. I have published elsewhere[1] a case in which paroxysmal trigeminal neuralgia commenced within an hour and a half after a severe blow on the chin by another person's head, and I have similarly seen a blow on the jaw or face set up trigeminal neuralgia in a few other cases.

Case 11.—A man, aged 20, was badly buried in 1917 by a shell explosion at Ypres, being unconscious for eight weeks. He was then practically blind, could see shadows only, could not control his speech from stammering, and was extremely nervous. Eleven years later his left leg suddenly collapsed, and numbness spread up the left side of his body. When I saw him in 1930 there was right optic atrophy, with difficulty in moving his eyes in any given direction, bilateral ankle-clonus, left extensor plantar, and numbness of the left leg and arm. He said that the left side had never really recovered since the shell explosion and burial in 1917.

This is another case of a war injury directly producing symptoms of nervous disease which have never completely recovered, and, in addition, later symptoms of early disseminated sclerosis have developed. It is probable that a person without prejudice would connect the whole story as one, and even consider that the disseminated sclerosis is entirely due to the early war injury.

Case 12.—Another suggestive case was that of a lady, aged 47, whom I saw in October, 1927. Six years previously, when aged 41, she had a bad fall on a polished oak floor, sitting down very heavily and knocking her spine with a violent blow against a step. After this she felt pain on laughing, with a sensation as though she were cased in iron. A year later she began to suffer from giddy turns, and gradually her walking became weak, and she was apt to fall, especially the right foot being liable to drag. Some sphincter weakness of the bladder developed, but that is now better. Her articulation is slurring and staccato in type, the plantar reflexes are bilaterally extensor, and the knee-jerks are exaggerated. The arms were normal, and there was no nystagmus or other signs of disseminated sclerosis.

In this case there was an immediate onset of symptoms following the injury, though it was not for another year that definite symptoms of progressive nervous disease developed. I think it would be right to assume that the injury had some connexion with the development of her symptoms, either in aggravating previous latent spinal disease or possibly originating it.

Case 13.—Another war case was that of a man who, when aged 25, in September, 1915, fell heavily off his horse when jumping a pole, and struck his upper dorsal spine on the ground out of doors, and an hour or two later he complained of pins and needles in both forearms, especially in the hands and fingers, and he could not bear to touch anything for three weeks. He was dazed by the fall and could not pick himself up, and was put to bed for six weeks. The hands were weak at first, as well as suffering from paraesthesiae. His memory since the accident has been bad. His legs were weak, and he could not walk more than a mile. Gradually he improved, and returned to take up his commission, on light duty, with a cavalry regiment. Though he twice fell, his legs were weak in gripping his horse, and his arms recovered completely. In December, 1918, three years after the injury, he noticed his right vision failing, which he is certain must have developed in the previous six weeks. The following April his left eye began to fail, and when I saw him in December, 1919, he had bilateral optic atrophy, with almost complete central scotomata, bilateral extensor plantars, though no ataxy or nystagmus. The injury produced by the fall clearly concussed his spinal cord, as evidenced by the pins and needles in the forearms and hands an hour or so later.

This man was previously perfectly healthy and normal, though his legs afterwards became weak and his plantar reflexes extensor, with development of optic atrophy, the symptoms being suggestive of disseminated sclerosis. A radiograph taken in the following year is said to have shown a fracture of the right transverse process of the seventh cervical vertebra. The actual lesion of the spinal concussion may have probably caused meningeal haemorrhages and diffuse small haemorrhages in the spinal cord, though three years later he developed subacute retrobulbar neuritis, with subsequent optic atrophy.

Case 14.—A man, aged 50, had a bad fall from a motor cycle in 1918, heavily bruising the right leg which had become gradually weaker since the time of the injury, and he has dragged his right leg ever since. Two years before his injury he was suddenly struck with violent paroxysmal neuralgia of the right third division of the fifth nerve, the pain being very violent, like hot electric wires in his lower jaw. Since then the neuralgia has attacked him from time to time, though he had an interval of freedom of twelve months at first. When I saw him in 1922 he had a typical spastic right leg, with extensor plantar reflex, some conjugate weakness of the movement of the eyes to the right, with slight nystagmus. I injected his third division with alcohol, causing total anaesthesia of its distribution, and completely relieved the pain. Three years later, in 1925, his gait was more spastic and the right thigh wasted, with marked fibrillary tremors of the extensors, bilateral extensor plantars, and some ataxic nystagmus.

In this case the weakness and progressive spasticity of the right leg dated directly from the motor cycle fall,

though later on the spasticity increased, the plantars became bilaterally extensor, with some ataxic nystagmus and some wasting of the extensors in the thigh. The injury appears to have produced some damage, possibly in the spinal cord, damaging his right leg, but beyond that there is a progressive element of nervous disease as shown by the nystagmus and the fibrillary tremor and wasting of the extensor muscles in the right thigh. The absence of anaesthesia and sphincter symptoms might suggest, in view of the wasting and fibrillary tremors, amyotrophic lateral sclerosis, though the ataxic nystagmus is more in favour of disseminated sclerosis. In any case, a progressive nervous disease following immediately upon severe concussion of the spine is evident. A point in favour of the disease being really disseminated sclerosis may be taken to be the presence of trigeminal neuralgia, and, seeing that this had commenced two years before his injury, it is quite possible, if not probable, that disseminated sclerosis was lying latent and was aggravated definitely by the injury.

Case 15.—An interesting case because of its early commencement was that of a man whom I saw in 1920, aged nearly 23. When 8 years old, for three months he suffered with incoordination of both his hands and loss of sensation. He never walked well in the dark, but he was a fair long-distance runner as a boy. Diplopia was first observed when he was 15 years old, but he had no weakness of his legs until three months before I saw him, and five months previously to commencement of the weakness of his legs he had had a bad fall from a horse, and shortly before that a severe blow on his head.

On examination he was a typical case of disseminated sclerosis, ataxic, with bilateral extensor plantars, bladder incontinence, and nystagmus, especially to the right. It seems probable that the two severe blows that he had a few months before the onset of the weakness of the legs aggravated the existing disease and caused it to progress more rapidly.

Case 16.—Another case of trigeminal neuralgia complicating chronic spinal sclerosis I saw in a man, aged 49, who had had a severe fall when bicycle racing, being badly concussed and unconscious for several days. He was laid up for some weeks after this, and his right leg never became quite right again. Five years later he had a fall when out shooting, causing numbness of the legs, which were paralysed for an hour.

The case was mistaken for a pressure paraplegia as a result of the fall, and laminectomy was done, and seven years later trigeminal neuralgia commenced. When I saw him he was very spastic and ataxic, with extensor plantars and absence of abdominal reflexes. The case appears clearly to be one of a chronic spinal sclerosis, possibly disseminated sclerosis, developing as a sequel of severe spinal and cerebral concussions.

Case 17.—A case I saw at St. Mary's in 1919—a man of 36, who, when aged 22, was struck on the head by a falling log of wood, and was unconscious for a quarter of an hour. From then onwards he complained of sensations of weight on the top of his head, though he kept at work for eighteen months. Then one night he had a "stroke," his left arm and leg being paralysed for weeks, and his face drawn over. In two months' time he was better, and was able to return to his work for three months at the time, when the weakness would return, either on the right side or left, accompanied by sphincter trouble. On examination I found spastic paraplegia, with some ataxy of his hands, well-marked nystagmus, extensor plantar reflexes, and ankle-clonus.

This case was clearly one of disseminated sclerosis, which appears to have had its origin in the blow upon the head three years previously. In addition to these cases I have notes of six more hospital cases in which the symptoms in disseminated sclerosis appeared to follow directly after injury, but it is, I think, unnecessary further to labour this point.

Owing to the greater liability of the brain to contusion from injury it is not a matter of surprise to me that cerebro-spinal sclerosis appears to be a far commoner sequel of injury than is tabes or progressive muscular atrophy—degenerative processes almost limited to the spinal cord. The spinal cord is far more carefully protected from injury than is the brain. Hanging suspended by ligaments in a water-jacket contained within a jointed bony tube, which is itself encased in thick musculature, it is not surprising that it is able to withstand moderately severe blows upon the back without gross injury. Severe falls or violent blows can no doubt effect direct damage to the spinal cord itself through all its defences, sometimes by fracturing a vertebra and causing direct contusion of the cord, which may lead to transverse myelitis. Such fractures of a vertebra are to-day more easily demonstrated by improved technique in taking lateral *x*-ray photographs of the spine. Kümmell's disease has thus been shown to be definitely a fracture of the body of the vertebra and not a shock absorption of the bony tissue due to a blow.

Concussion of the cord, without fracture, sometimes produces immediate symptoms of pins and needles in the arms and hands, hyperaesthesia, and curious sensations like electric shocks on flexing the head. Almost certainly punctiform haemorrhages are produced in this way, the immediate symptoms being aggravated a few days later by oedema secondary to the haemorrhages and contusion. Nerve cells may thus be damaged and then atrophy; and who in our present state of pathological ignorance, I will not say knowledge, can confidently assert that such a process, once started, may not progress, even to a fatal termination?

REFERENCE

[1] *Neuritis and Neuralgia*, Oxford Medical Press, 1926, p. 169.

THE TREATMENT OF TUBERCULOSIS OF THE LARYNX*

BY

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The subject of the treatment of tuberculosis of the larynx has in the past been a favourite one at Annual Meetings of the British Medical Association. It was discussed at Manchester in 1929, at Birmingham in 1911, at Leicester in 1905, and at Cheltenham in 1901, and I have no doubt that there have been other discussions of the subject which I have overlooked. The reasons are not far to seek. The subject is one which interests not only the laryngologist, but the physician (particularly if he specializes in diseases of the chest), the tuberculosis officer, the medical officer of health, and last but by no means least, the general practitioner; for the disease is a common one—tuberculosis is the commonest of all specific infections of the larynx—and the last word on its treatment has yet to be said.

According to the last official report[1] the deaths from tuberculosis of the respiratory system in England and Wales in 1931 amounted to 29,658 (in 1921 it was 33,505, and there is apparently a persistent decline in the mortality). The total number of cases in England and Wales of pulmonary tuberculosis on December 31st, 1931, on the registers of notifications kept by medical officers of health, as shown in the returns, was 236,758

* Read in opening a discussion in the Section of Laryngology at the Annual Meeting of the British Medical Association, Dublin, 1933.

(127,006 males and 109,752 females). So that Sir StClair Thomson's rough estimation (167,525) of the number of cases in 1921,[2] calculated as five people ill with pulmonary tuberculosis for every death from the disease, was a considerable underestimate. Sir StClair Thomson also calculates (supported by Maurice Fishberg[3] of America, after the examination of various statistics) that on an average one out of three patients with active phthisis has a laryngeal lesion, which gives the formidable total of 78,919 persons in England and Wales afflicted with tuberculosis of the larynx at one stage or another.

In coming to a conclusion on the value of any method of treatment in disease some control is necessary, and the possibility of spontaneous arrest or cure must be considered. It is interesting, therefore, to look at a paper published in 1922 by I. D. Bronfin and C. Markel.[4] Their study of 200 cases of pulmonary tuberculosis showed that in 85 per cent. there were pathological changes in the larynx which in at least 63 per cent. in their opinion were tuberculous. It was found that among 139 cases, undergoing little or no treatment, there were only eight showing progress of the disease, whereas thirty-one showed improvement and 100 were stationary. The authors express the opinion that, though subacute or chronic tuberculous laryngitis should be under constant observation, it does not require active treatment in the absence of distressing symptoms.

In gauging the value of any method of treatment the type of case must also be considered carefully. For example, in any study of tuberculosis of the larynx the first work of reference to be examined must be the masterly monograph by Sir StClair Thomson, published in 1924 under the auspices of the Medical Research Council.[5] Sir StClair Thomson's clinical material, however, belonged to a very restricted group. His patients at Midhurst consisted of comparatively early cases from the middle classes, people who could afford to pay something for their board and treatment—school teachers, post office and bank employees, and clerks, with a sprinkling of clergymen, doctors, Army officers, and their families. Cases which were steadily getting worse were not kept on, and the occasions for post-mortem examinations, he says, were rare. Of 477 cases of laryngeal tuberculosis in ten years at Midhurst 119 were cured, or 24.9 per cent. This may be contrasted with the clinical material in one of the best recent reviews of the subject, by a young American, R. W. Wilkinson.[3] Wilkinson reported a series of forty-five cases, of which forty-three were in Group III of the Turban-Gerhardt classification (advanced involvement), two were in Group II (severe involvement), and none were in Group I (slight involvement). His patients were seen in general hospitals maintained as public institutions, and the majority of the patients were from the poorer strata of society, including many illiterates. Of his cases four were cured, fourteen improved, sixteen did not improve, and eleven were worse.

The age of the patient is still another factor that must be taken into consideration. Over the age of 40 pulmonary tuberculosis is a relatively benign disease, and in my experience almost any method of treating tuberculosis of the larynx gives better results in patients over 40 than under 40; but after 55 the results are worse again.

Artificial Pneumothorax

In the treatment of pulmonary tuberculosis the greatest advance—Sir James Kingston Fowler[6] called it in 1921 the only advance—since the introduction of sanatorium treatment has been the employment of the method known as artificial pneumothorax, which consists in inflating the pleural space of the affected or more affected lung with air, thus resting the diseased lung as a splint rests a tuberculous joint. Artificial pneumothorax has been practised on an increasing scale in the past fifteen years, but most authorities consider its induction unjustifiable without a preliminary trial of pure sanatorium treatment. Cedric Shaw[7] has recently, however, made a plea for pneumothorax to be induced in an earlier type of case than the conventional, basing his argument on the good results obtained in 267 cases of pulmonary tuberculosis treated by artificial pneumothorax at an out-patient clinic at the Brompton Hospital during the past ten years.

Artificial pneumothorax is beginning to receive more and more attention as a method of treating tuberculosis of the larynx. L. S. T. Burrell,[8] in his report on artificial pneumothorax to the Medical Research Council, says that "tuberculous laryngitis is no contraindication, and is usually improved by the treatment." S. Dumarest and P. Brette,[9] in their monograph on artificial pneumothorax, say that the laryngeal condition is generally improved, and that in any case it renders the larynx more favourable for local treatment. In 1927 Sir StClair Thomson and R. R. Trail[10] reported nine cases of tuberculosis of the larynx treated by artificial pneumothorax, with complete healing in six. They point out in their conclusions that cases of pulmonary tuberculosis are always rendered much more serious by the addition of a laryngeal extension; the complication is of still worse augury if it develops after admission to a sanatorium or after induction of an artificial pneumothorax. Despite this experience, the presence of laryngeal tuberculosis is no contraindication to this operation, but it may speedily effect a cure or render the galvano-cautery or other treatment more promising. The larynx can be cured by this measure, even though bacilli may continue to be present in the sputum and mischief to be detectable in the chest. The indications for induction of artificial pneumothorax must, primarily, be based on the pulmonary and general condition of the patient. So far as the larynx is concerned the only contraindication would be an acute miliary invasion.

In 1926 Dworetzky[11] compiled two tables, one of which revealed 1,592 cases of pulmonary tuberculosis treated with artificial pneumothorax by various physicians, and tuberculous laryngitis developed in only four of these cases. The other table listed thirty-two cases of laryngo-pulmonary tuberculosis treated by artificial pneumothorax, in twenty-six of which the condition was definitely improved, in four it remained stationary, and in two the patient died. The four stationary cases were reported as not showing a satisfactory collapse. In 1930 the same authority[12] published a table summarizing the statistics he gathered during the previous five years, showing the part that artificial pneumothorax plays in the prevention of tuberculous laryngitis. Tuberculosis of the larynx developed in only twelve of 5,382 patients treated in this manner by seventeen different physicians, while in fifty-six of their patients with laryngo-pulmonary tuberculosis treated by immobilization of the lungs the laryngeal lesion was arrested or cured in twenty-six, improved in nineteen, stationary in five, and unimproved in six. Dworetzky gives details of nine cases of his own of tuberculosis of the larynx treated by artificial pneumothorax, of which four had the disease arrested or cured, and five were improved; of those arrested two had a phrenicotomy performed as well as the artificial pneumothorax, one had also the aid of the galvano-cautery, and one had also a thoracoplasty; of those improved two had also a phrenicotomy and one had a phrenicotomy and thoracoplasty. Dworetzky concludes that a satisfactory pneumothorax, by arresting the pulmonary lesion, will almost always prevent the development of laryngeal tuberculosis, and that a satisfactory collapse of the diseased lung by either artificial pneumothorax, phrenic avulsion, or extrapleural thoracoplasty, usually exerts a beneficial effect on the laryngeal lesion.

My own experience of artificial pneumothorax in the treatment of tuberculosis of the larynx has so far been highly satisfactory. In the various sanatoriums to which I am attached there were forty cases of tuberculosis of the larynx treated by artificial pneumothorax in 1932 (included among them one case treated by oleothorax, gomenol being injected); there are other cases still being

healing of ulcerated areas. Two patients died, but in these there was extensive involvement of both lungs, and treatment was only applied in an attempt to relieve dysphagia and painful symptoms. He found that considerable reaction occurred after treatment, lasting for twenty-four to forty-eight hours, with oedema extending to the soft palate and uvula.

At Colindale Hospital since the beginning of the present year I have been trying to ascertain the effect of the treatment of tuberculosis of the larynx by ultra-violet light, using the Kromayer model No. 2 water-cooled mercury vapour arc lamp, with a quartz laryngeal applicator designed by Dr. William Beaumont. This applicator has a special curve so that it can be passed, with the aid of a laryngeal mirror, within the epiglottis to about half an inch from the vocal cords, and it is silvered over so that the rays are limited to the end. Up to the present we have treated eight patients only, and of these six have had full courses of treatment, the other two having been discharged for various reasons before treatment had been completed. Of the six patients who had complete courses of treatment five improved very greatly; in each case the larynx became much cleaner and healthier, and any ulceration present healed. In the sixth case, although the patient said that the larynx felt better and dysphagia was relieved, in my opinion the larynx at the end of the three months was not so healthy, infiltration and ulceration having rather more advanced than otherwise. In all these cases the treatment consisted in giving two-minute applications three times a week for a period of from three to four months. The patients were all men, aged 39, 36, 32, 23, 27, and 22 respectively; all had tubercle bacilli in their sputum, and all were in a moderately advanced stage of the disease. After an application of the rays there was invariably a slight reaction, with reddening and sometimes slight swelling, but it was never serious, and subsided within twenty-four hours. The number of cases in this series is too small for one to draw any real conclusions, but at any rate this treatment shows promising results, and is well worth persevering with. It will probably be found that artificial sunlight will be best employed as an adjuvant to other methods of treatment.

X Rays and Radium.—It has been suggested that therapeutic x rays or radium might give better results than ultra-violet rays, and some successful cases have been reported; but I have no personal experience of such methods of treatment, and, indeed, see no particular advantage in them.

Chaulmoogra Oil

The value of the local application of chaulmoogra oil, which is used effectively in the treatment of leprosy, in tuberculosis of the larynx has been praised enthusiastically by R. M. Lukens,[26] who is attached to the Jefferson Medical College, Philadelphia. He began to use this method of treatment in 1921, and says that until that time he had been very sceptical about arresting tuberculosis of the larynx. Blocking of the superior laryngeal nerve for dysphagia had been the almost daily occurrence, but since employing chaulmoogra oil the use of alcohol injections had been reduced to an occasional one, as cases of dysphagia were now the exception rather than the rule. Lukens insists that the Burmese chaulmoogra oil should be used rather than the Indian variety, as it contains a larger proportion of chaulmoogric acid and is apparently much more effective in treatment. The oil is used either in the diluted form (10 to 20 per cent. in mineral oil) or full strength, and is dropped into the larynx or applied by a swab, and is applicable to ulcerative tuberculous laryngitis and superficial infiltrations.

R. W. Wilkinson,[5] on the other hand, who worked for a time in Lukens's clinic, treated some of his patients with chaulmoogra oil, but did not get as satisfactory results as he had hoped. My own experience of chaulmoogra oil has not been encouraging. I have used chaulmoogra oil regularly, applying it once weekly by a swab to the larynx, in a large number of cases during the past two years at Colindale, but, although it is soothing, I cannot say that it has proved to be of any curative benefit. It is certainly inferior in our hands to the old-fashioned lactic acid (introduced by Krause in 1885), which I still use in strengths of 50 per cent. and 100 per cent.—even although Joseph W. Miller says that "to-day, no one even whispers about its curative properties."[20] In this I follow, however, in the footsteps of Sir James Dundas-Grant, and with considerable benefit to ulcerative cases, particularly when the epiglottis is affected.

Injection of Gold Salts

The value of the treatment of pulmonary tuberculosis by sanocrysin and other gold derivatives is still in dispute, but there seems little doubt that in certain cases sanocrysin has a definitely beneficial effect; it seems, however, to be difficult to select the cases that will benefit from this method of treatment.

A. Fischer[27] treated 115 cases of tuberculosis of the larynx with a gold preparation, but concluded that any good results were due not to the specific action of the gold on the tuberculous process, but to stimulation of the whole of the reticulo-endothelial system. D. Ferrando[28] treated twenty cases of laryngeal tuberculosis by intravenous injections of sanocrysin; twelve cases were cured or arrested, five improved, and three were no better for the treatment. Ferrando concluded that sanocrysin could determine favourable modifications and even clinical cures in certain forms of laryngeal tuberculosis.

W. C. Fowler[29] of Pinewood Sanatorium tells me that he has been very much impressed by the value of sanocrysin in some of the cases of tuberculosis of the larynx there, and he thinks it has a definite specific effect upon laryngeal lesions in some cases. In the past eighteen months I have been examining regularly nine cases of tuberculosis of the larynx, all women—two moderately advanced and the other seven comparatively early cases—who were being treated by Dr. Fowler with sanocrysin. One case had also artificial pneumothorax and phrenic avulsion (with improvement), and one had also artificial pneumothorax (with improvement). Of the nine cases, one is completely healed, six are definitely improved, and two are worse (one insisted on going home to Scotland before completing treatment, and one was transferred for other treatment). All of these patients were treated in addition by vocal rest and general sanatorium regime.

H. Gainsborough and P. J. Jory[30] have used intramuscular injections of the compound benzyl cinnamic ester (Jacobson) in cases of laryngeal tuberculosis in which the condition was stationary or getting worse. Seven patients were treated, and of these five were noticeably improved. The effect on the pain and dysphagia was especially favourable.

Tracheotomy

Tracheotomy to afford complete rest to the larynx affected by tuberculosis was advocated so long ago as 1829 by Albers,[31] who was the first to differentiate syphilis from tuberculosis of the larynx, but I hardly expected to hear it advised by a modern laryngologist a year or two ago in the Royal Society of Medicine. Sir StClair Thomson[2] has only twice been obliged (in 477 cases) to perform a tracheotomy for the relief of stridor and dyspnoea caused by the disease, and once because of stenosis resulting from cicatricial stenosis consequent on the healing of galvano-cautery applications. I have personally seen only one case in which tracheotomy was necessary, because of a web almost closing the glottis, due to the cicatrization of ulcerated vocal cords.

Methods for the Relief of Dysphagia

The most simple means of relieving pain in swallowing is by the insufflation into the larynx, by Leduc's tube, of a powder consisting of equal parts of orthoform and anaesthesin (Dundas-Grant). If the pain is caused by a small localized ulcer in the larynx this is best cleared up by the use of the sharp-pointed galvano-cautery at white heat, after having applied 20 per cent. cocaine to the ulcer. In more advanced cases an excellent method is to block the superior laryngeal nerve with alcohol, using a hypodermic syringe and a solution of 2 grains

of cocaine hydrochloride in 1 ounce of 80 per cent alcohol. I note that both Sir StClair Thomson[7] and W. G. Howarth[8] have found this method disappointing, but as carried out according to the directions of Sir James Dundas Grant[12] it is simple and effective.

The patient is placed in a semi-recumbent or horizontal position and the operator stands on the side on which the injection is to be performed. The neck is sterilized with tincture of iodine or alcohol and the operator's hands with alcohol. He then passes his left hand over the patient's chin and grasps the larynx with his left thumb and fingers, pulling the larynx towards him with the fingers and feeling for the thyro-hyoid space with the thumb, noting a spot about one centimetre in front of the tip of the great cornu of the hyoid bone or directly above the oblique line for muscular attachment on the thyroid cartilage and close above this cartilage. The needle detached or else fixed upon the syringe is inserted perpendicularly to the skin to the depth of about a centimetre and a half, varying slightly according to the thickness of the superjacent soft tissues. If blood comes from the needle this should be withdrawn and reintroduced at a slightly different spot. The syringe if detached may now be screwed on and a few drops of the alcohol should be injected. This generally causes slight smarting, and the patient is instructed to raise the hand when the smarting stops. One c.c. or a little more may then be injected. In order to make sure that there has been no penetration of a vein the syringe if attached may be screwed off and then readapted or a very gentle aspiration may be made to see whether a drop of blood passes into the syringe.

The patient should be given a drink of water a minute or two after the injection, and if it has been successful he will swallow at once without any pain.

I have carried out this method of blocking the superior laryngeal nerve in eight cases with relief for from three weeks to three months in five cases. Dr. *Houghton*, senior assistant medical officer at Colindale, has carried out a similar method in a very large number of cases with complete success in over 50 per cent. of them. A word of warning must be given about blocking both superior laryngeal nerves: this may prove very troublesome, causing regurgitation of food or even oedema of the larynx. When pain recurs constantly resection of the nerve under local anaesthesia has been advised by C. H. Ernlund[13] and others. H. Schuget[14] has resected the nerve in fifteen cases with complete healing of the lesions in nine cases, the nerve resection should be carried out only *if the general condition of the patient is good*.

Conclusion

In reviewing the multiplicity of remedies for tuberculosis of the larynx the first principles upon which treatment is based should be kept clearly in mind. Tuberculosis of the larynx is never primary and its treatment must be founded upon the conception that it is always secondary to tuberculosis of the lung. It is the patient who must be treated and not the larynx and on the whole (for exceptions have been known) any improvement in the larynx will progress with the improvement in the lung. It is of little use to cure the larynx and have the patient die of his lung disease. Hence the extreme surgical treatment of tuberculosis of the larynx, advocated by a former generation has been abandoned and such methods of treatment as artificial pneumothorax and phrenic avulsion are in the ascendant.

The importance of preventive measures must not be forgotten. Every patient suffering from pulmonary tuberculosis, or suspected to be, should have the larynx examined regularly, as a routine. I have pointed out in a previous paper[15] that routine examination of the larynx would frequently enable a definite diagnosis of pulmonary tuberculosis to be made at a time when the stethoscope yields no evidence and would allow of treatment being begun at an early stage of the disease. A proper use of the voice, restraint of noisy coughing and clear breathing through the nose all tend to inhibit the development of tuberculosis in the larynx. I have resected several badly deflected nasal septums under local anaesthesia in quiescent cases, with apparent benefit both to the larynx and to the lung. Any infection of the nose or throat should be adequately treated, a simple alkaline nasal douche to clear catarrhal or purulent discharges from the nasal passages has, in my experience, often helped the improvement in affected patients and has no doubt helped to prevent infection of the larynx in others. A simple nasal spray or nasal oil containing menthol is also often helpful. In a few cases I have drained infected maxillary sinuses with beneficial results. In certain carefully considered cases removal of septic tonsils may undoubtedly be beneficial. In a few such cases I have dissected out the tonsils under local anaesthesia. M. C. Myerson (quoted by R. W. Wilkinson) states however, that he has seen two cases in which tonsillectomy was followed by *general* miliary tuberculosis and rapid decline in young adults. Alcohol and tobacco should be prohibited or, *if tobacco* be allowed, greatly restricted. C. F. Edson[16] and others are advocates of climatic treatment and believe that the patient with tuberculosis of the larynx has an advantage in high altitudes.

It is difficult to assess the various methods of treatment in vogue at their true valuation. For example in comparing artificial sunlight with vocal rest and the sanatorium regime it should be emphasized that Strandberg's patients are hospital-out patients and Sir StClair Thomson's patients intelligent well disciplined middle class patients in a sanatorium that is one of the best in the world. Nor should it be forgotten that when Strandberg records his results of treatment with light baths most of his patients have also been treated with vocal rest and the galvano-cautery.

As regards my own cases I am fortunate in having my patients in six sanatoriums and hospitals with just over 1,400 beds comprising early moderately advanced and advanced cases and including men, women and children. During 1932 a total of 3,549 patients passed through these hospitals of whom 415 were transferred to other institutions for various reasons an undetermined number were discharged after short periods during which the larynx was not examined and there were 197 deaths. I had under my own observation 320 cases of tuberculosis of the larynx of whom thirty-eight showed clinical cure, *101* were improved, eighty-one were stationary, fifty-nine were worse and forty-one died. The mainstays of treatment have been general sanatorium regime and vocal rest supplemented by artificial pneumothorax and by the various methods we have been trying out in the throat clinic of the Colindale Hospital with the co-operation of Dr. Heaf. But when I try to come to a conclusion about any method of treatment whether *it be artificial pneumothorax*, ultra-violet light, sanocrysin or another I have to remember that all my patients were also being treated by the sanatorium regime, many of them by vocal or physical rest and all of them constantly under the eyes of keen medical observers who have devoted their lives to the study of the treatment of tuberculosis.

I must conclude by thanking Sir James Dundas Grant from whom I first learned knowledge of tuberculosis of the larynx, for his kind help in the preparation of this paper. I have to thank Dr. James Watt, Dr. W. C. Fowler, Dr. Nassau and Dr. F. R. C. Heaf and I must also thank Sir Frederick Menzies for his permission to make use of the abundant clinical material in the London County Council tuberculosis hospitals and sanatoria.

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THE PROGNOSIS OF TUBERCULOUS LARYNGITIS*

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I must ask for the acceptance of my conclusions as those of a phthisiologist who has taken a special interest in the changes of the larynx in tuberculous patients for a number of years, and for a review of them in the light of the wider knowledge and experience of oto-rhino-laryngologists. It would seem at first that the answer to the question "What is the prognosis of tuberculous laryngitis?" could be answered by the single word "bad"; some might require to qualify it by saying "very bad." Why then spend time in discussing a subject apparently so dismal and depressing? The reason is that there are few diseases in which such important changes in treatment and prognosis have taken place during the last few years as in tuberculosis, and these changes have materially affected the outlook on one of the most serious complications of the infection. Nowadays far more attention is paid to the larynx in tuberculous patients, with the result of earlier diagnosis, better response to treatment, and a more favourable prognosis.

The Position Then and Now

Forty years ago tuberculous laryngitis was regarded as absolutely incurable. Sir StClair Thomson gives a number of quotations in his masterly survey of tuberculosis of the larynx, published in the Special Reports of the Medical Research Council.[1] Three of these illustrate the pessimistic view prevalent fifty years ago. In 1880 Morell Mackenzie[2] wrote: "It is not certain that any cases ever recover." In 1894 Lennox Brown[3] reported one case in which [illegible] had been effected, and at that time Krause into the larynx wrote of tuberculous laryngitis that it [illegible] able to ulcerate ends fatally."

[illegible] infiltration respects the general opinion of the prognosis of [illegible] W. [illegible]ous laryngitis has not changed very much [illegible] these days. Standard textbooks on medicine still [illegible] phrases such as: "It is doubtful if any cases of extensive infiltration recover, with exception of a few rare instances where it is confined to the epiglottis and can be entirely removed."[7] The infected larynx is still regarded as the certificate of death by the majority of clinicians, but the patient and his relatives rarely regard the complication as serious. This is to some extent fortunate, in that the patient is stimulated by an unfailing hope that his symptoms can be relieved and a recovery secured. This optimism does play an important part in the prognosis of the lesion, for if it fades away and is replaced by despondency treatment will then be of little avail and the result will be disastrous. Unfortunately there is a tendency for an excess of assurance to lead to complete disregard of advice—particularly with reference to resting the voice—thereby endangering the future.

The pessimistic attitude towards tuberculous laryngitis is greatly due to the fact that the complication is usually associated with advanced pulmonary lesions, and in a large number of cases is first diagnosed when the lungs have become grossly infiltrated. Further support to this impression is given by the statistics compiled by observations made at necropsies on patients dying from pulmonary tuberculosis. Fetterolf, quoted by Spencer,[4] found the larynx involved in eighty-three out of a series of 100 cases, and in a series of 150 necropsies on my own cases I found the larynx involved in 68 per cent. Of this 68 per cent. I found 44 per cent. had ulceration of the intestines, a figure which is of importance, as there seems to be some connexion between the two complications. It will be seen that over two-thirds, maybe over three-fourths, of cases suffering from pulmonary tuberculosis have laryngeal infiltration before they die. It is thus easy to conclude that if a pulmonary patient develops laryngitis then his days are numbered, and the end is not far off. Now if this were true how sad and depressing would be the work of a laryngologist in a tuberculosis hospital or sanatorium! Can one imagine anything more hopeless and melancholic than passing a death sentence on men and women by diagnosing an incurable condition which will end their days in the near future?

Happily such a conclusion, based merely on observations made in the post-mortem room, is not true. Because the majority of patients dying from pulmonary tuberculosis suffer from active laryngeal infiltration it does not follow that a patient with laryngitis is bound to die from pulmonary tuberculosis, or that the laryngitis determines the fatal termination of the disease. There is evidence that a patient with pulmonary and laryngeal tuberculosis can recover completely from the laryngitis and yet succumb to the chronic pulmonary lesion. I had two such cases in my series, and Cooper and Benson[5] report thirty-nine from a series of 798 necropsies on pulmonary cases. If the larynx can recover in patients actually dying from pulmonary tuberculosis, to how much greater an extent can we expect recovery when the pulmonary lesion is also arrested?

Factors in Prognosis

We have met to-day to determine the factors and conditions which influence the possibility of recovery from the laryngeal lesion, and I will now ask you to consider the most important points which control the prognosis of this interesting subject. I say "interesting subject" because, during the fifteen years I have been examining the throats of tuberculous patients, I have learnt the extreme value of this procedure, by which one can gain information in many cases of the patient's resistance to the disease, of his temperament, of his symptoms, and occasionally of his habits, by a laryngeal examination. The prognosis of tuberculous laryngitis depends on all these factors, and many more, for although the nature, position, and extent of the local lesion must be considered, the most important information is the amount of resistance the patient has to the disease.

* Read in opening a discussion in the Section of Oto-rhino-laryngology at the Annual Meeting of the British Medical Association, Dublin, 1933.

To determine this we must review the previous history, especially the rapidity of onset of the disease, the family history, and the type of pulmonary lesion. The laryngologist has often to depend on the physician for this information, but if we can assess the degree of resistance ourselves so much the better. I should like particularly to emphasize the importance and value of a blood examination in making this assessment, more especially the value of two observations made under similar conditions at intervals of a few weeks whilst the patient has been under treatment. A serial blood examination will sometimes reveal the true state of the patient's condition when all other evidence makes us tend to form an opposite opinion. The combination of (1) a rapid sedimentation rate, (2) a high monocyte count, and (3) a low lymphocyte and eosinophil count, which does not show any tendency to change, means a poor resistance, and so long as that state continues the laryngeal lesion will not improve.

Closely connected with the patient's reaction to the infection is the type of lung lesion. A study of this will help in the formation of an opinion on the larynx. Generally speaking, the more fibrotic the pulmonary condition the less severe is the laryngeal activity. The case with large areas of soft caseous or pneumonic disease—the exudative type—will develop an active oedematous type of laryngeal lesion which rapidly ulcerates, and is difficult to control, whereas laryngitis in a fibroid case is generally of a benign character, very slowly progressive, responding to treatment rapidly, and having little or no influence on the general progress of the case.

As fibroid phthisis is more frequent in patients over 40, and the general resistance to the infection increases as age advances, we find that the consequence of tuberculous laryngitis becomes less and less important the older the patient becomes. I have been struck by the high percentage of complete recoveries one obtains in men over 40. Out of a series of 110 cases definite arrest of the laryngeal lesion, with complete disappearance of symptoms, was obtained in 25 per cent. of men over 40. The predominating type of laryngeal lesion in the cases in which a good result was obtained was an infiltration, showing congestion but little oedema, and very rarely any ulceration.

Type of Lesion in Prognosis

This brings me to the discussion of the character of the lesion as a guide to the prognosis. Naturally the small lesion has, in most cases, a better chance of recovery than the extensive one, although occasionally we come across patients with little or no resistance in whom the laryngeal lesion is diagnosed in a remarkably early stage, and yet, in spite of most thorough treatment, progresses to panoedema with extensive ulceration. Omitting this type, I have made four classes for the purpose of prognosis.

1. The extrinsic { ulcerative. / non-ulcerative.
2. The intrinsic { ulcerative. / non-ulcerative.
3. The localized lesion { ulcerative. / non-ulcerative.
4. The lupoid { ulcerative. / non-ulcerative.

Each class falls into two subdivisions for ulcerative and non-ulcerative cases. A generalization may be immediately made by stating the obvious—that the prognosis is better in the non-ulcerative than in the ulcerative type—but it must be remembered that the position of the ulcer has some bearing on the future of the case.

The first class includes the aryteno-epiglottic cases, with massive infiltration, oedema of the epiglottis, and pyriform swelling of the arytenoids. The cords may be clear even in the last stages. The prognosis in these cases is very bad. In the young adult up to the age of 30 it is hopeless. After 40 they respond moderately to treatment, but the improvement is not permanent. The lesion nearly always shows signs of ulceration, and the length of life is almost indirectly proportional to the area of ulceration. The second type comprises cases with corditic and inter-arytenoid infiltration. Here the prognosis is comparatively good, partly owing to the general absence of dysphagia and the good response to rest treatment. If, however, the infiltration extends to the arytenoids or the ventricular folds, the possibility of recovery is reduced by about 50 per cent. An important symptom in determining the future of these cases is that of dysphagia. Whilst this symptom is absent I always feel that there is some hope of recovery, and, roughly speaking, so long as the infiltration is not markedly oedematous, and is confined to the inner ring of vocal cord and inter-arytenoid fold, a response to treatment is probable, but when the outer ring of epiglottis and arytenoids is mainly the site of the lesion the case has a most unfavourable outlook.

A certain number of cases do not fall into these two classifications, and I place some of them in the category of the localized type. In these cases the lesion is nearly confined to one side of the larynx, or localized to two small areas on either side. It may be one cord, an arytenoid, or one side of the epiglottis, or a combination of these. There may be some inter-arytenoid thickening, but so long as the infiltration leaves half the larynx clear and healthy, or is localized to one particular area, I place the case in this class. I make this division because I have found the majority of the cases do very well, particularly if little or no ulceration is present and the lesion is characterized by firm infiltration.

Lastly, I come to the lupoid type, in which I include the granular, papillary, and smooth, defined tuberculomata. They rarely cause symptoms, respond most favourably to treatment, and do not affect the general prognosis of the case to any appreciable extent.

We will now consider the prognosis, with reference to the unusual sites of the early lesion, and their direction of spread. The most frequent order of involvement is the arytenoid, the inter-arytenoid fold, the vocal cords, the ventricular bands, and the epiglottis. The most favourable site of onset is the vocal cords, and after that the inter-arytenoid region. With localized lesions the prognosis is good, particularly if the infiltration is of the firm, fibroid type. One need not be unduly pessimistic about a hard, localized swelling over a moderately large area, but if there is oedema present, especially if it is accompanied by ulceration and necrosis of the tissues, there is usually a distressing amount of dysphagia, and the future becomes extremely grave. Solitary lesions on the vocal processes are not uncommon. They usually have a good prognosis. On the other hand, the outlook, with isolated lesions on the ventricular bands, is not so good, as occasionally they develop rapidly and become complicated with oedema and ulceration. One site of a tuberculous lesion must be mentioned because of the extreme hopelessness of the prognosis. If the infiltration invades any part of the soft palate or fauces, no matter how slight the area of laryngeal infiltration may be, no response will be obtained from treatment. I do not think any such case has been known to recover, and unfortunately the patient usually suffers from a most distressing and persistent dysphagia.

General Aspects

There are few conditions in which temperament plays a more important part in determining a patient's future than in tuberculosis, and I think the complication of

laryngitis is considerably influenced by the patient's nature and attitude towards life. As you know, the treatment is exacting and tedious, involving a considerable amount of sacrifice of comfort and pleasure. The undisciplined individual can destroy a fair or good prognosis by inattention to detail and disregard of advice. Similarly, the despondent, morose character will often become progressively worse, although he is most careful to follow out treatment. The latter type is met less frequently than the former, and it is often the irresponsible, careless temperament that ruins the chances of recovery by continual foolish behaviour. The patient must have great moral strength and fortitude to overcome his disability, and the utmost encouragement must be given to him thoughout treatment.

I think that the absence of this will power to recover is partially the reason why alcoholics with tuberculous laryngitis have such a bad prognosis. Usually this type of patient suffers from the fibroid type of disease of the lungs, complicated by chronic bronchitis, and has a fair resistance to the infection, but the lack of self control, unrestricted use of the voice (accompanied by excessive smoking), which is so common with these patients, causes irritation which leads to intense congestion of the larynx and a general oedema of the mucous membrane. Contrary to tradition, I find that women keep silence better than men, and are generally much more concerned about the tone of the voice.

It is always interesting to hear the various opinions on the effect of smoking, and the harm or otherwise of a particular type of smoking. Some emphatically deny that the habit in moderation has any influence on the course of the disease, others perceive considerable irritation from the mildest indulgence. Some allow pipes and forbid cigarettes, and some give the reverse advice. Continuous smoking for several years often produces chronic laryngitis, particularly in the cigarette inhaler. This irritation of the mucous surfaces is accompanied by anorexia and chronic intestinal catarrh, with symptoms of increased salivation, followed by dryness of the mouth the next day. It is more the occurrence of these general effects of smoking that hinders the progress of laryngitis in the tuberculous patient than the actual local effect of chronic congestion of the larynx. The average tuberculous patient is a fairly heavy cigarette smoker. If laryngitis develops I think this habit influences the prognosis in proportion to the amount of smoke inhaled. There seems to be no evidence that pipe smoking or moderate cigarette smoking without inhalation has any effect on the prognosis of a tuberculous laryngitis.

Effect of Concurrent Disease

The prognosis of tuberculous laryngitis is closely connected with the treatment of the pulmonary condition. Those laryngeal cases in which artificial pneumothorax treatment is possible generally show marked improvement of the larynx after the pneumothorax has been established. I find that our own results at Colindale agree with the conclusions of Sir StClair Thomson and Dr. Trail[6]—namely, that an improvement in the laryngeal condition can be expected if the case responds to artificial pneumothorax treatment. Other forms of general treatment, such as sanocrysin and auto-inoculation, do not seem to produce such an immediate improvement in the local condition. The response to treatment brings me to the proposition that the laryngeal condition always follows the progress of the pulmonary lesion. This is not true, otherwise we could not find healed laryngeal infiltration in patients dying from pulmonary disease. Sir StClair Thomson[1] has shown conclusively that occasionally the larynx may improve whilst the lung condition deteriorates, but the lung condition never improves if the larynx becomes worse. Therefore the onset of tuberculous laryngitis whilst the patient is under institutional treatment means that the patient is going downhill, and is of grave significance. These cases very rarely recover. It will be seen that we have in tuberculous laryngitis an important index of the patient's condition, which if closely observed will give useful information of his or her progress. I agree that the condition of the larynx usually follows that of the lungs, but there is no doubt that in certain cases suitable treatment appears to enable the larynx to heal whilst the lungs are still active, and then, if the lungs relapse, the larynx need not take part in the retrograde movement.

The presence of concurrent diseases will influence the prognosis according to their general effect on the body. Diabetes and syphilis must warn us against being optimistic, although the appearance of the larynx may warrant a good prognosis. On the other hand, the presence of bronchitis, asthma, and pulmonary fibrosis will help us to take a more hopeful outlook. The appearance of the larynx in these cases is apt to be misleading, but it is important to determine the exact amount of infiltration and ulceration present. Often the whole mucous membrane is deeply congested, and may be slightly oedematous. This condition remains stationary for many months, and has little or no significance, being merely a chronic catarrhal condition aggravated by coughing. Debilitating diseases often produce the pale, anaemic larynx, with localized ulceration, which has an unfavourable outlook. Pyorrhoea and stomatitis may cause acute symptoms, but they rarely have any effect on the laryngeal lesion. The occupation of the patient will affect the prognosis adversely if it involves much talking or shouting, or if it leads to the inhalation of irritating fumes and dusts. Pregnancy has a very serious effect on tuberculous laryngitis, particularly if it develops in the early months.

I have been impressed by the improvement of the larynx when nasal and nasopharyngeal obstructions, such as adenoids and deflected nasal septa, have been removed, also when chronic rhinitis has been treated successfully. The removal of such conditions of the upper respiratory tract will improve the prognosis of the larynx.

Conclusion

I need hardly stress the influence of early diagnosis on the prognosis. Naturally, the small area of infiltration is more amenable to treatment than the large one, although it must be remembered that the small laryngeal lesion in a patient with little or no resistance will progress rapidly, particularly if the lesion has developed whilst the patient is under sanatorium treatment. Evidence of this low resistance can be obtained by serial blood sedimentation tests, if possible supplemented by cell counts. Finally, I wish to emphasize the necessity of considering the patient's general condition, particularly with regard to his reaction to the disease as shown by the blood picture. This, combined with observations on the site and type of the lesion, will enable us to give a fairly accurate prognosis. The statement that appeared in the *Lancet* in 1922 that "it is universally admitted that tuberculosis of the larynx is a comparatively benign disease which is nearly automatically arrested when the original pulmonary disease becomes quiescent" is too dogmatic and optimistic to apply to such a serious complication; nevertheless, by early diagnosis and correct treatment, we can free ourselves from the dismal prospects of early writers, and confidently feel that in an increasing number of cases the prognosis of the lesion can be moderately, and sometimes very, good.

TABLE I.—*Showing the Result of Treatment in the Various Types of Laryngeal Lesions*

Type	Clinically Cured	Improved	Stationary	Worse
Extrinsic	1	7	10	13
Intrinsic	6	11	11	6
Localized	8	20	12	2
Lupoid	1	1	1	0

TABLE II.—*Showing the Type of Laryngeal Lesion Compared with the Pulmonary Lesion*

Type of Lung Lesion	Extrinsic	Intrinsic	Localized	Lupoid
Caseo-fibrotic...	20	14	10	0
Fibro-caseous...	7	10	16	2
Fibrotic...	4	10	16	1

TABLE III.—*Showing the Response of the Laryngeal Lesion to Treatment compared with the Type of Pulmonary Lesion*

Type of Lung Lesion	Clinically Cured	Improved	Stationary	Worse
Caseo-fibrotic...	2	11	17	14
Fibro-caseous...	7	15	7	5
Fibrotic	7	13	9	2

TABLE IV.—*Showing the Incidence of the Different Types of Laryngeal Lesion at Various Ages*

Age	Extrinsic	Intrinsic	Localized	Lupoid
15-20 years	2	4	2	0
20-30 years	4	11	15	1
30-40 years	12	6	7	2
40-50 years	5	7	15	0
50-60 years	5	6	3	0
Over 60 years...	3	0	0	0

TABLE V.—*Showing the Response of Larynx to Treatment at Various Ages*

Age	Clinically Cured	Improved	Stationary	Worse
15-20 years	1	2	2	3
20-30 years	2	12	10	7
30-40 years	3	12	8	4
40-50 years	9	8	7	3
50-60 years	1	4	6	3
Over 60 years	0	1	1	1

TABLE VI.—*Showing the Influence of Dysphagia on the Result of Treatment*

	Cured	Improved	Stationary	Worse
Suffering from dysphagia ...	3	6	5	13
Not suffering from dysphagia..	19	37	21	6

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THE DURATION OF PASSIVE IMMUNITY TO DIPHTHERIA

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Probably owing to the development of methods of producing active immunity to diphtheria, little investigation has been carried out in recent years on the question of passive immunity. While there is no gainsaying the fact that active immunity is preferable to passive, there is no doubt that, in certain circumstances, passive immunization, when its virtues and limitations are accurately known, may be of considerable value. Apart from its tendency to produce serum sensitivity, the chief disadvantage of passive immunity is its short duration. Investigation of the results obtained and of the opinions held by previous workers showed that, while all were agreed that this immunity only lasted for a short time, the actual duration had been variously estimated by them at from two weeks to two months. It was with the object of obtaining further information on this point that the present investigation was undertaken.

PREVIOUS INVESTIGATIONS

The literature of diphtheria contains little record of previous work on the question, and only three experiments can be traced which bear resemblance to the present study. Kolmer and Moshage[1] investigated the duration of passive immunity to diphtheria as measured by the Schick test. They tested 108 children, aged from 2 months to 3 years, all of whom had received 1,250 units of antitoxin subcutaneously at periods of from one to five days before the test. It appeared that all the twenty-eight tested between five and ten days were Schick-negative, five out of twelve at ten to twenty days, ten out of fourteen at twenty to thirty days, twenty-three out of thirty-six at thirty to fifty days, and nine out of sixteen at over seven weeks.

Apart from the smallness of the numbers in some of these groups, there are two points to which criticism may be directed. First, one expects most children under 6 months to be immune to diphtheria, and such children appear to be included in those under investigation, without any statement as to the proportion they formed of the total. Secondly, no attempt seems to have been made to determine the Schick reaction of the subjects who received antitoxin. It follows that a number of the children injected were, in all probability, already immune; the results, therefore, will tend to exaggerate the duration of immunity. A second investigation carried out by Kolmer and Moshage on 362 scarlet fever patients is subject to criticism on the same grounds. These patients received 2,500 units of antitoxin; 10 per cent. were Schick-positive after one to ten days, 13.9 per cent. after ten to twenty days, 22 per cent. after twenty to thirty days, 34 per cent. in thirty to forty days, 66.7 per cent. after forty to fifty days, and 67.8 per cent. after fifty days.

Zuckerman[2] carried out a preliminary Schick test, and also repeated his antitoxin dose after the return of the Schick-positive condition. All his patients were tested on alternate days until they gave a positive reaction. Of his twenty-seven cases nineteen received 1,000 units of

antitoxin and eight 500 units. His conclusion was as follows:

"A few children showed a positive reaction as early as the seventh day. Most of them, however, did not react positively till eighteen to twenty-eight days after the injection, one reacting negatively for forty-six days. No difference was noticed in this respect between those receiving 500 units and those receiving twice that amount."

The results of this investigation, as far as they go, correspond more nearly to those of the present study. Its value, however, is limited by the small number of patients tested.

Present Investigation

This was carried out on scarlet fever patients in the L.C.C. North-Western Hospital, in whom the occurrence of sporadic cases of diphtheria had been giving rise to some anxiety. These were Schick-tested on admission, and, of those thus tested, 104 consecutive Schick-positives were included in this investigation. No patient in whom the reaction was in any way doubtful was taken. Of the 104, four were removed from the hospital or transferred to another ward after developing a cross-infection other than diphtheria before Schick-retesting, so that the records of exactly 100 cases form the basis of this report.

Each of these received 500 units of antitoxin subcutaneously, as soon as possible after it had been determined that the Schick test was positive, and generally about the fourth day after admission to hospital. On the fourteenth day after injection a Schick re-test was carried out, followed, on the twenty-first day, by a second re-test. Both re-tests were read on the third and on the tenth day in order that there might be no doubt about the readings. Assuming the Schick test to be an accurate criterion of immunity, this method would show the numbers immune at fourteen and at twenty-one days after the injection of antitoxin. Taking the 100 cases as a whole the following results were obtained:

Immune after fourteen days	89
Immune after fourteen days, but not re-tested at twenty-one days	9
Immune after twenty-one days	84
Not immune at fourteen days	2

Thus, of those fully tested, five who were immune after fourteen days lost their immunity before the twenty-first day. Of the nine cases where the final re-test was not, for various reasons, carried out, it may be assumed that they would have divided in somewhat the same proportion as those who were fully tested—that is, in the proportion of 84 to 5. Whether they are divided on this basis and introduced into the table or are ignored for statistical purposes the effect is the same. Immunity lasted for at least twenty-one days in 92.3 per cent., for at least fourteen days in a further 5.6 per cent. (a total of 97.9 per cent.), and only 2.1 per cent. were not immune after fourteen days.

If the results are analysed into age groups further interesting points appear.

Age	Immune at 14 days	Immune at 21 days	Not Immune at 14 days	Total
Under 5 years ...	39 (5)	33	0	39
5-10 years	47 (2)	42	0	47
10-15 years	10 (1)	8	1	11
Adult	2 (1)	2	1	3

The figures in parentheses in the first column are the numbers of those who were re-tested after fourteen days but not after twenty-one days. It will be noticed that all the patients under 10 years were immune after fourteen days, and, ignoring the incompletely tested, only four of these lost their immunity between the fourteenth and the twenty-first day. Of the 10 to 15 age group one out of eleven was not immune after fourteen days, and one other lost the immunity before the twenty-first day.

The effect of antitoxin on that ever-present annoyance in scarlet fever wards, the Klebs-Loeffler-bacillus-positive nasal discharge, is also worth recording. In the 100 cases under observation six developed this complication, but it is important to note that in none of them did it develop within four weeks from the date of immunization, the actual intervals being twenty-eight, twenty-nine, thirty, forty-three, forty-eight, and sixty-six days. Virulent strains of the organism were isolated from four of these cases after the intervals named.

Conclusions

Passive immunity to diphtheria was obtained in a highly satisfactory proportion (97.9 per cent. of all cases and 100 per cent. of those under 10 years) of Schick-positives by the injection of 500 units of diphtheria antitoxin. In adults and adolescents over 15 a larger dose is probably necessary. The duration of this immunity is at least fourteen days, and in the majority of cases (94.4 per cent.) extends to twenty-one days. The incidence of diphtheritic infection in passively immunized patients occurring at the times stated would suggest that it is unwise to regard this form of immunity as lasting longer than three weeks.

These results are published by the permission of Dr. A. Joe, medical superintendent of the hospital, to whom we are indebted for advice and assistance.

References

[1] Kolmer and Moshage: *Amer. Journ. Dis. of Child.*, ix, 189.
[2] Zuckerman: *New York Med. Journ.*, ii, 808.

HEARTBURN IN PREGNANCY

BY

E. BRIAN RAYNER, M.B., Ch.B.

It is with considerable trepidation that I, a minnow among the tritons, venture to record some observations upon heartburn in pregnancy—a condition which is dismissed in the textbooks with a few words, but which is a frequent source of tribulation to the general practitioner, and may become a veritable nightmare to the patient.

My attention was first directed to this condition in the ante-natal department of the Royal Simpson Maternity Hospital, Edinburgh, where one was seeing a large number of patients suffering from very distressing heartburn which did not respond to the routine treatment with so-called anti-acid mixtures. It was while attempting to correlate the various symptoms associated with hypo-acidity in non-pregnant patients in another ward* that a clue to the solution of the problem appeared. The interesting and surprising fact emerged that a certain number of patients suffering from hypo-acidity com-

* I am indebted to Dr. John Eason of the Royal Infirmary, Edinburgh, for permission to scrutinize a series of case records where hyposecretion had been proved by test meal.

plained of heartburn—a symptom which is ascribed in the textbooks to those patients suffering from hyperacidity or peptic ulcer.

It occurred to me that possibly *many pregnant women* with heartburn might have been wrongly labelled as suffering from hyperacidity, and *should*, in fact, be regarded as suffering from hypo-acidity. I determined upon a therapeutic test of my theory by administering acid. hydrochlor. dil. to these women. Permission to make the experiment was obtained from Dr. E. Chalmers Fahmy, by whose courtesy I was attending the department, and to whom I am very grateful for encouragement and help. It was resolved to attempt the treatment on only the worst and most intractable cases, and the history of the first patient is worth recording individually as being typical of the *majority*.

Mrs. M., two-para, seven months pregnant, complained of very severe heartburn, aggravated by leaning forward or by greasy food. The heartburn was very much worse in bed at night, and kept her awake. She vomited every night. Duration: since the third month. She had tried bicarbonate of soda and other alkalis without avail. She was given 30 minims of acid hydrochlor dil., divided into two doses with each meal. She returned after one week very much improved, and at the end of fourteen days her heartburn had completely disappeared, but reappeared if she stopped the medicine. She was no longer vomiting was sleeping well, and she volunteered the remark that she "felt better than she had done during the whole of the rest of the pregnancy," or during her previous pregnancies, throughout which she had *suffered from heartburn*

Review of Material

The cases recorded below were partially collected in the ante-natal department of the hospital, where, owing to exigencies of time, the number treated was small, and partly in general practice, where the accumulation of cases is obviously a slow business. In none of the patients included in the series were any of the other toxaemias of pregnancy present. In each case the patient was advised to abstain from all greasy foods, and the bowels were regulated where necessary. Two doses of acid. hydrochlor. dil., varying from 10 to 20 minims each, were given with every meal, well diluted and flavoured with orange juice (if necessary), the usual procedure being to take one dose during the meal and the other twenty minutes after the meal.

In a series of forty-five cases the patients were divided into three groups.

Group I.—Those that were not relieved by alkalis but were relieved by acid.

Group II.—Those that were relieved by alkalis in relatively small quantities (as compared with the large quantities given to patients with gastric or duodenal ulcer).

Group III.—Those whose condition was aggravated by acid and not relieved by alkalis, as in Group II.

The results were: Group I, thirty-four; Group II, five; Group III, six.

It is undoubtedly more satisfactory to draw conclusions from experimental data, and thence to put theory to the test of clinical practice. These notes would admittedly be more valuable if they included a record of test meals taken from these patients. Pregnant women willing to undergo this test are few and far between, especially in general practice. Perhaps a bolder man than I will supply the deficiency. It cannot, however, be denied that the results raise several points of interest, possibly the more interesting because we must work backward from clinical results to theories.

1. Why do patients suffering from either hyperacidity or hypo-acidity—both, in certain cases—complain of heartburn? A possible explanation is that the stomach has a large safety margin for gastric secretions normally present during digestion, and only reacts when that margin is overstepped, as in gross hyperacidity. Conversely there may be a relatively small margin for substances not normally present during digestion—for example, excessive mucus, products of fermentation, fatty acids, etc. When this margin is overstepped the stomach again reacts. In many hyperacid and in some hypo-acid stomachs, the earliest reaction takes the same form—namely, heartburn.

2. What is the explanation for the three groups of cases? It is suggested that the patients in Group I are suffering from a genuine hypo-acidity. Those in Group II from mucous gastritis, and the essential action of the so-called antacid is, on the contrary, the dissolution of mucus and stimulation of secretion. Those in Group III are suffering from genuine hyperacidity, and should be treated on the same lines as any other patient with this condition. It may even become necessary to carry this as far as a rigorous ulcer regime. In this connexion it was discovered that two of the patients in Group III had been treated for gastric ulcers some years earlier.

3. In a large proportion of patients in Groups I and II the condition is very much worse at night (in many cases keeping the patient awake), is aggravated by a meal containing a large proportion of fat, or by stooping down. It is relieved in some cases by vomiting. One ventures to suggest: (1) that symptoms are worse at night owing to the accumulation of fermenting material throughout the day, stasis being aided in many cases by increased intra-abdominal pressure; (2) that a fatty meal tends to decrease the secretion of acid; and (3) that a vomit is a physiological stomach washout—the treatment *par excellence* of mucous gastritis. It is a proved fact that anxiety and worry diminish the gastric secretion. It would appear, therefore, that many of these patients establish a vicious circle for themselves—they come to dread the meals on account of the heartburn that follows them, thereby sitting down to the table with a physiological hyposecretion. The administration of dilute hydrochloric acid breaks the circle and restores confidence.

4. Heartburn occurs throughout pregnancy, though many do not come for treatment until about the sixth month, and many do not come at all. (This fact became obvious during the investigation, but, for the sake of simplicity, the exact figures have not been given.)

Conclusions

1. Heartburn is regarded as a trivial matter because it does not endanger the patient's life; but it is a far from trivial matter for the patient, or for the general practitioner who has to cope with it. It certainly occurs a great deal more frequently than the major toxaemias of pregnancy.

2. It has been wrongly regarded in the past as a symptom of hypersecretion. It is suggested that it may equally well be a symptom of hyposecretion or mucous gastritis.

3. The use of acid. hydrochlor. dil. with meals will clear up many otherwise intractable cases of heartburn, and should always be given a trial.

4. It is freely admitted that nowadays it is unusual to work backwards from results to causes. One's methods may be faulty and one's reasoning fallacious, but it can at least be said that the results, especially in general practice, have amply justified the experiment. One's defence must be the circumstances in which this work was carried out, and one can only hope that these observations may serve as a sprat to catch a mackerel—or, to return to my original metaphor, a minnow to catch a triton.

For the seventh edition of the well-known textbook by Professors H. D. Chapin and L. T. Royster the title *Paediatrics*[11] has been chosen to replace the more euphonious "Diseases of Infants and Children." This change is reflected in the additions and alterations for which Professor Royster is responsible, and the views on this subject of the White House Conference on the Curriculum are given full consideration in some excellent introductory sections on growth and development of the normal child. Ever since its first appearance in 1909 this book has been deservedly popular among those who have been fortunate enough to discover it, and the new edition will continue the high reputation of its predecessors.

Dr. George Hohmann, who is the director of the Orthopaedic University Clinic of Frankfurt a/M., has collaborated with Fräulein Lina Stumpf, who is instructress in curative gymnastics and massage in the clinic of the same university, in the production of a book on orthopaedic gymnastics.[12] In his introduction Dr. Hohmann insists upon the importance of skilled medical prescription and supervision of all curative exercises, while he gives great credit to his collaborator's work. This book is based upon years of experience of the subject in his private institution in Munich, as well as four years' work on the treatment of the war-disabled, and lastly three years in the gymnastic section of the University Clinic in Frankfurt. In all these places Fräulein Stumpf has helped and supported him. Exercises, nearly all of which take the form of active movements directed to the correction of congenital and acquired deformities, are briefly described, but the accompanying illustrations, of which there are 254, are the most valuable part of the book. They are mostly in the form of diagrams, which are clear and leave no doubt on the reader's mind as to their uses and purposes. They should be very useful.

Dr. Moulonguet, the well-known French otologist, has collected into a small volume[13] an account of a large number of tests for malingering, of the examinations necessary for writing reports on cases where pensions, damages, or insurances are claimed, and of the medico-legal aspect of accidents. The number of methods which have been proposed for the detection of malingering is so large that it must cause some doubt regarding their efficacy, but if the malingerer of deafness is to be caught neatly one must have command of a variety of devices with which to outwit him. There is here an ample selection, which must contain some novelties to confound the most hardened malingerer. A useful analysis of feigned and genuine vertigo is also given. The chapters on military pensions naturally relate to the regulations of the French Army, but are of general application in principle. The decisions required relative to candidates for life assurance are given on the usual lines. The book forms a handy compendium for reference on medico-legal matters outside the ordinary scope of otology.

Broschek and Co. of Hamburg announce the publication of a new periodical, *Acta Aerophysiologica* (first issue obtainable from Conrad Behre, Hamburg 1, Kleine Johannisstrasse 19, price R.M.3), which deals with physiological problems involved in aeronautics and mountaineering. It is intended to treat the subject on an international basis, and the editor, Professor Ludolf Brauer of Hamburg, has secured the assistance of co-editors in twenty-one other countries. The first number (83 pp.) contains eleven illustrated articles on various aspects of the subject, amongst which are included electrocardiography, blood pressure, and respiratory changes during flight; function of the vago-sympathetic system in the aviator; the visual fields at high altitudes; biological reactions of the blood from changes in atmospheric pressure; and gravitational disturbances in the circulation from reduced air pressure.

[11] *Paediatrics*. By H. D. Chapin, M.A., M.D., and L. T. Royster, M.D. Seventh edition, revised and rewritten by L. T. Royster. London: Baillière, Tindall and Cox. 1933. (Pp. xvi + 775; 149 figures. 35s.)

[12] *Orthopädische Gymnastik*. Von Prof. Dr. Hohmann und Lina Stumpf. Leipzig: G. Thieme. 1933. (Pp. 156; 254 figures. M.7.)

[13] *Manuel d'Expertise en Otologie*. Par André Moulonguet. Paris: Masson et Cie. 1933. (Pp. 106. 16 fr.)

The revised edition of Dr. Parmelee's *Nudism in Modern Life*,[14] in which the hygienic, moral, and aesthetic aspects of this new cult are set forth, differs chiefly from the first, which was published in 1929 (see *Journal*, 1929, ii, 672) by the substitution of an entirely new and better set of illustrations.

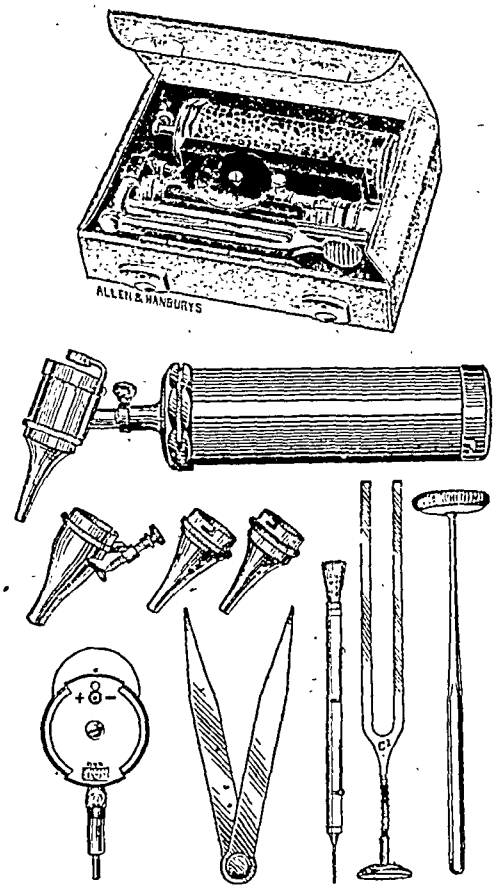
[14] *Nudism in Modern Life*. The New Gymnosophy. By Maurice Parmelee, Ph.D. With an introduction by Havelock Ellis. Revised edition. London: John Lane, Ltd. (Pp. xii + 303; 23 figures. 7s. 6d. net.)

Preparations and Appliances

A Neurological Diagnostic Set

Dr. Louis Rose (Chartham Down) writes:

I would like to bring to the notice of the increasing numbers of medical men interested in nervous disease a diagnostic set now obtainable and illustrated here. Contained very compactly in a thin leather case measuring only



$7\frac{1}{2} \times 5 \times 1\frac{3}{4}$ inches, it consists of a large-handled ophthalmoscope, patella hammer, disk-foot tuning-fork, aesthesiometer callipers, and touch-and-pain tester. I have had included both aural and nasal speculae.

The set was carried out to my design by Messrs. Allen and Hanburys, Wigmore Street, W.1.

Liver Compound for Intramuscular Use

Hepatex compound intramuscular (*H.C.I.*) is prepared at Evans's Biological Institute by Evans Sons Lescher and Webb, Ltd. It contains hepatex I-M, iron, phosphorus, arsenic, and strychnine, and is recommended for secondary anaemias of the megalocytic type, which have a blood picture resembling that of pernicious anaemia—that is, a low red cell count, a predominance of red cells of abnormal diameter, and a high colour index.

Analgesic Tablets

Saridone brand analgesic tablets (Hoffman-La Roche Chemical Works, Ltd.) contain phenacetin and caffeine, together with a new pyrazolon derivative. The chemical name of the latter is phenyl-dimethyl-isopropyl pyrazolon. The makers claim that this combination of drugs constitutes a potent and quickly acting analgesic, which is free from undesirable side effects, and is effective in the relief of pain arising from a wide variety of causes.

FAMILY DIET COEFFICIENTS

BY

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Scales of family coefficients for use in dietary studies or for reckoning food allowances in institutions have been drawn up by many workers on problems of nutrition, and until recently no international standard has been proposed. This variation in scales has led to much difficulty in comparing studies undertaken at different times and in different countries, some thirty scales having been in use from time to time. One of the earliest was that of Atwater. During the war, when rationing became imperative, the scale proposed by the Inter-Allied Scientific Food Commission was adopted. In 1931 Cathcart and Murray put forward a scale which graded children more than had been attempted previously in this country. In September, 1932, the International Conference at Rome suggested a scale to be used in Europe generally. It is to be noted, however, that this international scale made no pretensions to absolute accuracy. The Conference explicitly stated in its report (*Quart. Bull. Health Organization*, League of Nations, 1932, 3) that "the main value [of the scale] lies, not in its accuracy, but in the fact that, by its use, comparisons of studies made in different parts of the world will be possible." In all scales the adult male is taken as the unit, the needs of women and children being expressed as decimals of that of the man. Table I shows the variation of these four scales.

TABLE I

Age (Years)	Atwater Scale	Inter-Allied Scale	Cathcart Scale*	International Scale
Child 0+	0.1	0 5	0.2	0.2
„ 1+	0 4	0.5	0.3	0 2
„ 2+	0 4	0 5	0 4	0.3
„ 3+	0.4	0.5	0 5	0 3
„ 4+	0 4	0 5	0 5	0 4
„ 5+	0.4	0 5	0.5	0 4
„ 6-7+	0.5	0 7	0.5	0 5
„ 8+	0.5	0.7	0 7	0 6
„ 9+	0.5	0.7	0 7	0 6
„ 10-11+ ...	0.6	0 83	0.8	0 7
„ 12+ ...	0 6	0.83	0 9	0.8
Male 13+	0 6	1 00	0.9	0 8
Female 11... ...	0 6	0 85	0 9	0.8
Male 14-15+ ...	0 8	1 00	1.0	1.0
Female 14-15+ ...	0 7	0.83	0.83	0 8
Male 16-59... ...	1.0	1 00	1.00	1 0
Female 16-59 ...	0 8	0 83	0 83	0 8
Male 60 and over ...	1.0	1.00	1.00	0.8
Female 60 and over ...	0 8	0 83	0.83	0 8

* Medical Research Council Special Report No. 151, 1931.

The population of England and Wales (1921 census) was 37,886,699. That population on the Atwater scale would be equivalent to 29,686,971 men, or 78 men per 100 of the population; on the Inter-Allied scale the number would be 32,061,136 men, or 83 men per 100; on the Cathcart scale 31,456,040 men, or 83 men per 100; on the international scale 29,739,586 men, or 78 men per 100—very large differences when rationing a nation on the basis of 3,000 Calories per man per day. An institution with a population of sixteen boys aged 9+, 159 aged 10-11+, 132 aged 12+, and 101 aged 13+ would range from 60 men per 100 boys (Atwater scale) to 87 men per 100 boys (Inter-Allied scale), and the catering might be adequate or inadequate for the needs of the boys according to the scale adopted. Cathcart and Murray, in a study of individual diets in five families, have led the way to a consideration of "man-values" from the point of practical observations. In their five St. Andrews studies they found that the father in each case actually consumed some 12 per cent. more than he was entitled to from the "man-value" of the diet, his extra Calories being obtained from protein and fat, while the mother, instead of consuming 0.83 of the "man-values," actually obtained only 0.70. The individual consumption within the family differing in these five cases quite significantly from the accepted standards led to a further sample being studied in a London area.

Method of Collecting Data

Families which had already kept budgets and diet sheets for a fortnight in connexion with an investigation into acute rheumatism in children were approached. This time the investigation lasted only two days. During the two days the mother entered in a note-book all the foodstuffs used in that time, exactly what was served at each meal, and how much of each item the various members of the family consumed. The notes as to individual consumption were made after each meal and unknown to any member of the family but the mother. For example, the mother entered at each meal the number of cups of tea, with the teaspoonfuls of sugar and tablespoonfuls of milk consumed by each member, and the number of spoonfuls of porridge served out, the amount of oatmeal used to make the porridge being also stated. The only point which might have differed from the ordinary home procedure was that the mother was asked to slice bread as evenly as possible, and, if one member of the family preferred thick or thin slices, to write down such variations. At the end of the two days the note-book was carefully scrutinized in the presence of the mother, and any points which had not been clearly stated were then written down accurately, queries as to any food left, etc., being answered and noted. When the sheets were prepared for working out, the total weight of bread bought in the two days, less any left over, was divided by the total number of slices and the appropriate weight assigned to each individual; similarly with margarine, sugar, milk, etc. Stews or puddings were given the total food value of the stated quantities of their various ingredients, the proportion of the whole eaten by each member of the family being worked out from the number of slices or spoonfuls taken. As such "made" dishes often contained both animal and vegetable protein and fat, it has not been possible to estimate the total amount of animal fat or protein consumed in each case.

The total Calories, absolute and percentage, amount of protein, fat, and carbohydrate, and percentage of Calories derived from bread have been calculated for each individual, the food values being taken mainly from Plimmer's analysis. In all, particulars were collected from seventeen families, totalling eighty-five persons, but in the summing up of results one family is omitted as the father was not at home. This leaves eighty-one persons in the sixteen families. In two cases the father was unemployed and the food distribution was probably not normal, the father eating distinctly less than the mother, who had to continue her usual household duties. The children, forty-nine in number, ranged in age from 16 years to 3 months, and were in normal health with the exception of the 3 months old infant.

Results

In the 1930 fortnight's study the average Calorie consumption of the same sixteen families was 2,987, with a standard deviation of 510.16 Calories (C.). The figures for the 1932 two-day study were 3,152 C., standard deviation 744.06 C. Both series are reckoned on the Cathcart scale.

The difference between the average for the two studies is 165 C. ; the probable error of that difference is 152, which shows that the two series are quite comparable in Calorie content. Table II shows the average percentage of the total Calories consumed by the various members of the families, and the percentage of the Calories derived from protein, fat, carbohydrate, and bread.

TABLE II

	Number of Samples	Per cent. of Calories	Per cent. of Calories from Protein	Per cent. of Calories from Fat	Per cent. of Calories from Carbohydrate	Per cent. of Calories from Bread
Father	16	25.7	12 5	37.5	50.0	21.7
Mother	16	19.8	12.3	35.7	52.0	23.1
Boy 14+	2	22.3	10.8	34.9	54.3	27.2
Girl 14+	3	19.8	11.4	34.5	54.1	20.8
Child 12+	7	23.0	11.0	30.4	58.6	28.9
„ 10+	11	20.1	11.0	37.2	51.8	21.2
„ 8+	5	17.9	10.7	32.9	56.4	22.3
„ 6+	5	16.7	10.8	29.7	59.5	24.8
„ 3+	11	15.0	12.2	31.2	56.6	21.1
„ 2+	1	6.9	12.7	44.4	42.9	19.7
„ 1+	3	12.1	9.8	35.1	55.1	18.9
„ 0+	1	4.0	8.9	38.6	52.5	—
Average per man-value	—	—	11.7	34.9	53.4	22.3

It will be noticed that the father has more than the average man-value percentage of protein and fat, and less of carbohydrate and bread, while the children at two periods of rapid growth have high percentages of carbohydrate. Table III shows the consumption of the father expressed as a percentage over or under the average man-value consumption of each family on the Cathcart scale in total Calories, protein, fat, and carbohydrate.

TABLE III

Family Reference Number	Percentage Over or Under Man-value			
	Total Calories	Protein	Fat	Carbohydrate
2	−17.14	−15.18	−21.83	−15 82
3	−38.17	−38.88	−38.16	−38.05
4	− 6.55	− 9.39	+ 0.97	− 8.83
5	−11.99	+ 2.32	+10.45	−33.30
6	+ 3.41	+16.96	+14.28	− 8.18
7	− 2.22	+ 1.19	− 6.83	− 0.32
8	− 1.52	+ 0.93	+ 1.79	− 4.44
9	− 2.33	+ 8.32	− 2.89	− 4.04
10	−13.27	+ 5.19	+20.31	−34.98
11	− 1.87	+30.13	+26.22	−28.21
12	+11.92	− 1.09	+13.48	+13.02
13	− 2.00	− 6.21	+10.34	− 8.03
14	− 2.53	+16.22	+ 3.47	−10.38
15	+27.68	+23.75	+30.36	+26.80
16	+18.44	+19.98	+25.95	+11.67
17	+18.87	+29.54	+ 7.62	+27.20
Average of 16 Fathers	− 1.20	+ 5.24	+ 5.97	− 7.24

Though the sixteen fathers fall slightly below the average man-value consumption of total Calories, owing to Nos. 2 and 3 being unemployed, yet their consumption of both protein and fat is over 5 per cent. above the average man-value consumption. Table IV gives the same facts for the sixteen mothers.

TABLE IV

Family Reference Number	Percentage Over or Under Man-value			
	Total Calories	Protein	Fat	Carbohydrate
2	+ 8.30	+ 2.40	+15.95	+ 6.77
3	−16.63	−17.00	−24.02	−10.82
4	−16.95	−24.22	−17.29	−15.46
5	−19.12	−22.41	−19.89	−17.82
6	−17.42	− 8.43	−10.45	−24.97
7	−24.09	−20.74	−19.31	−27.47
8	−26.70	−29.83	−29.84	−26.56
9	−28.33	−18.02	−25 74	−35 88
10	−34.29	−32.72	−34.69	−31.41
11	−29.40	−28.62	−24.25	−33 02
12	−19.55	−30.74	− 3.37	−18.74
13	−30.43	−19.51	−36.13	−29.87
14	−32.58	−21.13	−16.21	−43.90
15	−14.81	− 1.73	−18.43	−15.64
16	−38.89	−35.33	−39.83	−38.92
17	−41.48	−28.95	−47.35	−39.40
Average of 16 mothers	−23.90	−21.25	−21.93	−26.07

The average Calorie consumption of the sixteen mothers instead of being 17 per cent. below the average man-value is practically 24 per cent., the consumption of carbohydrate being 26 per cent. below the man-value average. Comparing the sixteen families as to Calorie consumption per man-value, per father and per mother, we have Table V, column (*b*) showing the proportion each parent consumed of the man-value amount.

TABLE V

Family Reference Number	Calories per Man-value (Cathcart Scale)	Father		Mother	
		(*a*) Calories consumed	(*b*) Proportion of Man-value	(*a*) Calories consumed	(*b*) Proportion of Man-value
2 } Father unemployed	3,179	2,634	0.83	3,443	1 08
3 }	2,135	1,320	0 62	1,780	0.83
4	2,441	2,281	0.93	2,027	0.83
5	2,510	2,209	0.88	2,030	0 81
6	3,456	3,574	1.03	2,854	0.83
7	2,706	2,645	0.98	2,054	0.76
8	3,229	3,180	0 98	2,367	0.73
9	5,454	5,327	0.98	3,909	0.72
10	2,893	2,509	0.87	1,901	0.66
11	2 833	2,780	0.98	2,000	0.71
12	3,667	4,104	1.12	2,950	0 80
13	3,342	3,275	0.98	2,325	0.70
14	2,376	2,316	0.97	1,602	0.67
15	3,450	4,405	1.28	2,939	0 85
16	3,227	3,822	1.18	1,972	0.61
17	3,529	4,195	1.19	2,065	0.59
Average ...	3,152	3,161	0.99	2,359	0.76
Standard deviation }	744	991	—	627	—
Coefficient of Variation	23.61	31.35	—	26.25	—

If we neglect families 2 and 3, where the father is unemployed and the food distribution is abnormal, we find the percentage of the total Calories consumed by father and mother as in Table VI.

TABLE VI

Family Reference Number	Number in Family	Percentage of Total Calories Consumed by	
		Father	Mother
4	4	28 9	25 7
5	4	24 9	22 9
6	4	23 9	19 1
7	5	22 6	17 5
8	5	21 1	18 1
9	5	26 0	19 1
10	7	22 6	17 2
11	6	20 7	14 9
12	6	25 1	18 0
13	4	33 5	23 7
14	5	22 5	15 6
15	5	23 3	19.5
16	6	31 2	17 7
17	4	34 6	17 1
Average		25 65	19 01
Standard Deviation		4 50	2 97
Coefficient of Variation		16 87	15 62

These fourteen families have the average man-value figure of 3,222 C. The percentage of the food consumed by the different members, and that in turn expressed as a proportion of the father's percentage, is shown in Table VII.

TABLE VII

Member	Fourteen Employed Families		
	Number of Samples	Percentage of Total Food	Father as Unit
Father	14	26 66	1 00
Mother	14	19 01	0 71
Boy 14+	1	23 90	0 93
Girl 14+	3	19 83	0 74
Child 12+	6	23 12	0 87
„ 10+	11	20 11	0 75
„ 8+	5	17 85	0 67
„ 6+	5	16 66	0 62
„ 3+	8	15 21	0 57
„ 2+	1	6 90	0 26
„ 1+	1	12 20	0 46
„ 0+	1	4 00	0 15
	70		

This shows the consumption of the adult woman to be 0.71 of the man, a figure which tallies with that actually found by Cathcart and Murray, not 0 83, as is usually accepted. The figures for the children are very near to the Cathcart scale at the ages when there are more than one or two samples. In Table VIII the individuals in each family have also all been expressed as proportions of the father, and each family added up on this scale, as well as on the Atwater, Inter-Allied, Cathcart, and 1932 international scales.

TABLE VIII

	Man-value				
	Atwater Scale	Inter Allied Scale	Cathcart Scale	International Scale	Found
No of persons, 81	55 00	63 72	62 33	57 00	64 85
Man value per 100 persons	68	79	77	70	80

The sixteen families were tested on three of these scales to see whether the difference shown was of any significance, with the following result:

TABLE IX

	Cathcart Scale (1)	International Scale (2)	Found (3)
Average man-value	3 893	3.563	4 053
Percentage of Error	±0 034	±0 075	±0 149
Standard Deviation	0 497	0 443	0 835

The difference between (1) and (2) and between (2) and (3) is just three times the error of the difference; between (1) and (3) the difference is quite insignificant.

In working out the above results no notice has been taken as to the nature of the father's work in assigning proportions of the "father-value" to the various members of the family. But that the father's food consumption does vary very widely with his work is shown when one expresses his consumption as a proportion of his wife's, the woman's work throughout being approximately equal.

TABLE X

Family No.	Occupation of Father	Proportion of Wife's Consumption
2	Unemployed	0.77
3	Unemployed	0 74
4	Casual labourer (unemployed one day)	1 13
5	Casual labourer (unemployed one day)	1 09
6	Hairdresser	1 25
7	Clerk	1.29
8	Bus conductor	1.34
9	Van driver	1 35
10	Blacksmith (little work)	1 32
11	Lavatory attendant	1.39
12	Labourer	1 39
13	Meat foreman	1 41
14	Leather dresser	1 45
15	Policeman	1 50
16	Engineer	1 61
17	Printer	2 03

These results are all worked out during what is admittedly a very short period of investigation, but they may be of sufficient value to form with the Cathcart and Murray results the basis of a new set of family coefficients based on actual observations. As already mentioned the data which formed the basis from which the above tables and scales have been worked out were collected in connexion with an investigation on the nutrition of children in rheumatic and non-rheumatic families in London for the Nutrition Committee under a grant from the Medical Research Council.

British Medical Journal

SATURDAY, NOVEMBER 25th, 1933

THE FEEDING OF THE NATION

In April last the Council of the British Medical Association appointed a committee with the following reference: "To determine the minimum weekly expenditure on foodstuffs which must be incurred by families of varying size if health and working capacity are to be maintained, and to construct specimen diets." This committee's report is published to-day, as a special supplement to the *British Medical Journal*.

It has been freely said in the past that as food prices vary so much from time to time and from place to place, and as dietetic habits are so widely different in different parts of Great Britain, no absolute data as regards the minimal cost of satisfactory nutrition can be obtained, and no guidance given to those responsible for the feeding of the nation. That such *obiter dicta* are false is readily proved by this report. Prices of fifty foods in markets used by the working classes were collected in June, 1933, from representative parts of England, and in addition the Nutrition Committee has had the advantage of a very detailed record of the prices of the same foodstuffs extending over a period of two years from the cheapest markets in Stockton-on-Tees. These prices are practically the rock-bottom prices in the country, and are, where they coincide with the choice of the twenty food prices published by the Ministry of Labour, considerably lower than the latter. As the report publishes the mean prices for the country collected by the Nutrition Committee and the Stockton prices, it should not be beyond the powers of the arithmetic of local authorities to adjust the minimum cost of nutrition as propounded by the report to (1) the local costs, and (2) any future rise or fall in the prices of food. As regards the difference in food habits, inspection of dietaries from different parts of the country shows these to be not so great as might be expected, and the report indicates that the differences in cost of nutrition between the North and South of England can be accounted for by the fact that the price of flour is much less in the North than in the South, and that the North bakes its bread and the South buys it from the baker.

The *clou* of the report is to be found in the table on page 14. There we read that the estimated cost of a minimal diet for Stockton ranges from 5s. per week for an adult male (or boy of 14 or over) to 2s. 6d. per week for a child between 1 and 2 years of age. The corresponding average costs on the B.M.A. scale are higher—namely, 5s. 11d. to 2s. 8d. Another, and most important, fact is brought to light in this table, and that is that the coefficient of cost of children's diet between the ages of 1 and 10, when expressed in terms of the cost of an adult male's minimum diet (=1), is above the usually accepted man-value for calories. Whereas on the Cathcart and Murray scale the man-value of a child between 1 and 2 is 0.30 (that is, his need for calories is three-tenths that of an adult male) the mean cost coefficient is 0.47. The reason for this is the child's greater need for such a food as milk. This point is well worth making, for even the most generous of local authorities, in assessing the food requirements of children, are apt to be guided by their calorie needs rather than their need for body-building material.

The main assumptions upon which the committee's estimates are based are: (1) that 3,400 great calories have to be purchased as food to keep an adult male in health and working capacity; (2) that the calorie needs of women and children are best expressed by the Cathcart and Murray scale, though possibly for children this is too low; (3) that 50 grams of first-class protein (protein from animal sources) are needed per day for each adult male; (4) that the diet should contain approximately 100 grams protein, 100 grams fat, and 500 grams carbohydrate; and (5) that children between 1 and 5 need a pint of milk per day, and those between 5 and 10 half a pint of milk. Some of these figures may be attacked as too generous—for example, the allowance of 3,400 great calories per day per adult male. An international congress held last year in Rome accepted 2,800 calories as sufficient, and the Ministry of Health recommends 3,000.[1] It may be pointed out in support of the committee's assessment that the average gross calorie intake in a number of studies over the past fifteen years is almost exactly 3,000,[2] and that very many of the families investigated suffered from want due to industrial depression or strikes. The deduction is that the requisite calories are well above 3,000 for the normal adult. Also, the Ministry of Health definitely states that the figure 3,000 is not generous and makes no allowance for unavoidable waste in the preparation and cooking of food. The Nutrition Committee's figures are for gross calorie purchase, and allowing for a 10 per cent. loss (the usual estimate) for unavoidable waste the gross figure, 3,400, becomes a net figure for intake of 3,060. This is so near 3,000 as makes no difference. Besides, calories can be purchased so cheaply (700 to 1,000 for a penny) that the budgeted difference between the two figures would be less than 3d. per week.

That this report is of national importance needs no emphasis. Everyone who is interested in the feeding of the family and the nation (and who is not?) should read it. Nor need the layman be dismayed by the technical terms used. They are explained both in the text and in a glossary at the end of the report. The chief use of the report will be in assessment of the needs of families in receipt of public assistance; but it is a document which no one who is concerned in economical catering can afford to neglect.

[1] *The Criticism and Improvement of Diets.* London: H.M. Stationery Office, 1932.

[2] Medical Research Council Reports, Nos. 13 (1918), 87 (1924), 151 (1931), and 165 (1932).

CHILDREN AND UNEMPLOYMENT

The public has noted with much satisfaction the conclusions as to the national health which Sir George Newman has set out in his annual report for 1932 as Chief Medical Officer of the Ministry of Health. "The exceptionally good health of the English people," he says, "continues to be maintained," and, with reference particularly to school children, "the harmful effects of unemployment have not been widespread or severe." He gives the facts leading to these conclusions and enumerates the agencies and factors which have contributed to these results. His is, of course, the broad view of the situation as a whole, and there is no disputing its general accuracy, or any need to paint a more gloomy picture. Lest, however, public satisfaction should be allowed to degenerate into a mere inactive complacency, it is as well to have the facts and impressions as noted by some of those who are engaged in administering relief to the individual sufferers. This can be got very effectively from the section dealing with Great Britain in Part II of *Children, Young People, and Unemployment*,[1] a series of inquiries into the effects of unemployment on children and young people, published from Geneva by the Save the Children International Union. Part I, already published, dealt with conditions in Germany, the United States of America, Switzerland, and Belgium, and Part II similarly is concerned with Austria and Poland as well as with Great Britain.

The articles on these two other countries are revealing and instructive, and must give rise to international concern and sympathetic interest. That on Great Britain is supplied by the council of the Save the Children Fund, who appointed a special committee of inquiry for this purpose. This investigation was twofold: into the effects of parental unemployment on children of school age and under, and into the effects on children and young persons over school age due to their own unemployment. Though the authors accept the statement of Sir George Newman that "there appears to be no measurable sign of impairment of the physique of the children, and nothing to show that as yet their health has been lowered," they emphasize the "as yet" in his statement, and declare that there are many thousands within the danger zone, and "a residuum whose health is already impaired and whose future as citizens and as parents is being imperilled by the conditions under which they are now compelled to live." This is natural enough, since it is this residuum with which the Save the Children Fund comes into actual contact, and it is quite legitimate and important to point out that the incidence of malnutrition per 1,000 school medical inspections in 1931 was 11.2, as against 10.6 in the year before and 9.5 in 1925, and that as these are average figures the incidence of malnutrition in the worst areas must be materially more severe.

The report is full and informative both as to school children and as to juvenile unemployment, and the relief measures available are set out, together with summaries of the extent to which they are made use of. Due regard is paid to the psychological as well as to the physical effects of unemployment. It is made clear that, in spite of its generally comforting features, the situation is still such that in a number of areas all is not yet being done that is needed and is possible, and that vigilance and help are required to prevent it from becoming far less satisfactory.

[1] *Children, Young People and Unemployment. Part II. Great Britain, Austria, and Poland.* London: The Weardale Press Ltd. (2s.)

EDINBURGH MEDICINE, 1883–1933

Conceived by a bishop, founded by a king (the first Scotsman to rule in England), cradled by a town council, the University of Edinburgh passes into its three-hundred-and-fifty-first year. The monumental volume of Sir Alexander Grant came to an end in 1883. In the last half-century the number of students has increased by one-third, and the teachers are four times as many. The University expanded in 1886. After the war she branched outside the city into vast estate, to the freedom of which whole organs of her life are continually being transferred. She has harmonized her relations with the town council. She has lost many of her great figures by death, and gained others. She remains one of the great medical schools in the world—or, as her graduates like to believe, the greatest. Medical education, like everything else, is assailed by criticism. Since the war so many changes have taken place that a practitioner of the older school recognizes hardly anything of the old academic leisure. Since 1895 the medical curriculum in Edinburgh has been five years instead of four, and with the aid of her new Royal Infirmary, opened five years before, the Faculty has diligently enlarged the field of study. Seven new chairs and forty-two new lectureships have been added in medicine alone. Practical and clinical work, teaching, and, above all, research, have been developed in increasing measure.

Anatomy and physiology, called the Institutes of Medicine, have been taught in Edinburgh with Scottish thoroughness. Sir William Turner, for long the doyen of anatomists, instructed 10,000 students before he became Principal of the University; thirty-six of them filled chairs of anatomy, and one an ambassadorial post in addition. For forty-four years Sir Edward Sharpey-Schafer, in the physiology department, made his endocrine discoveries, which are the foundation of a vast range of modern medicine, and inculcated into every student sharp observation and a critical judgement upon the phenomena of human biology. How tedious at the time were his practical classes and the endless study of nerve and muscle preparations; how valuable in later professional life the attitude of mind they gave. Out of anatomy rose surgery. But surgery in Edinburgh

is now a flourishing department of its own, with a large and superbly equipped laboratory for research, and a team of operators who carry on the traditions of Syme, Lister, and Harold Stiles. In obstetrics and gynaecology, now reunited after a divorce of twenty years, the principle of axis-traction was introduced by Milne Murray, and Ballantyne presaged the dawn of antenatal care. The old conception of sickness in children has vanished in the title of the new University chair, that of "Child Life and Health." The foundation of medical teaching is "clinical material," and Edinburgh has always been fortunate in having a deep and wide reservoir to draw upon in the Royal Infirmary and other hospitals. The academic authorities co-operate with the managers in appointing clinicians who are also teachers. For mental diseases the late Professor Robertson had built up a complex of hospital and nursing home beds for teaching, as well as the new Jordanburn Hospital for nervous disorders. In 1917 the first chair of tuberculosis in the world became occupied by its present holder, Sir Robert Philip.

These are typical developments, and no part of the Faculty of Medicine has escaped almost revolutionary changes during the period of this history. One tries to sum up the peculiar contribution of medical education at Edinburgh to medical education everywhere. It lies in a deep respect for teaching. From the very beginning the student is trained, with anxious solicitude, to observe and to think. If he cares, he will have opportunities of teaching others, to the greater stability of his own knowledge. In the wards leading clinicians are content to pass many hours a day in influencing their students and dressers. The second feature, and one that naturally receives little emphasis in the commemorative volume edited by Dr. Logan Turner,[1] is the presence in Edinburgh of another school of medicine, that of the Royal Colleges. From it professors at the University have often come, with preliminary experience of lecturing, and its very existence acts as a stimulus. This volume deals not exclusively with any one faculty. It is a synthesis of the remarkable development in half a century. The department of medicine is embedded in an academic background. In an autograph letter, quoted at page 315, Lister expresses his preference for a teaching university rather than a mere examining body. The former, Edinburgh has always been. We might wish that greater room in this volume had been given to certain subjects of medicine. The account of undergraduate activities is in outline only, the proportion given to merely historical events is unduly large, and some of the sections become a mere catalogue of names. All these faults are, no doubt, unavoidable in a volume that has to be a directory of facts as well as a storehouse of impressions. Dr. Logan Turner, himself a son of the great Principal and inheritor of much of the Edinburgh spirit, has added one more to his many historical services to Edinburgh.

[1] *History of the University of Edinburgh*. 1883–1933. Edited by A. Logan Turner, M.D. Edinburgh: Oliver and Boyd. (10s. net.)

"ARCHIVES OF DISEASE IN CHILDHOOD"

The retirement of Dr. Hugh Thursfield and Dr. Reginald Miller from the co-editorship of the *Archives of Disease in Childhood*, which they have held since its foundation eight years ago, has been received with regret by all who are interested in the subject of paediatrics. The high standard of scientific excellence which they have made a feature of the *Archives* has established its reputation as one of the leading journals on this subject in the world. In it have appeared articles by some of the best-known authorities in this country on almost every aspect of disease in children, clinical, experimental, biochemical, and otherwise. Most of the work appearing in it has come from British observers, and there can be no doubt that the interchange of knowledge and ideas on a special aspect of medicine which the *Archives* has made possible has been a valuable influence in stimulating research and observation on diseases of children in this country; but from all parts of the English-speaking world also there have come articles for insertion, making it sometimes difficult to select from so much that was good what was most suitable for the *Archives*. For every class of medical reader—the general practitioner, the hospital physician, the laboratory worker, for all in fact who are concerned with diseases specially affecting children—the *Archives of Disease in Childhood* has contained matter of first-rate importance. Dr. Thursfield and Dr. Miller are to be congratulated not only on the success which has attended the publication of this periodical by the British Medical Association under their editorship, but even more upon the service they have rendered thereby to the study of diseases of children in this country. The good work which they have carried on for eight years will pass at the beginning of the New Year into the able hands of Dr. C. F. Harris and Dr. Alan Moncrieff, under whose editorship the *Archives* will then appear.

CLINICAL MEASUREMENT OF HEART FUNCTION

In recent years clinical tests of the function of the heart have received a good deal of attention. A supplement of the *Acta Medica Scandinavica*[1] is devoted to the account of some investigations by Gustav Nylin on this subject. In the past various methods have been made use of. One of the first was examination of the vital capacity, which was found to be reduced in cardiac insufficiency. Further steps led to the measurement of the utilization of oxygen at rest. This proved unsatisfactory, as decompensated cases did not necessarily give abnormal results. Investigations of the degree of cyanosis have also been attempted. Unfortunately, the states of the gases neither in the venous nor in the arterial blood give any constant results which are parallel with the clinical condition. Pulmonary stasis appears to have the chief influence on the degree of deficiency of oxygen saturation. Perhaps the most important studies carried out in recent years are those on the output of the heart, the minute-volume, using the nitrous oxide and acetylene methods, and also the estimation of the arterio-venous oxygen difference. For his investigation Nylin has used a special staircase, so that the subjects were made to perform definitely graduated work. Observations were made on the

[1] *Acta Medica Scandinavica*, 1933, vol. lxxx, Supplementum lii.

minute-volume of the heart, on the oxygen consumption, blood pressure, and pulse rate. The results were compared with those obtained from the same subjects when at rest. Thus it was hoped to obtain some measure of the reserve of the heart. As regards the consumption of oxygen it was found that the variation was very slight after a fixed amount of work in healthy persons, and was independent of the body weight. Where there was marked decompensation the amount of oxygen used was consistently greater than in healthy people. A reduction in the oxygen consumption was found to run parallel with clinical improvement. Unfortunately, these findings were only clear-cut in severe and obvious cases. The results in borderline cases were doubtful. In the same way, although the minute-volume is reduced in many decompensated cases, the values in these overlap those found in the healthy. In patients with heart failure the oxygen consumption, after a fixed amount of work, returns to normal more slowly than in the healthy. The same, of course, is found as regards the systolic blood pressure and the pulse rate. But here again there is some overlap. Interesting as these results are in showing the disturbances that occur in the metabolism when heart failure is present, it is unfortunate that they are only of value in the most pronounced cases, where simple clinical observation clearly demonstrates its presence. No method is yet available for the borderline case. The clinician has still to rely on his judgement and his estimation of the significance of the patient's symptoms. The complexity of the interaction of the bodily processes is such that investigation of any one misses the whole.

PSYCHOLOGY AND GROUP MOVEMENTS

In two lectures at Christ Church, Oxford, Dr William Brown, the Wilde reader in mental philosophy, has been discussing the so-called "Oxford" Group Movement, or "Buchmanism," about which we have all heard a good deal lately. He pointed out that the movement has a definite psychological background, and that its two fundamental methods—namely, "sharing" and "guidance"—must be judged at the bar of psychology as well as at the bar of religion. In the stories of changed lives through the process of "sharing" the trained psychologist, he said, was able to observe factors which, as it happened, he had been studying for many years within the domain of deep mental analysis. In all such deep analysis there was an element of sharing, albeit one-sided if properly carried out. The criticism Dr. Brown made of the Group Movement was that its analyses were not sufficiently deep or prolonged. In analysing the minds of others one not seldom found, after a brief experience, an increased power of liberation due to a more or less superficial readjustment, but as the analysis was carried deeper still unresolved difficulties were found in the lower strata of the mind which had to be dealt with if any permanent result was to be achieved. All trained analysts, to whatever school they belonged, declared that an adequate analysis required many hours of investigation. Moreover, "sharing" must mean transference, and the difficulty in the Group Movement from the point of view of psychology was that such transference was uncontrolled. The adequate management of transference was one of the operations in mental analysis calling for the greatest experience and skill. A brief analysis, broken off soon after it had begun, might do the individual harm rather than good by fixing him at a particular stage, and acting as a barrier to the deeper exploration of the mind. What the Group Movement called "guidance" constituted a still more serious difficulty for the expert psychologist. It must be considered in relation to the well-understood mechanism of projection. Dr. Brown affirmed his belief in spiritual guidance; but in intuition, upon which the Group Movement relied for guidance, there was a natural as well as a supernatural part. Intuition was partly due to accumulated knowledge and insight stored within the unconscious. Especially might it derive from the foundations laid in a happy and well-nurtured childhood. The impressions gained in childhood might in later life be overlaid by disillusioning experiences, but in times of stress and strain they re-emerged to the comfort of the individual. There was something more in intuition, Dr. Brown believed, than this regression to a more primitive attitude towards life, but he would be a slipshod psychologist who left the fact of such regression out of account. Analysis "boiled away" a great deal of emotion and sentimentalism, but in his experience there remained intact the calm feeling of certainty in the existence of the spiritual universe. Dr. Brown's criticism of the Group Movement was that it did not go anything like deep enough. If those who spoke in its name learned psychology they would find that their four desiderata—absolute honesty, unselfishness, purity, and love—could hardly be acquired without deep analysis. He would not suggest that everyone should be analysed deeply, but those who were teachers and leaders, in whose care to any extent were the consciences of others, would benefit by analysis and would thereby acquire a direct insight into the working of unconscious mental forces of the utmost importance in their work. To conduct a deep analysis might require not less than a hundred hours, and to expect a radical change in a man after mutual confession in a group meeting or at a "house party," and a few hours' practice of the methods of the group, was more than psychological science could allow.

PUERPERAL INFECTION

Dr. Leonard Colebrook, in his paper before the Section of Obstetrics and Gynaecology at the Annual Meeting in Dublin,[1] pointed out that in most cases the streptococci infecting the puerperal uterus did not come from the vagina but from some external source, such as the hands of the attendants or the respiratory tract of the mother, or possibly from some member of the household not present at the confinement—the husband with a sore throat or a child with impetigo. In a recent paper Dr. J. Smith reports an investigation into a number of cases of puerperal fever.[2] He thinks that the extrinsic forces played the predominating part, the infecting organism coming from the throat or nose of an attendant, and he was able to trace a few outbreaks of streptococcal puerperal fever to particular individuals who were carriers. He also found infection from the patient's own nose and throat in a certain number of cases, and he suggests that the extrinsic infections could largely be prevented by

[1] *British Medical Journal*, 1933, ii, 723.
[2] *Journ. Obstet. and Gynaecol. British Empire*, 1933, xl, 991.

improved technique. Dr. Colebrook, in a paper written in conjunction with Dr. W. R. Maxted,[1] continues his report of an investigation into the value of various antiseptic precautions. He finds that there is no known means of sterilizing the skin of the hands ; staphylococci can always be cultivated from them, and the use of naked hands must involve a certain small risk. The usual methods of disinfection, conscientiously carried out, will get rid of a moderate number of haemolytic streptococci, but a few will survive. Moreover, the margin of safety is very small, and if the toilet is perfunctorily carried out a large number will be left unharmed. He recommends washing with yellow bar soap in a pint and a half of water for two minutes, followed by donning dry gloves sterilized on the hands by washing and immersion of the gloved hands for a minute or two in 2 per cent. watery iodine or undiluted dettol, both of which will completely rid the surface of haemolytic streptococci and keep it clear for several hours, with a protective covering which kills any further infection which may alight on it. Dettol does not irritate, and can be applied as a 30 per cent. cream for naked or gloved hands. If boiled water is not available for the labour, he suggests sterilizing chemically with cyllin. He has no good word to say for any attempts to sterilize the vagina before delivery ; the result is not usually sterilization but the replacing of the non-pathogenic normal vaginal flora by potential pathogenic ones, such as *B. coli*, *B. proteus*, staphylococci, and faecal streptococci. Nor is the sterilization of the uterine cavity desirable, as the process will certainly destroy many leucocytes. Experiments were made with the killing of streptococci in a blood clot, and brilliant green and crystal violet were found to be by far the most effective antiseptics, but even these failed in any clot larger than a pea. Dr. Smith and Dr. Colebrook both suggest warning the patient about the danger of conveying infection to her own vagina, and Dr. Smith points out that throat and nose swabs might be taken as a part of ante-natal care so that carriers could be particularly warned. Dr. Smith also investigated a few cases of *B. coli* infection, and found that they came in most instances from an infected urinary tract ; the prevention of such cases obviously depends on ante-natal treatment of urinary infections.

HISTORY OF THE MICROSCOPE

It was a bad day for the history of microscopy when Sir Frank Crisp died and left no written instructions as to his expressed desire to give his great collection of ancient and modern microscopes to one of the national collections in this country. He died, and the collection was sold by auction. But good has come out of evil, and instead of the instruments themselves Dr. Reginald Clay and Mr. Thomas H. Court have written a fine history of the microscope.[2] It is comprehensive and is lavishly illustrated. It deals with microscopes from the earliest times until the introduction of the achromatic instruments, and a second volume is promised to give a history of the later developments. The earliest microscopes probably consisted of a glass sphere filled with water. These were followed by solid glass balls produced by glass-blowers. The balls, being broken in half, would in themselves have sufficed for the experiments recorded by Roger Bacon and Alhazen. Spectacles came into use about 1300, and someone, using two convex lenses one above the other to get a greater magnification, may have placed them in such a position as to obtain the principle of a compound microscope. It is thought that Jansen mounted the lenses at the necessary distance apart and placed them in a tube. He is thus looked upon as the introducer of the first microscope, in 1590. Twenty years later several makers discovered that the instrument could be used as a telescope by reducing the distance between the lenses. Galileo heard of the fact, made his telescope, and was led to unheard-of discoveries. Much thought was given to the microscope between 1590 and 1665, when Robert Hooke produced the instrument which is still to be seen in the Science Museum at South Kensington. Some of these earlier instruments were undoubtedly shown to James I and to Charles I, who were both interested in science. Harvey was attached to the court of these kings, and it is somewhat remarkable, therefore, that he made no use of the microscope to secure the final proof of the circulation of the blood. A constant series of changes in the construction of the microscope took place between 1665 and 1798, when William and Samuel Jones of Lower Holborn produced a "Most Improved Microscope," which was complete, well made, and embodied most of the improvements of their predecessors. Here the history stops for the present. The authors add a chapter on solar and Scroll microscopes, one on reflecting microscopes, and a valuable list of "microscope, telescope, and other instrument makers" both at home and abroad.

[1] *Journ. Obstet. and Gynaecol. British Empire*, 1933, xl, 996.
[2] *The History of the Microscope*. By R. S. Clay, D.Sc., and T. H. Court. London: Ch. Griffin and Co., Ltd. (30s.)

SYSTEMATIC EXAMINATION OF PROBATIONER NURSES

Dr. Borgny Seland has drawn attention to the high sickness rate among Norwegian nurses as shown by the returns of sickness insurance.[1] In 1931 and 1932 the average number of sick days per person in the nursing and ancillary services such as massage was 13.5, whereas for domestic servants it was 10.88, for female clerical workers it was 7.66, for female telegraph and telephone workers it was 6.72, and for all insured women it was 10.42. To ascertain the reasons for this high morbidity among nurses and possible means of preventing it, a system has been introduced by which the University Institute of Hygiene undertakes a searching medical examination of all probationers admitted to the schools of nursing in Oslo and its neighbourhood. Since July 1st, 1932, 321 probationers joining nine schools of nursing have been examined. The Pirquet test was positive in 49 per cent. Of the 162 found to be Pirquet-negative, fifty-eight were inoculated with B.C.G., and most of them became Pirquet-positive after this inoculation. In seventy-nine, or 25 per cent., some degree of scoliosis was observed. Kyphosis was found in twelve (4 per cent.). The lower limbs were normal only in 206 cases (64 per cent.). Genu valgum was found in forty-three cases, genu varum in twenty-two, flat-foot in forty-seven, and varicose veins in fourteen cases. Genu valgum and flat-foot were not infrequently found together. The average number of perfectly healthy teeth per head was only twelve, and stoppings were found in 93 per cent., the average

[1] *Tidsskrift f. d. Norske Laegefor.*, October 15th, 1933, p. 1071.

number of stopped teeth being twelve. Untreated caries was found in 20 per cent. and false teeth in 10 per cent. These observations failed to explain why the *morbidity* is so high among fully qualified and other nurses; on the whole, the physical condition of the probationers was good. The examinations have, however, proved most useful in that they have led to the weeding out at an early stage of would-be nurses physically unfitted for that profession. The fact that as many as 15 per cent. of these probationers suffered from flat-foot at the beginning of their studies is noteworthy; this condition has usually been regarded as an occupational ailment in nurses.

"TOY" PISTOLS

Under the new Firearms and Imitation Firearms Act it will be a criminal offence to use a dummy or toy pistol with the idea of escaping arrest, and even to be found in possession of one at the time of arrest. This, however, seems not to be the only evil use to which toy pistols can be turned. The *Times*, on November 16th, instanced a number of alarming accidents from toy pistols. Last March a medical man wrote of a boy who had received a bullet wound in the hand; he had bought a toy revolver, had had the dummy barrel drilled out, and had used ball cartridges in it. On November 13th Mr. P. J Pybus sent to the same paper a letter from the father of a boy with a bullet in his brain, also fired from a toy pistol On November 14th Dr. Clark Trotter, in a letter on the danger of tetanus from toy pistol wounds, stated that he knew of more than one death from such an accident, and two days later another medical man reported the death from the same cause of a boy aged 14. It seems, as the *Times* remarks, absurd to class these things as toys. A pistol with a barrel more than ten inches long and a hair-trigger, and which can shoot a bullet through a one-inch deal board, is a lethal weapon. Apart from tetanus, it is pointed out, toy pistols are much more dangerous than many properly made firearms, the possession and use of which is governed by law. They are especially dangerous when they cannot be used as firearms in the form in which they leave the retailer, but can be easily converted into them even by little boys, who can buy them at toyshops. It has been found impracticable to compel the registration of all dealers and manufacturers of toy pistols, some of which are harmless. Mr. Pybus suggests that the age limit for possessing or using firearms should be raised to 17, but the *Times* objects that 17 is not necessarily a more trustworthy age than 14 or even 12, and the Act of 1920, which imposes an age limit, does not cover all these dangerous toys. Mr. Hugh Pollard on November 15th suggested that the 1920 Act be modified to include dangerous toy pistols and the sawn-off shot-gun; he thinks it would not be difficult with the help of expert knowledge to prohibit these redundant weapons without restricting the sale of necessary ones. Along these lines, the *Times* considers, the law might advance towards the total prohibition of all these so-called toys. They are not made in Great Britain, and the profits on their sale cannot be considerable. Mr. Pollard suggests that they are useless for sport, target practice, self-defence, or any genuine purpose; and, indeed, they are worse than useless.

MEDICINE AND LITERATURE

SIR HUMPHRY ROLLESTON'S LLOYD ROBERTS LECTURE

The Lloyd Roberts Lecture was delivered by Sir Humphry Rolleston, Bart., at the Medical Society of London, with Sir John Thomson-Walker presiding, on November 16th. The lecturer took as his subject "Associations between Medicine and Literature," thereby recalling the first lecture of the series, delivered by the late Sir Edmund Gosse in 1923. Edmund Gosse travelled over the personal relations between literature and medicine from early times into the eighteenth century, but, as Sir Humphry pointed out, since the spacious era of which his predecessor treated those relations have gradually undergone a change. In the sixteenth and seventeenth centuries the leaders of the medical world were scholar-physicians, but medicine had now grown up and become the mother of a family of specialties, and the scholar-physician was now a rarity, if not a vestigial relic. The excursions of active practitioners into the realm of letters had become a rather unusual hobby. The proportion of authors among medical practitioners was not high, perhaps because men in practice had not the time to learn the art of writing.

Nevertheless, Sir Humphry Rolleston reminded his audience that there was a great literary tradition in British medicine, dating from Linacre, and reaching its zenith with the tenure of the regius chairs at Oxford and Cambridge by Osler and Clifford Allbutt. Osler, by the way, said that among physicians or teachers of physic Rabelais stood apart with the kings and queens of literature, while among the princes of the blood there were differences of opinion as to rank, but Sir Thomas Browne, Oliver Wendell Holmes, and John Brown of Edinburgh formed a group together high in the circle. It was difficult to know where to begin, and even harder where to stop, in dealing with a subject so gigantic. Sir Humphry Rolleston chose to begin with the medical poets—Keats, Bridges, and others—pointing out that in the exercise of their highest functions the medical man and the poet alike required imagination, sympathy, and psychological understanding. In clinical diagnosis there was a conscious logical process and also a clinical instinct, which was supplied by the unconscious; equally versification might be an exacting process, as in scholastic composition, or an impulsive outburst—

> "The words come skelping, rank and file
> Amaist before I ken."

MEDICAL BIOGRAPHY

Turning next to the medical biographers, autobiographers, and autopathographers (meaning by the last patients who write an account of their sufferings), Sir Humphry Rolleston said that few medical men had devoted themselves to general biography. One prolific writer in this field was John Aikin (1747–1822), who wrote more than half the articles in the ten volumes of *General Biography*, claimed in some quarters to be the predecessor of the *Dictionary of National Biography*. On the other hand, medical men who had written or edited biographical dictionaries of medical men were numerous. He gave many instances, and mentioned that most of the lives of medical men in the *Dictionary of National Biography* were written by Norman Moore, J. F. Payne, and D'Arcy Power, together with a non-medical man, G. T. Bettany, lecturer on botany at Guy's Hospital. The lives of medical men written by their professional colleagues amounted to a considerable total. The outstanding figures, such as Harvey, John Hunter, and Lister, had been the subject of biographies by several hands. Lettsom, too, had not lacked medical writers

to do him justice. The two most important lives of recent years were those of Lister, by Rickman Godlee, and of Osler, by Harvey Cushing, which disproved the common supposition that a good biography could not be written by a relative or a friend.

Of autobiographies of remarkable medical men of all nations F. H. Garrison in 1928 tabulated seventy-three, and four years later Bishop, library-assistant at the Royal College of Physicians, collected ninety-one examples of various forms of autobiography by British doctors, some being very brief. Two of this number were by women doctors, Elizabeth Blackwell and Mary Scharlieb. Not all autopathographies were written by medical practitioners—for example, Montaigne and John Dalton. From the point of view of nomenclature, the most remarkable of this group of works was the description given in 1876 by Julius Thomsen of Schleswig of Thomsen's disease, or myotonia congenita ; the disease, of which Thomsen was subject, was hereditary in his family for five generations. Perhaps the best and most familiar account of a doctor-patient's sufferings, which certainly added to the knowledge of the subjective symptoms of the condition, was to be found in two books by L. P. Mark, who died three years ago, on acromegaly. Books of travel, again, were a form of autobiography, and of these Sir Humphry Rolleston mentioned several examples, in particular the memoirs and travels of Lady Hester Stanhope, written in 1845 and 1846 by her physician, C. L. Meryon, who attended that eccentric lady while she lived in despotic state on Mount Lebanon.

In speaking of medical bibliographers, Sir Humphry Rolleston mentioned one of the most remarkable bibliographies ever begun—namely, the *Medical Bibliography* of James Atkinson, compiled in 1834 ; it did not get further down the alphabet than B, but it was far from dull, being packed with anecdotes and amusing comments, as might be expected from an author described as a disciple of Rabelais. It was this Atkinson who, on a complaint by John Armstrong, the writer of a pornographic poem, "Oeconomy of Love," which "hymned the praise of Venus in strains so warm that they dissolved away his practice," that he was neglected, replied that the levity of his conduct was responsible, and that he should have remembered that "the nearer a man approaches to the gravity of a brute the more he is accomplished as a physician." Among medical librarians of the recent past the trio of J. S. Billings, Robert Fletcher, and F. H. Garrison, responsible for the *Index Catalogue of the Library of the Surgeon-General of the United States Army* and the *Index Medicus*, had placed the medical profession under an obligation which it was hardly possible to exaggerate. Among miscellaneous activities, Sir Humphry glanced at the philosophy of John Locke ; the work of a few members of the medical profession, headed by Thomas Linacre, in philology or the science of language ; and, in the field of criticism, Jean Anstruc, physician to Polish and French royalties, who was regarded as the founder of the higher criticism of the Bible.

The Doctor in Contemporary Literature

The lecturer dealt finally with the doctor in contemporary literature, mentioning *The Canterbury Tales*, which gave an appreciative picture of the "Doctour in Phisik," the apothecaries of Shakespeare (merely, as shown in *Romeo and Juliet*, the compounders and vendors of drugs), the transient and sometimes nearly ridiculous figures on the stage of Dickens, and the portraits of the modern consultants, Drs. Goodenough and Firmin, by Thackeray. Some of the doctors represented in fiction were known or suspected to have been largely drawn from life. In Molière's *L'Amour médecin* and other comedies the court physicians of the time were satirized in a manner leaving little doubt as to their identity. In *Tristram Shandy* Sterne unjustifiably satirized John Burton, M.B., of St. John's, Cambridge, in the character of "Dr. Slop." It had often been suggested—though it seemed without very much evidence—that Thackeray drew his Dr. Goodenough from John Elliotson of University College Hospital. "Tertius Lydgate" in George Eliot's *Middlemarch* was in part drawn from Clifford Allbutt, whom the author knew in 1868, when he was about 32 years old. Osler appeared as "Fowler" in W. S. Thayer's *Medical Education of Jones*, by "Smith," published in the *Harvard Graduates' Magazine*, March, 1927, and Osler also appeared as "Sir Richard Holter" in E. S. Martin's *Abroad with Jane*, published in 1919. It was well known that Conan Doyle took the methods of Sherlock Holmes from the diagnostic procedure of Joseph Bell, the Edinburgh surgeon who died in 1911, and a medical man practising in Southsea claimed himself as the model from which the character of "Dr. Watson" was taken. "Professor Challenger" in *The Lost World* was drawn from William Rutherford, professor of physiology at Edinburgh, and the character of "Dr. Prohack" in Arnold Bennett's novel of that name was understood to be based on the late Dr. Gomez.

IMPERIAL CANCER RESEARCH FUND

ANNUAL REPORT

A meeting of the General Committee of the Imperial Cancer Research Fund was held in London on November 16th, with the president, the Duke of Bedford, in the chair. Sir Humphry Rolleston, as chairman of the Executive Committee, moved the adoption of the annual report, the thirty-first of the series, and covering the year 1932-3.

Metabolism of the Cancer Cell

Sir Humphry Rolleston referred to the report of the director (Dr. J. A. Murray), which summarized the investigations of Mr. Crabtree and Dr. Cramer (published in the *Proceedings* of the Royal Society) on the influence of various inhibitors of metabolism on the viability and transplantability of cancer cells, and, as an extension of this, the analysis of some of the factors which determined the radio-sensitivity of the cancer cell. This research had involved a careful and accurate study of the limits within which complete recovery was possible after inhibition of metabolism had been established. This was obviously very necessary, for it would be incorrect to speak of inhibition of metabolism if, in addition, the vitality of the cells had been very seriously damaged. The respiration of cells could be interrupted by absence of oxygen, exposure to cold, and by hydrocyanic acid in high dilution. It had long been known that cancer cells could withstand anaerobiosis and exposure to low temperature for many hours, and still be transplantable to normal animals with ease. The inhibition of respiration by hydrocyanic acid at the body temperature afforded an extraordinary example of an interruption of an important vital process (respiration) which was completely reversible. Whether the recovery was studied by direct measurement of the oxygen intake and carbon dioxide excretion, or by the success of transplantation into normal animals, it was found that a perfect return to the normal was possible after complete cessation of respiration for one hour. The other main metabolic process of cancer cells—glycolysis—which did not require the presence of oxygen, could be inhibited by iodoacetic acid and by sodium fluoride, but this effect could not be pushed to the degree of complete inhibition by these

agents without some permanent damage resulting. Concentrations which caused a 50 per cent. reduction in glycolysis for one hour could, however, be followed by complete recovery. It was of interest to study the effect of these inhibitors in combination with exposure to radium. The 50 per cent. inhibition of glycolysis by iodo-acetic acid or by sodium fluoride neither added to nor diminished the effect of exposure to radium. When respiration was checked by exposure to hydrocyanic acid, by itself innocuous, the radium effect was considerably enhanced. On the other hand, the checking of respiration by anaerobiosis had the effect of diminishing the radio-sensitiveness of cancer cells. Under both these conditions glycolysis was at a maximum, yet the effect of radium was in an opposite direction. This, together with the fluoride and iodo-acetic acid experiments, suggested that the action of radium did not operate through the glycolytic mechanism of cancer cells. The respiratory system, however, existed in a different state under the two sets of conditions, and it was therefore more reasonable to attribute the differential action of radium to its effect on this system. Variations of temperature also altered the vulnerability of cancer cells to radium, low temperatures greatly increasing their sensitivity. Here, of course, all essential metabolic processes were reduced to minimum values, and it was impossible to interpret this result on the foregoing lines. Radio-sensitivity was thus seen to depend on several factors largely independent of each other and not all acting in the same direction. Their recognition and measurement might help to explain some of the anomalous results of radium treatment, and to predict them with a precision which was at present impossible.

Other Cancer Investigations

Sir Humphry Rolleston then referred briefly to certain other papers which had been published during the year under review. Dr. R. J. Ludford, continuing the observations recorded by him in the Tenth Scientific Report (see *British Medical Journal*, 1932, ii, 766), had published two articles on the behaviour of normal and malignant cells in tissue culture in solid and liquid media. Vital staining by trypan-blue was extensively employed, and, in the tumours utilized, permitted a clear distinction to be made between the tumour cells (carcinoma and sarcoma) which did not segregate the dye and the non-malignant associated cells which did. A parallel distinction had been observed when liquid and solid media were used. Only non-malignant cells were observed to emigrate from the tissue fragment in liquid media (serum, with or without embryo extract). Both categories, malignant as well as normal cells, emigrated when a plasma medium was used. These investigations had been continued and extended to other new growths of the mouse and rat. The later results showed that the distinction between normal and malignant cells by these methods was not absolute, but was in part an individual peculiarity of the strain of tumour employed.

Dr. A. F. Watson had published a paper on the production of tar carcinoma in the rat, a species previously found to be refractory. In another paper he had recorded an account of the experiments designed to indicate the influence on carcinogenesis of adding fresh ox or horse liver to the diet of mice. The greater proportion of the animals developed tar tumours, and they appeared earlier than in control series on the unsupplemented diet. It was found that the fresh liver need not be administered throughout the whole period of tarring. The effect was obtained if the animals were kept on the unsupplemented diet for the first one or two months. This result contrasted with the absence of effect on carcinogenesis of the specific dietary variations which had been tried. For this reason, and because of its practical value in experimental work, the phenomenon was of importance, and the experiments were being continued and extended to species other than the mouse. These observations would form part of the Eleventh Scientific Report, now in preparation, and which would, Sir Humphry hoped, be published early next year. He referred, in conclusion, to the discussion last June at the Royal Society on the experimental production of malignant tumours, which had been opened by Dr. Murray, and at which Dr. Cramer had been one of the speakers.

Dr. Murray's report contains a reference also to work being carried on at Bristol by a biochemist, Miss Keyser, who is testing colloids in regard to their toxicity, and is purifying the gum arabic which is used as a stabilizer for colloids. She is also conducting routine estimations of various blood constituents, from which it is hoped that indications of the reactions of patients to treatment may be obtained. These estimations, Dr. Murray remarks, are of necessity largely empirical in their preliminary stages: they include determinations of *p*H, calcium, magnesium, and potassium in the blood serum and fluid from standard blisters. Blood lipase estimations are also being performed systematically. Glutathione estimations, which had been in progress previously, had been discontinued, no useful indications having been obtained.

Changes in the Membership of the Fund

The Duke of Bedford referred with regret to the many losses by death sustained by the Imperial Cancer Research Fund during the previous year. Sir William Watson Cheyne, a vice-president, had been a member of the executive committee for seven years, and honorary treasurer from 1912 to 1920. Sir Frederick Andrewes had been an active member of the committee for twenty-two years, representing in the first place the Royal College of Physicians, and the Royal Society from 1925 until his death. He had been closely associated with the Fund from its beginning, and was its first secretary in 1903. He had been largely instrumental in drawing up its constitution, and had devoted all his energies during his thirty years of office to placing the Fund on a sound administrative and economic basis. Last January the Fund had lost Sir Percy Sargent, who had been appointed joint treasurer with Sir George Makins at the last meeting of the General Committee, and now, quite recently, had come the death of Sir George, who had been treasurer for twelve years, during which the capital of the Fund had increased by over £90,000, and the endowment fund had risen from £16,000 to £62,000. Sir Holburt Waring was appointed honorary treasurer of the Fund.

During the previous year, the president added, there had been an exceptional number of legacies, totalling £8,655. Although the financial position appeared satisfactory at first sight, it had to be remembered that the income from investments did not even now suffice to cover the ordinary expenditure, which this year had exceeded the fixed income by £4,788. The importance of annual donations and subscriptions was obvious.

N. Kenawy, in the *Bull. Off. Internat. d'Hyg. Publique* for September, records his observations on an epidemic of small-pox at Alexandria, which began on March 1st, 1932, and lasted till February 28th, 1933. A total of 638 cases occurred, with a mortality of 21.6 per cent. In the age group 10 to 50, however, which constituted more than half the cases, the fatality was only 7.8 per cent., and the disease was most fatal among non-vaccinated infants under 3 months of age, in whom the death rate was 74 per cent., and among persons over the age of 50, most of whom died. Of the 638 cases 1.3 per cent. had been successfully vaccinated either in infancy or later.

ROYAL SOCIETY OF MEDICINE

ANNUAL DINNER

The annual dinner of the Royal Society of Medicine took place at the May Fair Hotel on November 16th. Mr. V. WARREN LOW, C.B., F.R.C.S., presided, and the principal guest was the EARL OF ATHLONE, who, in proposing "The Royal Society of Medicine," spoke of the pleasure it gave him to be in the company of medical men again. Many years ago, when he was chairman of the Middlesex Hospital, he had opportunities of contact with the profession, but since those days his duties had called him elsewhere. He had also been glad to find that so many of the Fellows of the Society were graduates of the university of which he had the honour to be Chancellor. He trusted that London would ever continue to produce the same splendid type of graduate as in the past. In a reference to the early history of the Society he recalled the fact that, more than a century ago, certain distinguished members of the profession desired to organize an exchange of ideas and to form a library. He understood that the plan was decided upon at a meeting in a tavern, where he preferred to think that the settlement was arrived at over a meal of steak and toasted cheese rather than beer alone, when such celebrated men as William Saunders, the first president, Edward Jenner, and Astley Cooper were present. The Society had had several changes of quarters during its long history, but since 1912 it had been housed in the permanent and dignified building which was opened in that year by His Majesty. A feature of the Society's work which had interested him was the growth of the library, which now attracted on an average more than a hundred readers a day. The importance of keeping such a highly specialized and valuable library up to date had not been lost sight of, and every year a large sum of money was spent in buying books. An endowment of the library by some generous benefactor would be of the greatest assistance to the Society, and that was a dream which he hoped, before too long, would become a reality.

Mr. WARREN LOW, in replying, first made some humorous remarks on the vagaries of medical fashions. It often seemed strange to him, he said, that the medical profession had to meet so much hostile criticism when it took so much trouble to follow the ever-varying whims of the public. Not long ago the public took up the thinning craze, and immediately the medical correspondents of the lay Press flooded their columns with a profusion of dietaries. Similarly, when the public demanded that in future they should be "wrenched and manipulated back to health" when occasion required, there immediately arose a reciprocal body of practitioners of athletic frame who were prepared to "twist any ailment into shape." Such was the gratitude of the public that it was now being urged that the osteopaths who were outside the profession should be placed on an equality with those inside. Mr. Warren Low considered that this was to be deprecated, because, if it were done, those outside would lose a first-class grievance, which was a very valuable asset to them, and those inside would lose their singularity, which was possibly their chief charm. Turning to the Society, Mr. Warren Low said that there were now 5,000 Fellows and Members enrolled, an increase of nearly 200 over last year. There were 24 Sections, each being practically an autonomous society, managing its own academic affairs by means of its officers and council, and relieved by the central council of all financial and administrative worry. By means of joint discussions it was ensured that the Sections should not work entirely in watertight compartments. The library contained 170,000 books, and took in over 1,000 periodicals. It had been gratifying to him not long ago, when travelling in the Sudan, to find Fellows in Khartum reading books sent direct from the Society's library, or obtaining abstracts or photostatic reproductions of articles in books which could not well be taken out of the house of the Society. He concluded with expressing the indebtedness of the Fellows to the secretary, Mr. G. R. Edwards, and his staff for their enthusiastic devotion to the Society's interests.

Professor WILLIAM BULLOCH, in a happy speech, proposed the toast of "The Guests." He referred to the popularity of the Earl of Athlone in South Africa and wherever he had gone, and especially to his interest in London hospitals. The other guests whom they were very pleased to see at their board consisted largely of the members of kindred societies, with which the Royal Society of Medicine was always glad to work.

Sir ERNEST BENN, in responding to the toast, said that he noted that its proposer had occupied since 1925 the position of honorary librarian to the Society. To his mind, which was that of a publisher, a librarian was a creature who was engaged in the nefarious business of encouraging people to read books without paying for them, but he forgave Professor Bulloch on this occasion, and thanked him for the welcome he had accorded to the guests.

"I hope you did not ask me here," Sir Ernest Benn continued, "in order to tell you what wonderful people you are. You scientific people place a restriction upon yourselves—whether in the interests of economy or not, it is not for me to say—and you do not advertise, but, on the other hand, if you notice your own ways as we advertising people notice you, you will realize that you are the greatest living experts in the art of extolling one another's qualities. You do it in a way which no layman could hope to emulate. I hope, also, that you did not ask me to extol your good works, for my self-imposed mission consists in an endeavour to save mankind from the devastating consequences of good works in superabundance. Your secretary was good enough to send me a copy of your annual report, and as an individualist there was an item which gave me more pleasure than any other. On June 14th, 1907, you killed at one fell stroke no fewer than seventeen other societies, and I should like to send you a list of seventeen hundred societies which since that date have become ripe for dissolution. What I admire most about you medical men is the wonderful way in which you manage to retain a modicum of personal spiritual health in face of the pope-like *ex cathedra* attitude which your patients insist upon your adopting towards them. We commercial people have, it seems to me, the advantage of you in that we are subjected to a continuing process of purification from the need to cultivate humility towards our customers, to win their confidence in face of competition, and to tell the truth about the goods we sell. We commercial folk are, indeed, on the higher moral plane of payment by results. I take leave to doubt whether the persons who constitute my trade possess the character which could withstand the effects of some system under which our readers were all entered on a panel and were made to queue up at the publishers' doors, while we sent our charges to a benevolent exchequer. Yet surely the cultivation of the mind—which is the business of the trade with which I am associated—is at least as important to man's well-being as the care of some of the less respectable organs in which you specialize." (Laughter.)

Sir Ernest Benn went on characteristically to set forth his gospel of individualism. To his mind Governments and politicians were, in effect, saying to the people: "You have the baby. We do the rest." It was a sad reflection to him to think how much science was prostituted by that degrading idea that Governments would provide everything. He wondered what was the share of the medical profession in this modern degradation of "something for nothing." He would not go so far as to say that there should be "fewer clinics and more cynics," but, putting the difficulty as he saw it, in the words of a one-time Socialist mayor of an East End borough, he would say, "It is very often hard to steer a straight course along the narrow path leading between right and wrong." If he were ever to go so much against his principles as to suggest the formation of a committee, it would be one, of course, which had Lord Macmillan in the chair, and its terms of reference would be to inquire whether character, grit, spirit, soul, could in fact exist in a world from which all trouble was removed at other people's expense. The medical profession had

perhaps escaped the worst of the modern curses—namely, the narrow nationalism which was doing so much harm in the world—and the stage of the "all-British doctor" had not yet been reached, nor was it yet necessary to place under the brass plate the words, "Only British ingredients used in my medicines." The members of the medical profession were free—a freedom which he wished were much more widely spread—to exchange their knowledge and ideas with those from other countries, and they at least would not subscribe to the definition of a foreigner which he heard given by a well-known and distinguished Empire statesman the other day, as "that unfortunate by-product of the Creator's early work."

Among the guests at the principal table, in addition to those already mentioned, were Sir Charles Ballance, Dr. J. O. Wakelin Barratt (Master of the Society of Apothecaries), Major-General Sir Percy Cox (president, Royal Geographical Society), Dr. T. Watts Eden, Dr. J. S. Fairbairn (president, British College of Obstetricians and Gynæcologists), Sir Archibald Garrod (a new honorary Fellow of the Society), Lieut.-Colonel E. L. Gowland (president Harveian Society), Sir William Hale-White, Lord Macmillan, Dr. H. R. Pollock (president, Chelsea Clinical Society), Dr. Mabel Ramsay (president, Medical Women's International), Sir Bernard Spilsbury (president, Medico-Legal Society), Mr. W. E. Tanner (president, Hunterian Society), Sir John Thomson-Walker (president, Medical Society of London), Mr. H. Tyrrell Gray (president, West-London Medico-Chirurgical Society), and Sir Holburt Waring (president, Royal College of Surgeons).

THE NATURE OF INSULIN

BOARD OF TRADE INQUIRY

For three whole days a referee at the Board of Trade, with two scientific assessors, assisted by lawyers and expert witnesses on opposing sides, have been debating the question whether insulin is a fine chemical. The matter has arisen on a complaint by the Association of British Chemical Manufacturers and four big drug houses that insulin and its salts have been improperly excluded from the list of articles chargeable with duty under the Safeguarding of Industries Act. The opposing party is agent for a Danish firm of exporters. It was stated that the amount of insulin at present imported into this country is only 1 per cent. of the total on the market (though this figure was questioned), and it was also said on behalf of the complainants that if as a result of the inquiry a tax was imposed there was no intention on their part of raising the price of the article to the people who required it.

In an opening speech, which lasted two hours, the counsel for the complainants argued that the whole matter turned upon whether insulin was a chemical, and, if that were granted, whether it was a fine chemical. It was common ground that no definition was possible of the term "chemical," which was never used except adjectivally by the trained chemist. In deciding the question, the method of production or isolation had to be considered, also the purpose for which the substance was ordinarily employed, whether in the scientific sense it could be said to possess a definite identity, and by what method it was recognized. As to this last, it was admitted that insulin was most easily recognized by a physiological or biological test rather than by a chemical, but the Medical Research Council, in its standardization of insulin, imposed, among other tests, a chemical one—that is to say, the nitrogen content of the body had to come within certain limits.

The tribunal was given a painstaking description of the occurrence of insulin in the pancreas of the ox, sheep, pig, and, it was added, fish, and the processes of isolation and preparation. Notwithstanding the wide variations in the raw material, it was claimed that insulin was obtainable with certainty by a method which might be described as routine, although requiring very careful supervision. A method of preparation appearing recently in the *Transactions* of the Royal Society of Canada, by Scott and Parker, was cited as the latest discovery from the laboratories where Banting and his collaborators worked, though, on an objection being made that this was a purely laboratory method for producing a highly specialized product, counsel admitted that it was not the method employed by his clients. At the same time it was substantially similar, and it was a chemical method. The process started with about half a ton of macerated pancreatic substance, and about one and three-quarter ounces of insulin hydrochloride were ultimately obtained.

With regard to the purpose for which the substance was employed, the action of insulin in the human body was a purely chemical one, and as for definite identity it was sufficient to say that from the amorphous product as it was put on the market, with certain harmless impurities, it was possible to obtain a crystalline body which, while of little use except from the scientific point of view, was the active principle of the commercial preparation. About a dozen different criteria for chemical identity were cited, and it was claimed that insulin fulfilled them all. For example, the specimens from different sources of supply agreed, within the limits of experimental error, in respect to the percentages of carbon, hydrogen, nitrogen, and sulphur, the high content of sulphur identifying insulin to a large extent among the proteins, to which it was related. With the growth of knowledge more and more of the protein family were coming to be recognized as chemicals in the true sense of the word; one of these was refined haemoglobin, which was included in the Safeguarding list, and had interesting analogies with insulin. If it was conceded that insulin was a chemical, was it a fine chemical? The tests for fineness were that a high degree of skill was required in the process, the skill being such as must be exercised continuously, so that it could not be left to a workman to employ routine methods; the employment of a small amount of the product at a time, the purpose for which it was made, and the cost of preparation, and on all these grounds it was claimed that insulin was a fine chemical, and so should come into the duty list.

After several experts, including the Waynflete professor of chemistry at Oxford on the one side, and a past-president of the Society of Chemical Industry on the other, had given evidence, the view was put forward by those opposing the application that as the great organic chemists were in controversy the tribunal should take no side. It was still unsettled whether, in dealing with commercial insulin, admittedly of the nature of a protein, they were dealing with one body in a reasonable state of purity or with a mixture or group of proteins each possessing a physiological activity which might vary from member to member. The evidence was declared to point strongly to the instability of the proteins to the fact that no protein had a fixed composition that the order in which the amino-acids were arranged and even the number of them varied from molecule to molecule. The whole atmosphere surrounding the substance was that of the physiological, not the chemical, laboratory. Insulin was best described by the *British Pharmacopœia* as a preparation containing the specific antidiabetic principle of the mammalian pancreas, and beyond that one could not go at present. What the Act intended by the word "chemical" was bodies made by ordinary chemical methods, and in order to be fine chemicals the methods by which they were produced must be methods of accuracy. The substances must be either one body, or, if more than one, a perfectly ascertained combination, not an indefinite group. Bodies had to graduate for this schedule, and insulin had not graduated yet. Such, in brief, was the argument of those resisting the complaint and it was reinforced by the Board of Trade also through counsel, which defended the exclusion of insulin on the ground that it was not intended to include any article in the definition "fine chemicals" unless it was something the identity of which was as certain as could be reasonably expected, and it was not a matter of general acceptance among the authorities as yet that insulin came within that category.

The tribunal (which consisted of the Hon. S. O. Henn Collins, K.C., Professor F. G. Donnan, F.R.S., and Professor Samuel Smiles, F.R.S.) will take time to consider its decision.

Ireland

Medical Registration Council

The November session of the Medical Registration Council for the Irish Free State was held on November 7th, in the office of the Council, 35, Upper Fitzwilliam Street, Dublin. There were present: the president, Dr. Denis J. Coffey (in the chair), Dr. James N. Meenan, Dr. Henry F. Moore, Dr. John Dundon, Dr. Stephen Shea, Dr. A. Francis Dixon, Dr. Edward Magennis, Mr. R. Atkinson Stoney, Professor T. Gillman Moorhead, Dr. Robert J. Rowlette, and Mr. William Doolin. The registrar, Miss Hayes, was in attendance. Among the routine business dealt with was the appointment of Drs. Coffey, Francis Dixon, and Atkinson Stoney to be members of the Dental Board representing the Medical Registration Council. Arrangements were made as to the further visiting of the medical examinations, and also in regard to the future printing of the *Medical Register* of Saorstat Eireann.

Tuberculosis among Out-patients

Dr. G. Bewley, president-elect, delivered an inaugural address to the Dublin University Biological Society on "Pulmonary Tuberculosis among Out-patients." Dr. Bewley said that pulmonary tuberculosis had a greater mortality than any other disease in the Irish Free State, except heart disease and cancer. More than half of the victims of heart disease and cancer were over 60, but the majority of those who died from tuberculosis were between the ages of 15 and 35—on the very threshold of their careers. He analysed the results of 400 adult cases treated at his dispensary at the Adelaide Hospital during the last eight years, and found that the chances of death or recovery were approximately equal, because many of the patients did not come for medical advice until the disease was far advanced. If, however, the patient saw a doctor at the onset of the disease the condition could be diagnosed and immediate treatment given with a good prospect of complete and lasting cure. Diagnosis at this stage was, however, difficult, and the use of *x* rays was essential. He found that consumption was not very uncommon in children under 12 years, but that the outlook was good, nearly all the children who had come to him having recovered completely. In suitable early cases Dr. Bewley recommended collapsing the affected lung by means of an artificial pneumothorax, but other cases should be sent to a sanatorium for several months. After patients returned home, apparently cured, it was essential that they should see a doctor at intervals for some years, as a relapse might occur. Dr. E. T. Freeman, in proposing a vote of thanks to Dr. Bewley, said that the subject chosen by him for his paper was important, particularly in reference to out-patients. He was in absolute agreement with Dr. Bewley that the most reliable method of early diagnosis was by *x* rays. In seconding the vote Dr. J. A. Harbison said that his interest in the subject of pulmonary tuberculosis was both clinical and administrative, and Dr. Bewley had shown them the magnitude of the problem. It was considered a stigma to suffer from tuberculosis, and it was this outlook that medical men had to apply themselves energetically to remove. If they must have early diagnosis they must have the patients in the early stages, and they must educate the people and make them see that the disease should be treated early. The State was fully alive to the tuberculosis problem. The cost of combating the disease was great, and, considering the limitations of finance, the State was doing its best, in the provision of housing and institutional accommodation, and in providing for dependants. Professor T. Gillman Moorhead, in moving the *resolution*: "That the Dublin University Biological Association is worthy of the support of all members of Dublin University," stated that, apart from improvement on housing conditions and other sanitary reforms, the only way of coping with the tuberculosis problem at its source was by means of domiciliary visits by trained nurses. Twenty years ago an investigation in London showed that 61 per cent. of tuberculous patients presenting themselves for the first time at an out-patient department came from homes where a tuberculous patient was already living. Further, 65 per cent. of all patients actually slept in the same bed with other members of their family. Such conditions as these could only be dealt with by trained and sympathetic nurses, who could give advice on the spot. He hoped that all hospitals would, before long, establish a well-equipped social unit, and, further, that any general hospital which refused to do so would be given no further sums of money from the sweepstakes. In England, no contribution under the King Edward VII Fund was given to a hospital that did not possess a social service unit. Like Dr. Bewley, he deplored the fact that patients were not left for a long enough time in sanatoriums.

Problems of Mental Health in the Free State

The Minister for Local Government and Public Health, Mr. S. T. O'Kelly, in opening the new Mental Hospital, County Louth, which was erected at a cost of £120,000, stated that there were 18,000 persons in the district mental hospitals, and that, except for a short period prior to 1921, when conditions were abnormal, the numbers had been mounting steadily year by year until accommodation was taxed to the utmost limit. Extensions were under consideration in many districts. The erection of establishments of this kind was not only an expense in itself, but created future permanent charges for the upkeep and maintenance of patients. The cost to the public purse was only part of the cost imposed on the community by mental disease; in addition, there was the economic loss caused by the incapacitation of so many men and women in the prime of life, and the impoverishment of families by the loss of breadwinners. This increase in mental disease was manifest also in other countries. Some time ago he had been pressed to constitute a commission of inquiry which would investigate the possibility of checking the increase by the adoption of educational and preventive measures. A good deal might be said for setting up such a body, but it seemed to him that it would be better at the moment to concentrate on those practical improvements in administration which the existing state of knowledge would justify and their resources would permit. He was not one of those who took an alarmist view of the position and regarded the expansion of the mental hospitals as indicating an increasing incidence of insanity. There was good reason to think that the boundary lines of what constituted mental disorders had changed, and that to-day many were cared for at the public expense who formerly would have been left to fend for themselves.

Royal Maternity Hospital, Belfast

The Duchess of Abercorn, in a broadcast appeal on behalf of the Royal Maternity Hospital, Belfast, said that public opinion had greatly changed in late years towards the ante-natal and post-natal care of mothers, and that anxiety had been aroused by the lamentable annual maternal mortality. Nevertheless, people still did not care or understand as much as they should about this matter. In Ulster they were very proud to have built a really up-to-date maternity hospital, open to all, where women could receive the highly skilled attention, care, suitable

food, and nursing which they could not get in their own homes. The hospital had an ante natal clinic, and its infant welfare clinic and nurseries were things to be proud of. Each baby was studied individually, and when the mother was ready to leave with her child she had full knowledge to help her; moreover she could always return for further advice when this was needed. Another advantage of this hospital was the experience afforded to doctors and nurses. The hospital was a constant centre for the training of doctors and midwives, who took the knowledge and skill they had acquired there to homes of every kind. The Duchess said she first realized the great necessity for such a hospital in Ulster about five years ago, and she made an appeal which was responded to with proverbial Ulster generosity. That response, coupled with a large bequest and other financial assistance, enabled the hospital to open practically free from debt; but she was appealing, through the courtesy of the B.B.C., for further funds for maintenance. From Ulster she felt sure she would receive help because Ulster people had begun to realize the benefit of such a specialized hospital. But there were two reasons why she was appealing for help from others: first, because scores of the hospital's doctors and nurses would certainly go to distant parts of the Empire, where their special knowledge would benefit all; secondly, all who supported the hospital would be assisting in the great effort that was being made to remove the terrible stain [illegible] annually about 3,000 women dying yearly in maternity in the United Kingdom.

Cork Clinical Society

The Cork Clinical Society [illegible] special meeting of the session on November 3rd, Professor Pearson who presided, again urged the importance of the necessity of recording [illegible] with full particulars and results. Dr. R. C. Cummins gave an account of a case of pellagra and commented upon the geographical distribution of this disease and upon present day views of its aetiology. Dr. P. Kiely discussed the causes of splenomegaly, with a special reference to [illegible] of the reticulo-endothelial system. He showed a patient upon whom he had performed a splenectomy for Banti's disease.

Scotland

Problems of Nutrition

In a lecture on general aspects of nutrition, delivered to the Edinburgh Women Citizens' Association on November 15th, Dr. G. C. M. M'Gonigle, medical officer of health for Stockton-on-Tees, said that food was the first essential of life, and much of our trouble to-day resulted from trying to adapt man to a stage of civilization to which he had not yet biologically attained. Although there was an actual excess of food commodities in the world, a large part of the population was unable to get a proper percentage of the right food. Nutrition was dependent not merely upon quantity but upon quality and variety, and a shortage of any one element of food might in the long run be as serious as a general shortage of food. They knew only roughly what the optimum diet for man should be, and they knew what were the usual diets of many different peoples and races. Although the Eskimo lived entirely on flesh and fat without carbohydrates, he attained a good age, had perfect teeth, and was a healthy individual; it did not necessarily follow, however, that this was the best diet for Scotsmen or Englishmen. The Arab of the desert depended upon the milk of camels, upon butter, flesh, and dates, and most of these primitive races were free from rickets, dental decay, and many of the defects which were attributed to civilization, but which were probably largely dietetic in origin. From a study of 800 charts, furnished by his child welfare centres and health visitors' records, it had been found that there was practically no correlation between the degree of overcrowding and defect, but that there was a definite statistical significance between diet and the incidence of defects. Dr. M'Gonigle had adopted an experiment in his own area involving the removal of some 800 individuals from slums to new houses, about the same number being left in the slum surroundings. Both groups had been followed up for five years, and it had been disturbing to find that the population that had been moved had a higher death rate under the new conditions than it had had in the slums. The average rent of the slum houses had been 4s. 6d. a week, and of the new houses 9s. Between 85 and 90 per cent. of the people removed had been unemployed, and it had been found that the increased rent was making a difference in the type of food consumed; this might be held responsible for the increased death rate. Dr. M'Gonigle gave a budget for a family of five, where the unemployment money amounted to 29s. 3d. and the necessary expenses left 12s. per week for food. This sum, he said, was insufficient for nutrition, and in his opinion such a family could not be properly fed under 19s. 2d. per week.

Slum Clearance in Glasgow

At an inquiry by the Department of Health for Scotland, held in Glasgow on November 13th, under the presidency of Mr. H. M. Wylie, Chief Inspector of Housing for the Department, evidence was submitted for the corporation that the medical officer of health considered 12,500 houses unsuitable for occupation, and that the corporation proposed to deal with these gradually, taking the worst houses first. In the Provan Ward there were 407 houses of one apartment, 108 of two apartments, and three of three apartments, of which 347 were definitely uninhabitable and 171 might be regarded in the same category. There were also some sixty houses which had been reconstructed thirty years ago, and which were just now on the borderline. Inhabitants of such houses numbered 2,042, giving a density of 247 persons to the acre, as compared with 14·77 for the city as a whole. The death rate per 1,000 from respiratory disorders was 7·25 in this area, as compared with 3·54 for the city generally, and from tuberculosis 1·80 as against 0·88. The infantile mortality rate was 178 in this area, as compared with 106 for the rest of Glasgow. The most satisfactory way of dealing with this situation was to demolish the houses and erect new dwellings. Under the rehousing scheme there would be ample provision for open spaces and shops. Two new roads would be built and 480 houses would be erected at a cost to the corporation of £214,906. This would involve an annual loss for the next forty years of £3 7s. 2d. per house.

Glasgow Hospital for Women

At the fifty-sixth annual meeting of the Glasgow Hospital for Women, held on November 13th, Colonel McInnes Shaw, chairman of the Board, stated that the directors had decided to make charges for some of the beds in the hospital, and to recognize the services of the medical staff. The report showed that the total ordinary revenue had amounted to £1,253, and the ordinary expenditure to £2,447, leaving a deficit of £1,194. Lord Provost Swan, who presided, paid tribute to the efficient work of the hospital since it was founded fifty-five years ago. A gratifying feature had been that subscriptions from employees were increasing, and it was evident that

the hospital was becoming more widely known and appreciated. For some time there had been considerable loss in the working of the hospital, and it was believed that the proposed charge for certain beds would keep the hospital in existence and increase its usefulness to the public. It was felt that a year's experiment would show that the institution under the new scheme was well serving the purpose for which it was originally founded. The scheme was unanimously approved by the meeting.

CORRESPONDENCE

Surgery of the Biliary Tract

SIR,—I have read Professor Wilkie's admirable paper in the *Journal* of October 28th, and the subsequent discussion on it, with more than an academic interest, for both my parents have undergone an operation for gall-stones, and I have had an " attack " myself.

It rather appears that the discussion has been one of cholecystectomy *versus* cholecystotomy, and I venture to suggest that this is not quite the right approach to the subject, each operation having its own special indications. Professor Wilkie's interesting list of remote results due to an infected gall-bladder in itself shows that cholecystectomy must usually be the operation of choice. But it is certain that if, following Lord Moynihan, the generality of surgeons did this operation in 99 per cent. of their cases the mortality would exceed 2 per cent. The operation, as all know, may not only be difficult but dangerous, even in quite reasonably competent hands. Mr. Walton, in his book on surgical dyspepsias, says, with refreshing candour, that most surgeons have had the misfortune to damage the common duct at some time or other.

In view of the high authority of Lord Moynihan and Professor Wilkie, surgeons of less skill may be tempted to undertake a risky and difficult operation—considering it the " best " one—in spite of the fact that Lord Moynihan says they " would be better employed in doing cholecystotomy." This brings me to Mr. Bonney's very interesting letter, which, provided the after-histories of his cases were adequately followed up, shows clearly that cholecystotomy, even without drainage, is quite satisfactory given the conditions he states. I have experience of similar cases.

There seems no *a priori* reason why a gall-bladder whose mucosa is mildly inflamed, but which otherwise looks and feels perfectly normal, should not—especially if drained—return to a healthy state. Surely we can expect Nature to help us out a little. I make this suggestion with diffidence, remembering that Lord Moynihan was my first teacher in surgery. In abdominal surgery more than any other the surgeon should have a perfectly open mind, and deal with conditions, which vary so greatly, as he finds them, rather than " set out " to do a particular operation.

If ever I had to undergo an operation for gall-stones I should, like Mr. Bonney, make a stipulation—namely, that cholecystectomy should only be done if perfectly safe. A 7 per cent. risk of recurrence is mild compared with the disaster of injury to the common duct. Incidentally, it is well to remember that cholecystectomy gives no guarantee against further attacks of gall-stone colic, as one of my patients, after eight years' " freedom," has latterly found to his cost. So while agreeing that, in competent hands, cholecystectomy is a necessary and safe operation in most cases, I venture to think there is still a little niche of usefulness left for cholecystotomy. I have found preliminary injections of normal horse serum of great value in checking haemorrhage in jaundiced cases; and as regards the operation I think it will be agreed that it is often impossible, owing to adhesions, to define the cystic duct and artery separately, and that they are tied in one ligature.—I am, etc.,

Wakefield, Nov. 18th. G. W. THOMAS, F.R.C.S.

Treatment of Early Rodent Ulcer

SIR,—Recent correspondence in regard to the treatment of rodent ulcer has been concerned mainly with the question whether it is better to employ unfiltered or filtered radium emanations. Mention has been made of surgical excision as an alternative in certain cases, and there has been some reference to treatment by carbon dioxide snow. But there is yet another method, which, for the smaller growths at any rate, is as efficient as radium treatment and at the same time more expeditious and less irksome for the patient.

I refer to a method of first scraping away the major part of the new growth under a local anaesthetic and following this by a considerable dose of *x* rays. The great advantages of this method are: (1) The majority of the growth is removed mechanically in a few minutes, and the *x* rays can then be applied directly to any growth that remains in the tissues, without having to pass through an unknown thickness of new growth. (2) The exact shape, size, and depth of the growth is at once revealed by the action of scraping. This is a very important point, since the surface view and even palpation often give a deceptive impression of the extent of the new growth, which is usually a good deal deeper and wider than it appears to be. (3) The whole process of scraping and subsequent *x*-ray treatment is carried out at one sitting of not more than half an hour; whereas the duration of a radium application extends over a period of hours or days, and as this has sometimes to be repeated the whole treatment may be spread over weeks or months. With the scraping method one thing is essential for success—the scraping must be thorough, and every particle of new growth must, as far as possible, be scraped away with a small Volkmann spoon. As the new growth is friable and the sound tissues are tough it is not difficult to know when this has been accomplished.

After scraping, the erosion thus produced is mopped out with trichloracetic acid, which stops bleeding and forms a dry crust, under which the wound heals without suppuration. After mopping with trichloracetic acid the wound is then given, in one application, from three to five normal skin doses of unfiltered *x* rays, which may occupy from ten to fifteen minutes. The surrounding skin is protected by means of a lead-foil shield in which has been cut a hole just sufficient to expose the erosion and a narrow margin beyond. No after-reaction takes place, and the wound heals in from ten to fourteen days. No dressing is required, and the only subsequent treatment is to mop the wound twice daily with industrial spirit until the crust falls off. If the scraping has been thorough, and if one has not been afraid to give the necessary large doses of *x* rays, recurrences are rare indeed. It might be feared that so large a dose of unfiltered *x* rays would produce an *x*-ray ulcer, but this is not so, since the whole thickness of the epidermis has been replaced by the growth and this has been removed by scraping; it is only by damage to normal epidermis that such a dose would result in an unhealing *x*-ray ulcer or in subsequent *x*-ray dermatitis. As a matter of fact, the resulting scar is perfectly sound, and, moreover, is not liable to be disfigured by telangiectasis, as is sometimes the scar of radium treatment.

It is more especially for rodent ulcer growths at an early stage that this method of treatment is to be

recommended. The scraping of large growths is a more serious operation and requires a general anaesthetic, and it then becomes a question whether surgical removal, possibly involving plastic surgery or treatment by massive doses of screened radium (gamma rays)—one or the other—may not be the better proceeding—a question which I shall not attempt to discuss here; my remarks referring now to the treatment of early rodent ulcer. To repeat briefly: the great advantage of this method is that a small growth on the face may be diagnosed, treated, and cured in the course of half an hour, and this is often a matter of some importance for a patient who may live at a long distance, and for whom the prolonged and sometimes repeated visits for radium treatment may seem inconvenient and expensive for what has perhaps been looked upon as an insignificant complaint.—I am, etc.,

London, W.1, Nov. 14th H. G. ADAMSON

Anaesthetics in Midwifery

SIR,—With reference to the recent correspondence on this subject, I have for many years past used an ordinary Junker inhaler, with the only modification that the tubes were both made about four to five times as long. I use the bottle is hung on the top rail of the bed, the face-piece is laid on the pillow beside the patient's face, and the bellows placed in the patient's right hand if she is on her left side). She is told to squeeze the bulb when she gets a pain. When the pain is eased she has only to cease to have more chloroform, and so does not get any. The air inlet valve being fully open, she can now breathe freely without the need to remove the face-piece.

I think this method is more convenient than capsules, and the patient probably gets less chloroform on the whole and in better concentration. I have not heard the results of the use of the very ingenious inhaler mentioned by Mr. R. Christie Brown (*British Medical Journal*, February 25th, 1933, p. 324), but as it would be more or less fixed on the pillow with the patient on her side it would need to be removed each time otherwise she might get more anaesthetic than was really necessary. With the Junker inhaler, as I use it, this cannot occur.—I am, etc.,

Stoke Ferry, Nov. 14th JEROME P. HAYES

SIR,—Can the phrase "blatant misrepresentation of the facts" be justly applied to my letter? A further reading of the report on Mr. Rivett's paper makes it perfectly clear that he advises the use of chloroform (in 20 minim capsules) during the second stage of labour, and perhaps during the end of the first stage as well, in the 450,000 confinements per annum which are attended by midwives alone.

In one of his cases thirty-seven capsules (one and a half ounces) had been given to a woman with a fatty heart. As full anaesthesia was being subsequently produced to repair a ruptured perineum "her tongue fell back into her pharynx and she stopped breathing. The tongue was pulled forward and breathing was re-established, but only for a short time. . . I am sure it was the deeper anaesthesia which allowed the tongue to fall back, and the resulting partial asphyxia which stopped the diseased heart." Quite so, but does Mr. Rivett believe that the previous administration of one and a half ounces of chloroform had not affected the fatty heart? Few anaesthetists would agree with him. My contention is that this case alone is sufficient to show that there is danger in the practice which he advises.

The report from the L.C.C. hospitals to which he refers was not published until after my letter had been sent in; I read it with great interest. Among other things it states that a number of patients to whom chloroform capsules were administered were noisy and difficult to control, "a serious consideration to midwives in private practice." Further, the Central Public Health Committee of the London County Council considers that "the duty of administering or supervising the administration of analgesics or anaesthetics should be regarded as part of the normal duty of a medical officer in charge of a maternity ward." This is quite sound, but it is in direct conflict with Mr. Rivett's contention.—I am, etc.,

East End Maternity Hospital, Nov. 20th W. H. F. OAKLEY.

Treatment of Fractures of the Spine

SIR,—The recent work of Alfred Taylor, Watson Jones, Haughton, and others has established beyond doubt the value of reduction by *hyperextension in treatment* of fracture-dislocations of the spine. I have seen at Mr. Watson Jones's clinic patients who had had an almost complete lesion of the spinal cord or cauda equina for one or more weeks after injury and who subsequently recovered completely to their own satisfaction, though a few residual neurological signs could still be detected. Results such as these after severe injury to the cord are much better than can be obtained by any other method, they should finally dispel any enthusiasm that may still exist for operation when the lesion of the cord is not progressive.

Hyperextension of the thoracic and lumbar spine can only be obtained by the prone position, and the patient should be placed in this position at the earliest possible moment. It is therefore a matter of surprise to learn that the St. John Ambulance organization has forbidden transport of these patients in the prone position. If the patient is transported on his back, not only is there delay in reduction of the displacement, but also risk of further injury to the cord. Lifting the patient, pillows under the head and shoulders, and the action of gravity will all tend to produce further flexion of the spinal column and closer approximation of the spinal cord to the damaged vertebrae.—I am, etc.,

London Hospital, E.1, Nov. 20th HUGH CAIRNS

Cancer and Co-operation

SIR,—To those of us who for the last eleven years have been working to promote and extend the activities of the British Empire Cancer Campaign it is somewhat disconcerting to find that a man of the eminence of Professor Gask is apparently unaware of either the nature or extent of our efforts. In the report of his paper read before the Royal Society of Medicine, in your issue of November 11th, he says: "There is also need for some sort of co-operation between the various bodies interested in cancer. It was because a number of people thought this many years ago that the Campaign was brought into being in order to obtain co-operation between all those interested in the cancer problem. At the present day there is no branch of medical or scientific research that has been so thoroughly and completely co-ordinated as cancer research, though a knowledge of the fact seems to have escaped the notice of Professor Gask.

All the bodies interested in cancer are branches of, or are in the closest co-operation with, the British Empire Cancer Campaign. The Imperial Cancer Research Fund, the Cancer Committee of the Ministry of Health, the Medical Research Council, and the Radium Commission are all co-ordinated with the Campaign by means of liaison members of their committees, and are in close and sympathetic touch with each other, while all the provincial centres are branches of the Campaign. The reports from all the cancer research stations of not only England and

Scotland, but of the whole Empire, are published yearly in the annual report of the Campaign, where all the latest information and references to the original work can be found, including the report from the cancer research centre at St. Bartholomew's Hospital, which is entirely financed by the Campaign. A further and important means of co-operation, which does not seem to have been noticed by Professor Gask, is that for many years all the published work on cancer throughout the world has been abstracted and published monthly in English. This was originally carried out by the Campaign in the *Cancer Review*, and has just lately been taken over by the *American Journal of Cancer*, and a similar periodical is published in French.

Professor Gask suggests that mass statistics to find out the value of present methods of treating cancer are required. He will find a very large number of such figures in the annual reports of the Campaign; and the Ministry of Health Cancer Committee, which acts also as the statistical committee of the Campaign, has been collecting mass statistics on this subject for years, and has published several reports, including one on cancer of the breast. The figures quoted by Professor Gask are, with a few exceptions, quite out of date, and the survival rates at five years which he gives are much lower than those shown by more recent and comprehensive statistics. Professor Gask refers to there being a prospect of a large mass of radium becoming available for experimental purposes for testing the treatment of cancer by mass radiation. Mass radiation has been in use in this country for a number of years and the results have been published, and since the formation of the Radium Commission there has been no lack of radium for experimental purposes. I agree with Professor Gask in considering that a follow-up department should be considered an essential of a modern hospital; the one at St. Mark's Hospital has now records going back over fifteen years.

I am, as I feel sure everyone must be, in entire agreement with the ideas put forward by Professor Gask, but I think it a pity that he did not take the trouble to find out what had been already done during the last eleven years, though it must be very pleasing to him to be assured that they have all been anticipated.—I am, etc.,

London, W.1, Nov. 20th. J. P. LOCKHART-MUMMERY.

The Testimonial Farce

SIR,—I am afraid I have been neglecting the *B.M.J.* of late, but after a fortnight's rest in bed, last night I felt more or less in need of some light refreshment, which is often to be found in the *Journal* if not taken too seriously. In your last issue I was sorry to find that Dr. Robert Hutchison had been imperilling his immortal soul by giving testimonials of a more or less doubtful kind, but I do not think any feelings of remorse need disturb his equanimity regarding futurity, for I have always looked on his character as unimpeachable.

For some years I have not been harassed to give testimonials, good, bad, or indifferent, but as a member of the election committee of the Liverpool Royal Infirmary occasionally I have to read testimonials with which some writers try to befog my intellectual vision and that of the other members of the committee. Lately there were several candidates for a vacant surgical post. I received excellent testimonials from each candidate, and all from the same teachers, showing or asserting that it would be difficult or impossible to improve on each candidate. The writers did not give any standard by which you could differentiate between the respective merits of the candidates; the only point which you could infer was that it would be some time before they reached the high standard of their teachers, and thus be ready to push their seniors off the scene. I was impressed by the apparent fact that if I wished my appendix or gall-bladder removed—which, thank God, I do not—the job could be very expeditiously performed by any of them. It has been said with more or less truth that an operation is surgery, but the prevention of an operation is advanced surgery; but as there did not seem to be an advanced surgeon among the bunch I left the selection to my colleagues.

It is not simply consultants like Dr. Robert Hutchison whose consciences are sorely tried in writing testimonials, but, in my opinion, a much more serious responsibility often rests on general practitioners in selecting a consultant, even when dichotomy is set to one side, which in my experience is unknown in the North.—I am, etc.,

Hindhead, Nov. 10th. JAMES BARR.

An Appeal to Health Resort Doctors

SIR,—It is to be hoped that every medical man practising in a British health resort will realize that it is worth while to give a personal subscription or donation to the British Health Resorts Association, and also to do all he can to influence local authorities to give financial aid. In this connexion the interests of all British health resorts are identical, whether they be spas or seaside or inland resorts. Until the formation of this association it was easier for a doctor or patient in London to obtain full information about the health resorts of Germany, France, Italy, or Czechoslovakia than about those in our own country.

The health resorts of most of the countries on the Continent have a central organization for advertisement purposes which enables them to maintain bureaus in London, as well as to circularize the medical profession in Great Britain with remarkable thoroughness and regularity. At the same time they are, or were until quite recently, aided in their efforts to attract English visitors by various travel agencies in London. Obviously it pays a travel agency to earn commission by booking tickets to the Continent, whereas there is by comparison little or nothing to be earned by recommending people to take a ticket to a health resort in this country. While this is perfectly sound and legitimate business for the travel agencies, it weights the scales still more heavily against our places. It has long been obvious that Continental health resorts have an enormous advantage over the home resorts through their well-organized advertising, and so far there seems to be no machinery in existence for dealing with the problem.

The British Health Resorts Association arose solely from the patriotic motives of certain members of our profession—not, be it noted, men who were practising in health resorts—to help the British health resorts at a time when even the Government thought it necessary to appeal to Britishers not to take their money abroad unnecessarily. The association seeks to achieve this object not by advertisement of the ordinary "boosting" type, but by supplying accurate details concerning the climate, waters, and seasons of each British health resort, together with information as to accommodation, general amenities, and indications of the type of patient for which they are suitable. Information of this kind from an impartial source would obviously carry more weight with medical men, and eventually with the public, than any ordinary commercial advertisement. But even impartial information cannot be circulated without funds to pay for printing, postage, and office work. The organization has been created to meet a national emergency. With Dr. Cox as its general secretary, medical men throughout the country will realize that the work of the association will be conducted with scrupulous fairness and efficiency. In the report of the annual meeting of the British Health Resorts Association printed in to-day's issue of the *British*

Medical Journal, Dr. Cox states that financially the association is living from hand to mouth, and that if the movement came to an end for lack of funds it would not be resuscitated in this generation. It is obvious that it could never be resuscitated under more favourable conditions, and it is in the hope that support may be given immediately that I make this appeal to my fellow practitioners in the British health resorts.—I am, etc.,

November 18th. SPARTAN.

Alcoholic Neuritis a Deficiency Disease?

SIR,—All of us who treat cases of alcoholic excess will, I am sure, agree with your correspondents as to the importance of a diet rich in vitamins, though some may prefer to rely less on patent products than on good food and an abundance of fresh fruit and fresh vegetables. It is necessary also to ensure that the supply of these should be well maintained during the winter months.

There is another aspect of the problem, however, to which I should like to refer, and that is the possibility of chronic hypoglycaemia as a factor in the production of alcoholic neuritis. A comparison of the signs and symptoms of the two syndromes is suggestive. The alcoholic's need of carbohydrate is well known—Hunt[1] and Leyton[2] have given a reason for this—and I have been constantly impressed by the low blood sugar values obtained in hard drinkers. I hope to continue investigations and to report later on the subject. In the meantime glucose has found a permanent place in our treatment here.—I am, etc.,

Rendlesham Hall, Woodbridge, Nov. 18th. H. K. V. SOLTAU.

Treatment of Coronary Thrombosis

SIR,—It may be rash for anyone with a necessarily limited experience of coronary thrombosis even to comment on Dr. Strickland Goodall's helpful and authoritative letter, but I hope that the following remarks may at least succeed in drawing forth an answer to the questions raised.

Although the analogy has frequently been drawn between coronary and cerebral thrombosis, I have never seen or heard any analogy drawn between these and the clinically similar cardiac and cerebral attacks in malignant tertian malaria. If this analogy is in any way valid some or all of the following propositions should hold. (1) The onset of the attack may not always be due to a thrombosis, but to a nearly sudden and complete stasis. (2) During the period of stasis the attack should be curable by appropriate means, if such exist. (3) After such a cured attack it is quite possible that no more will occur. (4) The stasis may not always be due to the viscosity of the blood, but to some localized stickiness between the blood vessel walls and the blood corpuscles. The existence of this stickiness is clearly shown under the microscope in some sections of malarial tissue, and that it depends on two factors is inferred from the fact that the infected corpuscles do not stick to all the capillaries, but only to those in a very limited area. If some of these propositions are correct, I think it would help to explain some of the vagaries of coronary thrombosis and other "heart attacks," though it leaves the ultimate cause as obscure as ever. It does, however, affect the problem of treatment. Until clotting has actually occurred there is probably no extreme degeneration of the cardiac muscle, and during this period cardiac stimulants might be permissible and helpful. I do not know how long the blood may remain at a standstill in the blood vessels without clotting, but the following case is suggestive.

Just three years ago I was called to see a distant connexion by marriage, a man of 70, who had lain comatose and stertorous for six days, treated as a case of cerebral haemorrhage. With his doctor's consent treatment was instituted on the supposition that it might only be a threatened cerebral thrombosis. Two days later definite improvement had taken place, and in four days the man was quite rational. He finally made a practically perfect recovery and is well to-day. Here sufficient stasis of the blood to cause complete unconsciousness had existed for nearly eight days, apparently without clotting taking place.

On the more immediate subject of coronary thrombosis I only wish to quote one case, and that is by permission of my partner, Dr. Mary MacLaren. Some months ago she saw a woman within twenty minutes of the onset of the violent pain and profound collapse of a typical coronary thrombosis. Acting on a suggestion I had made from the considerations I have mentioned, she immediately injected an ampoule of cardiazol ephedrine, which, from our limited trials, we have found the most rapidly potent of the many cardiovascular stimulants. Within a few minutes the woman's pain and collapse had disappeared, and next day, against advice, she did her washing as usual, and has kept well since.

Of course there may have been a mistake in diagnosis, though the attack was absolutely "textbook," apart from the rapid recovery. On the other hand, it may possibly have been a case of correct treatment suggested by admittedly hazardous reasoning. Any comments would be welcomed.—I am, etc.,

Winsford, Cheshire, Nov. 15th. W. N. LEAK, M.D.

Problems of Herpes

SIR,—Last week a small child, aged 2 years 9½ months, came under my observation, and I found she was suffering from a typical attack of herpes zoster. This is the first time I have ever seen so young a child with this complaint, and as I find that the same applies to my immediate colleagues the case seems worth recording. Upon inquiry I found that the child has lately been away from home staying with the grandparents, and that six weeks ago the grandfather developed a severe attack of shingles. My patient has a younger brother, so I am wondering if this little person is going to develop herpes or chicken-pox.

While on this subject I should like to record another case. I used to be under the impression that one attack conferred immunity, but a patient of mine has had repeated attacks. She first started in 1917, with a severe attack on the left side of head and forehead. Several slight attacks have occurred between 1917 and this year, vesicles forming on the old site over the left eye and accompanied by neuralgic pains. This summer there have been three attacks in succession: the first, in July, on the old site, the second, in August, on the right side of the head affecting the palate, lip, right nostril, and ear; and, in September, the third attack occurred, quite a slight one, back on the old site on the left forehead. This patient now has acute gastric pain for the first time in her life; as this was ushered in with what she calls her "shingles headache," I am wondering if she can possibly have had an attack of herpes on her stomach wall.—I am, etc.,

Newmarket, Nov. 15th. GILBERT C. GRAY.

Vascular Hypertension

SIR,—May I be allowed to express my hearty appreciation of the excellent article on hypertension by Professor W. W. D. Thomson in the *Journal* of November 18th. It places the whole problem in a very clear light. Had Professor Thomson amplified his records regarding the estimations of the blood pressure I feel that he would have increased our indebtedness still further. By this I mean that in all estimations it is highly desirable to state first of all the width of the armlet used in the

[1] Hunt, T. C.: *Lancet*, 1930, i, 121.
[2] Leyton, O.: Ibid., July, 1933, p. 120.

investigation, because, as I have already shown, the normal estimation varies considerably with the width of the armlet. Furthermore, it would be very helpful for each observer to tell us what is his normal "diastolic," because this "normal" varies, according to the observers, from 55 mm. to 80 mm. Hg. It is important to have a standard normal for the "diastolic," because, after all, it is the power of the heart pump relative to the work it has to do that is of so great importance. By my method of estimating the blood pressures the normal systolic and basic are 150/50, and it follows that if the ratios estimated be either 120/50 or 150/80 the pump has increased work to do. A prolonged period of increased work must tend to exhaust the pump.—I am, etc.,

Swansea, Nov. 18th. G. ARBOUR STEPHENS.

Treatment of Burns

SIR,—With reference to the tannic acid therapy of burns, many textbooks advise a "thorough preliminary cleansing under anaesthesia or after giving 1/4 grain morphine" before application of the spray. With *fire* burns is this really necessary or even desirable? Against it are: (*a*) time is lost; (*b*) in spite of "antiseptic" agents and every care in asepsis, one will probably introduce more infection than there was previously; (*c*) the skin has already received a baptism by flame—an efficient antiseptic. The only thing, it seems, that can be said in its favour is that it may be necessary, in certain cases, to remove dead tissue, etc. But how often is this *really* necessary?

My experience of burn cases in which tannic acid has been used is very small. From those I have seen, however—ten in all—I am impressed by the results derived from a *direct* application of a spray of tannic acid. Four patients were subjected to a "thorough preliminary cleansing," of whom one died, two became seriously septic, and one made an uneventful recovery. Of the six treated directly with the spray, one only became septic, and she made a good recovery; the progress of the remainder was uncomplicated. I would like to hear the opinion of others, more experienced than myself, on this subject. Personally, I prefer acriflavine *emulsion* to tannic acid for most burns.—I am, etc.,

JOHN W. FISHER, M.R.C.S.,
Exminster, Nov. 18th. Assistant Medical Officer, Devon Mental Hospital.

Medical Curriculum Conference

SIR,—As you are aware, a conference was formed a year ago, on the initiative of the University of London, to consider the revision of the medical curriculum. I understand that not a single member of that committee is a direct representative of the general medical practitioners, who form an overwhelming majority of the body who will be most affected by any change that may be decided upon, and who appreciate best how much the training they have had and the examinations they have passed have helped or hindered them in the professional difficulties they have had to encounter. The Royal College of Surgeons of England, which represents 20,000 Fellows and Members, of whom 90 per cent. are Members, has appointed three representatives—Sir Holburt Waring, Professor W. Wright, and Mr. Pearce Gould—not one of whom has first-hand knowledge of the problems, ancient and modern, the general practitioner meets with in his practice up and down the country, and which a change of the curriculum might do much to solve. Every other branch of the profession is represented on this conference except that most vitally interested. It is said there is a difficulty in selecting representatives of the general practitioners, and unlikely that they could and would spare the time required. If the Royal College of Surgeons of England had considered favourably the ninety-years-old request of its Members for some representation on its Council by the open and easy voting method suggested by the Society of Members of the College, that difficulty would not now exist, as far, at any rate, as that College is concerned. The General Medical Council has such representatives. No doubt the British Medical Association could and would facilitate a selection if invited to do so. It is not yet too late to move in the matter. If the other professional bodies are unwilling or unable to arrange for such representation, why should not the B.M.A. be asked by the London University to do so? The number of its members in general practice gives it a pre-eminent claim in this matter.—I am, etc.,

London, S.W., Nov. 18th. REDMOND ROCHE.

*** The British Medical Association's Committee on Medical Education, whose interim report appeared in our *Supplement* on June 24th last, includes seven general practitioners among its members.—ED., *B.M.J.*

Road Dangers

SIR,—May I drag out from the comparative obscurity of your Parliamentary Notes into the fuller light of the correspondence columns the distressing facts as to road accidents, during the last four months only, in the Metropolitan Police area alone: 475 so-called "accidents," with 492 deaths; 18,466 accidents involving 21,016 persons; all in a third of the year—nearly 1,500 deaths in the year! Surely this waste of life could be avoided. The traffic is growing by leaps and bounds. Speed is increasing. Who are the offenders? Anyone who reads the law and police reports of a daily paper will meet with such cases as the following. A girl of 20 was charged at petty sessions with driving at sixty miles an hour on an important by-pass road. She and two passengers occupied a seat thirty-eight inches wide. How she controlled the levers did not appear. Her defence was that the thing *couldn't* do sixty miles an hour. What she may have meant was that it was not built for such a pace. A firm of hauliers "lent" a lorry to an incompetent driver, with the usual result: defence of the firm that the driver was liable! Surely the old common law rule, *Qui facit per alium facit per se*, should apply. Small boys with scooters seem to take a perverse pleasure in tearing through a crowd waiting for buses and trams. Some similar motive must act on those who cut in and out of traffic in very small but very high-powered "sports" cars, utterly indifferent to the safety of their fellows. Cannot we bring the influence of our profession to bear on what is becoming a danger to the public health which may soon rival even the February onset of influenza?—I am, etc.,

GEORGE JONES, M.B.,
London, S.E., Nov. 18th. Barrister-at-Law.

The Services

DEATHS IN THE SERVICES

Lieut.-Colonel Isaac Boulger, R.A.M.C. (ret.), died at Worthing on November 14th, aged 85. He was born at Hyderabad on May 24th, 1848, was educated at St. Thomas's Hospital, where he gained the Tite scholarship, and took the M.R.C.S. and L.S.A. in 1873. Entering the Army as surgeon on February 4th, 1877, he became surgeon lieutenant-colonel after twenty years' service, and retired on February 24th, 1897. He served in the Afghan war in 1878-80, receiving the medal.

Medico-Legal

ALLEGED PERFORMANCE OF ILLEGAL OPERATION DOCTOR ACQUITTED

After a four days' trial in the Jersey Assize Court, Dr Claude Hamilton Avarne of St Helier surgeon to the General Hospital and Poor Law Infirmary Jersey was found "Not guilty" on November 9th of performing an illegal operation on Miss Elsie May de la Mare a warder maid at a nursing home The verdict which was unanimous by a jury of twenty four, proved to be a very popular one and led to enthusiastic demonstrations within and without the court

It appeared from the evidence that the woman together with the reputed father of her child consulted Dr Avarne in May last as to her condition and the doctor not being sure, told her she must return for further examination She did so and Dr Avarne according to his own account then formed the opinion that the foetus was non viable and he had her removed in August to a nursing home where he conducted the operation for the removal of the dead foetus The charge arose out of a statement made by the woman to another doctor who then called in the police The sister at the nursing home testified that she had been told by Dr Avarne that the woman was coming for examination and if necessary, operation The idea of anything illegal in connexion with it had never entered her mind she trusted Dr Avarne as a surgeon and whatever he was doing was to her the right and proper thing

The trial was remarkable for a conflict of medical evidence Sir Bernard Spilsbury giving evidence in support of the prosecution and Professor Sydney Smith of Edinburgh and Mr Aleck W Bourne senior obstetrical surgeon Queen Charlotte's for the defence Professor Smith after examination of the contents of a sealed jar expressed the view that the foetus was dead at the time of the operation though it was impossible to fix the date of death and Mr Bourne considered that if Dr Avarne had been contemplating a criminal abortion he would hardly have taken the patient to a nursing home to perform it when he could have gone to the home of the reputed father of the child He said that he distrusted Sir Bernard Spilsbury's opinions when he ventured into clinical questions outside his regular pathological work

The Attorney General for Jersey in his address to the jury said that such an operation could only be rightfully performed if it was necessary to save the mother's life or if it was impossible for a living child to be born It was stated in this case by the defendant that the suggestion of an illegal operation was made by the man when he brought the woman for examination, and the Attorney General submitted that the story of the woman showed that from the time of consultation with Dr Avarne there was no doubt in the mind of both the woman and the man that the life of the child was not to be preserved, though the woman's future conduct showed that she did not appreciate the gravity of the offence When the woman entered the nursing home she was healthy suffering from none of the symptoms consistent with an impending natural abortion The reputed father being a police official had special opportunity of obtaining admission for the woman into the local hospital but she was taken instead to a private nursing home—itself a suspicious circumstance On behalf of the defence it was urged that the charge arose out of a statement made by the woman at a time when her temperature was 107° F The woman had appeared as a witness for the prosecution, but she had broken down under cross examination If her story was true she was an accomplice and accessory, as was her paramour Why were they not in the dock with the defendant? The evidence of the experts showed that in May, when the woman first consulted the doctor, it would have been the best time for him to operate had an illegal operation been contemplated, but in fact the operation was deferred until August

The Bailiff, in summing up, pointed out that the law regarded very seriously the offence of criminal abortion, whether by drugs or instruments It was no less culpable if performed by an eminent member of the medical profession than if performed by an ignorant midwife It had been admitted that the operations—there were really two of them—were performed on the woman, and it was the plea of the defence that they were necessary for the removal of a dead foetus The Bailiff feared that there were not many in court who could appreciate the intricate details which the medical witnesses had presented Absence of motive had been urged on behalf of the defendant, but that did not prove that a crime had not been committed One point which seemed rather remarkable to his mind was that towards the end of July the doctor made an examination of the woman at the house of the reputed father, and came to the conclusion that the foetus was dead As he knew that the man was anxious about the pregnancy, and had indeed suggested an illegal operation to terminate it, it seemed strange that he did not give him the welcome news that there would be no further "trouble"

As stated, the jury, after a brief deliberation, found Dr Avarne "Not guilty," and he was immediately discharged

Universities and Colleges

ROYAL COLLEGE OF SURGEONS OF ENGLAND

ANNUAL MEETING OF FELLOWS AND MEMBERS

The annual meeting of Fellows and Members of the Royal College of Surgeons of England was held at Lincoln's Inn Fields on November 16th, when the President, Sir HOLBURT WARING, was in the chair

The PRESIDENT submitted the annual report of the Council and briefly commented upon it Dealing with the proposal to revise the regulations relating to the admission of candidates to the second or final examination for the Fellowship, he said that it was quite possible that this revision might have a considerable influence in improving the equipment of the hospitals One did not want to criticize the hospitals, but occasionally the lay committees governing voluntary hospitals did not follow all the recommendations made by the medical committees, and there was at times a tendency for a hospital with good accommodation and personnel not to have the equipment necessary for the scientific investigation of patients if it were to be up to modern requirements With regard to the primary Fellowship examination, a committee had been appointed to go into the question of whether or not the examinations in their present form were as well adapted as possible for modern requirements A good deal had been heard of the difficulties students had met with in the primary examination and the committee would go into all the details with a view to seeing if the examination could not be made more completely to meet the requirements of modern education The whole question of medical education seemed to be in the melting pot and the Medical Curriculum Conference having discussed the matter from all points of view would shortly be in a position to draw up its report The general feeling he thought was to lessen what might be called the detailed requirements which had been exacted from medical students in the early stages and spread these out to the clinical period

The President drew attention to the paragraph in the report which announced that Sir Arthur Keith had felt it incumbent upon him for health reasons to place his resignation of the office of conservator of the museum in the hands of the Council The report stated that although happily Sir Arthur's health was now in great measure restored it was thought undesirable by his medical advisers that he should take up his residence in London again and resume his duties at the museum On the acceptance of Sir Arthur Keith's resignation the President had been requested by the Council to express to him their sincere regret on his retirement to convey to him an assurance of their very great appreciation of his services to the College and their warm regard for him personally and to tell him that the Council were very conscious of the distinction and ability with which he had filled the office of conservator during the past twenty five years

The President added that it was a great pleasure to feel that Sir Arthur Keith was continuing his association with the College as Master of the Buckston Browne Research Farm. He stated that following the advertisement of the vacant office, the Council had appointed Dr. John Beattie as conservator.

During the year from August 1st, 1932, to July 31st, 1933, 602 diplomas of Membership, 96 diplomas of Fellowship, and 138 Licences in Dental Surgery had been issued, together with 164 Diplomas in Public Health and in other subjects granted jointly with the Royal College of Physicians. The number of women receiving diplomas of Membership was 63; of Fellowship, 3; of Licences in Dental Surgery, 7; and other diplomas, 16.

In the course of some discussion and questions on the report, Dr. REDMOND ROCHE suggested that it would have been advisable to have had on the Medical Curriculum Conference a member who was in general practice.

Mr. HOWARD M. STRATFORD said that he thought he was expressing the general feeling that if there were to be any alterations in the requirements for the primary Fellowship examination they should not be in the direction of making it more severe. The examiners were, he said, specialists, and, as such, were apt to magnify their specialty. He hoped the Council would keep a sharp look-out, not only on the examinee, but also on the examiner.

Mr. MCADAM ECCLES expressed the hope that the meeting would accord, as the Council had done, a very hearty vote of thanks to Sir Arthur Keith for his past services as conservator. They were all glad that, though Sir Arthur had resigned that position, the College would not be losing him altogether.

The PRESIDENT said he gathered from the applause with which the remark was received that it was the wish of the meeting that what had been said should be conveyed by him to Sir Arthur Keith. He added that it was not possible to make any change in the representation on the Medical Curriculum Conference, but he did not think Dr. Redmond Roche need feel any doubt that every side would be discussed by the present representatives.

Dr. WAKELIN BARRATT then proposed, and Dr. VAUGHAN PENDRED seconded, reception of the report of Council, and this was agreed to.

Representation of Members on the Council

Dr. VAUGHAN PENDRED, a Fellow of the College, then moved:

> That this forty-fourth annual meeting of Fellows and Members of the Royal College of Surgeons of England reaffirms that the Members, who constitute 90 per cent. of the College, should have some representation on the Council, a similar resolution having been passed forty-three times, and never once lost.

He said it seemed a grave anomaly that the Council should hold its position while it represented only the Fellows—that is to say, only one-tenth of the College. How was it possible for Members to obtain the recognition advocated in the resolution? He would be told that it was necessary to obtain a new Charter from His Majesty's Government. For that purpose it was necessary to obtain the views of the general body of members, though it was difficult to get even thirty members to attend the annual meeting, which fact was rather disgraceful. He suggested that the 18,000 Members of the College should be circularized on this question, and that if affirmative replies were obtained from a large number the Council should consider approaching the Government for a Charter.

Mr. HOWARD STRATFORD, in seconding the proposal, remarked that a great writer once said, "It is better to travel hopefully than to arrive." Members of the College who approved of this proposal had been travelling hopefully for forty-three years and had not yet arrived. He pointed out that the General Medical Council called to its deliberations medical men from all spheres of practice, and surely the College might make more use of the services of its Members. There was also the moral aspect of the matter; he was certain that it was right and just that Members should be on the Council. If the Council were to decide to give a small representation—for there was no question of controlling the College—to the Members it would be applauded as the right and proper thing, alike by the profession, the Press, and the public.

The resolution was put to the vote, and the PRESIDENT announced that there were twenty-four votes for the motion and two against. He declared the motion carried, and said that it would be conveyed to the Council.

UNIVERSITY OF OXFORD

At a congregation held on November 18th the degree of Doctor of Medicine (D.M.) was conferred on T. H. Sellors and A. H. Gale.

UNIVERSITY OF CAMBRIDGE

At a congregation held on November 17th the following medical degrees were conferred:

M.B., B.CHIR.—W. C. Barber, J. G. Robin, W. S. McKenzie, G. C. Martin.
M.B.—J. S. Barker, T. D. Day.
B. CHIR.—E. J. M. Bowlby.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

A new session of Parliament was opened on November 21st, with a speech from the Throne by the King in person. Bills announced in the speech include the Unemployment Insurance Bill already introduced, a measure dealing with the law relating to betting and gambling, and another on the reconditioning of working-class houses. The sugar beet subsidy will be continued for another year. A Bill is promised to regulate the hours of employment of young persons, and other conditions in distributive trades. One Bill relating to Scotland will propose the amendment of the Poor Law. Among other purposes it requires a certificate of physical fitness from a medical officer before a poor person is required to perform work, and enables the medical officer of a local authority to certify for removal to institutions persons who are aged and infirm or physically incapacitated if not then receiving proper care or attention.

The Joint Select Committee on India was set up afresh on November 22nd by resolutions of both Houses. For the rest of the week the House of Commons continued the debate on the Address.

The Parliamentary Medical Committee will meet next week at the House of Commons.

Before Parliament was prorogued on November 17th the Royal Assent was given to the Expiring Laws Continuance (No. 2) Act, the Firearms and Imitation Firearms (Criminal Use) Act, the British Nationality and Status of Aliens Act, the Local Government Act, the Protection of Birds Act, and the Road and Rail Traffic Act.

Animal Experiments

In reply to Mr. Groves on November 15th, Sir JOHN GILMOUR said that 771 visits of inspection were made by inspectors during the year 1932 under the Cruelty to Animals Act, 1876. He would arrange for this information to be given in the annual report of the inspector in future.

On November 16th Sir John Gilmour said that the Royal Commission on Vivisection which reported in 1912, and which recommended that an advisory committee should be appointed to assist the Secretary of State in the administration of the Cruelty to Animals Act, also recommended that these advisers should be selected by him from a list of names submitted to him by the Royal Society and the Royal Colleges of Physicians and Surgeons in London. This recommendation was adopted in 1913. He proposed to continue to rely on the assistance of these learned bodies in selecting members of the advisory committee.

On the same day he told Mr. Groves that he was satisfied the irregularities mentioned in the report of the inspector appointed under the Cruelty to Animals Act, 1876, as having occurred in 1932, were sufficiently punished by admonitions and warnings to be more careful in future. As regards an experiment in which curare was used, the licensee was a man and not a woman. The animal was anaesthetized before curare was administered and killed before recovering consciousness, the dose of anaesthetic given being enough to

maintain deep anæsthesia for a much longer time than the animal was kept alive

Further replying to Mr Groves on November 16th Sir Hilton Young said that animal experiments were carried out during 1932 at the Ministry of Health laboratories in connexion with the preparation of vaccine lymph of anti rabic vaccine and for the diagnosis of certain diseases The value of these experiments lay in the necessity to ensure the quality of the preparations and the assistance given to public health authorities in the control of infective diseases There were also experiments directed to improve methods of lymph production

Compensation for Road Accidents

The Lords Amendments to the Road and Rail Traffic Act were accepted by the House of Commons on November 16th Major Stanley moved that the Commons agree with the Lords new clause amending Section 36 of the Road Traffic Act 1930 to provide for payment by an authorized insurer or owner of a vehicle in respect of death or bodily injury arising out of the use of a motor vehicle on a road or public place this payment to be made to the hospital where the injured person received treatment as an out patient or in patient Mr Stanley said the provisions of the 1930 Act did not apply to out patients The hospital would now be able to recover *up to £5 for the case* The maximum sum in the 1930 Act for an in patient was £25 That was now raised to £30 The hospital could recover up to the maximum but would have to deduct anything it received from the patient

Major Hills understood that the cost to the insured person would not be more than 2s or 2 6d on his premium

The House further accepted an amendment declaring that hours when a motor vehicle is at a place where no reasonable facilities exist for the driver to rest away from the vehicle or time during which the driver is bound to remain on or near the vehicle shall not be deemed to be hours of rest Mr Stanley said the amendment met the grave practice of the bunk system whereby a driver was compelled to take his rest on the vehicle while it was in

Statistics of Road Accidents

In a reply on behalf of the Ministry of Transport on November 17th to a question by Colonel J Sandeman Allen Lord Erskine said that in the first nine months of 1933 the fatal road accidents caused by vehicles and horses in England and Wales were 4 533 with 4 688 persons killed compared with 4 227 fatal accidents and 4 314 persons killed in the first nine months of 1932 Non fatal accidents involving personal injury during the first nine months of 1933 were 127 953 with 151 396 persons injured against 122 069 with 141 711 injured in the similar period of 1932

Mr Stanley told Sir A M Samuel on November 15th that he had no information showing the ratio of motor accidents in which owner drivers had been involved or were responsible as compared with accidents in which the drivers had not been owners of vehicles concerned In reply to Mr Edward Williams Mr Stanley said the subject of road accidents was receiving his close attention Every scheme submitted to his Department by local authorities for new roads or road improvements was carefully scrutinized from the point of view of public safety He had noticed a great increase in the accidents which had occurred in the third year after the speed limit had been abolished Replying to Colonel Goodman Mr Stanley said technical objections would make impracticable a legal prohibition of licences for motor vehicles capable of travelling beyond an agreed maximum speed

Voluntary and Public Hospital Co operation —In reply to Sir Francis Fremantle on November 9th Sir Hilton Young said that both in London and in the country generally effect was being given to the policy embodied in Section 13 of the Local Government Act to promote co operation between the voluntary and public hospitals Where necessary the attention of local authorities was directed to the importance of this matter on the survey of their public health services and it was the constant policy of the Ministry of Health to promote co operation

Road Accidents Medical Fees —Mr Doran asked on November 15th whether the Minister of Transport would introduce legislation to raise the motorists driving licence from 5s to 7s 6d in order to meet the fees of medical practitioners who attended motor accidents Mr Stanley in reply said a Select Committee had just reported on the Road Traffic (Emergency Treatment) Bill He would take the report into consideration

The R M O and Workmen's Compensation —In reply to Mr Davies on November 16th Sir Hilton Young said he was not aware of any special difficulty having arisen in cases where health insurance contributors who were in receipt of workmen's compensation for total incapacity had been referred by their approved societies to regional medical officers and certified by those officers as capable of following some but not their usual occupations If as a result of the report of a regional medical officer, an approved society decided that a member was not incapable of work within the meaning of the National Health Insurance Acts excusal of arrears of contributions could be given only on the ground of proved unemployment Mr Davies contended there was an anomaly when a doctor for the purposes of workmen's compensation certified an injured workman to be totally incapacitated while the regional medical officer for the purposes of health insurance certified him not to be totally incapacitated Sir Hilton Young said he would look into the matter

Title to Insurance Benefit in 1934 —Sir Hilton Young told Mr Logan on November 16th that a person who would be entitled to remain in health insurance after the end of this year and was continuously unemployed from July 1932 to July 1933 would be credited with twenty six contributions in respect of that period and even if no arrears were paid would be entitled to medical and maternity benefits during the year 1934 in addition to conservation of pensions rights By paying ten arrears at 9d within the time allowed he would become entitled to sickness and disablement benefits at the minimum rates in the year 1934 but the title to such benefits would not commence until four weeks after the date of payment of the arrears The payment of further arrears would secure higher rates of sickness and disablement benefits

Malnutrition Following Rehousing —Sir Hilton Young told Mr E Williams on November 16th that no other public medical officers in addition to Dr G C M M Gomigle of Stockton on Tees had reported signs of malnutrition and physical deterioration in children who had been removed from the slums into new housing estates No report had come to his notice dealing with the extent of the physical mental and moral deterioration of children and adolescents occasioned by residence in the slums or during the period allotted by the slum clearance programmes for completion but he regarded these injurious effects of residence in slum as beyond doubt

Houses Since the War —Sir Francis Fremantle was told by Sir Hilton Young on November 16th that in England and Wales since the war there had been completed with or without State assistance 2 175 095 houses of a rateable value not exceeding £78 (£105 in the metropolitan area)

Powers of the Board of Control —Replying to Mr Neil Maclean on November 16th Sir Hilton Young said he was not aware of any general dissatisfaction that existed at the manner in which the powers of the Board of Control were being used in cases where these dealt with were alleged to be subnormal As the Board of Control had no power to certify mental defectives or to grant leave of absence he assumed the complaint referred to its power of discharge He would have inquiry made if particulars were furnished of any specific case He was not prepared to adopt the suggestion that a committee should be set up to investigate the operation of the powers granted to the Board of Control

Hospital Sweepstakes —Replying to Mr Isaac Foot on November 16th Sir John Gilmour said that it was estimated that a total of £1 852 000 was subscribed by people in Great Britain to the latest Irish sweepstakes On this amount the proportionate surplus available for hospitals was £285 750

Deaths from Small pox —Sir Hilton Young supplied on November 17th the following summary of deaths in England and Wales classified to small pox of children under 6 years of age 1922 4 1923 3 1924 8 1925 3 1926, 5, 1927 21, 1928 5, 1929, 10, 1930 8, 1931 4, 1932, 1

Deaths from Meningitis Following Vaccination.—Sir HILTON YOUNG told Mr. Groves on November 14th that during 1931 three deaths from meningitis following vaccination had been reported, one each at Carshalton, Alverstone, and Barham. The ages were 2 months, 11 weeks, and 4½ months. The verdicts were: "Meningitis due to an organism which may have entered the system at the site of vaccination"; "meningitis"; and "natural causes—namely, meningitis." Inquiries were made in each case. He was advised there was no ground for disagreement with the verdicts.

Notes in Brief

In reply to Mr. Logan on November 16th Sir HILTON YOUNG stated that the number of insurance cards issued in respect of employed persons over the age of 65 for one or more weeks during the first half of this year was approximately 330,000.

Obituary

PHILIP BARNETT BENTLIF, M.R.C.S.

Consulting Physician, Jersey Infirmary and Dispensary

One of the best-known medical men in the Channel Islands passed away on November 7th, at the age of 74, in Dr. Philip Barnett Bentlif of St. Helier, Jersey. The large concourse of people which filled St. Saviour's parish church on the occasion of his funeral and the scenes in the streets testified to the respect in which he was held by his fellow islanders. The Lieutenant-Governor was represented, many official persons, members of the medical and legal professions, and representatives of local hospitals and other institutions were present, and the Royal Militia, of which he was surgeon colonel, mounted a guard of honour. There was also a large attendance of Freemasons, among whom he had been a prominent figure.

Dr. Bentlif was a student at Middlesex Hospital, and took his medical qualifications in 1883, being also Broderip scholar in that year. His early experience in practice was on troopships. He served as surgeon on the transport *Australia* and on the hospital ship *Ganges* in the Sudan expedition which went to the relief of Khartum in 1885. On settling down in Jersey he took a prominent part in the civil and military life of the small community, and gradually came to hold a very large number of official positions. He was medical officer in command of the troops of Jersey district, county director of the British Red Cross Society, a serving brother of the Order of St. John of Jerusalem, president of the Jersey centre of the St. John Ambulance Association, physician to the Overdale Fever Hospital and the Tuberculosis Hospital, and honorary consulting physician to Jersey Infirmary and Dispensary. He also served as honorary surgeon to the St. Helier fire brigade, and as medical referee to various assurance companies. He joined the British Medical Association immediately on qualification fifty years ago, and took a great interest in the affairs of the small Jersey Division, and of the Southern Branch, of which he was president in 1925–6. He had also been president of the Jersey Medical Society. He contributed certain clinical papers to the *Middlesex Hospital Journal*, and, during the war, to the *Journal of the Royal Army Medical Corps*.

His son, Dr. Philip Graeme Bentlif, is also in practice in Jersey.

Dr. THOMAS HENRY PARKE, who died at his residence in Tideswell, Buxton, at the age of 76, had been in general practice in that neighbourhood, where he had been born, for forty-nine years. He received his medical education at Owens College, Manchester, and obtained in 1878 the diplomas M.R.C.S.Eng., L.R.C.P.Ed., and L.M.; in the following year he became L.S.A. He succeeded to a practice established by his father in Tideswell, and in his earlier years had many fierce buffetings from the weather in the course of his journeyings over the Peak district, having had to charge snowdrifts at full gallop on horseback. He took a keen interest in the general welfare of the local community, held many offices, and was made a J.P. in 1916. Dr. C. W. Buckley writes: For many years Dr. Parke was associated with his father, who commenced practice in the town in 1850, and the family name has been a household word in the scattered hamlets and farmsteads of the Peak district for nearly eighty years, universally loved and esteemed by all classes of society. Under a bluff exterior "Dr. Tom" hid a kind heart and sympathetic disposition, allied with a sound knowledge of medicine, which he kept up to date by constant reading of the medical journals and current literature. Those who had the privilege of meeting him in consultation were often struck by his wisdom and clinical insight, as well as by his acquaintance with new ideas. Dr. Parke was a keen sportsman, and identified himself especially with village cricket, being no mean performer with both bat and ball. He took a prominent part in local affairs, and up to the time of his death was chairman of the Tideswell and District Hospitals Association. He was an old member of the British Medical Association, though he did not take any active part in its affairs, living too far from the centre of the Division. More than six hundred people attended his funeral, a slight indication of the affection in which he was held.

Medical News

The annual dinner of past and present students of the London (Royal Free Hospital) School of Medicine for Women will be held at the Savoy Hotel on Thursday, December 7th, at 7 for 7.30 p.m.

The annual London dinner of the Irish Medical Schools' and Graduates' Association will be held at the May Fair Hotel on November 30th.

The twelfth annual dinner and dance of the British Serbian Units Branch of the British Legion will be held at Lysbeth Hall, Soho Square, on Saturday, December 2nd, at 7.20 p.m., with the president, Lieut.-Colonel A. E. Kidd, M.B., in the chair. Tickets (price 6s.) may be had from the secretary, Miss Marx, 24, Melcombe Court, Dorset Square, N.W.1.

The fifth annual dinner of the London Jewish Hospital Medical Society will be held on Sunday, December 10th, at the Trocadero Restaurant, Piccadilly, W. The Right Hon. Walter Elliot, Minister of Agriculture, will be the society's guest of honour, and Dr. M. D. Eder will be in the chair. The price of tickets (exclusive of wines) is 12s. 6d. each. Application for seats should be addressed to the dinner secretary, London Jewish Hospital Medical Society, Stepney Green, E.1.

The annual Manchester medical ball will be held at the Midland Hotel, Manchester, on Thursday, February 22nd, 1934. Reception by Mr. and Mrs. P. R. Wrigley at 7.30 p.m. Tickets (price £1 1s.) can be had on application to Mr. B. W. Spurgin (honorary secretary), Medical School, Manchester.

Sir Philip Cunliffe-Lister, Secretary of State for the Colonies, supported by Lord Athlone, will preside at a meeting of the Royal Empire Society at the Hotel Victoria, London, on Tuesday, December 5th, when brief addresses will be given on "British Nurses Overseas: Their Achievements and Difficulties," by Lady (Samuel) Wilson, Mr. J. L. Gilks, F.R.C.S., Director of Medical and Sanitary Services, Kenya, and members of the nursing services who have had experience in the Dominions and Colonies. Those wishing to be present should make early application for tickets, which are free, to the secretary, Royal Empire Society, Northumberland Avenue, W.C.2.

The fiftieth international post-graduate course of the Vienna Medical Faculty will be held from November 27th to December 10th. The subject is "Modern Diagnosis and Treatment." The fee is 50 schillings. Further information can be obtained from the office of the Faculty, Alterstrasse 4, Vienna IX.

At the meeting of the Royal Sanitary Institute in the Municipal Annexe, Dale Street, Liverpool, on Friday, December 1st, at 5 p.m., there will be discussions on "Housing and Slum Clearance" to be opened by Dr W. M. Frazer, and on "The Prevention of Measles by the Use of Human Adult Serum," to be opened by Dr C. O. Stallybrass.

The next series of lectures and demonstrations on tropical hygiene, intended for men and women outside the medical profession proceeding to the Tropics, will be given by Lieut.-Col. G. L. F. Stammers, from December 4th to 15th. Particulars can be had from the secretary, London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1.

At a meeting of the Central Midwives Board for England and Wales on November 2nd the report on the work of the Board for the year ended March 31st, 1933, was approved as amended, and signed by the chairman and secretary to be forwarded to the Ministry of Health.

A course of clinical lectures and demonstrations will be given on Tuesdays, Wednesdays and Thursdays, at 3.15 p.m., at the Royal Northern Hospital and the Royal Chest Hospital, City Road from November 30th 1933 to May 3rd, 1934. Brief particulars will appear in the diary of post-graduate lectures published in our *Supplement* week by week. The programme copies of which may be obtained from Dr. E. G. B. Calvert at the Royal Northern Hospital, Holloway Road, N.7, has been planned throughout with a view to providing practical help for the general practitioner.

The Buckston Browne Prize Essay of the Harveian Society of London has been awarded to Lionel S. Penrose, M.D., for his essay on "The Influence of Heredity in Disease."

Attentive readers will note two small improvements in the *Proceedings of the Royal Society of Medicine* which take effect in the November number (vol. xxvii, No. 1). The table of contents is now arranged according to "Papers," "Short Communications" and "Clinical Material" instead of according to Sections as heretofore. Another change is that when never an abstract of a paper is supplied by the author this is printed at the head of the paper, not only in English but in French and German also, for the assistance of Continental readers and abstracting journals.

The *Medical Journal of Australia* for August 12th contains an article by Dr. Thomas Cherry, Cancer Research Fellow of the University of Melbourne, under the title of "Cancer and Tuberculosis. VIII. A Survey of Recent Work on the Causation of Cancer." The author's conclusion is that "cancer appears as a unique disease in most cases, caused indirectly by the tubercle bacillus, and directly by the consequent lymphatic action. The survey of the cancer problem from this point of view suggests that the control of the disease is practicable. It is essential not only to reduce the incidence of phthisis but also to reduce the facilities for healthy adults coming into contact with the bacillus." Previous articles correlating cancer and tuberculosis have been published by Dr. Cherry since 1924.

We have received the first number (dated November, 1933) of a new monthly periodical, *The East Riding Medical Journal*, which is intended to cater particularly for the local interests of medical and dental practitioners in the East Riding of Yorkshire and North Lincolnshire. The editor is Dr. Douglas Robinson, and the editorial office is at 51, High Street, Hull. The subscription rate is 13s. per annum, post free, single copies, 1s.

In our advertisement columns on November 11th and 18th the Home Secretary announced a vacancy for a medical inspector of factories (male) at a salary of £726, rising to £1,043. Forms of application, etc., may be had from the Industrial Division, Home Office, S.W.1.

A festival dinner in aid of the Royal National Orthopaedic Hospital will be held at the Dorchester Hotel, Park Lane, on Wednesday, December 6th, with the president, H.R.H. the Duke of Gloucester, in the chair.

This year's Nobel Prize for medicine has been awarded to Thomas Hunt Morgan, professor of biology in the Californian Institute of Technology.

Dr. J. Sánchez Covisa, formerly president of the College of Physicians of Madrid and of the Spanish Society of Dermatology and Syphilography, has been elected dean of the medical faculty of Madrid in succession to Professor Sebastian Recasens.

Professor Valère Cocq has been elected president of the Brussels Faculty of Medicine.

Dr. Guido Miescher, hitherto director of the radiological department, has succeeded the late Professor Bruno Bloch as director of the skin clinic and professor of dermatology at Zurich.

Professor F. de Lapersonne and Dr. Morax of Paris have been elected honorary members of the Hungarian Society of Ophthalmology.

The following appointments have recently been made in the German faculties of medicine: Dr. Hermann Dold, professor of hygiene at Tubingen in succession to Professor Wolf, Dr. Carl Schneider, director of the psychiatric and neurological clinic at Heidelberg, in succession to Professor Willmanns; and Professor Georg Magnus of Bocheim, successor of Professor Bier at the Berlin Surgical Clinic.

An international institute for plastic surgery is to be founded at the University of Florence.

An epidemic of 462 cases of typhus, with 300 deaths, has recently occurred in North Syria.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not returned.

Communications with reference to ADVERTISEMENTS as well as orders for copies of the *Journal* should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange).

The TELEGRAPHIC ADDRESSES are:
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London*.
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London*.
MEDICAL SECRETARY, *Mediseria Westcent, London*.

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams, *Bamsad, Dublin*; telephone 62550 Dublin) and of the Scottish Office 7, Drumsheugh Gardens, Edinburgh (telegrams, *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS

The Sorenson Trial

Dr. P. WATSON WILLIAMS (2, Rodney Place, Clifton, Bristol) writes: Can any of your readers give me information with regard to the trial of Sorenson on a charge of murder? I gather the capital sentence was commuted to detention as the crime was one of mental aberration resulting from mastoid infection. I should be glad to know where one can find a full account of the trial, and of the evidence submitted with regard to the diseased condition affecting the prisoner's moral responsibility.

Trigeminal Neuralgia

Dr. B. LAYTON LLOYD (Hants), in reply to "T. M." (October 28th, p. 805), writes: I suggest that deep hypnosis be tried first. If his patient is a good subject, one sitting would probably effect a cure. Hypnosis would, of course, be induced when the patient is free from pain.

Aid for the Deaf

Dr. A. Norman Leeming (Old Colwyn) writes: Can any reader of the *British Medical Journal* let me have the name and address of a French or English apparatus for the relief of deafness the principle of which is to transmit sound vibrations direct to the mastoid process?

Income Tax

Medical Officer—Travelling Expenses

"D." acts as M.O. to a hospital situated half a mile away from the residence where he carries on a private and panel practice. The claim to deduct the cost of travelling between the residence and the hospital has been refused on appeal.

*** There is no legal claim, but the result of refusing it is obviously inequitable. It is usually avoided by making one assessment under Schedule D on the total earnings, in which case the Schedule D rules apply, and the expense can be allowed. We suggest that for future years "D." should request the inspector of taxes to arrange for the combined Schedule D assessment.

Foreign Dividends—"Blocked Account"

"J. P." has some shares on which dividends are payable in Chile. Chilean tax has been deducted in pesos and British income tax has been deducted from the sterling equivalent. He adds: This is a blocked account, and I have not received any dividends for some years.

*** The correctness of the British income tax deduction appears to depend on whether the dividends have been remitted to this country. If remittance has been made, then the tax was deductible, notwithstanding the fact that they remain outside "J. P.'s" control, but presumably held on his behalf.

LETTERS, NOTES, ETC.

Subdural and Epidural

Dr. J. Price Williams (Swinton, Manchester) writes: Surely the use of this antithesis is hardly creditable to a profession which claims to be somewhat learned, somewhat scientific, and somewhat consistent—or logical. Some of us worship blue blood, others delight in the mixed breed, and to the latter the mongrel "epidural" may be highly commendable; but why do not they mate it with "hypodural," a fellow mongrel, instead of with the blue-blooded "subdural"? That is a small matter; but why do the surgeons use "subdural" in a sense exactly opposite to that in which the anatomist and pathologist would naturally use it? Probably because they regard a dural haemorrhage or abscess only from their own line of approach to it. They would agree with the anatomist as to what a subcutaneous, submucous, or subperiosteal abscess is, but though the dura mater is the periosteum of the cranial bones they choose to regard an abscess between the dura mater and the bone as in a different category from an abscess between any other bone and its periosteum. But conventions are confusing and hardly scientific. Is it too late for them to give up their convention and return to the natural (or scientific) system?

Hypnotic Suggestion in the Psychoses

Dr. Alexander Cannon (Colney Hatch, N.11) writes: I was extremely interested in the note on the Board of Control's report at page 882 of your issue of November 11th, with special reference to the research carried out at Bexley on "reinforced analysis" in four cases of psychosis, where auto-suggestion was introduced with the patient in a hypnoid state. Those of us who have been using these and even pure hypnotic suggestion even in the trance state can testify to its value. It is therefore desirable that the method should be made more widely known. In the *Journal* of December 3rd, 1932, I pointed out that in cases where the doctor has difficulty in getting his patient for the first time under hypnosis the use of cannabis indica is of untold value. I think it is quite safe to give as much as 20 grains three times a day, and it might be remembered that no death has ever resulted from this drug (so far as records go). The patient can easily be tested as to whether he is in an hypnotic sleep or not. When asleep raise an arm, and if it does not remain cataleptic suggest catalepsy until this condition is actually produced. Should it not be produced in two minutes then gently stroke an arm from the shoulder to the tips of the fingers in slow, regular movements, still suggesting catalepsy and deeper sleep, in which the patient will hear only what the doctor says to him and will not remember anything which happens during that time. Then in words that are slow and forceful (and carefully selected), the command will be given and new thoughts implanted. These thoughts will hold undivided sway over the mind of that individual, and if the case is persisted in, cure will eventually be brought about; this may take even years, but it is well worth while.

Tonsillectomy and Quinsy

Dr W. Kent Hughes (Melbourne) writes: Ever since 1907 I have performed immediate tonsillectomy under light ether anaesthesia. In a series of nearly 2,000 cases of peritonsillitis I have not had any post-operative trouble beyond half a dozen cases of brawny swelling, without much rise of temperature. It is my rule to operate at the first appearance of oedema. For several years prior to 1907 I evacuated the pus by lifting off the anterior pillar from the tonsil. I think the textbook warnings about the dangers of tonsillectomy in peritonsillitis and acute tonsillitis are without foundation.

Confidence Trick: A Warning

Drs. A. J. P. Alexander and W. F. Lyle write from Winsley Sanatorium, near Bath: The man referred to under this heading in a note in the *Journal* of November 18th appeared in Bath about a fortnight ago—a man about 5 ft. 10 in. in height, with a pale complexion, dark brown wavy hair, and a Southern Ireland brogue. In his journey west from London he had somewhat altered his tale, and he presented himself to the Bath Royal United Hospital as the son of a famous Irish singer, on his way to Ireland. There he repeated the apparent haemoptysis and the high temperature mentioned by your correspondent, and was sent into a nursing home. From the nursing home he came on the same evening to this sanatorium, where he complained of acute pain in his chest, and demanded heroin. His insistence on heroin was such that we refused it and gave him morphine, and, morphine having no effect upon him, offered hyoscine. He still asked for heroin, stating that other opiates had untoward effects on him, and explained his familiarity with these drugs by saying that he was a veterinary surgeon. We disbelieved his account of his identity and his other statements, and we gave him no heroin. He left us next morning, and though we communicated with the police we heard nothing of him thereafter, except that there came bills for him from the nursing home and the ambulance people. He had a number of needle marks on each arm: as these were in the triceps area presumably the injections had been given to him by others—doctors in sanatoriums and nursing homes. Examination of his chest disclosed no signs of tuberculosis.

Driving in Fog

The Automobile Association has issued the following recommendations to assist motorists driving in fog: Direct a fairly intense, concentrated beam to the near side of the road, either from a fog lamp on the near side or a spot light attached to the near-side pillar of the windscreen. Thus the driver is able to look either over or under the beam. If special fog lamps are not available extinguish the off-side headlamp and direct the other headlamp beam on the near side of the road. This method necessitates driving close to the near-side curb. Again, tissue paper of one or more thicknesses attached to the outside of the headlamp glasses, or whitening mixed with water, will be found helpful. If the driver has a preference for any colour which suits his sight, tinted tissue paper, or dry colour mixed with the whitening, will produce the desired effect. Either of the foregoing is easily removed, and does not involve exposing the lamp reflector, which is undesirable.

A booklet entitled "The Applications of Marmite (Yeast Extract) in Medicine and Dietetics" has been issued by the Marmite Food Extract Co., Ltd., Walsingham House, Seething Lane, E.C.3, from whom copies may be obtained.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 48, 49, 50, 51, 54, and 55 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 52 and 53.

A short summary of vacant posts notified in the advertisement columns appears at page 1005.

Association Notices

BRANCH AND DIVISION MEETINGS TO BE HELD

DERBYSHIRE BRANCH: BUXTON DIVISION.—At Union Club, Buxton, Tuesday, November 28th, 8.15 p.m. Dr. R. Worthington: "Certificates and Certification." Followed by discussion on matters connected with national health insurance practice.

EAST YORKSHIRE BRANCH.—At Good Fellowship Inn, Hull, Friday, December 1st, 8.15 p.m. Annual dinner.

ESSEX BRANCH: NORTH-EAST ESSEX DIVISION.—At Red Lion Hotel, Colchester, Thursday, November 30th, 7.45 p.m. Dinner, followed by discussion on contraceptives, to be opened by Mrs. Janet Chance and Dr. C. P. Blacker.

KENT BRANCH: ROCHESTER, CHATHAM, AND GILLINGHAM DIVISION.—At the Bull Hotel, Wednesday, November 29th, 7.45 p.m. Quarterly meeting and dinner.

LANCASHIRE AND CHESHIRE BRANCH ROCHDALE DIVISION.—At Rochdale Infirmary, *Friday, December 1st, 8.30 p.m.* Lecture by Dr. R. Ellis: "Cancer of the Lung."

METROPOLITAN COUNTIES BRANCH: GREENWICH AND DEPTFORD DIVISION.—At 41, Creek Road, Deptford, Tuesday, *November 28th, 9 p.m. At this meeting matters relating to* national insurance practice will be introduced by Dr. A. F Heald.

METROPOLITAN COUNTIES BRANCH HARROW DIVISION.—At Gayton Rooms, Harrow, Tuesday, *November 28th, 8.30* p.m. Lecture by Dr. D. Forsyth. "Psychological Cases in General Practice."

METROPOLITAN COUNTIES BRANCH STRATFORD DIVISION.—At Queen Mary's Hospital, Stratford, Tuesday, November 28th, 3 p.m. Clinical meeting

NORFOLK BRANCH.—At Norfolk and Norwich Hospital, Friday, December 1st, 3.15 p.m. Dr. S. Vere Pearson: "Modern Advances in the Treatment of Pulmonary Tuberculosis."

NORFOLK BRANCH: NORWICH DIVISION.—At Norfolk and Norwich Hospital, Tuesday, November 28th, 3.30 p.m. Surgical demonstration.

NORTH OF ENGLAND BRANCH: BLYTH DIVISION.—At Thomas Knight Memorial Hospital, Blyth, Wednesday, November 29th, 8.30 p.m. Lecture by Mr. J Hamilton Barclay. "Disease of Rectum."

SHROPSHIRE AND MID-WALES BRANCH.—At Royal Salop Infirmary, Tuesday, November 28th, 3.45 p.m. Lecture by Dr. G. Lavelle: "Affections of Adult Bone."

SOUTHERN BRANCH: PORTSMOUTH DIVISION.—At Royal Portsmouth Hospital, Thursday, November 30th, 3 p.m. Clinical meeting.

SOUTH WALES AND MONMOUTHSHIRE BRANCH: NORTH GLAMORGAN AND BRECKNOCK DIVISION.—At Pontypridd, Thursday, November 30th. B.M.A. Lecture by Dr. L. S. T. Burrell: "Bronchiectasis." Supper

SUSSEX BRANCH: BRIGHTON *DIVISION.*—*At Grand Hotel*, Brighton, Friday, December 15th. Annual ball in aid of medical charities. Tickets (7s. 6d., including supper) obtainable from Mrs. Beresford, 11, Adelaide Crescent, Hove, or Miss M. Parry, *5, The Drive*, Hove

SUSSEX BRANCH: WEST SUSSEX DIVISION.—At Royal West Sussex Hospital, Chichester, Friday, December 1st, 3 p.m. Clinical meeting.

Naval and Military Appointments

ROYAL NAVAL MEDICAL SERVICE

S. I. Ballard has entered as Surgeon Lieutenant, and is appointed to the *Victory*, for Royal Naval Hospital, Haslar.

ROYAL NAVAL VOLUNTEER RESERVE

Surgeon Lieutenant Commander F. E Stabler to the *Victory*, for Royal Naval Barracks.

ROYAL ARMY MEDICAL CORPS

Captain W. A. G. Bell relinquishes his temporary commission.

Lieutenant (Quartermaster) W. R. George to be Captain (Quartermaster).

ROYAL AIR FORCE MEDICAL SERVICE

Flight Lieutenants R. W. White, G. P. O'Connell, and A. Dickson to be Squadron Leaders.

Flight Lieutenants P. H. Perkins to Station Headquarters, Heliopolis; R. Thorpe to R.A.F. General Hospital, Palestine and Transjordan.

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

Lieut.-Col. J. B. Stanley, having attained the age limit, retires and retains his rank, with permission to wear the prescribed uniform.

Captain J. G. Weston resigns his commission.

Second Lieutenant A. G. Fripp, late Guards M.G. Regiment, to be Lieutenant.

J. W. Laird to be Lieutenant.

TERRITORIAL ARMY RESERVE OF OFFICERS: ROYAL ARMY MEDICAL CORPS

Captain E. D. Ellis, having attained the age limit, relinquishes his commission and retains his rank.

Captains (Quartermasters) L. N. Blake and H. B. Briggs, having attained the age limit, relinquish their commissions and retain their ranks.

INDIAN MEDICAL SERVICE

Major-General C. A. Sprawson, C.I.E., is appointed to officiate as Director-General during the absence of Major-General Sir John Megaw, K.C.I.E., K.H.P.

Lieut.-Col. G. E. Malcolmson retires from the Service as from September 30th.

Lieut.-Col. B. Gale is appointed to officiate as Civil Surgeon, Simla East.

The services of Lieut.-Col. V. N. Whitamore, O.B.E., are placed at the disposal of the Government of the Punjab.

APPOINTMENTS

GARLAND, *Hugh G., M.D., M.R.C.P., Honorary Demonstrator in* Toxicology, Leeds University.

KING'S COLLEGE HOSPITAL.—*Senior Casualty Officer:* J. D. H. Bird, M.B., B.S. *Second Casualty Officer:* J. F. Jarvis, M.B., B.S. *House-Anaesthetist:* A. H. Galley, M.R.C.S., L.R.C.P. *Senior House-Pathologist and House-Physician to Dermatological Department:* A. M. Rackow, M.R.C.S., L.R.C.P. *Junior House-Pathologist:* D. H. Fulton, M.B., B.S. *Radiologist:* T. V. Cruchlow, M.R.C.S., L.R.C.P., D.M.R.E. *House-Physicians:* S. G. Browne, M.B., B.S., J. G. Anderson, M.R.C.S., L.R.C.P., R. H. Bailey, M.R.C.S., L.R.C.P. *House-Surgeons:* C. A. Lewis, M.R.C.S., L.R.C.P., Miss L. A. Leder, M.R.C.S., L.R.C.P., G. A. Barker, M.R.C.S., L.R.C.P.; Urological Department, M. Baillie, M.B., B.S.; Orthopaedic Department and Third Casualty Officer, E. J. Smith, M.B., B.S.; Obstetrics and Gynaecology (Senior), Miss J. M. Egerton, M.R.C.S., L.R.C.P., (Junior) H. N. Miles, M.R.C.S., L.R.C.P.; Aural and Throat Department, A. Rothwell, M.R.C.S., L.R.C.P., R. Thomas, B.M., B.Ch.

CERTIFYING FACTORY SURGEONS.—E. R. C. Cooke, M.R.C.S., L.R.C.P., for the Great Haseley District (Oxford); R. G. Knight, M.R.C.S., L.R.C.P., for the Milborne Port District (Somerset); J. Monie, M.B., Ch.B.St. And., for the Airdrie District (Lanark); T. H. Rhys, M.R.C.S., L.R.C.P., for the Pwllheli District (Carnarvon).

VACANCIES

ALBERT DOCK HOSPITAL, Connaught Road, E.—R.M.O. (male).

ALL SAINTS' HOSPITAL FOR GENITO-URINARY DISEASES, *Austral Street*, S.E.—R.H.S. (male)

BLACKHEATH AND CHARLTON HOSPITAL, Shooter's Hill, S.E.—Hon. Consulting S.

BRISTOL CossHAM MEMORIAL HOSPITAL, Kingswood.—R.M.O. (male)

BRIGHTON: NEW SUSSEX HOSPITAL FOR WOMEN AND CHILDREN.—(1) H.P. (2) H.S. Females.

CAMBRIDGE: ADDENBROOKE'S HOSPITAL.—Anaesthetist and Emergency Officer (male, unmarried).

CHELMSFORD BOROUGH.—Specialist Consultant (male), Obstetrics and Gynaecology.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS, Victoria Park, E.—(1) R.M.O. (2) H.P. Males.

DEWSBURY AND DISTRICT GENERAL INFIRMARY.—(1) Senior H.S. (2) Second H.S.

DREADNOUGHT HOSPITAL, S.E.—(1) H.P. (2) H.S. Males

EDINBURGH: ELSIE INGLIS MEMORIAL MATERNITY HOSPITAL.—District M.O. (female)

EDINBURGH HOSPITAL FOR WOMEN AND CHILDREN.—[illegible] H.S. (2) Obstetric Assistant. (3) Three H.S. Females

ELIZABETH GARRETT ANDERSON HOSPITAL, Euston Road, N.W.—(1) H.P. (2) Obstetric Assistant. (3) Three H.S. Females

ERITH AND DISTRICT HOSPITAL.—Hon. Consulting (1) Junior Assistant S. (2) Ophthalmic S. (3) Orthopaedic S. (4) Ear, Nose, and Throat S.

EXETER: ROYAL DEVON AND EXETER HOSPITAL.—(1) H.P. (2) H.S. to Ear, Nose, and Throat Department. Males.

FRENCH HOSPITAL AND DISPENSARY, Shaftesbury Avenue, W.C.—Anaesthetist.

GENERAL LYING-IN HOSPITAL, York Road, S.E.—Junior R.M.O. and Anaesthetist.

GLASGOW: VICTORIA INFIRMARY.—Whole-time Assistant Radiologist.

GREAT YARMOUTH GENERAL HOSPITAL.—H.S. (male, unmarried).

HAMPSTEAD CHILDREN'S HOSPITAL.—Temporary R.M.O.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, Haverstock Hill, N.W.—H.S. (male, unmarried).

HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.—(1) Hon. Psychiatrist. (2) Two Medical Registrars.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) H.P. (2) H.S. Males unmarried.

HOSPITAL FOR WOMEN, Soho Square, W.—R.M.O.

HOUNSLOW HOSPITAL.—(1) J.H.S. (male). (2) Senior H.S.

HULL ROYAL INFIRMARY.—Third H.S. (male).

INFANTS HOSPITAL, Vincent Square, S.W.—Clinical Assistant.
ISLE OF WIGHT: ROYAL ISLE OF WIGHT COUNTY HOSPITAL, Ryde.—Resident H.S. (unmarried).
KEIGHLEY AND DISTRICT VICTORIA HOSPITAL.—Secretary.
KING EDWARD VII SANATORIUM, Midhurst.—First A.M.O.
LANCASHIRE COUNTY COUNCIL.—J.H.S. at Biddulph Grange Orthopaedic Hospital.
LIVERPOOL CITY.—R.A.M.O.'s at Smithdown Road Hospital.
LIVERPOOL STANLEY HOSPITAL.—Hon. Assistant S.
LONDON COUNTY COUNCIL.—Temporary District M.O. (part of Southwark).
LONDON JEWISH HOSPITAL, Stepney Green, E.—Surgical Registrar.
MANCHESTER: ANCOATS HOSPITAL.—(1) R.S.O. (2) Surgical Registrar or Registrars.
MANCHESTER BABIES' HOSPITAL.—J.R.M.O.
MANCHESTER CITY.—Lecturer.
MIDDLESBROUGH COUNTY BOROUGH.—M.O. for Maternity and Child Welfare (female).
MILDMAY MISSION HOSPITAL, Austin Street, E.—Assistant C.O. (female).
NATIONAL TEMPERANCE HOSPITAL, Hampstead Road, N.W.—(1) H.P. (2) H.S. (3) C.O. Males.
NORTHWOOD: MOUNT VERNON HOSPITAL.—Assistant Clinical Pathologist.
NORWICH: NORFOLK AND NORWICH HOSPITAL.—H.P. (male).
NUNEATON GENERAL HOSPITAL.—H.S.
OXFORD UNIVERSITY.—Chair of Anatomy.
PLYMOUTH: CENTRAL HOSPITAL.—H.S.
PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—(1) H.P. (2) H.S.
PRINCESS BEATRICE HOSPITAL, Richmond Road, S.W.—R.M.O. (male).
PRINCESS ELIZABETH OF YORK HOSPITAL FOR CHILDREN, Shadwell, E.—(1) H.S. (2) R.M.O. (male).
PRINCESS LOUISE KENSINGTON HOSPITAL FOR CHILDREN, St. Quintin Avenue, W.—(1) H.P. (2) H.S.
QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—(1) H.P. (2) C.O.
QUEEN MARY'S HOSPITAL FOR THE EAST END, E.—(1) R.M.O. (2) Two H.S. (3) H.P. (4) Obstetric H.S. (5) H.P. and Resident Anaesthetist. (6) C.O. (7) Dental Anaesthetists. Males.
ROYAL CHEST HOSPITAL, City Road, E.C.—Clinical Assistants.
ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—(1) First H.P. (2) Third H.P. (3) Second H.S. (4) Third H.S. (5) Fourth H.S. (6) Gynaecological H.S. (7) Obstetric H.S. (8) Resident Anaesthetist. Females. (9) Medical Registrar. (10) Gynaecological Registrar (female). (11) Surgical Registrar. (12) Second H.P. (male).
ROYAL SOCIETY OF LONDON.—Foulerton Research Studentship.
ST. MARK'S HOSPITAL FOR CANCER, FISTULA, AND OTHER DISEASES OF THE RECTUM, City Road, E.—Resident Surgical Officer (male).
ST. PETER'S HOSPITAL FOR STONE, ETC., Henrietta Street, W.C.—Clinical Assistants.
SALFORD ROYAL HOSPITAL.—(1) Resident Surgical Officer. (2) Two H.S. Males.
SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—(1) Two H.S. (2) H.S. to Maternity Department. Males.
SHEFFIELD ROYAL INFIRMARY.—Assistant Aural and Ophthalmic H.S.
SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—(1) H.P. (2) C.O. (3) Resident Anaesthetist and H.S. to Ear, Nose, and Throat Department. (4) Two H.S. Males, unmarried.
STOKE-ON-TRENT: BURSLEM HAYWOOD AND TUNSTALL WAR MEMORIAL HOSPITAL.—J.R.M.O.
STOKE-ON-TRENT: LONGTON HOSPITAL.—H.S. (male).
SURREY COUNTY COUNCIL.—Third A.R.M.O. (male) at County Sanatorium, Milford.
THROAT, NOSE, AND EAR HOSPITAL, Golden Square, W.—H.S. (male).
WELLS MENTAL HOSPITAL.—A.M.O. (male, unmarried).
WEST LONDON HOSPITAL, Hammersmith Road, W.—(1) H.P. (2) Two H.S. Males.
WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.—P. for Diseases of the Skin (male).
WOLVERHAMPTON ROYAL HOSPITAL.—Surgical Registrar and Resident Assistant Surgeon.

CERTIFYING FACTORY SURGEON.—The following vacant appointment is announced: Whittlesey (Cambridge). Applications to the Chief Inspector of Factories, Home Office, Whitehall, S.W.1, by December 12th.

This list is compiled from our advertisement columns, where full particulars are given. To ensure notice in this column advertisements must be received not later than the first post on Tuesday morning. Further unclassified vacancies will be found in the advertising pages.

DIARY OF SOCIETIES AND LECTURES

ROYAL SOCIETY OF MEDICINE

Section of Odontology.—Mon., 8 p.m. Demonstration by Miss Freda Parsons: Speech Training of Cleft Palate Cases. Film by Mr. E. A. Hardy: Dental Aspects of Cleft Palate Cases.

Section of Medicine.—Tues., 5 p.m. Discussion: Prognosis of Peptic Ulcers. Openers, Dr. C. Bolton, Dr. J. J. Conybeare, Mr. L. N. Pyrah, and Mr. A. M. Cooke.

Reception, Wed., 8.30 p.m. 9.30 p.m., Address by Professor E. N. da C. Andrade: Ultra-violet Light.

Section of Otology.—Fri., 10.30 a.m. Discussion: Hearing Aids. Opener, Mr. C. S. Hallpike. Followed by Sir James Dundas-Grant: Simplified Methods of Determining Percentage of Actual Hearing Power in Tuning-fork Tests. Demonstration: Method of Measuring the Half-amplitude Period of Tuning-forks. Cases at 9.30 a.m.

Section of Laryngology.—Fri., 4.30 p.m. Discussion: Recent Advances in the Treatment of Carcinoma of the Oesophagus from the Surgical and Radiological Aspects. Openers, Professor Grey Turner, Mr. F. J. Cleminson, and Dr. W. Levitt.

Section of Anaesthetics.—Fri., 8.30 p.m. Paper by Dr. Etherington Wilson: Intrathecal Nerve Root Block—Some Contributions and a New Technique (illustrated by films).

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—*Mon.*, 8.30 p.m.: Discussion: Ward and Dormitory Infections (excluding the Exanthemata). To be introduced by Dr. J. Alison Glover, Dr. J. C. Spence, and Dr. E. Kaye Le Fleming.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—At Hotel Rembrandt, *Fri.*, 8.30 p.m. Discussion: Treatment of Heart Failure. Openers, Professor A. Fraenkel and Dr. T. J. Hoskin. Preceded by a dinner at 7.30 p.m.

British Medical Association

OFFICES, BRITISH MEDICAL ASSOCIATION HOUSE
TAVISTOCK SQUARE, W.C.1

Departments

SUBSCRIPTIONS AND ADVERTISEMENTS (Financial Secretary and Business Manager. Telegrams: Articulate Westcent, London).
MEDICAL SECRETARY (Telegrams: Mediseera Westcent, London).
EDITOR, BRITISH MEDICAL JOURNAL (Telegrams: Aitiology Westcent, London).

Telephone numbers of British Medical Association and British Medical Journal, Euston 2111 (internal exchange, four lines).

SCOTTISH MEDICAL SECRETARY: 7, Drumsheugh Gardens, Edinburgh. (Telegrams: Associate, Edinburgh. Tel.: 24361 Edinburgh.)

IRISH MEDICAL SECRETARY: 18, Kildare Street, Dublin. (Telegrams: Bacillus, Dublin. Tel.: 62550 Dublin.)

Diary of Central Meetings

NOVEMBER

24 Fri. Consultants Board, 4.30 p.m.

DECEMBER

5 Tues. Register of Auxiliaries, Drafting Subcommittee, 11 a.m.
8 Fri. Fractures Committees, 2 p.m.
12 Tues. Propaganda Subcommittee, 2 p.m.
20 Wed. Committee on Medical Education, 2.15 p.m.

POST-GRADUATE COURSES AND LECTURES

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole Street, W.—*National Temperance Hospital*, Hampstead Road, N.W: Tues. and Thurs., 8 p.m., M.R.C.P. Course. *London Lock Hospital*, Dean Street, W.: Course in Venereal Disease, afternoons and evenings. *British Red Cross Clinic*, Peto Place, N.W.: Tues. and Thurs., 8 p.m., Course in Rheumatism. *Infants Hospital*, Vincent Square, S.W.: Course in Infants' Diseases, afternoons. *Hospital for Diseases of the Skin*, Blackfriars Road, S.E.: Course in Dermatology, afternoons. *Panel of Teachers*: Individual clinics are available daily by arrangement with the Fellowship. Courses, etc., arranged by the Fellowship are open only to members and associates.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.—*Sun.*, 10.30 a.m., Mr. N. C. Lake, The Surgery of the Sympathetic Nervous System; 11.45 a.m., Mr. H. G. Everard Williams, (*a*) Dysmenorrhoea, (*b*) Menorrhagia.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn Road, W.C.—*Fri.*, 4 p.m., Mr. J. D. McLaggan, Tuberculosis of the Larynx.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.—*Wed.*, 4 p.m., Mr. A. Gray, Pre-natal Care.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester Square, W.C.—*Tues.* and *Thurs.*, 5 p.m., Dr. A. C. Roxburgh, Cutaneous Syphilis.

NATIONAL HOSPITAL, Queen Square, W.C.—*Mon.* to *Fri.*, 2 p.m., Out-patient Clinics. *Mon.*, 3.30 p.m., Dr. S. A. Kinnier Wilson, Disorders of Cerebral Function—Aphasia, Apraxia, etc. *Tues.*, 3.30 p.m., Dr. E. A. Carmichael, The Vegetative Nervous System. *Wed.*, 3.30 p.m., Dr. J. S. Collier, Clinical Demonstration. *Thurs.* and *Fri.*, 3.30 p.m., Dr. F. M. R. Walshe, The Motor System.

ROYAL INSTITUTE OF PUBLIC HEALTH, 23, Queen Square, W.C.—*Wed.*, 4 p.m., Dr. C. P. Blacker, Citizenship and Eugenics.

ROYAL NORTHERN HOSPITAL, Holloway Road, N.—*Thurs.*, 3.15 p.m., Mr. L. E. Barrington-Ward, Pre- and Post-operative Treatment.

ST. PAUL'S HOSPITAL, Endell Street, W.C.—*Wed.*, 4.30 p.m., Mr. Stanford Cade, Radium Treatment of Epithelioma of the Penis.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley Road, S.W.—*Wed.*, 4 p.m., Dr. J. Tennent, Psychiatric Problems in General Practice.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.—At Faculty Hall, 242, St. Vincent Street: *Tues.*, 3.30 p.m., Dr. N. Morris, Glycosuria in Childhood.

LEEDS GENERAL INFIRMARY.—*Tues.*, 4 p.m., Dr. Ingram, Dermatological Cases.

LIVERPOOL UNIVERSITY CLINICAL SCHOOL ANTE-NATAL CLINICS.—Royal Infirmary: *Mon.* and *Thurs.*, 10.30 a.m. Maternity Hospital: *Mon.*, *Tues.*, *Wed.*, *Thurs.*, and *Fri.*, 11.30 a.m.

MANCHESTER: ANCOATS HOSPITAL.—*Thurs.*, 4.15 p.m., Mr. F. H. Diggle, Pharyngeal and Oesophageal Pouches.

MANCHESTER ROYAL INFIRMARY.—*Tues.*, 4.15 p.m., Mr. W. R. Douglas, Treatment of Malignant Glands of the Neck. *Fri.*, 4.15 p.m., Dr. W. Brockbank, Demonstration of Medical Cases.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

367 Angina Induced by General Anoxaemia

M. A. Rothschild and M Kissin (*Amer. Heart Journ.*, August, 1933, p. 729) have investigated the effects of gradually induced anoxaemia upon two groups of individuals, one having *impaired* and the other unimpaired coronary circulation, in order to determine how far myocardial anoxaemia might be responsible for anginal pain. The experimental group consisted of forty-six individuals, of whom twenty were controls either absolutely normal or with a history of non-anginal chest pain. The remaining twenty-six subjects were sufferers from angina pectoris. Anoxaemia was gradually produced in each experiment by the method of rebreathing, and the apparatus was arranged in such a way that samples of the air in it could be obtained for oxygen and carbon dioxide estimation at intervals in the course of the test. None of the twenty control subjects experienced pain. Of the twenty-six subjects of angina pectoris eighteen developed precordial pain during this induced general anoxaemia and eight did not. Pain appeared when the oxygen fell between 11 and 6 per cent., and was identical in character and distribution with the pain which the patient ordinarily experienced on effort. No relation was observed between the oxygen level of the air breathed and the onset of pain, but it was held that the degree of anoxaemia necessary to induce pain depended upon the patient's sensitiveness. Rothschild and Kissin (ibid., p. 745) have further studied the electrocardiographic changes occurring during the production of general anoxaemia. It was found that of thirty-eight subjects investigated, eleven developed deviation of the ST segment in the electrocardiogram. Eight of the eleven suffered from angina pectoris, while three did not. The authors conclude that the response to induced anoxaemia is of value in the diagnosis of impaired coronary circulation, but that the electrocardiogram in anoxaemia does not help to differentiate this condition.

368 Clinical Significance of Systolic Murmur

S. A. Levine (*Journ. Amer. Med. Assoc.*, August 5th, 1933, p. 436) defines the systolic murmur as a bruit with an appreciable duration between the first and second heart sounds, its continuance being more significant than its intensity. Prolongation of the first heart sound must be recognized as different. He defines six gradations of intensity, ranging from a murmur which can be heard with the naked ear at some distance from the chest wall to very loud, loud, moderate, and slight murmurs. When of the faintest intensity they have little or no clinical significance; such murmurs are far from uncommon, may be intensified by physical exercise, and may give rise to unnecessary alarm. Apart from these, systolic murmurs are not common in normal individuals, and the louder ones are always associated with some form of cardiovascular disease. Although frequently designated as benign, because the patients feel well and have no symptoms of cardiac insufficiency, these murmurs are really due to organic changes, or indicate possibilities of the subsequent development of stenosis of the mitral or aortic valves, hypertension, or subacute bacterial endocarditis. In the author's experience this last condition is by no means rare in cases with symptomless systolic murmurs; moreover, such murmurs may later on progress and definite symptoms of cardiac failure become manifest. Levine concludes that greater significance must be attached to a systolic murmur when the heart rate is slow, when there is no pyrexia, anaemia, or hyperthyroidism, and when the blood pressure is low. If existing in the absence of such circumstances, even a slight murmur will probably be found to be due to some organic change in the heart. This does not mean that the patient should be restricted in his activities if there is no other reason for protecting the heart. He may even carry on quite normally and indefinitely, but there is some likelihood of heart disease, such as mitral or aortic stenosis, hypertension, or bacterial endocarditis developing further. When a systolic murmur is heard and its intensity has been estimated as significant, further evidence of cardiovascular disease must be sought, including the presence of enlargement of the heart or of a diastolic murmur as well. A systolic murmur in a young patient may, however, sometimes be the only evidence of a previous attack of rheumatic infection, which has nevertheless damaged the heart.

369 Undulant Fever Imitating Pulmonary Tuberculosis

A. Fröik (*Ugeskrift for Laeger*, August 17th, 1933, p. 879) gives details of fifteen patients suspected of suffering from pulmonary tuberculosis, having in several cases been sent to a sanatorium, yet found on further examination to be suffering from undulant fever. In thirteen of these cases there could be no doubt as to the accuracy of this diagnosis. Considering how closely the clinical picture tallied with that of a typical case of early pulmonary tuberculosis, these mistaken diagnoses were most natural. Many of the patients suffered from lassitude and anorexia, but it was noteworthy that their general state of nutrition was hardly impaired in spite of the disease having lasted a considerable time. Only one of the patients presented a phthisical appearance with pallor. All the cases were febrile, and the onset of the disease had seemed to indicate a cold or influenza. The undulant character of the fever had been overlooked because the temperature had not been taken regularly, frequently, and over a considerable period; had it been taken systematically for a fortnight and the findings recorded on a temperature chart instead of being merely noted in figures the specific character of the fever would have leapt to the eye. In one case there was a history of blood-stained sputum, and in four cases slight changes in the chest were demonstrable by the stethoscope. These transitory chest findings were doubtless incidental to the general blood infection. The skiagrams of the lungs were the most valuable means of correcting the original mistakes; in ten cases the *x*-ray findings were negative, and in three cases they showed only enlargement of the hilus glands—an enlargement due either to the undulant fever itself or to the tuberculosis of these glands.

370 Rupture of Gastro-colic Omentum in Whooping-cough

J. M. Frawley (*Amer. Journ. Dis. Child.*, August, 1933, p. 346) reports the case of a poorly nourished girl, aged 2 years, who in the third week of a severe attack of whooping-cough developed a tympanitic swelling in the left upper quadrant of the abdomen. *X*-ray examination showed that barium sulphate was retained indefinitely in the stomach and none passed through the pylorus. Four days after the onset of the symptoms exploratory laparotomy was performed, when the stomach was found to be dilated and flaccid, with a constricting band formed by a rupture in the great omentum extending in the longitudinal axis of the body from the lesser to the greater curvature of the stomach. Hernia of the stomach had taken place through the opening thus formed. The hernia was reduced and the opening sewed up. As there was some thickening of the pylorus an incision was made in the peritoneal and muscular coats. In spite of the operation the stomach still failed to empty. The paroxysms of coughing continued and death took place twenty-four hours after the operation, following on convulsions. There does not appear to be any previous example on record of rupture of the gastric omentum in whooping-cough.

Surgery

371 Location of Cerebral Tumour

According to W. Löhr and W. Jacobi (*Zentralbl. f. Chir.*, August 12th, 1933, p. 1875), the negative attitude adopted in many cases regarding surgical treatment of cerebral tumour is due to the difficulty of diagnosis of location, the high operative mortality, and the poor end-results. The location of the tumour, however, can be made easier by co-operation of the neurologist and the surgeon, and is specially assisted by ventriculography and even more by arteriography. In illustration these authors record the successful removal from the middle fossa of a cholesteatoma the size of the fist. Neurological signs had suggested first a tumour in the left posterior fossa, later a left frontal tumour. Ordinary radiographic methods showed destruction of the sella turcica and suggested a tumour of the hypophysis or behind it, for which radiotherapy had been tried. Arteriography showed a very large tumour near the left temporal lobe, pressing inwards, upwards, and forwards; ventriculography a right hydrocephalus and marked right displacement of the third ventricle. Without the aid of these two diagnostic methods the diagnosis of a possibly operable tumour in the middle fossa, basal and probably meningeal, could not have been reached.

372 Scopolamine-Ephetonin-Eukodol in Urology

W. Borgard (*Deut. med. Woch.*, July 28th, 1933, p. 1164) draws attention to a recent preparation—scopolamine-ephetonin-eukodol—which possesses all the properties required of a good urological anaesthetic. The scopolamine "twilight sleep" has long been recommended in urological work, and the addition of ephetonin (ephedrine) is said to counteract the tendency of scopolamine to paralyse the respiratory centre. Eukodol has been used considerably as a substitute for morphine. According to Borgard the combination of the three drugs in the quantities: scopolamine 0.001 gram, ephetonin 0.02 gram, eukodol 0.05 gram, constitutes a harmless anaesthetic which is of great value in small operations. The author believes it particularly valuable in urological work, since there is a lowering of tone in the plain muscle of the bladder wall both by the general action of the scopolamine and by the sympathetic stimulus produced by the ephetonin. The result of these effects is that the diseased bladder can be made to hold 300 c.cm. of fluid without spasm. Such a condition combined with the general absence of painful response is of special value in such operations as electro-coagulation or lithotripsy. The principal applications of this type of anaesthesia in urology are given by the author as follows: (1) when anaesthesia of mucous membrane is contra-indicated, (2) when cystoscopy is necessary and very difficult, (3) when ureteral catheterization is difficult and painful, (4) in endo-urethral and endovesical operation, (5) in transvesical *x*-ray investigation in sensitive patients, and (6) as basal anaesthesia in longer urological operations. The preparation is given subcutaneously, the dose depending upon the age and general condition of the patient.

373 Carpal Fractures

J. Thompson (*Amer. Journ. Surg.*, August, 1933, p. 214) points out that carpal injuries are most frequently seen in men, and are most common under the age of 35 years. A series of twenty-one cases are reviewed, and of these fifteen showed fracture of the navicular bone, two a combination of fractured navicular and os triquetrum, while four showed fracture of the os triquetrum alone. Fractures of the navicular include fractures of the tuberosity when that portion of the tuberosity which gives attachment to the radial collateral ligament is evulsed or incompletely fractured. Any motion or force at the wrist which puts this attachment to excessive strain may cause them. This type is not intra-articular, but within the ligament. The blood supply to the bone is not damaged, and as the fracture is incomplete it heals quickly and bony union can always be expected. Owing to the pain and discomfort splints should be worn for several weeks. Fractures of the navicular bone may also consist of a transverse fracture through the neck or body of the bone, and may be complete or incomplete. This fracture being intra-articular results in varying amounts of haemarthrosis. If complete immobilization is secured, new blood vessels bridge the gap from the healthy distal half to the undernourished proximal portion, and union results. Otherwise a slow absorption of bone occurs along the fractured surfaces, the plane of fracture widens, and cavitation may take place, this osteolysis being promoted by the abnormal motion between the severed edges. In fractures of the os triquetrum the bone may be chipped at one of its angles or on its dorsum, but the usual site of fracture is its mid-portion, transverse to the long axis of the bone. These fractures heal rapidly with adequate immobilization. Treatment in all cases in the series was complete immobilization of the wrist in a "cock-up" position by the use of a dorsal moulded plaster splint that extended from the mid-forearm to the level of the metacarpo-phalangeal joint. Immobilization in fractures of the tuberosity was for from two to three weeks, and in cases of transverse intra-articular fractures continued until *x* rays showed definite bony union. Prognosis is described as good, and the results of the cases reviewed were satisfactory where the patients completed the treatment.

Therapeutics

374 Vitamin A in the General Diet

A. F. Hess, J. M. Lewis, and L. H. Barenberg (*Journ. Amer. Med. Assoc.*, August 26th, 1933, p. 657) record an investigation from which they conclude that the average child on a normal diet requires no additional vitamin A. Of a group of 160 infants forty were given large amounts of carotene daily, forty were fully dosed with cod-liver oil, and eighty received no vitamin A supplement; all were given viosterol. During an observation period lasting five months frequent respiratory infections developed equally in all three groups, and pneumonia and otitis media were not prevented. The blood in the carotene cases was found to be saturated with the provitamin. The authors maintain that there is no clinical basis for designating vitamin A as the "anti-infective vitamin." The addition of cod-liver oil to the dietary did not reduce the number of mild respiratory infections occurring in the summer months, while infections of the skin were as common in the vitamin groups as in the control group. Inquiry through the United States showed that night-blindness—the most delicate index of vitamin A deficiency in the adult—is a very rare disorder, and has not increased during the past few years. It is argued, therefore, that, in the U.S.A. at all events, the normal dietary is not deficient in vitamin A and requires no augmentation in this respect even during early childhood and puberty. This accessory food factor may be needed, however, in cases of prolonged diarrhoea, when there is intestinal parasite infestation, or when conditions such as alcoholism or digestive disturbances retard intestinal absorption. It is added that laboratory conclusions as regards the value of the vitamins seem hitherto to have dominated excessively the clinical outlook.

375 Convalescent Serum in Poliomyelitis

H. Dennig and Hella Hoeffler (*Münch. med. Woch.*, September 1st, 1933, p. 1367) observe that, although grave doubt has been expressed regarding the efficacy of serum therapy in this disease, it is recognized generally that convalescent serum is the most valuable remedy we possess, though the subject calls for further investigation. These writers report their experience in an outbreak in Stettin in 1932. Of fifty-six definite cases admitted, forty-one were children. Fifteen patients were admitted in the pre-paralytic stage: of these, eight appeared to recover without serum therapy, but on the ninth day

Obstetrics and Gynaecology

380 Radiological Diagnosis in Obstetrics and Gynaecology

H. HEIDLER (*Med. Klinik*, August 25th, 1933, p. 1163) gives the following conclusions based on the practice of the II Universitäts-Frauenklinik in Vienna. Although shadows of the foetal skeleton have been found as early as the eighth week, and although a series of forty-five hysterographies after injection of lipiodol, etc., into the pregnant uterus during the first week have been reported without abortion, the Zondek-Aschheim reaction has superseded these methods of pregnancy diagnosis. Radiology in labour has proved that during pregnancy, and even labour, the foetus is not exposed to "foetal-axis pressure," labour being essentially a hydraulic process. The occurrence of certain non-oblique vertex presentations, the occipito-pubic diameter engaging in the conjugate, has been proved, and distinction between the Duncan and Schultze modes of placental expulsion has been shown to be unjustifiable. The only certain sign of intrauterine death of the foetus is the Spalding-Horner sign of overriding of the flat cranial bones. Radiology of the pelvis demonstrates deformities, but is not used by Heidler for measurement; he points out that the prognosis of labour in contracted pelvis is dependent on so many other factors (of which the strength of the pains is not the least) that an exact knowledge of the true conjugate is not all-important, especially as *x*-ray measurement of the foetal skull, in spite of recent technical advances, is not yet reliable. In gynaecology the ordinary radiogram is helpful in cases of calcified myoma or dermoid cysts containing teeth and bones; hysterography after lipiodol injection of the uterus is helpful, but unnecessary in the majority of cases. *X* rays are indispensable in diagnosis of some cases of uterine malformation. Pneumoperitoneum as a preliminary to screening is rejected, the first case having proved fatal.

381 Stoppage of Lactation by Luminal and Thyroxine

FAUVET (*Zentralbl. f. Gynäk.*, August 5th, 1933, p. 1836) recommends the following treatment, which he has found effective in all but two of 123 cases of abortion from the fifth month onwards, or of full-time labour, in which the stillbirth or death of the infant makes stoppage of lactation desirable. From the first to sixth days thyroxine is given in small doses; on the third and fourth days, and the fifth if necessary, 0.2 to 0.3 gram of luminal is given in the evening. Both drugs are regarded as being effective by antagonizing the lactagogue effect of the posterior pituitary hormone.

382 Dysfunctional Uterine Bleeding

G. VAN S. SMITH and J. ROCK (*Surg., Gynecol. and Obstet.*, July, 1933, p. 100) observe that the ordinary medicinal and operative treatment of this condition is sometimes unsuccessful. They state that the logical treatment of dysfunctional metrorrhagia appears to be administration of corpus luteum, were a suitable preparation available. Extracts of the urine of pregnant women (prolan, antuitrin S., etc.) produce corpora lutea in experimental animals. These extracts have therefore been used in metrorrhagia, although they have not been shown to produce corpora lutea in the human ovary. The authors treated fifty-six patients by intragluteal injections of antuitrin S. (Parke, Davis and Co.). Of these patients twenty-four (aged 17 to 42 years) had prolonged menorrhagia. Fourteen are considered cured, as their periods have been normal for two to fourteen months. Six other patients were improved, while four remained unrelieved. Among thirty-two patients with metrorrhagia (aged 14 to 42 years) fourteen were relieved immediately; nine have remained well for six to fourteen months. The gross results are: twenty-eight patients cured, twenty-two relieved, and six unrelieved. Cessation of haemorrhage accompanied treatment so frequently that the hormone appears to be specific. A limited number of laboratory findings suggests direct action on a hypophyseal hormone.

Pathology

383. The Normal Reticulocyte Count

W. EDERLE (*Med. Welt*, August 5th, 1933, p. 1095) has carried out reticulocyte counts on 100 healthy persons at frequent intervals over a period of five weeks. He obtained figures varying from 0.7 per cent. to 2.6 per cent., with a mean of 1.58 per cent. Previous workers have stated the normal to be 0.3 per cent. (Morawitz, Naegeli, Seyfarth) and 0.8 per cent. (Heilmeyer). In the author's series 2,000 red cells were counted—500 in each of four preparations—for each estimation. He estimates the error as 10 per cent. Ederle considers that Heilmeyer's division of reticulocytes into four groups serves no useful purpose. He classifies his into two categories—those containing little reticular substance and those with a moderate or large amount. A reticulocyte curve can be worked out by this means which gives some idea of the daily output; this may be of value—for instance, in cases of pernicious anaemia undergoing liver treatment.

384 Diagnostic Test for Pellagra

C. H. CAMPBELL (*Amer. Journ. Med. Sci.*, August, 1933, p. 266) has found that the erythrocytes of pellagrous blood cause more rapid decoloration of iodine solutions than do other red corpuscles, whether of normal or of diseased persons suffering from other maladies. This phenomenon has been made the basis of a test which promises to be of clinical value in the diagnosis of pellagra. Into two 15 c.cm. tubes containing 5 c.cm. of liquid petrolatum are introduced a 5 c.cm. sample of the blood to be tested, and a control of normal blood; the tubes are stoppered and shaken to defibrinate the blood. After standing for about half an hour each tube is again vigorously shaken and centrifuged. Three layers are now discernible—an upper layer of fibrin and oil, a middle layer of serum, and a lowest layer of red cells and leucocytes. From this lowest layer are pipetted off 1 c.cm. samples, which are placed in standardized tubes. Exactly one hour after withdrawing the blood from the body 5 c.cm. of an alcohol-ether mixture is added and the tubes are allowed to stand stoppered for about six hours at room temperature. Then to each is added 0.1 c.cm. of accurately prepared Lugol's solution. A gradual diminution of colour follows in each tube, being faster in those containing pellagrous blood. Within three hours this may be completely decolorized, but the most constant difference is observable after the tubes have stood for twelve hours, when the colours should be compared with potassium bichromate standards previously prepared. Campbell considers this report only a preliminary note, since full testing of the specificity of this reaction has not yet been achieved. He believes, however, that the phenomenon may lead to fruitful information bearing on the aetiology of pellagra, certain avitaminosis states, and malnutrition.

385 Scarlet Fever Epidemic due to Raw Milk

R. F. FEEMSTER and J. M. KINGSTON (*New England Journ. Med.*, August 10th, 1933, p. 275) record an outbreak of fifty-seven cases of scarlet fever and thirty-eight cases of sore throat on a milk round in Bridgewater, Mass., where only about seventy-five quarts of milk were delivered daily. The consistent and heavy infection of the milk as shown by the chronological occurrence of the cases strongly pointed to udder infection in the herd, and haemolytic streptococci were found in the udder of one cow. Ninety-five per cent. of the children under 5 years and 64 per cent. of persons of all ages who used the milk had either scarlet fever or sore throat. In eleven out of fifteen cases in which it could be estimated the incubation period was forty-eight hours or less. Four infants who were being given pasteurized milk or boiled milk did not become ill when the first cases occurred in the family.



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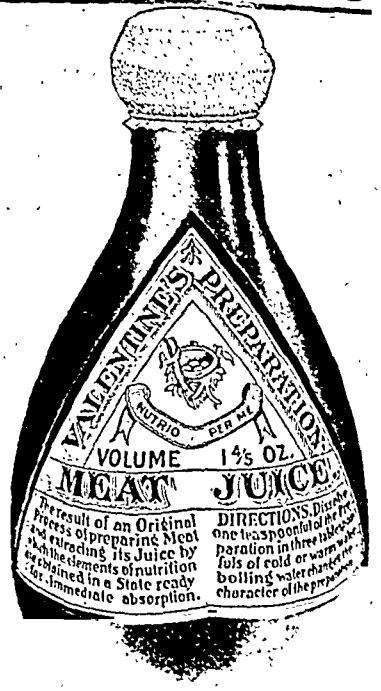
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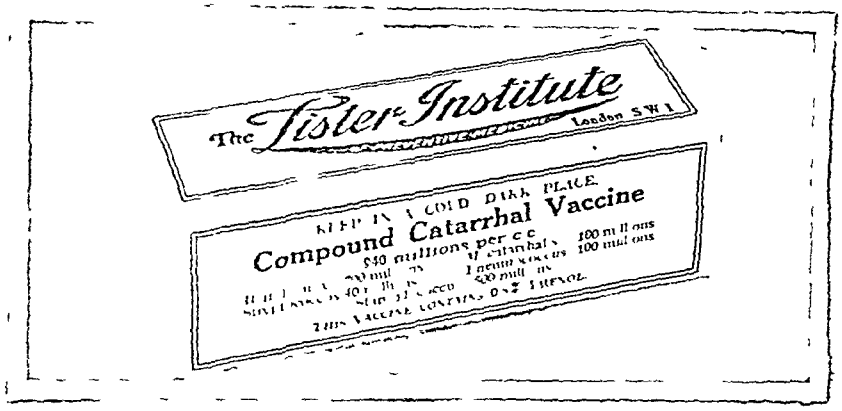
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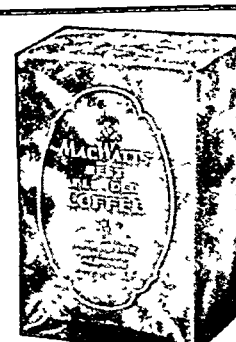
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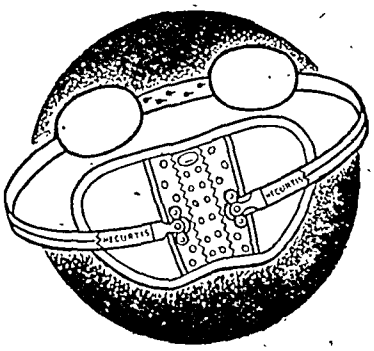
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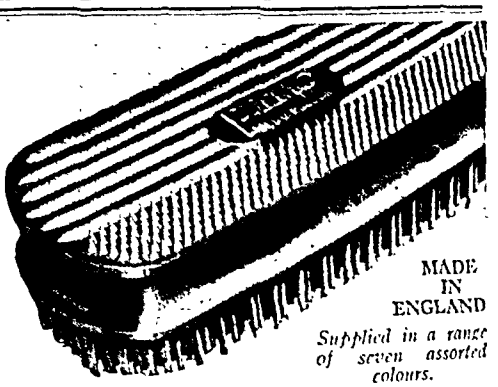
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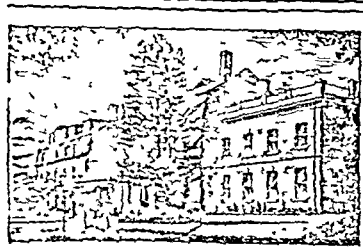
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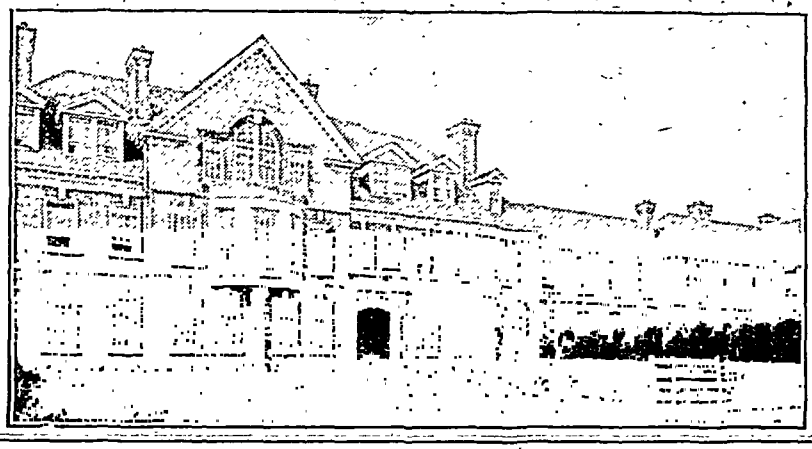
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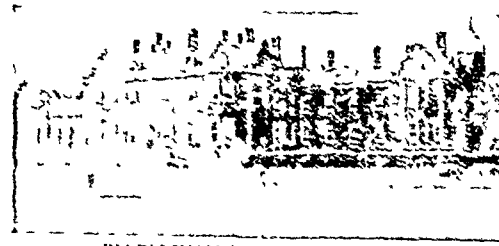
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Established 1903 for the treatment of Tuberculosis. Radiators and Electric Light throughout. Hot and cold water and shower bath in nearly all rooms. Powerful X-ray Plant. Ultra-violet Rays. Full Nursing Staff. All forms of treatment available. Farm of 120 acres, including 40 acres of wood. Herd of Tuberculin-tested Guernsey cows kept. Resident Physicians—ARTHUR DE W. SNOWDEN, M.D., B.Ch.(Cantab.), A. G. E. WILCOCK, M.R.C.S., L.R.C.P., COLIN CASSIDY, M.B., B.Ch.(Cantab.)

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First opened in 1903 and rebuilt in 1925. On the Cotswold Hills, seven miles from Cheltenham, for the treatment of Pulmonary and all other forms of *Tuberculosis*. *Aspect S.S.W., sheltered from North and East, elevation 800 feet.* Pure bracing air. Special Treatment by artificial Pneumothorax (X-ray controlled), Tuberculins and Ultra-violet Rays is available, when necessary, without extra charge. X-ray plant. Electric light. Radiators, hot and cold basins, and Wireless in all rooms. Up-to-date main drainage.

Full day and night Nursing Staff.

Medical Superintendent: GEOFFREY A. HOFFMAN, B.A., M.B., Tr. Dub. *Assistant Physician*: MARGARET A. HARRISON, M.B., B.S. Lond.
Consulting Laryngologist: SIDNEY BERNSTEIN, M.R.C.S. Eng., L.R.C.P. Lond. (Attends Regularly.)

Apply: The Secretary, The Cotswold Sanatorium, Cranham, Gloucester. *Telephone* 41 WITCOMBE. *Telegrams*: "HOFFMAN, BIRDLIP."

NORDRACH-UPON-MENDIP SANATORIUM

FOR THE TREATMENT OF TUBERCULOSIS, was opened in January, 1899, by ROWLAND THURNAM, M.D.

All modern forms of treatment are available. *There are* X-ray and ultra-violet ray installations. Full day and night nursing staff. The Sanatorium stands in gardens and private grounds of 65 acres, at an altitude of 662 feet above sea-level, surrounded by woods and moorland. All rooms are heated by hot-water pipes and electrically lighted.

Fees 4, 5, and 6 guineas per week.

CYRIL FRANCIS ASHBY, M.R.C.S., L.R.C.P., Certificate of Sanatorium Stephani Switzerland, *Resident Medical Supt.*

For full particulars apply to *The Secretary*, Nordrach upon Mendip, Blagdon, Bristol. *Telegrams* Nordrach, Blagdon. *Telephone* Blagdon 23.

MONTANA HALL, Montana, Switzerland

Built 1929-30.

THE ONLY SANATORIUM IN SWITZERLAND UNDER BRITISH OWNERSHIP AND CONTROL, AND WITH A DAY AND NIGHT STAFF OF BRITISH TRAINED NURSING SISTERS.

REDUCED INCLUSIVE TERMS——QUOTED IN STERLING.

Med. Supt.: HILARY ROCHE, M.D. (Melb.), M.R.C.P. (Lond.), Tubere. Dis. Dip. (Wales)

HOSPITAL FOR CONSUMPTION

AND DISEASES OF THE CHEST, BROMPTON, and FRIMLEY SANATORIUM.

PAYING PATIENTS RECEIVED.

BOTH MEDICAL and SURGICAL CASES.

4 to 8 guineas per week at the Hospital. 3 to 4 guineas per week at the Sanatorium.

APPLY TO THE SECRETARY:—BROMPTON HOSPITAL, S.W.3.

GRAMPIAN SANATORIUM,

KINGUSSIE, INVERNESS-SHIRE.

Specially built for the Open air Treatment of Tuberculosis, and opened in 1901. Bracing mountain air. Elevation 850 ft. above sea level. Sheltered situation in pine wood. Graduated walks. Electric light throughout building and in shelters. Central heating. Fully equipped X-ray Plant. Inoculation Treatment available for patients—24 beds. Trained Nurse on duty all night. Terms £4 7s 6d to £6 6s. p.w. inclusive. No extras. Med. Supt.—FELIX SAVY, M.D.

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A comfortable London Hotel, convenient for Harley Street and Nursing Homes.

THE CLIFTON HOTEL,

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Resident Physicians:
S. VERE PEARSON, M.D.(Cantab.), M.R.C.P.(Lond.).
ANDREW MORLAND, M.D.(Lond.), M.R.C.P.
E. C. WYNNE-EDWARDS, M.B.(Cantab.).

For all information apply:
THE SANATORIUM, MUNDESLEY, NORFOLK.
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The buildings face S.S.W. and are sheltered from the sea by a pine-clad ridge. The sunshine record and dry air complete a perfect site. The medical equipment is of the latest kind, and there is a day and night nursing staff.

TERMS FROM 7½ GUINEAS WEEKLY.

TOR-NA-DEE SANATORIUM
MURTLE DEESIDE ABERDEENSHIRE
FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS

Managing Director: DAVID LAWSON, M.D., F.R.S.E.

Southern aspect. Low rainfall. Pure bracing air. Sheltered grounds. Beautiful surroundings. All modern equipment for diagnosis and treatment, including operating theatre. **No extra charge for X Rays, Artificial Pneumothorax, Ultra-Violet Light, or other special treatment.**

Day and Night Nursing Staff. All bedrooms have central heating, electric light, hot and cold running water, and wireless (headphones). Comfortable and airy public rooms.

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(UNIVERS...
COURSES OF ... three months) for the ... Medicine commence on October 2nd, 1933, and Tropical Hygiene on January 11th and April 26th, 1934. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars, apply to the *Laboratory* Secretary, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

MASTERY OF MIDWIFERY.

Examinations for the Diploma of the Mastery of Midwifery of the Society of *Apothecaries* of London will be held beginning Monday, November 20th, 1933, and Monday, May 21st, 1934.

For regulations, apply to the Registrar of the Society, Water Lane, E.C.4.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL
MARYLEBONE ROAD, N.W.1

Medical Student's and Qualified Practitioners admitted to the Practice of this Hospital. Unusual opportunities are afforded for seeing Obstetrical Complications and Operative Midwifery (about one half of the total admissions being primiparous cases). Over 2,700 patients are admitted to the Wards annually, and in the Ante-natal Department there are over 20,000 attendances per annum.

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For rules, fees, etc., apply H. B. STOKES, Secretary-Superintendent.

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LONDON COUNTY COUNCIL

A COURSE OF LECTURES and PRACTICAL INSTRUCTION

for the

DIPLOMA IN PSYCHOLOGICAL MEDICINE

will be held at

THE MAUDSLEY HOSPITAL, Denmark Hill, S.E.5

(University of London)

The Course will begin on January 1st, 1934.

Applications should be made to Dr. I. GOLLA, *Director of the Central Pathological Laboratory, The Maudsley Hospital.*

OXFORD UNIVERSITY

The Electors to Dr. LEES Professorship of the CHAIR of Anatomy invite applications for the CHAIR before December 2nd. Stipend £1,400 per annum. Further particulars may be obtained from the Registrar, University Registry, Oxford.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

The next ordinary PROFESSIONAL EXAMINATION for the MEMBERSHIP will commence on Friday, January 12th, 1934.

Candidates are required to give twenty-one days' notice in writing to the Registrar of the College to whom all certificates and testimonials required by the By-Laws must be sent at the same time.

Candidates who propose to submit published work under the regulations now in force are required to give twenty-eight days' notice, and should apply in writing to the Registrar, without delay, for detailed instructions as to the manner they should follow.

RAYMOND CRAWFURD, M.D.,
Pall Mall East, S.W.1. Registrar.

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Short Intensive Oral and Postal Revision Courses in preparation for these qualifications.

Apply SECRETARY, Medical Correspondence College, 19, Wellbeck Street, W.1. Free booklet "The M.R.C.P. and How to Obtain It," on application.

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The COLLEGE of PRECEPTORS holds Preliminary Examinations for Medical and Dental Students, and Qualifying Preliminary Courses in March, June, September and December. For Regulations apply to the Secretary of the College, Bloomsbury Square, W.C.1.

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Mr. A. C. SCHNELLE receives resident and daily pupils. Twenty hours' daily continual success. Apply for prospectus.—119, Bedford Court Mansions, London, W.C.1. Phone: Museum 3665.

F.R.C.S. (Edin.).

PREP. COURSE with daily Lecture-Demonstrations of Museum Specimens of Surg., Path., for next Exam., will commence shortly. POSTAL TUITION at any time.—Further particulars, H. C. ORRIN, F.R.C.S., Surgeons' Hall, Edinburgh.

URBAN DISTRICT COUNCIL OF DOLGELLEY

Applications are invited from duly qualified and registered Medical Practitioners (having the necessary [illegible] for the post of MEDICAL OFFICER of HEALTH.

The appointment, to commence on January 1st, 1934, and will be limited in the first instance to March 31st, 1934.

The salary will be at the rate of £30 per annum inclusive.

The person appointed shall reside in the Urban District of Dolgelley and shall be conversant with the Welsh language.

The duties shall be in accordance with the Sanitary Officers Order 1926, Part II., para. 14, copy of which can be obtained from the undersigned and the appointment shall be subject to the approval of the Minister of Health.

Applications stating age, qualifications and experience, accompanied by two testimonials to be sent in sealed envelope, marked "Medical Officer," to the undersigned on or before December 4th.

Dated November 21st, 1933.

J. JONES WILLIAMS,
Clerk to the Council.

FOULERTON RESEARCH STUDENTSHIP.

The President and Council of the ROYAL SOCIETY OF LONDON propose to make an appointment to the FOULERTON RESEARCH STUDENTSHIP, which will fall vacant on *April 1st, 1934.* The duties of the Student will be to devote his whole time to research in medicine or the sciences contributory thereto, under the supervision and control of the Foulerton Research Fund Management Committee, to whom the Student will be required to report from time to time on the progress of his work. *In exceptional cases the Committee* may recommend for a Studentship the holder of a paid teaching post, but if such a candidate be appointed the Committee may recommend the payment of such stipend as they may think fit. The full stipend of the Studentship is £700 per annum, with provision for superannuation at a rate *corresponding to that of the Federated* Universities scheme.

The appointment will be made for three years in the first instance, subject to the fulfilment of the duties of the Student to the satisfaction of the Management Committee. The appointment may be further renewed annually up to a maximum term of six years. The Student may be of either sex, but he, his father, paternal grandfather must be, or have been at death of, British nationality, in accordance with the terms of the Trust.

An applicant for the Student ship must state his age and *qualifications*, the nationality of his male ancestry as above, the nature of the research in which it is proposed to engage, *exact particulars of any other grants or endowments* which he holds, and the place or institution in which it is proposed to carry out the *specified research. The application should be* accompanied by the names of two persons willing to act as referees and to give confidential information to the
applicant and his
from distant parts of
reference nominate referees resident in Britain, but, *if this is not practicable may request* other persons willing to act as referees to write directly and in confidence to the Secretary of the Royal Society. Open testimonials are not desired and will not be considered. Applications should be addressed to the Assistant Secretary, the Royal Society, Burlington House, London, W.1, and must reach the Royal Society not later than February 28th, 1934.

CITY OF MANCHESTER
PUBLIC HEALTH DEPARTMENT

TRAINING OF NURSES IN MEDICAL ELECTRICITY AND LIGHT AND ELECTRO THERAPY, WITHINGTON HOSPITAL

APPOINTMENT OF LECTURER

The attention of medical practitioners, who hold a diploma in medical radiology and electrology, or who are otherwise qualified in electrotherapeutics, is directed to a vacancy for a Lecturer to Nurses, funding for the purpose, qualified in the management and [illegible] subjects at the Withington Hospital, West Didsbury, Manchester. The appointment is a new appointment and part-time.

The gentleman appointed will be required to attend the hospital and deliver lectures to nurses on the subjects named. Each lecture will be of an approximate duration of one hour, and it is estimated that the lecturer will be required to deliver approximately seventy-two lectures per annum.

The remuneration attached to the post will be at the rate of one guinea per lecture, payable at intervals to be arranged.

Application should be addressed to the Medical Officer of Health (Hospitals Administration Section), 1, Mount Street, Manchester, 2, and not to members of the Committee or Council, and must be received by the first post later than Wednesday, November 29th.

Canvassing, in any form, orally or by letter, directly or indirectly, disqualifies.

Town Hall, Manchester, 2. F. P. WARBRICK, *Town Clerk.*
November 16th, 1933.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL (Incorporated by Royal Charter)
MEDICAL SCHOOL, Broad Street, W.C.2

A CLINICAL RESEARCH SCHOLARSHIP, value £100 per annum, tenable for one year is offered. The successful candidate will be required to commence work on March 1st, 1934. Intending candidates should communicate with the Secretary of the Medical Committee not later than January 1st, 1934.

The Guthrie Prize, value £10, will be awarded for the best original contribution to ophthalmic literature in 1933 by any student, ophthalmic surgical assistant or resident medical officer of this hospital (past or present) not being a *member* of the honorary staff of an ophthalmic or general teaching hospital at the *time* of publication. Entries to be submitted to the Secretary of the Medical Committee not later than February 1st, 1934.

WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.1.

The House Committee invite applications for the OFFICE OF PHYSICIAN FOR DISEASES OF THE SKIN to this Hospital. Gentlemen desirous of becoming candidates must be Fellows or Members of the Royal College of Physicians of London. Each candidate will be required to transmit a certificate of his age, with thirty copies each of application and testimonials, to the undersigned not later than Friday, December 8th.

By Order of the House Committee,
CHARLES M. POWER, Secretary.

N.B.—The Assistant Physician for Diseases of the Skin will be a candidate.

GENERAL LYING-IN HOSPITAL, York Road, Lambeth, S.E.1.

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER AND ANAESTHETIST. Salary at the rate of £100 per annum, with board, residence, and laundry. Appointment for three months, commencing January 1st, 1934. The successful candidate will, subject to satisfactory service, be required to succeed to the Senior Medical Officer's post for a further three months.

Applications, stating age and qualifications, with copies of three recent testimonials, to be sent to the undersigned not later than Monday, December 11th.

LILY HEARN, Secretary.

ERITH AND DISTRICT HOSPITAL.

APPOINTMENT OF HONORARY CONSULTING: JUNIOR ASSISTANT SURGEON; OPHTHALMIC SURGEON; ORTHOPAEDIC SURGEON; AND EAR, NOSE, AND THROAT SURGEON.

The Governors of the above Hospital invite applications for appointments to the above positions by registered medical practitioners. The appointed applicants will require to attend Hospital only when occasion arises, there being no regular clinic or out-patients' department.

Particulars from, and applications to, the Hon. Secretary, Erith and District Hospital, Erith, Kent.

MILDMAY MISSION HOSPITAL, Austin Street, Bethnal Green, E 2.

Applications are invited for the post of ASSISTANT CASUALTY OFFICER (female) which becomes vacant on January 1st, 1934. The appointment is non-resident and for six months. Salary £125 per annum. Dinner, tea, and supper when on duty.

Candidates must be registered under the Medical Acts, and the Mildmay Council is anxious that they should be fully in sympathy with the religious work of the Hospital.

Applications, with recent testimonials, should be sent to the Medical Superintendent by December 12th.

SALFORD ROYAL HOSPITAL. (263 Beds.)

Applications are invited from duly registered candidates (male) for:—

RESIDENT SURGICAL OFFICER for twelve months from January 1st, 1934. Salary £200 per annum.

TWO HOUSE SURGEONS for six months from January 1st, 1934. Salary £125 per annum.

Forms of application, obtainable from the undersigned, must be delivered on or before December 5th.

By Order of the Board
H. B. SHELSWELL,
November 20th, 1933. Gen. Supt. & Sec.

THE CHILDREN'S HOSPITAL, HAMPSTEAD, 30, College Crescent, N.W.3. (63 Beds.)

Applications are invited for the post of TEMPORARY RESIDENT MEDICAL OFFICER (vacant December 31st). Salary at the rate of £100 p.a., with board, residence, and laundry. *Candidates must be fully qualified, registered,* and British born.

Applications, stating age, qualifications, and experience, accompanied by copies of three recent testimonials, should reach Secretary not later than November 30th.

H. W. WALLIS GRAIN,
Secretary, *pro tem.*

ALBERT DOCK HOSPITAL. Connaught Road, E.16. (Seamen's Hospital Society.)

RESIDENT MEDICAL OFFICER required for six months from January 1st, 1934. Salary £110 per annum and a proportion of *fees,* with board, residence, and laundry. Candidates must be male. Applications, with copies of three testimonials, to be sent in by December 6th to the undersigned.

Greenwich, H. E. W. BAX,
November 17th, 1933. Secretary.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS, Victoria Park, E.2. (Bus, Tram, and Rail. Cambridge Heath, L. & N.E. Railway.)

Applications (with copies of three testimonials) are invited to be sent to the undersigned on or before Friday, December 8th, for the following posts, subject to the rules and by-laws of the Hospital:

RESIDENT MEDICAL OFFICER (male) for one year from January 1st, 1934. Salary £250 per annum and emoluments.

HOUSE PHYSICIAN (male) for six months from January 1st, 1934. Salary at the rate of £100 per annum.

Board, residence, and laundry provided.

GEORGE WATTS, Secretary.

ROYAL DEVON & EXETER HOSPITAL, EXETER. (225 Beds.)

APPOINTMENT OF (a) HOUSE PHYSICIAN (MALE), (b) HOUSE SURGEON TO THE EAR, NOSE, AND THROAT DEPARTMENT (MALE).

Applications are invited from qualified and registered candidates for each of the above appointments, vacant on January 9th, 1934.

Engagement for six months, candidates being eligible for subsequent appointments.

Salary at the rate of £150 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, should be sent to the undersigned on or before Wednesday, December 6th.

S. S. COLE, Sec. & Manager.

PRINCESS LOUISE KENSINGTON HOSPITAL FOR CHILDREN, St. Quintin Avenue, North Kensington, W.10. (58 Beds—shortly to be increased to 80.)

HOUSE PHYSICIAN (male or female) required for six months from January 1st, 1934. Salary at the rate of £100 per annum, with board, residence, and laundry. It is desirable that candidates should have held a responsible Hospital appointment. Applications, with copies of three recent testimonials, must be submitted on a form to be obtained from the undersigned, and must reach him not later than first post on Saturday, December 9th.

H. J. ELEY, Secretary.

PRINCESS LOUISE KENSINGTON HOSPITAL FOR CHILDREN, St. Quintin Avenue, North Kensington, W.10. (58 Beds—shortly to be increased to 80.)

HOUSE SURGEON (male or female) required for six months from January 1st, 1934. Salary at the rate of £100 per annum, with board, residence, and laundry. It is desirable that candidates should have held a responsible *Hospital appointment.* Applications, with copies of three recent testimonials, must be submitted on a form to be obtained from the undersigned, and must reach him not later than first post on Saturday, December 9th.

H. J. ELEY, Secretary.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

Applications are invited for the post of RESIDENT ANAESTHETIST AND EMERGENCY OFFICER (male). The appointment will be for three months from January 1st, 1934. Salary at the rate of £130 per annum, with *board, residence, and laundry. Candidates,* who must be unmarried and duly registered, are requested to forward their applications, stating age, qualifications, etc., together with copies of not more than four recent testimonials, to the undersigned on or before Monday, December 11th.

W. H. HEAD, Secretary-Supt.

THE HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.9.

TWO MEDICAL REGISTRARS REQUIRED.

Applications are invited for two posts of Medical Registrar, falling vacant on January 1st, 1934.

The posts are for one year, renewable for a further year. Honorarium £100.

Applications, which should be accompanied by copies of not more than three recent testimonials, should reach me by December 9th.

H. W. BURLEIGH,
Secretary and General Superintendent.

THE HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.9.

HONORARY PSYCHIATRIST REQUIRED.

Applications are invited for the post of Honorary Psychiatrist to the Hospital. They should be accompanied by copies of not more than three testimonials, and should reach me by December 9th.

H. W. BURLEIGH,
Secretary and General Superintendent.

ANCOATS HOSPITAL, MANCHESTER.

RESIDENT SURGICAL OFFICER.

Applications are invited for the post of Resident Surgical Officer, which becomes vacant on January 1st, 1934.

Appointment for twelve months. Salary £200 per annum, with board, apartments, etc. Candidates holding an F.R.C.S. degree will be preferred.

Applications, stating age, qualifications, previous experience, etc., together with copies of three recent testimonials, to be forwarded to the undersigned on or before December 1st next.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

ANCOATS HOSPITAL, MANCHESTER.

SURGICAL REGISTRAR or REGISTRARS required to assist the Honorary Staff in the Out-patient Surgical Clinics. A small honorarium is paid.

Applications are invited from qualified Medical Practitioners, and should be forwarded to the undersigned on or before December 1st next, stating age, qualifications, past experience, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

CENTRAL HOSPITAL, PLYMOUTH.

Applications are invited for the post of HOUSE SURGEON, to commence duties January 1st, 1934. Candidates must be fully qualified and registered. The appointment is for a period of six months, and may be extended for a further period. Salary £150 per annum, with board, residence, and laundry.

Applications, endorsed "House Surgeon," stating age, nationality, with experience and qualifications, together with three recent testimonials (which will not be returned), must be forwarded to the undersigned, from whom any further particulars may be obtained, not later than December 5th.

WM. W. URELL, F.C.C.S., Secretary.

THE JESSOP HOSPITAL FOR WOMEN, SHEFFIELD. (143 Beds.) (Gynaecological and Maternity Departments).

The Board of Management invite applications for the posts of TWO HOUSE SURGEONS (male) for a period of six months, commencing January 1st, 1934.

Salary £100 per annum, together with board, residence, and laundry.

Applications, stating age, together with copies of testimonials, should be addressed to the undersigned immediately.

DAVID OSWALD, Secretary.

THE JESSOP HOSPITAL FOR WOMEN, SHEFFIELD. (143 Beds.)

The Board of Management invite applications for the post of HOUSE SURGEON (male) to the Maternity Department (30 beds).

The appointment is for six months from January 1st, 1934. Salary £120 per annum, plus board, residence, and laundry.

Previous resident experience essential.

Applications, *stating age and experience,* with copies of recent testimonials, should be forwarded to the undersigned immediately.

DAVID OSWALD, Secretary.

ALL SAINTS' HOSPITAL FOR GENITO-URINARY DISEASES, Austral Street, West Square, St. George's Road, S.E.11.

RESIDENT HOUSE SURGEON (male) required on January 1st, 1934, for six months, being three months as Junior House Surgeon, with salary at £100 per annum, followed by three months as Senior House Surgeon, with salary at £150 per annum.

Applications, giving particulars of age, experience, qualifications, and enclosing copies of three recent testimonials, should reach me not later than November 30th.

COSSHAM MEMORIAL HOSPITAL, KINGSWOOD, BRISTOL.

Applications are invited for the post of RESIDENT MEDICAL OFFICER (Male) to commence duties on January 1st, 1934. Salary £150 p.a., with board, residence, and laundry.

To remain for six months in the first instance. Applicants should be British nationality, thoroughly qualified, and registered.

Applications not later than December 9th, to
E. J. HAWKINS, Secretary.

BLACKHEATH AND CHARLTON HOSPITAL, Shooter's Hill Road, S.E.3.

There is a vacancy for HONORARY CONSULTING SURGEON.

Applications to the Hon. Secretary, on or before November 30th.

QUEEN MARY'S HOSPITAL FOR THE EAST END, E 1
Telephone Mayfair 1240

Applications are invited for the following appointments which will be honorary
HOUSE PHYSICIAN
THIRD HOUSE PHYSICIAN
THIRD HOUSE SURGEON
SECOND HOUSE SURGEON, with care of Orthopaedic Bed
THIRD HOUSE SURGEON
FOURTH HOUSE SURGEON
GYNAECOLOGICAL HOUSE SURGEON
OBSTETRIC HOUSE SURGEON
RESIDENT ANAESTHETIST
Duties of the above nine posts tenable for six months commencing January 1st 1934
DISTRICT OBSTETRIC ASSISTANT (salary £100 per annum) tenable for six months from commencement February 1st 1934 Preference given to applications from former pupils of the London (Royal Free Hospital) School of Medicine for Women
Candidates must be duly qualified registered medical practitioners submitting applications stating age and qualifications and accompanied by copies of three recent testimonials to be sent to the undersigned on or before December 2nd
REGINALD R GARRATT Secretary

QUEEN MARY'S HOSPITAL FOR THE EAST END, E 1

Applications are invited for the appointment of DENTAL ANAESTHETIST to the Hospital
Applicants should be registered dental practitioners and should have had experience in dental anaesthetics
The appointment will be for six months at the rate of £100 per annum
The Anaesthetist will be required to attend on Wednesday Thursday and Saturday mornings at 9 a m and will be expected to carry out the usual routine of the Department
RAPHAEL JACKSON (Major) Secretary

PRINCESS ELIZABETH OF YORK HOSPITAL FOR CHILDREN, Shirley Road, Hull
(Formerly East Riding Hospital for Children)
(130 Beds)

A HOUSE SURGEON is required on January 1st 1934 Candidates should apply in their own handwriting stating age and experience and enclosing copies of not more than three testimonials to the Secretary of the Hospital not later than December 7th with whom applications should be lodged by the same date Applications received after 12 o'clock on Thursday December 7th will not be considered
The Hospital is recognised by the Royal Colleges for the F R C S examinations
The appointment is for one year Salary at the rate of £200 per annum with board residence and laundry Candidates must be single and qualification to practise Forms of application may be obtained from the undersigned
J F RUSSELL
Secretary
November 1933

THE QUEEN'S HOSPITAL FOR CHILDREN
Hackney Road London E 2

HOUSE PHYSICIAN required January 1st 1934
CASUALTY OFFICER required January 6th 1934 Some Dermatological work additional
Six months' appointments Salary at the rate of £100 per year with board lodging and laundry
Applications must be made on forms to be obtained from the undersigned and must be sent in with copies of not more than four testimonials on or before November 30th
CHARLES H BESSELL
Secretary
Nov 1st 1933

THE ROYAL INFIRMARY, SHEFFIELD
(500 Beds)

The Weekly Board of Management invite applications for the post of ASSISTANT AURAL AND OPHTHALMIC HOUSE SURGEON
The salary attached to the appointment is £80 per annum with board and residence, after six months service £100 per annum
The officer appointed will be eligible for election to this or one of the other fourteen House appointment from January 1st next
Applications with copies of testimonials, to be sent to the undersigned forthwith
Board Room, JNO W BARNES FCIS,
Nov 16th 1933 Gen Supt & Sec.

ROYAL FREE HOSPITAL
Gray's Inn Road, W C 1

Applications are invited for the following resident hospital appointments
FIRST HOUSE PHYSICIAN
THIRD HOUSE PHYSICIAN
FIRST HOUSE SURGEON
SECOND HOUSE SURGEON, with care of Orthopaedic Bed
THIRD HOUSE SURGEON
FOURTH HOUSE SURGEON
GYNAECOLOGICAL HOUSE SURGEON
OBSTETRIC HOUSE SURGEON
RESIDENT ANAESTHETIST
Duties of the above nine posts tenable for six months commencing January 1st 1934
DISTRICT OBSTETRIC ASSISTANT (salary £100 per annum) tenable for six months from commencement February 1st 1934 Preference given to applications from former pupils of the London (Royal Free Hospital) School of Medicine for Women
Candidates must be duly qualified registered medical practitioners submitting application stating age and qualifications and accompanied by copies of three recent testimonials to be sent to the undersigned on or before December 2nd
REGINALD R GARRATT Secretary

ROYAL FREE HOSPITAL
Gray's Inn Road, W C 1

Applications are invited for the half time post of GYNAECOLOGICAL REGISTRAR from duly qualified and registered medical women This post is reserved for former students of the London (Royal Free Hospital) School of Medicine for Women
Salary £100 per annum Applications stating age and accompanied by copies of three recent testimonials must be sent to the undersigned from whom all information may be obtained for December 2nd Duties to commence January 1st 1934 Present holding eligible as a candidate for re-appointment
REGINALD R GARRATT Secretary

ROYAL FREE HOSPITAL
Gray's Inn Road, W C 1

Applications are invited for the half time post of MEDICAL REGISTRAR Salary £100 per annum Intending candidates who must be duly qualified and registered should submit full particulars stating age and accompanied by copies of three recent testimonials to the undersigned from whom all information may be obtained on or before December 2nd Duties to commence January 1st, 1934 Present holder eligible as a candidate for re-appointment
REGINALD R GARRATT Secretary

ROYAL FREE HOSPITAL
Gray's Inn Road, W C 1

Applications are invited for the whole time post of SURGICAL REGISTRAR Candidates must be Fellows of the Royal College of Surgeons (England) Salary £200 per annum
Applications stating age and experience with copies of three recent testimonials should be sent to the undersigned (from whom all information may be obtained) not later than December 2nd
Duties to commence January 1st 1934
REGINALD R GARRATT Secretary

ROYAL FREE HOSPITAL
Gray's Inn Road, W C 1

Applications are invited from duly qualified and registered medical men for the following post
SECOND HOUSE PHYSICIAN
Duties to commence January 1st 1934 for six months
Candidates should submit applications stating age and accompanied by copies of three recent testimonials to the undersigned on or before December 2nd
REGINALD R GARRATT Secretary

NEW SUSSEX HOSPITAL FOR WOMEN AND CHILDREN, Windlesham Road
BRIGHTON

Applications are invited from qualified Medical Women for the post of HOUSE PHYSICIAN (duties to commence on December 14th) and HOUSE SURGEON (duties to commence on December 14th) Salary at the rate of £100 per annum
Applications in writing accompanied by recent testimonial should be sent on or before December 4th, to PERCY F SPOONER Secretary
Board Room November 14th 1933

ROYAL CHEST HOSPITAL
City Road E C 1
(Royal Northern Group of Hospitals)

CLINICAL ASSISTANTS are required in the Out patient Department on Monday and Thursday afternoons at 2 p m No fee
Apply to the Secretary, Royal Northern Hospital, Holloway, N 7

THE HOSPITAL FOR SICK CHILDREN, Great Ormond Street London, W C 1

A HOUSE PHYSICIAN and a HOUSE SURGEON are required on January 1st 1934
Gentlemen are invited to send in their applications addressed to the Secretary before 12 o'clock on Monday December 4th with copies of not more than three testimonials given specially for the purpose, and also evidence of their having held a resident Hospital appointment
The appointments are made for six months Salaries at the rate of £100 per annum, laundry allowance £5, board and residence, in the Hospital
Candidates must be unmarried and possess a legal qualification to practise
All candidates must be in attendance to appear before the Joint Committee if required at their Meeting on Wednesday, December 6th, at 5 p m precisely
Forms of application and copies of the rules may be obtained from the Secretary
By Order of the Board of Management,
HERBERT F LUTHERFORD
November 1933 Secretary

ST PETER'S HOSPITAL FOR STONE, ETC, Henrietta Street, Covent Garden, W C 2

The appointment of CLINICAL ASSISTANTS to the undermentioned members of the Honorary Staff who attend the Out patient Department at the times indicated will be considered at an early date A Fee of Five Guineas per annum is payable to the fund of this Hospital on appointment and applications should reach the undersigned on or before Monday Dec 4th
Mr John Sandrey Mondays 3 to 6 30 p m
Mr Allan Andrews Tuesdays 2 to 5 p m
Mr Ogier Ward Wednesday 3 to 7 p m
Mr F J F Barrington Thursdays 3 to 7 p m
Mr Ogier Ward Fridays 9 30 to 11 30 a m (Women & Children)
Mr Allan Andrews Fridays 3 to 6 p m (male out patients)
Mr John Sandrey Saturdays 2 to 6 p m
BEECHEY ROGERS Secretary

HULL ROYAL INFIRMARY
(350 Beds)

Applications are invited from registered Medical Practitioners for the post of THIRD HOUSE SURGEON (male) vacant Dec 7th
Salary at the rate of £150 per annum plus residence board and laundry
The appointment will be for six months but will at any time be determinable by one months notice on either side
The Hospital is recognised by the Royal Colleges for the F R C S examinations
Applications giving particulars of age experience and nationality together with copies of testimonials should be addressed to the undersigned
R J CARLESS
November 15th 1933 House Governor

ROYAL SOUTH HANTS & SOUTHAMPTON HOSPITAL (250 Beds)

Applications are invited for the following appointments for a period of six months commencing January 1st 1934 —
1 HOUSE PHYSICIAN
1 CASUALTY OFFICER
1 RESIDENT ANAESTHETIST AND HOUSE SURGEON to the Ear, Nose and Throat Department
2 HOUSE SURGEONS
Each at a salary of £150 per annum with board lodging and laundry Candidates must be male and unmarried April 1st appointed by not more than three testimonials should be sent to the undersigned not later than December 5th
HY TRUSSON Secretary

KEIGHLEY AND DISTRICT VICTORIA HOSPITAL YORKS

Application are invited for the post of HOSPITAL SECRETARY (116 Beds) Previous hospital or secretarial experience and a knowledge desirable Applications endorsed Secretary stating age experience and salary required and enclosing copies of three recent testimonial to reach the undersigned not later than Friday December 1st
Keighley & District W A BIGG J P
Victoria Hospital, Hon Secretary
Keighley

HOUNSLOW HOSPITAL STAINES ROAD, HOUNSLOW, MIDDLESEX (70 Beds)

Wanted at once, JUNIOR HOUSE SURGEON, male at £100 p a with board, residence, etc. for six month
Also SENIOR HOUSE SURGEON on January 1st 1934 at £150 p a
Applications stating age, nationality, qualifications and experience and enclosing copies of three recent testimonial should be sent forthwith (endorsed House Surgeon) to the Secretary, Hounslow Hospital

BOROUGH OF CHELMSFORD.

SPECIALIST CONSULTANT—OBSTETRICS & GYNAECOLOGY.

The Council invite applications for the appointment of SPECIALIST CONSULTANT, to carry out special consultation work:

1. As a consultant in cases of puerperal fever or puerperal pyrexia.
2. As a consultant in cases of difficult labour.

A fee of three guineas per consultation will be paid, and in addition two guineas will be paid for time occupied in travelling, plus travelling expenses of sixpence per mile by day and one shilling per mile by night.

Applicants must be Fellows of one of the Royal Colleges of Surgeons of Great Britain, and must be attached to a Special Hospital for Diseases of Women, or to a Special Hospital for the conditions outlined above, or to a corresponding Special Department of a General Hospital.

The duties will consist of attending in consultation with medical practitioners—either general practitioners or the medical officer of the Council—in cases arising under the Puerperal Fever and Puerperal Pyrexia Regulations or in cases of difficult labour.

The gentlemen appointed will be required to provide his own locum tenens during holidays and absences.

Applications, stating experience and appointments held, with copies of three recent testimonials, should be made to the undersigned not later than 10 a.m., on November 30th, and marked "Specialist Consultant."

Public Health Dept., 89, Duke Street, Chelmsford. November 9th, 1933.

J. C. SLEIGH, Medical Officer of Health.

CITY OF LIVERPOOL.

RESIDENT ASSISTANT MEDICAL OFFICERS (Male).

Applications are invited for the above appointments at the SMITHDOWN ROAD HOSPITAL (1,200 beds), Liverpool, for a period of one year, at a salary of £200 per annum (subject to a temporary deduction as authorised by the Council) together with the usual residential allowances. Canvassing will be deemed a disqualification.

Applications to be made upon forms obtainable from the Medical Officer of Health, Municipal Annexe, to be endorsed "Resident Assistant Medical Officer," and returned to the undersigned so as to be received not later than first post Thursday, November 30th.

Municipal Buildings, Liverpool. November 13th, 1933.

WALTER MOORE, Town Clerk.

LANCASHIRE COUNTY COUNCIL.

BIDDULPH GRANGE ORTHOPAEDIC HOSPITAL.

Applications are invited from duly qualified and registered Medical Practitioners for the post of JUNIOR HOUSE SURGEON at the above Hospital, which contains 88 beds.

Salary is at the rate of £150 per annum, together with board, residence, and laundry.

Preference will be given to candidates who have held resident hospital appointments, and who are competent anaesthetists. The appointment will be for a period of six months in the first instance, and for a further six months at the option of the Council, but will not be renewable after that time.

Applications, with copies of two recent testimonials, should be sent not later than December 9th, to Dr. J. J. BUTTERWORTH, School Medical and Child Welfare Department, County Offices, Preston.

Duties to commence February 1st, 1934.

County Offices, Preston. November 20th, 1933.

GEORGE ETHERTON, Clerk of the County Council.

LONDON COUNTY COUNCIL.

Applications invited from medical practitioners of at least one year's standing for appointment as TEMPORARY DISTRICT MEDICAL OFFICER for medical relief district B in Area VIII (part of Southwark). Salary £200 a year. Candidate appointed will be required to reside in district. Salary is provisional and remuneration and conditions subject to review.

Application forms and further particulars obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 3a), County Hall, S.E.1, returnable by December 1st. Canvassing disqualifies.

LONGTON HOSPITAL, STOKE-ON-TRENT.

HOUSE SURGEON (male) required after Christmas. Commencing salary £160, with board, residence, and laundry, plus certain fees.

Applications, with copies of three recent testimonials, and stating nationality to be sent to the Chairman of Directors, Longton Hospital, Stoke-on-Trent, at once.

SURREY COUNTY COUNCIL.

ASSISTANT MEDICAL OFFICERS. (Either sex.)

Applications are invited for the appointment of Two Assistant Medical Officers. Candidates may be either male or female, but preference will be given to a woman for one of the appointments. Applicants must possess a qualification in Public Health, and have had experience in the medical inspection of school children, and maternity and child welfare. The officers appointed will be required to undertake such other Public Health duties as may be allocated to them. They will be on the staff of the County Medical Officer of Health, must reside in the County of Surrey, and devote their whole time to the work. Salary £600 per annum, rising by annual increments of £20 to £700. Travelling expenses in accordance with the Council's scale will be allowed.

The appointments will be subject to the approval of the Ministry of Health and of the Board of Education, to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and to the Standing Orders of the Council, which provide, *inter alia*, that appointments may be determined at any time by three months' notice.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should be made on the prescribed form, and sent to the County Medical Officer of Health, County Hall, Kingston-upon-Thames, from whom copies of the application form may be obtained, and to whom any enquiries relating to the appointment should be addressed.

Last day of receipt of applications, Dec. 2nd. Canvassing, directly or indirectly, will disqualify.

County Hall, Kingston-on-Thames. November 14th, 1933.

DUDLEY AUKLAND, Clerk of the Council.

COUNTY BOROUGH OF MIDDLESBROUGH.

MEDICAL OFFICER FOR MATERNITY AND CHILD WELFARE.

Applications are invited from fully qualified Medical Women for the post of Whole-time Medical Officer for Maternity and Child Welfare.

Applicants must have had experience in Ante-natal Work, Midwifery, and Diseases of Children, and possess not less than three years' Post-graduate experience.

The commencing salary will be £450 per annum (subject to a temporary economy percentage deduction), together with board and lodgings at the Municipal Maternity Hospital.

Applications, stating age and experience, together with copies of three testimonials, must be sent to the undersigned not later than December 6th.

Municipal Buildings, Middlesbrough. November 17th 1933.

PRESTON KITCHEN, Town Clerk. Middlesbrough.

METROPOLITAN BOROUGH OF HAMPSTEAD.

Applications are invited for the appointment of TWO [illegible]TING OBSTETRICIANS to be available [illegible]B R O[illegible]ultation in difficult obstetric cases with [illegible]CA practitioners in the Borough.

Candidates [illegible] be of recognised consulting status, and [illegible] had special experience in obstetrical work[illegible]E.

Full particulars of the appointments, fees, etc., together with forms of application, can be obtained from the Medical Officer of Health, Town Hall, Hampstead, N.W.3.

Applications must be received by me not later than first post on Monday, December 4th.

Canvassing is strictly prohibited.

Town Hall, Hampstead, N.W.3. November 21st, 1933.

P. H. HARROLD, Town Clerk.

HOVE GENERAL HOSPITAL (Including Brighton & Preston Dispensary).

Applications are invited from registered Practitioners for appointments as DISTRICT MEDICAL OFFICERS. Two appointments will be made.

Full details can be obtained from the General Secretary.

Applications, together with testimonials, should reach the undersigned not later than Saturday, December 2nd.

H. AUBREY FROGGATT, General Secretary.

EAST SURREY HOSPITAL, REDHILL, SURREY.

Applications are invited for the post of a fully qualified PATHOLOGIST to the Hospital. The Pathologist to undertake the Hospital work at an agreed remuneration and to be at liberty to carry on a private practice for which the free use of the Hospital Laboratory will be available. For full particulars, applications should be made to—

B. K. FEILD, Secretary.

DEVONSHIRE ROYAL HOSPITAL, BUXTON, DERBYSHIRE. (300 Beds.)

(A National Hospital for Rheumatism and Allied Diseases.)

Applications are invited for the post of ASSISTANT HOUSE PHYSICIAN (male) to commence duties as soon as possible. Candidates must be fully qualified and registered. The appointment is for a minimum period of six months, and may be extended for a further period of six months. Salary commencing £150 per annum, and rising to £175 after three months' service, with board, residence, and laundry.

Applications, endorsed "Assistant House Physician," stating age, experience, and qualifications, together with copies of three recent testimonials, must be forwarded without delay to the undersigned, from whom any further particulars may be obtained.

This appointment offers special facilities for any gentleman preparing a thesis or wishing to undertake research work, and the Hospital contains a Pathological Laboratory and Biochemical and X-ray Departments.

Canvassing will disqualify.

By Order of the Committee of Management,
A. PRESTON TURNER,
General Superintendent & Secretary.

WORCESTER ROYAL INFIRMARY. (154 Beds.)

Applications are invited for the post of FIRST HOUSE SURGEON (male) to begin duties January 1st, 1934. The successful candidate will be the senior of three Residents.

The Hospital is equipped with new Operating Theatres, Pathological Laboratory, Orthopaedic Department, E.N.T. Department, Modern X-ray Department, etc.

Salary at the rate of £180 per annum, together with board-residence. The post offers exceptional scope for medical and surgical experience.

Applications should state full particulars of qualifications and experience, together with details as to age, whether married or single, nationality, and should be accompanied by copies of three testimonials.

Applications to be received by the undersigned not later than Saturday, December 9th.

PERCY N. GLASS, Superintendent-Secretary.

THE PRINCESS BEATRICE HOSPITAL, Richmond Road, Earl's Court, S.W.5. (General Hospital—80 Beds.)

RESIDENT MEDICAL OFFICER (Male) required to act as House Physician and Casualty Officer for six months as from December 15th. Salary at the rate of £110 per annum, with board, residence, and laundry. Previous resident experience essential. Applications to be sent to the House Governor, stating age and previous appointments, not later than Tuesday, November 28th, accompanied by copies of three recent testimonials.

DEWSBURY AND DISTRICT GENERAL INFIRMARY, DEWSBURY. (100 Beds.)

Applications are invited for the posts of SENIOR HOUSE SURGEON and SECOND HOUSE SURGEON. Salaries £200 and £150 respectively, with board, residence, and laundry.

Applications, stating age, hospital experience, and which post applied for, together with copies of recent testimonials, to be sent to the undersigned before November 27th. The appointments commence as from Jan. 1st, 1934.

FRED SMITH, Secretary-Supt.

DONCASTER ROYAL INFIRMARY. (185 Beds.)

CASUALTY HOUSE SURGEON (male) required immediately. Five House Surgeons are resident. Salary at the rate of £175 per annum, with residence, board, and laundry. Successful applicant will be promoted to post of House Surgeon as a vacancy occurs.

This large industrial area offers excellent opportunities for gaining experience.

Applications, accompanied by not more than three testimonials, to be sent to the undersigned.

WALTER R. SMITH, Secretary-Supt.

THE THROAT, NOSE, AND EAR HOSPITAL, Golden Square, London, W.1.

HOUSE SURGEON required (male) for January 1st, 1934. Salary £100 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience together with three copies of testimonials, should reach the undersigned on or before December 11th.

F. P. CARROLL, Secretary-Supt.

WIMBLEDON HOSPITAL, S.W.20, REQUIRES HOUSE SURGEON. Appointment for six months. Salary at £105 per annum and free quarters. Apply, with testimonials, to Hon. Secretary, Medical Board.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE	**CONTRACT PRACTICE** *(contd.)*	**CONTRACT PRACTICE** *(contd.)*
PRIMROSE HILL (*Workmen's Medical Society.*)	MARDY, GLAMORGAN (*Workmen's Medical Scheme.*)	OGMORE VALLEY, GLAMORGAN (*Wyndham Colliery Medical Aid Society.*) (*Workmen's Medical Scheme.*)
CILFYNYDD, GLAMORGAN (*Workmen's Medical Society.*)	NEATH AND DISTRICT (*Medical Aid Association.*)	**PUBLIC HEALTH**
LLWYNYPIA, CILFYNYDD, YNYSYBWL, TONYPANDY, GLAMORGAN (*Workmen's Medical Scheme.*)	OAKDALE, MON. (*Medical Officer for Medical Aid Association.*)	GLOUCESTERSHIRE EDUCATION COMMITTEE (*Full School Medical Inspector.*)
LOWESTOFT MEDICAL INSTITUTE. (*Medical Officer.*)		KENT COUNTY COUNCIL. FARNBOROUGH INSTITUTION HOSPITAL. (*Resident Assistant Medical Officer.*)

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Secretary of Division or Branch.	Town or District.	Hon. Secretary of Division or Branch.	Town or District.	Hon. Secretary of Division or Branch.
NEW SOUTH WALES (*All Provincial Medical Society Appointments.*)	Provincial Council, BRANCH, New South Wales Branch, British Medical Association, Sydney, N.S.W.	**QUEENSLAND** (*All Appointments.*)	The Hon. Secretary, Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	**WELLINGTON, NEW ZEALAND** (*Contract Practice only.*)	Dr. C. F. WILKINSON (Hon. Secretary, New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.
VICTORIA. (*All Provincial Medical Appointments.*)	Dr. [illegible], Victorian Branch, British Medical Association, Australian Medical Association Building, Hall Lane, Melbourne.			**WESTERN AUSTRALIA** (*Contract and Lodge Practice.*)	Hon. Secretary, Western Australian Branch, British Medical Association, Commercial Chambers, 6, Bank of N.S.W. Chambers, St. George's Terrace, Perth, Western Australia.

November 22nd, 1933. By Order of the Council, G. C. ANDERSON, Medical Secretary.

NATIONAL TEMPERANCE HOSPITAL, Hampstead Road, N.W.1.

Applications are invited for the post of HOUSE PHYSICIAN (Male). The appointment will be for a period of six months at a salary of £100 per annum, and will date as from December 21st. Preference will be given to those who have held a resident post.

Candidates must submit applications stating qualifications, age, etc., with copies of not more than three testimonials, by Friday, December 8th, addressed to the Secretary.

NATIONAL TEMPERANCE HOSPITAL, Hampstead Road, N.W.1.

Applications are invited for the post of HOUSE SURGEON (Male). The appointment will be for a period of six months at a salary of £100 per annum, and will date as from December 21st. Preference will be given to those who have held a resident post. Candidates must submit applications stating qualifications, age, etc., with copies of not more than three testimonials, by Friday, December 8th, addressed to the Secretary.

NATIONAL TEMPERANCE HOSPITAL, Hampstead Road, N.W.1.

Applications are invited for the post of CASUALTY OFFICER (Male). The appointment will be for a period of six months at a salary of £120 per annum, and will date as from December 21st. Preference will be given to those who have held a resident post. Candidates must submit applications stating qualifications, age, etc., with copies of not more than three testimonials, by Friday, December 8th, addressed to the Secretary.

WEST LONDON HOSPITAL, Hammersmith Road, W.6. (230 Beds.)

Required ONE HOUSE PHYSICIAN and TWO HOUSE SURGEONS (Male). The duties of the House Physician will be mainly those of a Medical Registrar. The duties of one House Surgeon include some work in the Genito-Urinary Department and of the other some work in the Gynæcological Department. The three appointments are tenable for six months from January 1st next, subject to one month's notice on either side. Salary at the rate of £100 per annum with board, lodging, and laundry allowance.

Candidates must be registered under the Medical Act. Applications (which must be made on printed forms obtained from us) must reach me *not later* than first post Friday, December 8th. Selected candidates will be required to call upon such Members of the Medical Staff as directed to be in attendance at the Medical Council Meeting on Friday, December 15th, at 4.30 p.m., and the House Committee Meeting at 5 p.m. the same day, when the appointments will be made.

H. A. MADGE, Secretary.

ELSIE INGLIS MEMORIAL MATERNITY HOSPITAL, Spring Gardens, EDINBURGH. (60 Beds.)

Applications are invited from fully qualified medical women for the post of DISTRICT MEDICAL OFFICER, rising to Senior House Surgeon after three months.

Appointment is for six months from January 1st 1934. Honorarium at the rate of £50 per annum with board, residence, and laundry.

Applications, with copies of testimonials to be sent to the Secretary, 1, Prantsfield Crescent, Edinburgh, on or before December 2nd.

THE MENTAL HOSPITAL, WELLS, SOMERSET.

ASSISTANT MEDICAL OFFICER required (male), single, must be legally qualified and registered, previous experience desirable, knowledge of Laboratory work essential. Salary commencing £350 per annum, rising to £450 by annual increments of £25, is subject to temporary reduction, and is in accordance with the recommendation for Mental Hospitals. An additional £50 per annum to the holder of the Diploma in Psychological Medicine or such addition would be made if an officer should subsequently take the Diploma. Board, apartments, laundry, and attendance. Subject to statutory deductions for superannuation purposes.

Applications to be sent not later than November 28th next to the Medical Superintendent, stating age, qualifications, and previous experience (if any), marked in the top left hand corner "A.M.O."

KING EDWARD VII SANATORIUM, MIDHURST.

The Council invite applications for the post of FIRST ASSISTANT MEDICAL OFFICER (male), single, must be legally qualified and registered, previous experience in tuberculosis work essential. Knowledge of laboratory work essential. Some knowledge of after-care of patients following chest operations will be considered an advantage. Salary £450 per annum, rising to £500 per annum, with board, lodging, and attendance.

Applications, with fourteen copies of not more than three recent testimonials, to be sent on or before December 4th to the Secretary to the Council, 31, Davies Street, London, W.1.

(Appointments continued on p. 54)

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WANTED, AN ASSISTANT IN THE MIDlands. Work very light. £250, all found. Cyclist or motor cyclist if possible.—Address, No. 8056, B.M.A. House, Tavistock Square, W.C.1.

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NORTH EAST COAST.—Part working and middle class PRACTICE in large town. Cash receipts last year £1,309 including £850 from part club and appointment. Panel 1,200. Central Surgery, with good living accommodation. Price (freehold) £1,150. Premium.—Practice—best offer. Long introduction if desired.—No. 511.

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LEEDS.—PARTNERSHIP in well-established Practice. Gross receipts last year £3,800. Panel of over 3,000 and appointments. Specially constructed modern house on main road with large garden. To be sold or rented. Premium—2/8 share—2 years' purchase.—No. 513.

SCOTLAND.—MEDICAL WOMAN'S PRACTICE in Country District. Cash receipts last year £565. Panel 100. Detached house with beautiful views, 3 reception, 4 bedrooms, garage and large garden. Premium. Best offer.—No. 506.

LARGE LANCS CITY.—Middle-class PRACTICE established 50 years. Cash receipts last year £1,500. Panel 725. Scope. Excellent corner house, 2 reception, 6 bedrooms, etc., garage and garden to rent. Premium £2,500.—No. 508.

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DORSET.—Old established mixed PRACTICE in good district. Average cash receipts £1,200 p.a. excluding appointments £100 p.a. Panel 1,256. Scope for increase. Excellent semi-detached house, 3 reception, 4 bedrooms, garage and garden. Price £1,300. Premium—Practice—1½ years' purchase.—No. 510.

MANCHESTER.—Mixed PRACTICE averaging £1,000 p.a. Appointments (transferable) £200—£250 p.a. Panel 850. Good corner house, 2 reception, 5 bedrooms, 3 professional rooms, garage and small garden. Premium—Practice—1½ years' purchase or near offer.—No. 492.

NORTH WEST COAST.—PARTNERSHIP in middle and upper working class Practice in popular seaside resort. Cash receipts last year £2,552. Panel 820. Scope for increase. Good house (on sea front), 2 reception, 4 bedrooms, 3 professional rooms, garage, and small garden. *For sale or may be rented for two years.* Cottage Hospital. Premium—one half share—2 years' purchase.—No. 512.

MANCHESTER.—Old established mixed PRACTICE. Cash receipts last year £660. Panel 788. Scope. Good corner house, 2 recep., 4 bedrooms, garage. Rent £60 p.a. Premium 1½ years' purchase. Could be worked along with another small Practice for sale, quite near, doing £300 p.a., with a panel of 350.—No. 437.

DERBY.—Small old established PRACTICE capable of considerable increase. Average cash receipts £530 p.a. Panel 509. Excellent modern house, 3 reception, 5 bedrooms and garden. For sale or to rent. Prem.—Practice—£500. Vendor retiring.—No. 486.

LARGE LANCS TOWN.—Very old established middle-class PRACTICE averaging last 2 years £3,047 p.a. Panel 500. Appointments £300 p.a. Partnership with succession in 12/18 months suggested. Good semi-detached house, 3 reception, 6 bedrooms, garage and garden. For sale or would rent on lease. Vendor retiring. Premium 1½ years' purchase.—No. 464.

NR. MANCHESTER.—Small PRACTICE of over £500 p.a. Panel 778. Scope for increase. House 2 reception, 4 bedrooms, and professional room. Rent £35 p.a. Premium best offer.—No. 484.

LANCS TOWN eight miles from Manchester.—Old established mixed PRACTICE averaging £700 p.a. Panel 639. Scope for increase. District rapidly developing. Good house 2 reception, 3 bedrooms, garage, and garden (separate entrance to surgery). Premium—Practice and house—£1,350.—No. 493.

CHESHIRE (WIRRAL).—Medical Woman's NUCLEUS in residential district. Scope for man or woman as district is developing. Modern house (freehold), 2 reception, 4 bedrooms, garden, and garage. Premium—House and Nucleus—£1,100 or near offer.—No. 515.

SCOTLAND.—Upper middle-class (non-dispensing) PRACTICE. Average cash receipts approx. £500 p.a. No panel but scope for such work. Good house 2 reception, 5 bedrooms, garage and garden. For sale, or may be rented. Premium—Practice—best offer.—No. 498.

NEAR NORTH WEST COAST.—Country PRACTICE of over £800 p.a. in beautiful district. Panel 329. Scope. Good sport. Premium best offer.—No. 477.

DERBYSHIRE.—Small PRACTICE in beautiful district. Cash receipts £300 to £400 p.a. Panel 80. Good scope. House 2 reception, 3 bedrooms, and nice garden. Rent £68 p.a. including rates. Premium £100.—No. 514.

NORTH WEST COAST.—Large residential and seaside town.—Old established PRACTICE. Cash receipts about £1,200 p.a. Panel 1,500. Excellent detached corner house (freehold), 3 professional rooms, 5 bedrooms and 2 reception rooms, garage, and good garden for sale. Prem.—Practice—1½ years' purchase.—No. 417.

CO. DURHAM.—LARGE TOWN.—Old established mixed PRACTICE, averaging over £800 p.a. Panel 600. Scope. Good house, 2 reception, 4 bedrooms, 3 professional rooms. Garage and garden. Premium £950.—No. 422.

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All communications to be addressed to the Branch Manager, BRITISH MEDICAL BUREAU, 33, CROSS ST., MANCHESTER, 2.

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(FOUNDED 1880.)

12, Stratford Place,
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1 DEATH VACANCY, LONDON, S.E.—PRACTICE ABOUT £800 p.a., including panel, in Suburban District. House to rent at about £100 p.a.

2 S. MIDLANDS. — PARTNERSHIP IN WELL-ESTABLISHED *and rapidly increasing Practice of about* £2,000 p.a. in Residential Country neighbourhood. Panel about 1,500. Suitable house could be obtained. One-third share would be sold at two years' purchase. Preliminary Assistantship.

3 N. OF ENGLAND.—OLD-ESTABLISHED MIXED-CLASS PRACTICE in large growing residential suburb of important town. Cash receipts average £1,450 p.a., *including appointments* and panel 677. Charming modern corner residence. Good introduction. *Premium* 1½ *years' purchase.*

4 MIDLANDS.—PARTNERSHIP IN WELL-ESTABLISHED PRACtice of about £1,400 p.a. in a rapidly growing residential District. Panel over 1,600. Excellent chance for young energetic man. Premium one-third share, £800.

5 N. OF ENGLAND. — OLD-ESTABLISHED NON-DISPENSING PRACTICE, averaging £920 p.a., in important City. No panel. House (6 bedrooms, etc.) in best residential part with garage and walled-in garden to rent. Considerable scope for young *energetic man. Premium* £1,250.

6 S. MIDLANDS.—VERY OLD-ESTABLISHED COUNTRY PRACTICE, about £630 p.a., in beautiful part—about 25 miles from London. *Panel 419. Excellent house (7 bedrooms) with central* heating, electric light, main water, and new drainage. Garages and garden of over an acre, also orchard, and 15 acres of land to rent on lease. The property is admirably adapted for the reception of Resident Patients. Scope for increase. Premium one and a half years' purchase.

7 S. MIDLANDS. — PARTNERSHIP IN OLD-ESTABLISHED Practice of about £3,300 p.a. in growing Country Town. Panel 1,986. Visits 5/- (cash), 6/6, 7/6, 10/6. *Not much midwifery.* Choice of houses. Considerable scope for increase as building is going on at a great rate. Premium one-half share two years' purchase, cash.

8 WITHIN 15 MILES OF LONDON.—PARTNERSHIP IN SOUND old-established Practice in important and growing Town. Cash receipts average £5,257 p.a., including appointment and clubs, and panel 3,800. Visiting fees 4/- to 10/6 (few 3/-). Small detached house (2 large bedrooms), etc., for sale or rent. Premium one-fourth share, two years' purchase. Good Hospital.

9 SHROPSHIRE.—WELL-ESTABLISHED PRACTICE AVERAGing £700 p.a., in pleasant Market Town. Panel 170. House to rent. Scope for increase. Premium one and a half years' *purchase.*

10 NORTHAMPTONSHIRE. — PARTNERSHIP IN OLD-ESTABlished Practice, averaging £1,718 p.a., in small town. Panel 1,930. *Good scope for young energetic man.* Premium for two-fifths share two years' purchase.

11 KENT COAST.—NUCLEUS OF PRACTICE (HELD BY MEDICAL Woman), in small pleasant Town. *Panel and* Public Medical Service recently started. Visits 5/- to 10/6, medicine extra. No midwifery. Well-situated house (5 bedrooms), *central heating,* electric light, good garden, and garage, to rent. Scope for increase as building is going on. Good local Hospital. *Reasonable offer entertained*

12 MIDLANDS. — VERY OLD-ESTABLISHED AND EASILY worked Country PRACTICE about 8 miles from the County Town. *Cash receipts* average between £650 and £700 p.a., including panel about 600. Suitable house, with 4 bedrooms, electric light, garage, *and garden for sale or rent. Scope for* young energetic man. Premium one year's purchase.

13 LONDON, E.—OLD-ESTABLISHED PRACTICE OF £250 P.A. in the Forest Gate district. *Panel 60. No midwifery.* Modern house (5 bedrooms) in good residential part. Electric light and heating and nice garden for sale or rent. Scope for increase. *Premium* £385.

14 N. DEVON. — OLD-ESTABLISHED PRACTICE IN PICturesquely situated Watering Place. Receipts *average* £1,173 p.a., *including* panel 474. Excellently situated house in very good state of repair both inside and out, containing 8 bedrooms, etc. Price of *leasehold* £800. The Practice is particularly suitable for one not too robust or young who *needs country life.* Salmon, river, and sea fishing, *hunting,* etc. Cottage Hospital. Premium £1,850.

15 PARTNERSHIP IN OPHTHALMIC PRACTICE IN FIRST-RATE town. Applicants should be *well qualified,* aged 30—40, and experienced.

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Practices and Partnerships for Disposal (continued).

16 BIRMINGHAM — PARTNERSHIP IN WELL ESTABLISHED and increasing Practice in good Suburb Panel over 1 200 rapidly increasing Suitable house to rent Excellent opportunity for right man Premium for share worth about £800 p a, £1 350

17 RIVIERA —SEASON PRACTICE ABOUT £800 P A CAPABLE of large increase

18 LONDON S W —WELL-ESTABLISHED OPHTHALMIC PRACTICE averaging £900 p a in Suburb in District Fee for consultation and examination £1 1s Well situated house to be sold or let Premium £1 200

19 S WALES — PRACTICE BETWEEN £250—£300 P A IN beautifully situated village about 4 miles from important town Small panel Nice house (6 bedrooms) electric light gas and company's water Garage and garden Premium house and Practice only £1 500 for quick sale

20 W OF ENGLAND —PARTNERSHIP IN OLD ESTABLISHED Practice over £2 200 p a in County Town Panel about 1 000 Visiting fees 5/- to £1 1s 6d Suitable house available Excellent educational facilities Premium one half share two years purchase Exceedingly good prospects for well qualified physician (preferably a M R C P) with opportunity of getting on staff of Hospital in near future

21 LONDON, S E —LOCK UP PRACTICE OF ABOUT £350 P A In Suburban District within 5 miles of Charing Cross Panel 320 Premises consisting of Surgery and Waiting Room on ground floor, to rent on lease Premium £500 or near offer

22 N OF ENGLAND —SPA PRACTICE, AVERAGING £380 P A In famous Health Resort. Fees £1 1s and £2 2s occasionally 10 6 Semi-detached corner house (5—6 bedrooms) in best part which can be rented Premium £500

23 SHROPSHIRE BORDER — WELL ESTABLISHED PRACTICE in large Industrial Village amidst beautiful country Income about £700 p a, including panel rapidly increasing Small detached modern house (4 bedrooms) with electric light gas for sale or rent All kinds of sport Cottage Hospital Premium £800 Would suit either Medical Man or Medical Woman

24 PRIVATE MENTAL HOME (FOR LADIES ONLY) —EXCEPTIONALLY nice house and grounds A considerable sum required for the purchase Further particulars on application

25 SURREY — PARTNERSHIP IN SOUND OLD ESTABLISHED good mixed-class Practice about £2 650 p a in the Croydon area Small panel Very little midwifery Scope for increase Premium one half share 2 years purchase

26 MIDDLESEX — MIXED WORKING CLASS PRACTICE OF about £1 020 p a in rapidly growing district within 10 miles of the Marble Arch Panel about 1 120 Corner house (5 bedrooms) with garage and fair sized garden, for sale Scope for increase Premium £2 000

27 S COAST —NON DISPENSING PRACTICE AVERAGING OVER £450 p a in well known Health Resort Panel 250 Visits 3/6 to 10/- House in excellent position, facing sea, and containing 6 bedrooms etc Price of freehold £2 400 Premium for Practice £400

28 LONDON, E C —OLD ESTABLISHED PRACTICE OF ABOUT £1 650 p a, including appointments, panel and Public Medical Service worth over £500 p a Visits 2/6 to 7/6 Practically no midwifery Introduction up to 12 months will be given Premium £1,500

29 N E COAST —OLD ESTABLISHED PRACTICE IN SEAPORT Town Cash receipts average £1 260 p a, including appointments worth £150 p a and a panel of 1 115 Corner house (4 bedrooms) with separate surgery accommodation Premium for House and Practice £2 600

30 SHROPSHIRE & CHESHIRE BORDERS —OLD ESTABLISHED PRACTICE averaging £1,055 p a in Market Town Panel 850 Visits 3/6 to £1 1s, medicine sometimes extra Detached house (5 bedrooms attics, etc) with garage and old world garden for sale Educational facilities All kinds of sport Well equipped Cottage Hospital and opportunity for one keen on Surgery Premium £1,580

31 BIRMINGHAM —WELL ESTABLISHED GROWING PRACTICE in good Suburb Cash receipts last year £1,400 Panel nearly 1 200, rapidly increasing House on key Site No other resident Practitioner allowed on Estate Good reason for selling Building going on in immediate vicinity (600 maisonettes being erected in near future Price of house £525, £250 deposit, rest in rent Premium for Practice £2 400

32 S WALES —SMALL PRACTICE IN A COLLIERY DISTRICT doing about £150 p a Accommodation to rent Scope for young energetic man Premium £150

33 S COAST —A WELL-ESTABLISHED PRACTICE OVER £1,000 p a in popular Resort. Panel 850 Excellent scope Premium two years purchase

34 N KENSINGTON —PRACTICE OF ABOUT £300 P A PANEL 200 Corner house to rent Premium £475

35 NOTTINGHAM —SMALL PRACTICE OF ABOUT £255 P A Panel 200 Corner house (4 bedrooms) Rent £60 p a Premium £500

36 EASTERN COUNTIES —COUNTY TOWN —VERY OLD ESTABlished middle and upper class PRACTICE averaging £1,190 p a Panel 120 Visiting fees 7/6 to 15/6 Ten roomed house in good residential part with garage and garden for sale Scope Premium £2 200

37 LONDON, S W —WELL ESTABLISHED EYE, EAR NOSE AND Throat Connection in Suburban District Cash receipts last twelve months £432 (mostly from Eye work) including appointment worth about £120 p a Corner detached non-basement house (7 bedrooms) with garages and very nice garden Price of freehold and Practice, £2,350

38 GLOUCESTERSHIRE.—PARTNERSHIP IN VERY OLD ESTABlished Practice of nearly £1,750 p a in small town in beautiful part of the country Panel over 1,350 Fees average 7/6 Premium one half share 2 years' purchase

39 FAMOUS INLAND WATERING PLACE AND HEALTH Resort —Well established non-dispensing PRACTICE. Receipts last three years averaged £986 p a, including a select Panel of 280 Fees 5/- to £1 1s Particularly attractive house with large garden, for sale Scope Premium £750

40 SUFFOLK AND NORFOLK BORDERS —PRACTICE OVER £300 in Market Town Panel 87 Nice house (6 bedrooms) garage and good sized garden Price of freehold £850 Excellent schools Plenty of sport Cottage Hospital Premium £450

41 LONDON, E —CASH AND PANEL PRACTICE OF OVER £600 p a in populous district Panel 590 Small house to rent on lease Premium £800

42 LONDON W —GOOD MIDDLE CLASS PRACTICE £400 P A in suburb within easy access of the West End Panel over 100 Attractive double fronted house with nice garden for sale. Scope for increase Premium 1½ years' purchase.

43 HOME COUNTIES — OPHTHALMIC PRACTICE BETWEEN £300 and £400 p a in desirable Residential Town under 15 miles from London Good detached house (4 bedrooms) with large garden for sale Good reasons for plenty of scope for increase. Premium £300

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1. SOUTH COAST.—In a fashionable and favourite watering-place, an old-established good-class non-dispensing and non-panel PRACTICE, held by Vendor 30 years, who is *now selling through* ill health. Cash receipts average £2,486 p.a., including transferable appointments. Fees 7/6 to 3 guineas. Only 3 or 4 midwifery cases yearly. Very good house (4 reception, 6 bedrooms, etc.), with attractive garden, garage, etc. Vendor's leasehold property (54 years to run *at ground rent* under £10). Price £2,000, £1,000 on mortgage. Premium £5,000. Efficient introduction given.

2. EASTERN COUNTIES.—Very sound old-established country PRACTICE producing about £1,300 p.a., including panel of 800 and appointments worth £60 p.a. Fees 3/- upwards, visits 5/- upwards. Midwifery from 42/-. Very easily worked and offers good scope for increase. Very nice detached house with ample accommodation, large garden, etc. *Can be rented at £60 p.a. Premium £2,400. Sport of* all kinds and schools within easy reach.

3. LANCS. — LARGE TOWN.—Very sound old-established middle and working-class PRACTICE, averaging for the last three years nearly £4,600 p.a., and *for the immediate past six months* £2,630. Panel of over 3,000. Appointments worth about £60 p.a. Fees 2/6 to 12/6. Not much midwifery. Good house on rental at £80 a year. Premium 1¾ years' purchase.

4. YORKS.—Very old-established middle and better working-class PRACTICE, situated in a thriving [illegible] (pop. 140,000). *Held by* Vendor 14 years who [illegible]-health. Cash receipts for past three years over £1,200 p.a., including appointments (transferable) worth nearly £350 and panel *producing £576. Pleasantly situated house* (2 reception, 3 bedrooms, bathroom, etc.). Vendor's freehold. Price moderate. Premium £1,750.

5. HOME COUNTIES. — PARTNERSHIP.—A one-fourth share (with guaranteed minimum income of £600 p.a., and increase later as arranged) is offered in old-established, good mixed-class Practice *situated in attractive residential market town* within 20 miles of London. Gross cash rec[illegible]ximately £2,000 p.a. Panel of about 1,150. V[illegible]om 5/- upwards. Suitable small house availab[illegible] a year. Premium for share 2 years' purchase. Large scope for development. Ingoing Partner, who should be between 28 and 30 years of age, must be experienced in Midwifery.

6. KENT.—LARGE TOWN.—A one-third share is offered after a preliminary assistantship in a very old-established good mixed-class PRACTICE, averaging £3,279 p.a. Panel of nearly 3,000. Fees 3/6 to 1 guinea. Suitable house can be rented at £100 a year. Sport of all kinds. Good schools. Premium for share 2 years' purchase. Ingoing Partner should be married and have had at least five years' general practice, and be preferably English or Scottish.

7. NORTH DEVON.—FAVOURITE SEASIDE RESORT.—Very old-established PRACTICE held 10 years by Vendor. Cash receipts average £1,173 p.a., including appointment (transferable) worth over £100 and panel [illegible] House has ample accommodation (8 bedrooms, [illegible]hold property having about 56 years *to run. Pr*[illegible] £1,850.

8. WITHIN 150 MILES NORTH OF LONDON.—COUNTY TOWN.—Old-established mixed-class PRACTICE averaging nearly £1,100 p.a., including panel of 118. House contains consulting and waiting rooms (separate entrance), lounge, 2 reception rooms, 4 bedrooms (2 fitted *with hot and cold water basins), dressing room, bathroom*, etc. Garden of 1/4 acre. Large garage. Electric light. Vendor's freehold. Price £2,000, part on mortgage. Premium £2,200.

9. WESTERN SUBURB.—Old-established better middle-class non-panel PRACTICE, *in well-populated area*, averaging for the last three years over £2,200. One appointment worth £80 p.a. Visits from 3/6 to 10/6. Not much midwifery. Suitable house, with 3 reception, 6 bedrooms, etc. Rent on lease £90 per annum. Premium £4,000 Good introduction given.

10. PARTNERSHIP. — HOME COUNTIES.—A one-fourth share is for disposal (owing to the retirement of one of three Partners) in an old-established good mixed-class Practice, in beautiful residential district within easy reach of London. Gross cash receipts approximately £3,400. Panel of 1,400. Well-situated small modern house, with 2 reception, 3 bedrooms, etc. Garden. Rent £59 p.a. Premium two years' purchase.

11. IMPORTANT INLAND SPA.—Old-established better-class non-dispensing PRACTICE, averaging about £380 p.a. Receipts have been considerably more and the Practice could be increased, if desired. Fees 1 and 2 guineas and occasionally half a guinea. House is a corner one in good residential district with ample accommodation, newly decorated. Can be rented on lease at £100 a year. Garden. Excellent social and *sporting facilities*. Premium £500.

12. SOUTH WALES.—Beautiful Country District within 4 miles of large town. Small PRACTICE, producing between £300 and £350 p.a., *offering* good scope. Visiting fees from 5/-. Very little midwifery or night work. Well-situated house, with well-kept garden, containing 2 reception, 3 good-sized bedrooms and servants' rooms. Electric light and gas throughout. Garage. Price for Practice and house £1,500.

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5. SOUTH COAST TOWN, or *near locality.*—PRACTICE averaging about £1,500 p.a., with panel of 1,000 or thereabouts. *Small house*, preferably on rental. Capital available.
6. LONDON OR SUBURBS.—PRACTICE, *producing* £1,400 to £1,600 p.a., with panel of 1,500. Good house, with garden.
7. GOOD LONDON SUBURB or RESIDENTIAL DISTRICT *within* 3 miles. Well-established PRACTICE *producing* about £1,500 p.a., with moderate panel. Small convenient house sufficient.

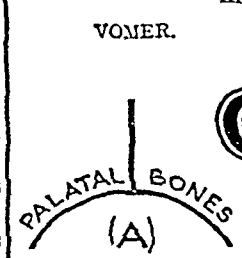
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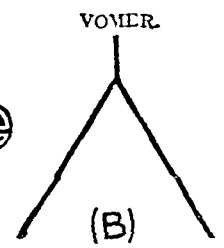


A.—Normal Palate

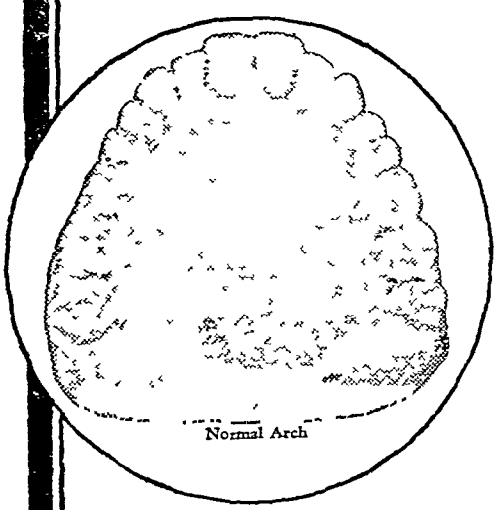
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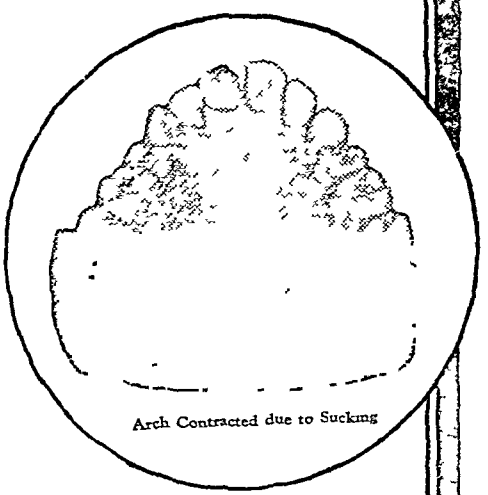
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B.—Abnormal Palate


Normal Arch


Arch Contracted due to Sucking

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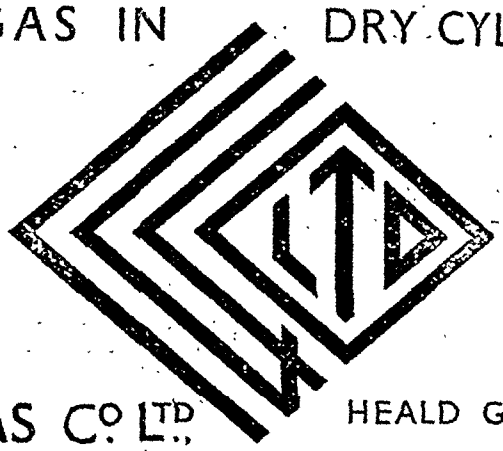
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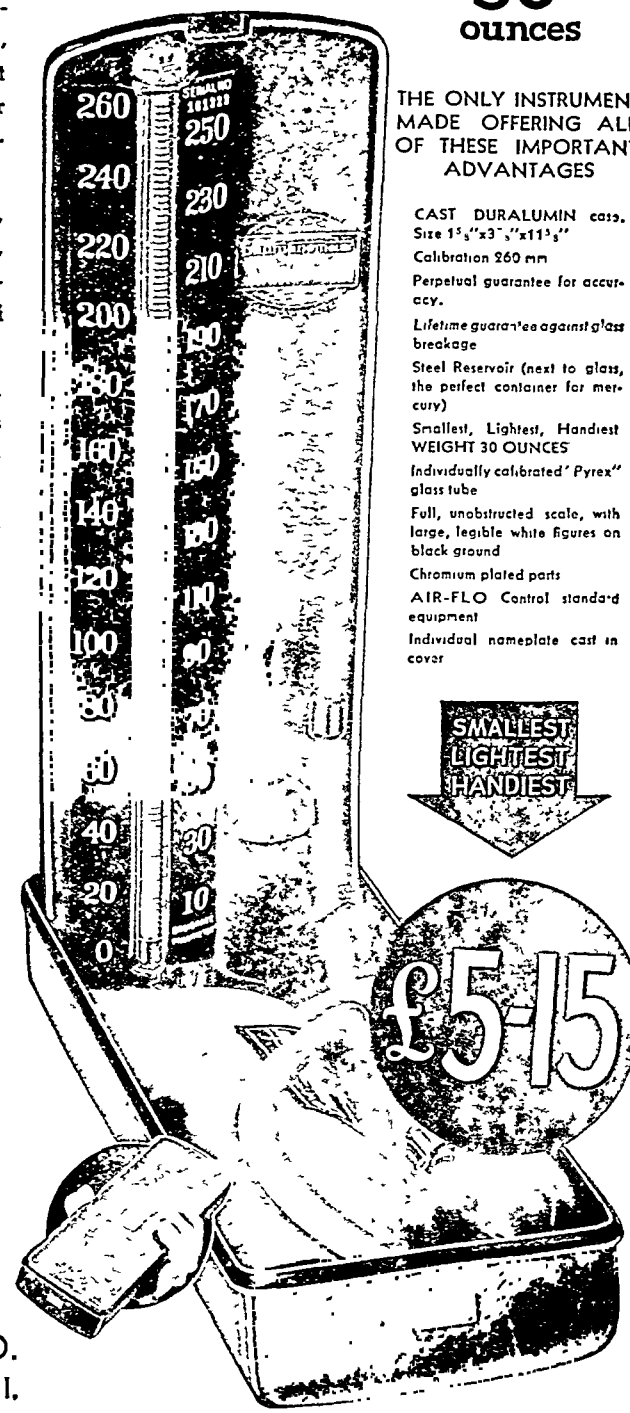
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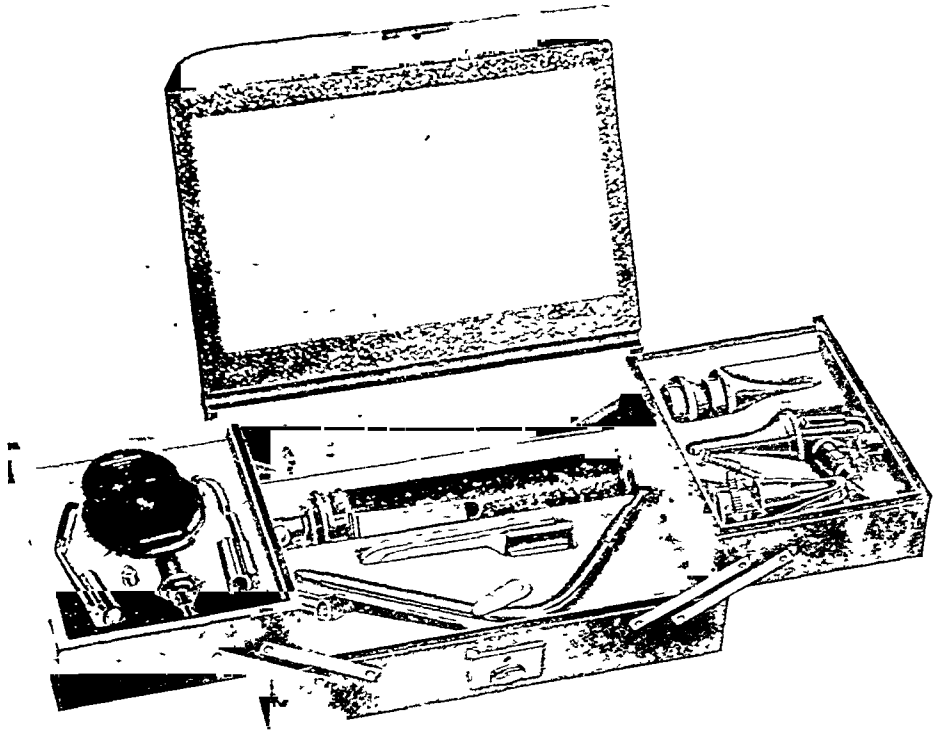
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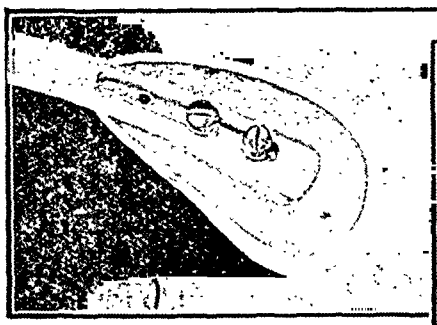
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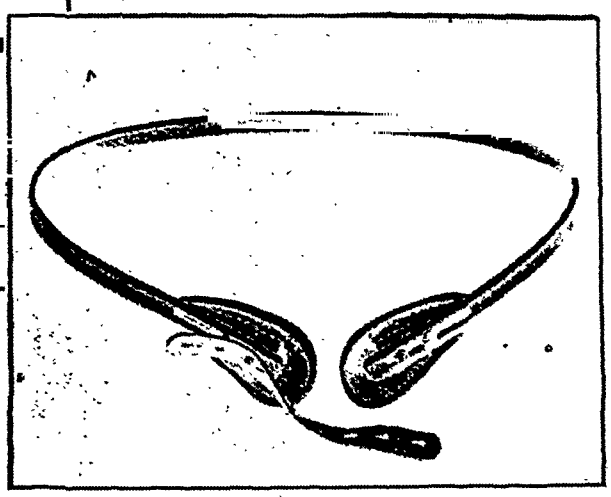
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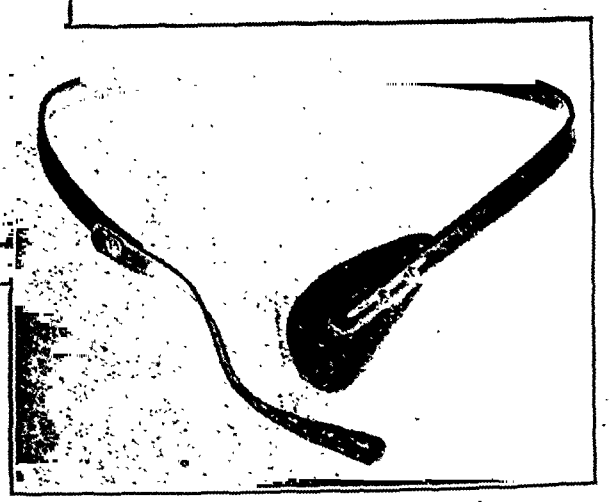




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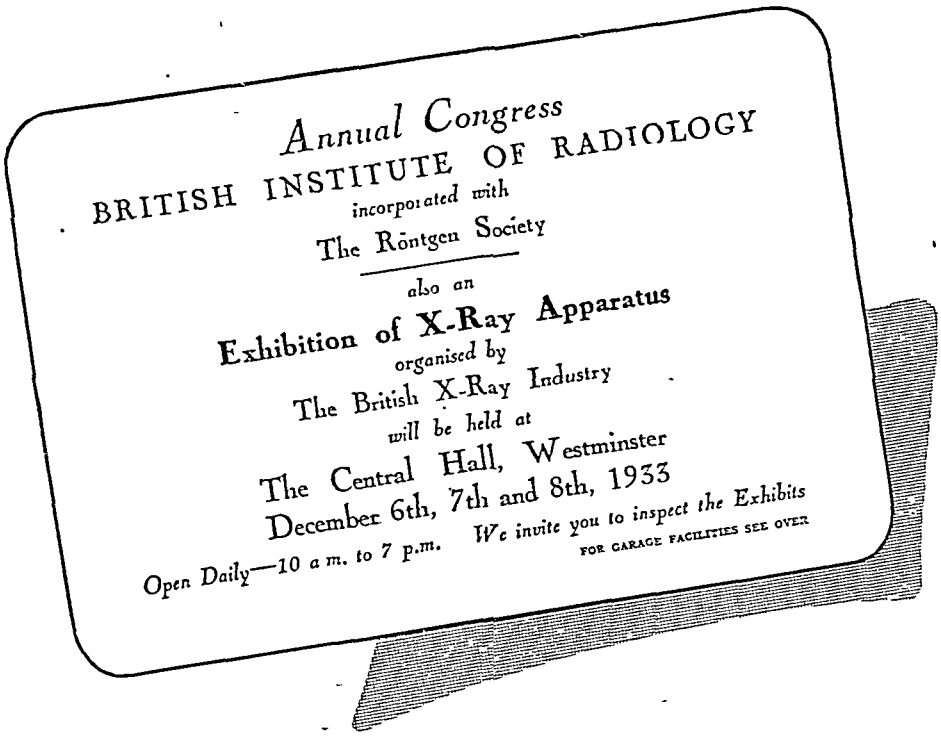
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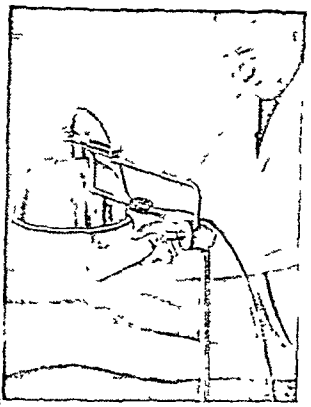
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Full particulars and the latest literature will be sent free to members of the Medical Profession

Supplied in three strengths:

20 units per c.c. Packed in bottles containing:
5 c.c. (100 units) 2/- each
10 c.c. (200 „) 4/- „
25 c.c. (500 „) 10/- „

40 units per c.c. Packed in bottles containing:
5 c.c. (200 units) 4/- each

80 units per c.c. Packed in bottles containing:
5 c.c. (400 units) 8/- each

Joint Licencees and Manufacturers:

The British Drug Houses Ltd. Allen & Hanburys Ltd.

ANTIMALIGNYN

In cases of INOPERABLE CANCER

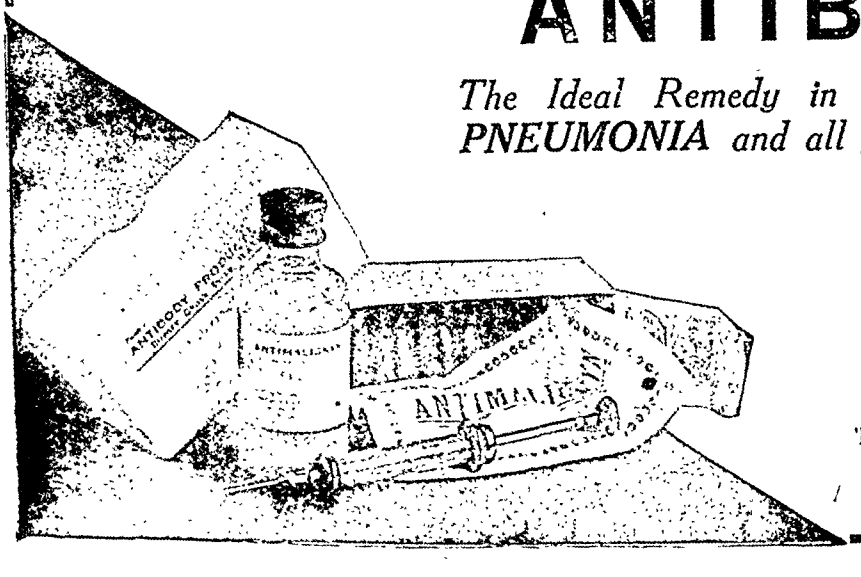
No claim is made that Antimalignyn is a cure for Cancer, but several cases so treated have returned to active life, being able to resume their employment.

50 c.c. Enough for one month's treatment ... £2 - 2 - 0

ANTIBACSYN

The Ideal Remedy in all stages of SEPSIS, in PNEUMONIA and all forms of Endotoxic Infection

12½ c.c. ... 8/6
25 c.c. ... 16/-



The Laboratories of

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'Phone: 4708 'Grams: Antiprods

INDIA:
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LACTOBYL

A biological product containing:

(1) BILIARY SALTS } which relieve bowel indigestion.
(2) INTESTINAL ENZYMES }
(3) LACTIC FERMENTS which retard putrefaction.
(4) ACTIVATED CHARCOAL which absorbs and fixes toxins in the alimentary canal.
(5) EXTRACT LAM. FLEX. which hydrates the intestinal content and increases peristalsis.

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CONSTIPATION

Clinical samples gladly sent on request.

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30 Marsham Street, London, S.W.1
"Taxolabs, Sowest, London." *Victoria 2041.*

The Applications *of* MARMITE (YEAST EXTRACT) *in* Medicine and Dietetics

A new booklet has just been issued under this title. It embodies the most recent references which have appeared in medical literature to the uses of Marmite, particularly in connection with Vitamin B deficiency and with anæmias. The information contained therein should prove of interest to those engaged in general practice as well as to specialists in dietetics and in anæmias.

Any member of the medical profession who has not yet received a copy of this new booklet is invited to apply to:—

THE MARMITE FOOD EXTRACT COMPANY LTD.
Walsingham House, Seething Lane, London, E.C.3

In Jars: 1 oz. 6d., 2 oz. 10d. 4 oz. 1/6, 8 oz. 2/6, 16 oz. 4/6.
SAMPLE ON REQUEST

Quotations for Marmite specially packed for use in Hospitals, Clinics, Welfare Centres, etc., on application.

3311

WHEN WINTER *is upon us*—



HORLICK'S MALTED MILK Co. Ltd.
SLOUGH, BUCKS. *British Throughout*

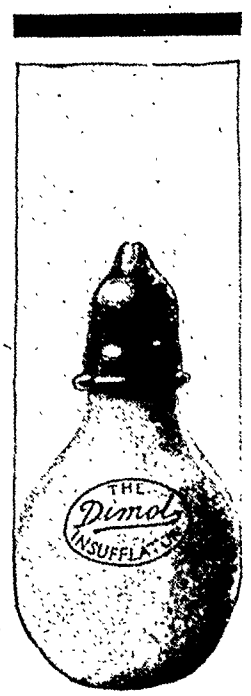
Influenza and other winter ills make easy victims of those who are overtired and fatigued. For both doctor and patient it is imperative to use every means to increase resistance to infection. The newer knowledge of nutrition emphasizes the part that diet can be made to play in preventing and overcoming disease.

Horlick's Malted Milk contains 15% of easily digested protein and 60% of malt sugar (maltose and dextrin). It presents tissue-forming and energy-giving elements in balanced proportions. Malt sugar has a high nutritive value; it is "un sucre vivant et mineralisateur." Tests have shewn that malt sugar is more effective than other sugars in warding off fatigue and in increasing energy. Horlick's contains Vitamins A, B and D, and stimulates blood regeneration.

Recent tests on human subjects show that Horlick's is easily digested and absorbed and speedily affects metabolism —thus confirming the clinical experiences of doctors during the past fifty years.

DIMOL SNUFF

"Recently I tried Dimol snuff in a case of spasmodic rhinorrhoea after trying endless other treatments, and was rewarded with a perfect cure."
25.5.32. — —, *F.R.C.S.*



Insufflators, price 3/6.

THE NEW SNUFF CONTAINER
(Green and Black)

Neat and Tidy. For waistcoat pocket or handbag.

Price 1/3. Refill 9d.

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Distributing Agents—SANGERS LTD., 258, Euston Road, London, N.W.1.

Announcing the introduction of tablets of

PURE CRYSTALLINE VITAMIN C

(Ascorbic Acid B.D.H.)

In extension of an announcement by The British Drug Houses which appeared in *Nature*, September 9th, 1933, of the availability for scientific purposes of pure ascorbic acid prepared from natural sources after the method of Szent-Györgyi, the B.D.H. now present this pure vitamin incorporated in tablets for oral administration.

Each tablet contains 5 milligrams of pure crystalline Vitamin C (Ascorbic Acid B.D.H.) which is equivalent to about two teaspoonfuls of fresh orange juice.

Physicians desirous of prescribing Vitamin C for their patients, therefore, are now able to ensure correct dosage by the use of these tablets.

The tablets are issued in tubes of 25 and are obtainable from the principal pharmacists for 6/- per tube, less the usual professional discount.

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A standardised preparation of the crystalline ovarian follicular hormone

Although Oestroform has been available for medicinal use for less than a year its administration already is being adopted with considerable success in the treatment of various conditions arising from metabolic disturbances of ovarian origin, as the following case reports indicate:—

Menstrual disturbances at puberty	"Two cases with excessive pain and period every fortnight. Both these cases had ½ c.c. three times a week for a month, and thence only for the week preceding the period. After three months' treatment . . . periods regular and nearly free from pain.
Climacteric disturbances	"In three cases with 1 c.c. three times a week, there was a marked improvement in two . . .
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Radio-Malt supplies in standardised and balanced amounts that group of vitamins (A B_1 B_2 and D) usually lacking in the modern dietary. Vitamins A and D are included as measured amounts of Radiostoleum, a standardised liquid preparation of Vitamin A and pure crystalline Vitamin D: Vitamins B_1 and B_2 are incorporated in the form of a correctly-balanced proportion of a concentrated extract of yeast.

Radio-Malt, therefore, provides the physician with an extra-dietary product that will ensure for his patient the necessary balanced intake of vitamins.

RADIO-MALT
(Standardised Vitamins A B_1 B_2 and D)
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A BLAND palatable emulsion of pure liquid paraffin and agar-agar. Acting as a mechanical non-habit forming lubricant, it renders the faecal mass soft and promotes comfortable elimination.

PETROLEUM EMULSION WITH AGAR-AGAR
Blue Label **1/6** Per Bottle

Also supplied with Phenolphthalein for the treatment of habitual constipation and for patients who have been addicted to purgatives.

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DISCOUNT TO THE MEDICAL PROFESSION

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PETROLEUM EMULSION WITH AGAR-AGAR
For the Treatment of Constipation

MIST PEPSINÆ CO. BISMUTHO

(HEWLETT'S)



THE ORIGINAL PREPARATION.

A useful remedy in Dyspepsia, especially when Pyrosis is a conspicuous symptom and Diseases of the Stomach
(*Not under the Dangerous Drugs Act*)

"Undoubtedly a valuable and convenient preparation"—
LANCET

"Obviously likely to be of much advantage in the frequent cases of irritative dyspepsia, with atony of gastric or intestinal muscular layers"—
BRITISH MEDICAL JOURNAL.

Dose
Half to one drachm diluted

Price **12/6** per lb

In 5 10 22 40 and 90 oz. bottles only

Supplied also Sine Opio when desired

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OVER 50 YEARS' REPUTATION

Prostatic Hypertrophy

Extract from a doctor's letter:

With regard to my own case, my prostate was so enlarged when examined by a consultant two years ago after sudden haematuria from a chill, that he could scarcely get the cystoscope past the lateral lobes, and he was uncertain as to whether it was malignant or not, but strongly urged an operation within the next three months. It would have upset my plans so terribly to have to lie up then, that I took the suggestion of an old medical friend and put myself under "Opocaps" Prostatic (B.O.C.) with occasional Hexamine or Pyramidon.

There was no noticeable response until about the third month, by which time, unconsciously, I became slowly normal as to symptoms, and I have remained so ever since. It was interesting to note that when I remitted the gland treatment for a few months in the summer the symptoms recurred, but vanished after resuming the treatment.

Since my own experiences, I have put four patients on the treatment (including two doctor friends), and the results have been the same as in my own case.

I have proved that it is of no use to give just a few capsules, but that it is necessary to continue the treatment for at least three months, before good results obtain, and it is essential to prescribe the correct preparation—"Opocaps" Prostatic (B.O.C.). M.D.

℞ "Opocaps" Prostatic (B.O.C.), gr. 3.
Mitte . . . . sig. 1 t.d.s., a.c.

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An electrically prepared Gold-Silver Colloid in a special O.R.L. Outfit for nasal irrigation in the treatment of all Naso-Pharyngeal Inflammations

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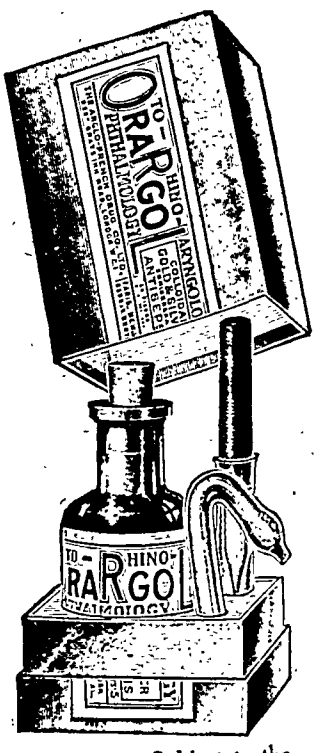
Extremely valuable in the early stages of
THE COMMON COLD

"I have found it possible to abort a cold almost infallibly by spraying the throat and nose with 'Orargol' as soon as the first symptoms make their appearance."

Correspondence on The Common Cold,
"British Medical Journal," March 19th, 1932

℞
1 Orargol Outfit, A.F.D.

Sig: 4-5 drops to be applied to each nostril (in the douche provided) three or four times daily.



Price 3/6. Subject to the usual professional discount.

The Anglo-French Drug Co. Ltd., 11 & 12, Guilford Street, London, W.C.1.

2



Vitamin D

which, unlike vitamin A, occurs only in small quantities in ordinary food materials is abundant in Norwegian medicinal cod liver oil.

The latest scientific investigations made by Professor Poulsson at the Vitamin Institute of Oslo, show that the vitamin D content of Norwegian medicinal cod liver oil is as much as one hundred per cent. greater than that of any other brand of cod liver oil.

Norwegian medicinal cod liver oil is the more indispensable also, because it contains in addition a substantial amount of iodine and vitamin A.

Patients show a marked preference for Norwegian medicinal cod liver oil which is unique in being practically devoid of taste and smell.

Norwegian Medicinal Cod Liver Oil

world famous for its high quality.

Printed matter will be sent on application to Reklamefondet for Norsk Medicintran, Post box 226, Bergen, Norway.

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ALOCOL

Colloidal Hydroxide of Aluminium

For Chronic Irritations of the Gastric Mucosa

WHEN alkaline therapy is indicated "Alocol" is the preferred form of treatment. Its advantages over the usual oxides and alkalis are manifest. Whilst the preparations in common use give momentary relief to painful symptoms they aggravate the morbid condition. Consequently such remedies are contraindicated, especially in stubborn, chronic cases.

The action of "Alocol" is superior in every way because it does not merely confine itself to combating the symptoms of the trouble, but attacks the origin itself.

"Alocol" fixes the acid, not by neutralization, but by adsorption. It relieves pain, is slightly astringent, and limits the acid secretions. "Alocol" is always well borne; no harmful secondary action follows its administration, and its therapeutic effect is not diminished with prolonged use.

Complete chemical history of "Alocol," with convincing clinical reports and supply for trial, sent free to physicians on request.

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Works: KING'S LANGLEY, HERTFORDSHIRE.
M.230

A Distinct Advance Over Preparations of Acetyl-Salicylic Acid

Acetyl-salicylic acid possesses a notable disadvantage. Physicians have proved that it cannot be tolerated by patients suffering with a delicate stomach. Consequently, the value of this medicament in the wide field in which it is indicated is very seriously reduced.

"Alasil" completely overcomes this objection. By combining calcium acetyl-salicylate with "Alocol," unfavourable secondary action upon the stomach is prevented. This beneficial influence is undoubtedly due to the presence of "Alocol" (Colloidol Hydroxide of Aluminium), which preparation has brilliantly stood the test of practice in the treatment of hyperacidity and other ill conditions of the gastric tract. "Alasil" is therefore a triumph over acetyl-salicylic acid. It enables higher doses to be administered and maintains the patient's system under its influence for a greater length of time. Analgesic, Antipyretic, and Sedative, "Alasil" is indicated in all cases where acetyl-salicylic acid has been used heretofore.

A supply for clinical trial with full descriptive literature sent free on request.

A. WANDER, Ltd., Manufacturing Chemists,
184, Queen's Gate, London, S.W.7.

Alasil

M.235

Announcement

The 16th annual issue of the Genatosan Vaccine Bulletin has recently been posted to all medical men whose names appear on the Register. A copy of this publication will be forwarded. free of charge, to any Practitioner who has not received one owing to change of address or other reasons.

A perusal of this Brochure will show that there is a wide range of infections which are amenable to treatment and prophylaxis by Vaccines. In view of the encouraging reports which have been published by medical men who are making an extensive use of Vaccines—both by injection and local application—it is to be regretted that in general practice their use is largely limited to Catarrhal, Intestinal and Septic conditions.

The bacteriological aspect of Influenza and "Colds" has been widely discussed during the past year. In epidemic Influenza the primary causative factor appears to be a filter-passing virus. but it is undoubtedly in the complications that the real danger lies. Although we are unable to *inoculate against the primary cause* we can give protection against such serious sequelæ as Pneumonia, Pleurisy and Middle Ear Disease by using a Vaccine prepared from the secondary invaders.

GENATOSAN LTD.

VACCINE DEPARTMENT

LOUGHBOROUGH LEICESTERSHIRE

12 POINTS

of interest to the MEDICAL PROFESSION

No 7

THE VITAMIN CONTENT OF BOURN-VITA

Bourn-vita has been tested and proved to contain the following important Vitamins. Only the special Bourn-vita process enables these to be conserved. Ordinary methods of preparation destroy them :—

VITAMIN A

This Vitamin is found in animal fats, particularly in milk. Lack of it affects growth, eyesight and susceptibility to infection.

VITAMIN B

Is derived from the malt content of Bourn-vita. It affects growth and maintenance and controls appetite and inanition. It prevents constipation, and if entirely absent from a dietary, nerve and skin diseases arise.

VITAMIN D

Has been described as bottled sunshine. It prevents rickets and controls calcium-metabolism. It is essential to children.

Cadbury's

BOURN-VITA

for sleep and energy

CROOKES'

"COLLOSOL"

HALIBUT LIVER OIL

The Crookes' Laboratories were the first to introduce halibut liver oil to the medical profession of the United Kingdom at the centenary meeting of the British Medical Association in July, 1932. A solvent-free extraction process enables a pure oil to be presented with a natural vitamin A content at least 80 times that of the finest cod oils, with an adequate vitamin D content.



The standardization, by means of the Blue Unit B.B. 1932 test, the biological test and the spectroscopic test, is shown by a label affixed to each bottle.

Crookes' Halibut Liver Oil can be supplied with added calciferol, for acute rachitic cases, raising the vitamin D value to 25,000 units per c.c. (200/300 times the strength of cod oil) if required and at identical prices.

The range includes Halimalt (halibut liver oil in malt extract) and Halidexol, a halibut liver oil emulsion.

PACKINGS & PRICES

Vials with pipette - 5 c.c. 2/-; 15 c.c. 5/-
Capsules (3 minims) bottles of 25 - 2/6
Halimalt jars - - - - 1 lb. 2/6
" " - - - - 2 lb. 4/6
Halidexol - 6 oz. 2/-; 12 oz 3/6

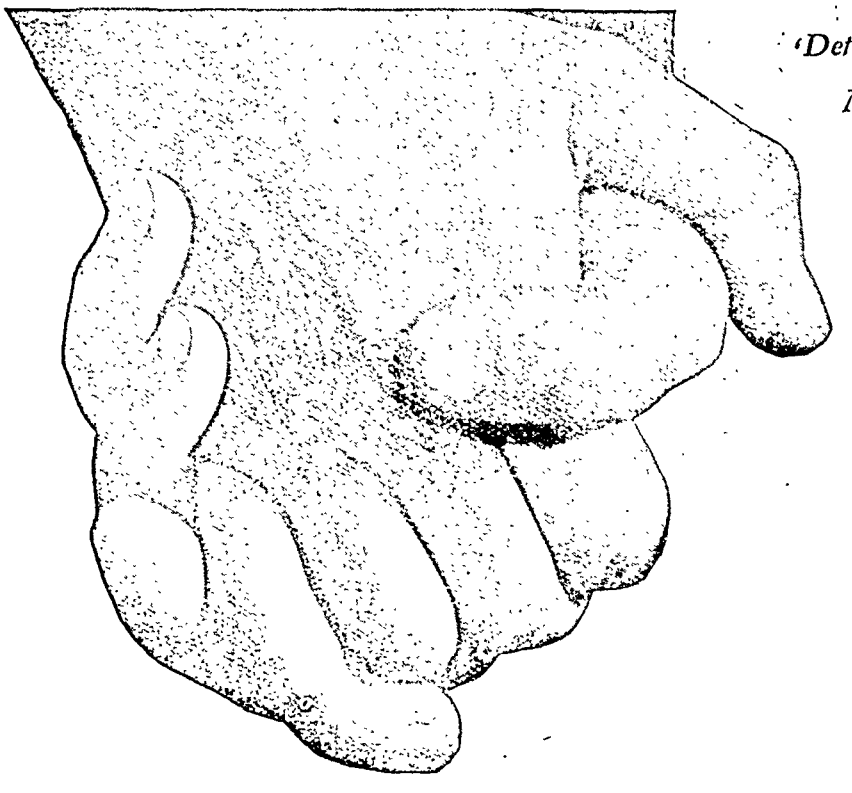
THE CROOKES LABORATORIES
PARK ROYAL
Telephone (3 lines)
WILLESDEN 6313
(BRITISH COLLOIDS LTD.)
COLLOSOLS Crookes'
LONDON N.W.10
Telegraphic Address
COLLOSOLS, HARLES, LONDON

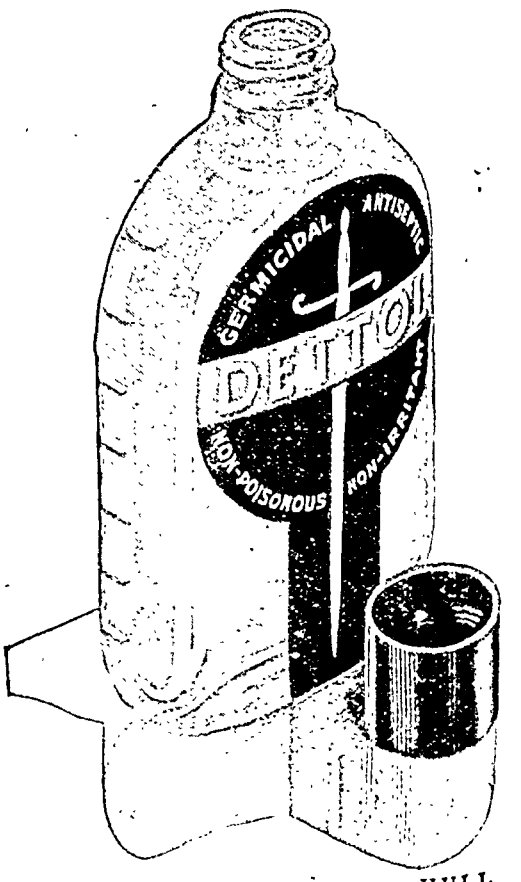
Persistent Antisepsis...

Recently investigations have shown that the thin film left on the hands after rubbing them with undiluted 'Dettol' renders them insusceptible to reinfection by Haemolytic Streptococci for at least two hours after treatment. Moreover this new germicide is well tolerated on the naked hands. (Vide British Medical Journal, 21st Oct., p. 723)

'Dettol' differs from most of the antiseptics commonly employed in that its use, even in concentrated form, is not prohibited by irritant effects. The Rideal-Walker test proves it three times more potent than phenol. A one per cent. solution very rapidly kills Haemolytic Streptococci and B.coli even in the presence of pus.

'Dettol' is *non-irritant, non-toxic,* and non-staining to linen or the skin — clearly a most suitable germicide for use in surgery, obstetrics, and for such purposes as general female hygiene. *Your chemist can supply 'Dettol.' In bottles 1/- and in larger sizes for Medical and Hospital use.*



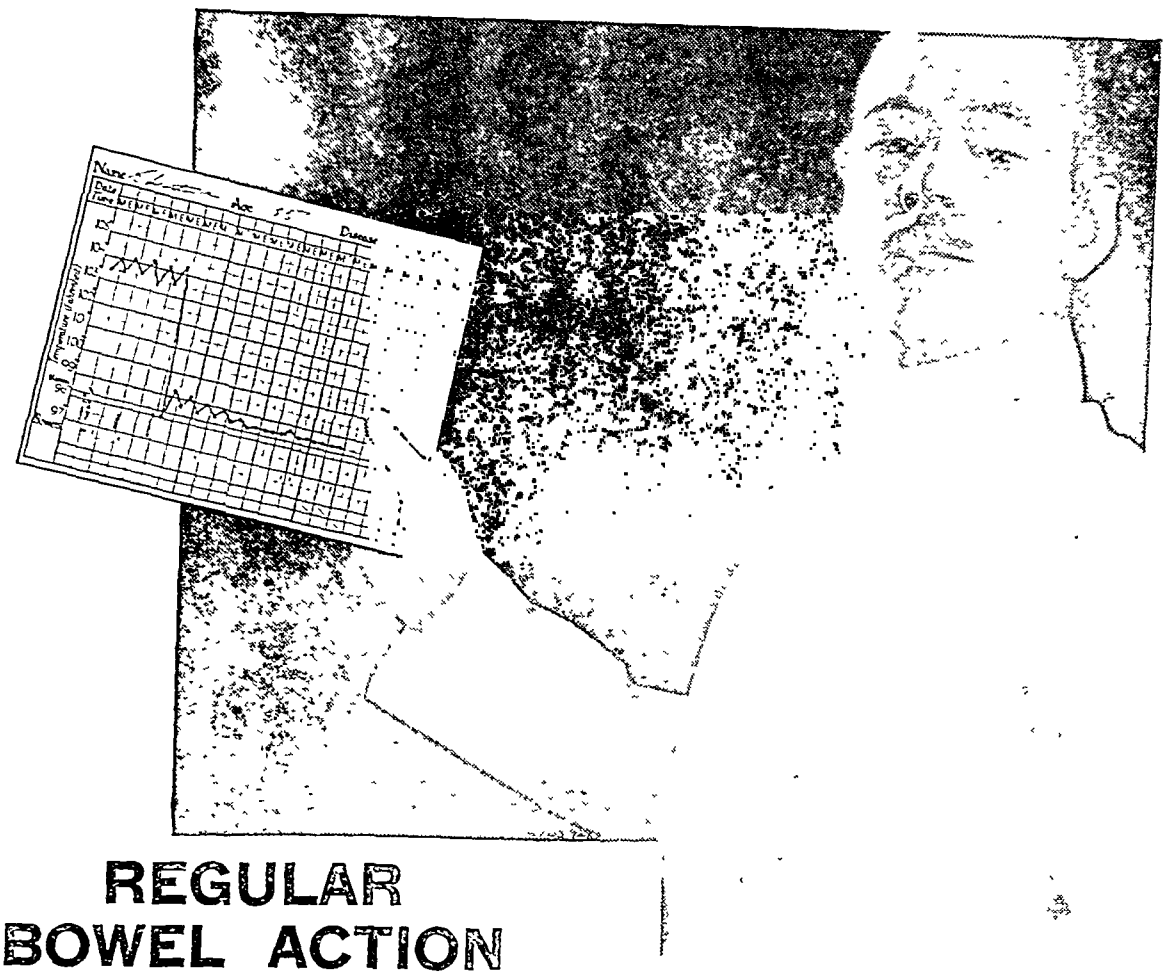


'DETTOL'

TRADE MARK

THE NEW SAFE GERMICIDE

RECKITT AND SONS LTD. (PHARMACEUTICAL DEPT.), LONDON AND HULL



REGULAR BOWEL ACTION

"FOR easy, complete and regular bowel movement, natural contraction waves of the colon must be brought about." This cannot be accomplished by laxatives as they cause forced fluid motions, with irritation of the intestines and exhaustion of the bowel muscles.

A regular bowel action obtained by normal peristalsis is provided by the use of 'Petrolagar' brand paraffin emulsion, which, by supplying bulk and unabsorbable moisture, gives normal faecal consistency.

For the purpose of more exact medical prescription, 'Petrolagar,' which contains 65% of emulsified medicinal paraffin, is issued in two varieties: No. 1, Plain, and No. 2, with Phenolphthalein.

'Petrolagar'

(Regd. Trade Mark)

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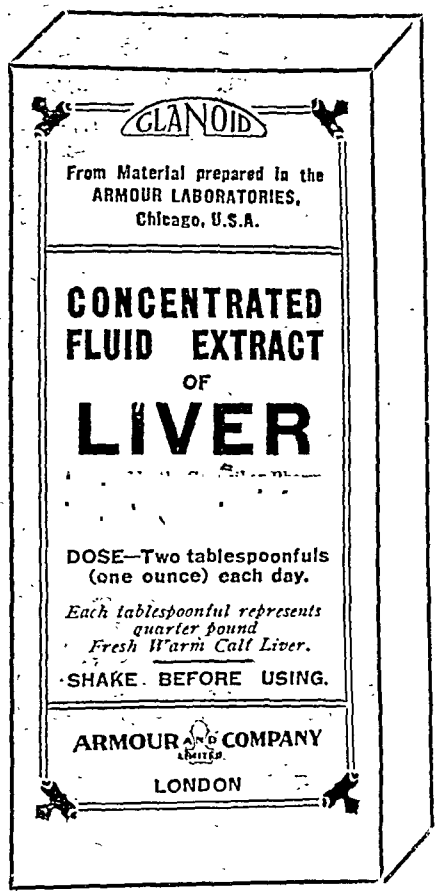
In Pernicious Anaemia

Liver therapy is still pre-eminent.

GLANOID

The MOST ACTIVE form
for oral administration
is →

One ounce is equivalent to Eight ounces of fresh warm Calf Liver.



For Parenteral Therapy

GLANOID

Liver Liquid for Injection

1 c.c.
Ampoules of 20% Sterile Solution.

For Secondary Anaemia

GLANOID

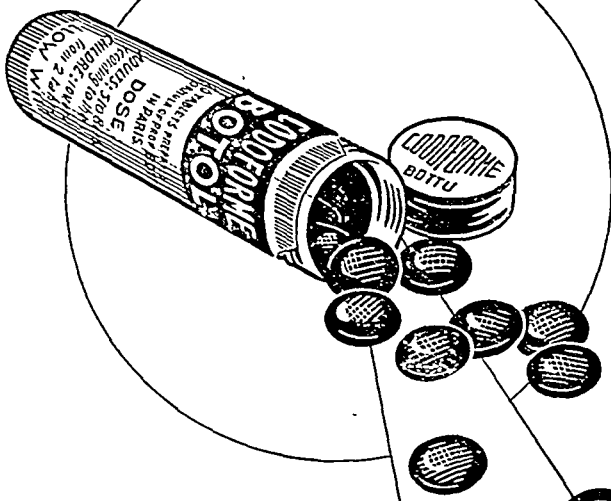
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A combination of Glanoid Concentrated Fluid Extract of Liver with Iron.

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DIPHTHERIA ANTITOXIN

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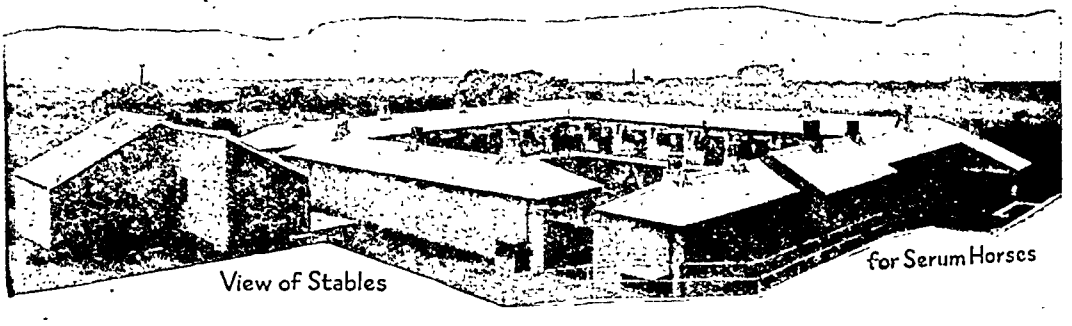
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These British Products are manufactured and standardized at Evans' Biological Institute, Higher Runcorn; they are of the maximum potency and purity.

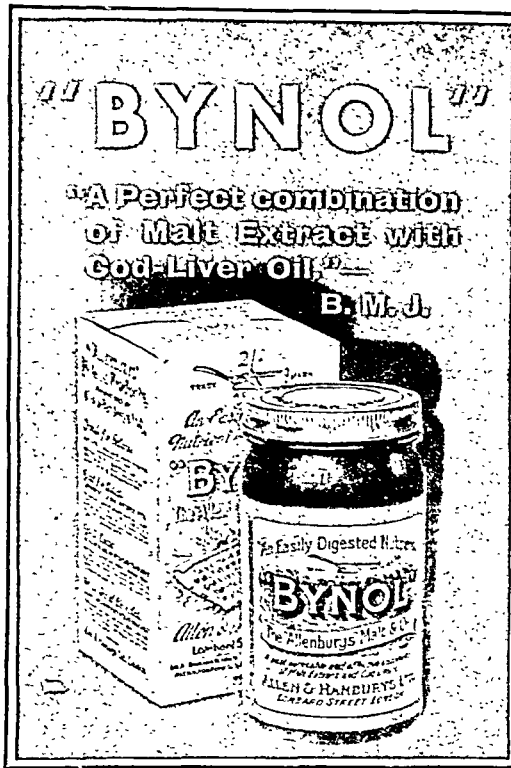
Enquiries from Public Health and Hospital Authorities invited.

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View of Stables for Serum Horses



'Bynol' contains 30% of 'Allenburys' 'Perfected' Cod-Liver Oil

'Bynol' is twice the strength in Cod-Liver Oil of Extract of Malt with Cod-Liver Oil, B P., and is therefore economical in use for the same dose of Cod-Liver Oil.

'Allenburys' Malt Extract renders 'Bynol' a rich, easily digestible and palatable product.

Rich in vitamins A, B and D.

Issued in wide-mouthed jars at 2/-, 3/6 and 6/6

Descriptive literature and a clinical sample will be sent post free on application.

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Telegrams: "Greenburys Beth London"

CANADA: Lindsay, Ont.

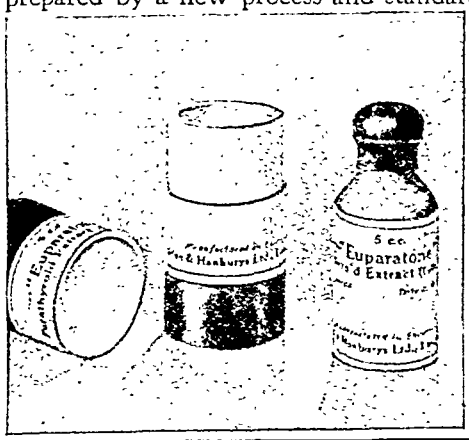
UNITED STATES: 75 Varick Street, New York City

"Euparatone"

Parathyroid Extract

(Collip Fraction)

"Euparatone" is a solution of the fraction of the parathyroid glands, which is responsible for the mobilisation of calcium in the blood serum. It is prepared by a new process and standardised biologically to 20 units per c.c.



Its chief indication is in those cases in which hypoparathyroidism exists, such as post-operative tetany. It may also be used in numerous other conditions, e.g., Infantile Tetany, Nephritis, Chronic Ulcers, Tuberculosis, Hæmorrhage, Eclampsia and Chorea.

5 c.c. r.c. bottles each containing 100 units (20 units per c.c.)

Further particulars will be sent on application.

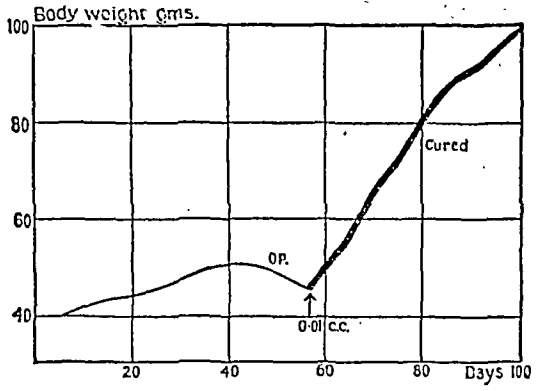
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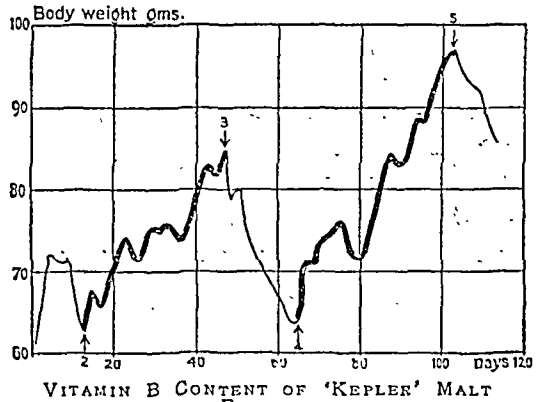
TRADE 'KEPLER' MARK

COD LIVER OIL WITH MALT EXTRACT



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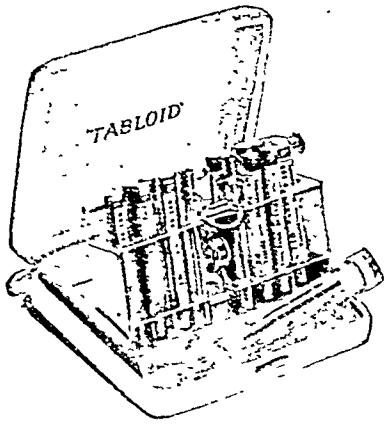
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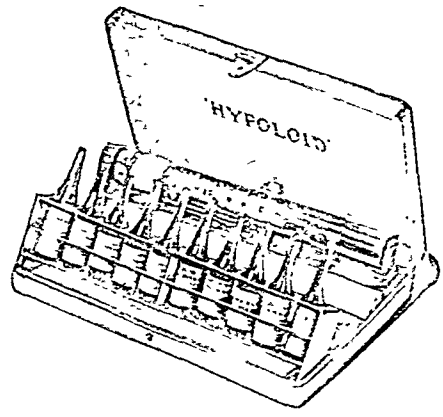
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A Lecture
ON
"HOW DO DRUGS ACT?"*
BY

W LANGDON BROWN, M A , M D , F R C P
PECIUS PROFESSOR OF PHYSIC IN THE UNIVERSITY OF CAMBRIDGE

Towards the end of last century there was a school of medical thought growing up with a profound scepticism as to the value of drugs The reaction against this began when Starling enunciated his theory of hormones Whenever we give a drug we imply thereby a belief that the functions of the body can be influenced by chemical means, and we found fresh support for that confidence in the fact that the body was now shown to produce chemical substances whereby it regulated its own functions Since then another important group of intensely active chemical substances essential to our well being has been discovered in the vitamins The animal body has, however, very little power of manufacturing these—we are dependent on vegetable life in the main for them , they are mostly exogenous hormones

CHEMICAL SUBSTANCES AND NERVOUS ACTIVITY

In those instances where hormones have been isolated they prove to be of comparatively simple chemical structure We know that adrenaline is manufactured by the medullary cells of the adrenals, which are actually formed out of sympathetic ganglion cells Langley showed that the effect of adrenaline on any part is the same as if the sympathetic nerves to that part were stimulated—an extraordinarily interesting example of a chemical substance imitating a nervous one Now although adrenaline has no effect on a structure which has never received a sympathetic innervation, Elliott found that cutting off that innervation does not abolish the effect of adrenaline on a structure which has once possessed it On the contrary, its effect is actually increased For this reason both Langley and Elliott independently put forward the theory of a receptive substance beyond the nerve ending, on which the drug acted

In 1907 W E Dixon showed that after stimulating the vagus nerve to the heart a substance could be extracted from the heart muscle which was inhibitory in its action on other heart muscle, and could be antagonized by atropine, just as atropine antagonizes vagus stimulation This accords with the well known effect of atropine in checking other secretions Unfortunately this work of Dixon's met with so much scepticism that he dropped the subject This work was subsequently revived and extended by Dale and in 1921 by Loewi It was proved that the substance produced was acetylcholine, and that it was liberated not only when the vagus to the heart was stimulated but whenever any parasympathetic fibres came into action

Now it is known that physostigmine—or eserine, as it is often called in clinical work—imitates the effect of parasympathetic stimulation Thus either stimulating the third cranial nerve or instilling eserine will contract the pupil Loewi has shown that this is because eserine prevents the blood or the tissue cell from destroying the acetylcholine produced Apparently then, atropine and eserine act by interfering with and expediting respectively the normal chemical results of parasympathetic stimulation It is important to note that if atropine be given and the vagus subsequently stimulated, just as much acetylcholine is produced as before, but the atropine prevents it from getting into the receptive substance

In the same way sympathetic stimulation has been found to produce an adrenaline like substance in other structures besides the adrenal medulla I say adrenaline-like, for Cannon has shown that it is not exactly the same as adrenaline Some sympathetic effects are stimulating, others inhibitory While adrenaline reproduces all these, Cannon has extracted a slightly different chemical substance as the result of an excitant action from the one appearing after an inhibitory action He calls these "sympathin E" and "sympathin I" respectively, and looks forward to making two similar brands of adrenaline The "E" form could be used to stimulate the heart and to raise blood pressure without inhibiting digestion The "I" variety could be used for relaxing bronchial spasm without raising the arterial pressure or the concentration of sugar in the blood This would be a further step in the direction of natural therapeutics

It appears, then, to be a general rule that nervous stimuli may liberate chemical substances which transform a nervous stimulus into a chemical reaction, or, in Hopkins's illuminating phrase that "substances produced temporarily and locally, by virtue of their chemical properties, translate for the tissues the messages of nerves"

Now just as the appropriate chemical material may get into this receptive substance so may a toxin G N Myers at Cambridge has recently shown that a therapeutic drug may seize on the receptive substance, and thus bar the way to the ingress of the toxin He found, for instance, that the diphtheria toxin could be prevented from attacking the heart if digitalis were given first This resolves a clinical and pharmacological conflict The pharmacologist has maintained that digitalis cannot exert its usual effect on the toxic heart, but the clinician still continues to administer it, and claims good results Now we see that though digitalis would have to be given prophylactically to produce its full effect, if it is got in early it can still bar the way to the toxin swamping the heart It seems to me that the pharmacology of the future will have to concern itself with the natural history of these receptive substances and find out in what way they can be helped by drugs both positively by facilitating their reactions, and negatively, by blocking the way against the entrance of toxins

THE ENDOCRINES

The pituitary provides some interesting sidelights on this relationship between nervous and chemical stimuli When in 1913 it was found that injections of pituitrin would relieve the symptoms of diabetes insipidus it seemed natural to conclude that this disease was due to deficient action of the posterior lobe of the pituitary Then cases were described in which there was no damage to the pituitary, but a lesion in the overlying diencephalon and so a purely nervous theory of the aetiology of diabetes insipidus was put forward But an injection of pituitrin will control the output of water even by a denervated kidney Clearly when the lesion is purely nervous it acts by upsetting the normal chemical response of the gland Indeed, it is generally recognized to-day that diabetes insipidus may result alike from a lesion of the gland or the overlying nervous structures, or of the stalk which connects them Pituitrin is also known to start the flow of milk from the mammary gland Leslie Pugh found that if a cow, as not infrequently happens, refused to give her milk because she disliked the dairyman, an injection of pituitrin made it impossible for her to be thus recalcitrant Her emotional reaction had checked her secretion of pituitrin, but the injection cut under this nervous inhibition, and perforce the milk flowed in answer to a purely chemical reaction

[3804]

* Delivered before the City Division of the British Medical Association

Endocrines also illustrate the way in which drugs antagonize one another. Pituitrin is antagonistic to insulin, but this antagonism is not a directly chemical one. It is carried out through the intermediary of the liver. Pituitrin, or, more strictly, its vasopressin moiety, empties the glycogen reservoirs in the liver, while insulin stores dextrose there as glycogen. Adrenaline is antagonistic to insulin in precisely the same way, thus explaining emotional glycosuria. The antagonism of thyroxine to insulin is rather different: by quickening up the whole of metabolism, including that of the liver, the glycogen there is converted into sugar.

Endocrinology further exemplifies another way in which drugs may act—that is, by increasing or diminishing the action of a hormone. In Graves's disease we have every sign of an overacting sympathetic. Thyroxine lowers the threshold for sympathetic stimulation, thus exaggerating the response. Quinine hydrobromide tends to antagonize this effect, and incidentally the tolerance of the patient with Graves's disease is extraordinarily high for this drug. The more thyroxine secreted, the more difficult it is to produce cinchonism. Then consider iodine therapy. The first effect of iodine shortage is thyroid enlargement. Giving iodine helps the gland to return to a more resting state. It is curious that it should also help in hyperthyroidism, as it undoubtedly does. Harington's recent researches show that this is not, as was suspected, due to the thyroxine secreted in Graves's disease being unsaturated with iodine, and therefore more toxic until it was so saturated. But I will not go into that difficult subject further than to say that recent observations at the Middlesex Hospital seem to show that you can saturate the thyroid of exophthalmic goitre with iodine in a fortnight, and that it will remain saturated for six weeks.

From the obvious effects of iodine on the thyroid it has been claimed that the therapeutic effect of iodine or iodides is entirely due to their altering the state of activity of the thyroid gland. This is probably too narrow an interpretation: note the purely chemical influence of iodide in rendering a metallic compound more soluble, and thus eliminating it more readily from the system—for example, mercury and lead, or toxins such as that of syphilis. May it not act in the same way in removing less recognized toxic substances? Thus iodide does not lower normal blood pressure, but does lower raised blood pressure. Is it by elimination of pressor amines absorbed from the bowel?

The elimination of lead raises the question of the action of another hormone—parathormone. We know that this mobilizes calcium from the bone into the blood stream. In chronic plumbism lead is also stored in the bone, and parathormone can be used to eliminate it thence. Workers in radium have suffered grievous damage from its storage in their bones, with resulting aplastic anaemia, just as has occurred in *x*-ray workers. Here, too, parathormone may help in elimination of a heavy metal. In parenthesis I may remark as germane to my subject that our whole treatment of the anaemias has been revolutionized in the last few years by the discovery that certain substances are necessary for the different stages in the maturation of the red blood corpuscle. Liver extract acts on a different phase from the one that iron acts upon.

But to revert to parathormone and the calcium balance. If the blood calcium is too low we know that tetany and a general irritability of nervous tissues result. If it is too high, among other effects there is muscular weakness through inability of nervous stimuli to produce their normal response with their normal ease. This calcium balance is maintained by parathormone and vitamin D, which act, however, in very different ways. The first effect of an increased supply of parathormone is a lowering of blood phosphorus, followed by a withdrawal of calcium from the bones and an increased excretion of calcium, which is, however, insufficient to prevent the blood calcium from keeping at an abnormally high level. Vitamin D, on the other hand, directly increases the net calcium absorption from the alimentary tract.

Action of Vitamins

This question of calcium balance leads to a further consideration of vitamin D. The long controversy as to rickets, whether a disease of the dark or a dietetic disorder, was solved—as such controversies between sincere workers often are—by finding that both were right. We know now that if a diet contains too little vitamin D and an excess of cereals, rickets results, but that light of certain wave-lengths, such as is emitted by the mercury vapour lamp, will largely correct this. When the British mission was working in Vienna after the war it was observed that the child in the one bed in a ward on which direct sunlight fell without the intervention of glass improved more quickly than the others. Only a narrow part of the spectrum is effective, and glass will stop these waves. Then came the direct proof that sunlight or suitable irradiations will convert ergosterol into calciferol, which is apparently vitamin D itself. And thus was reached the rational explanation of the therapeutic value of cod-liver oil, so long demonstrated empirically. Just as haemoglobin carries the oxygen of the air into the deepest tissues of the body, so does vitamin D carry sunlight to its darkest parts. Even irradiating the sawdust in the cages of rats deprived of this vitamin is sufficient to protect them against rickets if they eat it, as they usually do.

Dr. Harriett Chick's opinion is that the only effective use of ultra-violet rays is when it is desired to raise the calcium content of the blood. We may conclude that the most important function of vitamin D is to regulate the calcium metabolism of the body, and that the recognition of this fact must underlie all attempts at calcium therapy.

Though hypervitaminosis is not possible with natural foods, such concentrated vitamin preparations as are now available may do harm in that direction. Thus 1 mg. of calciferol daily is ample for therapeutic purposes, while 4 mg. a day have produced renal calculi. In the light of our present knowledge it would appear that parathormone should be reserved for emergencies when it is necessary rapidly to raise the level of calcium in the blood. Yet parathyroid is still widely prescribed for conditions where vitamin D is a simpler and more effective remedy. Interesting work is, however, being done for such conditions as osteitis deformans by first mobilizing calcium salts from the bones by parathormone and then redepositing them by graduated doses of vitamin D.

But you will not wish me to detail the uses of vitamins. I should like to discuss, however, the light that recent work on vitamin A has thrown on certain therapeutic problems. I have already said that animals have but little power of manufacturing vitamins; they can, however, convert certain pro-vitamins into vitamins—for example, carotene into vitamin A and ergosterol into vitamin D. Carotene is the yellow pigment widely distributed in coloured vegetables, which is converted into vitamin A in the liver. Early in the history of vitamins it was recognized that this particular one was necessary to the proper nutrition of the cornea. The Mellanbys have shown that we can state more generally that vitamin A is necessary for the proper nutrition of epithelium in general.

Thus, although we know the importance of vitamin D in preventing dental caries, it is only recently that Mrs. Mellanby has shown that a shortage of vitamin A leads

to a keratinization and thickening of the periodontal membrane, the faulty development which follows is a factor in the pyorrhoea of later life. Thus a lack of vitamin A spells pyorrhoea, while a lack of vitamin D spells dental caries. Such changes in epithelial and glandular tissues diminish the resistance to microbic invasion everywhere. That is probably the basis for the claim that vitamin A is an anti-infective agent. It really does this simply by maintaining a natural barrier of a healthy epithelium. But Professor Mellanby has shown another very important thing about vitamin A. In its absence an animal will develop lesions of tracts in the spinal cord, similar to those seen clinically in subacute combined degeneration. Wheat germ or ergot will increase this, but it can be completely overcome by adequate doses of vitamin A.

Now we know that clinically subacute combined degeneration and pernicious anaemia often go together. In both we have achlorhydria and the absence of Castle's intrinsic factor in the gastric mucosa. Though liver extract improves the blood picture it does not improve the cord symptoms. Ungley and Susman maintain, however, that this is because the extract, as prepared, lacks vitamin A, and they claim that whole liver, which contains it, will ameliorate the changes in the central nervous system. Though this is not universally accepted, one can see that it is quite possibly the case. W. W. Sargent has described instances recently where liver extract alone improved the blood picture as usual, but the cord changes got worse, on iron alone the blood picture deteriorated, but the spinal cord improved. He has even reported similar nervous symptoms in chronic microcytic anaemia which have cleared up on massive doses of iron.

This is the interesting position which has arisen. The rigid dictum that a tract in the cord which has once degenerated can never recover no longer holds. Lack of vitamin A can produce them, abundance of vitamin A can cure them. How do they occur in a patient who is on an ordinarily mixed diet, and therefore receiving an amount of vitamin A which is ordinarily adequate? Does the absence of HCl and Castle's intrinsic factor prevent the body from utilizing vitamin A just as it prevents the proper maturation of the red blood corpuscle? Do massive doses of iron in some way enable the body again to make use of the vitamin A presented to it? It is beginning to look like it. The actual daily needs of the body for iron are small, yet all recent observers are agreed that for the nervous symptoms and for the cure of microcytic anaemia 160 grains of Blaud's pill or 90 grains of ferri et ammon. cit. are required in the day, and that a comparatively small reduction in the dose does away with its effectiveness. The conclusion seems almost inevitable that these large doses of iron in some way simply facilitate the utilization of vitamin A which, from one cause or another, the body has lost. One might compare with this the rickets, the pellagra-like rash, and the large-celled anaemia which may occur in coeliac disease. Here there is a failure to absorb fats, and hence a shortage of fat-soluble vitamins, so changes resembling those of a *mixture of deficiency* diseases occur, even on a normal diet. Why the intestinal mucosa fails to absorb fat is still unknown, but apparently it is still capable of absorbing the concentrated vitamins.

In his Linacre Lecture at Cambridge last May, Mellanby reported some further remarkable facts. He showed how lack of vitamin A led to changes in the posterior root fibres, though to hardly any in the anterior root. This special sensitivity on the part of sensory fibres to vitamin lack is also seen in the optic nerve, and is apparently responsible for night blindness. The visual purple extracted from the retinae of animals suffering from lack of vitamin A fails to regenerate at the normal rate. Here is a wide field for research in the therapeutics of organic nervous disease, a subject which confessedly has so far been a gloomy one. We may conclude that the study of the way in which drugs may help or hinder vitamin actions is full of hope, just as is the study of their effect on hormones and the receptive substances between the nerve ending and the responsive tissue.

These therapeutic effects of vitamins and hormones illustrate another point—the potency of the minute dose. When someone asked me how I imagined that I could produce any influence on the body by giving five grains of a drug, I replied that the body itself worked with fractions of a milligram. The potency of a hormone is enormous. Abel's extract of the posterior lobe of the pituitary can produce contraction of the uterus when one part is dissolved in 15,000 million parts of water—one *grain in 1,000 tons of fluid!* This might be claimed as a point for homoeopathy. There is no doubt that Hahnemann had some valuable ideas even if some of his premisses were faulty. The symptom as an expression of something which needed to be assisted rather than repressed, the value of expectant treatment, the efficacy of small doses—all these were progressive conceptions. The whole system of active immunization by vaccines is based upon aiding the symptomatic expression of the body's attempts to throw off the disease. But to my mind the homoeopathic ideal has been spoiled by being crystallized into a creed. That is fatal to progress, as is shown by the failure of homoeopathy to add anything to our knowledge in pathology or in diagnosis—subjects which it might be thought were common both to the orthodox and to the homoeopath. I know of only one apparatus they have added to our armament—Dudgeon's sphygmograph.

CHEMICAL STRUCTURE AND PHYSIOLOGICAL ACTION

Vaccines apparently cause a reaction in living tissues leading to the formation of a new effective substance. So do some drugs—for instance, emetine in dysentery and salvarsan in syphilis; both are ineffective against the appropriate parasite *in vitro*. Therefore the specific effect of a drug usually depends upon its chemical interaction with some constituent of the living cell. It was therefore hoped that it might be possible to correlate physiological action and chemical constitution, but to a large extent the attempt has yielded disappointing results. In one instance a definite relationship between physical state and physiological action has been made out. Certain hypnotics are relatively inert substances and may differ widely chemically, but they have this in common, that they are soluble in fat and other lipoid compounds, and so tend to collect especially where such compounds exist—that is, the central nervous system, thus interfering with the normal working of the nerve cells. However, as Hopkins recently pointed out, the investigation has been one-sided and should involve consideration of the structure of the cell as well as that of the drug. Quite recently a striking instance of association between physiological action and chemical structure has been demonstrated largely through the work of Dodds. Oestrin, the ovarian hormone, calciferol, which has such an influence on the orderly growth of bone, and the carcinogenetic substances to be found in tar, all contain the condensed carbon rings which we call anthracene. Thus it appears that normal reproductive activity, normal growth of bone, and that irregular, disorderly, unrestrained growth which constitutes malignancy are alike conditioned by this condensed ring, chemical alterations in it, apparently merely of hydrogenation, leading to extraordinarily different types of growth. The whole subject assumes fresh interest when we recall that anthracene is normally a coal tar derivative, and was therefore formed under the influence of sunlight

ages ago, just as calciferol has been formed in our own subcutaneous tissues by the bright sunlight of this summer.

CONCLUSION

I have tried to indicate some of the general principles underlying the action of drugs, the difficulties that are encountered in their study, and the problems that have still to be solved. I have not touched on such topics as idiosyncrasy and tolerance. It is still true that to a large extent we have to remain empirical in our use of drugs. In some instances empirical success has been followed long after by a rational explanation, such as the effect of mercury and arsenic in syphilis, ipecacuanha in amoebic dysentery, quinine in malaria, and cod-liver oil in rickets. In others the explanation is still to seek, such as salicylate in rheumatism and colchicum in gout. I am therefore constrained to utter a plea for empiricism, especially as I still remember the scorn of the pharmacologist for the clinical belief in cod-liver oil before vitamins were discovered. And in conclusion I will quote Timme's reminder that "the abysmally ignorant South American savages who gave us cinchona bark for malaria did not even know the formula for quinine."

THE HOUSING PROBLEM

WITH SPECIAL REFERENCE TO THE PRESENT POSITION *

BY

C. KILLICK MILLARD, M.D., D.Sc.ED.

MEDICAL OFFICER OF HEALTH FOR LEICESTER

The housing problem, which includes the slum problem, is a highly complex one, and the Acts of Parliament and the Government circulars affecting it are so numerous and have been so often amended or repealed that it is difficult for anyone not specially versed in the subject to keep fully up to date. In this paper it is proposed to deal with the subject as simply as possible on the assumption that most medical practitioners, however interested they may be, have far too many other subjects occupying their minds to be able to devote much time to the intricacies of the housing question. Members of the medical profession—more perhaps than any others—must be fully alive to the evils associated with bad housing, and must necessarily desire to see drastic and far-reaching improvements effected. At the same time, the point of view of the medical profession will be rather different from that of many others who are interested in housing, for doctors see the human side of the problem at close quarters.

A vast amount of money has been spent since the war in the building of houses, yet the housing problem, in so far as the poor are concerned, is still unsolved. The slums and the slum dweller are still with us; a great shortage of houses at rents within the reach of the poor persists, and overcrowding of the worst sort is rife. This leads me to the first point I want to insist upon—namely, that the housing problem to-day is essentially the problem of housing the poor. The medical profession, I feel sure, will heartily endorse this, but until recently it has not generally been recognized or acted upon. I think we may say that it was largely the recognition of this aspect of the case which led the present Government to withdraw, rightly or wrongly, the subsidy under the Act of 1924 (the Wheatley Act) for the building of "ordinary" working-class houses, and, at the same time, to concentrate upon the building of houses for slum clearance.

* Read in opening a discussion in the Section of Public Health at the Annual Meeting of the British Medical Association, Dublin, July, 1933.

THE 1933 HOUSING ACT

The Housing (Financial Provisions) Act, 1933, which has just been passed, is probably, in relation to the importance of its provisions, the shortest Housing Act ever passed. It contains only three sections, one of which is purely formal, fixing the title of the Act. The first section repeals the Wheatley subsidy; the second gives substantial encouragement to building societies by authorizing local authorities and the Government to share with them the risk entailed in advancing a higher proportion of the building costs of new houses than they would otherwise have felt justified in doing. It is hoped that, in practice, this will mean that building societies will be willing to advance up to, say, 90 per cent. of the cost instead of only about 70 per cent. Schemes for building under this arrangement will have to be approved by the Minister of Health, and the houses so built must be "intended to be let to persons of the working classes." Moreover, the houses must conform to an approved standard as regards type and superficial area, and must not (except under very special circumstances) exceed twelve to the acre, while each house must be provided with a bath. The Act makes no new provisions with regard to slum clearance except in so far as the withdrawal of the subsidy on the building of ordinary working-class houses will undoubtedly encourage local authorities to concentrate all their efforts on building houses to replace those demolished in connexion with slum clearance. This, indeed, is the clearly avowed object and intention of the Government.

In Circular 1331, issued on April 6th last, the Minister states:

> "In the view of His Majesty's Government the present rate at which the slums are being dealt with is too slow, and they look for a concerted effort between the central Government and the local authorities immediately concerned to ensure a speedier end to the evil, and an end within a limited time. His Majesty's Government are further of opinion that present conditions are favourable to the success of a vigorous campaign of slum clearance."

Local authorities are therefore urged:

(*a*) To prepare and adopt a programme, the component part of which should be:

(1) A list of areas in which clearance is necessary, with information of the number of houses to be demolished in each, and of the number of the inhabitants;
(2) A list of the areas in which improvement by way of reconditioning or otherwise is necessary, with information as in (1) above;
(3) A time-table of the initiation, progress, and completion of action to secure clearance or improvement, as the case may be, of all these areas;
(4) A time-table of rehousing co-ordinated with the displacements contemplated by the time-table of clearance operations.

(*b*) To make an immediate beginning with the programme by the declaration as clearance or improvement areas of such areas as can be immediately dealt with, and by making the necessary orders."

The Minister asks to be supplied with a copy of the programme adopted not later than September 30th next, and he suggests that, as far as practicable, programmes should be so arranged as to be capable of achievement within five years. The circular adds that while slum clearance on a large scale may be necessary only in a limited number of large towns, there are few towns, or even villages, in which there is not urgent need for some action.

The Minister of Health (Sir Hilton Young) has supplemented his departmental documents by personal utterances both in and out of the House of Commons.

Speaking at a meeting of the Chelsea Housing Improvement Society on March 21st, he was reported to say:

"They all wanted to get rid of slums, but the progress made in that direction throughout the country in the past had been wholly unsatisfactory . . They had a great opportunity now in the fall of building costs and in the cheapness of money. That would enable them to concentrate the energies of the local authorities and housing reformers on getting rid of the slums and to concentrate the public money available on the same purpose . He undertook that the whole driving force of the Government, both financial and administrative, would be behind the movement to see it through to a conclusion."

These expressions of the Government's attitude towards the slum problem are satisfactory so far as they go. Opinions differ considerably with regard to the withdrawal of the subsidy under the 1924 Act, but now that this is an accomplished fact there is not much object in discussing it. Rather let us consider the present position and opportunity and how to make the most of them.

THE DUAL FACTORS IMPLIED IN THE TERM "SLUMS"

The Government wishes local authorities to concentrate on the slums. That at once raises the question—Just what do we mean by "the slums"? There is no official definition of the term, and it is not used, so far as I am aware in any Act of Parliament. Yet it is used so glibly and so frequently that it will be well to make sure just what we do mean by the term. The earlier dictionaries do not mention the word "slum," which, indeed, is of comparatively modern origin. Thus it is not mentioned in Dr Johnson's dictionary, early nineteenth century, or even in the *Imperial Dictionary* published in 1878, but it is mentioned in *Stormonth's Dictionary* published six years later. Webster's *New International Dictionary* (1927) defines a slum as "a foul back street of a city especially with a slovenly and often vicious population," while the *Universal* (1932) says it is "a street or area which is in an insanitary, dirty, dilapidated and neglected condition, inhabited by the poorest and most thriftless of the population, and usually greatly overcrowded." The *Oxford (Shorter) Dictionary* (1933) gives "a street, alley, court, etc., situated in a crowded district of a town or city and inhabited by people of a low class or by the very poor."

Practically all dictionaries specifically include two distinct factors in their definitions: (1) the character of the houses and their environment, and (2) the character of the inhabitants. I want to stress here the importance of the second or human factor, because sometimes when the slum question is being debated this second factor is overlooked, especially by those housing reformers who are not also sociologists. Speaking as a medical officer of health, I say, frankly, that I regard the human factor—the slum dweller—as of even greater importance than the slum dwelling, just as flesh and blood is of more importance than bricks and mortar. Certainly it is the factor which presents by far the greater difficulty in dealing effectively with the slum problem. Thus, it is easy to pull down slum houses after the necessary formalities have been complied with: a gang of workmen will soon do the job. But to secure that the slum dwellers will be permanently housed under decent conditions is a much more difficult task to accomplish.

OVERCROWDING

Another point I wish to stress is that one of the worst features of the slum problem is overcrowding. This, of course, is only one aspect of the human factor. The common cause of overcrowding is the large family, which is so much more common among the poor than among the well-to-do. Poverty is another feature of slum life, and so is squalor; the latter, indeed, may be regarded as a chief characteristic of the true slum. Not all slum dwellers are overcrowded or in poverty and squalor, but these three factors are far more common in the slums than elsewhere. Large families, poverty, and overcrowding work in a vicious circle, sometimes one and sometimes another being the primary cause. The statement that large families are a cause of poverty needs qualifying. This is only so while the children are dependent; when they are old enough to work they add materially to the family income, and so become an asset and diminish poverty. They continue, however, to be a prime cause of overcrowding, which becomes more serious as they grow older and reach adolescence.

HOUSE SHORTAGE

Overcrowding in the slums is greatly intensified by the shortage of houses to let at rents within reach of the poor. As to the reality of that shortage there is no doubt at all. The reports of medical officers of health all over the country tell the same story. How can we account for this shortage in view of the fact that nearly two million (1,956,782) new houses have been built in England and Wales since 1919? (This is exclusive of well to do houses of a rateable value above £78, or £105 in the metropolitan area.) The population of the country has not increased to any great extent—by just over two millions between 1921 and 1931—and the number of houses pulled down is altogether too small to have made any great difference.

An explanation is to be found in the detailed returns for the last census for such districts as have already been published, and doubtless the same will be found to apply to the country generally. Although the actual population has not increased very much the *number of families* has increased substantially. True, the average size of the family is smaller, due to the reduced birth rate, but as each family, even though smaller, needs a separate house, we have here a simple explanation of the continued shortage. As a concrete example of how this works in practice, take the case of my own city, Leicester. During the intercensal period the actual population only increased by 5,026 persons. Allowing, say, 3·6 persons to a house, this increase would call for 1,396 new houses. In view of the fact that the number of dwellings in Leicester increased during this period by 7,764, one might well have thought that the housing shortage would certainly be very much less in 1931 than it was in 1921. But the average size of the family in Leicester was only 3·6 in 1931 as compared with 4·3 ten years before, and the number of separate families increased by 7,968 or two hundred more than the increase in the number of separate dwellings. So that the pressure of families on houses in Leicester was actually greater in 1931 than it was ten years earlier. No doubt what has happened in Leicester is paralleled in other cities, for the fall in the birth rate and consequent reduction in the size of the family is universal.

EFFECT OF THE GOVERNMENT'S PRESENT POLICY

It is quite evident that merely to build houses to replace those which are pulled down will not increase the number of houses available, so that this part of the Government's programme will do nothing to relieve the shortage of houses, and, consequently, will do nothing to relieve overcrowding except as this occurs in the actual houses demolished. But overcrowding, as everyone knows, is by no means confined to slum areas. It is often to be found in quite good houses when these have been let off as tenements. It is very much to be regretted that the 1930 Housing Act makes no provision for the rehousing

of *individual* cases of overcrowding. Houses built to replace insanitary ones rank for subsidy, but this does not apply to overcrowded houses, although, as already urged, this really constitutes one of the worst features of the slum problem. This is a most unfortunate omission—whether accidental or intentional I do not know—but if the Government really wants to deal with the slum problem effectually, it certainly must encourage local authorities to deal with overcrowding, and while a shortage of houses exists it is quite impracticable for them to do so unless they can offer overcrowded families alternative accommodation. It is futile to take legal proceedings against overcrowded families so long as there is no alternative accommodation available.

The Government expects great things from Section 2 of the new Act, under which building societies will, it is hoped, be willing to advance another 20 per cent. (90 per cent. instead of 70 per cent.) for houses built to let to the working classes. But the secretary of the National Housing and Town Planning Council (Mr. J. G. Martin) has recently shown that the gross rental (including rates) of a three-bedroom house to be built by the building societies will almost certainly be beyond the reach of the lower-paid wage-earners. His figures are as follows:

> The all-in cost of a three-bedroom, non-parlour house, with land, roads, and sewers, may be taken to-day as £350, although this figure leaves very little margin. On this sum the annual loan charges—that is, interest and sinking fund, for repayment in thirty years at 4 per cent.—would be £20 4s. 10d.; repairs, management, insurance, and empties, £6; rates, at 13s. 4d. in the £, £7 6s. 8d.; making a total of £33 11s. 6d.

This is equivalent to about 13s. per week, which is certainly too high for a working man, with a family, whose wages are under, say, 50s. per week. Indeed, local authorities have, in the past, been urged by the Ministry to concentrate on the building of small houses which could be let at 10s. a week (including rates), or less. It certainly looks, therefore, that whatever houses may be built to let by the help of the building societies, they will not be within reach of the poorer sections of the community. Yet, as we stated earlier in this paper, the housing question to-day is really the question of housing the poor.

THE CLAIMS OF THE CHILDREN

No solution of the slum problem will be satisfactory which ignores the special claims of the children. Children comprise that section of the community which is most in need of good housing; they suffer most from bad housing conditions. Moreover, as the children are the plastic material from which the next generation is being moulded, it is very bad policy not to give priority to them. The most serious charge which can be brought against the housing policy of the nation, since the building of subsidized houses was begun after the war, is that a considerable number of municipal houses have got into the hands of people with no children, or with only very small families (one or two children), while so many big families have been left to languish in the slums. The difficulty has been largely an economic one. The man with the large family has a smaller margin for rent than the man with a small family, and, so long as municipal houses were let on a flat-rent principle, the man with the large family was at an obvious disadvantage. Even when he was successful in having a municipal house allotted to him, he very frequently found that he could not afford to pay the rent, especially if he was short of work, and so he drifted back to the slums whence he came. Often he was allowed to effect an exchange with someone anxious to obtain a council house and better able to afford it—that is, with someone having fewer children or no children at all.

Under the 1930 Act, where houses are provided in connexion with slum clearance, the practice of differential rents has become general, and under such a scheme the number of dependent children necessarily has to be taken into consideration when fixing the rent. This has, to a large extent, removed the handicap on the man with a large family. One could wish that the same system could be applied to existing municipal houses whenever they fall vacant. Housing departments are afraid of differential renting, thinking it will entail a great deal of work and unsettle existing tenants. But surely this need not necessarily be so, especially if the scheme takes the form of granting temporary rebates while leaving the standard rent unchanged. All who are qualified to receive the rebate, whether on account of the large number of dependants or the smallness of the family income, should have it. On the other hand, those who do not need assistance should no longer go on occupying a subsidized house, or, if they do not wish to move, they should pay the full economic rent—that is, the rent at which their house could be let on the open market. Such a change would no doubt cause a little grumbling at first, but its essential fairness is so obvious that any discontent would soon subside. People who have enjoyed the subsidy for years have no cause to complain if, when their circumstances improve, they are asked to let someone else have a chance. Something of this sort is essential if we are to make the greatest possible use of existing municipal houses.

METHODS OF SLUM CLEARANCE

There are three alternative methods of clearing the slums.

1. *Clearance Area Procedure.*—This is intended only for the really black areas, where practically all the houses are bad. All houses in the area have to be demolished.

2. *Improvement Area Procedure.*—This is intended for areas where some of the houses are capable of being improved, repaired, and made fit. In both these methods special schemes have to be prepared and approved by the Ministry of Health. Many formalities have to be complied with, and much time is taken up before a scheme can be carried out.

3. *Individual House Procedure.*—This is much the simplest and least expensive method, individual houses being dealt with under Section 17 (repair and reconditioning) or under Section 19 (demolition). For many towns probably the bulk of the work of clearing up the slums will be effected by this method. Unfortunately, as already pointed out, no subsidy is available for houses built to relieve "individual" overcrowded houses, but only for overcrowding occurring in an area. The sooner this is rectified the better, if the slum problem is really to be dealt with.

No landlord wants unsatisfactory or "difficult" tenants, and municipal landlords (that is, housing authorities) are no exception. But such tenants constitute the worst feature of the slum problem. Therefore we shall not really solve the slum problem until we have devised means for dealing with the unsatisfactory and "difficult" tenant.

CONCLUSIONS

1. The housing problem to-day is essentially the problem of housing the poor. In the past the needs of the poor have not been adequately catered for.

2. The new (1933) Housing Act has only two sections. The first abolishes the subsidy for "ordinary" municipal houses, and the second offers encouragement to the building societies. The Government hopes by the first to concentrate municipal efforts upon the clearance of slums, and by the second to secure the building, by private enterprise, of working-class houses to let. Opinions differ as to the wisdom of the first provision; while with regard to the second, it is

improbable that the houses to be built will be let at less than 13s. a week, which will usually be beyond the reach of the poor.

3. There is no official definition of the word "slum," but dictionaries concur in giving two factors in the making of a slum: (1) the character of the building—the slum dwelling; and (2) the character of the occupant—the slum dweller. From the medical point of view, the second, or human, factor is probably of greater importance than the first.

4. Overcrowding—an aspect of the human factor—is one of the worst features of the slum problem. We shall not really solve the slum problem until we can deal effectually with overcrowding. It is a serious defect of the 1930 Housing Act that while it makes provision for dealing with the "individual" insanitary house, it makes no provision for dealing with "individual" cases of overcrowding. Overcrowding can only be dealt with under the Act when it occurs in a clearance or improvement area, and many bad cases of overcrowding occur outside such areas.

5. In any attack on the slum problem the claims of the children should come first. It is a waste of municipal resources to allow three-bedroomed municipal houses to be occupied by people without children.

6. People with large families of dependent children constitute the class whose housing need is greatest, but whose margin for rent is smallest. To enable this class to take proper advantage of municipal houses some system of differential renting is essential, preferably by means of temporary rent rebates based on an approved scale.

7. To compensate for the loss in rental consequent on these rebates such municipal tenants as no longer really need to be subsidized should be called upon to pay the full economic rent.

VALLECULAR DYSPHAGIA

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(With Special Plate)

The elucidation of the causes of dysphagia arising in the lower pharynx has always presented difficulties. Following the perfection of the indirect laryngoscope during the past fifty years, gross neoplastic and ulcerative lesions of the lower pharynx and upper oesophagus have been recognized. But there still remained a large number of undiagnosed cases which were termed "functional dysphagia" and "globus hystericus."

Within recent years, owing to the advances in radiological technique and the more universal use of peroral endoscopy, hitherto unrecognized causes of such dysphagia have been described—for example, spasm of the cricopharyngeus muscle, post-cricoid webs and strictures, exostoses of the cervical vertebrae, etc. Recently Dr. R. R. Woods[1] reported a case which he had called "vallecular dysphagia." His case was that of a man, aged 54, who gave a history of eighteen months' dysphagia. Investigation showed that, on swallowing, masticated food filled the patient's valleculae, so that his epiglottis was forced backwards against the posterior pharyngeal wall, impeding breathing and causing dysphagia. This report threw light on a number of unexplained cases of dysphagia which have been seen by the present writers during the past five years. These latter cases showed no lesion by direct or indirect examination of the pharynx, larynx, or oesophagus, but, on careful radiological examination, "hold-up" and abnormal passage of the opaque material in the lower pharynx was observed. These contradictory findings were explained by Dr. Woods's report, and, although the present observers' cases exhibited less violent symptoms, they are convinced that their patients' complaints were caused by a similar mechanical abnormality, and that the condition described below under the title "primary vallecular dysphagia" is a definite entity of not infrequent occurrence, and one which may easily, but erroneously, be attributed to a "functional" disorder.

ANATOMY OF THE VALLECULAE

The valleculae are two fossae situated in the anterior aspect of the lower pharynx, between the pharyngeal portion of the tongue and the epiglottis (Fig. 1). They are bounded

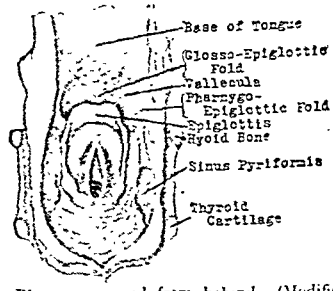


FIG. 1.—Pharynx opened from behind. (Modified from Cunningham)

anteriorly by the base of the tongue covered with lingual tonsil. The mucous membrane of this region of the tongue passes to the anterior surface of the upper free half of the epiglottis, forming the floors of the two depressions. The fossae are separated from each other by a prominent fold of mucous membrane—the glosso-epiglottic fold. Laterally they are bounded by less prominent ridges of mucous membrane—the pharyngo-epiglottic folds—which pass from the free lateral borders of the epiglottis to the lateral pharyngeal walls. Between each of the two layers of mucous membrane which constitute these three folds there is a small amount of elastic tissue. The floors of the valleculae lie immediately above and behind the hyoid bone, at the level of the third cervical vertebra (shown in Fig. 2), and sometimes the cornua of the

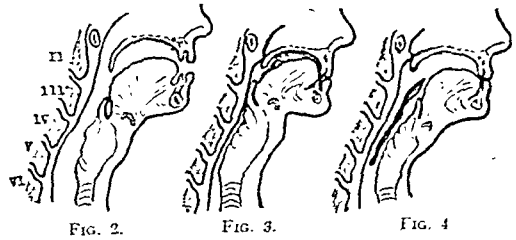


FIG. 2. FIG. 3. FIG. 4

FIG. 2.—Diagram of normal pharynx (resting).

FIG. 3.—Diagram of Phases 1, 2, and 3 in deglutition. Nasopharynx shut off by Passavant's ridge. Mouth closed—larynx raised and closed—pharyngeal cavity obliterated—epiglottis and vallecula compressed.

FIG. 4.—Diagram of Phases 4, 5, 6, and 7 in deglutition. Nasopharynx, mouth, and larynx closed—negative pressure in pharyngeal cavity—larynx dropped. Laryngopharynx remains high up—food sucked into pharynx and oesophagus not touching epiglottis.

hyoid bone are visible through their mucous membrane. Indirect laryngoscopy shows that in a small number of cases the fossae may be partially or completely hidden by the base of the tongue, and that they vary very much in depth in different individuals. Their mucous membrane is less red in colour than that of the surrounding structures, and it may be tightly stretched, crinkled, or even raised by large veins into prominent ridges. The valleculae are developed in the third cleft, between the field formed by the fused ventral ends of the second and third arches in front, and the central mass of the central end of the fourth arch behind. Their sensory nerve supply is derived from the third and fourth arches—that is, the glosso-pharyngeal and the superior laryngeal nerves. The writers have been unable to find any record of developmental abnormality occurring in this situation.

NORMAL MECHANISM OF DEGLUTITION

In order to appreciate any abnormalities of swallowing, it is necessary to consider the known normal process. Deglutition is a complicated reflex act, the afferents being the second division of the fifth, the ninth, and the pharyngeal branches of the superior laryngeal nerves. The efferents are the third division of the fifth, the seventh, ninth, tenth, eleventh, and twelfth cranial nerves. The centre is situated in the medulla oblongata, and may be considered as a chain of associated centres, stimulation of one of which fires off the others in orderly sequence (Starling).

Descriptions of the mechanism of swallowing, which were formulated by physiologists, have become greatly modified by accurate radiological investigation of the process, notably by the researches of A. E. Barclay.[2] Similar though less detailed studies have been made by Mosher[3] and Pancoast.[4] Barclay's findings have been summed up,[5] and the phases of swallowing are described as follows:

1. The mouth and nose are closed.
2. The larynx is raised and closed and its upper part is obliterated by the back of the tongue.
3. The pharyngeal space is obliterated by (*a*) raising the larynx, (*b*) retraction of the tongue. (The posterior wall of the pharynx does not come forward: the pharynx is not constricted, but is compressed from before backwards against the posterior wall—that is, against the vertebra.)
4. The pharynx is opened up, and with the three outlets closed a negative pressure is obtained by (*a*) dropping the larynx, and (*b*) allowing the tongue to go forward.
5. During this movement the laryngeal pharynx still remains high up, in close relation to the epiglottis. It is in an opened-mouth condition.
6. Food is tipped over the back of the tongue.
7. Food is sucked into the open mouth of the laryngeal pharynx, which, as it receives the bolus, drops from the epiglottis down to its normal position, thus opening up the larynx again after food has passed.
8. The food is probably sucked some distance down the oesophagus.

During the entire act the epiglottis remains upright; in the third phase it is pressed between the base of the tongue and the posterior pharyngeal wall, and in the sixth phase ordinary food passes over without touching it (Figs. 3 and 4). These observations have proved conclusively that the epiglottis does not fold backwards, as a trap-door, over the laryngeal orifice during swallowing—although this is still figured in physiological textbooks—and they have altered entirely the views previously held concerning deglutition. The older explanation, that the bolus of food is seized by the pharyngeal constrictors and forced into the oesophagus, where it is passed on by peristalsis, is disproved. As long ago as 1911 Lexer,[6] while watching a case on which he had performed a Wullstein operation for carcinoma of the oesophagus, made the important observation that the absence of peristalsis in the skin tube did not have an adverse effect on the ingestion of food. Saint,[7] commenting on this, concluded that the descent of food through the oesophagus is "due to the impetus given to it by the pharyngeal muscles." More recently Sampson,[8] who performed a similar operation on a case of simple oesophageal stricture, showed that the force of gravity is not necessary for swallowing through a skin tube oesophagus, and he suggested that the passage of food through such a tube may be accomplished by air pressure (swallowing air). Evans,[9] who used an extrathoracic rubber oesophagus following excision of a carcinomatous gullet, emphasized the fact that "the propulsive force of the mouth suffices to ensure the conveyance of food to the stomach through a patent inactive tube." It may therefore be accepted that the passage of food through the lower pharynx and upper oesophagus is accomplished by a combination of propulsion and negative pressure. One statement made in the summary of Barclay's observations is in question—namely, that the posterior pharyngeal wall does not come forward. Brown[10] has drawn attention to the fact that a small ruck—Passavant's ridge—is formed in the upper part of the superior pharyngeal constrictor, and that this ruck *does* come forward, to form the posterior half of the nasopharyngeal sphincter, for closure of the nasopharynx during deglutition (Figs. 3 and 4).

RADIOLOGICAL EXAMINATION OF THE ACT

The writers have made careful screen examinations of the act of swallowing in more than 100 normal males and females. The usual bread-and-milk opaque meal was used. In approximately 50 per cent. of the cases examined the bolus of food was swallowed, leaving only a trace in the mouth and pharynx, none being seen to enter the valleculae. In the other 50 per cent. a little opaque material entered the valleculae, but was evacuated almost immediately by compression of the valleculae during succeeding acts of swallowing. Apparently, therefore, in normal cases a little food may be retained for a very short time in the valleculae. In these cases the valleculae are demonstrated in the lateral and oblique positions as a small semilunar shadow, and in the "standing facing" position as two small semilunar shadows, one on each side of the mid-line at the level of the disk, between the third and fourth cervical vertebrae.

VALLECULAR DYSPHAGIA: PRIMARY AND SECONDARY

Symptoms and Aetiology

The writers have observed fourteen cases of what they term "primary vallecular dysphagia," and a very considerable number of cases which they classify as "secondary vallecular dysphagia."

Primary vallecular dysphagia is clinically important. Of the fourteen cases seen, five were females and nine males. Their ages ranged from 35 years to 79 years. These patients all came to the throat department complaining of discomfort on and after swallowing, which they referred to the hyoid region, and which had been present for periods extending from fourteen days in the shortest up to "about two years" in the longest: in some cases the discomfort was intermittent, and occasionally persisted for some long time after eating. The nature of onset varied—in some cases it was insidious, in others sudden, and with no known cause; in three cases the symptoms were ascribed to swallowing a bone, which the patients imagined had become lodged in their throats. The above-mentioned three patients stated that they felt as though they had a foreign body in their throats; the remainder were obviously apprehensive and suffering from carcinophobia. None of them complained of dyspnoea or such marked symptoms as occurred in Dr. Woods's case.

One man, aged 35 years, complained of excessive salivation. This was the only case in which masticated food lying in one vallecula was actually seen by indirect laryngoscopy. Indirect laryngoscopy in the remainder of cases revealed no local lesion, and these negative findings were confirmed later in all cases by direct examination.

X-ray investigation showed that in cases of primary vallecular dysphagia, when watched on the screen, there was a definite inability to swallow the bolus of opaque food. When told to "swallow," the patients made repeated but ineffectual attempts to pass the bolus of food from the mouth into the pharynx. At each attempt a little food passed (1) into the valleculae, where it remained, (2) into the right and left pyriform fossae, and (3) into the pharynx and oesophagus. The pharynx was dilated and food adhered to its walls. Gradually, and after repeated "swallows," the patients succeeded in emptying their mouths. The paste was then slowly evacuated from the pharynx, but was retained in the distended valleculae for as long as forty-five minutes after the first attempts to swallow.

Figs. 1 and 2 (on Special Plate) clearly demonstrate the above points; they are oblique and antero-posterior views of the pharynx and upper oesophagus of a typical case of primary vallecular dysphagia, taken after the patient had succeeded in emptying his mouth.

General clinical examination was negative for any discoverable systemic disease, and some of these cases have been kept under observation for five years without manifesting any lesion which might have been latent at the time of their first examination.

In what we have termed *secondary vallecular dysphagia* the valleculae were filled in a similar manner, but this abnormality was due to a manifest lesion somewhere within the reflex arc, or in the pharynx or oesophagus themselves. In these cases the presenting symptoms were those of the primary lesion, and the vallecular filling and retention was discovered only on routine examination, the *x*-ray findings being similar to those occurring in the primary form of dysphagia, but less marked. Thus we have seen secondary vallecular dysphagia in patients suffering from carcinoma of the upper and middle thirds of the oesophagus, post-cricoid carcinoma, and pharyngeal pouch. Mosher published a plate showing a similar condition in a case of bulbar paralysis, although he did not apply this title to the condition; and vallecular filling and retention have been described by Assmann[11] in bilateral recurrent nerve paralysis secondary to a mediastinal tumour. A similar condition was observed by him in a case of tabes with paralysis of the vagus, and in a case in which botulism had injured the vagus nerve. Reiche[12] has reported retention of food in the valleculae following diphtheritic paralysis, and Weingaertner[13] and Desseker[14] have each described a similar retention in cases of carcinoma of the upper part of the oesophagus with paralysis of the vagus nerve. In these latter cases the vallecular contents overflowed into the trachea and bronchi. A similar case has been observed by the present writers.

From our observations it would appear that secondary vallecular dysphagia occurs only with lesions of relatively rapid evolution. In non-progressive or slowly advancing lesions which have been present for many years the neuro-muscular apparatus has apparently accustomed itself to its abnormal conditions and has overcome the mechanical difficulties present. Thus we have found it absent in post-cricoid spasm, webs, and strictures; in congenital oesophageal stenosis, traction pouch of the oesophagus, etc.—all conditions of lengthy duration. It has been present in pharyngeal pouch, but such cases come for advice only at the onset of troublesome dysphagia—that is, when there is a relatively rapid exacerbation of their symptoms.

PATHOLOGY

The pathology of primary vallecular dysphagia is speculative only, but the known pathology of the secondary form suggests that there must be somewhere a failure in the neuro-muscular mechanism of swallowing. Ledoux,[15] in a study of the mechanics of deglutition, has classified the elevators of the larynx into two functional groups—anterior and posterior. The anterior group consists of the mylo-hyoid, the genio-hyoid, the posterior fibres of the genio-glossus, and the anterior belly of the digastric—of these the mylo-hyoid is functionally the most important. This group of muscles pulls the larynx upwards and forwards behind the base of the tongue, and also pulls the larynx forwards away from the posterior pharyngeal wall to open up the hypopharynx. It is apparent that, with impairment of this *forward* movement of the larynx, the valleculae can readily fill, and are not emptied by compression. Ledoux points out that in bulbar paralysis *this anterior group* of muscles is invariably the first to be affected; and Critchley and Kubik[16] have drawn attention to the constant atrophic degeneration found microscopically in the mylo-hyoid muscle, which occurs in cases of bulbar paralysis in addition to the characteristic changes seen in the central nervous system. It may be, therefore, that there is present some neuro-muscular inferiority of this group of muscles which will permit easily of its partial or complete dysfunction from non-obvious causes, and so give rise to vallecular filling and retention.

Goldmark and Scholz[17] have reported two cases which they termed "diverticulum of the epiglottic valleculae." A male, aged 60 years, and a female, aged 62 years, both exhibited filling and retention in the valleculae of barium paste. These two cases were characterized by discomfort on swallowing, occasional regurgitation of foul material, swelling in the submaxillary region, and local tenderness, with no laryngologic or systemic changes. They would be classified by the present writers as primary vallecular dysphagia. Goldmark and Scholz, basing their opinion on the erroneous theory that the epiglottis bends backwards during the passage of food through the pharynx, consider the pathology of the condition to be due to loss of elasticity of the epiglottis, whereby this epiglottic "bending-back" cannot take place. This theory is untenable. Holzknecht and Olbert,[18] who found vallecular retention present in certain neuropathic persons, demonstrated an unusual relaxation of the entire oesophagus in such cases. They explain the condition as due to atony of the muscles of deglutition; and Paluguay[19] has shown that atony may cause marked delay in any part of the path of deglutition. The marked dilatation of the lower pharynx shown radiologically in the present writers' cases of primary vallecular dysphagia would suggest atony of the middle and inferior pharyngeal constrictor muscles.

It has been shown almost conclusively that after food is propelled into the pharynx it is sucked down into the oesophagus by negative pressure. If the valleculae become filled owing to lack of compression the negative pressure in the pharynx is then insufficient to empty them. Barclay has instanced a similar difficulty experienced in dislodging mucus from the posterior pharyngeal wall by the action of suction alone. This leads to incompletion of the act of swallowing. Although deglutition is commonly described as occurring in stages, it is one act only, and normally its initiation by stimulation of the fauces inevitably leads to completion. Incomplete deglutition will give rise to abnormal pharyngeal sensations, which are interpreted in various manners by different individuals.

DIAGNOSIS

Diagnosis can only be made by careful local and general examination, together with thorough radiological investigation. It is obvious from what has been said above that either of these examinations alone is valueless. In cases of primary vallecular dysphagia laryngoscopic and endoscopic examinations are negative, and the patient's symptoms are apt to be attributed to functional dysphagia. *X*-ray findings are inferential only without local and systemic investigations.

TREATMENT

In thirteen out of fourteen of the writers' cases of primary vallecular dysphagia troublesome symptoms disappeared after explanation and reassurance. One case was heard of occasionally going round from hospital to hospital for advice. Eventually all trace of him was lost. Goldmark and Scholz advise frequent gargling with plain water after meals, and one of their patients found alleviation by repeated drinking of small amounts of water after meals. It appears to the present writers that the relief derived from the above two measures can be attributed to the repeated movements of deglutition, whereby the valleculae would be "milked" of their abnormal contents. During the discussions which followed Dr. Woods's paper he stated that he had been attempting relief of the patient's symptoms by diathermy puncture of the

valleculae, and by section of the lateral pharyngo-epiglottic folds. Removal of the free portion of the epiglottis was suggested. This latter appears to be the rational treatment if the symptoms are sufficiently severe. The epiglottis in man is a vestigial structure, and it is well known that its removal, either by surgery or by disease, is devoid of any harmful after-effects, provided always that it is the free portion only that is removed.

In the secondary forms of vallecular dysphagia treatment naturally would be directed towards the primary lesion.

SUMMARY

1. Dysphagia, caused by filling and retention of food in the valleculae, is described.

2. This type of dysphagia may be a distinct entity of clinical importance—of unknown pathology—and present as primary vallecular dysphagia.

3. Alternatively, it may occur as a secondary phenomenon due to some manifest disturbance of the neuromuscular mechanism of swallowing, or to local disease in the pharynx or oesophagus. These cases are termed "secondary vallecular dysphagia," and they are not clinically important, as their symptoms are overshadowed by the existence of a more grave lesion.

4. Treatment of primary vallecular dysphagia has in most cases resolved itself into explanation and reassurance, with disappearance of symptoms. In more severe cases, however, it might be necessary to amputate the free portion of the epiglottis.

5. Treatment of the secondary forms would be dictated by the nature of the causative lesion.

Our thanks are due to Dr. Walker and the staff of the *x*-ray department of the Royal Southern Hospital for their help in the examination of the cases on which this paper is based.

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CERTAIN INTRACRANIAL TUMOURS

THEIR VARIABILITY AND MULTIPLICITY*

BY

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(With Special Plate)

An enormous amount of extremely valuable work on cerebral tumours has been published by Harvey Cushing, Percival Bailey, Wilder Penfield, Carmichael, and numerous other writers, not only within the past few years, but in the past few months, and even weeks. The classification of gliomas has especially been the subject of much recent research; and, unless one is prepared to offer some *simplification* of their present very elaborate classification, one had, in the meantime, better leave that subject alone.

Some twenty-three years ago, along with my colleague at the Royal Edinburgh Hospital for Sick Children, the late Dr. J. Stewart Fowler, I described one of the earlier cases of tuberous (tuberose) sclerosis,[1] in which, in addition to the typical cortical and ventricular nodules in the brain, there was a rhabdomyoma of the heart. We noted that: "The condition is characterized by the presence of congenital 'dislocation' tumours in all or any of the following sites: brain, kidney, heart, skin—more rarely, pancreas, duodenum, thyroid, breast. The condition in the brain is established probably at, or soon after, the seventh month of foetal life"—perhaps considerably earlier. Since investigating this case (the staining methods at our disposal were then very far behind those in modern use) cases of "neoplastic syndromes" have always appealed to me as being of especial interest and importance. Lindau's disease is another good example of such multiple tumour syndrome, there being often, in addition to the specially characteristic haemangioblastomatous cyst of the cerebellum, an angiomatosis of the retina, and perhaps cavernous angioma of the liver, and cystic disease of the kidneys, pancreas, etc.[5]

In a recent case of von Recklinghausen's disease, under the care of my colleague Dr. C. Worster-Drought, the multiplicity and variety of the tumours found post mortem were so extraordinary that I thought it would make an excellent "text" for my present paper, especially if taken along with another case of haemangioma of the cerebral cortex, in which other and unsuspected tumours were also found—for example, a myxochondroadenoma invading the base of the skull, a pituitary cyst, etc.

HISTOLOGICAL VARIATIONS IN INDIVIDUAL TUMOURS

Before describing these cases of multiple tumour syndrome let me allude briefly to another aspect of the subject which may have some bearing upon it—namely, the wide histological variations which may be found in individual tumours, whether gliomatous or meningiomatous, etc. Variations and intermediate types occurring within the glioma group are too complicated for a short paper, but the study of one or two typical examples of the meningioma group may be helpful; and, for this purpose, I show you some specimens, naked-eye and microscopical, from a typical "dural" and a couple of typical "leptomeningeal meningiomas."* The dural tumour was one successfully removed by Mr. C. P. Wakeley from a male patient of Dr. Worster-Drought's, aged 39, and its chief interest for us lies in what one may term the "polyvalency" of its cells. In some parts the tumour cells show imperfect division, and tend to be arranged in groups and to reproduce the structure of Pacchionian bodies or arachnoidal villi. In others they tend to be arranged in "whorls," usually around a small blood vessel, and there is a

* Read, with naked-eye, microscopical, and lantern demonstration, in the Section of Pathology and Bacteriology at the Annual Meeting of the British Medical Association, Dublin, 1933. As it was not possible to reproduce all the naked-eye and microscopical photographs used to illustrate the points brought out in this paper a few of the latter only have been reproduced in miniature in the accompanying special plate, more as a general key-plan than to illustrate special details.

* Though often described as dural, these meningiomas probably arise from or in connexion with the leptomeninges—for example, from the arachnoidal villi.

marked tendency to hyaline degeneration and, later, calcification, with the formation of the so-called "brain-sand particles" or "psammomatous bodies" (Plate, Fig 13). In other parts again, and especially in areas of degeneration and haemorrhage, the tumour cells have a marked tendency to form blood vessels, either capillary, with definite walls containing reticulin, or thin-walled cavernous spaces, sometimes showing little more than an endothelial lining formed directly by the tumour cells themselves (Fig 14). All stages of this angioblastic process can be followed in the specimens from this case, but they can perhaps be even better illustrated from a leptomeningioma found post mortem in the right parietal region of a male patient of Dr Macnamara's aged 49. The naked-eye appearance of the cut surface of this tumour was very variegated, with patches of older and more recent haemorrhage and organizing blood clot, as well as soft tumour tissue, in some parts rather necrotic looking. Here again all variations may be seen. There are actively growing, highly cellular, meningotheliomatous areas many of the cells showing active mitotic division (Fig 15). In other areas the formation can be observed of capillaries in very large numbers directly from the tumour cells themselves vascularizing as it were, any areas of haemorrhage or even of degeneration, in the tumour, and closely simulating the appearance of organization of, say, a wound or a pleural or pericardial exudate (Fig 16). One might quite well be justified in applying the term capillary angioma' to these but in other areas the vascular spaces are so thin-walled and dilated that they are "cavernous" in type. Or again, one finds the formation of 'whorls' of tumour cells around the newly formed capillaries, and in some there is well-marked calcification and the formation of numerous psammomatous bodies, some of them coalescing to form rosette-like and other bizarre compound psammomata. As such leptomeningeal, in comparison with the so-called "dural" tumours are somewhat uncommon, I have put out in the museum a second specimen from a female patient, aged 64, in whose right occipital lobe a large leptomeningioma was found post mortem, in its naked-eye appearance very much simulating a glioma. Somewhat analogous meningiomatous (endotheliomatous) tumours showing varying admixtures of meningothelial, vascular and other elements may also be found in connexion with the spinal cord.[6]

Having briefly studied what we have called the "polyvalency" of tumour cells in individual tumours of especially, the meningiomatous group, let us now turn to the subject of multiple neoplastic syndromes.

MULTIPLE NEOPLASTIC SYNDROMES

I have already alluded to the condition known as tuberous sclerosis, now sometimes termed 'epiloia'. Closely allied with this is the syndrome usually known as von Recklinghausen's disease or multiple neurofibromatosis, and for the number and variety of tumours present the case which I have exhibited in the museum is perhaps unique, although somewhat similar cases have been described by Penfield and Young,[7] Hosoi,[3] and Kernohan and Parker.[4] As Dr Worster-Drought, Dr McMenemey and I hope to publish this case in considerable detail presently, I shall merely demonstrate to you the specimens and pictures of them and enumerate the extraordinary variety of tumours present. There are, for example, not only two large bilateral acoustic nerve tumours compressing and displacing the pons, medulla, and cerebellum—so-called "cerebello-pontine angle tumours"—and showing a structure somewhat intermediate between a typical neurofibroma and a typical meningioma (Fig 1), but there are also innumerable other, though much smaller, tumours on practically all the cranial nerves. There are also several dozen—some fifty or so—meningiomata and meningiomatous plaques of various sizes, projecting inwards from the inner surface of the dura, the larger tumours, up to about the size of a pea or small bean, projecting into and indenting, but not adherent to, the subjacent surface of the hemispheres. These did not show any growth outwards through the dura and skull, except where a considerable number of small meningiomata, evidently originating from Pacchionian bodies or arachnoidal villi, were found projecting into the lumen of the sagittal sinus, and in the cribriform region the olfactory grooves were filled with a mass of slightly nodulated to cauliflower-like meningiomatous growth, invading the ethmoid sinuses and right orbit. There were also innumerable small tumours on practically all the posterior nerve roots of the spinal cord (Fig 4), and especially on those of the cauda equina. There were also, in addition to these, numerous intramedullary tumours, some of them similar to the nerve-root tumours, but others again apparently fibrillary astrocytomas, whilst at many levels of the cord there were smaller or larger central ependymal proliferations and tumours (Fig 7), as well as gliosis and the formation of syringomyelia-like cavities. There was a previous history of a single, subcutaneous neurofibroma having been removed from the left shoulder at another hospital, but no other subcutaneous tumours were found at our post mortem, nor any naked-eye tumours on the subcutaneous nerves of the body and extremities nor on the main nerve trunks and their branches in the upper and lower limbs, or elsewhere, though a minute microscopical tumour, resembling those found in the posterior nerve roots, was found on the trunk of one of the sciatic nerves (Fig 9). Tumours are also probably present in some of the sympathetic ganglia (Fig 8) and in the suprarenal medulla, but these have not yet been fully worked out.

For comparison and contrast with this case of multiple neurofibromatosis I have placed in the museum two cases of single cerebello-pontine angle tumours from female patients aged 33 and 32 respectively, the former being apparently a fibroblastoma definitely malignant and locally invasive supervening upon a neurofibroma of the acoustic nerve (in this case there were also numerous enlarged, almost tumour-like, Pacchionian bodies and a cavernous angioma of the liver), the second case being apparently not a neurofibroma but a meningioma compressing the acoustic nerve and neighbouring structures. It also has become malignant and infiltrative.

In contrast to the foregoing and for comparison with cases of Lindau's disease,[5] the following case of multiple tumours is of interest. The case was that of a woman aged 42, a patient of Dr Yealland and Mr Wakeley. She gave an eleven years' history pointing to a right motor cortical lesion. A fronto-parietal decompression operation was performed, but twenty-four hours afterwards hyperpyrexia supervened and the patient died a week later. At the post mortem this was accounted for by the rupture of an unsuspected suppurating pituitary cyst and a terminal acute streptococcal meningitis, curiously localized to the cerebral hemisphere opposite to the side decompressed. The right side of the brain had been sealed off and protected from immediate infection by a thin layer of blood clot, following upon the decompression. A cavernous angioma (Fig 10) of considerable size was found towards the posterior part of the right parietal lobe, only about half an inch from the edge of the decompression window, and this was associated with multiple (presumably congenital) tumours at the base of

the skull, and in the walls of the pharynx, uvula, nose, etc., some of these containing numerous cavernous vascular spaces. In the roof of the pharynx and in the body of the sphenoid bone, etc., there was a very extensive myxochondroadenoma (Fig. 11) (resembling the congenital mixed tumour of the parotid), but in this case arising, apparently, from mucous glands; and there were also numerous adenoma-like masses of these in the uvula and neighbouring structures (Fig. 12). The pituitary fossa showed curious developmental abnormalities—for example, an opening into the right middle fossa under the thickened dura. The pituitary had evidently been the site of a glandular cystic dilatation, which had in some way become infected with streptococci, and it was obviously the rupture of this following upon the decompression and release of pressure which led to the acute streptococcal meningitis and death of the patient.

RELATION BETWEEN MULTIPLE TUMOUR SYNDROMES

Lindau,[5] in his paper on cerebellar cysts and their relation to angiomatosis retinae, refers to the angiomata and gliomata often found in the walls of such cysts, and to the fact that in the same cases there may occur syringomyelia-like lesions in the spinal cord, as well as cystic disease of the pancreas and kidneys, hypernephroma, etc. He considers that angiomatosis of the central nervous system may be placed in the same group as tuberous sclerosis, and he believes that the multiple tumours which he describes are due to a loss of balance in the development of the mesoderm, commencing as early as the third month of embryonic life.

I am inclined to believe that there is also a similar relation between the multiple tumour syndromes of tuberous sclerosis and von Recklinghausen's disease, and also that there is a relation between the case of multiple tumours which I have just described and Lindau's disease or syndrome—thus bringing some of the "mixed cartilaginous and glandular tumours" into the same picture, and associating them, as in the case I have described, with certain of the haemangioblastic tumours of the central nervous system and elsewhere.

I put forward the suggestion that there is a distinct relation between all of these various groups of cases or types characterized by the presence of multiple tumours involving especially the central nervous system. The subject is one which, I venture to think, is worthy of discussion by the Section of Pathology, and may well form a basis of further research.

Finally, I wish particularly to acknowledge the skilled technical help of my laboratory assistants, especially Mr. John Ottewill, in the preparation of the material for the demonstration.

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FIBROSARCOMA OF THE SUPRARENAL GLAND

BY

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(*With Special Plate*)

The following case appears to be worthy of record on account of its comparative rarity. Within recent years certain tumours of the suprarenal gland, formerly regarded as of sarcomatous nature, more especially if round-celled, have been proved to be of sympathetic origin, and to arise from the medulla of the organ. This was first recognized by Marchand.[1] Suitable staining shows ganglion cells and an intercellular matrix, which is composed of neurofibrils. Actual sarcoma, however, may arise from the suprarenal gland, as the author's specimen shows, but in all cases it is a wise precaution to establish the nature of the neoplasm by suitable staining methods which are calculated to demonstrate the absence of nerve tissue elements. With this in mind sections from different parts of the tumour were prepared and stained according to the methods recommended (Bailey and Cushing[2]; Anderson[3]) for the demonstration of nerve cells and their processes—for example, Bielschowsky's and Cajal's methods. Haemalum and eosin, toluidin-blue, and van Gieson's and Mallory's stains were also employed. No nerve tissue elements were demonstrated in the tumour by any of the above methods.

CASE RECORD

A. C., a married woman, aged 38 years, complained for five months of a swelling situated in the left upper quadrant of the abdomen; it was steadily increasing in size. The swelling was accompanied by a great deal of discomfort on the left side, but not by actual pain. During the last few months she had lost weight rapidly, and had a feeling of profound weakness. She had been troubled with flatulence for a number of years, but had no other gastro-intestinal symptoms except nausea at the time of menstruation. There was no history of frequency of micturition or of haematuria, and the examination of the urine was negative. She had not suffered from any previous illnesses of importance, and there was no record of abdominal injury. She had six children. She was distinctly cachectic; the temperature was normal. In the abdomen a large lobulated tumour mass was made out filling the epigastrium and extending from the tip of the ninth right costal cartilage far out into the left flank. The mass moved with respiration, was dull on percussion, and was easily distinguished from liver and spleen. The radiologist reported: "Stomach outline normal. Stomach appears to be pushed downwards and to the right side. Tumour appears to be extragastric." At operation a large retroperitoneal tumour was found apparently arising from the upper pole of the left kidney. Quite apart from the presence of several secondary deposits in the liver the tumour was hopelessly inoperable. The patient went rapidly downhill, and died three days after the operation. At no time had there been any clinical evidence of endocrine disturbance. Post-mortem examination revealed a large tumour of the left suprarenal gland in which the upper pole of the kidney was embedded, but did not show direct invasion. The omentum was firmly adherent to the peritoneal aspect of the growth, and was separated only with difficulty. Secondary deposits of growth were present in the liver and in the lungs. The viscera of the upper abdomen showed a remarkable alteration in their anatomical relationship, the stomach and colon, especially the splenic portion of the latter, being displaced by the tumour almost wholly across to the right side of the peritoneal cavity. The spleen was separated from the left kidney by the tumour for a distance corresponding fully to two handbreadths. The tail and adjacent part of the body of the pancreas lay across the front of the tumour almost immediately underneath the anterior abdominal wall. The kidney was dislocated downwards. The right suprarenal gland appeared to be normal.

DESCRIPTION OF SPECIMEN

The tumour (Fig. 1 on Plate) measured 21 cm. by 13.5 cm., and weighed 2,850 grains. Large varicose veins, some thrombosed, coursed over its surface. This was bossed, the mass being composed of several lobules of varying size and shape, held together by a loose connective tissue containing blood vessels, and, here and there, small collections of bright yellow fat. Each lobule possessed a distinct fibrous capsule which apparently had kept the local invasive properties of the tumour well under control, as there was no direct infiltration of any of the organs—left kidney, spleen, pancreas, or stomach—with which it was in intimate contact. The tumour was of tough, firm consistence, and yellowish-white in colour, the cut surface showing distinct fasciculation. No areas of degenerative softening or of haemorrhage were seen. The coeliac, splenic, and aortic glands contained small deposits of tumour growth.

Microscopical sections prepared from various parts of the tumour showed similar appearances—namely, a structure made up of interlacing bundles of fusiform cells with tapering ends and separated from each other by a fairly abundant intercellular material in which fibrils were present (Fig. 2 on Plate). The nuclei varied in size, shape, and depth of staining, most being large, almost filling the entire cell, elongated, and hyperchromatic. Many of the paler nuclei were vesicular. Mitotic figures were scanty. The somewhat numerous blood vessels took the form of endothelial-lined channels or mere spaces between the bundles of cells. The histology of the growth in the liver, lungs, and lymphatic glands was similar to that of the parent suprarenal growth. Sections of the left kidney and spleen did not show any invasion by tumour cells.

CONCLUSION

A fibrosarcoma of the left suprarenal gland is described, having arisen probably in the supporting connective tissue of the organ.

I wish to thank Mr. F. K. Smith for the use of the clinical notes and Professor Shennan for permission to publish the case. I am indebted to Mr. W. Nelson and Mr. W. Carnie for the photographs.

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TREATMENT OF COMPOUND FRACTURES OF THE TIBIA

BY

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(With Special Plate)

The complications of compound fractures of the tibia are so serious and crippling that any treatment that can reduce these to a minimum seems worthy of record. The following treatment has been adopted in twenty cases, and although the number is small the unusual success of the method may perhaps justify its publication as a preliminary to a more extensive series. The conception of the method developed as the result of examining the reasons why some compound fractures present the familiar and insuperable sequelae which have too frequently exhausted life or limb. These are due to two factors—infection and inaccurate mechanical reduction. No matter how one deals with the infection—and the methods are many—it would appear impossible to guarantee absolute and complete freedom from sepsis in every case. With regard to the position of the fragments one is struck by the fact that, too frequently, gaps and malalignment do occur even in the most careful hands. The best of *modern methods*—axis traction by the Kirschner wire—has done much to minimize malposition. Its application is easy, but its maintenance is a matter of skill, patience, and minor adjustment.

METHOD

The present method is directed against the infection and eliminates the malposition. The bones are in apposition from the onset; they remain so; there are no readjustments; there are no gaps for stubborn new bone to span. There is no strain on muscles or ligaments which axis traction by every pound of its weight must unceasingly exert; there is complete rest to the fragments, and the patient is not tethered to his bed for a couple of months. In addition, there has been adequate room for cleansing the recesses of the wound, but should sepsis unfortunately occur there is little fear of non-union, and there is no fear that future open reduction or bone grafting will be necessary to overcome an original poor position. Lastly, the patient is usually upon a wheel-chair within a week, and out of hospital or nursing home within two to three weeks.

With execution as urgent as in perforated peptic ulcers the patient is taken to the operating theatre and anaesthetized, and the limb is iodined from mid-thigh to toes. The wound edge is closely excised with an eye to subsequent easy suture, and is extended up and down the leg so that an incision of not more than 5 inches in length is made with its centre over the seat of the fracture. The incision goes straight down to, but not through, the periosteum. Careful débridement is now effected, and the entire area liberally washed with flavine. The incision is continued in the connective tissues immediately above the periosteum around the subcutaneous surface of the tibia, and is extended just over the anterior and postero-internal borders, so that 1 inch of bone is "cleared" on either side of the fracture. The periosteum is not reflected. Lane's forceps are applied to the fragments in such a way that their teeth just grip these borders (see Special Plate, Fig 1). An assistant pulls on the foot to secure the necessary amount of extension. This manœuvre is performed with as little manipulation as possible, and during its execution care is taken once more to cleanse the bony ends with flavine before they are finally apposed. A special bone clamp* is applied to the already "cleared" fragments as in the diagram, so that it does not disturb the lateral vascular surface of the tibia. Before screwing the instrument "home" the assistant pushes the foot firmly towards the knee in order to press the two fragments hard against each other, thus ensuring that their corresponding serrations accurately interlock. The clamp is fixed (Fig. 2), the Lane's forceps removed, and an artificially rigid tibial shaft thus produced. A sterile gauze roll 5 inches wide is wound round the leg at the site of the fracture above and below the clamp, so that the wound is completely enclosed. The assistant now sits with his flexed elbows on the operating table, one flat hand under the knee and one under the heel. The rest of the limb, from toes to mid-thigh, is invested in a skin-tight plaster.* Where the operator has had no experience of this direct application one layer only of gauze is advised. A firm plaster is applied in adequate thickness up and down the limb, leaving the bone clamp projecting through its substance (Fig. 3). A window is now cut through plaster and gauze around the clamp (Fig. 4). It is of sufficient size adequately to expose the wound. The plaster is allowed to dry and the bone clamp removed. In practice, by the time this fenestration is complete the plaster is usually set and there need be no waiting. Care should, however, be taken not to release the clamp until the plaster is quite firm. The wound is now sutured, leaving a small gap at the lower end for drainage, but without incorporating a tube.

* Professor Eyre of Guy's Hospital has very kindly shown that plaster can be sterilized by simple means without losing its hardness. The use of this plaster in a sterile bowl and water ensures absolute freedom from contamination and avoids loss of time in changing gloves, etc., for suture of the wound after cutting the window and removing the bone clamp. Sterile plaster can be obtained from Messrs. John Bell and Croyden.

Dressings and a bandage around the plaster complete the operation. Antitetanic and anti-gas-gangrene serum are given as a routine. In this manner there is attained an almost perfect apposition of fragments by a relatively simple means and without the inclusion of any foreign material. A successful result depends on the following details:

1. An adequate, but not too generous, excision of the lacerated edge. Removal of wide ellipses of healthy skin is to be avoided, or there will be difficulty in suturing the wound at the end of the operation.

2. Pushing the fragments closely together before the clamp is screwed "home."

3. Using a skin-tight plaster or only one layer of gauze. In a loose plaster the fragments tend to slip out of place. There need be no fear of undue swelling or compression of the limb vessels, for the thickness of the gauze around the clamp, and the presence of the window, provide ample accommodation.

4. Seeing that the foot is only supported under the heel by the flat hand of the assistant. Dorsiflexion above the angle thus produced has a tendency to displace the lower tibial fragment backwards when the bone clamp is removed.

5. Ensuring that the plaster is both thick and dry enough before the clamp is removed.

FURTHER TREATMENT

The plaster is not removed for six to eight weeks, depending on the age of the patient. Another smaller one is then applied from toes to just below the knee, and a Böhler "boot"[2] incorporated. The patient can walk about in this iron for a few more weeks until the union is firm. In all of the series treated in this way the patients walked unaided and unsplinted in three months. In the most successful case the patient, a boy of 19, walked at the end of six weeks without stick or splint. At the end of four weeks he had thrown away the bivalve plaster which had been applied with a view to massage, and fortunately had come to no harm. Increasing experience shows that it is better to err on the safe side and leave the plaster on for longer rather than shorter periods, especially as the ambulatory Böhler boot is so comfortable and satisfactory.

The method is only advised for transverse or oblique fractures. The bone clamp, unfortunately, cannot secure sufficient stability in comminuted fractures. In such cases wire extension through the malleoli or os calcis is used, the wound is well washed, and the comminuted fragments gently pushed into line.

DISCUSSION

There is no doubt that the one strong objection to this line of treatment is the deliberate laying open of a potentially infected wound and of the manipulation of fragments into line. This criticism will be dealt with.

1. With regard to the reduction of wound sepsis it is difficult to find out which is the best method. On the one hand certain experienced war surgeons maintain that constant wound irrigation saved numerous limbs. They are supported by Foster,[3] whose continuous "Dakinization" of 304 consecutive compound fractures warded off sepsis in *every* case. On the other hand, Winnett Orr[4] and an increasing number of modern surgeons condemn all forms of irrigation, and urge that successful healing will more readily take place if the wound is not inspected for at least six weeks. Such diametrically opposed treatments cannot both be the important factor in reducing sepsis. What is, however, strikingly advocated by both these schools, and indeed by unanimous opinion, is immediate and adequate débridement, followed by complete and absolute immobilization of the limb. The present technique ensures an adequate wound toilet, and provides for complete and absolute rest better than any axis traction or continued tension. Furthermore, the obliteration of gaps, dead spaces, and infected blood clot greatly reduces the bacterial foothold.

2. With regard to the bony union in compound fractures of the lower limb, more than in any other type, it is imperative to have the bony surfaces in as solid a contact as possible. The superiority of this method cannot be denied.

3. With regard to the criticism concerning open manipulation, superficially it would seem that first surgical principles are recklessly disregarded. Is this really so? The treatment of any laceration, by first principles, necessitates the complete excision of all dead material by cutting into healthy tissues immediately surrounding it. The present method carries this principle to excess, and where there is much dead tissue and dirt the débridement—the importance of which has been emphasized by both the irrigation and the non-irrigation schools—can be the more effectively performed. Indeed, in this short series of cases it has always been surprising how much dead tissue, and sometimes dirt, can shelter behind a tiny skin wound. In this method great care is taken of the bones. The main extension is by the assistant at the foot. There is no levering of fragments with elevators or bone spikes, no stripping up of periosteum, or gross manœuvring of any kind. The assistant at the foot simply does what the Kirschner wire would do; the Lane's forceps guide the fragments into place.

No amount of argument or speculation can decide whether this method and its reasoning is right or not. The cold candour of a long series of cases alone will decide. The severity and frequency of the complications of compound fractures indicate that the best method has not yet been found. The success of the present procedure appears to warrant its further application.

My thanks are due to the surgeons of the West London Hospital and the surgeons of Guy's Hospital for permission to use this method during the years 1929–31 and 1931–3.

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LUNG ABSCESS FOLLOWING TONSILLECTOMY

BY

F. T. RANSON, M.B., B.CH.BELF., F.R.C.S.ED.

AND

L. McGOLRICK, M.B., B.CH., B.A.O. N.U.I.

SHANGHAI

(With Special Plate)

Lung abscess is a subject more adequately dealt with in American than in British surgical textbooks, and references are more frequent in the American journals. This may be because the disease is reputed to be much commoner in America than in England, and is said to follow one in every 2,500 tonsil operations.[1] Although tonsillectomy is probably the commonest aetiological factor in lung suppuration, yet some British textbooks do not even mention it in this connexion. Moreover, there is one well-known work which advises the use of an exploring needle for localization. This dangerous and unnecessary practice is almost universally condemned.[2]

CASE RECORD

The following is an account of a case which we have recently observed.

Miss M., a nursing sister, had a tonsillectomy performed by one of our colleagues on May 17th, 1933. The anaesthetic (ether) was administered by a motor-driven apparatus through

a Davis-Boyle gag. The patient was a little cyanosed throughout the operation, which was done in the usual manner by dissection and snaring of the pedicle. Haemorrhage was small in amount, and it was not necessary to tie any vessel. A few days after operation the patient developed a cough and a little fever, and later a patch of dullness and crepitations was found at the base of the right lung. The symptoms increased steadily, and by the end of June she had well-marked clinical and radiological signs of lung abscess. She was now very ill, having a severe cough, with foul sputum, and a swinging temperature. A skiagram taken at this time is shown on the Special Plate.

Operation was performed on July 5th, 1933. The anaesthetic used was 1/2 per cent. novocain, and a little pure chloroform was administered as the ribs were being cut through. An oblique incision was made, with the centre at the posterior axillary line in the eighth interspace; three inches of the eighth and ninth ribs were resected and the intercostal structures and periosteum removed. The parietal pleura was thickened and oedematous, and adherent to the lung over the whole area exposed. The outer wall of the abscess cavity was removed, and about an ounce of foul, stinking pus evacuated. Bands crossing the cavity were not disturbed, and there was very little bleeding. A soft cigarette drain was inserted, and the parietal wound lightly packed with gauze. A transfusion of 500 c.cm. citrated blood was then given. Improvement was immediate; cough, sputum, and fever diminished, and drainage, which was at first free, steadily lessened. Spirochaetes of the Vincent's angina type were found in the pus from the wound, and also in the sputum, and intravenous N.A.B. produced marked local and general improvement. Two weeks after operation the patient developed an effusion into the right pleural cavity. We feared an empyema, but aspiration well away from the wound showed clear fluid, and this absorbed spontaneously in about a week.

August 18th, 1933. Condition as follows. Patient up and walking a little; sinus in chest wall filling in and almost clean. We expect the sinus to be slow in closing. The Special Plate shows an *x*-ray taken a week before this date.

DISCUSSION

The mode of production of these abscesses is either by embolism or aspiration. We feel certain that in this case the cause was aspiration, and possibly the motor-driven apparatus may have been a factor. Glendenning[2] condemns the use of motor-driven apparatus in tonsillectomy, but we have employed this apparatus frequently, and know of its use in hundreds of cases with no untoward result.

The question of treatment is difficult. This patient was treated conservatively (postural, inhalations, etc.) for seven weeks. No bronchoscopic drainage was employed, and indeed it is difficult to see how bronchoscopic drainage could benefit a peripheral basal abscess. Young[4] states that when the condition has been treated medically for six weeks and shows no improvement, then, as a general rule, surgery should be considered; Lilienthal[5] is in favour of even earlier intervention. These writers give a full discussion of the indications. Many points have to be considered, and each case must be judged individually. There are three surgical procedures of value: artificial pneumothorax, phrenicectomy, and external drainage. In this case we decided on operation, for the following reasons: (1) After seven weeks' medical treatment the patient was getting much worse. (2) By clinical and radiological investigation we were able accurately to locate the abscess in the periphery of the right lower lobe—a site suitable for external drainage. A valuable sign was present for the few days before operation—namely, a tender spot in the eighth space in the posterior axillary line. It is obvious that artificial pneumothorax would be useless here unless performed in the very earliest stages and before the formation of pleural adhesions. Phrenicectomy we discussed, but as the diaphragm was already raised and fixed on the right side we could see little object in this operation. On general surgical principles in a case like this external drainage is the obvious and best procedure. Tudor Edwards[6] advocates that in all cases the two-stage operation should be employed; as we found the lung densely adherent to the parietal pleura, we opened the abscess straight away. In this connexion there is some interesting information in Bickman's *Operative Surgery*. He quotes various writers, and shows that the artificial production of pleural adhesions by gauze packing or stitching is not so simple as is commonly supposed. The best adhesion-former is the diseased process itself.[7] Many writers draw attention to the great danger of a coexistent empyema, but Graham[3] states that all such cases which he has treated recovered after drainage of the pleural cavity only.

Although rare, such a serious complication of tonsillectomy as lung abscess demands the employment of all practical prophylactic measures. For some time now in tonsil cases we have been using slight Trendelenburg position with head extended, so that any blood gravitates to the nasopharynx, and lately we have employed an efficient sucker to keep the pharynx dry. On reading the cases reported in the literature one is struck by the fact that many of them occurred in the hands of very skilled and expert operators, where there was little bleeding and the possibility of such a complication as lung abscess very unlikely.

On the other hand, one has seen cases where blood has accumulated in the lower pharynx—whence it is very likely to be aspirated—and yet no complication has ensued.

We are indebted to Dr. J. E. Bowen for the radiological work.

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A DIVERTICULUM OF THE DUODENUM

BY

DAVID CROMIE, M.B., F.R.C.S.ED.

SURGEON, NEWTON ABBOT HOSPITAL

(With Special Plate)

The condition described below is so rarely met with that an account of a case seen and operated on by the writer may prove of general interest.

A married woman of 38 had suffered for six months from a severe lumbar pain, which had failed to yield to any ordinary treatment. Two months previously a stabbing pain in the epigastrium supervened, but was overshadowed by the pain in the back. The pain was to the left side of the midline, and did not radiate. It occurred almost immediately after taking food and was relieved by vomiting, after which there was no further pain until the next meal. If no vomiting took place the pain lasted from a half to one hour, and then became easier. The vomiting commenced shortly after the pain in the epigastrium, and took place after almost every meal. Variation of diets made no difference, nor did solids or fluids have any influence. The vomit consisted of undigested food, and was not repeated before the next meal. There had been no haematemesis, nor had there been the periodicity usually associated with ulcer. So far as her appetite was concerned the patient would feel hungry, but "two cream cracker biscuits would make her full up, as if she had been eating all day." The bowels were very constipated. There was no previous history of serious illness, and there was no abnormality of the urine or menstruation, nor did the family history present anything of import. The

symptoms became progressively worse, and in two months the patient had dropped from 9 st. 8 lb. in weight to 6 st. 10 lb.

Examination.—The patient was emaciated, there was tenderness in the epigastrium, and the left rectus was a little more resistant than the right. The stomach was not enlarged. There was no splashing and no hyperaesthesia.

X-Ray Report (Dr. W. H. Steele).—"This case was originally for *x*-ray of the chest, as she was thought to be suffering from tuberculosis. There was no evidence of lung trouble, and a barium meal was suggested. On screening, after swallowing a small quantity of barium emulsion, the stomach appeared normal, but after the emulsion passed through the first and second portions of the duodenum a shadow appeared in close relation to the lesser curvature of the stomach. After completion of the meal a film was taken, which clearly shows this shadow lying close to the left side of the third lumbar vertebra. This I diagnosed as diverticulum of the fourth portion of the duodenum. I was able to demonstrate clearly that the shadow was not connected with the lesser curvature of the stomach, thereby excluding the possibility of a penetrating gastric ulcer."

Operation.—On April 3rd, 1931, laparotomy was performed through a right paramedian incision. The stomach, first part of the duodenum, and gall-bladder appeared normal, and there was no sign of diverticula of the colon. On raising the transverse colon to examine the duodeno-jejunal junction, a fold of peritoneum was noticed running from the body of the pancreas downwards to the left across the duodenum, and terminating on the jejunum about two inches below the junction. When the fold was raised in forceps and pulled up, the first part of the jejunum stood out like a small pouch, and it was thought that this might have produced the shadow seen on the radiogram. The fold was then divided, and, with the duodenum exposed and lying alongside, the diverticulum was seen, appearing rather like a hernial sac. The apex of the diverticulum was next seized with forceps and stripped with a gauze swab, then the base was divided, and the resulting gap in the duodenum sutured transversely in two layers. The abdomen was closed without drainage. Vomiting ceased after the first day, and convalescence was uneventful.

Discussion

Of all diverticula recorded in connexion with the intestinal tract, 1.6 per cent. are found in the duodenum, 15 per cent. of these in the third or fourth part (Kellog). Of those in the third or fourth part, to every eight found in females two are found in males. This may be due to the greater frequency of visceroptosis, and consequent duodenal stasis, in the female sex. Congenital and acquired varieties are described, and the latter is further subdivided into true and false.

In my case the diverticulum proper was composed of a thin layer of muscle with the submucosa and mucosa, and measured 2.9 cm. across the base and 2.4 cm. from the base to the apex. The serous coat was nowhere attached to the pouch, but a fold of peritoneum lay in front of it. In a case reported by Carnot and Peron, when the transverse colon and mesocolon were raised the diverticulum was seen hanging from the anterior surface of the duodenum, covered by all the layers of the intestine. But the majority of diverticula lie behind the peritoneum, and the peritoneum must be incised before the pouch comes into view. The pouches are usually empty, but fill during the passage of food, and may contain stones or foreign bodies. The sac may become inflamed and suppuration or gangrene may supervene. The symptoms in the case recorded here did not correspond to any of the five classical groups described by Bensaude, so it is doubtful if there is any definite symptomatology. In my case also the symptoms were initiated by the filling of the sac, and relief followed its emptying. The vomiting, which was such a predominant feature, may have been caused mechanically by pressure against the duodenum or from a drag on the jejunum by the peritoneal band, or perhaps reflexly by pressure on surrounding structures. The type of pain varies; it is described differently by different patients. The wasting was doubtless due to starvation and the constipation a result of the general dehydration. Inflammation may occur, with the usual symptoms of nausea, vomiting, pain, pyrexia, tenderness, and muscular rigidity. When diverticula are associated with other lesions the symptoms are those of the prevailing lesion. The physical signs are unreliable, but radiography affords a definite diagnosis. In this case the diagnosis was made before I saw the patient.

As regards treatment, Spriggs and Marxer report improvement in thirteen out of eighteen cases treated by medical methods, but I cannot see how medical treatment can be of much value if the symptoms are caused by the diverticulum. Diverticula which cause no symptoms should be left alone, but those which do cause symptoms should certainly be explored. The ideal treatment is excision, but if this is impossible the diverticulum may be invaginated. A short circuit of the diverticulum-bearing part of the bowel is to be considered. In this case, in which the diverticulum occurred in the fourth part of the duodenum, duodeno-jejunostomy might have been tried. Such a step would obviate any chance of atresia at the site of the lesion, and the consequent duodenal stasis. Where a diverticulum has been demonstrated by radiography it is not sufficient to examine the duodenum alone. Incision of the peritoneum is also necessary. The duodenum should be mobilized and a retroperitoneal examination made. Complications may call for immediate laparotomy, as in any other abdominal disaster. It has been said that in no case have symptoms been permanently relieved by operation on a duodenal diverticulum, and for that reason I have delayed publication until two years have elapsed since the operation. This patient to-day remains in excellent health, and there has been no return of the symptoms.

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Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

A DIVERTICULUM OF THE DUODENUM

(With Special Plate)

The following case seems of sufficient interest to be worthy of record.

Mrs. F., a married woman aged 57, came to see me complaining of chronic want of appetite. She told me that she never knew what it was to feel hungry, and that she suffered from a constant lassitude, general weakness, and inability to perform her household duties. She also stated that she was liable, from time to time, to sudden attacks of acute vomiting and diarrhoea. All her life, from an early age, she has suffered from what she termed "bilious attacks," consisting of a sudden onset of acute vomiting and diarrhoea. This would come on without warning in the night, waking her out of sleep; relief would come in about four hours' time, and the next day she would feel listless and tired, but after twenty-four hours would be able to go about as usual. The attacks occurred with a fair regularity about every six weeks. They were never accompanied by any pain or colic, and there was never any indication when they were about to come on. Her appetite has always been poor; she never had any pain after taking food, nor any hunger pain beforehand. She has never been jaundiced or had any pain referred to the gall-bladder. Once she had a pain in the neighbourhood of the right groin, which she was told was due to her appendix.

There has been some pain over the left lower ribs and renal region, said to be due to a floating kidney. There have been no other illnesses. The patient has never had any children.

In appearance she is a tall and delicate-looking woman, thin and anæmic, with rather a worn expression. On examination the pulse and temperature were normal, the tongue was clean, and the heart and lungs were normal. Careful palpation of the abdomen revealed nothing abnormal. There was no tenderness in the right hypochondriac or epigastric regions. The right iliac region was very slightly tender, suggesting a morbid condition of the appendix. Otherwise all objective signs were absent.

The patient was subsequently advised to have a barium meal. The film (see Special Plate) shows a large air space, with a fluid level below, occupying the region of the second part of the duodenum. This is, in my opinion, a large diverticulum arising from the junction of the first and second parts of the duodenum. There is no ptosis of any of the viscera. The fluid portion is evidently stagnant, and is comparable to residual urine in the bladder in enlarged prostate. It is probable that the contents become toxic from stagnation, and that the attacks of vomiting, etc., are due to their being emptied from time to time into the intestinal tract, where they set up an intense irritation. Later examination revealed a gall bladder which was found to fill and empty itself normally. The report also mentioned that the appendix did not fill properly and was not to be made out, and with the tenderness (above mentioned) was in a pathological condition of a chronic nature.

I am indebted to Dr. Brewis of Scarborough, who is responsible for the films of the case.

CHARLES E. SALTER, M.D., B.S.,
F.R.C.S.Eng.

BIRTH ON THE RAILWAY TRACK

In the *Journal* of June 17th (p. 1090), a live birth on a railway track in India was recorded, whilst the train was travelling at twenty miles an hour. Other remarkable features of this birth were that the infant bounced on a steel rail and escaped injury from an oncoming carriage wheel, which severed and sealed off the umbilical cord. I am aware of the lavatory accommodation provided on Indian railways for the use of persons accustomed to the squatting posture, and I think that the circular aperture is not less than four inches in diameter. This aperture is for some unknown reason always placed over one or the other of the steel rails. On British railways the aperture occurs midway between the rails. Sometimes a movable trap door operated by the flushing mechanism is placed at the outlet, but in the majority of carriage lavatories no trap-door exists. These preliminary remarks have an interesting bearing upon the live birth of an infant at Paddington Station, G.W.R., on August 9th, 1933.

THE PADDINGTON BIRTH

The 9.50 p.m. train had departed from Paddington No. 1 platform for Bristol and Plymouth when an infant with cord and placenta attached was seen lying between the rails. A midwife who was present breathlessly gave instructions to a ticket collector to place the placenta upon the chest of the infant (to avoid traction at the umbilicus) and hand it up to her. The infant complete with appendages was received upon a pillow, wrapped in rugs and hurried by taxi to St. Mary's, where it was found to be uninjured and to weigh 7 lb.

The rest of the story is like a tale of adventure. The telegraph wires parallel to the railway hummed with excitement as they did on that memorable occasion when Tawell, the first criminal to be shadowed by telegraphy, was eventually apprehended at Paddington. Immediately the discovery was made the Great Western Railway authorities at Paddington telegraphed to Slough for the train to be stopped and searched for a parturient mother. The Slough police summoned a doctor and a nurse to the railway station, and when the train arrived inquiries were made "whether anybody required medical assistance." The spot where the infant lay at Paddington enabled the stationmaster to calculate from which carriage the infant had dropped, it being assumed that the train was stationary at the moment of birth. This particular carriage received the most attention at Slough. Furthermore, inquiries at Paddington cast suspicion on two women who approached a ticket collector and asked that they might be allowed to return to Bristol by this 9.50 train, as one of them had severe abdominal pains and "appendicitis was feared." The two women, being excursionists from Bristol, were due to return by the excursion train at 11 p.m., but owing to the reason offered their tickets were specially endorsed so that they could travel on the 9.50. Now it was unfortunate for all concerned that this tit-bit of information came too late for the searchers at Slough. Nobody volunteered for free medical treatment and the train was allowed to proceed. One of the ticket collectors at Slough, however, reported the existence of the two endorsed tickets on the train, and it was decided to effect a *coup* at Reading.

The police at Reading were now faced with a medico-legal problem. They mistakenly understood that the child was dead, was possibly a stillbirth, and therefore the only feasible charge could be that of "concealment of birth". Now "concealment of birth" being merely a misdemeanour, no arrest could be made. The train was stopped at Reading and all the passengers were asked to line up on the platform. The sign of blood upon the floor indicated the parturient mother, and the names and addresses of herself and her companion were taken. All were allowed to resume their seats and the train once more departed on its rather hesitant way. Further delay was still to come. Hard on the lights of the departing train there came the news that the infant was alive! The charge became more serious, and was advanced to "abandonment of the child"—for had she not abandoned her living child between the rails at Paddington? The charge assuming the magnitude of a felony, she could now be arrested. The train was stopped at Swindon, and she and her mother (as the other woman happened to be) were taken into custody. I understand from the railway authorities that the young mother was unmarried and that she had a very trying puerperium. When she faced the charge subsequently her defence was that she was in too much bodily and mental agony at the time of the birth to know what was happening. The case was dismissed.

This case is of unusual interest because of the rapidly moving culprit and the rapidly changing medico-legal position. I have made inquiries and find that the closet concerned had no trapdoor. The narrowest diameter of the vent negotiated by the foetus was exactly four inches, and the drop to the permanent way was about four feet. I am informed that the G.W.R. know of a case where a dead child had been found impacted in such a closet vent.

I am indebted to Mrs. Lucas the midwife concerned, various employees of the G.W.R. and to members of the Slough police for essential details.

N. C. HYPHER, B.Sc., M.R.C.S., L.R.C.P.

EVIPAN SODIUM IN THE MANIPULATIVE TREATMENT OF SCIATICA

Evipan sodium, a barbiturate derivative manufactured by Bayer Products Ltd., has been used very extensively in this country and abroad for the purpose of producing complete anæsthesia of short duration—for example, fifteen to thirty minutes. The substance is put up in ampoules containing 1 gram, and a corresponding number containing 10·5 c.cm. of distilled water are supplied. A solution is prepared immediately before use by withdrawing the water and injecting 10 c.cm. into an Evipan ampoule. The salt is very soluble and forms a clear solution which is then introduced intravenously. The injection should be given slowly—that is, not more than 1 c.cm. in ten seconds, and the patient should during this time count aloud. Quite suddenly the voice falters over two consecutive numbers and the patient is asleep. For manipulative work I habitually give half as much again as the quantity required to induce sleep. In powerfully

built men the volume administered is about 7 c.cm. At this juncture there is complete muscular relaxation, stertorous and slow breathing, and quite often cyanosis. The last feature is transitory and need give rise to no alarm.

The especial value of evipan in manipulation, particularly when dealing with the spine and sacro-iliac joints, is the combination of complete relaxation which is essential to success and the freedom of movement given to the manipulator, whose patient has no longer to be followed in all three planes of space by a harassed anaesthetist.

It is still insufficiently appreciated that a great number of cases of sciatica are actually supplied by patients who suffer from referred pain arising from strains, adhesions, or fibrositis in the lumbo-sacral and sacro-iliac regions, and are not in fact examples of true sciatic neuritis. This "central sciatica" is responsible for a group of partially disabled individuals who can usually be cured by adequate manipulation *provided that their postural errors be subsequently corrected by remedial exercises*. It is for months or years, and who can usually be cured by failure to observe this precaution that has led many neurologists to discard manipulation as a therapeutic measure.

It is for the treatment of such cases that I want to emphasize the value of this new anaesthetic, which is certain and rapid in action, yet of short-lived effect and devoid of unpleasant after-sensations.

London, W.1. A. H. DOUTHWAITE.

Reports of Societies

WARD AND DORMITORY INFECTIONS

A discussion on ward and dormitory infections, including the exanthemata, took place at the Medical Society of London on November 27th, Sir WILLIAM WILLCOX presiding.

Dr. J. ALISON GLOVER said that ward infections, happily, no longer held the terrors which they did in a previous generation, but less obvious forms were still prevalent. The diseases in which ward infection had been reported in recent years might be divided into two groups: contagion and droplet infection. Some diseases, notably puerperal fever, obviously belonged to a mixed group, and probably most of the droplet infection group could be carried by direct infection, as, for example, by tableware. The contagion group included enteric fever, infantile diarrhoea, pemphigus neonatorum, among others, while droplet infection included pneumonia, influenza, and the important diseases associated with the haemolytic streptococcus. Of the contagion group enteric fever formed a typical example, and, despite its low incidence of recent years, this had been seen too frequently as a ward infection. Various factors had combined to cause ward infections of enteric fever, chiefly delayed or mistaken diagnosis, defective nursing technique, insufficient or faulty ward equipment, overcrowding, and the staff carrier. Ward infection in lying-in hospitals causing morbidity in the newly born, often accompanied by outbreaks of diarrhoea in the adult patients and staff, was still seen. The nursing technique in a lying-in ward was peculiarly exacting, and to maintain it at the necessary high level with a staff in which obstetric nurses were often far outnumbered by pupils in training was very difficult. Skilled planning and good design were required in every detail. Overcrowding in a lying-in ward operated disadvantageously, not merely by facilitating droplet infection from bed to bed, but by immensely increasing the difficulty and strain of nursing and the likelihood of lapses in nursing technique. His experience showed that an outbreak of pemphigus or other septic infection among infants or mothers in a maternity hospital was almost invariably preceded by overcrowding. With regard to pneumonia, Dr. Glover mentioned that some time ago he investigated an outbreak of influenza in a public school in which a good many cases were complicated by pneumonia. It appeared to him that half the cases of pneumonia were cases of influenza on admission and the pneumococcal infection was received in the sanatorium wards, some of which were not cross-ventilated, and all of which were overcrowded. As for streptococcal infections, the introduction of an epidemic strain of streptococcus provided an acid test of hospital efficiency. Its spread might be facilitated by influenza or epidemic coryza, but in any case such spread revealed a chink in the armour. It had been proved by serological methods that patients in fever hospital wards might repeatedly be infected with different serological types of the haemolytic streptococcus, and many of the so-called complications of scarlet fever particularly were really due to fresh infection occurring in the ward with a strain of haemolytic streptococcus of different serological type from that which was present in the patient's throat on admission. Another form of streptococcal infection was seen in wards devoted to acute rheumatism. Several outbreaks of acute rheumatism following ward epidemics of throat infection with haemolytic streptococcus had occurred at various hospitals. He also insisted upon good spacing and cross-ventilation in recovery wards for post-tonsillectomy cases, for the post-operative complications were not negligible. Finally, he mentioned the minimum space figures of the Ministry of Health for isolation hospitals for infectious disease—namely, 9 feet between beds, 12 feet wall space per bed, and 144 square feet per bed.

Dr. J. C. SPENCE (Newcastle) recalled the work of James Young Simpson, who had insisted that the solution of the problem of ward infection depended upon the building of hospitals with small wards and ample air space. Had Lister's discovery been postponed for a few years Dr. Spence thought that there would have arisen much sooner the kind of hospitals advocated by the previous speaker. Each institution had its own problem. In one home for the mentally defective, with an inmate population of 430, he found that during the last five years there had been six cases of measles, ten of mumps, five of scarlet fever, twenty-one of chicken-pox, and one infected, but no other infectious disease. In another big outbreak of influenza, in which 199 persons were colony, with about the same population, there had been in five years five cases of measles, fourteen of scarlet fever, fourteen of diphtheria, and an outbreak of influenza with 167 cases. In some cottage homes on the outskirts of Newcastle, harbouring 220 children from 3 years upwards, who travelled to the village school each day, there had been in five years one outbreak of whooping-cough, involving sixty children, one case of scarlet fever, and a very few cases of measles and mumps, but no other infectious disease. In a resident school for 120 deaf-and-dumb children, thirty of whom had chronic ear discharge, the amount of contagion or droplet infection proved to be greater among the twenty members of the staff than among the children. In the staff the prevailing illness was septic tonsillitis, whereas among the children the prevailing infection was a skin sepsis. The floor space of the dormitories was adequate, but the children, being deaf-and-dumb, had a habit at night of pushing their beds together so that they might communicate with each other by touch. From these and other institutions he concluded that there was little to criticize in most institutions in the country, such as homes for the mentally defective, residential schools, and orthopaedic institutions. In hospitals it was a little difficult to get figures in the same way, and perhaps a little unfair to rely upon figures. The old days of hospital fever and gangrene had gone, but he thought that there were still surgical wards in which a mild form of hospital septic infection was passed from one case to another. He noticed with what readiness a three days' fever was regarded as due to influenza. He suggested that in the surgical ward these mild three-day or five-day infections were lingering evidences of what sixty-five years ago would have been a virulent hospital fever. During the past four years

there had been twelve small outbreaks of bacillary dysentery, with seventy-five cases and four deaths; but from his clinical experience bacillary dysentery was an extraordinarily common disease in childhood, and he thought that in places where there was a less zealous officer of health than in Newcastle many of them went unrecognized. One of the reasons why infection in infant wards received so little attention was because of the concentration on metabolic difficulties, which was so popular in Germany. He believed that the majority of cases of wasting in infants were due to septic infections which they picked up, sometimes in their homes, but especially, if institutional children, in institutions. He looked forward to the day when in every hospital there would be a separate room for every patient if he desired it or his disease demanded it. There were separate rooms in the cheapest hotels, and in prisons. But if wards must remain, let the beds be down one side only, and the opposite side open out to a balcony.

Dr. E. K. LE FLEMING spoke from the point of view of the public school medical officer. It had been his good fortune to be associated with a public school since its foundation over ten years ago. The school medical officer was aware that, apart from the exanthemata, which were always a great anxiety, there were other diseases always to be borne in mind. One condition which was of interest was tinea cruris. For a long time in his school no particular attention was paid to this condition, until one boy developed it rather badly. They then proceeded to clear it up, and this led to rather interesting results. Having got hold of all the cases (about fifty or sixty in a school of 350 boys) they were all cured, and every boy went home at the end of the term free from tinea cruris. At the opening of the following term every boy was examined again, and, roughly speaking, about 2 per cent. of boys were found to have contracted the disease during the holidays. Another trouble in public schools was infective conjunctivitis (" pink eye "), which, in very slight forms, was apt to escape notice. It required about five days to make a definite impression on an acute case of " pink eye," and about a fortnight to cure it. Another trouble in school was impetigo, a particularly troublesome complaint. During the last year he had employed a method advocated in the *British Medical Journal* which had been highly successful—it consisted in the application of a simple elastoplast dressing, which was left on for five days. Another disease occasionally seen about which information was rather hard to obtain was pityriasis rosea; it was contagious to some extent. To deal successfully with these conditions required quite simple factors—a sympathetic head master and a board of administration not too parsimonious in giving the medical officer what he wanted, a really efficient nursing staff, and in addition efficient management of the boys from the point of view of cleanliness. The staff had to be trained to be on the look out for the earliest symptoms of these troubles. The price of a school free from infection was eternal vigilance.

Dr. B. SCHLESINGER said that Dr. Glover had stressed bed-to-bed infection, but contact infection in institutions, where individuals were not always in bed, should not be disregarded. Dr. Spence would isolate each child in a separate cubicle, which would have psychological disadvantages for the child, though this would not apply to the infant. He thought there should be one nurse for every two children in all children's hospitals. Dr. GEOFFREY MARSHALL referred to the bad conditions in one preparatory school, where he found the beds in a long row almost touching each other. As clinicians he feared that they did not pay enough attention to these relatively slight cases of hospital fever; this was because, in the majority, nothing very tragic happened, but tragedies nevertheless did occur. Dr. LENNOX WAINWRIGHT mentioned a bad case of herpes zoster in a man aged 75, associated immediately afterwards with severe chickenpox in a grandchild and a great-grandchild. Dr. F. H. KELLY said that at a preparatory school where he was able to introduce the " head-to-tail " method of arranging beds he got far fewer cases of infectious disease than in a public school where he was unable to introduce the method. Dr. MONTAGUE SMITH referred to the importance of dysenteric and other conditions of the bowel in a children's hospital. He thought that all cases of diarrhoea and vomiting should be kept as far as possible away from the general wards, and be treated in observation wards by themselves. Individual cases of scarlet fever or diphtheria were not of anything like the importance of bowel infection as regards infectivity in a children's hospital.

Sir WILLIAM WILLCOX said that it was characteristic of British medicine to look for the cause of a disease and find it in some infective process. In Continental hospitals, among cases which in England would be attributed, and rightly, to sepsis, that aspect of aetiology was entirely ignored. Dr. ALISON GLOVER said that the " head-to tail " arrangement of beds was a useful measure if space was very restricted, but it ought never to be necessary. Overcrowding was not simply a cause of droplet infection: it meant an immense amount of inconvenience to the nurses, and operated in every way against ward efficiency.

PAGET'S DISEASE OF THE SKIN

At a meeting of the Pathological Society of Manchester, held on November 8th, Dr. L. SAVATARD discussed the problem of Paget's disease of the skin. He distinguished two types of slowly growing carcinoma of the skin. " Intra-epidermal " carcinoma (one type of which was the " precancerous dermatosis " of Bowen) remained confined to the epidermis. " Intra-epithelial " carcinoma, on the other hand, was not confined to the epidermis, but extended into sweat ducts and mammary ducts. Paget's disease of the nipple was usually an intra-epithelial carcinoma, affecting the mammary ducts as well as the skin round the nipple, but it might be a purely intra-epidermal carcinoma without duct lesions. Paget's disease of the penis was the intra-epidermal stage of a squamous epithelioma. In other extramammary sites Paget's disease was usually a purely intra-epidermal carcinoma, although cases had been seen where the process involved sweat ducts and glands. Such cases thus corresponded with the usual mammary type. The histological evidence indicated that these slowly growing carcinomas spread, not by permeation of tumour cells into the surrounding healthy epidermis, but by what might be termed a " cancerous metaplasia " of adjacent normal cells. Extension took place slowly, and healing might occur locally, so that small areas of atrophic but otherwise normal epithelium were found within the affected area. Dr. Savatard's lecture was illustrated with numerous lantern slides.

DERMATOLOGY IN DENMARK

At the meeting of the Dermatological Section of the Royal Society of Medicine on November 16th a paper was read by Dr. EVELYN M. HOLMES on " Some Aspects of Dermatological Work in Denmark." Dr. Holmes began with a description of the lupus work at the Finsen Light Institute, Copenhagen, and pointed out how recent improvements in the Finsen-Reyn lamp for the treatment of this condition had altered favourably the results of treatment and simplified considerably its administration. Other forms of skin disease were mentioned which had been found to benefit by this new lamp treatment, and other uses in general of light therapy in dermatology were referred to. A point was made with regard to the different incidence of certain affections in Denmark and at home, and emphasis brought to bear on the relative frequency in dermatology of cases of Boeck's sarcoid. This might be statistical rather than clinical, since Boeck's sarcoid was frequently mistaken for other conditions, and particularly for lupus. A few points of minor interest in regard to therapeutic methods in use for common complaints such as eczema and psoriasis were referred to, and the paper concluded with a discussion of the new application of infra-red photography to dematological work. Lantern slides of lupus cases and infra-red photographs of various skin conditions were shown.

Reviews

DE ARTE MEDICA

The Physician's Art,[1] by Dr. A. G. GIBSON, is one of the *opera aurea* which should be given to every medical student as soon as he qualifies. It teaches him, in very choice language, the duties he owes to his patient, to himself, and to his colleagues in the profession. It is not primarily a book on ethics, but rather a collection of wise counsels from a physician of great experience to those who wish to begin life following the true and best traditions of medicine as it has been practised at all times in every part of the world. Some passages remind the reader of Sir Thomas Browne; others of Munk's little treatise on euthanasia. But the advice throughout is very practical. A warning is given against a too frequent and too thorough examination of patients who are seriously ill or are old and frail, when once a satisfactory diagnosis has been made. As a pathologist Dr. Gibson approves the statement that post-mortem evidence of disease teaches us "to realize not what the patient died from but what he could live with."

The advice in regard to the management of practice is especially sound. He tells of the difficult problems which arise in dealing with patients and their friends, points out that death does not absolve him from the secrecy he undertook in accordance with the Hippocratic maxim not to reveal what came to his knowledge professionally. He tells of the duties of the trained nurse and of the attitude to be adopted when called in to visit patients whom he knows to be under the care of a colleague. Finally, he treats of the doctor as a man, as one who has to earn his living and keep himself in health, for "no sick man likes to be tended by a seedy doctor who has lost that buoyancy which is always a large though unconscious part of therapeutics; it is unwise to burn the candle at both ends, to overtax one's health, to depend upon stimulants and hypnotics, or to cram into twenty-four hours what puts a strain on one's bodily mechanism." And when the book has been read and re-read, as it necessarily must be, the thought recurs that Hippocrates was very wise, and that in the essentials of medicine we have advanced but little from the principles he taught.

APPLIED PHARMACOLOGY

Applied Pharmacology,[2] by Professor A. J. CLARK, has now been published in its fifth edition, although the fourth appeared in 1931; evidently it is being used by a rapidly increasing number of readers. No other book gives an account of the action of medicinal substances which is at so many points based on the scientific evidence, and which includes a clear account of that evidence. Concerning facts so well established as the action of morphine on intestinal movements, for example, Professor Clark takes the trouble to give a figure from Katsch, showing the diminished number of peristaltic contractions in the caecum of a rabbit after 10 mg. of morphine hydrochloride. While it is clear that this thorough sifting of dogma will help in harmonizing pharmacological teaching and clinical procedure, the chief value of the book lies in its accounts of recent investigations. The pharmacology of iron salts is fully described in the light of the work of Davidson, Mackay, and Witts, to name investigators in this country alone. There is an excellent chapter on the skin, describing the rationale of baths, powders, and ointments which should be of much use to those who are doubtful about the prescriptions of the skin specialist. Increased space is given to the action of radium and other sources of radiation, and there are chapters on the pituitary and sex gland hormones, and on vitamins. It is interesting to observe that evidence is given against the use of castor oil as a purgative; for *x* rays show that afterwards the colon becomes flaccid and does not recover its normal mobility for two or three days. The work of Alvarez and Taylor indicates that the custom of giving a powerful purgative before operations is of doubtful value, since there is post-operative distension.

If Professor Clark were to do no other service to medicine (he does many) than to work as conscientiously and as energetically as he must to keep this book up to date, he would deserve the thanks of all of us. Books like this are the only channel through which the results of the mass of scientific investigation can be brought home to the minds of the practising doctor, and such books are rare.

THE SLUM PROBLEM

Sir E. D. SIMON, who is abundantly qualified to form an authoritative opinion and to guide the opinion of others on this subject, believes that the methods by which Sir Hilton Young proposes to carry forward his policy of slum clearance are profoundly mistaken. He has set forth the facts and the reasons for this belief in a volume of moderate compass, entitled *The Anti-Slum Campaign*,[3] and there can be little doubt that in the minds of many careful readers he must be held to have justified his thesis. At any rate, no one can read the book without an uncomfortable feeling that the present proposals of the Minister of Health and the Government must probably be regarded not only as imperfect and inadequate, but also as containing within themselves possibilities of aggravating the difficulties of the housing situation. The volume is therefore well worth reading. The argument is clear, the facts and conclusions are presented in an interesting fashion, and if there is a good deal of repetition of statement in the various chapters this is itself effective in emphasizing the main points which have to be considered and the principles which must underlie any alternative practical policy.

The object of the book is, indeed, a severely practical one. "In any meeting, before any audience, from the House of Commons downwards, it has always been possible to get a cheer by attacking the slums. On the other hand, as soon as the speaker begins to consider the remedy, almost immediately the audience loses interest and begins to yawn. Public opinion demands the clearance of the slums, but does not know or care how it is to be done. . . . The object of this book is not to spend time on emphasizing the emotional appeal. I propose to assume that the job has got to be done and to consider on the basis of cold facts and figures how best the task of rehousing the slum dwellers in healthy homes can be accomplished." The prime need is to get the children out of the slums. To many of the adults who live there the matter is of much smaller moment; indeed, it would seem in many cases to be a sort of cruelty to uproot the oldest of them. To this end the author's two main requirements are: first, that the building of new houses must go on at an even increased rate until there is a house (or flat) for each family; and, secondly, that those should be moved into the new houses who have the largest families and the greatest need in priority of those who will

[1] *The Physician's Art*. By A. G. Gibson. An attempt to expand John Locke's Fragment "De Arte Medica." London: H. Milford. Oxford University Press. 1933. (Pp. 237. 7s. 6d.)

[2] *Applied Pharmacology*. By A. J. Clark, M.C., M.D., F.R.S. Fifth edition. London: J. and A. Churchill. 1933. (Pp. 632; 73 figures. 18s.)

[3] *The Anti-Slum Campaign*. By Sir E. D. Simon, M.A. London: Longmans, Green and Co., Ltd. 1933. (Pp. 206. 2s. 6d. net.)

be likely to prove the most desirable tenants from other points of view. In both these matters things are not better, but rather worse, than they were ten years ago. It is shown that the decrease in the size of the family has on the average outbalanced the number of new houses built, and that from this point of view, in spite of the large number of houses built during the last decade, the actual shortage of houses is to-day greater than it was at the beginning of that period. It is also stated that, with few exceptions, the policy of municipalities has been to select as tenants of their houses those whose position is relatively sound economically, and who have the smallest number of children, instead of the most needy with the larger families, and this in spite of subsidies which can only be justified on the supposition that they were intended to facilitate the selection of the latter. The main need for the next ten, or even twenty, years is the building of more and more houses, both those which can now be let at an economic rent of 12s. a week, and those which, with the aid of a subsidy, will be let at a rent of from 5s. to 11s. a week (averaging about 7s.), in almost equal proportions. These housing schemes should not represent houses of different value, though they might be of a number of different types, but similar houses to be let at differential rates by the pooling of subsidies, to meet the needs of tenants in varied economic circumstances. Only when this has been done and a number of empty houses are beginning to appear among those of the less desirable types can a direct attack be properly made upon the slums without the certainty of creating new ones in surrounding neighbourhoods and postponing still further the time at which the shortage of decent houses will be definitely overcome. A scheme on these lines is worked out and supported in the fullest and most interesting fashion.

Two features of the book may be especially commended. The effect of subsidies by various amounts and methods has never yet been satisfactorily or scientifically presented; nor have the reasons for, and methods of, differential rating been adequately considered. In this volume not only is there an admirable chapter on subsidies by the author himself, but in appendices there are excellent contributions on the former subject by Mr. J. Inman and on the latter by Mrs. E. M. Hubback. On the other hand, Sir E. D. Simon's treatment of the housing problem in London is scarcely satisfactory. He clearly points out the difficulties created by enormous land values and great distances for travel, but his solution is less clear. It would seem essential in London that slum clearance should go on simultaneously, in spite of the greater cost, with the building of blocks of suitable flats on the same or adjoining sites.

TREATMENT OF FRACTURES

In the preface to his book on *Fractures*[4] Dr. PAUL B. MAGNUSON of the North-Western University of Chicago announces as his aim an endeavour to meet the needs of the man who first sees the fracture. In so doing he has tried to simplify methods and has not considered the various operative procedures for the treatment and fixation of fresh fractures for which special training and special equipment are required. The methods described are those that he has thoroughly tried in practice, and we may therefore rely upon their practical value. Although it is not so stated on the title-page, certain dislocations and their treatment are discussed in the work. Professor Magnuson begins with a statement of the fundamentals of fracture practice consisting of a number of aphorisms, some of which, such as "Splint 'em where they lie!" are quoted from the American Medical Association's *Primer of Fracture Practice*, of which we wrote with warm approval on its first appearance and also on the appearance of a revised edition (see *Journal*, 1931, i, 147; 1932, i, 158).

It may be inferred from his introduction that the author is not an extreme advocate of surgical interference with the knife and saw in recent fractures. For compound fractures he advocates débridement and excision of the exposed bone-ends. He looks askance at Lane's plates. Local anaesthesia in the reduction and fixation of fractures he regards with qualified approval, but he points out that the procedure sometimes amounts to converting a simple into a compound fracture. Whatever method of producing it be employed, he holds the opinion that complete muscular relaxation is necessary for the successful reduction of all fractures. Although in first aid extension by the surgeon's hands may relieve spasm and consequent pain, the effort cannot be maintained steadily or long enough for the setting of a fracture, and some mechanical means are necessary. Dr. Magnuson recommends the use of heavy weights up to 90 lb. applied in instalments of 10 or 15 lb. Of the different methods of skeletal traction he gives the preference to the ice-tong calliper in general, but for fractures of the tibia he recommends the Steinman pin or Kirschner wire as a means of applying traction. He recommends and describes the application of plaster-of-Paris, but does not mention Böhler's method of applying unpadded plaster and splints. We have found no discussion of the value of the Balkan frame, but Sinclair's skate and its use is recommended and described.

Fractures of the spine are fully dealt with in a section of great practical value. There are two good chapters upon physical therapy and exercise in the after-treatment of fractures. In general we find little to criticize and much to commend in this practical volume.

MIGRAINE

The practitioner who desires to know all that has been said and can be said on the subject of the diagnosis and treatment of migraine will not be disappointed if he consults the volume[5] bearing this title and written by Dr. RAY M. BALYEAT. The clinical basis of the study is provided by observations made on 350 cases over a period of four years, and this is supplemented by a thorough and critical examination of the various views which have been advanced from the earliest times to the present date relative both to aetiology and to treatment. The book, in short, includes a clinical investigation and record of the best type, and it deserves a cordial recognition and reward.

At the outset Dr. Balyeat is careful to distinguish migraine from other forms of headache, and particularly from those recurrent headaches which may have a familial distribution but are not attended by the evidences of cortical involvement distinctive of the true migrainous attack. After a critical review of the various existing doctrines relative to the causation of the disease Dr. Balyeat's conclusion is that while none is entirely satisfactory the allergic theory more than any other meets the clinical facts. Allied in this sense to asthma, urticaria, and allergic eczema, migraine depends on a specific sensitization to one or more foods, the area of specific sensitization being in the cerebral cortex; and predisposing causes, including heredity, and various exciting influences have a not unimportant part in the production of the symptoms. The evidence for this summary statement is set out in detail in Dr. Balyeat's

[4] *Fractures.* By P. B. Magnuson, M.D. London: J. B. Lippincott Company. 1933. (Pp. xix + 466; 317 figures. 25s. net.)

[5] *Migraine: Diagnosis and Treatment.* By R. M. Balyeat, M.A., M.D., F.A.C.P. London: J. B. Lippincott Company. 1933. (Pp. xvi + 242; 26 figs. 12s. 6d. net.)

pages, and is supplemented by a series of individual records, which form by no means the least valuable or least interesting part of his book. The discussion of treatment is dealt with not less thoroughly than the question of diagnosis, and it is allowed that no short and easy road to success can be provided. Nevertheless, Dr. Balyeat claims that provided care is taken to determine the food or other agent primarily responsible and to work out the necessary therapeutic plan—an undertaking often demanding much time and patience—as large a measure of success in the treatment of migraine can be secured as that of any other chronic disease.

Dr. Balyeat is eager to persuade the profession that the required effort is well worth while. Not only is there the appeal of the individual sufferer; there is also a decided economic claim. It has been shown, he says, that approximately 7 per cent. of the inhabitants of the United States suffer some time in life from migraine; that about 30 per cent. of the patients manifest symptoms before 10 years of age; that in a large proportion of the cases periodic attacks extending over many years interfere with education and with business and other activities; and that the relatively comfortable doctrine that middle age will bring relief is usually stated in far too confident terms. The sum of unhappiness, of suffering, and of disability is thus a very considerable one, and there is therefore a corresponding justification for Dr. Balyeat's appeal for a more attentive and hopeful study of a problem which he describes as "a snag over which the medical profession has stumbled for centuries." His teaching and his example are embodied in his book, and we commend them to our readers.

Notes on Books

Alexander Frederick Richmond Wollaston, by his own account, was what might perhaps be called in Scotland "a stickit doctor"—meaning that, although he became a member of our profession, his heart was not in the practice of medicine and his tastes and gifts lay elsewhere. On the other hand, but for his medical degree Wollaston might not have been able to join the expeditions of discovery with which his name will ever be linked, or to win the Distinguished Service Cross in the war at sea. Many friends in many walks of life will welcome the memoir his widow has compiled from letters and diaries.[6] "Sandy," as he was known to some intimates, or "A. F. R." as others remember him, came of fine and distinguished stock on both sides: natural science, through his father; the arts, through his mother. A man of diverse talents and wide sympathies and culture, hating sham but tolerant towards the foibles of ordinary people, modest to a fault but no sufferer of fools, Wollaston held a place apart in the thoughts of everyone who had the privilege of his friendship. He was shot dead by a deranged undergraduate on June 3rd, 1930, little more than a year after he had returned to Cambridge as tutor at his own beloved college, when he appeared to be well set upon the longest and happiest stage of a career that had hitherto been "but one adventure after another." Every page of this book proclaims him a born naturalist, a born artist, and a humanist in grain.

Anatomy for Artists,[7] by Mr. EUGENE WOLFF, late lecturer in anatomy to the Slade School, is probably familiar to artists. The second edition, illustrated from drawings by Mr. GEORGE CHARLTON, a member of the school staff, is now issued. A number of new illustrations have been added and the text has been simplified. Artists are evidently expected to learn a large number of descriptive anatomical terms; these the author has attempted to reduce as far as possible. In some instances the reasons for the employment of a technical term are given in order to assist the memory; in others the technical term is discarded, and such expressions as "dental margin" for "alveolar border," and "inverted V" for "lambdoid suture" are employed. It would seem that, with the exercise of a little ingenuity, simplification in the nomenclature could be carried very much further. Emphasis is rightly laid on the importance of a thorough knowledge of the skeleton as an indispensable basis for the understanding of form and function. The diagrammatic drawings of the muscles are vigorous and clear, and the important distinction between the fleshy and the tendinous portions is well portrayed. Especially to be commended are the figures depicting the surface markings and underlying bones, placed side by side with the figures showing the muscles of the part for comparison. A feature of the work which has not hitherto been dealt with in textbooks is the description of the surface distribution of fat in the body, a matter of some importance in reference to sexual differences of form. Due consideration is given to the actions of the muscles, and to the alteration in surface form which is dependent on their resting and active states.

The subject-matter of Bentley and Driver's *Pharmaceutical Chemistry*[8] is the chemistry of substances used in medicine. The book may be described as a chemical companion to the *British Pharmacopoeia*. Its object is to describe and explain the scientific principles underlying the mode of preparation of official drugs, the tests by which their purity is recognized, and the method of assay by which they are quantitatively determined. This section of pharmaceutics comprises much that is strange to the ordinary student of general chemistry, and accordingly such a handbook becomes a necessity to students of pharmaceutics and to those who are engaged in the production of drugs and medicaments. The arrangement of the material has been made with a view to rendering the volume primarily useful to students graduating in pharmacy. The early chapters deal with general analytical methods and with the theoretical considerations on which they are founded. Following this introductory part, the remainder of the volume describes the characteristics of drugs in monographs under their respective names. The introductory part is well written and useful. What follows seems to contain much redundant matter copied from the *Pharmacopoeia*. The matters which fall under classical organic chemistry are ably treated, but some of the more technical branches of the subject are not fully explored.

The fourth edition of the *British Waterworks Year Book and Directory*, with statistical tables, published by the British Waterworks Association,[9] contains a mass of information relating to waterworks undertakings in Great Britain and Ireland, and in some of the British Dominions. The book is made up of three parts: directory, statistical tables, and general information. The directory part gives in alphabetical order the names of undertakings with particulars as to date of establishment, names of chief officials, special Acts and limits of supply, the sources of supply, and the character of the water. The tables furnish particulars as to sources of supply, extent of catchment area, storage or subsidence reservoirs, wells and springs, engine power, filtration works, length of mains, etc. This work will prove invaluable to all concerned in the handling of water problems.

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[6] *Letters and Diaries of A. F. R. Wollaston.* Selected and edited by Mary Wollaston. London: Cambridge University Press. 1933. (Pp. 261. 12s. 6d. net.)

[7] *Anatomy for Artists.* By Eugene Wolff, F.R.C.S. Illustrated by G. Charlton. Second edition. London: H. K. Lewis and Co., Ltd. 1933. (Pp. viii + 94; 165 figures. 12s. 6d. net.)

[8] *Bentley and Driver's Textbook of Pharmaceutical Chemistry.* By J. E. Driver, Ph.D., M.Sc., A.I.C. Second edition. London: H. Milford, Oxford University Press. 1933. (Pp. xiv + 538; 40 figures. 16s. net.)

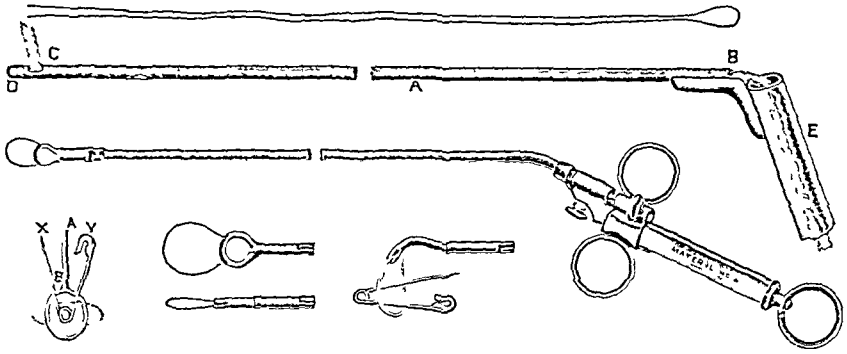
[9] *British Waterworks Year Book and Directory with Statistical Tables.* 1932–3. Fourth edition. General Editor, G. P. Warner Terry. Published by the British Waterworks Association, Grand Buildings, Trafalgar Square, London, W.C.2. (£1 1s. for members; £1 11s. 6d. for non-members.)

Preparations and Appliances

BRONCHOSCOPY SWAB HOLDER AND SAFETY-PIN REMOVER

Mr A TEMARKIN, F R C S Ed (Liverpool), writes:

I should like to draw attention to two instruments (illustrated here) which have a definite sphere of usefulness in bronchoscopic surgery. The upper is a "safe" swab holder. It consists of a narrow tube, DCAB, rounded off at D, with an eye at C. Through this eye, by means of the wire stylet, a length of ribbon gauze is drawn, leaving about an inch protruding from C, whilst the remaining few yards are packed into the hollow handle E. After swabbing the end



is pulled out another inch or more at C and the soiled portion is snipped off and so the new swab is available. The advantages are obvious. (1) It is impossible to lose a swab. When working with the old holders down fine tubes this possibility has always been a constant worry to me. (2) Handling of the swabs by the nurse is reduced to a minimum, and consequently it is quite easy to maintain asepsis. (3) Although I confine the holder to work down fine tubes, yet, if required, one gets a swab of any size by simply pulling out more gauze. (4) The swab is changed in a trice.

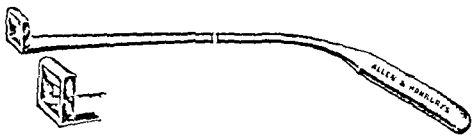
The lower instrument is a safety pin remover. That there are sixteen ways of removing a safety pin from the oesophagus suggests that the ideal way has yet to be found. I have devised this snare which, instead of forming the loop in the usual position, throws it down at right angles as in the illustration. This instrument is easily passed in the closed position alongside the pin till its nose is just distal to the clamp of the pin. The wire loop is then forced out, and then gently withdrawn until it embraces the pin. This is comparatively easy owing to the great size of the loop, but one must be careful not to drag the pin-point into the wall of the gullet. If this seems in any way likely, one applies a light fixation forceps to the keeper. Closure of the snare now automatically closes the pin, which is held firmly, and easily removed. This method, though resembling Jackson's, has many advantages. (1) The snare is much less bulky than Jackson's ring and so can be readily insinuated down a fine tube past the pin. (2) Despite this, the loop has an area quite four times that of Jackson's ring. (Anyone who has tried to ram a pin into the ring will appreciate this—it is only too easy to miss the ring completely.) (3) The long axis (AB) of Jackson's ring is at right angles to the "spread" XY of the pin. This means that even if one is lucky or skilful enough to ram the pin down through the ring, it must, in closing, turn through 90 degrees, possibly tearing the gullet wall. With the snare closure is *quite* gentle, and involves *no* torque, and *no* ramming with the special pusher is necessary.

These instruments have both been made for me by Messrs. Mayer and Phelps.

AN INSTRUMENT FOR USE IN CUTTING FASCIAL SUTURES

Mr DAVID H PATEY, M S, F R C S, writes:

Several instruments have been devised for obtaining strips of fascia lata subcutaneously by means of which it is possible to replace the long incision down the outer aspect of the thigh by two transverse incisions at the upper and lower end. Of these one of the simplest and most efficient is that described by Mr Wilfrid Adams in the *British Medical*



Journal of August 1st 1931. It occurred to me that it would be a further advantage if the whole procedure could be carried out through one incision at the lower end of the thigh, and the instrument illustrated was designed for this purpose.

Essentially it is merely a modification of the Adams fasciotome in conjunction with which it is intended to be used, but instead of the fenestrated end being set obliquely to the shaft and having lateral blades it is made at right angles and has a blade running transversely across the top.

In practice, a small transverse incision is made at the lower end of the thigh, and after thoroughly freeing the fascia on both aspects with the blunt end, a strip is cut of the required thickness with the Adams fasciotome. This instrument is then changed for the one illustrated, the fascia being threaded through the window and cut at its upper attachment with the transverse blade. In this way a second incision at the upper end of the thigh is avoided.

Messrs Allen and Hanburys have manufactured the instrument for me.

GLYCINE FOR CLINICAL USE

We have received from British Drug Houses Ltd a sample of glycine (amino acetic acid) of high quality suitable for clinical administration. During the past five years German workers have reported beneficial results in muscular dystrophy following the oral administration of large quantities of glycine (15 grams once or twice daily). American workers (Voskell 1933, Boothby 1932) report less favourable results. The following are a few references to recent work: Boothby *Proc Mayo Clinic*, 1932, p 737; Kostakow and Slanek *Deut Arch Klin Med*, 1933, clxxv, 25; Milhorat *Ibid* 1933, clxxiv, 487; Voskell *Abstract Journ Amer Med Assoc*, 1933, c, 1895.

PROCAINE AND ADRENALINE PREPARATIONS

Burroughs Wellcome and Co have introduced three procaine and adrenaline products for use as local anaesthetics. "Hypoloid" procaine and adrenaline presents procaine hydrochloride 0·02 gram and adrenaline 0·0001 gram in 1 c cm in solution ready for immediate use. It is issued in boxes of ten "hypoloid" ampoules. Each "tabloid" hypodermic procaine and adrenaline contains procaine hydrochloride 0·02 gram, adrenaline 0·0001 gram, and sodium chloride 0·009 gram, and a solution can be readily made in the barrel of a syringe. It is issued in tubes of twenty. "Wellcome" brand procaine dental anaesthetic solution is available in bottles of 25 c cm.; each c cm contains procaine hydrochloride 0·02 gram and adrenaline 0·0001 gram.

NATIONAL COUNCIL FOR MENTAL HYGIENE

THIRD BIENNIAL CONFERENCE

Prince George, president of the National Council for Mental Hygiene, presided over the inaugural session of the third biennial conference on mental health at Caxton Hall, London, and gave an address on the place of mental health in the life of the nation. He commended the balancing of medical and lay representation and outlook in the National Council, for the mental strain which was obviously associated with life in the present day was incapable of any simple or narrow solution. Recognition of the value of occupational therapy for the mentally sick indicated its value as a preventive, as had been found in dealing with the unemployed. Leisure, however, was as necessary a part of life as was work. Mental health required the striking of the right balance between the two.

Sir Maurice Craig, chairman of the National Council, compared mental with physical health as two processes of balancing of healthy organs and functions. The prevention of mental ill-health had been too long a neglected branch of preventive medicine. Some knowledge of mental hygiene was necessary at all periods of life, but especially so for all who had the charge of children and adolescents. These should be enabled to grow up so healthily as to be fitted to withstand the shocks and stresses attendant on adult life. Faulty tendencies in youth could be corrected, but, if neglected, might easily become permanent and in some cases ineradicable. The inhibitory mechanism, rising to self-control, was the highest stage in nerve function development. The man-in-the-street must acquire some knowledge of the basis of mental health, for on this the future state and happiness of civilization might depend. Yet, although public authorities and private benefactors contributed generously towards the conduct of researches which led to the cure and prevention of physical diseases, very little assistance was forthcoming as yet in respect of the equally important study of mental health and diseases.

Professor W. Langdon Brown insisted that patients who had in the past been referred to the "alienist" could not now, in these more enlightened times, be regarded any longer as aliens from human nature. He traced the gradual development of the realization that mental conditions might be referable to physical causes, such as septic foci and endocrine disorders. In the case of a man imperfectly adapted to life a very slight organic inferiority might bring on serious trouble. The inferiority feeling was a useful incentive to effort; it was only to be considered harmful when it led to retreat from life. The neuroses were largely defensive attitudes against difficult situations; many of the symptoms served to protect the patient from painful memories. As many people were ill because they were unhappy as were unhappy because they were ill. The coming into the world generally of a more intelligent understanding of the difficulties of growing up would be the best preventive of neurotics and criminals. The present-day insistence by a suffering world on being told exactly what it ought to do was in reality a mass neurosis—the frightened child seeking an all-wise and powerful father. The twentieth century was much more aware of its environment than its predecessors had been. The new psychology must inculcate self-knowledge, which would induce sympathy with others and a higher grade of citizenship.

In an address, which was read in his absence by Dr. Helen Boyle, Sir E. Tindal Atkinson, *Director of Public* Prosecutions, said that between the two types of criminal illustrated by the highly skilled expert safe-opener and the obvious mental deficient there lay an uncharted sea of crimes in which in almost infinitely varying degrees mental health was in fact, if not in law, an issue relevant to responsibility. This was a personal rather than an official view, but it would be idle to deny the importance of the mental outlook of the criminal, even though the question of the amendment of criminal law and procedure bristled with difficulties. Dr. Helen Boyle remarked that the study of mental hygiene showed that there was no universal panacea, but a level-headed feeling of co-operation would serve to promote the [illegible] ad of trouble borne by the mentally [illegible] mal-adjustment to life was the origin of much crime, and was itself often traceable to childhood experiences. Lord Feversham, president of the National Association of Probation Officers, contrasted the advance made in the last hundred years in the prevention and treatment of physical diseases with the possibility as regards mental diseases that the present century might hold. No branch of science offered a more promising field for exploration. Experience had shown that 60 to 70 per cent. of criminal offenders were as capable of responding to right treatment as they were to the opposite influences, which would make them enemies of society. The National Council was doing a great work in spreading through the community the close association between crime and mental and physical disorders.

THE MENTAL TREATMENT ACT, 1930

On the second day of the conference a discussion on the working of the Mental Treatment Act of 1930 was opened by Sir Hilton Young, Minister of Health, who emphasized the primary purpose of the Act as being to increase the facilities for the treatment of mental illness without the necessity for certification. By it local authorities were now empowered to provide out-patient treatment, the provision for voluntary treatment was extended, and a new form of procedure had been instituted—namely, the temporary treatment of patients who were unable to express their willingness or otherwise to accept treatment. The value of the first two provisions was generally recognized, but many local authorities were still backward as regards the third. Out of ninety-eight public hospitals there were forty which had not admitted a single temporary patient, although it appeared that about 12 per cent. of mentally sick persons fell into this category. Yet about 80 per cent. of such temporary patients ultimately escaped certification, a fact indicating great potentialities. It was the case, perhaps, that local authorities did not care to take the trouble to secure the necessary medical certificate in these cases, and that relieving officers were not invoking Section 5 of the Act when it should be thus utilized. These authorities should instruct their relieving officers to examine persons referred to them as regards their volition before advising certification; medical practitioners should try to make a success of Clause 5; and magistrates, before signing orders, should satisfy themselves that nothing less than certification would be adequate.

Dr. J. S. I. Skottowe, medical superintendent of Swansea County Borough Mental Hospital, which had been opened in 1932, discussed the efforts made to render the Act effective. At Swansea the closest possible liaison had been achieved with the local general hospital, which accommodated a psychiatric department within its walls, and thus helped to obviate the attaching of a stigma to patients. Before the new mental hospital opened for patients it had been inspected by more than 20,000 members of the general public. Once the initial transfer of cases from other hospitals had been completed, 65 per cent. of the direct admissions had been uncertified, 54 per cent. being voluntary patients and 11 per cent. coming in under the "temporary" plan. The speaker feared that the non-volitional clause in Section 5 would restrict the medical utility of this mode of admission; it was undoubtedly difficult to work in practice, but it was certainly a great step towards Parliamentary recognition of the essentially medical aspect of mental disorder. It seemed logical to treat mentally sick persons as regards admission to hospital in the same way as acute appendix cases or other medical and surgical emergencies, in which the consent of the patients was not an essential preliminary. Separate accommodation for voluntary and certified patients was not desirable. Instead of adding blocks for psychopathic treatment on to existing mental hospitals, it would be better and more economical for local authorities to combine in utilizing a regional psychopathic hospital. Mental illness probably accounted for the occupation of more hospital beds in England and Wales than all other illnesses put together, and such concentration of treatment would ultimately prove to be very economical to the authorities concerned. Such psychopathic hospitals might well be

associated with medical schools, and a serious gap in the educational curriculum be filled

Dr. J I. Russell thought that the reason for the relative failure of Clause 5 was due to the fact that many still adhered to the view that the voluntary class label signified little more than the uncertifiable class Most voluntary patients were, in fact, certifiable, and many of those most amenable to treatment were dangerously suicidal The speaker thought that the suicidally inclined were above all others the most suitable for voluntary treatment, and he could not find anything in the Mental Treatment Act which debarred them from it Since January 31st, 1931, 30 per cent of all admissions to the North Riding Mental Hospital had been voluntary patients and at Cardiff during 1932 no less than 47 per cent of all cases admitted fell into the voluntary class The satisfaction of the patient at this possibility often materially assisted his cure Temporary treatment had not had a fair trial, although the patients were adequately safeguarded, but with its present restrictions it was not likely to find general favour Improvement was also required in the procedure relating to urgency orders Out patient clinics had certain advantages, but Dr Russell was convinced that as a general rule middle class and working class persons who were suffering from mental illness however mild or incipient, could be treated better in a mental hospital than anywhere else

Problems of Adolescence

Separate meetings were arranged for the two sexes, a fact against which Dr Graham Howe protested, maintaining that a false atmosphere was created by the ignoring of environment in this way, and that the problems of adolescence were problems of relatives and relationships Dr R H Crowley, senior medical officer of the Board of Education, who took the chair, said that sex education was not the province of the parent It was part of health education generally, and aimed at the development of the full capacity of the individual The importance of school life was being increasingly realized, and the teacher might well be required to include in his survey education in sex matters

Dr E B Strauss was convinced that the sexual difficulties met with in adolescence were for the most part rooted in the experiences of earlier years The infantile "bodily pleasure pain principle" tended normally in later life to crystallize out in the form of erotic desire directed towards the opposite sex, but it was not infrequently the case that the ideas of ideal non physical love and bodily sexual excitation remained in watertight compartments, the commonest cause of such a failure to fuse being a persistent attachment to an idealized parental figure In early puberty the aim of the sexual impulse was not fully fixed, and such aberrant forms of homosexual tendencies were common These should be dealt with understandingly, and no serious trouble would result as a rule The old attitude of fierce condemnation was passing away, and one cause of abnormal sexual development was thus being removed The general health did not suffer from moderate masturbation unless the element of fear was introduced Training in respect of this, as in other spheres, should be conducted in strict accord with ascertained fact Instruction as regards venereal disease should be given soberly and scientifically

Dr Graham Howe described adolescence as a bridge between childhood and adult life, the crossing of which involved the acceptance of certain new conceptions of relations to society and of self discipline It was a time of growth, and one of its gravest risks was that of well meaning but often disastrous interference by adults Not enough allowance was made for the time factor, which itself could solve many problems of this period Fear, on the contrary, might lead to retreat from the problems of life in the world to an unhealthy self absorption Masturbation was often an over compensation for a feeling of inferiority, and encouragement to face up to life was the treatment, rather than the infliction of an additional load of anxiety

Dr Elizabeth Sloan Chesser regarded the problem of adolescence as one of adaptation, and stressed attention to physical health as an essential part of its satisfactory solution Consideration of sex matters should not be separated from the consideration of other problems of this period, but the biological facts of life should be taught clearly and honestly A good emotional environment should be secured and opportunities be afforded for creating things Discord in the home was a prolific source of emotional unbalancing in the adolescent and child, while parental harmony inculcated a sense of security which was of great value in this and other phases of life. A medical examination of the girl at puberty should always be made by a woman physician, when any latent anxiety might be disclosed and alleviated Knowledge must go with an appreciation of the need for self control Sex relationships outside marriage would be less frequent if a greater interest in life generally could be inculcated, and marriage become possible at an earlier age than was at present usual Dr Doris M Odlum pointed out the significance of the inevitable conflict in every person between the intense and vital primitive urge for full emotional and physical self expression and the interests of the community, which required an extremely rigid control or even inhibition of these urges The problem affected the adult in a very different way from that in the case of the adolescent, and it was often difficult for a relation of sympathy and co operation to be established between them Up to adolescence fantasy life remained comfortably apart from reality, but then there came the realization of the need for a real love object, and rebuffs here might have morbid sequels Hero worship might have embarrassing later results in children whose emotional development was not satisfactorily balanced by the more practical and material aspects of their character In many cases masturbation in the broadest sense of the word was not to be regarded as wrong or dangerous; it faded with the dawning of adult sexual interests This did not happen if rebukes brought about a sense of guilt and fear Questions asked by children about sex matters should be answered as simply and frankly as they were asked It was essential that women should have a clear understanding in this respect before marriage, for otherwise very serious complications might ensue It was perhaps the fact that so few people were fully psychologically adult that made them so impatient and unsympathetic with adolescents

Suicide and Society

The part that could be played by psychological research and psychotherapy in diminishing the incidence of suicide was discussed by Dr Bernard Hart and Dr J E Nicole According to the former, about 5,000 persons committed suicide in each year in England and Wales a relatively low rate in comparison with many other countries Male suicides were three times as numerous as female The yearly incidence had not appreciably altered since the beginning of the century Intra psychic conflicts were behind most of the states of intense depression and anxiety which led to these fatalities a means of escape being sought thus from an intolerable situation, the normal tendency for life preservation being for the time inhibited or entirely overwhelmed Psycho analysts had asserted, however, that positive factors, quite apart from any idea of escape might not only exist but might constitute the essential driving force of the suicidal act The problem was too complex and too little understood at present to permit the formulation of any kind of solution, but investigations of the causes and prevention of mental disorder and the failure of personal adaptation would help towards its elucidation Suicide was a problem so widespread and important that society could not afford to neglect it It needed extensive study in order that fuller knowledge might indicate appropriate methods of prophylaxis

Dr Nicole delineated certain childish foreshadowings of the death desire, and suggested that there might be predisposing causes of the tendency in some persons to resort to suicide The more stressed a mind was from its own unconscious conflicts, the more readily would it succumb to even trivial environmental difficulties Reactions to inferiority, aggression, and guilt might pave the way to suicide by affording a way of escape or of return to the great provider—the mother, or a method of revenge—

" You'll be sorry when I've gone " attitude ; or an act of self-punishment. Dr. Nicole compared the Western parental upbringing of children with the communal form of certain primitive societies where such reactions were noticeably absent, and suggested that it might be worth while trying the effect of an upbringing that from the earliest allowed the recognition of legitimate points of view other than those of the parents. He attacked the application of such epithets as " wicked," " evil," and " sinful " to the growing child, and the inculcating of the conception that certain fundamental human urges were wrong. In adult difficulties there was a tendency to the reviving of earlier individual reactions. Suicide was part of the price that had to be paid for culture, and it might well be unnecessarily high. It was a disease of the social body, and its treatment by punishment or restraint was illogical on the analogy of physical disease. It was only by a better understanding of what constituted real mental health—happiness and adaptation—as against mere outward conforming to standards, the origins of which were sometimes neither rational nor even conscious, that there could be restored to man a healthy indifference towards death and an active love of life.

The Neurotic

Sir Farquhar Buzzard, who was in the chair at the first session on November 24th, expressed the belief that the disappearance of the neurotic in the future would not turn on his cure but rather on preventive work arising from an understanding of the predisposing conditions, and of the right ways of dealing with them. Each child was a potential neurotic, and it should be remembered that neurosis was not infrequently associated with considerable prowess in some walk of life. All kinds of organic disease were associated with varying forms of psychological disturbance, which might be detected by observation ; the medical curriculum would have to take this into serious consideration in the future. Something could be learned from the psychological attitudes of most patients in a ward of a general hospital, however diverse their organic diseases might be.

Dr. T. A. Ross said that it would be more exact to speak of a person as exhibiting neurotic behaviour rather than as being a neurotic—a term which was applicable to humanity generally, since none were entirely devoid of its characteristics. In dealing with a difficulty, action based on calm consideration—whether deliberate aggression or flight—might be adopted, or there might be a retreat or evasion by means of an excessive display of emotional reaction, reason being put aside altogether. This last response led to morbid changes in the mentality. All human beings needed the educational lesson that they were living in a community for their own benefit. Any form of fear might lay a train of symptoms which, in their turn, originated others. Three such symptoms were loss of self-confidence, failure to concentrate, and insomnia. These created fresh fears, such as that of becoming insane. An analytical, educational, persuasive talk or talks might clear up these fears, the subject beginning to appreciate the fact that he was meeting difficulty without reason, and only by instinct. In earlier times of the history of humanity fear undoubtedly had its uses, but now it had no function. The neurotic patient was essentially one who was frightened ; his foolish conduct, his resentments, and his impossibilities appeared largely because he was frightened. He must not be hectored, but induced to understand his fears, when he would often come to see that they were baseless.

Dr. J. R. Rees classified disorders of the mind as mental defect, psychosis, psychoneurosis, hysteria, obsessional neurosis, and neurasthenia. For the purpose of the meeting might also be included what were termed " moral disorders," which resulted from similar mental conflicts and warpings of personality in early life. It had been calculated that about three million persons in England and Wales were at present suffering from psychoneuroses of sufficient severity to require psychotherapeutic remedies. In an investigation of an ordinary group of industrial workers, who were carrying on their occupations, nearly 50 per cent. showed clear evidence of psychoneurotic trouble, which in a third of these was severe. In this way there was produced a great degree of human suffering as well as serious economic wastage and inefficiency. Yet a very large proportion of the best work of the world was being done by those who were undoubtedly neurotic. Much of the neurotic's effort might be wasted at times because it was along unnecessary lines, but for sheer work and self-discipline the neurotic person, as a rule, far outdistanced his less neurotic brother. It was possible to hate and loathe the things that people did without extending that disgust and hatred to the individuals concerned. In the last ten years psychotherapy had ceased to be regarded as a species of charlatanry and had become respectable. New institutions for its practice were rapidly coming into being, but still could deal only with a small fraction of the need. The great hope for the future would seem to lie in the establishment by local authorities of the clinics which were authorized by the Mental Treatment Act, although it would be essential that all the staffs of those clinics should be men and women psychiatrists with real knowledge and insight into the psychoneuroses, with an adequate provision of trained social workers and educational psychologists, especially for work with children. The national and international problems of the present day could be solved in the light of modern psychological knowledge if only the public conscience could be awakened to the possibilities in the treatment and prevention of the nervous disorders of individuals and of society.

Punishment or Treatment

A session of especial interest to magistrates dealt with this subject, described by the chairman, Mr. Norman Birkett, K.C., as provocative, and opened by a short paper from Mr. Alexander Paterson, Prison Commissioner, who thought that punishment was often the best treatment.

Dr. R. G. Gordon retorted that the previous speaker had dealt with offenders who, on his own showing, merited punishment. The medical profession was concerned rather with the motives instigating the young to petty crime. Great practical benefits to the young and to the community resulted from this line of approach. On the whole the law, and the magistrate as the administrator of the law, preferred the use of compulsion to attack the maladjustment of the criminal individual to the community ; while the medical practitioner, realizing that such maladjustment was a form of illness, directed treatment towards endowing the individual, without limiting his liberty, with the ability to adjust himself to the requirements of the community. In children, with their innate sense of fair play for the most part, the compulsory restitution of a stolen article could be so arranged as to act as a preventive of petty pilfering in the future. In the past punishment had often been obviously vindictive ; it was now largely intended as a deterrent, although it not infrequently failed in this respect. In treatment the attention was fixed not on the crime but on the criminal, who varied remarkably in his outlook. Thus reasons for stealing which had been disclosed included jealousy, sex problems, fear, inferiority feelings, and bodily, mental, and social disabilities, with their strivings for compensations ; and it became evident that each delinquent must be treated as an individual problem. The motivations concerned in each case could be isolated and dealt with effectively. In children, as a rule, no deep psychological investigation was required: the problems were often simple and capable of being solved practically. A certain amount of psychological experience was essential, however, and the magistrate therefore needed in such cases the assistance of a medical psychologist. The team work of the modern child guidance clinic was an effective preventive of crime. In adult cases treatment, being a continuance of asocial behaviour, was less hopeful, but the individual expert might give great help in saying whether segregation was advisable in a prison, an institution for mental defectives, or in a hospital for the insane. Dr. Gordon appealed to magistrates to recognize that common sense might not always be a sure guide to the solution of these problems, and to medical witnesses to realize that their evidence must be given in a way which would be understood by non-medical lawyers and magistrates. He looked forward

to the time when every court of justice would have the assistance of psychological experts. In remanded cases there should often be some form of psychological investigation, and the new Children's Act, even with its faults and defects, might tend to the reduction of crime and the promotion of a sense of civic responsibility if worked with intelligence and good will.

THE GAMBLING SPIRIT AS A NATIONAL PROBLEM

To a symposium on this subject, under the presidency of Sir Humphry Rolleston, Dr. H. Crichton-Miller contributed a paper in which the gambling tendency was demonstrated as a curable manifestation of immaturity. The essential feature in gambling was risk, which was also an essential factor in adventure and speculation. In adventure man went out to meet the incalculable with effort and reason; in speculation, with reason only; and in certain forms of gambling, with neither. The psychological problem of gambling turned on the attitude of the individual to the incalculable. It had been stated that gambling flourished most in eras which were not adventurous or progressive. It seemed that many natures needed the stimulation of the emotional tension of chance, their outlook on life being dreary and monotonous, without scope for adventure. The speculator sought escape from economic limitations, and the gambler from an otherwise dull and hopeless life. In this there was a close parallelism with alcoholism and drug addiction. Apart from its emotional stimulus, gambling must be condemned from the psychological point of view as an activity that was frankly regressive, cupidity being associated with two outstanding features of immaturity—namely credulity and irresponsibility. With gambling implying an immature attitude to reality and a childish acceptance of fantasy, the question arose whether the State was justified in protecting the undeveloped personality from himself and from others. No impartial student of human nature could fail to see that on all sides powerful vested interests were concerned in the exploitation of the credulous. If the State did not protect them the only hope could lie in the breeding and educating of a less credulous generation. But if a Government had any right or obligation to prevent African tribes from being exploited by liquor merchants, it had not only a right, but also an obligation, to prevent the exploitation of its own citizens who, by reason of ineducability, credulity, or otherwise, were incapable of understanding the true significance of their actions. To develop sound judgement in the young ought to be one of the highest aims of education, but this enterprise often failed because of the authoritative and dogmatic attitude of the teachers. A vast proportion of the behaviour problems of adults were due either to faulty home environment or to an education which did not teach the individual to reason for himself. Many teachers, even, were endeavouring to inculcate manliness while they were simultaneously exploiting suggestibility. To exploit intellectual immaturity in the interests of conventional maturity of behaviour was contrary to common sense. Irresponsibility in its widest sense should be treated much more as evidence of puerility than of wickedness. Education should confer on the young a conception of maturity which included not only independence of judgement, but also responsibility in conduct. A new generation in the psychologist's Utopia would reach adult life without any desire to escape from life's demands. It would condemn credulity as it now condemned cowardice, and would regard social responsibility as an integral part of sportsmanship.

THE MEDICAL ATTITUDE TO CRIME

Lord Horder presided over a special session for medical magistrates, which was held at the Royal Society of Medicine on the morning of November 25th. Referring to the matter of cases of drunkenness among motorists, he expressed the view that allegations were now being more frequently made against medical adjudicators that they were prone to favour a little indiscriminately and recklessly the possible delinquents against the public interest. This adjudicating was one of many harassing duties which had to be undertaken, often in difficult circumstances, and which amounted to a real nuisance. There were now 500 medical justices, many of whom were women. A considerable proportion of the delinquents who came before them were young and readily amenable to good or bad influences. Here was an opportunity for these medical justices, with their specially trained minds and knowledge of possible psychological factors, to take a particular line which must have an effect on public opinion.

Dr. Hamblin Smith said he would have preferred to have this subject entitled "The Medical Examination of Offenders." All systems of punishment, like all systems of medicine, were self-condemned by their very name. They were not erroneous solutions of a practical problem; they were ridiculous answers to an absurd question—a question which should never have been asked, for they supposed the patient or the offender to be the constant element in the problem, whereas he was actually the variable element. Crime was not an isolated event in the life of an otherwise normal man; it was merely an incident, merely a symptom, and might be quite an unimportant symptom, affording no clue as to the most suitable way of dealing with him. Treatment of an offender, like that of a patient, must be personal and individual if it was to have any prospect of success. Certain physical defects might be causative factors and need correction, but they were more frequently a mental defect awaiting elucidation. Psychic trauma in childhood was an originating factor which was still inadequately recognized. Intelligence tests could be of real help sometimes, for their results had a high degree of correlation with various features of observed conduct, but the "mental age" and "intelligence quotient" were not of prime importance in diagnosing mental deficiency. Such tests enabled one to get into sympathetic contact with a patient, however, and conclusions could be more readily reached. Dr. Hamblin Smith estimated the percentage of delinquents which came within the definitions given in the Mental Deficiency Acts as not higher than 5, a more probable figure being about 3. Over 3,000 criminal defectives were now being detained in institutions, but it was probable that a far larger percentage of offenders were the subjects of temperamental defects than of deficiency of intelligence. Although there were great theoretical objections to the M'Naghten criteria, they worked well in practice, and involved no hardship to the accused person. The assertion which had been made that thousands of insane persons had been convicted of crime was quite untrue for this country. The time had not yet come to improve upon the present criteria of criminal responsibility; but the practice, still too common, of sentencing a man who seemed to have some mental abnormality so that this could be investigated and treated was, perhaps, wholly unjustifiable. If there was the slightest doubt the case should be adjourned, but the accused person might be remanded to prison for the purpose of examination. The influence of the work of Freud had been great in every department of social life; in none more than in the modification of views held about crime. The percentage of crimes into which unconscious factors entered was undoubtedly large, and some of these cases were curable by psychotherapy. Yet psycho-analysis did not provide a means for the abolition of crime, for the co-operation of the patient was essential. There were grave difficulties in the way of treating prisoners thus, but something might be done by placing an offender on probation with the condition that he should be treated by a duly qualified psychotherapist. There was no bar to the investigation of cases in the light of the psycho-analytic theory, and thereby to the discovery of the astonishing way in which the conception of crime as such, and of the reaction of society to crime, was clarified. Probation should always be made a serious affair, and be combined with measures of social rehabilitation. The speaker hoped the day would come when every court would be aided by a psychological assessor, just as a nautical assessor was provided in shipping cases. Even now there should be a careful investigation of all sex offenders, of all cases of repeated commission of similar offences, especially when the motive appeared to be obscure, and of all young offenders. Public opinion should be so educated as to demand expert investigation of cases of crime as of physical diseases.

Dr. R. D. Gillespie said that in these modern days common sense must be informed and deepened by scientific

knowledge. While the law based itself largely on tradition and precedent, science had seen these so repeatedly upset that it regarded them with a healthy diffidence. The medical and legal attitudes, however, were not so much contradictory as complementary to each other. Medicine demanded more control over drug addicts, a realm in which the law had conspicuously failed. Something analogous to lunacy certification was desirable, but with a minimum time of detention and the provision of special and properly supervised homes, with power to follow up and control cases after discharge. The Inebriates Act had proved ineffective in interpretation, but something like the family council system of France might be worth considering for alcoholics. Some special machinery was desirable for the potential suicide, including a follow-up system to ensure rehabilitation in the world. In sexual offences the jurisdiction of the law might be a useful incentive to treatment. All criminals should undergo a psychiatric examination, from which would often emerge useful indications as regards the appropriate type of detention. Tho mental make-up was insufficiently regarded in cases of motoring offences, and some of the more obscure forms of epilepsy were ignored.

[*Note.*—The papers read at this conference will be printed in the 1934 quarterly issues of *Mental Hygiene*, the official organ of the National Council for Mental Hygiene.]

SOCIETY OF MEDICAL OFFICERS OF HEALTH

THE ANNUAL DINNER

The annual dinner of the Society of Medical Officers of Health took place at the May Fair Hotel on November 23rd. The president, Dr. Charles Porter, was in the chair, and among the principal guests were the Minister of Health and Lady Young.

Sir Hilton Young, in proposing the society's health, said that it was of great interest to him to have this opportunity of celebrating a year's work on behalf of preventive medicine. As he had gone about the country during his two years of office nothing had impressed him more than the high personal qualifications necessary for those who were called upon to discharge the duties of medical officer of health. They had to be the guide, philosopher, and friend of the local authorities and of the public. In the national campaign against slums—which was much more than any personal fad of a Minister, but arose out of the demand of the nation—it was to the medical officers of health that he looked as the spearhead of the attack. In the past but little progress had been made in slum clearance. No more than 20,000 slum houses had been cleared during the fourteen years since this work began to be undertaken with State help. The present programme was to clear 200,000 houses in five years and rehouse over a million people. It would need the best energies of the local authorities and of their medical officers successfully to achieve that result. He hoped no one would be disheartened by the publicity given to statements that to get rid of the slums would require the demolition of over a million houses. Such statements were exaggerated and were made without adequate knowledge and investigation. The first business was to get rid of the undoubted slums—houses unfit for human habitation. The programmes framed by the local authorities at the request and with the support of the Government were by far the most accurate and scientific estimate of the size of the slum problem. The work of the medical officer of health was very important in this campaign. It was for him to apply the stimulus initially and to continue it during the five years' work. This national task would add greatly to the responsibilities of the medical officer of health, but it was a high service to the community, and Sir Hilton Young believed that those to whom he spoke and those they represented would be proud to perform it.

Dr. Charles Porter mentioned that it had been hoped to have the presence at the dinner of the Princess Louise, but for health reasons she was unable to accept the invitation. She had sent a message saying that it would have given her much pleasure to propose the health of the society and to congratulate it and its members on their wonderful achievement in preventive medicine. Dr. Porter went on to pay a tribute to the energy of the Minister of Health, and also to his sympathetic understanding of the medical officers, although the Minister had not had the experience himself of sitting through committee meetings at which his representations were brought forward or of facing hostile counsel from the witness chair at public inquiries.

Dr. James Fenton, president of the metropolitan branch of the society, proposed the toast of "The Visitors." With regard to Sir Hilton Young, he said that if at the end of the five years' programme the Minister was not satisfied with the results achieved it would not be the fault of medical officers of health. He alluded to other guests present, among them Lord Balfour of Burleigh and the Countess of Limerick, both associated with public health and social welfare in his own borough of Kensington; Sir Holburt Waring, the president of the Royal College of Surgeons; Mr. Warren Low, president of the Royal Society of Medicine; a number of representatives of kindred organizations; and a group of visitors from the president's own borough of Marylebone, headed by the mayor.

There were three replies to the toast. Sir Holburt Waring made the suggestion that after the Minister had provided his houses he should call upon his colleague the Minister for Education to see to it that the youth in elementary schools were taught to use the houses and were generally instructed in personal and social hygiene. Alderman Fettes, mayor of Marylebone, remarked that not very long ago medical officers of health were associated by the ordinary householder with sanitary inspectors, and even now he knew a Marylebone citizen to whom Dr. Porter's name conveyed nothing beyond its attachment to notices on sand bins relating to the destruction of rats. But the people of any community owed far more than they were aware to their public health department. Miss E. M. Musson, chairman of the General Nursing Council, who also responded to the toast, gave some reminiscences of her early days at St. Bartholomew's.

The final toast was that of "The Chairman," and was in the hands of Mr. G. S. Elliston, M.P., who spoke of his twenty-five years' association with Dr. Porter. It would have been a disaster, he said, if the service of medical officers of health had been represented in the borough of Marylebone by anyone less than a superman, seeing that it included the area of Harley Street. The chair of the society had been filled by some great figures in the past—John Simon seventy years ago, Robertson of Birmingham, Hope of Liverpool, Chalmers of Glasgow—and he had no doubt that, though we were too close to our contemporaries to judge them, in twenty or thirty years' time Charles Porter would be regarded as one of the greatest among them.

EPSOM COLLEGE

At the meeting of the Conjoint Committee of the Epsom College Royal Medical Foundation, held in November, pensions of £40 a year were awarded to Mrs. Annie A. Powell, Mrs. Lydia M. Braidwood, and Dr. William Henry Walker. Robert G. McKendrick was awarded a Foundation Scholarship.

Since the annual general meeting held in June last the council of the College has awarded pensions of £40 a year to Mrs. Mary Sinclair and Mrs. Eunice C. Nelson, and extra pensions of £20 a year each to Dr. Herbert Blott and Mrs. Emily Hine, and an extra annuity of £8 a year to Miss Albina L. Bull.

The council of the College will shortly award a "France" pension of £30 a year to a duly qualified medical man of not less than 55 years of age. If the candidate is a single man or a widower his income, independent of any allowance from the College or from the Royal Medical Benevolent Fund, must not exceed £100 per annum. Forms of application should be obtained forthwith from the secretary, Epsom College, 49, Bedford Square, W.C.1, and must be returned completed to him not later than December 31st, 1933.

JOHN E. G. McGIBBON: VALLECULAR DYSPHAGIA

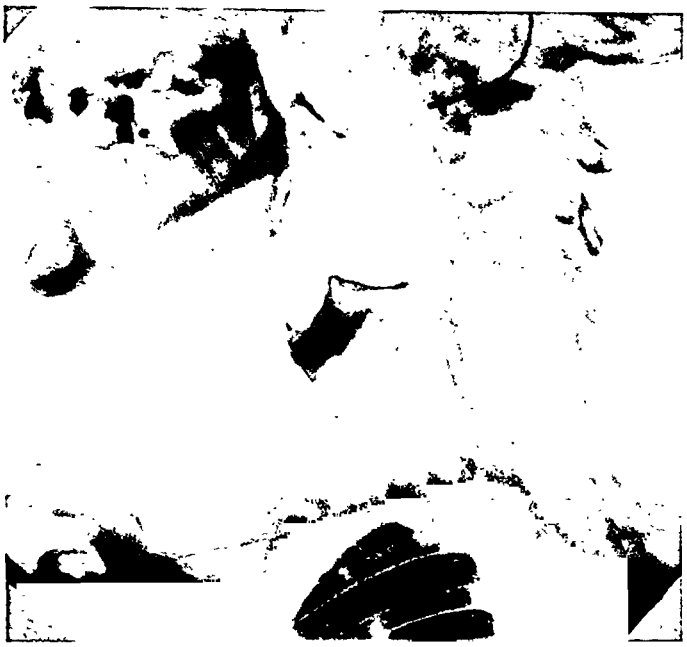


FIG. 1.—Oblique view of pharynx and upper oesophagus, showing both valleculae distended with opaque food, and dilatation of pharynx.



FIG. 2.—Antero-posterior view of same patient.

BRENNAN S. CRAN: FIBROSARCOMA OF THE SUPRARENAL GLAND



FIG. 1.—Fibrosarcoma of the suprarenal. (Spleen above, left kidney below.)

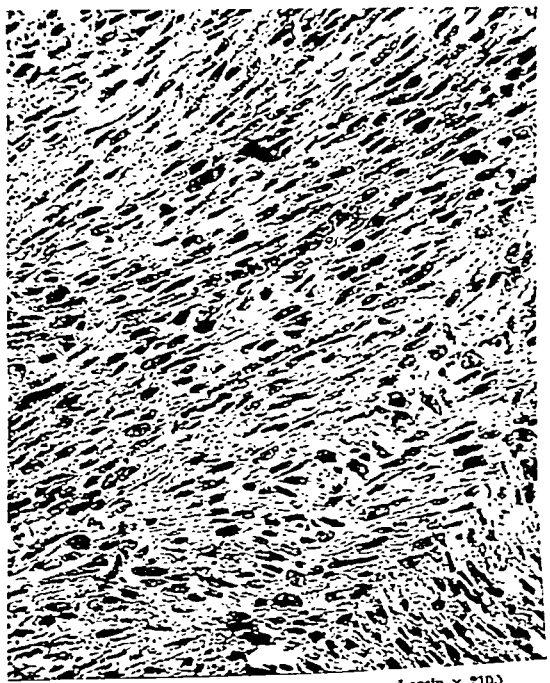


FIG. 2.—Microscopical structure. (Haematoxylin and eosin × 210.)



FIG. 2.—Shows bone clamp in position, Lane's forceps having been removed.





FIG. 1.—Shows Lane's forceps in position and special bone clamp before application.



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Dr. CHARLES PO.
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F. T. RANSON AND L. McGOLRICK: LUNG ABSCESS FOLLOWING TONSILLECTOMY



Fig 1—Miss M Showing opacity due to abscess formation at the right base of lung

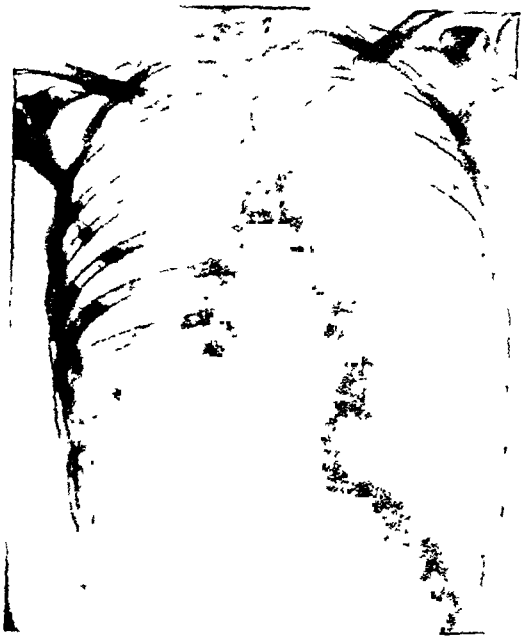


Fig 2—The same six weeks later, and more than five weeks after rib resection.

DAVID CROMIE: A DIVERTICULUM OF THE DUODENUM



Ten minutes after full ingestion of meal, showing filled diverticulum against body of third lumbar vertebra and a gas bubble above.

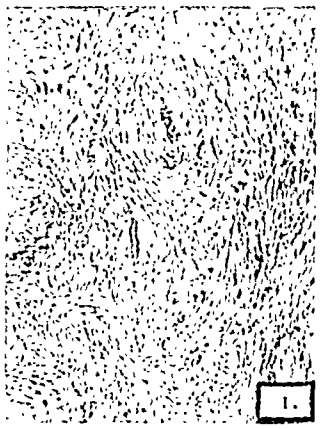
CHARLES E SALTER: A DIVERTICULUM OF THE DUODENUM



Large diverticulum of junction of 1st and 2nd parts of duodenum, showing large aircap with constant fluid level below appearance the same after three hours.

W. E. CARNEGIE DICKSON: INTRACRANIAL TUMOURS

MULTIPLE NEUROFIBROMATOSIS (VON RECKLINGHAUSEN'S DISEASE); FIGS. 1 TO 9 INCLUSIVE.



Right acoustic nerve tumour.



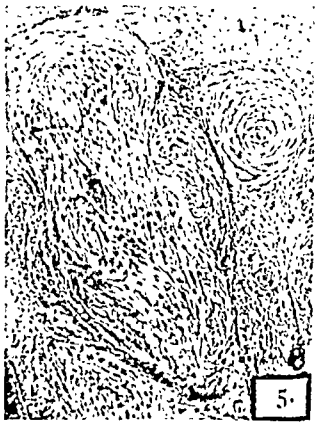
Meningiomatous plaque (psammoma).



Angioblastic invasion of cerebral cortex.



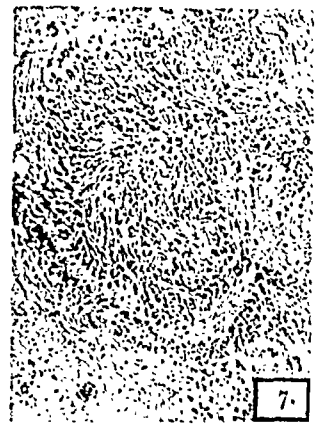
Lumbar nerve-root tumours (early).



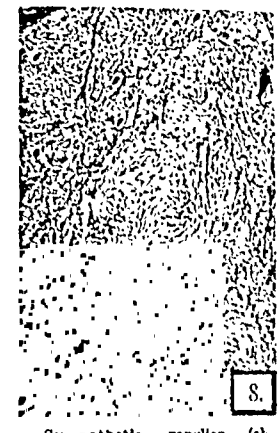
Intramedullary tumour (dorsal cord).



Ditto: "palisading" of young fibroblastic cells.



Dorsal cord, central ependymal tumour.

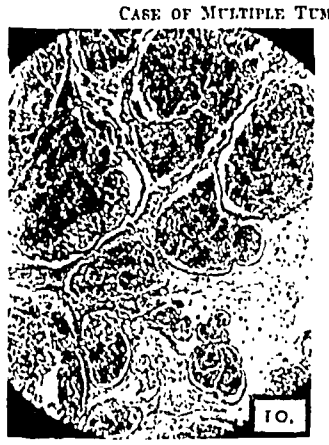


Sympathetic ganglion (abdominal), small tumour nodule.

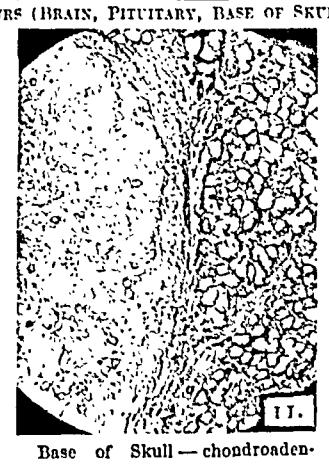


Sciatic nerve trunk — minute tumour.

CASE OF MULTIPLE TUMOURS (BRAIN, PITUITARY, BASE OF SKULL, ETC.). FIGS. 10 TO 12.



Cerebral cortex — cavernous angioma.



Base of Skull — chondroadenoma.



Uvula — congenital angiomatous tumour.

MENINGIOMA: SHOWING VARIABILITY. (CASE I.) FIGS. 13 AND 14.

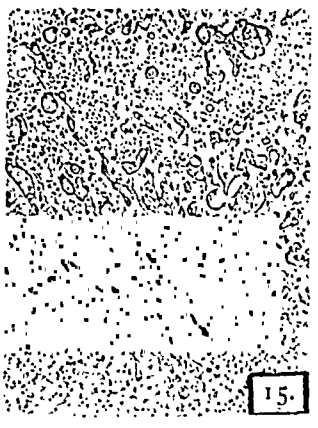


Parasagittal tumour — psammoma formation.



Ditto: Angioblastic reaction of tumour cells.

MENINGIOMA: SHOWING VARIABILITY. (CASE II.) FIGS. 15 AND 16.



Leptomeningioma — combination of new capillaries and psammoma-like whorls.



Ditto: active angioblastic reaction of tumour cells.

British Medical Journal

SATURDAY, DECEMBER 2nd, 1933

HOUSING AND THE SLUMS

In this issue of the *Journal* we publish (p. 1010) the paper which was read by Dr. C. Killick Millard in opening a discussion in the Section of Public Health on the housing problem, at the Annual Meeting of the British Medical Association at Dublin, and a review (p. 1026) of a very important book by Sir E. D. Simon, entitled *The Anti-Slum Campaign*. There are two other interesting recent publications to which attention may well be directed at the same time. One of these is a considerable pamphlet, *The Housing Problem*,[1] a concise survey by Sir Francis Fremantle, M.P., and the other is the May number of *Housing*,[2] a quarterly magazine published by the National Housing Association of New York City, which is on this occasion devoted entirely to a consideration of the English attitude and action relating to slum clearance and housing subsidies. The points of view represented on these questions are thus various. The most valuable of these publications, as a short work of reference and a convenient and concise statement of facts, is that for which Sir Francis Fremantle is responsible, and it has the merit of including the facts relating to rural conditions, which are scarcely referred to in the others. The number of *Housing*, however, gives the most complete and consecutive narrative of recent events, with frequent and helpful quotations from the speeches of politicians and others who have been concerned to expound their policy. Dr. Killick Millard, as a medical officer of health, is more interested in the practical application of the recent Act of Parliament and the necessities of the immediate position, though he does not refrain from effective criticism on some points of policy. Sir E. D. Simon reviews the various Acts and policies which successive Ministers of Health have promoted or carried through Parliament since the war, but is mainly occupied with demonstrating his disbelief that the policy of the present Minister is the best for effecting slum clearance, and to expound what he believes to be a more satisfactory method.

As to the urgency and importance of the problems raised there can be no doubt whatever. No section of the community more than the medical profession realizes this to the full, or would be more ready to urge and apply any effective remedy. Since, however, this is not mainly a medical question, our profession, like the rest of the community, may feel content to leave the finding of that remedy to others, and to expect the Ministry of Health, the local authorities, and their housing experts to get on with the job, caring but little about the details of their schemes. This is right enough in its way as regards many of these details, but a general interest and reasonable judgement with regard to methods may be expected from all those who are greatly concerned with the public health, and from any body of taxpayers who will be called upon to pay a considerable part of the cost. It is therefore interesting to note some of the main points upon which the various authors are agreed.

In the first place, a very large number of new houses must continue to be built year by year, and a large proportion of these must be for letting, by some means, at rents of from five to ten shillings a week. The difference of opinion here relates to two matters, each of which is fundamental. Should private enterprise, aided by State arrangements with building societies, be relied upon almost entirely for the provision of this latter type of house, or should local authorities be encouraged to continue building them? Should a much larger provision of such houses be made prior to, instead of *pari passu* with, the demolition of slum houses? Does not the latter policy merely aggravate the difficulties of the situation? In the second place, subsidies of whatever kind must be used for the lowering of the rents of necessitous persons and not for the relief, directly or indirectly, of those who can afford to pay a full economic rent of eleven shillings a week or more. This involves acceptance of the principle of differential rentals for similar houses. In the third place, the most urgent problem is to remove children from slum life, and therefore priority as tenants should be given to those with the largest families rather than to those who would seem to be preferable on other grounds. In the fourth place, some of the worst overcrowding now occurs in houses not in the slums or of the slum type, but in those which were originally built for a different class of tenant but have come to be let in separate rooms; and therefore, instead of these cases being ignored in existing schemes, they require action of the most urgent kind. Lastly, it is highly desirable that the aim should be to secure a separate house (or flat) for each family, though allowance should be made for a certain number of single lodgers in reckoning the size of such families. A reasonably full understanding of these and other conditions of a sound housing policy will be gained from perusal of the publications now under notice.

[1] Copies may be obtained from the Unionist Central Office, Palace Chambers, Westminster, S.W.1, price 4d.

[2] National Housing Association, 105, East 22nd Street, New York City.

PULMONARY TUBERCULOSIS IN CHILDHOOD

In a recent article[1] with the above heading Drs. Bruce Chown and Harry Medovy of Winnipeg emphasize certain facts about this disorder in a way which will still strike many practitioners as almost revolutionary. To show how they approach an important problem we will begin with a brief quotation: "In Canada 95 out of every 100 children infected with tubercle bacilli receive that infection from adults with whom they have come in contact and who are suffering from tuberculosis often undetected or erroneously considered as cured."

[1] *Canadian Med. Assoc. Journ.*, October, 1933, p. 364

This leads to the logical conclusion that every time an adult is discovered to be suffering from tuberculosis all the children with whom he or she has been in contact are to be regarded as suspect, and, conversely, that the finding of tuberculous infection in a child should lead to the search for the source among its adult associates. Further, an accurate history is of the utmost importance in reaching a diagnosis in pulmonary tuberculosis in childhood, the other two deciding factors of importance being a tuberculin test and an *x*-ray examination of the chest. Drs. Chown and Medovy are insistent that symptoms and signs are conspicuously absent except in the later stages of the disease. Cough, fever, and loss of weight are *not* early manifestations of pulmonary tuberculosis in childhood; indeed, they go so far as to say that if a child's presenting symptom is underweight or poor appetite the child is much more likely to be not tuberculous than tuberculous. "The average infant or child with tuberculosis of the lung is well nourished, afebrile, happy, vigorous," they write; but this state of affairs may not continue if further infection from a tuberculous adult, for example, is allowed to occur.

From a pathological aspect the story of the development of pulmonary tuberculosis in childhood depends largely upon the dosage of infection, a point of view emphasized by the French school many years ago and not yet sufficiently appreciated in this country. The first result of infection is a small local lesion, followed by enlargement of the mediastinal glands. The outcome from this point onwards depends upon how much superinfection occurs. If there be none, the lung lesion heals, probably without any major event taking place locally, while the glands will also subside with or without caseation or calcification. If the superinfection is slight then usually there develops around the original focus a large benign local reaction, lasting for weeks or months with very little in the way of symptoms or even of signs save in an *x*-ray picture. This is the variety to which the term "epituberculosis" has been given by some writers. Should heavy repeated infections continue a rapidly fatal, caseating, pneumonic type of lesion occurs; but this is by no means the unavoidable outcome of pulmonary tuberculosis in infancy and childhood that older and pre-*x*-ray textbooks allege, and it is rare compared with the other two results, as also is an apical fibrotic lesion of the adult type. It follows from this background of pathology that early breaking of the contact is the one great life-saving measure for the child.

On the basis of "the triad of history, tuberculin reaction, and roentgenogram" Drs. Chown and Medovy claim that diagnosis of pulmonary tuberculosis in childhood must rest; and on the lines of their classification the statement that this disorder in childhood pursues a benign course, so long as further infection is prevented, must be accepted. When authorities speak of the seriousness of pulmonary tuberculosis in childhood they are referring for the most part to those cases in which physical signs and serious symptoms indicate that extensive pathological changes have occurred in the lung tissue. The object of the present paper is a strong plea for diagnosis long before this point, since in the early phases treatment and cure have the merit of extreme simplicity and complete effectiveness. The authors do not think sanatorium treatment advisable—an obvious corollary to their plea for stopping reinfection. A brief stay in hospital may be beneficial to get an ordered regime for eating and sleeping established, followed by good wholesome food at home and a normal routine. This is dependent upon removal of the infective adult. Where this has not been possible some such measure as the French "Grancher" plan for the boarding-out of children from a tuberculous household—already in operation by some authorities in England—offers the only safe alternative. Acceptance of the straightforward dogma of Drs. Chown and Medovy would, we think, go a long way towards stamping out tuberculosis among children.

PARLIAMENT AND PUBLIC HEALTH

The King's Speech, which the House of Commons has just finished discussing, declares the Government's intention, in conjunction with the local authorities, to clear or recondition slums, substituting dwellings which accord with modern standards. A Bill dealing with the reconditioning of working-class houses will be introduced. This, and one to regulate the hours of young workers in shops and warehouses, besides other conditions in the distributive trades, are the only measures touching upon public health which the Government announces in its parliamentary programme for 1933–4. In this the Government's attitude accords with that of the House, but of the private members who drew the best twenty-four places in the ballot only one has tabled a Bill relating to public health, and that concerns the sale of methylated spirits. Indirectly the health services of the country will be affected by the passage of the Unemployment Bill—the Government's chief business for the session—which will take from the Poor Law a class of unemployed able-bodied persons, entrusting their maintenance to a centralized statutory body, having power to provide for physical and craft training. All these persons will have lapsed from the unemployment insurance scheme. The new State provision for them must induce fresh discussion over the claims of those long-term unemployed who, after being continued in benefit under the National Health Insurance Act, will next year have to receive medical treatment through the Poor Law.* An appeal further to continue these persons in medical benefit was put before the House of Commons at the close of last session. In resisting this the Minister of Health commended local experiments in forming panels of Poor Law doctors. During the same debate the attention of the House was drawn to proposals for the formation of local public medical services in Kent and elsewhere, but the Government has lately reaffirmed its conviction that administrative difficulty forbids amalgamation of health insurance and unemployment insurance. The remuneration

* See *Supplement* to this week's issue, p. 274.

of national health insurance practitioners lately received a casual mention in the House. Speaking in the provinces Sir Thomas Inskip held out the hope that next spring the financial position of the country might allow a general consideration of the "cuts" made in salaries and remunerations in 1931. A further subject of professional concern to medical men—the status, control, and efficiency of the medical services in India—was raised in the House of Commons last week, and will be mentioned hereafter when the projected constitutional changes in India come before Parliament. On all such matters the British Medical Association holds a watching brief.

The statutes of the session lately ended have included the Pharmacy and Poisons Act, a Government measure which regulates afresh the sale of poisons, and sets up the Pharmaceutical Society as a statutory body in control over the profession of pharmacist. A private member carried an Act for the humane slaughter of animals. Another private member had no success with a Bill for the registration and regulation of osteopaths, and no similar measure secured a favourable place in last week's ballot. On the administrative side of public health the House showed concern last session with the adequacy of water supplies during the drought, and with epidemics of water-borne fevers in Yorkshire. Floods in the Don Valley of the same county provoked Government legislation. Considerable anxiety was shown in both Houses at the increasing number of road accidents. The Ministry of Transport has promised an analysis of the causes of highway fatalities; from this legislation may develop. The inadequate arrangements for securing payment to hospitals and medical men who treat road accident cases were carefully considered by the House of Lords. Two Bills on the subject were examined and approved, but failed to pass. The peers, however, inserted a clause in the Road and Rail Traffic Bill, which increased the amounts recoverable by hospitals and doctors from insurers or from owners of motor vehicles involved in accidents causing death or personal damage. The House of Commons accepted this provision, which received the Royal Assent on November 17th. Two other Bills which were debated in the Lords, but failed to make further progress, sought to guard the use of university degrees. That subject also may come again before Parliament in 1933–4.

OBSERVATIONS ON CARDIOVASCULAR SYPHILIS

Syphilis of the heart is the most lethal of all the consequences of this infection. While the past decade has brought much new knowledge of the pathogenesis and clinical features of cardio-aortic syphilis, it remains problematic whether any treatment can influence the course of the disease. Some doubt that even intensive antisyphilitic measures during the primary and secondary stages of the infection play any part in averting the disastrous after-effects upon the aorta and the heart. Others, like Moore,[1] believe not only that adequate treatment in the early stages renders ultimate syphilis of the heart extremely unlikely, but also that rigorous treatment of syphilitic aortitis by iodide, mercury, and arsenic delays death from this disease. With so much controversy surrounding so many of these problems any serious study of the effects of syphilis upon the cardiovascular system is of interest. Dr. Brenner[2] of the Queen's Hospital, Birmingham, has recently published his observations on 102 patients suffering from cardio-aortic syphilis, including an analysis of thirty-six necropsies. This series was collected in the course of ten years, and constituted 6 per cent. of all the cardiac cases admitted during that period. Pathological studies showed that the aortic valves were involved in 62 per cent. of cases, while the mouths of the coronary arteries were narrowed in 28 per cent., and the latter abnormality was specially apt to be present when the aortic cusps were implicated. Slight patchy myocardial fibrosis was found in 25 per cent. of the necropsies. When unequal pulses were observed in this condition partial obliteration of the mouth of the corresponding vessel in the aortic wall was a more usual cause than aneurysm. Clinical studies of the 102 patients (of whom eighty-eight were males) showed that the greatest incidence occurred between the ages of 50 and 65, the average latent period between the infection and the onset of symptoms being twenty-seven years. Dyspnoea was the first symptom in forty-three instances, and angina in thirty-one. In eight patients dyspnoea was of abrupt onset, either during unusual exertion or while at rest. Further studies suggested that coronary artery narrowing was at best only a contributory cause of failure, and that aortic incompetence was, more closely than any other factor, related to failure. Dr. Brenner has insisted upon the very cautious use of antisyphilitic measures. These should not be employed if failure is present, the patient being kept in bed on a light diet. If there is oedema the intake of salt must be restricted, the bowels being kept loose to aid elimination of fluid and to avoid the danger of sudden death through straining at stool. Antisyphilitic treatment should not be begun until the patient is free from oedema and dyspnoea while at rest in bed. Iodide only should be prescribed at first, the dose being increased to 60 grains thrice daily if this is tolerated. The patient may then be given bismuth injections or daily mercury inunctions, and if in consequence of these measures his condition progressively improves he may gradually get up and walk a little. Should this degree of effort be well tolerated treatment by intravenous injections of arsenic may begin, the first dose not exceeding 0.1 gram. Twelve weekly injections are administered, the dose never surpassing 0.45 gram. When this course is concluded further administration of iodide and mercury is started. Alternating courses of treatment should thus be continued for two years at least. If by these means the progress of the malady has been slowed or apparently arrested rest periods may then be advised, but at least one full course of mercury or bismuth and iodide, and one of an arsenical, should be taken each year for the rest of life. Other workers, while stressing care in the administration of arsenic, consider that this may be begun after eight or ten weeks of combined iodide and mercury therapy, and that the initial dose

[1] Moore, J. E., and Danglade, J. H.: *Amer. Heart Journ.*, 1930–1, vi, 148.

[2] Brenner, O.: *Birmingham Medical Review*, 1933, viii, 161.

need not be so small. It is also questionable whether substantial improvement with iodide and mercury is essential before treatment with arsenic. The solution to these and many other problems may be provided by further careful analyses such as that carried out by Dr. Brenner.

BIRTH CONTROL IN ASIA

The conference on birth control in Asia, held recently under the auspices of the Birth Control International Information Centre, was concerned in the main with the economic and political problems created by pressure of excessive populations in Eastern territories. But a constantly recurring theme, as much in the discussions on the applicability of Malthusian principles to present-day Asiatic conditions as in the session that was concerned exclusively with the medical problems of contraception in the East, was the relation between population growth and public health, particularly the significance of the latter as an index of desirable population density. Thus, even among those who most emphatically repudiated the concept of an "optimal population" there was no serious dissent from the proposition that one measure of over-population was to be found in an excessive death rate; nor from the closely related view that a delicate gauge of the economic status of a society—in other words, of its standard of living—was in the health and longevity of its inhabitants. Judged by such standards India, with a death rate of 26 per 1,000, is one of the most over-populated regions in the world. The infant death rate in 1930 was over 180 per 1,000 live births, the figure in areas having the highest birth rates ranging from 230 to about 600. Even famine, disease, and war—the "natural" checks on over-exuberant fecundity—have failed to stem the growth of Asiatic population during the past few decades. The Indian census of 1931 showed a net increase of 30 millions, the present population being roughly 353 millions. In Japan, despite the steep rise in the death rate that has occurred simultaneously with the rise in the birth rate, the rate of increase has been even greater; indeed, the vital statistics of this country served to exemplify the view, upheld by the more orthodox Malthusians, that even advances in medical science and the application of modern methods to the control of epidemic and other diseases may fail to affect significantly the sequence of an excessive mortality upon a high birth rate. Before the Meija era, Japan had rates of births and deaths which corresponded closely with those now prevailing in the United Kingdom; parallel, however, with the amazing upward movement in the birth rate which has been occurring since then there has been a rising rate of mortality, with the curious result that to-day both these rates stand where those of this country did before its own birth rate began to fall. About these facts, and about similar facts pointing to over-population in China, there was hardly any controversy. But though in proposing a remedy everybody was anxious to put the horse before the cart, nobody, as is common in sociological discussions, could distinguish for certain or agree entirely with anybody else as to which was which. Is the Indian ryot poor because he does not practise birth control, or does he fail to practise birth control because he is poor? It would be incorrect to suggest that the conflicting answers to this question produced also an assortment of conflicting remedies. Those who held that no considerable progress in the movement for birth control in Asia could be looked for except as a sequel to far higher standards of living, employment, and leisure for the peoples of India, China, and Japan, who believed, to quote an Indian speaker, that "only with a full belly can one trouble to think about contraception," were no less convinced than the exponents of the Malthusian view of the need for pressing forward the propaganda of birth control in those over-populated territories. Even if alone it would not serve as a complete remedy for the economic problems of Asia, granted even that the difficulties in the way of its dissemination were created by the very miseries it aimed at relieving, it yet offered, all speakers were agreed, a contribution to the solution of these problems; and they differed only in their estimates of how important (in relation to other measures) this contribution might be. As to the choice of contraceptive expedients, nothing, it was affirmed, could be more unrealistic than to be guided merely by their efficacy, without regard to their cost and complexity. A relatively uncertain contraceptive that could be improvised from materials available in every home, and applied easily, safely, and at less than no cost, by an illiterate woman—a vinegar-soaked plug made from wool waste, for instance—was immeasurably more useful than a completely effective device that cost money and could only be applied by a skilled person. In mass-produced contraception it is no good aiming at a 100 per cent. security. At the end of the final session a resolution pledging the conference to co-operate in every practicable way with the movement for birth control in the East was moved by the president, Lord Horder, and adopted unanimously. If a consistently high level of discussion, large attendances at all sessions, and effective agreement upon all practical issues are any pledge for the future, then this may well prove to have been the most valuable conference on birth control that has been held in this country.

HYGIENE AT THE HAIRDRESSER'S

Hairdressers' shops have long attracted the attention of public health enthusiasts. The operations carried out in these establishments have in late years become extremely varied, and include not only mere hair cutting, hairdressing, and shaving, but also manicure of the hands and feet and chiropody. All these personal manipulations recall the fact that it was from the barbers that the surgical profession itself took its origin, and these numerous minor operations carried out by the modern Figaro suggest that he is beginning to recover a little of the territory reserved for his professional cousin. It is undoubtedly essential that the rooms wherein and the personnel by whom these important ministrations are carried out should faithfully observe the dictates of surgical asepsis and hygiene. In some parts of the world public health authorities have already instituted measures of supervision for the purpose of minimizing the dangers of infection which are undoubtedly present if proper surgical precautions are not taken. A writer in a recent number of the *Bruxelles-Médical* voices the necessity felt both in France and in Belgium for a more satisfactory supervision of hairdressers' establishments. The author gives

a formidable list of complaints which may have their origin in the salon of the *coiffeur*. They range from folliculitis or tinea to the malignant pustule of anthrax and even to fatal meningitis, which is said to have carried off an unfortunate lady after a visit to her hairdresser for the innocent, although perhaps tedious, procedure of permanent waving. The writer quotes various reports from certain Continental sources recommending public supervision of the hairdresser's trade. He also suggests that the hairdressers themselves should be compelled to take a diploma testifying to their possession of the necessary skill in their art and to their knowledge of the necessary hygienic precautions which they ought to take in its practice. Moreover, he suggests that pending the time when this becomes compulsory the trade itself should issue diplomas of proficiency, possession of which would give confidence to the public. As a matter of fact, in several of the States of North America, where laws and regulations are made and broken with almost equal facility, steps have already been taken to bring hairdressing establishments under the control of the public health authorities; and in New York, at all events, quite an elaborate code has been formulated for their regulation, and we understand that the authorities are satisfied with its working. There is no doubt that in this country a case can be made out for regular hygienic supervision of the hairdressing trade. At the present time the only check on any deviation from the high standard of cleanliness and surgical asepsis which ought to be observed in every case is the risk of a legal action being brought by a client who may suspect that he or she is the victim of infection or accident at the hands of the *coiffeur*.

THE EFFICIENCY OF MASKS

The gauze mask is so established a feature of operative surgical and obstetric work that its capacity to do what is expected of it may be taken too much for granted. Indeed, according to some investigators, it appears to be almost useless. The masks used in sixty American hospitals were procured by Walker,[1] and were of twenty-two different types: of these, fifteen were discarded because they "could not possibly be germ-proof"; the remaining seven were tested on a streptococcus carrier, who read aloud for fifteen minutes with an exposed culture plate eighteen inches from his mouth, and streptococci were grown in varying numbers in tests with every one. Walker recommends a mask consisting of sheet rubber between layers of gauze; and, although it might be expected that bacteria would be expelled in the current of air at the sides of this contrivance, they apparently were not. A similar conclusion is reached from a more recent study by Blatt and Dale,[2] who tested masks composed of various materials, some of which were treated with antiseptics, on subjects who coughed into an enclosed space in which culture plates were exposed at different distances. No permeable mask of any material, however treated, was found effective, and the number of bacteria escaping was considerably greater if the mask had previously been worn for some time. Satisfactory results were only obtained with a mask consisting of cellophane enclosed between layers of gauze, and the air discharged at the side of this was said to be "practically sterile": it was assumed that when the current of air from the mouth is deflected by the mask, particles of moisture "continue forward by virtue of their momentum," strike the mask, and adhere to it. There appears to be only one claim that any permeable mask is effective: this is made by Cann[1] for the obstetric mask used at Guy's Hospital, which consists of no fewer than sixteen layers of gauze. The methods used in these tests are by no means uniform, and in some cases not beyond criticism, but where they appear to err it is in the direction of insufficient stringency. It may safely be concluded that a thin gauze mask does no more than arrest the gross splash of a cough or sneeze; against "droplet infection" in the sense of the more numerous small particles expelled during ordinary speech, it is not a barrier. If the conclusions of Walker and of Blatt and Dale be accepted, an impermeable mask is capable of arresting these by deflection from an absorbent surface. Such investigations as these prompt the reflection that there is still much to be learned about droplet infection, and particularly about the droplet itself, its size, its speed of fall in still air, its length of survival as a fluid under different air conditions of temperature and moisture, and the properties of the particle which must remain after evaporation. This mechanism is concerned in transmitting so many infections that useful preventive lessons might well be learned from its study.

[1] *Surg., Gynecol. and Obstet.*, 1930, l, 266.
[2] Ibid., 1933, lvii, 363.

CULTIVATION OF LEECHES

The declining importance of leeches in the practice of medicine was incidentally indicated by their omission from the last edition of the *British Pharmacopoeia*, but a century ago they were used by the million both in Great Britain and on the Continent. It was computed, for example, that 32 million leeches were used in France in the year 1827. The traditional leech-gatherer exercised his craft by the simple but unpleasant method of using his bare legs as bait, and it was always a puzzle to imagine how a supply of leeches adequate to the enormous demand that existed in past times could have been maintained by such individual efforts. Professor Sabrazès, in a recent article,[2] has given an interesting account of how the cultivation of *Hirudo medicinalis* was practised in France last century. His information is derived from a book entitled *Guide pratique éleveurs de sangsues*, written by Louis Vayson, and published at Bordeaux in 1852. France was at one time dependent on Poland and Hungary for her supply, but a family of fishermen in the Gironde worked out the intensive cultivation of leeches, and thus made France self-supporting in respect of these animals. They were kept in ponds, and were fed by driving old horses into the water. Special precautions were needed for the care of the eggs and the young. Finally, the leeches before use had to be cleansed by being kept in running water. Professor Sabrazès mentions another similar work, published about the same time, the *Manuel d'hirudiculture ou de l'élève des sangsues*, by Léon Busquet of Bordeaux. Evidently the cultivation of leeches was a form of live-stock farming that was worked out in considerable detail in the first half of the nineteenth century, and it is interesting to learn of the existence of this literature on the subject.

[1] Cann: *Guy's Hospital Reports*, 1932, lxxxii, 114.
[2] *Gaz. Hebd. des Sci. Méd. de Bordeaux*, 1933, No. 41, xli, 642.

"LA PRESSE MÉDICALE"

On November 18th *La Presse Médicale* celebrated its forty years of progressively successful life by the issue of a special number,[1] profusely illustrated by coloured plates. Of its original eight members of the editorial staff the only survivor is Professor G. H. Roger, until lately dean of the Medical Faculty of Paris; and now, on account of his seniority, what he calls the *périlleux honneur* of writing the first article—on the history of the journal—has fallen to his lot. The founder was Édouard de Lavarenne, a consultant at Luchon during the season: he first discussed the project with M. Letulle and L. Landouzy. In 1907 Lavarenne died and Letulle succeeded him as editor-in-chief; but at the outbreak of war the editors went on active service and Landouzy carried on the work. After his death in 1917 the journal was edited by F. Widal and others until the return of Letulle, after whose death in 1929 Professor Gustave Roussy, who has just succeeded Professor Roger as dean of the Medical Faculty, became editor-in-chief. The first number appeared on December 23rd, 1893, and made a somewhat unfortunate start; but, nothing daunted, the founder, Lavarenne, gaily remarked to Professor Roger that "the first issue is always detestable," and went ahead. In 1904 MM. Masson became the publishers. The first volume contained 623 pages; that of 1932, with 105 numbers (two a week), of which seven were printed on special paper and generously illustrated, ran to 5,176 pages.

THE NUTRITION REPORT

The report of the Nutrition Committee, appointed by the British Medical Association in April, 1933, which appeared as a special *Supplement* to our last issue, has attracted widespread and very favourable comment in the daily newspapers and throughout the Press generally. The committee's terms of reference were: "To determine the minimum weekly expenditure on foodstuffs which must be incurred by families of varying size if health and working capacity are to be maintained, and to construct specimen diets." The report is now available in pamphlet form, price 6d., on application to the Financial Secretary, B.M.A. House, Tavistock Square, W.C.1. We understand that some 4,000 copies of the pamphlet have already been sold, and that the demand continues.

MEDICAL RESEARCH COUNCIL

By an Order of the Committee of Privy Council, made after consultation with the Medical Research Council and with the President of the Royal Society, Professor H. S. Raper, D.Sc., M.B., F.R.S., Brackenbury professor of physiology in the University of Manchester, is appointed a member of the Medical Research Council in succession to Professor Edward Mellanby, M.D., F.R.C.P., F.R.S., professor of pharmacology in the University of Sheffield and physician to the Sheffield Royal Infirmary, who recently resigned his membership on accepting appointment as secretary of the Council.

The Thomas Vicary Lecture, on prehistoric and primitive surgery, will be given before the Royal College of Surgeons of England, by Mr. L. W. G. Malcolm, on December 7th at 5 p.m. The Bradshaw Lecture, on electro-surgery, will be given by Professor A. H. Burgess on December 14th at the same hour.

The King, accompanied by the Queen, will open the new buildings of the Medical School and Pathological Institute of St. Mary's Hospital on Tuesday, December 12th, at 12 noon.

SOUTH AFRICAN INSTITUTE FOR MEDICAL RESEARCH

In the annual report for 1932 of the South African Institute for Medical Research, Johannesburg, reference is again made to the continued investigation of the epidemiology and bacteriology of pneumonia on the Witwatersrand, especially among the native workers in the mines. A multiplicity of infecting organisms has been revealed, and consequently the prophylactic vaccine now employed contains various strains. In the Northern Rhodesia copperfields this means of protection proved very effective, as was shown by comparing the incidence of the disease in vaccinated and non-vaccinated groups. From cases of pneumonia in the non-vaccinated the more virulent types of pneumococci are frequently isolated, whereas this is the exception in the milder cases which occasionally occur in the vaccinated groups. Meningitis is being similarly studied, and it has been made clear that there is no evidence of the occurrence of epidemic waves of meningococcal meningitis throughout the African continent, as had been feared.

A research into South African strains of rabies has begun. Nearly every case of human rabies in that country has been due to the bite of the yellow mongoose or genet cat, dogs being but rarely concerned. It is thought, therefore, that the South African infection may be a modified form of true rabies. Negative results have so far been obtained from brain examinations.

Dust "phthisis" has been found not to occur in rabbits, guinea-pigs, and rats, and monkeys are now being studied to compare true silicosis with other irritative conditions of the bronchial passages. Various mines have been experimenting with satisfactory results as regards the employability of dust filters. Investigation of the vitamin A requirements of healthy native mine labourers indicated that the usual diet was not deficient in this respect. This factor is of importance in regard to the matter of susceptibility to infection.

Experiments were conducted on the immunity phenomena in fowls with the Rous sarcoma. It was shown that these phenomena in this neoplastic disease depended on individual and racial particulars; there was no sign of the presence of an anti-action directed against a possible extrinsic virus. It appears that the Rous "agent," when injected into a new host, enters living normal cells of the immature connective-tissue type, and combines (although by itself, perhaps, not of a true living character) with some part of the living cell protoplasm, thus leading to the formation of a new comparatively independent and self-multiplying "tumour protoplasm."

Research on the habits and the species varieties of mosquitos was pursued. It was found that *A. funestus* took up its position in an iron-roofed hut towards the floor or roof in accordance with the prevailing internal temperature. The seasonal variation in this species was also shown to depend upon temperature. In *A. gambiae* the fluctuation may be interseasonal and also annual, the most important determining factor being the amount of rainfall, and, in a lesser degree, abnormal temperatures. This species prefers for breeding small pools of a temporary nature, whereas *A. funestus* breeds in permanent streams. A survey of the flea fauna of South-West Africa has been started, and will be continued for a year.

[1] *La Presse Médicale*. Numéro publié à l'occasion du quarantenaire de la fondation. (Pp. 83; 242 illustrations, of which 86 are coloured. 20 fr.)

HEALTH OF THE SCHOOL CHILD

SIR GEORGE NEWMAN'S REPORT

[FIRST NOTICE]

The keynote of the report of the Chief Medical Officer to the Board of Education for 1932 is the integral part played by the medical supervision of the school child in the national public health services. The organization for the care of the child belongs in origin and in structure to a larger national design for creating and maintaining the health of the people as a whole. When early in the nineteenth century Chadwick revealed the conditions of child labour it was the urgent problem of the children's health that moved public opinion to the many reforms associated with factory and sanitary law. The public health services have grown, as such services in England almost invariably do grow, by the needs of the occasion as they have arisen throughout six hundred years. There were very sound reasons for most of the advances in their evolution, and Sir George Newman entertains no doubt that the State and local authorities will in the future, as in the past, take occasion by the hand to make the bounds of freedom wider yet. Their task must, he declares, be partly health and partly educational work, for to be either it must be both. School hygiene cannot be divorced from home hygiene and this in turn is intimately bound up with the hygienic condition of the community. Efficiency and economy require therefore, a close relation between the daily work of the education authority and the sanitary authorities, and this relation will provide increased opportunities for the medical officer of health to study the personal hygiene of the population under his care. School medical inspection has never been a "cataloguing of defects." Ill health or physical defects intimately concern the home, the hospital and the school. In the past England's public health service has produced a national health which in all the circumstances, is second to that of no other industrial nation in the world. Sir George Newman stated in his Annual Report on the Public Health that despite the trials through which the country is passing the national health has not suffered from economic difficulties, and he now adds a similar claim for the children. Apart from congenital defect no disease of childhood has increased during the past year, and the nutrition of the school child it is observed has been maintained.

ROUTINE INSPECTIONS

It is not possible to state precisely the part played by school medical inspection, improved sanitation, better education, increasing health mindedness, and other factors, but nobody will question the worthwhileness of school medical inspections. The question has, however been asked during the past year "Are we getting full value for money?" The report stresses the duty of those administering the service to ensure that money is spent to the best advantage. While the regulations governing medical inspection are more or less uniform throughout the country, the regulations about treatment are much less definite, and there is no specific obligation on the local authority to provide forms of treatment for every child. As a result provisions vary in different areas. A meticulous examination of the financial aspect, however, indicates that reduction of expenditure could only be effected by a definite decrease in efficiency, and that an increased expenditure would in many directions be a true national economy.

During the year 1,845,503 children were examined, and in addition 1,192,453 were referred for some special reason. The total number of over three million children passed under medical review represented 60·7 per cent. of the average attendance at schools. Perhaps the most satisfactory feature of the tables showing "defects discovered" is the decline in tuberculosis. In 1925 pulmonary tuberculosis was found in 0·5 per 1,000 and suspected in 1·6 per 1,000, in 1932 it was found in 0·2 and suspected in 0·6 per 1,000. The lack of any correspondingly large reduction in other defects suggests that less attention is paid to preventing the less spectacular errors of eye, nose, throat, and teeth, because they can be more effectively remedied. The decline in uncleanness continues in Bradford, for instance, the figure for unclean bodies in 1925 was 2·37 per cent., and for unclean heads 3·48 per cent., in 1932 the corresponding figures were 0·16 per cent. in both cases.

SCHEMES OF MEDICAL TREATMENT

The report emphasizes the importance of ensuring a suitable balance between the various branches of treatment provided. It would be most unwise, for instance, to make little or no provision for dental treatment and yet to spend large sums on open air schools for children suffering from debility due to neglected dental caries.

We learn that at the present time there are 378 special schools accommodating 36,029 day scholars, and 245 residential schools for 21,866 children, this, however, is not enough for all those who need special treatment. The blind and deaf are adequately provided for, but there is still a great lack of accommodation for the mentally defective. There has been a remarkable extension in schools for the physically defective, and the deformities due to rickets, tuberculosis, congenital malformation, and nervous diseases are finding some solution. Classes for speech training are now established in thirty-one areas. In London each child attends twice weekly, and excellent results accrue without any interference with ordinary school routine. The report points out that for success in these centres the personality of the teacher and the co-operation of parents and class teachers are of the utmost importance, while a complete medical examination should be secured and arrangements made for following up and continuation classes. Artificial light treatment is now provided by ninety-three local education authorities, considerable extension having taken place during the last two years. Many differences of opinion are shown in the reports, and the value of artificial light treatment is very difficult to appraise. On the whole, it appears that this agent, though no panacea, has a constructive place in the school clinic, but for normal or nearly normal children it is only an indifferent substitute for natural sunlight.

There are now fifty-eight nursery schools, and another one is shortly to be opened in Manchester. An increasing number of local authorities make use of nursery classes a relatively inexpensive method of obtaining modern training and nurture for young children. The assistant school medical officer of Derby has made an interesting comparison of the physical condition of 100 children who had gone direct to the elementary school with another 100 who had previously attended a nursery school for a year or two. The latter group were taller and heavier, they showed 2 per cent. of malnutrition against 15 per cent. in the control group, and 35 per cent. of them showed no dental caries at all as against 24 per cent. of those who had not been to a nursery school. Uncleanness was about the same in both groups.

An increasing number of school medical officers draw attention to the need for child guidance, and there is a growing demand for more psychological examination to correct maladjustment. Those local authorities which have made provision of this kind offer valuable reports as to the practical working out of the problem. The school doctor and teacher have definitely got to cultivate the psychological approach, says Sir George Newman, they must become psychiatrically minded, for it is now certain that children show definite psychoneuroses, and that the school doctor, the teacher, and the parent can between them do almost everything to study, control, and rectify such retrogressions.

TONSILS AND ADENOIDS

Recent years have seen considerable modification of the attitude of the medical profession towards enlargement of the tonsils, and mere hypertrophy is no longer considered to be a pathological condition. There has been a remarkable display of interest during the year under review, and although full agreement has not even now been reached the ventilation of the subject has stimulated thought, and will undoubtedly lead to the placing of tonsillectomy on a sounder basis. There has been a significant decrease in

the number of operations in many districts, but a few report an increase. Parents are showing greater willingness to agree to the operation, many of them having seen for themselves its beneficial results. An attempt has been made to find out whether there is really a difference in the incidence of adenoids and tonsillitis in different parts of the country, or whether the varying figures are due to the adoption of dissimilar standards by different medical officers. The investigation was limited to children under the age of 6 and revealed no marked geographical variation in the incidence. It furnished no evidence to support the view that housing or home conditions affect the growth of tonsils and adenoids, but there was some suggestion that the condition might follow epidemiological laws, similar to those governing, for example, scarlet fever and diphtheria. Interesting suggestions are made that the enlargement of lymphoid tissue may be due to specific organisms, or may show a seasonal variation due to seasonal variation in the carrier rate of haemolytic streptococci. Striking differences in the colour of the oral mucous membrane were noticed: when it was pale the tonsils, even if enlarged, almost invariably appeared to be healthy. The explanation may be that if organisms producing chronic tonsillitis are present in the mouth their effects may be seen over the whole of the oral cavity.

Scotland

Committee on Scottish Health Services

The Committee on Scottish Health Services is now proceeding to take evidence. The committee was appointed by the Secretary of State for Scotland "to review existing health services in the light of modern conditions and knowledge and to make recommendations on any changes in policy or organization that may be considered necessary for the promotion of efficiency and economy." At a meeting on November 23rd, with Sir John Dove-Wilson in the chair, evidence was received from Dr. P. McKinley, statistical medical officer of the Department of Health for Scotland, and Colonel McKendrick and Dr. Kermack of the research laboratory, Royal College of Physicians, Edinburgh, on the vital statistics of Scotland. The preliminary stage of the inquiry embraces changes in the social and economic background, population, birth and death rates, and the biological factors that have to be taken into account in working out a national health policy. At the conclusion of the present stage the committee, before proceeding to examine the existing medical services, will review the environmental and sanitary services. All offers of evidence and other communications should be addressed to the secretary, Mr. Niven F. McNicoll, 121a, Princes Street, Edinburgh.

Problems of Factory Hygiene

A lecture was delivered in the Heriot Watt College, Edinburgh, on November 13th, by Dr. Thomas Ferguson of the Scottish Department of Health, and recently one of H.M. medical inspectors of factories. Sir James Leishman, who presided, said that the industrial history of this country showed that extraordinary developments had taken place in protective legislation. The social services of Britain were costing £400,000,000 per annum, but no country in the world was doing so much for the worker. The lecturer said that the present year marked the centenary of factory development in the Home Office. The earliest statutes dealing with labour in England went back to the middle of the fourteenth century, but the first legislative effort in favour of labour was passed in the seventeenth century to prevent payment of wages by commodities which were often useless, instead of by coin of the realm. Since that time many Acts had been passed to promote industrial health and safety. It was estimated that the total charge for compensation of industrial sickness and accident was now over £11,000,000 annually. In the mining industry the charge for compensation under the Workmen's Compensation Act amounted to 3.2d. per ton of coal raised in 1931. The recent machinery for compensating silicosis was unique in that an attempt had been made for the first time not merely to compensate established industrial disease, but to secure a measure of prevention by the institution of periodical medical examination. There was no hard-and-fast line between ill-health of industrial origin and ill-health among the general population, and the National Health Insurance Acts had not received the recognition due to them for their part in supplementing the Workmen's Compensation Acts and the Factory Acts. Industrial diseases tended to reflect the process that was taking place in the mechanization of industry, and this was raising new problems. For example, the incidence of lead poisoning in the pottery industry was formerly very high, but was now falling to an insignificant level with the introduction of protective measures. On the other hand, a serious cause of lead poisoning was now found in ship-breaking, and this was particularly difficult to control. The essentials for increasing industrial hygiene might be summarized as supervision of plant, observance of rules by employees, and systematic medical examination of personnel in dangerous industries. One of the pressing problems was how best to secure co-operation: if the best results were to be obtained something in the nature of a clinic should be developed, which would act in relation to industrial health in the same way as the dispensary in a tuberculosis scheme.

Milk Supply in Scotland

At the first annual dinner of the Glasgow Wholesale Milk Dealers' Association Dr. A. S. M. Macgregor said he believed that Glasgow had perhaps the highest standard of any city in this country as regards milk supply. Although graded milk had been in existence for ten years, and although a comparatively small amount of the city's milk was designated as one of these grades, yet about 70 per cent. of the ordinary milk supplies came up to the standard of graded milk. The corporation two or three years ago had made tentative efforts to introduce compulsory pasteurization in the city, but this had provoked opposition. The position in which this matter now stood was that the Prime Minister had appointed a subcommittee of the Economic Advisory Council to take evidence throughout the whole country, and the corporation was awaiting the report of that committee. There was still some milk distributed in Glasgow, he said, which would be better kept out of circulation, and there was growing agreement that the next step would have to be improvement in the production of milk at the source, particularly in regard to the elimination of tubercle bacilli. The manner in which milk was bulked into large quantities before distribution increased public health difficulties, because the more milk was bulked the more its possible infection was distributed. Pasteurization would eliminate this danger.

In his annual report for 1932 Dr. Andrew A. McWhan, medical officer of health for Berwickshire, draws attention to the fact that the disease particularly attributable to milk in that county is non-pulmonary tuberculosis in its various forms. Opportunities for infection from milk must have been frequent, since sixty-eight cows showing advanced tuberculosis were slaughtered in the county during the last four years under the Tuberculosis Order of 1925. The number of cows actually infected with tubercle, however, was unknown. In this county there were 587 milk producers, each of whom marketed his

own product; if this milk had been bulked the spread of the infection would have been still greater. There were 130 registered dairies with approximately 835 cows, and 452 premises with 1,095 cows from which milk was sold in small quantities or used for their own consumption. Out of these only two dairymen produced graded milk.

England and Wales

The "Bristol Medico-Chirurgical Journal"

The appearance of the autumn number of the *Bristol Medico-Chirurgical Journal* marks not only the hundredth anniversary of the foundation of the medical school which now forms the medical faculty of the University, but it signalizes the jubilee of that periodical, which has so long served the cause of the medical school and University, and forwarded the spread of medical and surgical knowledge in general, and particularly in the West of England and South Wales. In our issue of July 8th (p. 70) we briefly recalled some of the salient events in the history of the school, and described the proceedings of the congregation of the University for the conferring of honorary degrees. In an editorial note to the jubilee number the editor, Professor J. A. Nixon, takes the opportunity, as he says, of looking over a longer past and rescuing from oblivion some pioneers in medicine, as well as reviving some forgotten names. Those who take a deeper and wider interest in the history of the school should obtain and study a copy of Dr. George Parker's "Brief History." Dr. Patrick Watson-Williams contributes an account of the journal's history, of which he is well qualified to write, seeing that he gave twenty-six years' service to it, first as assistant editor and later as editor. The first editor was that brilliant surgeon and pathologist J. Greig Smith, whose premature death, at the early age of 43, inflicted a heavy loss on Bristol and the surgical world in general. The first volume consisted of only two numbers. It opens with an article by R. Shingleton Smith on "The Proofs of the Existence of a Phthisical Contagion." This was a peculiarly appropriate subject, for it was at Bristol that Dr. William Budd "had startled the profession by announcing his belief that phthisis would be found to be contagious." The next contributor was E. Markham Skerritt, with a weighty paper on heredity and suitable soil as evidence against contagion. Dr. Skerritt in later life became Treasurer of the British Medical Association. After the first volume the journal appeared quarterly. It is almost impossible to separate the history of the journal from that of the medical school, even if it were desirable to do so. Particularly is this the case as concerns the movement set on foot about 1900, with a view to the establishment of a University of Bristol, towards which the editorial notes, started by Dr. P. Watson-Williams as assistant editor, largely contributed. Another field of activity in which the Bristol Medico-Chirurgical Society and its journal worked for the progress of the school was the scheme for promoting and improving the development of the medical library. Its actual foundation, as Dr. Watson-Williams tells us, and its successful progress, are due almost entirely to Greig Smith and Mr. L. M. Griffiths. The establishment of an extensive exchange list and a review service very materially helped, and when the journal began to be a paying undertaking purchase of books for the society also increased the number of volumes. In 1926 the library was given to the University, which in return granted certain amenities to the society's members. To-day the library, which is one of the best provincial medical collections, consists of 24,000 volumes, founded on some 9,000 originally belonging to the University, and some 15,000 which belonged to the Medico-Chirurgical Society. The journal still remains a very important source of increase to the library, by means of review copies and exchanged periodicals. An editorial on "Bristol's Contributions to Medical Progress" occupies eighteen pages, which are worthily filled with interesting records from the time of John Free, in the fifteenth century, to the year 1833, in which it was the scene of the first anniversary meeting of the Provincial Medical and Surgical Association. Space forbids mention of many of those whose names are associated with Bristol's contributions to progress, but some cannot be passed over. Among them are Thomas Dover, privateer and therapeutist; Thomas Lovell Beddoes of the Pneumatic Institution at Hotwells, whose real "deed of fame" was his discovery of Sir Humphry Davy as director of his institution; Thomas Baynton, who introduced the strapping method of treating chronic ulcers; the two Prichards; Budd—already mentioned; and Stanley Kent, who demonstrated the auriculo-ventricular bundle in the mammalian heart. The account in this jubilee number of the proceedings of the congregation for conferring degrees is enlivened by the wit of the Public Orator. This commemorative number is illustrated by portraits of past editors and men of mark, including that genial physician and man of letters the present editor, Professor Nixon.

"One-pipe" House Drainage

A symposium arranged by the Chadwick Trustees on the one-pipe system of house drainage in theory and practice was held on November 21st at the London School of Hygiene and Tropical Medicine, under the chairmanship of Mr. Alfred C. Bossom, M.P. The opener, Dr. Charles Porter, said that since in its construction there were many more than one pipe, it was doubtful if the description "one-pipe," though convenient, was quite accurate. In tracing the development of the system, which was coming to be more and more frequently employed in the drainage of large buildings, such as hotels and blocks of flats in the metropolis, Dr. Porter showed that it was probably the only system in the early days of sanitation. The belief that defective drainage was responsible for outbreaks of enteric and other fevers led to a demand for improved sanitation. The schemes devised sought to keep drain emanations from entering buildings by insisting that all drains should, as far as possible, be outside the premises, that the different classes of waste should be kept separate, and a complete and complicated scheme of trapping be employed. In this way there grew up what he described as the British standard multiple-pipe system. With increased demand for sanitary appliances of all sorts, and in the case of hotels and more expensive flats for bathrooms *en suite* with sleeping rooms, the older system was inapplicable. In America, certain European countries, and the East this was recognized many years ago, and to-day practically nowhere else but in Britain was anything but the one-pipe system or some modification of it seen in hotels and flats, and even ordinary dwelling-houses. In London the L.C.C. had in course of preparation by-laws approving the introduction of the system. Already, however, certain London borough councils, conspicuously the St. Marylebone Borough Council, had waived existing requirements and permitted the adoption of the scheme for hotels and large blocks of flats. From the point of view of hygiene there appeared to be no question that the system had advantages, and on grounds of economy it had very real claims also. This was an aspect of the subject dealt with by Mr. W. H. Draper, who discussed

the question from the technical and practical side, and stressed the importance of sound workmanship. Mr. Draper exhibited a number of models of the system, and to elucidate his remarks showed a number of slides.

Nutrition and Unemployment

Mr. Geoffrey Shakespeare, M.P., Parliamentary Secretary to the Ministry of Health, at a dinner of the Food Group of the Society of Chemical Industry on November 24th, said: "I notice that in a daily newspaper this morning it is alleged that a report of a Committee on Nutrition, appointed by the British Medical Association, implies doubt of the contention of the Ministry of Health that distress and poverty, brought about by unemployment, have not resulted in malnutrition. This allegation is without foundation. There is not one single word in the British Medical Association report about the Ministry of Health conclusions on unemployment and national health (published last September), nor are any of its conclusions questioned or doubted. Let me remind you that the Ministry of Health report was based upon the official reports of medical officers of health in the depressed areas throughout the country, and of seventy-four medical investigators concerned with insurance medical practice in all parts of England, who, as a result of careful inquiry, declared that in spite of local rises and falls in the incidence of sickness, there is at present no available medical evidence of any general increase in sickness or mortality which can be traced to the effects of economic depression or unemployment."

Royal Dental Hospital Reunion

The Royal Dental Hospital of London held its annual reunion of staff and past and present students on November 25th. In the afternoon there was a "clinical at home" at the hospital, when cases were shown illustrating the scope of the work undertaken by the hospital, especially the treatment of children, and the various departments of the hospital and school, including the newly started museum of radiology, were open for inspection. In the evening there was a dinner at the Trocadero Restaurant, presided over by Mr. J. G. Turner, F.R.C.S., when a company of about one hundred and fifty attended. Mr. Turner, in proposing the toast of the evening, said that as a body British dentists imagined that they had sprung from the loins of the Royal College of Surgeons of England somewhere about the middle of the last century. But it was a wise child that knew its own father, and the parentage might well be claimed by a Scotsman, a Mr. Rae, who practised and taught dentistry in the University of Edinburgh in the middle of the eighteenth century, and who was also the first in that University to give a systematic course of lectures in surgery. Was Rae the surgeon the progenitor of the modern dentist or Rae the dentist the progenitor of the modern surgeon? Again, Dr. William Hunter, at the beginning of the present century, made the discovery that the art of dentistry was far more closely related to the art of medicine than to that of surgery. In the first report of the Dental Hospital of London, in 1859, appeared the names—not as "dental surgeons" but as "medical officers"—of Saunders, Cartwright, Harrison, Hepburn, Rogers, Tomes, and Underwood—names which struck a responsive chord of memory in the breasts of the older men, while to the younger they might bring visions of a prize or a scholarship. Mr. Turner indulged in some reminiscences of his own early days in Leicester Square, when the gas was manufactured by the porter, and whenever the porter was missing the staff had to go down to the cellar, haul him out, and apply artificial respiration. Among his contemporaries he mentioned the names of Sir Frank Colyer, W. H. Dolamore, and Sir Norman Bennett, and he paid a tribute to the memory of Sir Harry Baldwin and Russell Barrett. To the older men the present building was replete with conveniences; to the younger it was a comfortless barn, but that was the spirit of progress. In the research laboratory, of which he himself was titular head, there was a splendid team of workers, engaged at present on the problem of caries, and if some day the dental profession awoke to find itself unwanted it would be all their own "undoing." He only wished that by severe toothache or some less painful means a millionaire could be induced to endow a chair of dental research. Mr. H. Stobie, dean of the school and the new lecturer in dental surgery, announced certain staff changes, in particular the resignation of Mr. Turner, though, happily, he was remaining as consultant and as director of the research laboratory. Sir Norman Bennett had been appointed director of the orthodontic department and lecturer in that subject, and Mr. Bowdler Henry lecturer in oral surgery. He congratulated some past students on honours gained during the year, and described certain additional equipment, including the installation of twenty units in the conservation room. Mr. V. A. F. Greenish did honour to the visitors, who included the president and other officers of the British Dental Association and the deans of sister schools. Mr. C. Howkins, dean of the Birmingham Dental School, responded, and the final toast, that of "The Chairman," was proposed by Dr. E. Wilfred Fish, who said that Mr. Turner was the great son of a great father, for Smith Turner was one of the outstanding figures in the history of dentistry, and J. G. Turner himself had been a pioneer in many respects, especially his early recognition of the importance of oral sepsis.

Anti-diphtheria Immunization in London Special Schools

In July, 1932, the London County Council extended to residential special schools the scheme for the immunization of children against diphtheria. Of 349 children resident in the schools, consents from parents or guardians were received in 273 cases and refusals in seventy-six. Up to May, 1933, the number of children tested for susceptibility to diphtheria was 260, of which number 185 were found to be naturally immune to diphtheria attack; forty-seven of the non-immune had now been actively immunized, and active immunization was in progress, but not completed, in the other twenty-eight. It has been decided that the work of immunization shall be continued at the residential special schools, provided that no child shall be immunized without the written consent of the parent or guardian in cases where the council is not acting *in loco parentis*. The work of immunization will continue to be carried out by experienced medical officers in the public health department, who will demonstrate the technique to the medical officers of the schools, and will be remunerated at the rate of 2s. 6d. a child treated. The medical officers of the schools who have gained sufficient experience will be similarly remunerated unless such work already forms part of their duties.

A malaria library was founded in Rome by the Stazione Sperimentale per la Lotta Antimalarica in 1925, and an *Index to Malaria Literature* is issued annually by the station. To make this as complete a central malaria library as possible the director, Dr. A. Missiroli, appeals to all malariologists to send books, reports, and articles on malaria. Photostat copies of any articles in the library can be had, on request, at cost of production. All publications and requests should be addressed to the Director, Stazione Sperimentale per la Lotta Antimalarica, Corso Vittorio Emanuele 168, Rome (16).

CORRESPONDENCE

The Testimonial Farce

SIR,—With reference to the correspondence in your columns under this heading, there is a simple and effective way of getting over the bulk of the trouble. Instead of the usual form of advertisement, which says

> "Applications stating age, qualifications and experience accompanied by copies of three recent testimonials should be sent to the undersigned on or before the 30th inst.,"

I suggest as a model form of advertisement.

> "Applications stating age, qualifications and experience should be sent to the undersigned on or before the 30th inst. No testimonials are required in the first instance. Candidates selected for interview will be notified on or before 10th proximo of the date, time, and place of interview, and will be required to send copies of three recent testimonials."

On the basis of one hundred applicants for an appointment from whom, say, four are selected for interview on age, qualifications, and experience, the number of testimonials required is a dozen as against 300 under the present system. Apart altogether from the saving of time, trouble, paper, and postage for candidates, writers of testimonials, and those whose duty it is to read this mass of literature and select a list for interview, there are two advantages of great importance. Candidates are spared the damage sometimes done to them in the eyes of their present employers by announcing that they were applicants for other appointments. All applicants for appointment know at the earliest possible date whether they have been selected for interview. Under the present methods, which have extraordinarily little consideration for the *feelings* of applicants, they may never be so informed.—I am, etc.,

R. F. GARROW,
Medical Officer of Health.

Town Hall, Highgate, Nov. 24th.

In Defence of Raw Milk

SIR,—One cannot resist a smile when one reads the innocent and well meaning pronouncements of the medical Lords about pasteurized milk (*Journal*, November 11th, p. 892). How the commercial magnates must chuckle! The great mergers and pools that engulf the small producers will allow in their opportunity. "Thou shalt pasteurize!" "What plant? What gadgets?" "I will tell thee. I will send a man from So and so's"—"£500—£2,000—I cannot run to it!" "Very well—sell! Thou askest to whom? Of course, to the great —— and Co." Thus are the victims swallowed and the great "—— and Co" waxes fat.

The medical Lords have so much half truth about their position that it seems impregnable. But have they given enough weight to modern knowledge? Is not their conception of the natural history of life a trifle worn thin? Do they remember to boil their milk and forget to boil their butter? I am not wanting in respect for the careful work of Dr. Savage and such as he, though the superstructure of milk regulation which they build upon it seems wrong. We ought to think again. A little learning is a dangerous thing.

Let a few doubts arise. Lord Moynihan would "boil every drop of milk that comes into his house." That is one statement. Here is another from the milk pasteurization licence: "The milk shall not be so heated more than once, and shall not be otherwise treated by heat." Here is a third: nine tenths of the milk of London is already pasteurized. What, then, shall we say of Lord Moynihan's milk? Is it from the one tenth which is still raw? What shall we say to the coffee milk, the rice-pudding milk, the baby's bottle milk? All will be heated twice—once in the pasteurization, once in the home. Look at Miss Harriett Chick's photographs of babies fed on twice pasteurized milk in Vienna: you will find them in the Vitamin Report. Has fresh milk no protective quality? I can recall the infants of Antwerp thirty years ago brought to the stoep of the shippons in the Zoo, drinking milk warm from the cows by physician's order.

Are not eight out of nine cases of tuberculosis due to germs of the human type? If you can inhibit the source of the ninth's infection by pasteurization (you cannot *kill* it by that means), is it worth while, seeing that (1) you destroy the vitamin C, (2) you damage some of the others, (3) you spoil much of the milk's value as a lime provider—and it is the *main source of lime to many* children, (4) you spoil its iodine activities; and the more that is known of the milk the larger the list will become.

The clean food campaign speaks too much like a maiden aunt. "Peel your apples," "Peel your potatoes" (throw away the albuminoids, iron, and manganese), "Blanch your tomatoes," "Wash the sapid juice from your fish," "Steam your meat," "Decorticate your wheat" the steel rollers hum. What machinery, what cleansing, what white flour, what pure starch! Every speck of offal removed—roughage, germ, sharps—a by product, saleable—at a price—for the pigs. "Do not the vitamins go with them, B and E?" "Of course they do, but a civilized being will take a preparation of the vitamins" (if he remember). "What about E?" "You can get capsules of wheat germ oil now." "At what cost?" "Oh, 7s. 6d. for a week's allowance." [Haven't you robbed the bread of that 7s. 6d. worth?] "After all, why bother about E?" "Better ask that of the Eugenists." "Well, if you like, put some germ back in the bread, provided you treat it with superheated steam." "Why so treat it?" "To make it keep; raw germ has a ferment that sours in three weeks." "Does not the *thermolabile part of B suffer*?" "Oh, well" (no answer). For heaven's sake let us get back to some live and vital food, and not be advocates any longer of eating the mere boiled cadaver.

The dreadful stories of tubercle in cattle? True, but they should not be true, and need not be. A good veterinary surgeon will suspect a doubtful udder, and if acid fast bacilli are yielded (which he can tell you the same day), that cow can be killed, or its milk boiled, at once, without waiting the result of the guinea pig test. It is the tuberculous udder that is 90 per cent. of the real danger, which by this means can be reduced in a year or two to very small proportions. But if you are going to pasteurize on a large scale you are going to destroy the whole incentive to produce "healthy milk." You will do worse! You will make milk unpopular on account of the subtle difference in the taste, and what we want is to popularize the use of at least twice as much. *Price conditions* the quantity used. Pasteurization puts up the price pence per gallon. The same sum would cover the cost of producing "Grade A (T.T.)" milk. Is anyone *still nervous of that*? "Abortus? Still the possibility of tubercle?" "Yes, just the possibility, Mr. Microbophobia"—I am, etc.,

LIONEL JAS. PICTON.

Holmes Chapel, Nov. 21st.

Treatment of Laryngeal Tuberculosis

SIR,—My friend Dr. Scott Stevenson unintentionally misrepresents my views when he states that I have given up the use of diathermy on patients suffering from pulmonary tuberculosis. In the operation of thoracoplasty I no longer use the endothermic needle to divide the skin and muscles, but I coagulate the bleeding points instead of ligating them. In the division of adhesions by means of the thoracoscope I use both endothermy and the electro-cautery, but for different types of adhesion.

For painful tuberculous ulcer of the tongue, floor of the mouth, and buccal surface of the cheeks I know of no treatment so satisfactory as diathermic coagulation. The pain is instantly relieved, and in my experience, as the slough clears off, the ulcer becomes clean and rapidly heals, with a mobile scar.

The larynx is outside my province, and it may differ from other tissues in its reaction to this form of current. I gather from Dr. Scott Stevenson's words that he has no personal experience of its use in this situation, so the two bad results he has seen may be due to unskilful application.—I am, etc.,

London, W.1, Nov. 27th. J. E. H. ROBERTS.

SIR,—In discussing the treatment of tuberculosis of the larynx (*British Medical Journal*, November 25th), Dr. Scott Stevenson gives us a long list of authorities on the subject without even cursorily mentioning the use of tuberculin. Does he know of the paper entitled "The Results of Tuberculin Treatment in Tuberculous Laryngitis" which I read at the meeting of the British Medical Association in London in 1912? Some of these cases were sent to me by Mr. Herbert Tilley. Dr. Stevenson was not then qualified, and therefore my paper, published in full in the *British Medical Journal* (1912), may have escaped his notice.

I would ask Dr. Stevenson to consider in the future the merits of tuberculin, and if he would come to my tuberculin clinic by appointment I would gladly show him some of my patients who have been enormously benefited by treatment with tuberculin, although suffering from the worst and most extensive forms of laryngeal tuberculosis. As a keen laryngologist I appeal to him, because I was seventeen years laryngologist to the Sydney Hospital while I was teaching bacteriology and pathology at the Sydney University; and I still practise laryngology as it concerns pulmonary tuberculosis. I should be delighted to show him many cases of tuberculosis of the eye under treatment with tuberculin, because I have proved beyond doubt that what I claimed long ago for tuberculin in the treatment of laryngeal tuberculosis (*Tuberculin in the Diagnosis and Treatment of Tuberculosis*, 1912) I have proved by analogy to be true beyond all question in the treatment of all forms of tuberculosis in the eye. Fortunately, in these organs we can see and follow the results of treatment directly with the naked eye.

Dr. Scott Stevenson's own quoted experiences (320 cases of tuberculosis of the larynx, of whom thirty-eight showed *clinical cure*, 101 were improved, eighty-one were stationary, fifty-nine were worse, and forty-one died) as the result of one year's experience is not trustworthy evidence, as the true test requires that these cases should be controlled by after-examinations for several years, before even speaking of a "clinical cure" in tuberculosis.—I am, etc.,

W. CAMAC WILKINSON,
London, W.1, Nov. 26th. M.D., F.R.C.P.

SIR,—In Dr. Scott Stevenson's valuable survey of the treatment of laryngeal tuberculosis emphasis is rightly laid on the use of surgical rest for the lung. The *raisons d'être* are, however, not fully stated.

In tuberculosis, wherever situated, rest, mental and physical, is the aim of our treatment. It is true that thoracoplasty and artificial pneumothorax reduce the toxaemia, but Sir StClair Thomson has shown that a diseased larynx can improve in spite of increasing toxaemia. Such procedures, however, not only give the patient a definitely brighter hope for the future, a factor whose value is difficult to exaggerate, but also by diminishing cough increase enormously the periods of laryngeal rest. It is to these results of surgical intervention that its success should be attributed.—I am, etc.,

Petersfield, Nov. 27th. FRANCIS JUPE.

Lung Disease after "Gassing"

SIR,—With the conclusions expressed by Dr. W. N. Abbott in his article in the *Journal* of November 11th on the incidence of pulmonary disease following exposure to vesicant and asphyxiating gases I think there would be general agreement. The experience of those dealing with these cases post war shows that emphysema and bronchitis, fibrosis usually of the peribronchial type, and bronchiectasis are the usual late sequelae in men who have had a continuous medical history of chest symptoms from the "gassing period"; or, if there have been intervals of good health during which apparently the chest becomes normal, they still show unusual susceptibility to bronchial infections and symptoms.

There is one point, however, to which I think attention should be drawn—namely, the statement on page 864 that in cases of penetrating chest wounds the post-incidence of tuberculosis is thought to be "60 per cent. by some observers." I should wish to comment on this high percentage, and should be glad of the references on which it is based. It occurred to me that the figure might be a misprint for 6.0 per cent., though this I should still regard as somewhat high. Bruardel in 1915 and Achard and Dénéchau considered that severe contusion of the chest was more active as a factor than penetration in lighting up old tuberculous foci. Bauer, Schroeder, and Blumenfeld record 8,700 cases of gunshot wounds in which eighty-seven cases of tuberculosis occurred. This would only give 1 per cent., but penetration cases were not separated in these figures from injuries to the lung and chest wall.

In a paper on "After-results of Gassing and Gunshot Wounds of the Chest in Relation to Tuberculosis," which I read before the Tuberculosis Association in 1929, and which was reprinted in *Tubercle* in December, 1929, I analysed fifty cases of trauma of the chest (gunshot wound) for which claims were made on the Ministry of Pensions owing to the consequent development of tuberculosis. In 58 per cent. of these there appeared to be a close association between the incidence. It must, however, be remembered that these fifty cases were at that time the only cases of accepted tuberculous incidence in approximately 10,000 cases receiving pensions for chest injuries (penetrating and non-penetrating), the percentage of which, therefore, is only fractional. Allowing, however, for subsequent claims which have since received attention, the percentage would not have risen to probably more than 2 or possibly 3 per cent., if that. The reference, therefore, to such a high proportion as 60 per cent. requires some comment, and it would be interesting to know the data on which it is based.—I am, etc.,

Ministry of Pensions, S.W.1, Nov. 21st. G. BASIL PRICE.

Chorionic Carcinoma

SIR,—I was much interested in Mr. W. Salisbury's article on this subject in the *Journal* of November 18th (p. 916). My interest in chorionic carcinoma has been stimulated by two factors—namely, its extreme rarity, and the difficulties associated with the diagnosis of this condition. I have only seen two sections of true chorionic carcinomata in a consecutive series of over 3,000 gynaecological specimens examined by me during the past five years: both of these specimens were obtained post mortem. Old-standing retained products of conception often show all the histological characteristics of malignancy—namely, invasion of the uterine musculature by hyperplastic chorionic elements with mitotic figures in

their nuclei—yet subsequent events prove the condition to be innocent. I have records of eighteen instances where highly competent pathologists have expressed difference of opinion regarding the malignancy or otherwise of debris removed from the uterine cavity following abortion, expulsion of a vesicular mole, or normal full-time pregnancy.

It is clear that the chorionic epithelium has the power of invasion of the uterine wall even in normal pregnancy. In normal pregnancy this power of invasion is controlled, whereas in chorion epithelioma the invasion is uncontrolled. Recorded cases of chorion carcinoma show that this neoplasm is one of the most malignant epithelial tumours we have to deal with; in fact, the occurrences of metastases in the lungs, liver, or vagina seem to have been the first indication of trouble in most of the cases on record. Early diagnosis, therefore, is of the utmost importance, but, as I have said, the histological picture of curettings in suspicious cases is unreliable.

Fortunately the discovery that the Zondek-Aschheim test for pregnancy persists in cases of chorion carcinomata adds to our diagnostic armamentarium. In all cases where the histological picture is suggestive of chorion carcinoma, particularly in cases of persistent uterine haemorrhage following the expulsion of a hydatidiform mole, the urine should be examined at fortnightly intervals for the Zondek-Aschheim pregnancy phenomena. Should the test be found positive at the end of four weeks following evacuation of the uterus, and the curettings be found suspicious, then I consider drastic surgery necessary if the woman's life is to be saved. Nothing short of an extensive panhysterectomy, together with removal of both tubes and ovaries, followed by intensive deep *x*-ray therapy, will prove of any value.

Mr. Salisbury's point concerning the necessity of first closing the cervix with a mattress suture so as to eliminate the risk of implanting cancer cells in the pelvic tissues during the removal of the uterus is an essential point in the surgical technique. In the ordinary way, direct implantation of a carcinoma cell from the body of the uterus is rare, but the chorion carcinoma cell differs from the usual carcinomata in that it has the capacity of survival and growth in any tissue on which it may be accidentally implanted; furthermore, chorion carcinoma does not spread by lymphatic permeation, but by the blood stream.

Finally, I would like to say that the opinion passed by some authorities that "chorion carcinoma varies much in malignancy" is based upon the histological picture alone, but if this picture be associated with a persistence of the Zondek-Aschheim test then this variation is not found to exist.—I am, etc.,

JOHN H. HANNAN, M.D.,
Pathologist, Hospital for Women, Soho Square

London, W.1, Nov. 19th.

Treatment of Ulcerative Colitis

SIR,—The wise and helpful letter of Dr. Letheby Tidy in your issue of November 18th (p. 939) on the treatment of ulcerative colitis brings to mind the case of a young man which I published in the *British Medical Journal* in 1922, and in which a quite unexpected recovery followed appendicostomy and daily lavage with soured milk. The patient, when admitted to hospital, had been ill for many weeks, and was apparently in the last stages of exhaustion and emaciation, with constant foul and haemorrhagic stools. Colonic lavage per rectum with weak Condy's, hazeline, and boric acid were tried, but appeared to aggravate the condition and increase the exhaustion. As a last resource, and fearing he would not survive the operation, I did an appendicostomy; and, with the idea of counteracting the colon infection and its foul alkaline contents by means of a strongly growing acid-producing flora, I employed daily lavage with a pint to a quart of milk soured for twenty-four to thirty-six hours with the "Bulgarian bacillus." Within a week or ten days he began to mend, and after some three months was able to return home; he has had no recurrence. This is only one case, and I had no opportunity of repeating the experiment, but it would be interesting to know if a similar treatment has been used by others.—I am, etc.,

Eynsham, Oxford, Nov. 20th. JOHN A. HAYWARD.

Heartburn in Pregnancy

SIR,—Dr. Rayner's article in the *Journal* of November 25th is, I am sure, right in the theory that heartburn is due to indigestion, and the thorough digestion of food in the stomach cannot be accomplished without hydrochloric acid. There is little doubt that all secretions and all the other physiological duties are taxed to the utmost in pregnancy. Dr. Rayner gets results by supplying additional HCl to assist the stomach in the performance of its duties, but at the ante-natal clinic of the Christiana Hartley Maternity Hospital heartburn is little complained of, and our treatment seldom necessitates the prescribing of HCl.

Every patient is as much as possible on a vegetarian diet. All are requested to put the frying-pan aside during pregnancy. They are encouraged to eat their meals dry, and drinking with meals is forbidden. All are recommended to have each morning before getting up half a pint (or more) of water, as hot as can be sipped, with a varying amount of magnesium sulphate in it—not necessarily an aperient dose. In certain circumstances the magnesium sulphate is replaced or augmented by potassium citrate or sodium bicarbonate, or both. The alkali is prescribed, not with a view to neutralizing the acid secretion of the stomach, which is most essential to digestion, but as a stomach lavage to wash out the remains of the undigested meal which has remained in the stomach overnight, and is now probably acting as an irritant and causing heartburn. The sister pointed out that in the morning most patients had the fire to light before hot water was procurable, so by way of compromise it was suggested that the water could be boiled the night before and put in a vacuum flask ready for morning.

I am not at all sure that HCl in the morning water would not be equally effective, but have not tried it, and would suggest that Dr. Rayner's results are probably not a little enhanced by the lavage necessitated by the HCl. Dr. Rayner does not say when he gave the alkalis, and I suggest that if given with meals or within two or three hours thereafter a vicious circle is going to be set up, although temporary relief may be given in the heartburn of pregnancy.—I am, etc.,

A. S. GARDEN, M.D.,
Obstetrician in charge, Christiana Hartley Maternity Hospital

Southport, Nov. 27th.

SIR,—May I suggest to Dr. E. Brian Rayner (*Journal, November 25th, p. 970*), and to anyone else, that for heartburn, either associated with pregnancy or not, he prescribes dry meals: no liquid with a meal, except perhaps a sip; all food to be as dry as possible, so that it has to be well mixed with saliva before being swallowed. Hot sloppy food, soup, stews, milk puddings, and semi-liquid "sweets" should be excluded from the dietary. Meals should be spaced so that one meal is not swallowed on top of the half-digested residue of the last. The liquid required should be consumed not nearer than half an hour before a meal or two and a half, preferably three, hours after. Very stale bread, biscuits, or toast "Melba" should take the place of ordinary bread. Meals should not be large.

The heartburn of pregnancy and of ordinary life is practically always due to pressure expelling small quantities of the products of possibly quite normal acid digestion into the oesophagus. The common-sense treatment, therefore, is not to try to make stomach digestion alkaline or even less acid, but to so diet the patient that the contents of the stomach are neither large nor unduly liquid. The catarrh, or even ulceration, of the lower end of the oesophagus caused by the constant back-flow of the acid stomach contents will require appropriate treatment.

Animals never drink with their food. How long would a horse live if given a bucket of water with each of its feeds?—I am, etc.,

Sandgate, Kent, Nov. 25th. S. H. FAIRRIE, M.B., Ch.B.

SIR,—Dr. Brian Rayner's clinical research into heartburn in pregnancy confirms the work published by Arzt in one of the American obstetrical journals a few years ago. He also related the digestive discomforts of the pregnant woman to a partial achlorhydria. Arzt found that test meals revealed an absence of free acid at those times when nausea and vomiting were most complained of. In fifty cases there was decreased acid, and in another twenty-nine no free acid at all. It was considered that the acid was neutralized by the regurgitation of alkaline duodenal fluid. Arzt found that a great number of patients could not tolerate acid. hydrochlor. dil., and had much better results by prescribing caffeine citrate gr. v, t.d.s. I have used this method myself for the last three years and can report considerable success.—I am, etc.,

Bristol, Nov. 27th. FRANK BODMAN.

Labour in the African Negro

SIR,—Your Kenya Mission Hospital correspondent, Dr. R. B. Michener, "wonders how the tale of easy deliveries started," quoting in support of his doubt statistics of "difficult deliveries" from three local sources. I am also left wondering how it happens that three hospitals in the same area show a variation from 5.0 per cent. to 25.6 per cent.—a 500 per cent. difference. But he adds: "Our high percentage is also due to the fact that we have an ambulance service." This is indeed illuminating; but even so, can one blame the whole of this on the ambulance alone? He includes all instrumental intervention under the heading "difficult deliveries." I would like him to refer to the case mentioned by Dr. Owen Jones (*British Medical Journal*, July 29th, 1933) in the previous discussion, which he challenges, on this point.

I forbear to repeat much that has already been drummed into us on this point of intervention, only remarking that mission hospitals with ambulances, and subscribers in England to be touched who provide them, should be more careful to exclude obviously, but also quite unconsciously, tendentious arguments, and to correlate their own figures before entering the arena of scientific discussion. In starting a discussion on a certain statement in a previous and different issue the terms of that discussion should be carefully observed. That discussion concerned "normal labour"—that is, without malpresentations, etc. In challenging the statement now, such have been included in the figures given as if it had been alleged or assumed that such did not occur. In my very young days, anxious to practise my skill, I did an appendicectomy for a slight iliac pain in a native. It was, when seen, a beautifully healthy appendix. The victim, after recovery, used proudly to exhibit his scar, telling his "brothers" that was how I saved his life! Even though appendicitis also occurs in negroes, is it right to include such in statistics, or to continue operating for iliac pains even though the psychological effect was entirely satisfactory?—I am, etc.,

London, W.6, Nov. 18th. W. M. HEWETSON.

SIR,—I can supplement the statement in Dr. R. B. Michener's letter in the *Journal* of November 18th (p. 944). There are many reports from the Church Missionary Society medical missioners stressing the prevalence of high maternal mortalities amongst African natives bearing children in natural surroundings. In fact, the mission medical officers, when pursuing their activities in a new district, are continually urging, as a first necessity, the provision of a maternity hospital. It would certainly not be necessary to build hospitals if the women were already bearing their children under superior conditions in their natural surroundings. It is well known that Caesarean section is performed for prolonged labour by certain tribes in Central Africa, and this fact was noted by Dr. Fulkin in his *Notes on Labour in Central Africa, 1878-1880*. Commenting on the treatment of difficult labour, he states that in one case he encountered a woman, after prolonged attempts at delivery, about to be cut open by the local "surgeons." Civilization in the person of Dr. Fulkin (and a pair of midwifery forceps) brought the labour to a quick and happy termination!—I am, etc.,

London, S.W.6, Nov. 21st. E. HUDSON.

Treatment of Whooping-cough

SIR,—The paper on whooping-cough and its treatment by very large doses of vaccines, by Dr. R. W. Cockshut, in the *Journal* of November 4th (p. 819) prompts me to draw attention to an annotation under the title "The Blood Chemistry in Whooping-cough" in the *Journal* of May 1st, 1926, which was itself a review of an article in the *Journal of the American Medical Association* (April 10th, 1926). In this article it was stated that in whooping-cough the hydrogen-ion concentration of the plasma and the inorganic phosphorus were lower than normal, and that both improved with the administration of alkalis, and the symptoms abated. The *Journal* referred to above reached me in India at the end of a very severe epidemic of whooping-cough, in which there was a preponderance of the asthenic type of case, showing long periods of apnoea with cyanosis, dilated pupils, and complete atonia replaced the whoop. The mortality was very great. There has been no such severe epidemic since that date, but I have used the alkali treatment for all cases of whooping-cough since then. It would be difficult to give accurate numbers; they probably amount to several thousands.

I have elaborated the method into a routine. The important points are:

1. Alkalis must be given in doses adequate to raise the plasma bicarbonate to normal—that is, 0.032 mg. per 100 c.cm. It is inadvisable, and indeed unnecessary, to do blood examinations on a child, so the clinical guide is the persistence of vomiting, the whoop, or the explosive cough. The doses needed are surprisingly high, and cannot be judged by age. Thus a weakly, undersized child of 2 may need as much as 30 grains of sodium bicarbonate five times in twenty-four hours in order to be freed from the whoop, will need this dosage for a week, and then four times a day for a second week. For the sturdy child of 2 to 4 years I often give 30 to 45 grains four or five times in twenty-four hours. Older children may need a drachm four times a day, and if after three days the whoop persists, five times a day. The other points are equally important.

2. The bowels must be well opened. I usually give a saline purgative twice a day for the first two or three days, and then once a day for another three days. The mother is instructed to give it after the vomiting, and is provided with extra doses to cover loss by vomiting. If the whoop persists as before after the third day it will be found that the bowels are still constipated. When this is remedied the whoop and cough decrease at once.

3. Plenty of fluids—that is, two to three pints a day—should be given.

4 Diet all milk and meat should be stopped and fruit and vegetables plenty of brown sugar and certain cereals should be given

With this treatment there is marked improvement within three days, and by the eighth day the child is almost free from any cough The alkali and the diet are continued for another week This treatment also cuts short early cases, and very quickly clears up the chronic cough and debility of neglected cases —I am, etc ,

FLORA R INNES,
On furlough from Medical School, Vellore S India

Edinburgh, Nov 18th

Early Treatment of G.P.I.

SIR,—In your issue of November 25th (p 955) Dr Wilfred Harris reports a case of G P I which was treated by induced malaria with a most gratifying result It is to be hoped that this remarkable instance of the effect of *early* treatment on such cases will not escape general observation It is sad to have to relate that out of the last sixty cases of G P I admitted under certificate to my wards at Brentwood Mental Hospital only three had *previously received malarial treatment, although some of* the untreated patients had been attending London hospitals prior to the development of their mental symptoms Since nobody in this country is certified as insane until he or she has become a source of grave anxiety to relatives or associates, the majority of patients with G P I who reach the stage of certification already exhibit a degree of dementia which is dependent on gross neuronic destruction, and which cannot be remedied by malaria The consequence is that we are slowly accumulating in mental hospitals a population of half cured general paralytics who for many years will remain a burden to their relatives and to the ratepayers, although many of them might have continued as useful members of the community if, in *the first instance, they had been treated as promptly and* energetically as Dr Harris's patient —I am etc ,

THOMAS D POWER, M D , M R C P

Brentwood Mental Hospital Nov 24th

SIR —I should be extremely grateful if medical men who have come across persons of either sex suffering from general paralysis of the insane who, in the course of their disease, have had a child, would kindly communicate with me —I am, etc ,

G W T H FLEMING
Hon Secretary Clinical Psychiatry Subcommittee R M P A

Hereford Mental Hospital Burghill Hereford Nov 24th

Research on Goitre

SIR —The American Association for the Study of Goiter for the fifth time offer 300 dollars as a first award and two honourable mentions for the best essays based upon original research work on any phase of goitre presented at their annual meeting in Cleveland, Ohio June 7th, 8th, and 9th, 1934 It is hoped this will stimulate valuable research work, especially in regard to the basic cause of thyroid enlargement Competing manuscripts must be in English, and submitted to the corresponding secretary J R Yung, M D , 670 Cherry Street, Terre Haute, Ind , U S A , not later than April 1st, 1934 Manuscripts received after this date will be held for the next year or returned at the author's request The first award of the 1933 meeting was given to Anne B Heyman, A B , M S , University of Michigan, Ann Arbor, "The Bacteriology of Goiter and the Production of Thyroid Hyperplasia in Rabbits on a Special Diet" Honourable mentions were awarded to J Lerman, M D , and W T Salter, M D , Huntington Memorial Hospital, Boston, Mass , "The Calorigenic Action of Thyroid and Some of its Active Constituents," and Professor Stefan Konsuloff, Sofia, Bulgaria, "Experimental Studies on Etiology of Goiter"—I am, etc ,

October 30th J R YUNG, M D

Treatment of Fractures of the Spine

SIR —As a medical man keenly interested in first aid I have followed the correspondence both in the *British Medical Journal* and in first aid journals regarding the treatment of fracture of the spine, and I notice that in the letters which appeared in your issue of November 18th on this subject first aiders are urged to remove such cases in the face downwards position

While I do not doubt that this position may be adopted with advantage in hospital after the fracture has been located by expert examination, assisted by *x* ray photographs, it seems to me that your correspondents who advocate removal in this position on a stretcher overlook the fact that the first aider is not in the same happy position, for he would have to decide, with his limited knowledge, *whether the fracture was in the cervical region* —in which case he would place the patient on his back, as universally taught by all authorities—or whether it was in the dorsal and lumbar regions—in which case he would place the patient face downwards If the patient is unconscious the first aider has no sure means of locating the site of fracture, and to place him face downwards with a fracture in the cervical region would be courting death But apart from this consideration there is obviously not yet unanimity of opinion among surgeons as to the merits of treating fractures in the dorsal and lumbar regions on the face, for I find that Romanis and Mitchiner lay down in *The Science and Practice of Surgery* (vol ii p 106), published so recently as 1932, that the treatment in hospital should be to keep the patient "on a flat firm bed consisting of a mattress over fracture boards" and add that "in many cases the deformity rights itself when the patient is laid flat" It seems to me that while there is this marked difference of opinion amongst our leading surgeons the St John Ambulance Association is wise in continuing to advocate removal on the back

Finally the danger of shock and the necessity of treating this condition is repeatedly impressed upon the first aider and I am surprised, therefore to see one of the most ardent advocates of this doctrine Dr T E A Stowell, apparently ignoring this condition for surely in the case of a patient with a fracture of the spine the weak action of the heart is likely to be seriously embarrassed and the free action of the lungs is likely to be seriously impeded if a patient is carried for any distance in the face downwards position —I am, etc ,

November 23rd 'INTERESTED

Treatment of Mirror-Writing

SIR,—I have at present a patient under my care—a nervous, highly strung girl 6 years of age—who has been regarded by her teacher in the infants' school as mentally backward She has shown natural aptitude to use her left hand only, and her teacher very wisely has not tried to change her habits The result of tuition, however, was only the production of a series of meaningless hieroglyphics, which her teacher disregarded She is a well developed child with no evidence of organic nervous disease All her senses are normal and her intelligence is, if anything, above the normal for her age Mirror writing is her forte, but this is only manifested in printing capital letters and in copying figures She is unable to read or write The efforts to use her right hand are very clumsy indeed

I have read with interest the correspondence on this subject in the *Journal* some months ago, but as there was no mention of treatment I would be glad if anyone with experience of similar cases would give some details of effective treatment, especially as this child is quite unable to benefit from the tuition in the ordinary elementary schools.—I am, etc.,

A. A. CUNNINGHAM.

Joyce Green Hospital, Dartford, Nov. 17th.

Obituary

T. H. BICKERTON, CH.M., F.R.C.S.

Consulting Ophthalmic Surgeon, Liverpool Royal Infirmary

Mr. Thomas Herbert Bickerton died at his residence in Liverpool on November 23rd, after a short illness. He retired from practice some years ago and went to reside at Sidmouth, but returned to Liverpool three years ago on the death of his wife.

He was born in Liverpool in 1857, the son of Thomas Bickerton, a surgeon who also specialized in ophthalmology. He was educated at the Liverpool Institute, and received his medical training at the Liverpool Royal Infirmary, the Northern Hospital, and the London Hospital, qualifying M.R.C.S. in 1879. After a term as house-surgeon at the Royal Infirmary he made a special study of ophthalmology at the Royal London Ophthalmic Hospital, and later spent a year in Vienna. He returned to Liverpool in the early 'eighties, and became assistant to, and later the partner of, Mr. T. Shadford Walker. In 1886 he was appointed ophthalmic surgeon to the Royal Infirmary, Liverpool, a position which he held for thirty-three years. In 1923 he was elected president of the Infirmary, and in that capacity received the Duke and Duchess of York at the opening of the new nurses' home. He held, during his career, many other appointments, among them being that of honorary consulting ophthalmic surgeon to the Northern Hospital, the Southport General Infirmary, Bootle Borough Hospital, Hoylake Cottage Hospital, St. Paul's Eye Hospital, Liverpool, and the Catholic Blind Asylum.



He was a member of the British Medical Association from 1882 to 1930, and secretary of the Section of Ophthalmology at the Annual Meeting of 1897. He became vice-president in 1903 and president of the Section in 1913. The North Wales Branch elected him an associate member. In 1908 he was president of the Liverpool Medical Institution, and obtained jubilee membership in 1931. On that occasion Sir Robert Jones, in proposing the resolution, said: "You have always been characterized by a quality of earnestness which has been of great value to all your associates. Your energy has been directed to whatever cause you espoused, whether popular or not. Indeed, you have been a great friend to causes to which your natural chivalry directed you, and have always been kind-hearted and helped anyone who was in difficulty." He was for many years a member of the Liverpool Medical and Literary Society, and eventually became its president.

Mr. Bickerton had a very large private practice—perhaps the largest in the North of England. Patients from every part of the world came to consult him. His knowledge and humanity compelled the confidence of colleagues and patients, and as an operator his skill was unsurpassed. He found time to investigate many problems, and wrote numerous papers. A paper on colour-blindness and its relation to accidents at sea, read at the Annual Meeting of the British Medical Association at Glasgow in 1888, followed by other papers, led to a revision of the Board of Trade tests of sailors' eyesight. He was a pioneer in advocating the irrigation treatment of ophthalmia neonatorum—a method which is now of universal application. Many years ago he expressed the wish to see Liverpool take its proper place as a great medical educational centre, and he lived to see a great deal accomplished in that connexion. He was an enthusiastic and inspiring teacher, and was lecturer in ophthalmic surgery at the University from 1917 to 1923. In 1922 the University conferred upon him the degree of Ch.M. *honoris causa*, and in 1926 he was elected to the Fellowship of the Royal College of Surgeons.

Apart from his medical work Bickerton had many interests. He collected a mass of material for a medical history of Liverpool, the result of which is shortly to be published in book form. His country house—Denna Hall, Cheshire—was a centre from which as a younger man he indulged his love of horse, dog, and gun. He was a keen collector of pictures and antiques. He sat on the Bench as a justice of the peace, took an enthusiastic interest in the cause of temperance, and was at one time an active Freemason. He leaves two sons—Richard, who is an ophthalmic surgeon in Liverpool, and Myles, who is senior ophthalmic surgeon to King's College Hospital, London. His brother, Colonel Reginald E. Bickerton, D.S.O., T.D., is also an ophthalmic surgeon in London, and surgeon to St. Dunstan's and late King's Honorary Surgeon. The late Professor Rushton Parker, the Liverpool surgeon, and the late Dr. Webster Fox, professor of ophthalmology at Philadelphia, married his eldest and youngest sisters respectively.

A. McK. R.

Sir JAMES BARR writes:

By the death of Mr. T. H. Bickerton I feel the loss of an old and faithful friend during a period of nearly half a century. He was a very able and successful ophthalmic surgeon, and everyone who knew him had implicit confidence in his judgement. He was a man of strong views, and whenever he was convinced that any subject which he had in hand was correct he spared no personal sacrifice to carry it out. His views on temperance were rather extreme and not very popular, but he never allowed them to interfere with personal friendship. He always took a keen interest in the British Medical Association, and was a popular treasurer of the meeting in Liverpool in 1912, and president of the Ophthalmic Section the following year in Brighton. The conferment upon him of the Fellowship of the Royal College of Surgeons in 1926 was universally esteemed. When I ascribed the honour, which I considered well merited, to Mr. Thelwall Thomas he did not deny the soft impeachment, but he told me that he had never known an honour more justly conferred, that the merits of the case were so carefully examined and the conclusion so unanimous that no one could claim any special credit.

He was a man not only popular with the public but also with his professional brethren. It would be impossible to say of any man worth his salt that he was universally popular. Bickerton, like every other good man, had his detractors, but they were in the background, and might be considered negligible quantities. Bickerton was justly considered the medical historian of Liverpool, and long had such a work in contemplation, but in recent years, with

failing health, this matter was dropped. It is very pleasing to be able to record that his manuscripts are now in the hands of his son, Richard Bickerton, and the work will soon see the light of day. He was the son of an ophthalmic surgeon, his brother and two sons have followed the same branch of our profession, and his sister married a distinguished ophthalmic surgeon, Dr. Webster Fox of Philadelphia. Mrs. Bickerton predeceased him.

The following extracts from appreciations which appeared in the *Liverpool Daily Post* on the day following Mr. Bickerton's death give some indication of the esteem in which he was held by his colleagues.

Mr. W. E. LIVSEY wrote: By the death of Mr. Bickerton the North of England and North Wales has lost one of the area's most distinguished ophthalmic surgeons. Thousands owe the blessing of sight to his patient care and skill. His training and wide experience were always freely at the service of those attending the institutions with which he was associated. As a teacher he was sound and painstaking, but he was essentially a practical man, and his skill and success as an operator could not be surpassed. His kindness and gentleness to patients, whatever their station, was striking, and there can be few to whom the title of the "gentle doctor" can be more appropriately applied.

Mr. A. MCKIE REID wrote: The passing of Mr. Bickerton must, as does that of any pioneer sadden many who followed his specialty. He was one of the first to dissociate the practice of ophthalmology from that of other branches of surgery. As an operator he was peerless, and it was sheer joy to watch the faultless technique and smooth rhythm of his work. In addition to a very large clinical practice, he found time to investigate many problems. His confidence inspired the like in his patients, who came and returned from every corner of the world to consult him. He worked and fought strenuously for any cause which he had at heart. His example and inspiration guided the steps of many ophthalmic surgeons in practice to-day, who must always remain grateful for his teaching.

Mr. C. ALSTON HUGHES wrote: A great personality has passed to a rest which he ever denied himself in his working life. If I were asked the most prominent feature of his professional life, I, who sat with Livsey at his feet while ailing devotees passed through his clinic at the Royal Infirmary, would answer with the one word "Success." Success in practice, that elusive quality, seemed inborn. When operating he seemed to know exactly just how far to go. The standard he had set himself was: "If this were my own eye, should I like this operation or treatment carried out?" I do not remember one instance when he flouted this highest ethical and self-imposed rule. I cannot remember anyone who so consistently and pleasantly attained the result we all seek—success in the objective and satisfaction of the patient. The mastery and gentle care of the individual patient, coupled with clinical wisdom and operative dexterity, were the aim and glory of T. H. Bickerton—a kindly genius, a master of the older school.

The following well-known foreign medical men have recently died: Dr. MAURICE HANRIOT, member and treasurer of the Académie de Médecine and Commander of the Legion of Honour, aged 80; Dr. TITUS VARAEC, senior physician to the hospital at Lwow, aged 55; Dr. KORCZYNSKI, inspector-general of school hygiene at Warsaw; Professor RECASENS, dean of the faculty of Madrid, aged 70; Dr. JOHN MILTON DODSON, for many years dean of Rush Medical College, Chicago, and more recently director of the Bureau of Health and Public Instruction of the American Medical Association, aged 74; Dr. GEORGES JOANNOVIC, professor of pathology and dean of the faculty of medicine at Belgrade, aged 62; Dr. OTTO SARWEY, professor at the gynaecological clinic at Rostock, aged 68; Dr. CARLOS M. CORTEZO, ex-director general of public health, and ex-president of the Spanish Academy of Medicine, aged 82; and Professor SEIDEL, a Marburg stomatologist, aged 47.

Medico-Legal

DEATH AFTER OPERATION

Preoperative Use of Nembutal

An inquest was held at Paddington on November 24th on the death of Winifred McNabb, aged 38, the wife of an officer in the Indian Civil Service, which had occurred in a nursing home in Devonshire Place following an operation.

Mr. R. J. McNeill Love, surgeon, of Harley Street, in reply to Mr. Ingleby Oddie, the coroner, said that Mrs. McNabb had had an operation for appendicitis in India a year previously. She continued to suffer from a vesico-vaginal fistula, for which he advised an operation. This took place on the previous Monday. She had an infected right ovary and extensive signs of old pelvic peritonitis. The operation took two hours, but it was successfully concluded. The patient, however, never recovered consciousness, and died on the Wednesday. She had received on the day before the operation 1½ grains of nembutal, and a further 3 grains on the following morning. He had approved of nembutal being given. The woman was of a highly nervous temperament and requested it herself, as she had found it worked well at her previous operation.

Dr. Herbert Charles, anaesthetist to the Middlesex and Royal Masonic Hospitals, said that he visited and examined the patient the night before the operation, when she particularly requested one of the barbiturates. He said that he would allow her to have nembutal in the smallest dose, provided it was given by the mouth; he would not administer it intravenously. The amount given was 1½ grains; it was not uncommon for a single dose of 5 grains to be given, although he himself had never given as much. Next morning, to her disappointment, she was fully awake. He then ordered morphine and atropine hypodermically, and gave two further capsules of nembutal (totalling 3 grains), again by the mouth. This was from half an hour to three-quarters of an hour before the operation. The anaesthetic used for the operation was ethyl chloride with an open mask, followed by light open ether induction. Before she left the operating table her reflexes were returning—the pupils were rolling, the light reflex, the corneal reflex, and the "blowing lid" reflex were all present—and he was satisfied with her condition. Later the nurse said she was coming round and a little excited; he then administered omnopon, which quieted her for the time being. Next day she did open her eyes once or twice, but she remained unconscious mentally, and from that state she gradually sank, and died on the following morning. The witness added that he had used nembutal on occasion since its introduction, but always by the mouth, and in no instance had the patient failed to recover consciousness. He knew that nembutal was dangerous in septic cases, and he would not knowingly administer it to such a case, but here there were no signs of toxaemia before operation, and the temperature had been normal for over a week.

Mr. Love, recalled, said that after the operation in the early morning the patient remained in a satisfactory condition until the afternoon, when her pulse rose and her condition became somewhat alarming. She had a blood transfusion, and saline and glucose were given during the night. Early the next morning he called in Sir William Willcox, who agreed that her condition was serious, and suggested lumbar puncture and more infusions. She developed pneumonia before death. He had not seen a fatal termination after nembutal before. He knew that nembutal was more dangerous in toxic cases, but here there was no marked toxicity.

Dr. Roche Lynch said that in the cerebro-spinal fluid he found the presence of a member of the barbituric acid group. It was not in sufficient quantity for him to say definitely which it was, but from the evidence there was no doubt that it was nembutal. In the eleven ounces of fluid sent to him there was nearly one-third of a grain—a considerable amount—and in some six or seven ounces of urine about a quarter of a grain. Nembutal, a comparatively new drug, was made up in capsules of 1½ grains, and doses had been given up to three capsules or more. It was considered more toxic when given intravenously than by the mouth, because intravenously its action was so much more rapid. One could not

object to the doses given in this case. The blood urea was higher than normal, indicating some retention of urine in the blood, and some breaking down of kidney tissue, though not excessive. The combination of drugs used in this case was not an infrequent one, and was generally successful. The only possible criticism would be as to their use in a toxic condition. Having heard the evidence, and having had some further clinical details from Sir William Willcox, he had no doubt that nembutal played a considerable part in causing death—the patient at the end showed the typical signs appertaining to deaths following the administration of drugs of the barbituric acid group—namely, coma, coupled with pneumonia—but the omnopon and the other medicaments used must also be taken into consideration, and no doubt after the long operation the patient was in a condition of shock.

The coroner said that he could not, from his experience of nembutal, express any great enthusiasm for it, for he had had to investigate fatal cases following its use, though it was obvious that in certain cases there was not any undue risk, and its advantages were very great, the chief being the elimination of the dread of impending operation. This patient had had nembutal on a previous occasion, when it was probably given intravenously, and she wished to have it again. The anaesthetist, a very experienced doctor, agreed to give it, but not otherwise than by the mouth, by which means its effect did not become apparent until some considerable time. This was not a markedly septic case, judging by the clinical signs, and he saw nothing to criticize in the administration of the nembutal, nor in the premedication and anaesthesia generally. It was "just sheer bad luck" that nembutal should have produced the unusual effect in this case. It was obvious that it had played a marked part as a factor in the death of the patient, but her general condition also played a part, and the serious and prolonged nature of the operation and the administration of the general anaesthetics had also to be taken into account. He was satisfied that there was no carelessness in administration, and he recorded a verdict of "Death by misadventure."

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The House of Commons this week completed the debate on the Address in reply to the King's Speech, and began the second reading discussion on the Unemployment Bill introduced by the Government.

On November 24th, during the debate on the Address, Major Attlee, speaking for the Socialist Opposition, said they had the extremely interesting figures given, not by a committee of Socialists, but by a committee of doctors of the British Medical Association, showing the amount of money needed to keep a man, his wife, and three children in health. Leaving out rent, clothing, and everything else, they put the figure at 22s. 6½d. a week. That was a very low figure. Mr. Seebohm Rowntree, an investigator of great experience, said that 36s. 4d. a week was the right figure. Here the House had figures confirming what was said by a medical member of the House, Sir E. Graham-Little, that what was happening in this country was that the workers and the unemployed were underfed. Where unemployed people had at the most 6s. 8½d. a week for rent, clothing, and everything else, and if they were to pay their rent, how on earth, in view of the facts brought to light by the British Medical Association, could the House expect to develop the home market for British goods?

The Ministerial reply was not concerned with this passage.

In the House of Lords, on November 28th, Lord Moynihan presented a Bill to make provision for the payment of remuneration to registered medical practitioners and hospitals for treatment rendered to persons injured through the use of vehicles on the roads. The Bill was read the first time.

Bills

The Unemployment Bill "to amend the Unemployment Insurance Acts 1920 to 1933 and to make further provision for the training and assistance of persons who are capable of and available for work but have no work or only part-time or intermittent work and for purposes connected with the matters aforesaid", was presented by Sir HENRY BETTERTON on November 23rd. Its second reading was set down for November 30th. Sir Henry Betterton announced on November 23rd that as soon as this Unemployment Bill had passed into law he would introduce a Bill consolidating the enactments relating to Unemployment Insurance.

Bills presented by private members on November 24th included: Firearms Act (1920) Amendment Bill, "to amend the Firearms Act 1920 as to the age of persons who may purchase firearms or to whom firearms may be sold and to alter the definition of firearms in the said Act" (Sir Assheton Pownall). Registration of Births, Deaths, and Marriages (Scotland) Amendment Bill (Mr. Train). Offices Regulation Bill "to regulate offices and the employment of young persons therein" (Mr. Thorne). Methylated Spirits Bill "to control the sale of methylated spirits and of methylated spirits in admixture" (Miss Horsburgh). Death Penalty Bill "to provide for the abolition of the death penalty for an experimental period of five years in cases covered by civil courts in time of peace" (Mr. Vyvyan Adams). Employers' Liability Bill "to amend the law relating to the liability of employers to their workmen for injuries caused by the negligence of fellow-workmen" (Sir Walter Greaves-Lord). Shops Acts (1912 to 1928) Amendment Bill (Mr. McEntee).

Public Health Administration in India

In the House of Commons, on November 22nd, Mr. BUTLER moved that it was expedient to appoint a Joint Committee of Lords and Commons to consider the future government of India. A similar committee sat during last session.

The DUCHESS OF ATHOLL remarked that the House had not discussed the state of departments transferred to Indian Ministers under the 1919 Act. Before a decision to transfer other powers the Joint Select Committee should acquaint itself with the use made of powers already transferred. So far the committee had only given half a day to these transferred services. It was then told that since transfer the medical and public health departments had suffered grave deterioration. An ex-principal of the Medical College at Lahore told the committee that:

"professors were appointed who had no claim to such posts. As an example, the present professor of physiology was selected in spite of my expressed opinion in writing that he was totally unfitted for the post. He had never acted as a demonstrator and had no qualifications to teach the subject. He was put in just to officiate, and when I saw him he informed me that he knew nothing about physiology except what he had learnt many years ago in his ordinary medical course, and would have to start to read it up. Another time an officer was sent to officiate for twelve months as professor of midwifery and gynaecology. The gynaecological operations, of which many are performed in the Lahore College hospitals, are mainly abdominal. This officer had no knowledge of the technique of abdominal surgery. He admitted that he had never done an important abdominal operation. The result was that he had to leave most of the operations to his house-surgeon, and when he himself operated the house-surgeon had to supervise and give advice; and the holder of this appointment is the specialist for the Province."

The Joint Select Committee had heard of three medical officers for two provinces. She had statements similar in character from medical officers in other parts of India. The committee, if it was to make good the welfare of the masses, must satisfy itself on the conditions of these transferred services in all Indian provinces. Education had been transferred twelve years ago, and in some parts of India was in chaos. Answering Sir Reginald Banks, the Duchess said that if it was found by a Governor that the Minister of Public Health was not carrying out his duties properly, or if corruption was found to exist, then, under the present Devolution Rules, the Governor-General in Council, with the previous sanction of the Secretary of State for India, could replace that department in the category of reserved subjects. That power of

suspension had already been exercised. There was also an absolute power of revocation under the Rules. The United Kingdom was not informed as it should be on some aspects of administration in India. The Medical Department was transferred in 1921. The reports of provincial medical departments were scanty. They were issued triennially, and contained little or nothing bearing on efficiency. The Simon Commission only heard one medical witness, but at least it had six frank statements from six provincial Governments on the health services.

Miss RATHBONE said the main Indian Census Report for 1931, which had lately reached England, showed that the disparity between the numbers of females and males in India had steadily increased during the last thirty years. It was attributed by the Census Report, and by every other authority, to the unsatisfactory conditions of life of young girls. Child marriage was the most generally acknowledged of the evil conditions affecting women. The Government had made three attempts to deal with the problem of early consummation; all were completely unsuccessful, and the provisions of the law had not been made known. After exhaustive inquiry the Sarda Act was placed on the Statute Book a few years ago, but in a form so weakened to placate the opposition that it proved almost unworkable. In the six months between its passage and the date it became operative something like 4,000,000 girls were hustled into matrimony. The number of wives under 14 in India had risen from 8,500,000 in the census of 1921 to something like 13,500,000 at the recent census. The number of child widows under 5 years of age increased from 15,000 to roughly 30,000. Since the Sarda Act came into force the courts had imposed ridiculously small penalties. She understood the provincial Governments had now decided they could do nothing to carry into effect administrative provisions recommended by the Age of Consent Committee. Present conditions in India resulted, according to the recent census, in 200,000 deaths of women in childbirth every year, and in 100 out of every 1,000 girl brides dying in childbirth before they finished their period of child-bearing. Was it of use to retain the present regime if this was all it could do for Indian women? Little use had been made by the Indian Administration of women who could survey and report on the needs of their sex, although a number of women did valuable work as heads of hospitals.

Mr. BUTLER said the Simon Commission went into medical administration with care and detail, and received reports from provincial Governments.

The House agreed to the resolution. By a consequential resolution on November 25th the House of Commons appointed the same representatives to the Joint Select Committee as it did last session.

Slum Clearance

Speaking in the House of Commons on November 27th, Sir HILTON YOUNG said the Ministry of Health had requested the local authorities in England and Wales to hold a grand review of their slum conditions and to prepare their programmes of remedial measures. There were 1,717 local authorities, and all but forty-five had now either submitted to him their programmes or satisfied him that they were taking action. There must be a time limit for the laggards, and if they did not submit programmes within that time limit there would be an inquiry under the 1930 Act. Programmes of slum clearance for some 200,000 houses and more had been submitted. It was necessary, in the first place, to concentrate on the clearance of the class of house unfit for habitation, for which the owner might expect no compensation, and then to get on to the second stage of reconditioning. Legislation which would be introduced would deal with the matters covered by Lord Moyne's Committee. It would be the policy of the Government to further that legislation with these ends: to strengthen the hands of the local authorities to deal with reconditioning in their areas and to promote that reconditioning by an ordered programme. It would also be the policy of the Government to promote the improvement of management conditions. It would be the object and the policy of the Government to foster and increase the activity of voluntary work for better housing conditions organized in the public utility societies.

Rural Water Schemes: An Exchequer Grant

In the House of Commons, on November 27th, during the debate on the Opposition amendment to the Address, Sir HILTON YOUNG outlined the Government's policy with regard to rural water supplies. He said the recent drought showed that, while the urban supplies were mostly adequate, the position was serious in a number of rural areas. Increasing numbers of local authorities were utilizing their powers to make contributions to the cost of rural water schemes, but the Government had decided that sufficient use was not being made of them, and that something further should be done. The Government had decided to give further assistance. The Chancellor of the Exchequer had agreed to put £1,000,000 at his disposal for the purpose, to be used toward the capital cost of water schemes in rural areas. He would shortly introduce a Bill in connexion with the scheme. It was essential that the local authorities and the consumers of water should bear their proportion of the cost, and the Exchequer grant would be used to mitigate the local burden.

Fatal Encephalitis following Vaccination.—Sir HILTON YOUNG told Mr. Groves, on November 23rd, that a fatal case of encephalitis following vaccination, which occurred at Shelton, Staffordshire, had been brought to his notice in March. It had been investigated, and he was advised that there was no ground for disagreement with the verdict.

Prevalence of Tuberculosis in a North Wales Rural District.—Mr. SHAKESPEARE told Major Owen, on November 28th, that his attention had been drawn to the prevalence of tuberculosis in the Gwyrfai rural district. The Minister of Health had received copies of the recent report made by a medical officer of the Welsh National Memorial Association on the subject of the incidence of tuberculosis in that district and certain other parts of North Wales. The Minister understood that a conference of representatives of the association and of local authorities concerned was held on November 11th, when it resolved that the county councils represented at the conference should be requested to give immediate consideration to the report, and the association undertook to carry out a number of preventive and educational measures.

Colliery Explosions and Naked Lights.—Mr. E. BROWN, replying to Mr. D. Grenfell on November 27th, said that for the five years 1928–32 (inclusive) the total number of colliery explosions in the United Kingdom resulting in personal injury of any kind was 277, of which 196 were due to the use of naked lights.

Health Insurance: Arrears of Contributions.—Sir HILTON YOUNG, on November 27th, informed Miss Ward that an explanatory circular relating to the extension of the period for the payment of arrears under the National Health Insurance Act, 1932, until March 31st, 1934, had been prepared, and was being sent to all approved societies. The necessary regulations would be issued within a few days.

Old Age Pensions and Hospital Maintenance.—Mr. PIKE on November 28th, asked the Secretary to the Treasury why he had issued instructions to local authorities to stop the payment of pensions to all pensioners detained in hospitals through illness for a period of thirteen weeks or over. Mr. HORE-BELISHA replied that no such instructions had been issued. The law required that if a person in receipt of a non-contributory old age pension was admitted to hospital the cost of his maintenance therein must be included in his means for pension purposes. Consequently, if his means were thereby increased beyond the statutory limit for the receipt of the pension, a question of the revocation of the pension was raised with the local pension committee. If the question was allowed, the pension was revoked, and ceased to be a charge on the Exchequer. It was the practice not to question the pensioner's means in cases where he was admitted to hospital until a period of three months had elapsed.

Experiments on Animals.—A petition praying for the passage of a Bill to withdraw the sanction of the law from vivisection was presented to the House of Commons on November 22nd by Mr. Isaac Foot.

Cheap Celluloid Toys.—Replying to Mr. Sutcliffe, on November 23rd, Sir JOHN GILMOUR stated that in 1923 the Royal Commission on Fire Brigades and Fire Prevention drew attention to the risks to children by fire from cheap celluloid toys. Since then accidents from celluloid toys had occasionally come to the notice of the Home Office, including one case where there was a fatality. So far as the Home Office was concerned, nothing further could be done without legislation.

Death Certification.—Replying to Mr. Hall Caine on November 27th, Sir HILTON YOUNG said that he was aware of a recent case where a death certificate was issued while the individual concerned was still alive. The question of provision for the medical verification of the fact of death was fully discussed during the passage of the Births and Deaths Registration Act, 1926, and he was not prepared at present to introduce further legislation.

Notes in Brief

The number of men receiving old age pensions under the Widows', Orphans' and Old Age Contributory Pensions Acts, 1925–32, at September 30th, 1933, was 439,341, exclusive of men over 70 in receipt of pensions granted by virtue of those Acts but chargeable to the Old Age Pensions Vote.

The Services

His Majesty has approved the appointment of Colonel A. W. M. Harvey, I.M.S., as honorary surgeon to the King in succession to Brevet Colonel J. McPherson, C.I.E., I.M.S., who has retired.

No. 14 STATIONARY HOSPITAL

The fourteenth dinner of the medical officers of No. 14 Stationary Hospital was held on November 24th, with Colonel Evans, D.S.O., in the chair. The number of those attending was as high as in previous years. Colonel Evans, proposing the toast of "The Hospital," related some intimate details of the circumstances attending its inception, to which others present contributed reminiscences. Messages were read from many unable to attend on this occasion, indicating continued support in the future for a very popular reunion.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Among the Graces which passed the Regent House at a congregation held on November 17th was one approving the recommendation contained in the amended report, dated May 20th, 1933, of the Syndicate on the Medical Courses and Examinations of the University, with a substitution amending para. 23 of Section 7, relating to the thesis and examination of candidates for the M.D. degree, which was published in the *University Reporter* of November 7th.

The Faculty Board of Medicine has appointed Dr. G. S. Graham-Smith, Dr. T. S. Hele, Dr. S. Melville, Dr. E. P. Cumberbatch, Professor S. Russ, and Dr. R. J. Reynolds to be members of the Committee for Medical Radiology and Electrology for the year 1934.

UNIVERSITY OF LONDON

A meeting of the Senate was held on November 22nd, when the Vice-Chancellor, Professor L. N. G. Filon, F.R.S., was in the chair.

Dr. R. W. Scarff was appointed to the University Readership in Morbid Anatomy and Histology, tenable at Middlesex Hospital Medical School as from October 1st.

The date of Presentation Day in 1934 has been changed from Wednesday, May 9th, to Thursday, May 10th.

At the celebration of Foundation Day, on November 24th, the degree of Doctor of Science, *honoris causa*, was conferred on Sir Thomas Barlow, Bt., in presenting whom to the Chancellor the Public Orator said: "There are few men living who have had a longer or more intimate connexion with this University, or have shed greater distinction upon her. The most distinguished clinician of his day."

Medical News

On the afternoon of Friday, December 8th, H.R.H. The Prince of Wales, as President of St. Bartholomew's Hospital and a perpetual student of the college, will visit the new Medical College in Charterhouse Square (formerly the Merchant Taylors' School) in order to inspect the site and the buildings.

The Sheffield medical dinner will be held at the Royal Victoria Hotel on Thursday, December 7th at 7.45 p.m., when the guests will be Lord Moynihan, the Vice-Chancellor of the University of Sheffield, Professor J. B. Leathes, F.R.S., and Professor G. A. Clark. The dinner is limited to members of the profession, and tickets (13s. 6d. each) may be obtained from the honorary secretary, Dr. T. E. Gumpert, 331, Fulwood Road, Sheffield.

The annual dinner and dance of the North-West London Medical Society will be held at the Park Lane Hotel on Thursday, December 7th, at 8 p.m. Tickets (12s. 6d. each) can be obtained from either Dr. J. Orrett Musson, 10, Chichele Road, Cricklewood, N.W. (telephone: Gladstone 3232), or Dr. Lionel M. Green, 50, Brook Street, W. (Mayfair 1626).

A meeting of the Fever Hospital Medical Service Group of the Society of Medical Officers of Health is being held in the home of the society to-day, Friday, December 1st, at 4.30 p.m., when Dr. H. S. Banks gives his presidential address on "The Use and Misuse of Antitoxin."

A general meeting of the Medical Officers of Schools Association will be held at 11, Chandos Street, Cavendish Square, W., on Friday, December 8th, at 5 o'clock, when Sir Weldon Dalrymple-Champneys will read a paper on "Undulant Fever." Tea will be served at 4.30 p.m.

The meeting of the Royal Sanitary Institute on December 12th, at 5.15 p.m., at 90, Buckingham Palace Road, S.W., will be devoted to a discussion on practical and scientific problems of the milk supply and their laboratory control, with Professor W. W. Jameson in the chair.

The next meeting of the Society for the Study of Inebriety will be held at 11, Chandos Street, Cavendish Square, W., on Tuesday, January 9th, 1934, at 4 p.m., when Sir William Willcox will open a discussion on "Medico-legal Aspects of Alcohol and Drug Addiction."

The annual congress of the British Institute of Radiology (incorporated with the Röntgen Society) will be held in the Central Hall, Westminster, on December 6th, 7th, and 8th. The official opening by Lord Horder will take place on Wednesday, December 6th, at 2.30 o'clock, and Dr. Stanley Melville will give his presidential address at 5 p.m.

A course of twelve lectures on geology in the service of man will be given by Dr. R. M. Craig at the Imperial College of Science (Royal College of Science, Old Building), Exhibition Road, South Kensington, on Mondays, Wednesdays, and Fridays, at 5.30 p.m., from December 11th to 22nd, and from January 3rd to 15th inclusive. Admission free.

A debate has been arranged by the Fellowship of Medicine for Thursday, December 7th, at 8.30 p.m., in the lecture hall of the Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, W. The motion will be "That operations for the removal of tonsils are too often performed without adequate cause." Sir StClair Thomson will occupy the chair. Mr. Herbert Tilley and Dr. J. Alison Glover will propose the motion, and Dr. Dan McKenzie and Mr. Archer Ryland will oppose it. The debate will then be thrown open for discussion and a vote taken. All members of the medical profession are invited to be present. During 1934, on the second Saturday in each month, a lecture-demonstration will be given at 3 p.m. at the National Temperance Hospital, Hampstead Road, N.W., and on every Tuesday at 2.30 p.m. a lecture-demonstration at 11, Chandos Street, W.

The annual report for 1932 of the Gordon Memorial College, Khartum, states that more attention is now being devoted to the liberal or cultural, as opposed to the purely professional, side of education, and changes in the staff, curriculum, and organization have been made accordingly. This is due to the fact that the number of vacancies on the Government teaching staff is now much less than in previous years, and consequently a wider outlook has to be taken as regards the pupils at this institution. The Syrian members of the staff have now been replaced by Sudanese. The number of boys fell from 534 in 1931 to 470 in the year under review; of these 342 were Arabs. The biology classes are now being conducted at the Kitchener School of Medicine, and the instructional workshops have been amalgamated with those of the Omdurman Technical School. The buildings thus vacated have been equipped for other purposes. A reasonably full course of secondary education is available, and special efforts are now being made to train boys for posts other than those under the Government. In the fourth-year class of the scientific section there were thirteen boys, of whom nine have been admitted to the Kitchener School of Medicine. Physical training forms an important feature of the regular morning programme, taking place at 6.30 a.m., before morning school, and lasting for about twenty-five minutes. The year under review was the twenty-eighth in the annals of the Higher School. Researches conducted by the Wellcome Tropical Research Laboratories included the bionomics and control of insect pests, the preparation of antirabic vaccine, and the investigation of the spinal fluid pressure in syphilis.

On May 27th it was announced that a scheme of research fellowships had been endowed in accordance with a direction in the will of the first Viscount Leverhulme. On August 16th a first list of seventeen fellows was issued. Two further fellowships have now been awarded by the advisory committee and approved by the trustees—namely: Miss E. M. Denby (organizing secretary, Kensington Housing Trust, Ltd.), to study slum clearance and rebuilding at home and abroad; Miss D. A. E. Garrod, M.A.Cantab., B.Sc.Oxon., excavation of Palaeolithic cave sites on Mount Carmel, Palestine. Further information may be obtained from the secretary, Dr. L. Haden Guest, Leverhulme Research Fellowships, Union House, St. Martin's-le-Grand, E.C.1.

According to statistics recently published by the International Labour Office the country with most medical practitioners is England, with 1 doctor to every 822 inhabitants, then come Norway, Italy, and Switzerland, with 1 doctor to every 1,067, 1,218, and 1,231 inhabitants respectively. In Hungary, Esthonia, Germany, Denmark, France, Holland, and Luxembourg the proportion ranges from 1 to 1,290 to 1 to 1,556, Belgium and Sweden have 1 doctor to 2,344 and 2,744 respectively, while in Bulgaria, Poland, and Yugoslavia there is 1 doctor to every 3,059, 3,332, and 3,568 inhabitants respectively.

The Canadian multi-milhonaire, Carlo Millar, who died in 1926, left six and a half million lire as a prize for the woman who gave birth to the largest number of children in the six years following his death. At the present time the woman most likely to win the prize is an Italian, who is the mother of twenty-one children (six of them born after the millionaire's death), and is now expecting a twenty-second.

The tercentenary of the birth of Ramazzini, the first writer on industrial hygiene, was recently celebrated at Milan.

Dr. Max Nonne, professor of neurology at Hamburg, has been made an honorary member of the Medical Society of Copenhagen.

Dr. Hulüsi Behdjet has been nominated professor of dermatology at the newly established University of Constantinople.

A museum of medical history has recently been opened at the Ospedale de Santo Spirito in Rome.

Professor Ernst Klummer has succeeded Dr. Albert Jentzer in the chair of surgery at Geneva.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

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The address of the Irish Office of the British Medical Association is 16, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Treatment of Oedema of Face

Dr. G. M. TORRANCE (Hednesford, Staffs) writes: I should be very grateful for information regarding the treatment of a young woman, aged 21, who has had oedema of the cheeks, especially marked under the eyes, since 1930. The condition is painless, and there is no pricking sensation which one would associate with angioneurotic oedema. The girl appears to be quite healthy in every other way. The condition has been improved by injections of colloidal calcium, with ostelin, and subsequently 15 grains of calcium lactate daily. Improvement is not maintained.

Impacted Third Molars

Mr A. M. NODINE, M.R.C.S., L.D.S. (London, S.W.19), writes: In the *Journal* (November 18th, p. 953) Dr. T. B. Hewson calls attention to an article in the *New York Medical Journal* of November 8th, 1919, on "Impacted Lower Third Molars." I think he has in mind an article written by me, and has given the wrong name. I put in a great deal of work on this. It was founded on a previous article published in the *New Jersey Dental Journal* in 1915 on "The Pathological Significance of the Impacted Third Molar," and one in the *Journal of the American Dental Association* in 1917 on "The Impacted Third Molar." I am under the impression that references in the *New York Medical Journal* article were so extensive that they had to be omitted owing to their length. In collaboration with L. Monier M.D., D.S., of Paris, this work is being completed by including other buried, misplaced, and impacted teeth. We have now some records of teeth misplaced in the orbit, nose, brain, etc., and would be very pleased to hear from those who may have records of other misplaced, buried, or impacted teeth, or who would send reprints, or clippings or references to articles or books calling attention to the same. Any material used we will be pleased to credit to the contributor.

The Sorenson Trial

Dr. GRAHAM GRANT (Central Criminal Court Old Bailey), in reply to Dr. P. Watson-Williams's inquiry, writes: A full account of the trial can be obtained, on paying their charges from Walpole and Son, Portugal Street, W.C., the official shorthand writers to the Central Criminal Court. Sorenson was defended by E. F. Peregrine, a member of our profession, who would doubtless give Dr. Watson-Williams any information he desires.

Income Tax

Replacement of Car.

"A. D." receives a mileage allowance in respect of his public appointment, but considers that this does not cover replacement of his car. He has just bought an "A" car for £174, having sold his old "R" car for £25. The "R" car cost £194 in 1927, and the inspector of taxes

is inquiring what he then received for the car which was replaced by the "R" car.

*** The question seems irrelevant. "A. D." paid £194 for the "R" car, and whether a part of that expenditure was met by the sale of another car or from some other source does not seem to affect the real question. "A. D.," however, should bear in mind the fact that income under Schedule E is assessed on the previous year's basis, and as the "A" car has "just" been purchased—that is, apparently since April 5th, 1933—that transaction will not affect his income tax liability for 1933–4.

Depreciation of Car

"L. B. E." is giving up his present practice for a smaller one, and in consequence is relinquishing one of his two cars—original cost £335, sold for £60. What claim can he make?

*** As the car is not being replaced there is no claim competent for renewal or obsolescence. The depreciation claim, however, can still be made for the past six years on the ground of "error or omission" in the returns made for those years. The relevant statutory provision is Section 24 of the Finance Act of 1923 as amended by Section 27 of the Finance Act of 1926, and we advise "L. B. E." to lodge a six years' claim for depreciation, referring to those sections as his authority for the claim.

New Partnerships during Financial Year

"DOTTERM" explains that A took B into partnership in August, 1933. A and B are assessed for the year commencing April 5th, 1933, on the amount A returned as his profit for 1932. Is this correct?

*** Yes. The amount of the profits for 1932 is the measure of the assessment of the profits of the practice for the financial year 1933–4. If B entered into a one-half share of the partnership as from August 5th, 1933, then he is personally responsible for the tax on 1/2 of 8/12 of the gross assessment (less, of course, his personal allowances) and A is responsible for the tax on the remainder—that is, on 4/12 + 1/2 of 8/12.

LETTERS, NOTES, ETC.

Burial at Home and at Sea

Dr. EDWARD F. HOARE (coroner for East Sussex) sends the following comment on Dr. Draper Bishop's letter (*Journal*, November 18th, p. 954) which states, speaking of burial at sea, "In England it could be thus disposed of without any further formalities, beyond the registrar's permit to bury": *May I be allowed to point out that this statement is not* correct. The Births and Deaths Registration Act, 1926 (4), prohibits the removal of a body out of England until the expiration of the prescribed period—four clear days—after notice of the intention to remove has been given to the coroner. This gives the coroner four days in which to institute inquiries or hold a post-mortem examination, and the removal out of England either to bury at sea or in the Channel Islands cannot proceed unless either the period of notice has expired or the coroner has given acknowledgement of the notice to remove, and stated that he intends to hold no inquest. This document is inevitably asked for, even at midnight, at the Scottish border, and by steamer and boat owners, and in fact it replaces the registrar's certificate of registration (which your correspondent calls the registrar's permit), that certificate being returned by the coroner to the registrar, endorsed with the statement that notice to remove has been received. Hence, no registrar can give a permit to bury at sea, and attempts to bury at sea without first registering the death are likely to be stopped by shipmasters and boat owners. The formalities are, in fact, considerable in lawful cases, and although there is some risk that disposal at sea might be made use of criminally, it is not easy to move dead bodies about when coroners, police officers, undertakers, and shipmasters are all on guard against such removals. Still, there is such a risk, and personally I think it might be more widely circulated that it is illegal to remove a body out of England without a coroner's order, as once a relative of an old sea captain did; he calmly put the body on to a motor launch and buried it at sea, and then came ashore and registered it! Certainly, as Dr. Bishop remarks, it had then "as completely disappeared as if it had been cremated," and it was precisely to avoid this complete removal out of any coroner's jurisdiction that the Act was framed.

Golden Syrup

Dr. ROBERT HUTCHISON and Professor V. H. MOTTRAM write: It has been brought to our notice that the analysis of golden syrup given on page 305 of the seventh edition of our textbook, *Food and the Principles of Dietetics*, is inaccurate in so far as the content of the syrup in dextrose (as opposed to laevulose) is not shown. The correct analysis should be:

Sucrose	33.6 per cent.
Dextrose	24.4 "
Laevulose	23.0 "
Organic matter (not sugar)	1.2 "
Mineral matter	1.3 "
Water	16.4 "

As dextrose is now so largely used in medicine, it may be worth while to direct attention to this point.

Medical Register: Office Edition

The Registrar of the General Medical Council writes: Any orders for the Office Edition of the *Medical Register*, 1934, published by the Council at the special price of 10s. a copy, post free, must be received, with a remittance, at the office of the Council (44, Hallam Street, Portland Place, W.1) not later than December 31st, 1933. The Office Edition differs from the ordinary edition of the *Register* to the extent that it does not contain reprints of the Medical and Dentists Acts and other preliminary matter, and is printed on more inexpensive paper and bound in boards. It includes, however, the same entries relating to registered medical practitioners as are included in the ordinary edition, and is therefore equally serviceable to public authorities and others who find it necessary to ascertain whether particular persons are registered medical practitioners or not. I take the opportunity of stating that the Council also prepare monthly lists of names added to, and removed from, the *Register*, and that particulars of the terms and conditions upon which copies of these lists may be made available can be obtained on application to the office of the Council.

Wanted: A First-Aid Lecturer

Mrs. EVA M. HUBBACK, M.A. (Principal of Morley College for Working Men and Women, 61, Westminster Bridge Road, S.E.1), writes: We have a small class here of about seven unemployed men who have been following a course in first aid. Unfortunately the lecturer is leaving to go abroad for the winter, and we are anxious to find someone who will be kind enough to take his place. The men are keen, and the numbers may increase. We should be most grateful if among your readers there is anyone with some experience of teaching who would be able to offer to take the class. The class meets on Fridays, from 2.30 to 4 p.m.

Hypnotic Suggestion in the Psychoses: Correction

Dr. ALEXANDER CANNON (Colney Hatch, N. 11) writes: Will you allow me to correct a glaring error in my letter which you kindly published in the *Journal* of November 25th (p. 1004). I stated: "I think it is quite safe to give as much as 20 grains three times a day"—this note referring to "cannabis indica." I actually use 20 *minims* of the tincture of cannabis indica, and this is equivalent to nearly 1½ grains of the extract of cannabis indica. (Of the *raw* cannabis indica, of course, 20 grains (approximately) is frequently given in tropical countries.) I have also been asked on what authority I write "and it might be remembered that no death has ever resulted from this drug (so far as records go)." May it suffice to quote from the *Extra Pharmacopoeia*, by Martindale and Westcott, vol. i? "No death from cannabis is on record. H." Any authority which might have stated otherwise has not as yet brought forth accepted evidence. It is of interest to note that cannabis indica is no longer officially recognized in the *British Pharmacopoeia*.

Cancer Research: Correction

The accidental omission of Sir Frederic Hallett's name from our report last week (p. 987) of the meeting of the General Committee of the Imperial Cancer Research Fund resulted in an apparent attribution of his work on behalf of the Fund to Sir Frederick Andrewes, mention of whom was made in the preceding sentence. Sir Frederic Hallett was the first secretary of the Fund.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 69, 70, 71, 72, 73, 74, 77, and 78 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 75 and 76.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 283.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

386 Pain in the Right Iliac Fossa

M Kobko (*Verek Maz f Lageriid* August, 1933, p 856), who records twenty illustrative cases in patients aged from 17 to 52, states that pain in the right iliac fossa, to which is given the name of primary chronic appendicitis, cannot be explained entirely by anatomical examination as it is frequently found that there is a discordance between the degree of lympho vitic infiltration in the appendix and the patient's symptoms In 219 patients with such indefinite pains the commonest complaints were dyspepsia, constipation, dysuria, dysmenorrhœa and bradycardia Twenty other patients presenting these symptoms also showed intermittent claudication respiratory arrhythmia, a positive oculo cardiac reflex vaso lability and hyperidrosis, symptoms suggesting disturbance of the vegetative nervous system especially vagotonus As investigations showed that these vagotonic symptoms persisted long after removal of the appendix it is possible that it is not always appendicitis but vagotonus which is the principal factor in the disease He states that the cause of the pain is to be found in intestinal spasms in the right lower abdominal quadrant

387 Pernicious Anaemia and Subacute Combined Degeneration

E Meulengracht (*Klin Woch* July 29th 1933 p 1163) discusses in some detail the clinical picture of combined degeneration of the cord which appears in the course of pernicious anaemia The brilliant results following the use of liver and liver extracts in the treatment of the latter have not been accompanied by equal success in the case of the nervous complications Analysis of a large series of cases treated by the author since 1927 showed that the incidence of myelopathy became greater as the history of treatment became longer—that is the longer the successful control of the haematological features the more likelihood there was of the cord changes appearing *The relative merits of liver and* stomach preparations in the amelioration of the myelopathy were determined both in cases which showed nervous complications before treatment and in those in which such symptoms appeared during treatment It was found that stomach preparations had a definitely greater value in the treatment of prevention of cord complications *In one series of seventeen cases, when the liver therapy was* replaced by stomach preparations, there was rapid improvement in, or even disappearance of symptoms A striking case is described of a medical man with pernicious anaemia and cord complications in which a complete disappearance of nervous symptoms was obtained by replacing the *unsuccessful liver treatment* by stomach preparations The author is of *opinion* that failure to obtain satisfactory control of the cord symptoms in the past was due to insufficient dosage of liver The daily doses recommended are 20 to 30 grams dried stomach or 200 to 300 grams whole liver In cases where the onset of nervous complications is detected the author insists that the dose should be raised immediately (33 to 40 grams of stomach preparation daily) He feels that the attitude towards cord complications in these cases should no longer be one of hopelessness The same author, giving statistics (*Ugeskrift for Laeger* July 27th, 1933, p 819), states that since 1927 he has treated 136 patients suffering from pernicious anaemia An inquiry in October, 1932 showed that twenty eight of them were dead and 108 alive Among the 108 survivors there were as many as thirty eight who showed signs of involvement of the spinal cord while they were under treatment Most of these patients belonged to the earlier years of the treatment, eighteen of them had incipient or well developed myelopathies at the commencement of treatment, twenty of them developed spinal symptoms while undergoing treatment In 1927 about 200 grams of raw liver was given daily In 1928 raw or lightly fried liver was replaced by liver extract From *1928 to 1930 the equivalent of 200 to 300* grams of liver was given in the form of liver extract Since 1930 all new patients have been *given 20 to 30* grams of *dried*, defatted stomach substance daily

388 Treatment of Pernicious Anaemia

A Norgaard (*Ugeskrift for Laeger*, July 27th, 1933, p 825) has investigated the reaction to treatment of patients suffering from *pernicious* anaemia and coming under the sickness insurance scheme in Denmark During the past five years there have been 174 such patients In January, 1933, information was *obtained* as to the response to treatment of 159. *The results* are summarized in the following table

	Treated with		
	Only Liver Preparations	Liver and Stomach Preparations	Only Stomach Preparations
Number of cases	111	31	17
Not invalids	45 per cent	71 per cent	76 per cent
Invalids	39	26	24
Dead	16	3	0 "
Myelopathies	50	48 "	35 "

This statistical comparison is unfair in so far as stomach treatment is of more recent date than liver treatment but even when this factor is discounted it would seem that liver *treatment* is inferior both with regard to the maintenance of working capacity and to the survival rate An analysis of the *results of treatment* in relation to the dosage showed that, in the past, an insufficient quantity of liver has been given, and that stomach preparations are more potent than the equivalent dose of liver preparations The inadequacy of the dosage in the past may be traced to the tendency to let the haemoglobin findings and the *immediate* euphoria experienced by the patient be guides to dosage *Another factor* favouring too timid a dosage is *the cost of treatment* Norgaard concludes that at present, there is no guarantee that the modern treatment of pernicious *anaemia will effect* a cure or continue indefinitely to be beneficial even if large doses of liver or stomach are given, however unquestionable the specificity of their action may be

389 Disorders of the Parathyroid Glands

In a review of the diagnosis and treatment of disorders of the parathyroid glands R F Farquharson (*Canadian Med Assoc Journ* June, 1933, p 629) defines two distinct types, one giving rise to the clinical picture of generalized osteitis fibrosis cystica and the other being characterized by chronic tetany In the first of these hyperparathyroidism is present, due to tissue hyperplasia in the form of an adenoma There is a high serum calcium content and a low serum phosphorus content The greatly increased loss of calcium and phosphorus from the bones results in rarefaction and softening of the skeleton, pronounced deformity, pain in the bones, *multiple fractures*, weakness, and finally cachexia The disease occurs in men and women of all ages but mostly in middle life, the primary symptoms being generalized weakness, thirst, and polyuria It has to be distinguished from osteomalacia, Paget's disease, fragilitas ossium multiple myeloma, and multiple secondary carcinoma of the bones Radiograms show a relative absence of new bone formation, which helps to exclude Paget's disease

The only satisfactory treatment is the surgical removal of the parathyroid adenoma, which may be very difficult to find. The second type, hypoparathyroidism, usually follows a subtotal thyroidectomy, and gives rise to a state of chronic tetany, associated with a low serum calcium content and a high serum phosphorus. It is manifested by muscular spasms, paraesthesia, general weakness, fatigue, mental changes, and a tendency for cataract formation. Spontaneous parathyroid tetany is very rare. Its onset is gradual, the first symptoms being ulnar paraesthesia, weakness, lack of energy, and fatigue. Later on spasms occur, involving the forearm and hands, or the forearm, hands, larynx, and feet. There may be attacks of convulsions or coma. When the syndrome is well established, the course is similar to that of post-operative tetany. Treatment consists of the administration of a high calcium diet, abundantly adequate in vitamin D, with added calcium chloride (preferably) or lactate. In acute attacks the slow intravenous injection of 5 to 10 per cent. calcium chloride solution in 10 c.cm. doses will give immediate relief. Parathormone may be used occasionally when the attacks recur frequently in spite of other treatment.

390 **Apparent Cure of Gastric Ulcer**

Many authorities have drawn attention to the spontaneous disappearance of clinical and radiological signs (particularly of Haudek's niche) in gastro-duodenal ulcers. Gutmann has recently discussed the criteria of their cure, and has shown the difficulty of asserting definite cure of these ulcers and of determining the value of the therapy employed. P. Cambier and E. Dicker (*Le Scalpel*, August 12th, 1933, p. 1241) record three cases which substantiate these statements. These patients, young males, presented a typical clinical history of gastric ulcer and, radiologically, a large niche on the lesser curvature. By simple rest alone the clinical symptoms and radiological evidence of the niche completely disappeared.

Surgery

391 **Fractures of the Femur**

A. Illievitz (*Amer. Journ. Surg.*, July, 1933, p. 21) stresses the importance of conservative treatment in dealing with fractures of the femur, and points out the disadvantages of immobilization, open operations, and skeletal traction. The author uses a modified Böhler splint, which acts as a sling to the thigh and leg. The leg is anchored to one of the pulley wheels of the sling, and the foot is supported by adhesive plaster to the perpendicular stand of the splint. The weight of the body pulls on the proximal fragment, and extension is brought about without weights. The semi-flexed position of the knee on the sling helps in fixing the distal fragment. As the thigh, hip, and knee are exposed, baking and massage may be started during the first week, and have a beneficial effect on the impaired circulation. At the end of three weeks the limb is *x*-rayed, and if the position of the fragments is satisfactory the sling is removed. The patient is allowed on crutches after six weeks, but no weight-bearing is permitted for a further two weeks, and then only very gradually. In cases of fracture of the shaft of the femur the Böhler sling is slightly modified. The bottom end of the bed is raised and the foot tied to one of the pulley wheels. When *x*-ray examination confirms good apposition and alignment the sling is replaced by a small adaptation splint, which is made of two tongue depressors, and is kept in place by adhesive plaster. In the treatment of fractures of the lower end of the femur the Böhler sling plays an important part as far as the improvised portion is concerned. An adaptable knee-rest is necessary, the knee is semi-flexed, the heel fixed to one of the pulley wheels, and the foot dorsiflexed. Fractures of the neck of the femur require no splints, the Böhler sling being used as for a fracture of the shaft. The inversion of the foot and leg is obtained by means of adhesive plaster and is watched daily. Advantages claimed for this method are: its simplicity, and the facts that daily corrections can be made, that no manipulation is necessary, and that *x*-ray photographs can be taken with the sling in position. The patient is encouraged to use the limb; this strengthens the muscles, helps the circulation, and does not disturb the fragments. The deposition of callus is rapid, union of the fragments takes place early, and local and general disability are minimized. Over 100 cases have been treated in this way—many of them being aged people—and the results were uniformly good. There was no case of non-union, and no deaths due to pneumonia. Seven cases are reported in which excellent results were obtained.

392 **Congenital Scoliosis**

A. Perrot and L. Babajantz (*Rev. Méd. de la Suisse Romande*, July 25th, 1933, p. 545) point out that scoliosis is one of the most important congenital lesions of the spine. It may be divided into three principal classes: (1) a scoliosis caused by compression of the foetus *in utero* in certain cases of oligamnios (in this type of scoliosis the vertebral column is complete); (2) a type having a half vertebra, due to arrested development at an early stage of the foetus; and (3) a type with lateral sliding of a vertebral body already ossified towards the convexity of a vertebral curve. The three types are considered as amniotic, nervous, and mechanical. Diagnosis in the majority of cases is made by radiography, although a careful examination of the patient will enable one to eliminate rickets in an infant, and Pott's disease or a sequel of poliomyelitis in an older child. If there is a family history of vertebral anomalies the congenital form of scoliosis may at once be suspected. The authors state that the prognosis is more favourable when the disease is in the lower segments of the spine than when the dorsal and cervico-dorsal regions are involved. The condition of the patient may be considerably ameliorated if the scoliosis develops early and treatment is begun before the vertebral curvatures have become rigid and irreducible. Orthopaedic treatment for congenital scoliosis is materially the same as for other forms of the deformity, and each case must receive careful and individual study. Early treatment is of the utmost importance. An infant benefits by a plaster bed which acts as a corrective and helps to modify the vertebral bodies. In the case of older children rigid corsets in hypercorrection should be worn for several years until the vertebrae are completely ossified. This immobilization must be accompanied by orthopaedic exercises. A case is fully reported in which there were many anomalies of the ribs and vertebrae associated with congenital scoliosis.

393 **Epidermoid Cysts of Hands and Fingers**

E. King (*Brit. Journ. Surg.*, July, 1933, p. 29), who records nine successfully treated cases, states that cysts of the palmar aspect of the hand and fingers arising after trauma and lined by squamous epithelium are common. They occur most frequently among those persons whose fingers and hands are liable to trauma, such as labourers, carpenters, and gardeners. They may develop in individuals who support themselves by means of sticks, or may follow an injury. In the majority of cases the injury has been a perforating wound or a crush with laceration of the skin. The average age in the series of cases reviewed was 41, and sixteen out of the nineteen patients were males. There appears to be a latent period between injury and the development of the cyst, which may vary from a few months up to several years. Enlargement is usually rapid, and a cyst may become one and a half to two inches in diameter in three months. There is no pain, though there may be tenderness during the growing period. The cyst has the appearance of a rounded, sometimes lobulated, semi-fluctuant or elastic mass occupying some portions of the palmar aspect of the fingers or hand. Cysts of the finger are generally ovoid. They may be adherent to the skin or the subjacent structures, or may be free. Diagnosis is usually easy, as traumatic cysts

are much more superficial than other cysts or nodules Removal is simple as the cysts separate readily from the surrounding tissue They contain a white greasy material which includes cholesterol crystals in large amount and a little fat They rarely become infected, but may burst externally as the result of further injury They are always benign

394 Results of Tonsillectomy

S HEIBERG (*Ugeskrift for Laeger* August 10th 1933, p 855) has addressed a questionary to 302 hospital patients on whom tonsillectomy had been performed in Denmark in the period 1922–8 inclusive The operation had usually been performed under local anæsthesia Answers were obtained from 197 patients operated on from three to ten years earlier Of 146 patients who had been subject to recurrent attacks of acute tonsillitis 81 per cent had been symptom free after the operation and 15 per cent had noted some improvement but the liability of some patients to relapses of *acute tonsillitis* was quite unaffected by the operation Of sixty five patients with peritonsillar abscesses 94 per cent were cured and 4 per cent were improved There were twenty three patients who had suffered from rheumatic fever once or oftener before the operation Only one of them had had an attack of rheumatic *fever after* the operation Among ten patients with *chronic rheumatic* polyarthritis there were five who had improved after the operation while the disease had remained stationary in the other five cases Only in about 50 per cent of the twenty three patients with vague local and general symptoms before the operation were satisfactory results achieved by it With regard to the influence of the operation on the voice (singing), thirty one patients were worse than before, eighteen were better and ninety nine noted no change In the author's opinion the singing voice need not suffer provided the op ration is conserva tive and is followed by systematic singing exercises With these precautions the singing voice is improved in many cases In twenty seven cases the patients com plained of a tendency of the food to go the wrong way after the operation In the above material there was one death from post operative hæmorrhage This complication occurred in 13 per cent of all the cases Though there was some rise of temperature in more than half the cases, it was *serious only in 4 per cent*

395 Presacral Nerve Resection for Painful Bladder

WHYTE and TREATH (*Aust and New Zeal Journ Surg*, July 1933 p 75) report a case of severe pain and fre quency of micturition due to a contracted bladder which was the site of a large intractable ulcer The patient a woman of 40 who was admitted to hospital with a diagnosis of pyelonephritis had the pelvis of the left kidney drained but as treatment with urinary antiseptics was not successful the kidney had to be removed Bacteriological examination showed a *B coli* infec tion, and the patient was treated by bladder lavage for two years A recurrence of symptoms was treated by removal of the left ureter followed by cystoscop c treatment until a further recurrence occurred Examina tion revealed a contracted bladder and a large ulcer which occupied most of the posterior wall and involved the right ureteric orifice which was large and oedematous A pyelogram showed a moderate degree of pelvic disten s on and a hypertrophied kidney on the right side Treat ment was carried out for *three months without avail* and a further operation was decided on The abdomen was *opened* and the hypogastric nerves were dissected out and divided A catheter was left in the bladder and was removed on the sixth day and convalescence was uneventful Bladder capacity increased from 1 ounce before operation to 13 ounces on the thirteenth day, the frequency was *less marked* and the patient was free from pain Cystoscopy six weeks after operation showed that the ulcer had healed, and eight months later the patient was entirely free from symptoms Examination of the tissue after removal showed it consisted of bundles of nerve fibres and many ganglion cells

Therapeutics

396 Prevention of Colds and Influenza

A VON HALASZ (*Munch med Woch*, October 13th, 1933, p 1593) recommends continued administration of iodine in small daily doses (*1/36 to 1/12 grain*) as a prophylactic against catarrh and influenza He has found that when persons who have been in contact with cases of influenza use every day as a mouth wash, gargle and nasal douche a weak solution of iodine—1 drop of tr iodi in a tumbler-ful of warm water—this will abort an attack of catarrh or influenza when used in conjunction with the internal administration of iodine All contacts should inhale iodine vapour and take 4 grain doses of quinine sulphate as a prophylactic The vapour of weak solutions of iodine is more effectual than that of stronger solutions because the nasal mucosa is extremely sensitive and when over *stimulated, pours out an abundant* secretion that washes away the traces of iodine During the first few hours after the onset of influenzal symptoms the author pre scribes 7½ to 15 grains of quinine sulphate in order to prevent the further development of the disease These precautions are he states simple and harmless he has not observed any *symptoms of iodism among his patients*

397 Oxygen Therapy in Post Operative Pneumonia

J GOERDERTIER (*Bruxelles Medical* August 20th 1933, p 1193), discussing the indications for oxygen adminis tration, states that *anoxaemia retards all metabolism*, and may produce acidosis Its symptoms are cyanosis, nausea, vertigo, headache, fever, delirium etc Oxygen administration should never be delayed unt l symptoms of cardiovascular paralysis occur In lobar pneumonia and bronchopneumonia, statistics show that *80* per cent of patients having a blood oxygen saturation of over 90 per cent recover while those patients whose blood has an oxygen content of 60 per cent or less are unrelieved by oxygen therapy and show no appreciable increase in their blood oxygen content Oxygen concentrations of 40 to 60 per cent raise the blood oxygen percentage approxi *mately to normal, below 40 per cent no change occurs* Only when anoxaemia is present 60 to 100 per cent of oxygen may be administered continuously for several days *Some writers affirm that an oxygen concentration* of 60 per cent should not be exceeded Yandell Henderson re ommends dilution of oxygen with CO in order to stimulate the respiratory centre Goerdertier recommends the oxygen tent as the most convenient and economical apparatus It secures a constant flow of oxygen permits regulation of oxygen concentration varying between 20 and 70 per cent and is comfortable for the patient who should never be left unattended It is impor tant when *withdrawing the patient from the tent* that the oxygen concentration should be reduced slowly to 30 per cent Anoxaemic patients should be protected from cold in order to conserve energy The author also des r bes his method of regulating oxygen concentration In 150 cases of post operative pneumonia seventy five patients averaging 45 years of age were given oxygen The death rate was 16 per cent Among the remaining seventy five patients averaging 52 years of age the death rate was 46 6 per cent

398 Therapeut cs of Charcoal

G H W LUCAS and V E HENDERSON (*Canadian Med Assoc Journ* July, 1933 p 22) commend as an antidote for many varieties of poisoning the administration of a medicinal charcoal which will meet the requirements laid down in the *Addendum of the Canadian Formulary* (the carbo medicinalis of the German Pharmacopoeia) It may also be of much value in the treatment of flatulence and some intestinal disorders In cases of poisoning at least four or five teaspoonfuls of the char coal mixed with a glass of water should be swallowed with as little loss of time as possible If necessary, the charcoal may be administered by a stomach tube As

soon as convenient the stomach should be emptied by vomiting, or by siphoning, or pumping out the contents with a stomach tube. If the stomach cannot thus be emptied, more charcoal mixed with ample saline purgative should be given in order that the stomach contents may be so hurried through the intestinal canal that very little poison will be absorbed. Even if the stomach has been emptied it is thought that this procedure should still be employed. It has been calculated that 15 grains of medicinal charcoal can absorb *in vitro* 13 grains of corrosive sublimate, 20 grains of iodine, 9 grains of strychnine, 4.5 grains of phenol from a 1 per cent. solution, and 8 grains of potassium permanganate. The authors recall the investigations of C. Adler, who found that the treatment of gastro-enteritis and acute enteritis with charcoal resulted in a rapid disappearance of the symptoms. The doses were small, 45 grains two or three times daily, or sometimes 75 grains twice daily. One administration of the higher dose was sufficient to relieve and cause the complete cessation of a violent diarrhoea. In cases in which the urine and faeces contained large quantities of indican the ingestion of charcoal resulted in its disappearance. No success was obtained, however, in the treatment of typhoid fever. Warning is given that many of the so-called varieties of medicinal charcoal on the market are valueless.

399 **Balneotherapy in Parkinsonism**

G. CAUVY (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, April 7th, 1933, p. 285) states that the functional troubles (trembling, muscular rigidity, and loss of automatic movements) characteristic of Parkinsonism are to a very appreciable degree benefited by a hydro-mineral treatment; the waters of Lamalou and Néris are specifically mentioned. In addition to the physico-chemical properties of mineral waters, their employment permits of, in the best conditions, the action of two other important factors—the thermic and the static. The troubles above cited are increased by cold and emotion, and attain their maximum when the body is in an unsupported or ill-supported static position; they diminish with quiet, repose, heat; and passive mobilization, and tend to disappear when static effort ceases and the body is perfectly supported. The treatment at Lamalou consists in balneotherapy, hot or temperate baths according to the case, in special baths, such as piscinas—ordinary bath-tubs not permitting of the necessary muscular and nervous relaxation. The bath is followed by a daily passive mobilization of all the articulations and segments of the body; this necessitates not only complete muscular relaxation but also absolute passivity. Results claimed from this treatment are: an improvement in sleep and the general condition, with a return of suppleness and energy, an increase of muscular force, and a great improvement in walking; the trembling is notably diminished, and the rigidity is often benefited.

400 **Tannic Acid for Burns in Children**

M. LANGER (*Wien. klin. Woch.*, June 2nd, 1933, p. 689) reports the results obtained in the Mautner-Markhof Children's Hospital in Vienna by the application of Davidson's tannic acid treatment for burns in childhood. The technique is as follows. On the arrival of the patient the vesicles are opened under ethyl chloride anaesthesia and their walls removed. Under rigidly aseptic conditions the base of the vesicle and surrounding skin are defatted with benzol and then covered with dressings soaked in freshly prepared 2.5 per cent. tannic acid solution, the dressings being kept moist by addition of more solution. This treatment is continued until firm black scabs are formed. This occurs in some twenty-four or thirty-six hours, provided that the tissues have been satisfactorily defatted. The dressings are then removed and the patient is placed in a "sterile" bed without any bandaging. A second degree burn will by this time have already shown good epithelialization. In a third degree burn granulations will have formed under the scab, so that incision will be necessary to release the secretions from underneath; even in such a case complete healing may occur under the scab. During the forty-eight hours after the burn fluids must be given in considerable volume; heart stimulants may be necessary in cases of shock, and in cases of toxaemia blood transfusion may become indicated, followed by the intravenous injection of 10 to 20 c.cm. of 20 per cent. sodium thiosulphate. Of 151 cases of burns dealt with by the author during the last ten years, eighty-six were treated without and sixty-five with tannic acid. Of the former, 16.3 per cent. died; of the latter, 7.7 per cent. died. Closer analysis of the figures showed that the tannic acid treatment certainly reduced the mortality by at least 50 per cent.

Ophthalmology

401 **Focal Sepsis in Eye Affections**

O. R. LOURIE (*Arch. of Ophthalmol.*, June, 1933, p. 918) states that before eliminating so-called foci of infection there should be either experimental proof of the theory of focal infection or empirical observation of the relationship between such foci and the disease in question. The specificity of the causes of infection entailing the fulfilment of Koch's four laws has long been accepted, but Rosenow, a supporter of the theory of focal infection, goes so far as to invoke transmutation of the type of bacteria. It is suggested that at present there is so much vague theory and speculation that the practitioner would do well to safeguard his patients. It is not denied that improvement does occur in some cases, but *post hoc, propter hoc* may be a misleading way of making correct conclusions, and the writer thinks that conservative treatment is not given a fair trial. Even the statistics in favour of the theory show the elimination of foci to be futile in the great majority of cases. Though focal sepsis is supposed to be a fruitful source of rheumatism, only 12 per cent. of the patients at a dental clinic were found to be rheumatic. In conclusion, it is stated that promiscuous operations for ocular diseases are unwarrantable, and Bacon is quoted thus: "Men mark when they hit and never mark when they miss."

402 **Herpes of the Cornea and Trauma**

A. I. FAVEREY (*Nederl. Tijdschr. v. Geneesk.*, August 12th, 1933, p. 3659) states that the importance of trauma in the production of herpes of the cornea has often been the subject of discussion not only in medical jurisprudence but also in ophthalmological literature. According to Baas there is a history of trauma in 18 per cent., according to Schmidt in 16.9 per cent., and according to Pflüger in 18.5 per cent. of cases of herpes corneae. On the other hand, an inquiry into 233 cases of herpes of the cornea and similar conditions, such as keratitis dendritica and keratitis disciformis, at the Eye Clinic of Amsterdam University showed that there was a history of trauma in twenty-three cases, but in only three cases did there appear to be a distinct connexion between the trauma and the ocular condition. The traumatic aetiology of herpes of the cornea is therefore very rare, and may as a rule be regarded as doubtful.

403 **Local Anaesthesia in Ophthalmology**

As the result of clinical investigations and experimental work at the Wilmer Ophthalmological Institute of the Johns Hopkins University and Hospital, Baltimore, A. C. KRAUSE (*Anesthesia and Analgesia*, July–August, 1933, p. 179) commends for ophthalmological operations the local anaesthetic "diothane," which is the hydrochloride of piperidinopropanediol diphenyl urethane. This crystalline preparation is easily soluble in hot distilled water; a 1 per cent. solution is stable, resisting autoclaving and the action of diffuse light. A 1 per cent. solution of diothane in a 2 per cent. solution of boric acid was found to be irritating and much less effective, however, while solutions weaker than 1 per cent. were proved to

be less potent. An ointment made of 1 per cent. diothane with lanoline, when applied to the conjunctiva, gave a longer duration of anaesthesia than did other ophthalmological anaesthetics. The first effect of its application is a mild hyperaemia, and local irritation which quickly passes away; this hyperaemia is prevented by the incorporation of adrenaline in the ointment. The size of the pupil is unaffected, and the intraocular tension is not increased. Even after prolonged anaesthesia there is no corneal desiccation or softening, and no evidence of toxicity was obtained. The only disadvantages of its use are the slowness with which anaesthesia is induced and the initial irritation of the cornea. In iridectomy it was found that there was no pain when the iris was grasped by the forceps and excised. The analgesic effects persist for a considerable time after the operation. Krause states that diothane has been successfully used for anaesthesia in corneo-scleral trephining, iridectomy, cataract extraction, removal of foreign bodies in the cornea, operations on cysts of the lids, copper sulphate applications in trachoma, burns of the cornea and conjunctiva, cauterization of corneal ulcers, and measurement of the intraocular tension.

404 Derangement of the Corneal Nerves

J. H. DOGGART (*Brit. Journ Ophthalmol.*, July, 1933, p. 385) states that all nerve fibres have atrophic function, and that a cell may be damaged either by severance of its nerve supply or by impulses from a traumatized nerve fibre. In certain cases it is difficult to determine whether the lesion arises from interference or traumatization of the nerve supply, but he thinks that the latter is the more common. Severance of the corneal nerves does not of itself cause lesions, as is shown by the operation for cataract, but it may predispose to keratitis by abolishing protective reaction. The corneal nerves are not only affected by neural lesions, but also by any acute corneal infiltration. The main characteristic of neuropathic keratitis is epithelial oedema, resulting in anything between rapid exfoliation and vesicle formation with a surface remaining unbroken for many years. He regards recurrent corneal abrasion, superficial punctate keratitis, the corneal sequelae of influenza, corneal and epithelial dystrophies, nodular, alphabet, and reticular keratitis as neuropathic conditions. Bullous keratitis, band-shaped keratitis, and marginal degeneration of the cornea may fall under the same head. These conditions have a course more or less akin to that of herpes febrilis corneae.

Obstetrics and Gynaecology

405 "Dry Labour"

A. H. M. J. VAN ROOY (*Journ. Obstet and Gynaecol. British Empire*, August, 1933, p. 850) has examined the records at the Obstetrical and Gynaecological Clinic of the University of Amsterdam with the intention of obtaining evidence as to the gravity or otherwise of the rupture of the bag of membranes before cervical dilatation and the commencement of labour. In these cases the escape of the liquor amnii usually occurs a few hours to some days before the pains begin. Should it be doubtful whether the fluid that has escaped is amniotic, a microscopical examination of the vaginal fluid should make this clear, provided that pubic hair, cotton-wool fibres, or cell-substance fibres are not mistaken for foetal hair. Frey has also stated that before rupture the reaction of the vaginal fluid is acid in 96.7 per cent. of the cases; after rupture it is always alkaline. Van Rooy considers that dry labour can always be designated as an unfavourable complication, but the attitude of expectancy rather than of prompt intervention should be adopted, for premature action endangers the life of the child. He finds that the incidence of the condition amounts to 0.82 per cent. in primiparae and 1.25 in multiparae; these figures are low in comparison with those in the literature, which, however, include cases in which dilatation of the cervix had already begun. The duration of labour is prolonged, especially in primiparae, by such premature rupture, and some form of intervention was more often required than in uncomplicated labour. Dry labour was not the sole cause of this, for contracted pelvis existed in fully half of the cases in which the liquor amnii escaped prematurely. No evidence was obtained pointing to an increased maternal mortality, but the infantile mortality rate was 6.31 per cent. in cases where cervical dilatation had not begun, and 7.04 per cent. in those in which it had not reached 3 to 4 centimetres. The maternal morbidity was slightly raised only. Van Rooy reports no discoveries of aetiological significance, but he is satisfied that an increase of pressure inside the amniotic sac is sometimes the cause of rupture.

406 X Rays in Metrorrhagia and Fibromyomata

J. THYGESEN (*Ugeskrift for Laeger*, July 6th, 1933, p. 764) has investigated the after-histories of 128 women, in a hospital in Denmark between January, 1925, and December, 1929, treated with the *x* rays for metrorrhagia or fibromyomata of the uterus. Only one of these women could not be traced. Three had died in the interval of other ailments. Among the remaining 124, there were eighty-four who were well, twenty-six who were improved, and fourteen who were worse than they were when the treatment was commenced. Among the fourteen in the last category, there were seven on whom an operation had been performed on account of a recurrence of the haemorrhage. When the patients were classified according to the nature of their ailments, it was found that more had benefited from *x*-ray treatment for metrorrhagia than from this treatment for fibromyomata. Thus, in the former category there were fifty-seven who were well, ten who were better, and only seven who were worse; whereas among the fibromyomata patients there were only twenty-seven who were well, sixteen who were better, and seven who were worse. Thygesen points out that there is a tendency to criticize the *x*-ray treatment of metrorrhagia and fibromyomata on the ground that it is often necessary to operate later on because of a recurrence of the haemorrhage. This criticism applies particularly to fibromyomata, and it has been held that it may be wiser to operate at once in such cases, before the patient has become anaemic and weak after futile treatment with the *x* rays. The author presents the above statistics without comment and without attempting to draw conclusions as to the comparative value of *x*-ray and operative treatment.

407 Metabolism during Pregnancy

M SCHARMAN (*Wien. klin. Woch.*, July 14th, 1933, p. 871) reports the results of a series of metabolic investigations of 100 patients at various stages of pregnancy or suffering from various gynaecological conditions. The cases are classified into five groups—namely, normal pregnancies, chronic adnexal conditions, climacteric cases, disturbances of internal secreting glands, and young primiparae with some gynaecological conditions making diagnosis of pregnancy difficult in the early stages. The author, in addition to estimating the basal metabolism, also found the effect on the heat production of a meal of 120 grams of lean ham and calculated the specific dynamic action of protein in these cases by the percentage increase in calories one and a half hours after the ingestion of the protein meal. Allowing for a normal variation of ± 10 per cent., there seems to be no change in the B.M.R. during pregnancy until about the fifth or sixth month, when it may attain values of + 70 per cent. (in one case + 110 per cent.) The specific dynamic action of the protein is from + 15 per cent. to + 50 per cent. during the first five months, but after this time until full term the protein produces a *fall* in heat production, so that the specific dynamic action becomes negative (from − 10 per cent. to − 50 per cent. In a series of cases in which pregnancy had to be interrupted, it was found that up to sixteen weeks of pregnancy the specific dynamic action of protein was always markedly positive; after emptying the uterus, however, there was a great drop in s.d.a. In cases of chronic processes in the adnexa the basal

metabolic rate was most often definitely high and the s.d.a. was constantly negative. In climacteric disorders it was always negative, but injections of pituitrin were found to change it to positive. Ovarian cysts were also found to be associated with a negative specific dynamic action, but removal of the cyst was followed by a reversal to a positive effect.

408 The Friedman Pregnancy Test

P. M. F. BISHOP (*Guy's Hosp. Reports*, July, 1933, p. 308) refers to the fact that the biological tests for pregnancy provide a means of diagnosis as early as a month after conception, and he comments on the importance of these tests in differential diagnosis. Those hitherto employed are the Aschheim-Zondek, the Siddall, the oestrin test of Mazer and Hoffman, and the Friedman test. This last test, in which rabbits are employed, depends upon the fact that in these animals the urine of human pregnancy produces corpora haemorrhagica within twenty-four hours, owing to the presence of prolan B. It is therefore more practical and gives a result more rapidly than the original Aschheim-Zondek test. The author has elaborated a technique for the Friedman test which, by excluding the main source of error, has so far given no incorrect result. Experimental investigations in connexion with the test showed that the active principle in the urine remains potent for at least six days after the urine has been voided, and that a positive reaction is obtained as early as twenty-one days after conception. The test becomes negative within forty-eight hours after parturition. It was found that whereas mechanical stimulation of the cervix uteri in a rabbit tends to produce fresh corpora lutea, the injection of urine of pregnancy almost invariably produces corpora haemorrhagica. In patients with pituitary disorder the urine might contain an excess of prolan, while in chorion-epithelioma the equivalent of 1 in 300 c.cm. of urine might give a positive reaction. If a pregnant rabbit was used as the test object, the result could be relied upon if positive, but if it was negative the test should be repeated.

Pathology

409 Diphtheria in the Inoculated

M. FAYOT (*Thèse de Paris*, 1933, No. 487), who records 130 cases in patients aged from 14 months to 14 years in which diphtheria had occurred in spite of injections of anatoxin, states that diphtheria in the inoculated occurs in about 3.3 per cent. of all the cases of diphtheria observed in France and has been noted in 11.6 per cent. of the cases at the Hôpital des Enfants Malades in Paris in recent years. Diphtheria following inoculation does not present any special features. It may be severe and even fatal. In Fayot's series malignant forms of diphtheria were less frequent in the inoculated (6.9 per cent.) than in the non-inoculated (12.5 per cent.), and the mortality was less—namely, 4.8 per cent. as compared with 11 per cent.

410 Hypophyseal Polyuria

L. BRULL (*Presse Méd.*, August 12th, 1933, p. 1267) quotes two hypotheses as to the causation of diabetes insipidus—one is that it is due to pituitary lesions, the other that it is of nervous origin and caused by alterations in certain nuclei of the tuber cinereum. Recent researches have been centred on the pars tuberalis of the pituitary. This structure is said to become hypertrophied and to contain a greater quantity of the antidiuretic principle after hypophysectomy. The vicariousness of this structure can explain the transitory effects of hypophyseal polyurias and the more prolonged action of subsequent tuberian lesions. Brull describes experiments on dogs, in which a double crossed circulation was made which permitted of connecting a pair of kidneys by simultaneous anastomosis to two dogs without interrupting the circulation or renal secretion. One animal was normal; in the other hypophysectomy had been performed—a condition which is usually followed by an intense polyuria and a very marked decrease in urinary chlorides. When the test kidneys were irrigated with blood from the sound animal, diuresis and the urinary chlorides were normal, but with blood from the other dog polyuria and hypochloruria occurred. These findings are verified by Verney and others, and show that in the cephalic circulation the blood receives an antipolyuric substance. Brull concludes that any theory regarding diabetes insipidus must take cognizance of the fact that the absence of this hypophyseal antipolyuric hormone can of itself cause polyuria, and its presence alone can suffice to cause cessation of the latter.

411 Cerebro-spinal Fluid in Poliomyelitis

L. VON KOSTYÁL (*Arch. f. Kinderheilk.*, July 18th, 1933, p. 15) examined 428 specimens from eighty-three cases of poliomyelitis and came to the following conclusions: (1) The various reactions in the cerebro-spinal fluid show extraordinary variability, not only in different seasons, but also in the same individual at different times. (2) There is therefore no reaction in the cerebro-spinal fluid characteristic of poliomyelitis, and the diagnosis of poliomyelitis cannot be made from the reactions of the fluid without clinical examination of the patient. (3) There is no correspondence between the strength of the reaction in the cerebro-spinal fluid and the severity of the disease. (4) As a general rule recovery or improvement may be anticipated as long as the reactions in the spinal fluid remain positive. (5) It is not probable that the excess of albuminous substances in the spinal fluid is an inflammatory product, but it is more likely that it is a specific product of a systemic reaction.

412 Clinical Significance of Diastasuria

J. FOGED (*Ugeskrift for Laeger*, August 3rd, 1933, p. 833) has found the quantitative investigation of diastasuria of great value in the differential diagnosis of gall-stones and malignant disease. Altogether, 175 patients suffering from various forms of jaundice were examined. The Fabricius-Möller technique for the demonstration of diastase in the urine was adopted, and 1,247 such analyses were made. In seventy-seven cases in which the jaundice was due to various forms of hepatitis, including acute epidemic hepatitis and toxic hepatitis caused by salvarsan, atophan, or lead, the excretion of diastase in the urine was within normal limits. It was also normal in the twenty-seven cases of cancer or other tumour of the pancreas. There were fifty-six cases (five men and fifty-one women) of jaundice associated with gall-stones in the common bile duct. This diagnosis was verified at the operation or post mortem in fifty cases, and in the remaining six cases gall-stones were found in the motions at the time of an attack of biliary colic. In as many as thirty-two of these cases the diastasuria was in excess of the normal. In three other cases the concentration of diastase in the urine was on the verge of the pathological. It follows from these findings that in a case of jaundice in which hepatitis, cancer of the pancreas, and gall-stones are possible diagnoses, high diastasuria figures are strong presumptive evidence of a gall-stone in the common bile duct. Other causes of high diastasuria figures (primary pancreatitis, mumps, etc.) must, of course, be considered and eliminated in the differential diagnosis of such cases.

413 Blood Platelets and the Menstrual Cycle

M. KATO (*Zentralbl. f. Gynäk.*, August 5th, 1933, p. 1804) from a study of the blood platelet count in nine menstrual cycles in four healthy women draws the following conclusions. Menstruation is accompanied by a diminution of the platelet count to 300,000, which commences a few hours before the bleeding and is most marked on the second day. The count is highest on post-menstrual days, and some increase may be apparent pre-menstrually.

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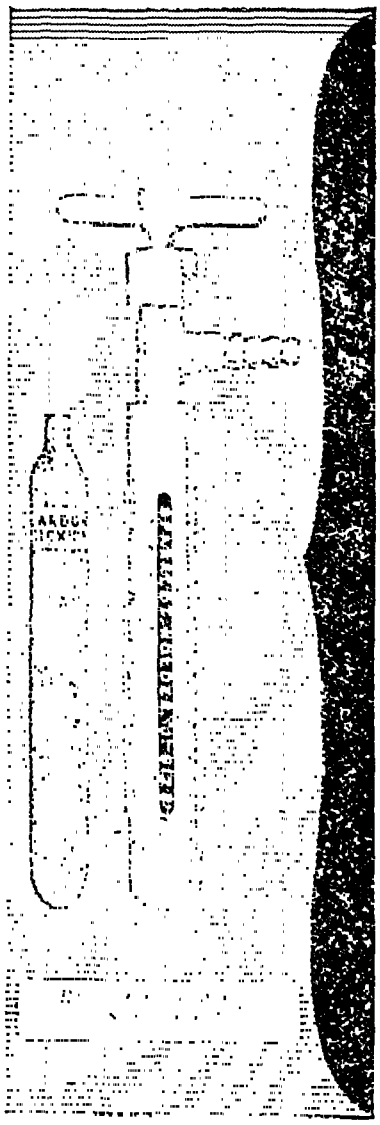
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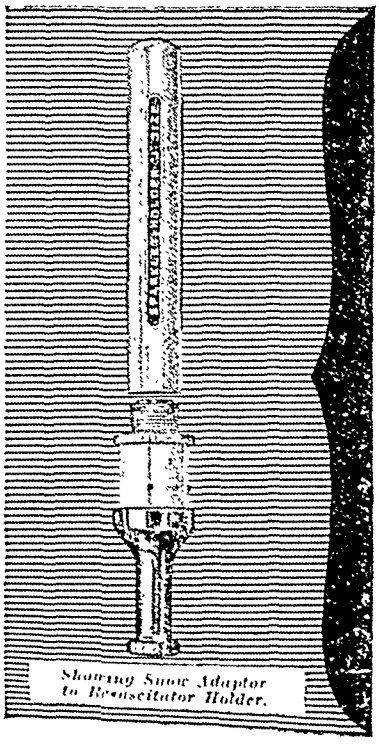
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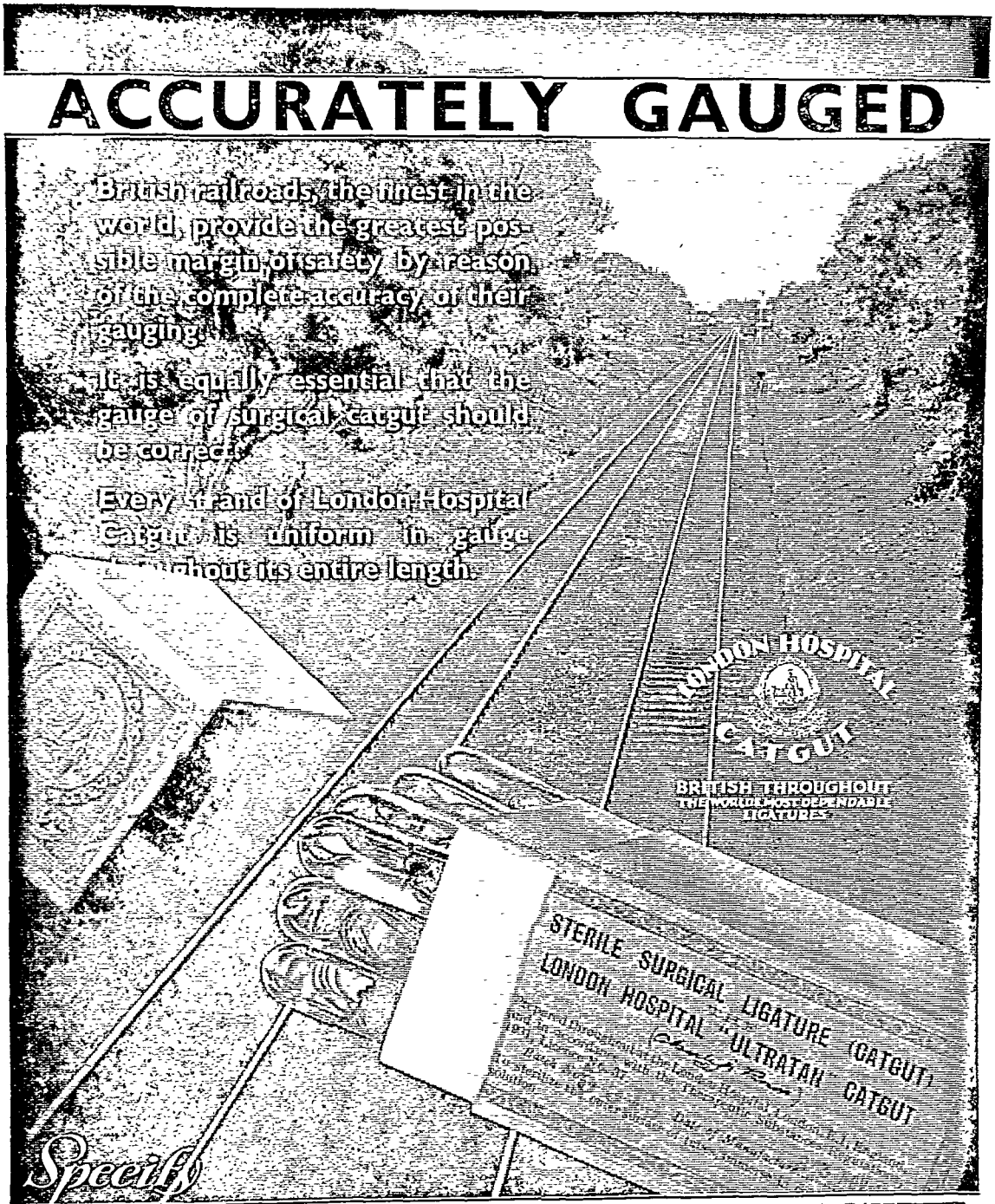
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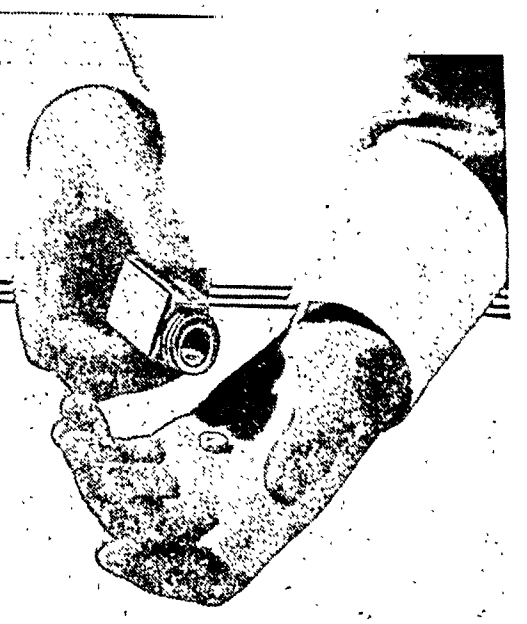


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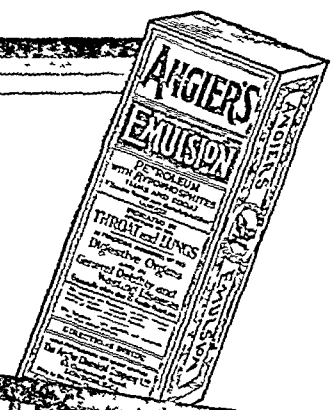
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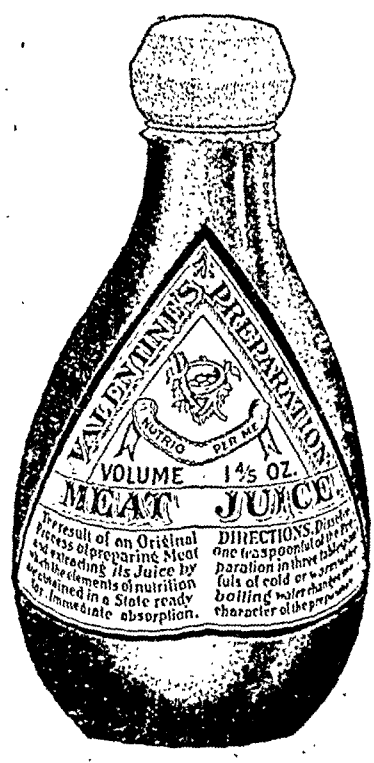
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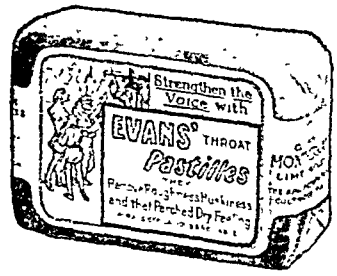
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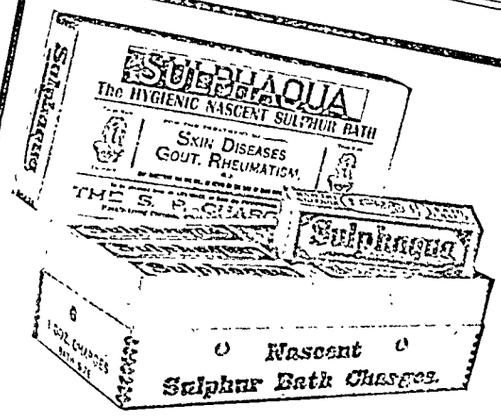
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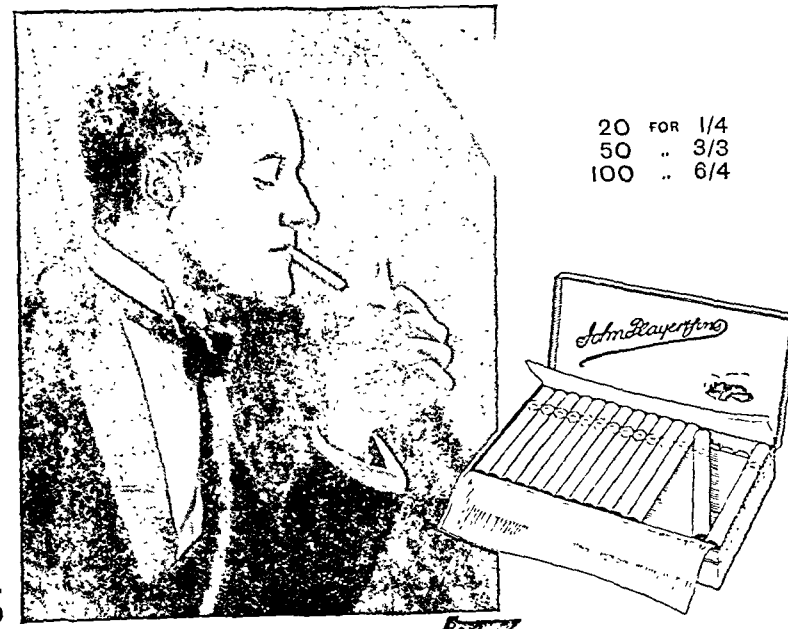
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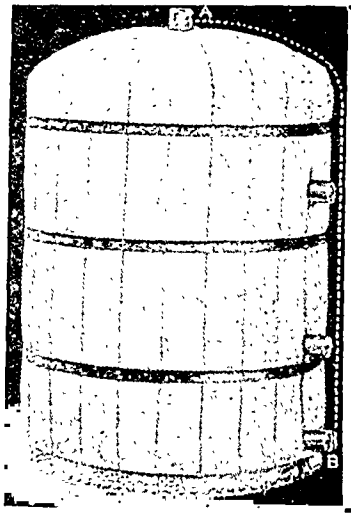
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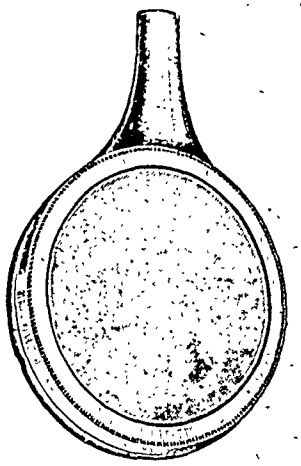
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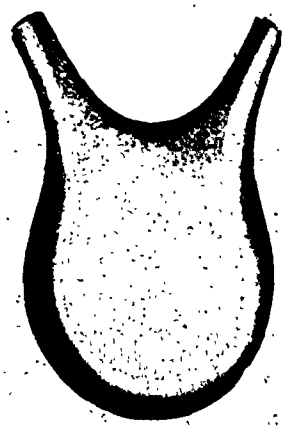
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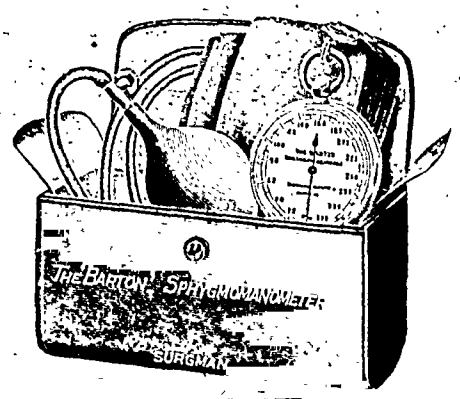
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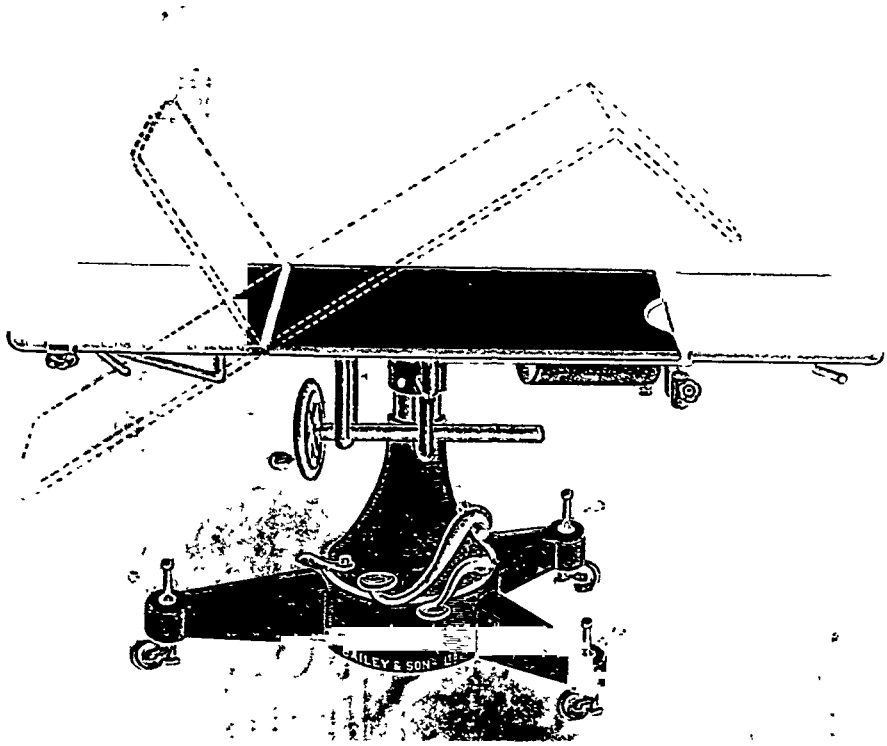
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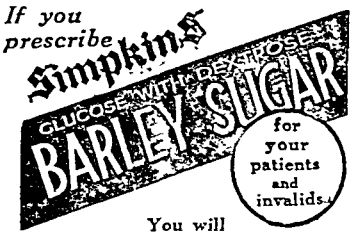
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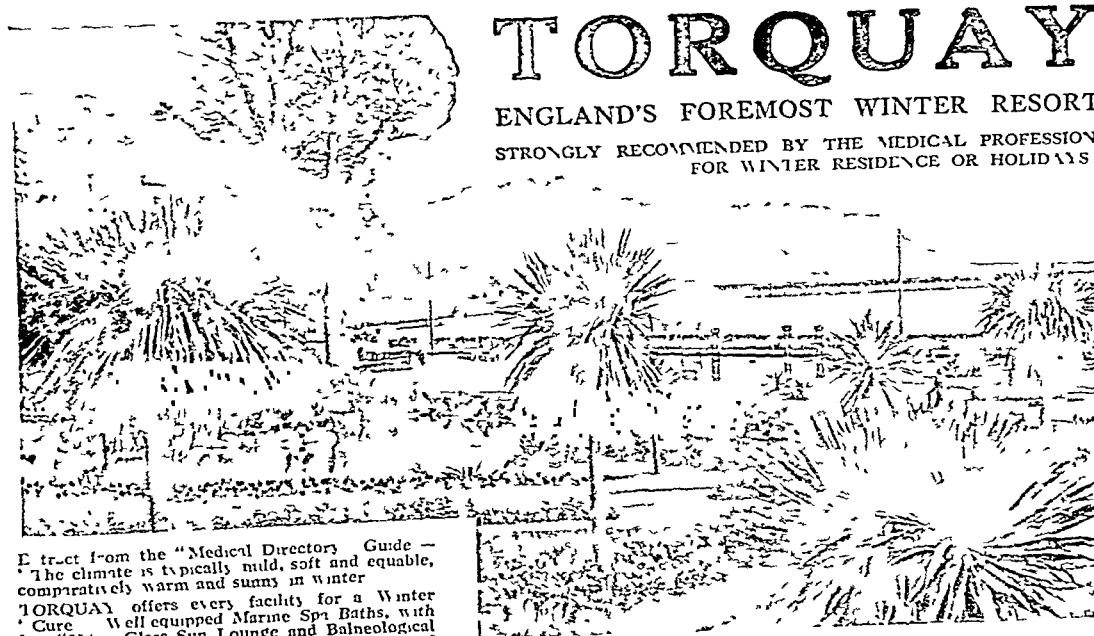
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A DELIGHTFUL SCHOOL FOR YOUNG children between the ages of 4 and 12 years. Healthy home life combined with good preparatory education. Most highly recommended by parents of past and present pupils. Principal: Miss F. K. WALKER, "The Birches," Penn Hill Avenue, Parkstone, Bournemouth.

THE UNIVERSITY OF LIVERPOOL

FACULTY OF MEDICINE.

THE MEDICAL SCHOOL provides complete courses of instruction for the Examinations of the University of Liverpool, and also meets the requirements of other Universities and Examining Bodies in the United Kingdom

Other Schools of the Faculty are —The School of Dental Surgery, the School of Hygiene, the School of Tropical Medicine, and the School of Veterinary Science

DEGREES AND DIPLOMAS IN THE FACULTY OF MEDICINE.

Bachelor of Medicine & Bachelor of Surgery	-	-	M B, Ch B
Doctor of Medicine	-	-	M D
Master of Surgery	-	-	Ch M
Master of Hygiene	-	-	M H
Master of Orthopaedic Surgery	-	-	M Ch Orth
Bachelor of Dental Surgery	-	-	B D S
Master of Dental Surgery	-	-	M D S
Bachelor of Veterinary Science	-	-	B V Sc
Master of Veterinary Science	-	-	M V Sc
Doctor of Veterinary Science	-	-	D V Sc
Doctorate in Philosophy	-	-	Ph D
Licence in Dental Surgery	-	-	L D S
Diploma in Public Health	-	-	D P H
Diploma in Tropical Medicine	-	-	D T M
Diploma in Tropical Hygiene	-	-	D T H
Diploma in Veterinary Hygiene	-	-	D V H
Diploma in Medical Radiology & Electrology	-	-	D M R E

Valuable Fellowships, Scholarships and Prizes are offered for competition each year

THE CLINICAL SCHOOL.

THE CLINICAL SCHOOL consists of FOUR GENERAL HOSPITALS The Royal Infirmary, the Royal Southern Hospital, the David Lewis Northern Hospital, and the Stanley Hospital, and of FIVE SPECIAL HOSPITALS: The Eye and Ear Infirmary the Women's Hospital, Liverpool, the Royal Liverpool Children's Hospital, the Liverpool Maternity Hospital and the St Paul's Eye Hospital

These Hospitals contain in all about 1,500 Beds

The organization of these Hospitals to form one teaching Institution provides the Medical Student and Medical Practitioner with an extensive field for clinical education and study

Twenty-one house physicians and house surgeons are appointed every six months in the General Hospitals, and the majority of these receive salaries ranging from £60 to £100 per annum Five resident medical officers are also appointed at intervals to the Special Hospitals

Infectious Diseases are studied in the Local and District Hospitals, and Mental Diseases at the County Mental Hospital, Rainhill

For information on all matters concerning the curriculum, application should be made to the Dean of the Faculty of Medicine, the University of Liverpool

W H WOOD, Dean

POST-GRADUATE STUDY

The Medical Correspondence College provides ample facilities, under highly qualified tutors, for oral, practical, and clinical instruction in preparation for the various higher qualifications and for Post-Graduate Study irrespective of any examination

Diploma in Psychological Medicine.
Diploma in Ophthalmology.
Diploma in Radiology.
Diploma in Laryngology, Otology, and Rhinology.
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Diploma in Tropical Medicine.
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M.R.C.P.Lond., and all higher Medical Examinations.
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You can qualify for any of the above by our Courses of Combined Postal and Practical Courses

Write at once stating your requirements to the Secretary, MEDICAL CORRESPONDENCE COLLEGE, 19, Welbeck Street, W.1.

WE SPECIALIZE IN POST-GRADUATE COACHING FOR ALL EXAMINATIONS.

BOROUGH OF LUTON

ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER

The Luton Borough Council invite applications for the position of Assistant Medical Officer of Health and Assistant School Medical Officer The scale of salary for the appointment is at the rate of £500 per annum rising by annual *increments of £25 to a maximum of £*600 the commencing salary to be determined by the Council according to the experience of the elected candidate

The gentleman appointed will be required to devote the whole of his time to the duties and to act under the direction of the Medical Officer of Health

The appointment will be subject to the approval of the Ministry of Health and to the provisions of the Local Government and Other *Officers Superannuation* Act 1922 and the successful candidate will be required to pass a medical examination

Forms of application and particulars of appointment may be obtained from the undersigned

Applications on the official form accompanied by copies of not more than three recent testimonials and endorsed Assistant Medical Officer of Health must be delivered to me by not later than December 11th

Canvassing either directly or indirectly will be deemed a disqualification

2 Upper George St W H ROBINSON
Luton Town Clerk
November 17th 1933

NORTH OF ENGLAND *RADIUM INSTITUTE* ROYAL VICTORIA INFIRMARY, NEWCASTLE UPON TYNE

Applications are invited for the post of RADIUM OFFICER (whole time) a fully qualified and registered Medical Practitioner

Applicants must have had experience in the keeping of records and the technique approved by the National Radium Commission

Commencing salary of £700 per annum

Applications stating age qualifications and experience accompanied by three recent testimonials and references should be addressed to the Honorary Secretary, The North of England Radium Institute 14 Ellison Place Newcastle upon Tyne (from whom further particulars may be obtained) on or before Dec 9th

CITY AND COUNTY OF KINGSTON UPON HULL

HULL MUNICIPAL MATERNITY HOME AND INFANTS HOSPITAL (104 Beds)

JUNIOR RESIDENT MEDICAL OFFICER (Woman)

Applications are invited from unmarried or widowed Women Medical Practitioners for the appointment of Junior Resident Medical Officer at the above *Institution*

Salary £100 per annum together with board, washing and residence at the Maternity Home Salary at present subject to a temporary deduction of 2½ per cent under the City Council's economy measures

The appointment will be for six months with a *possible extension for a further* period of six months

Forms of application and conditions of appointment may be obtained from the undersigned

Completed application (in an envelope endorsed Junior Resident Medical Officer Maternity Home) together with copies of three recent testimonials must be received by me not later than midday on Tuesday Dec 12th

Health Dept NICOLAS GEBBIE, M.D.
Guildhall Medical Officer of Health
Hull November 1933

LANCASHIRE COUNTY COUNCIL

BIDDULPH GRANGE ORTHOPAEDIC HOSPITAL

Applications are invited from duly qualified and registered Medical Practitioners for the post of JUNIOR HOUSE SURGEON at the above Hospital which contains 83 beds

Salary is at the rate of £150 per annum, together with board residence and laundry

A reference will be given to candidates who have held resident who are competent ment will be for a first instance and the option of the renewable after that time

Applications with copies of two recent testi*monial* should be sent not later than December 9th to Dr J. I. BUTTERWORTH School Medical and Child Welfare Department, County Offices Preston

Duties to commence February 1st 1934

County Offices GEORGE ETHERTON,
Preston Clerk of the County Council
November 20th, 1933

THE WILLESDEN GENERAL HOSPITAL, Harlesden Road, N.W.10.

OUT-PATIENT DEPARTMENT; CLINICAL ASSISTANTS.

Applications are invited for appointment to the following sessions:
EAR, NOSE, AND THROAT—Wednesday Afternoons.
GYNAECOLOGICAL—Thursday Mornings.
SURGICAL—Friday Afternoons.
SKIN.—Saturday Mornings.
Applications are to be received not later than first post on Tuesday, December 12th, and should be addressed to the Secretary of the Hospital, from whom further details of the appointments may be obtained.

THE LADY CHICHESTER HOSPITAL, HOVE (For Early Nervous Disorders). (60 Beds.)

Medical Woman required as HOUSE PHYSICIAN, for six months. Salary at the rate of £100 per annum, with board, lodging, and laundry.
Also JUNIOR required, with board, lodging, and laundry, and honorarium at the rate of £50 per annum. The successful candidates will be required to enter on their duties on January 1st, 1934.
Applications must be made in writing, and be accompanied by testimonials, and sent to the Secretary, Mr. P. F. SPOONER, 10, Old Steine, Brighton.
November 25th, 1933.

BIRKENHEAD GENERAL HOSPITAL. (156 Beds.)

Applications are invited for the appointment of HONORARY ASSISTANT SURGEON.
Candidates must be Fellows of the Royal College of Surgeons of England or Edinburgh, or be prepared to obtain this qualification within 3 years of appointment.
Applications, stating age, qualifications, and experience, accompanied by copies of three testimonials, should be sent to the undersigned not later than December 16th.
Candidates will be required to furnish sixty copies of their application and testimonials for the use of the Committee and Medical Board.
Canvassing is prohibited and will disqualify.
W. H. DANIELS, F.C.I.S.,
November 27th, 1933. Secretary-Supt.

ROYAL SUSSEX COUNTY HOSPITAL, BRIGHTON. (Beds 250.) (Six R.M.O.s.)

CASUALTY HOUSE SURGEON (male) required.
Salary £120 per annum, with board, residence, and laundry. Candidates must hold Medical and Surgical qualifications of the British Empire, and be duly registered under the Medical Acts.
They must be unmarried, and when elected under thirty years of age.
Applications, with copies of recent testimonials, should be sent immediately to the undersigned.
L. L. W. LANCASTER-GAYE,
Secretary-Superintendent.

THE JESSOP HOSPITAL FOR WOMEN, SHEFFIELD. (143 Beds.)
(Gynaecological and Maternity Departments).

The Board of Management invite applications for the posts of TWO HOUSE SURGEONS (male) for a period of six months, commencing January 1st, 1934
Salary £100 per annum, together with board, residence, and laundry.
Applications, stating age, together with copies of testimonials, should be addressed to the undersigned immediately.
DAVID OSWALD, Secretary.

THE JESSOP HOSPITAL FOR WOMEN, SHEFFIELD. (143 Beds.)

The Board of Management invite applications for the post of HOUSE SURGEON (male) to the Maternity Department (30 beds).
The appointment is for six months from January 1st, 1934. Salary £120 per annum, plus board, residence, and laundry.
Previous resident experience essential.
Applications, stating age and experience, with copies of recent testimonials, should be forwarded to the undersigned immediately.
DAVID OSWALD, Secretary.

DREADNOUGHT HOSPITAL, Greenwich, S.E.10.
(Seamen's Hospital Society.)

HOUSE PHYSICIAN and HOUSE SURGEON required for six months from January 1st, 1934. Salary £110 per annum and a proportion of fees, with board, residence, and laundry. Candidates must be male. Applications, with copies of three testimonials, to be sent in by December 6th to the undersigned.
Greenwich. R. E. V. BAN,
November 17th, 1933. Secretary.

NORFOLK AND NORWICH HOSPITAL, NORWICH. (392 Beds.)

Applications are invited for the following posts: (a) HOUSE SURGEON; (b) HOUSE SURGEON to Special Departments (Ear, Nose, and Throat and Ophthalmic). Preference will be given to candidates who have held previous Hospital appointments. Salary for both posts, £120 per annum, with board, residence, and laundry. Candidates (male) who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of testimonials, to the undersigned not later than first post on Tuesday, Dec. 12th.
FRANK INCH,
Dec. 2nd, 1933. House Gov. & Sec.

NORFOLK AND NORWICH HOSPITAL, NORWICH.

Applications are invited for the post of HOUSE PHYSICIAN. Salary £120 per annum, with board, residence, and laundry. Preference will be given to a candidate who has held a previous Hospital appointment. Candidates (male) who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of testimonials, to the undersigned, not later than first post on Tuesday, December 5th.
FRANK INCH,
November 25th, 1933. House Gov. & Sec.

PRINCESS LOUISE KENSINGTON HOSPITAL FOR CHILDREN, St. Quintin Avenue, North Kensington, W.10.
(58 Beds—shortly to be increased to 80.)

HOUSE PHYSICIAN (male or female) required for six months from January 1st, 1934. Salary at the rate of £100 per annum, with board, residence, and laundry. It is desirable that candidates should have held a responsible Hospital appointment. Applications, with copies of three recent testimonials, must be submitted on a form to be obtained from the undersigned, and must reach him not later than first post on Saturday, December 9th.
H. J. ELEY, Secretary.

PRINCESS LOUISE KENSINGTON HOSPITAL FOR CHILDREN, St. Quintin Avenue, North Kensington, W.10
(58 Beds—shortly to be increased to 80.)

HOUSE SURGEON (male or female) required for six months from January 1st, 1934. Salary at the rate of £100 per annum, with board, residence, and laundry. It is desirable that candidates should have held a responsible Hospital appointment. Applications, with copies of three recent testimonials, must be submitted on a form to be obtained from the undersigned, and must reach him not later than first post on Saturday, December 9th.
H. J. ELEY, Secretary.

THE PRINCESS BEATRICE HOSPITAL, Richmond Road, Earl's Court, S.W.5.
(General Hospital—80 Beds.)

ALTERATION OF DATE.

RESIDENT MEDICAL OFFICER (male) required to act as House Physician and Casualty Officer for six months as from January 1st, 1934. Salary at the rate of £110 per annum, with board, residence, and laundry. Previous resident experience essential. Applications to be sent to the House Governor, stating age and previous appointments, not later than Tuesday, December 12th, accompanied by copies of three recent testimonials.

LINCOLN COUNTY HOSPITAL.

Wanted, SENIOR HOUSE SURGEON, male, unmarried. Salary at the rate of £250 per annum, rising to £300 per annum at the conclusion of six months' approved service. Board, residence, and washing will also be provided.
Every candidate for the appointment must be registered under the Medical Acts.
Applications, stating age and other particulars, with copies of not more than three testimonials, are to be sent to the undersigned, from whom further particulars may be obtained.
Lincoln. ARTHUR MOORE,
November 25th, 1933. Secretary-Supt.

SALFORD ROYAL HOSPITAL. (263 Beds.)

Applications are invited from duly registered candidates (male) for:—
RESIDENT SURGICAL OFFICER for twelve months from January 1st, 1934. Salary £200 per annum.
TWO HOUSE SURGEONS for six months from January 1st, 1934. Salary £125 per annum.
Forms of application, obtainable from the undersigned, must be delivered on or before December 5th.
By Order of the Board
H. B. SHELSWELL,
November 20th, 1933. Gen. Supt. & Sec.

THE PRINCESS ELIZABETH OF YORK HOSPITAL FOR CHILDREN (Formerly East London Hospital for Children), Shadwell, London, E.1.

The Board of Management invite applications for the post of ASSISTANT PHYSICIAN. Candidates must be Graduates in Medicine of an English University and Fellows or Members of the Royal College of Physicians of London. There is an honorarium of £40 per annum attached to the post. Applications, with copies of testimonials, must be delivered to the undersigned by Monday, December 11th, from whom further information may be obtained.
By Order,
J. F. RUSSELL, Secretary.

TORBAY HOSPITAL, TORQUAY.

Notice is hereby given, in accordance with Rule 8, that the Court of Governors will meet on January 5th, 1934, to elect:
(a) An HONORARY PHYSICIAN in charge of the Medical Out-Patient Department.
(b) An HONORARY SURGEON in charge of the Surgical Out-Patient Department.
Candidates are required to be registered under the Medical Act. Applications (16 copies), accompanied by 16 copies of not more than three testimonials, should be sent to the undersigned not later than December 28th.
E. L. GRIST,
November 25th, 1933. Secretary.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

Applications are invited for the post of RESIDENT ANAESTHETIST AND EMERGENCY OFFICER (male). The appointment will be for three months from January 1st, 1934. Salary at the rate of £130 per annum, with board, residence, and laundry. Candidates, who must be unmarried and duly registered, are requested to forward their applications, stating age, qualifications, etc., together with copies of not more than four recent testimonials, to the undersigned on or before Monday, December 11th.
W. H. HEAD, Secretary-Supt.

RESIDENT MEDICAL OFFICER. — THE Committee of Management of the HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.3, invite applications for the post of Resident Medical Officer. Salary £350 per annum, with board and residence, and an additional £50 for services in connection with paying patients. Candidates must be registered practitioners and qualified in Medicine and Surgery, single and not under 25 years of age. Applications, with copies of testimonials, must reach the undersigned not later than Monday, December 18th.
Brompton, FREDERICK WOOD,
S.W.3. November, 1933. Secretary.

NORTH LONSDALE HOSPITAL, BARROW-IN-FURNESS. (150 Beds.)

RESIDENT CASUALTY OFFICER (male appointment, to commence January 2nd, 1934). Applications are invited for the above resident appointment from fully qualified practitioners experienced in the administration of anaesthetics. Salary £150 per annum, with board, residence, and laundry.
Applications, stating age, qualifications, experience and nationality, accompanied by copies of three recent testimonials, should be sent to the Secretary not later than December 15th.

ROYAL ALBERT EDWARD INFIRMARY & DISPENSARY, WIGAN. (180 Beds.)

HOUSE SURGEON (male) required for period of six months commencing January 1st, 1934. Salary £150 per annum, with board, apartments, and washing. Staff consists of H.S.O. and three House Surgeons. Applications, stating age and qualifications, with copies of three recent testimonials, should be addressed to the undersigned as soon as possible.
STANLEY BRUNT,
Sec.

HERTFORD COUNTY HOSPITAL.

Applications are invited for the post of HOUSE PHYSICIAN (male). Salary £150 per annum, with board, residence, and laundry. Duties to include Casualty, Obstetrics, and some surgical work. The appointment to be for six months in the first instance, commencing January 1st, 1934.
Applications, together with three recent testimonials, should be sent to the undersigned not later than December 11th.
PERCY G. BROOKS, Secretary.

HERTFORD COUNTY HOSPITAL.

Applications are invited for the post of HONORARY RADIOLOGIST to the above Hospital. Particulars on application, which should reach the undersigned not later than Dec. 11th.
PERCY G. BROOKS, Secretary.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B M A House, Tavistock Square W C 1 (in the case of Scottish appointments with the Scottish Medical Secretary, 7, Drumsheugh Gardens Edinburgh)

(a) British Islands.

Town or District	Town or District	Town or District
CONTRACT PRACTICE	**CONTRACT PRACTICE** (*contd*)	**CONTRACT PRACTICE** (*contd*)
EBBW VALE MON (*Workmen's Medical Society*)	MARDY, GLAMORGAN (*Workmen's Medical Scheme*)	OGMORE VALLEY GLAMORGAN (*Wyndham Colliery Medical Aid Society*) (*Workmen's Medical Scheme*)
GILFACH GOCH GLAMORGAN (*Workmen's Medical Scheme*)	NEATH AND DISTRICT (*Medical Aid Association*)	**PUBLIC HEALTH**
LLWYNYPIA CTYDACH VALE LLWYNYPIA GLAMORGAN (*Workmen's Medical Scheme*)	OAKDALE MON *Medical Officer for Medical Aid Association*)	GLOUCESTERSHIRE EDUCATION COMMITTEE (*Lady School Medical Inspector*)
LOWESTOFT MEDICAL INSTITUTE (*Medical Officer*)		KENT COUNTY COUNCIL FARNBOROUGH INSTITUTION HOSPITAL (*Resident Assistant Medical Officer*)

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B M A House, Tavistock Square W C 1

Town or District	Hon Sec of Division or Branch	Town or District	Hon Sec of Division or Branch	Town or District	Hon Sec of Division or Branch
NEW SOUTH WALES (*All Fric l y Society Hq in tents*)	Dr J G HUNTER (Medical Secretary New South Wales Branch) 135 Macquarie St, Sydney N S W	**QUEENSLAND** (*Brisbane Associated Friendly Societies Institute*) (*Toowoomba Associated Friendly Societies Medical Institute Toowoomba*)	The Hon Sec Queensland Branch British Medical Association B M A Building Adelaide St, Brisbane	**WELLINGTON, NEW ZEALAND.** (*Contract Practice Appointments*)	Dr G F WATSON (Hon Sec New Zealand Branch) British Medical Association P O Box 196 Wellington New Zealand
VICTORIA. (*All Institute or Medical Dispensaries*)	Dr J P MAJOR (Hon Sec Victorian Branch British Medical Association Medical Society Hall East Melbourne Victoria			**WESTERN AUSTRALIA.** (*Contract and Lodge Practices*)	Hon Sec, Western Australian Branch British Medical Association No 6 Bank of N S W Chambers St Georges Terr Perth, Western Australia

November 29th, 1933. By Order of the Council G C. ANDERSON, Medical Secretary

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WORCESTER ROYAL INFIRMARY
(154 Beds)

Applications are invited for the post of FIRST HOUSE SURGEON (male) to begin duties January 1st, 1934. The successful candidate will be senior of three Resident Surgeons.

The Hospital is equipped with new Operating Theatres, Pathological Laboratory, Orthopædic Department, E N T Department, Modern X-ray Department, etc.

Salary at the rate of £180 per annum together with board residence. The post offers exceptional scope for medical and surgical experience.

Applications should state full particulars of qualifications and experience, together with details as to age, whether married or single, nationality, and should be accompanied by copies of three testimonials.

Application to be received by the undersigned not later than Saturday, December 9th.

PERCY N CLASS
Superintendent Secretary

THE VICTORIA INFIRMARY OF GLASGOW

APPOINTMENT OF WHOLE-TIME ASSISTANT RADIOLOGIST

The Governors invite applications for the appointment of a whole-time Assistant Radiologist at a salary commencing at £650 per annum. Particulars of the duties may be obtained from the Medical Superintendent of the Infirmary.

Ten copies of application and testimonials to be lodged with the undersigned not later than December 18th.

40 St Vincent Place, Glasgow C 1. JOHN W DOLSON
Secretary & Treasurer

November 21st, 1933.

WEST LONDON HOSPITAL
Hammersmith Road W 6 (235 Beds)

Required ONE HOUSE PHYSICIAN and TWO HOUSE SURGEONS (Males). The duties of the House Physician include some work in the Neurological and Electrical Departments. The duties of the House Surgeons include some work in the Orthopædic and of the other Surgical Departments. These three appointments are tenable for six months from January 1st next subject to one month's notice on either side. Salary at the rate of £100 per annum with board, lodgings, and laundry allowance.

Candidates must be registered under the Medical Act. Applications (which must be made on printed forms obtained from me) must reach me not later than first post Friday, December 8th. Selected candidates will be required to call upon such Members of the Medical Staff as directed to be in attendance at the Medical Council Meeting on Friday, December 15th at 4.30 p.m. and the House Committee Meeting at 5 p.m. the same day when the appointments will be made.

H A MADGE, Secretary.

NORTH ORMESBY HOSPITAL
MIDDLESBROUGH (200 Beds)

HOUSE PHYSICIAN required male and unmarried. Salary £120 per annum with board residence and laundry. There are three Resident and the successful candidate will be eligible for the post of House Surgeon in due course.

Applications stating age, qualification, previous experience (if any), with copies of three recent testimonials, should be sent to the undersigned at once.

GEORGE WATTS
Nov 21st 1933. Secretary Supt.

PRINCESS ELIZABETH OF YORK HOSPITAL FOR CHILDREN Shadwell London E 1
(Formerly East London Hospital for Children)
(135 Beds)

A HOUSE SURGEON is required on January 1st 1934. Candidates are invited to send in their applications addressed to the Secretary before 12 o'clock on Thursday, December 7th with copies of not more than three testimonials and evidence of having held a resident hospital appointment. The appointment is for six months. Salary at the rate of £125 per annum with board residence and laundry. Candidates must possess a legal qualification to practise. Forms of application and copies of the rules may be obtained from—

J F PUSSELL
November 1933. Secretary.

PRINCESS ELIZABETH OF YORK HOSPITAL FOR CHILDREN Shadwell London E 1
(Formerly East London Hospital for Children)
(135 Beds)

A RESIDENT MEDICAL OFFICER is required on January 1st 1934. Candidates are invited to send in their applications addressed to the Secretary before 12 o'clock on Thursday, December 7th with copies of not more than three testimonials and evidence of having held a resident hospital appointment. The appointment is for one year. Salary at the rate of £200 per annum with board residence and laundry. Candidates must possess a legal qualification to practise. Forms of application and copies of the rules may be obtained from—

J F PUSSELL
November 1933. Secretary.

(Appointments continued on p 76)

British Medical Journal
BRITISH MEDICAL ASSOCIATION HOUSE,
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All advertisements should reach the above address by not later than first post TUESDAY preceding publication.

NOT CLASSIFIED.

COMFORTABLE. — QUIET HOME OFFERED to lady or gentleman; semi-invalid received. Every care and attention given. Doctors' references.—Mrs. SCOTT, 6, Arundel Gardens, Winchmore Hill, N.21.

MR. C. F. BACON, R.N., RET.—THE WIDOW of the above would be very grateful if the London nerve specialist, who examined her husband on, or about, October 14th, 1931, would COMMUNICATE with her at Boughton Lane, Loose, Maidstone, Kent.

NEAR MALVERN. — TRAINED NURSE OFFERS happy HOME to child, 18 months —5 years. Terms moderate. References.—Address, No. 8182, B.M.A. House, Tavistock Square, W.C.1.

PARENTS OF BACKWARD CHILD, AGED 6, wants CHARGE of another similar CHILD for mutual companionship and education, specially qualified, resident governess kept.—Mrs. T. B. HENSMAN, Alby, Aldborough, Norwich.

POST-GRADUATE DESIRES FURNISHED QUARTERS for himself and wife in return for TWO EVENING SURGERIES p.r week. Both out all day. Hospital experience and good qualifications. London area. Commencing Jan.—No. 8169, B.M.A. House, Tavistock Sq., W.C.1.

ASSISTANCIES.

WANTED.—LADY OUTDOOR ASSISTANT IN large General Practice (Lancashire). Salary £336 p.a.; commission on midwiferies and operations. £48 p.a. upkeep of h.r. own car. Excellent self-contained hous., furnished large essentials. Free. Usual bond. Photo and references.—Address, No. 8155, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANTSHIP, WITH VIEW to Partnership or ultimate succession, in rural practice within 100 miles of London, by Medical Man, aged 40. Recently retired services. — Address, No. 8174, B.M.A. House, Tavistock Square, W.C.1.

WANTED, A PERMANENT ASSISTANT, near London. Salary £350, plus living accommodation. Experienced, must be hard-working. State full particulars.—Address, No. 8167, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANT, MALE, UNmarried. Salary £300, all found. Car allowance. Commence immediately.—Address, stating particulars, No. 8171, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANT TO WORK UP Branch Practice. Good scope and prospects. Suit young, keen, and ambitious man.—Address, No. 8165, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, KEEN EXPERIenced ASSISTANT, good personality. Excellent prospects. Finest suburb, Newcastle-on-Tyne. Address, No. 8159, B.M.A. House, Tavistock Sq., W.C.1.

WANTED IMMEDIATELY.—INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view, good salaries. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

WANTED. — INDOOR, MALE ASSISTANT, English or Scots. Light work. Cyclist. Suit recently qualified man. Usual bond. £250 p.a.—Apply, "M.D.," c/o Messrs. Ferris & Co., Union Street, Bristol.

WANTED.—LADY ASSISTANT (RECENTLY qualified) for a general practice in South Midlands.—Address, stating essential particulars (usual bond), No. 8170, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP, WITH OR WITHOUT view, wanted by Indian B.Sc., M.B., L.M., D.G.O. Experienced in maternity, panel, and G.P. Age 29, single, T.T., keen worker, driver. Best references. Free now.—Addr.ss, No. 8166, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP, WITH VIEW, WANTED by M.B., Ch.B., Scot, age 30, keen, capable, good experience G.P., panel, midwifery. Married. Free January. — Address, No. 8175, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIPS.

WANTED. — PARTNERSHIP, TUNBRIDGE Wells, Bognor Regis, Sevenoaks, or old town, with good social amenities, Home Counties, by married man, active, eleven years' experience in good-class general practice. Good house (seven bed., three reception, garage, etc., to rent). Share to produce £1,000—£1,200.—No. 8155, B.M.A. House, Tavistock Sq., W.C.1.

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WANTED BY EXPERIENCED PRACTItioner, previous Hospital surgical experience and G.P., good-class PARTNERSHIP or mixed PRACTICE, worth over £1,500 with surgical scope. Preferably Midlands. Capital available.—Address, No. 8160, B.M.A. House, Tavistock Square, W.C.1.

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WANTED, PARTNERSHIP OR PRACTICE, by Women Doctor, experienced general and maternity, hospitals, and general practice. Free now.—Address, No. 8176, B.M.A. House, Tavistock Square, W.C.1.

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MEDICAL WOMAN, M.D.(LONDON) SEEKS PARTNERSHIP or PRACTICE. Home Counties preferred. Ten years' experience.—Address, No. 7872, B.M.A. House, Tavistock Square, W.C.1.

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WANTED BY SURGEON, TEN YEARS' experience venereal disease work, LOCUM or ASSISTANTSHIP in similar type of practice view. possible purchase. Write in confidence —Address, No. 8178, B.M.A. House, Tavistock Square, W.C.1.

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A LADY DISPENSER - BOOKKEEPER supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations. — Write, wire, or 'phone (Bayswater 0969), Secretary, 7, Westbourne Park Road, W.2.

BIOCHEMIST REQUIRED FOR RESEARCH work, particularly affecting colloidal chemistry and immunology. — Address, No. 8179, B.M.A. House, Tavistock Square, W.C.1.

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DOCTOR RECOMMENDS DISPENSER-BOOKkeeper, ex service man, careful, reliable, abstainer, elderly. Convenient for London E'st, or place Eastwards from London. Free, who'e or part-time. — Address, No. 8161, B.M.A. House, Tavistock Square, W.C.1.

DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeuse-Dispensers, are invited to write, wire, or 'phone Temple Bar 5858, THE DISPENSERS' BUREAU, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

GENTLEWOMAN, YOUNG, DOCTOR'S daughter, desires post, SECRETARY-RECEPTIONIST. Fully trained secretarial duties. Excellent testimonials. — Miss M. V. CALDER, 68, Warwick Road, S.W.5.

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MEDICAL WOMAN, M.D., B.CH., B.SC., with experience in general medicine and special experience in pathology, biochemistry, and diseases of children, desires PART-TIME WORK in London.—Address, No. 8152, B.M.A. House, Tavistock Square, W.C.1.

REQUIRED FOR GROUP CLINIC IN COURSE of formation; OPHTHALMOLOGIST, RADIOLOGIST, and DENTAL SURGEON. Participants, who must be on staff of hospital, should apply for full details. — Address, No. 8053, B.M.A. House, Tavistock Square, W.C.1.

THE GRIMSBY FISHING VESSEL OWNERS EXCHANGE COMPANY LIMITED invite applications for the post of MEDICAL OFFICER to their Company.

The post will be a whole time one and the selected candidate will have to take up and make local practice. Salary £600 per annum rising by annual increments of £50 to £800. Preference will be given to candidates with City Hospital experience and special knowledge of septic conditions following slight injury. Surgical qualifications and experience are essential. Applicants must state when they can commence duties. Particulars of which will be supplied on application to the undersigned.

Applications stating age which must not exceed 35 years, qualifications, present position and duties, particulars of past service and references and all other relevant information accompanied by not less than three recent testimonials must be sent to the Exchange Company and endorsed "Medical Officer" addressed to the Chairman, Medical Committee not later than Monday, December 18th.

Canvassing either directly or indirectly will be a disqualification.

Auckland Rhodes, W. H. HOUGHTON, Fish Docks, Secretary.
Grimsby, November 10th, 1933.

SURGEON REQUIRED FOR THE EAST—Fellowship essential with five years' operative experience. Age under 35. Preferably single. Appointment for three years on £1,200 (£1,500 after £1,400 per annum. Free furnished quarters and first-class passages both ways. Private practice. Address, stating age, experience and former appointments, LLOYD, 6157, B.M.A. House, Tavistock Square, W.C.1.

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WANTED BY F.R.C.S.E., GOOD CLASS general PRACTICE or PARTNERSHIP with succession. Income £1,000—£2,000. In Golders Green, Hampstead, St. John's Wood or Kensington districts.—Address, No. 8177, B.M.A. House, Tavistock Square, W.C.1.

WANTED—COUNTRY OR COUNTRY TOWN PRACTICE doing about £1,000 p.a. with good house preferably to rent but not essential.—THE WESTERN MEDICAL AGENCY, 22 Clare Street, Bristol 1.

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FOR SALE—IN GOOD PROVINCIAL TOWN near Belfast in Northern Ireland well-established PRACTICE. Panel approx. 950 (increasing). Receipts £900—£1,000 p.a.—Full particulars from BRITISH MEDICAL BUREAU, 72 High Street, Belfast. Quote No. 27.

FOR SALE.—WELL ESTABLISHED PRACTICE at present owned by a woman easy reach of West End. Cash and panel about £400. Premium £600. Suit man or woman equally.—Address, No. 8151, B.M.A. House, Tavistock Square, W.C.1.

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MANCHESTER.—OLD ESTABLISHED PRACTICE for sale, owner retiring. Good house. £—. Receipts over £700. Panel 600, excellent scope. Price £800 cash.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6 Brown Street.

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Please write clearly and print your name and address in block letters. State if a box number is required, there is no extra charge for this or for forwarding replies by post.

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In all cases, and particularly when seeking Assistants, it is an advantage to indicate the locality.

Advertisements intended for insertion under the Locums heading should be drafted in such a way as to make it clear whether a post is *offered* or *required*.

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BRITISH MEDICAL JOURNAL,
B.M.A. HOUSE,
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Telephone Euston 2111

NORTH WALES — UNOPPOSED PRACTICE for Sale, suit a bachelor. Receipts about £1,100. Panel 890. Poor Law and Vaccination appointments. Club. Well essential. House to rent £40 p.a.—CHEMICALS, 40 Hamilton St., Hoole, Chester.

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SMALL UNOPPOSED OPHTHALMIC PRACTICE in Graham town, S. Africa. Established 25 years. Owner retiring. Large educational centre. 1,500 ft. altitude. Within 2 hours of Port Alfred. Delightful surroundings. Excellent climate. Apply, Dr. SEALE, Grahamstown, S. Africa.

TO PURCHASERS — DO NOT BUY without expert assistance. With 50 yrs.' experience Mr. PERCIVAL TURNER can advise in all cases. Terms free on application to 4 Adam St., Strand, W.C.2. Telephone: Temple Bar 9011. Telegrams: "Epsomian, London."

YORKS — PRACTICE AND MATERNITY HOME. Excellent house, garden, garage, rent £70. Receipts January to June £450, panel 250, much scope for increase. Price *immediate sale £1,200*.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

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Estate Agents, Auctioneers and Surveyors,

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Telephone 3204 MAYFAIR.

BEVERLEY, EAST YORKS.—FOR SALE—Excellent HOUSE and PREMISES standing on about 1 acre of land, known as Albion House, 3 reception rooms, 7 bedrooms, bath room, w.c., etc., outside stabling, garage, viners, etc. Extensive frontage. Well stocked Orchard etc. Suitable for Institutional purposes or Doctor's residence, formerly known as an Inebriates' Home.—*For further particulars* apply to PAYNE & PAYNE, Solicitors, Hull.

CONSULTING ROOMS TO LET — HARLEY Street and Mayfair districts. Particulars sent on application. Those having consulting rooms to let should send particulars to ELGOOD & CO., 10, Henrietta Street, Cavendish Square, W.1. Langham 2601.

CONSULTING ROOM, EQUIPPED SERVICE. Full time £1 per week, 10/- half time. Marble Arch.—Padd. 1717 or Address No. 8180, B.M.A. House, Tavistock Square, W.C.1.

CROUCH HILL.—CORNER FREEHOLD RESIDENCE for Sale, 5 good beds., 2 splendid recep. rooms, central heating, side entrance, conservatory, garage. Good locality. Suitable for professional purpose.—Apply HENRY JACKSON, 30, Barbican, E.C. National 3728.

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CLOTHES OF DISTINCTION for MEN of DISCRIMINATING TASTE. Specially Cut, Fitted, and Moulded to each individual figure, made from Finest Quality Materials and in the Best Possible Style, cost no more than mass production ready-made clothes.

The Invaluable Practical Experience of our 14 Expert Cutters and Fitters is always at your disposal.

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JACKET & VEST (in black or grey), £4 4s
SOLID FANCY WORSTED TROUSERS, £2 2s
THE Ideal Suit for Professional or Business wear
OVERCOATS to measure from £5 5s
LOUNGE SUITS ,, ,, £6 6s
DINNER SUITS fr. £8 8s, DRESS SUITS fr. £10 10s
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THE IDEAL Suit for ALL Sporting Purposes.
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Full particulars upon request.

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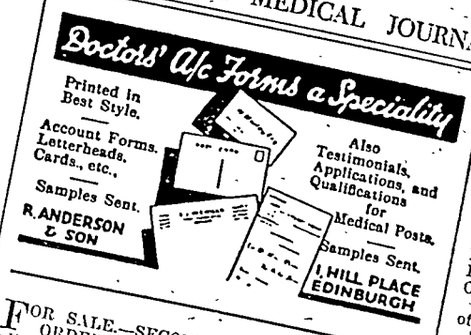
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Write for free copy of "Advice on Income Tax."

"ALPINE" MODEL HANOVIA QUARTZ SUNRAY LAMP (A.C. main), combined with two Solex Radiant Lamps and extra new Quartz burner and clock; perfect condition. Cost over £75; accept £20. Bargain.—"Doctor," 9, Blechynden Terrace, Southampton.

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FOR SALE.—SECOND-HAND; ALL IN GOOD ORDER.—1. MULTOSTAT, with several appliances, £22. 2. RADIANT HEAT LAMP and attachments, 1,000 candle power, £12. 3. Hearson's INCUBATOR (electric), 16 in. by 18 in., on stand, £6.—Address, No. 8164, B.M.A. House, Tavistock Square, W.C.1.

1000 DOCTORS' A/C FORMS, 15/- CARR. PAID. Printed in the modern easily-read lettering on splendid paper. Write for sample. Letterheads, Cards, Envelopes, etc.—ANDERSON & SON, Printers, 1, Hill Place (near Surgeons' Hall), Edinburgh.

APPOINTMENTS.—Contd.

ROYAL LONDON OPHTHALMIC HOSPITAL (Moorfields Eye Hospital), City Road, E.C.1.

OUT-PATIENT OFFICER.

Applications are invited for the post of Out-Patient Officer to attend on Mondays and Thursdays each week.

Candidates must be registered Medical Practitioners. Salary at the rate of £100 per annum. The Out-Patient Officer will be appointed for a period of one year, and will be eligible for re-appointment.

Copies of regulations governing the appointment can be obtained on application.

Applications, with testimonials, stating age and qualifications, must be received not later than December 11th, by—

A. J. M. TARRANT, Secretary.

DOLGELLEY RURAL DISTRICT COUNCIL.

Applications are invited for the part-time appointment of MEDICAL OFFICER OF HEALTH for the above district.

Salary and travelling allowance as follows:

Salary £90
Travelling allowance ... 10

£100 per annum.

The person appointed to discharge the duties of Medical Officer as defined in the Public Health Acts, the Sanitary Officers Order, 1926, and the Regulations of the Ministry of Health, and to undertake any other reasonable duties assigned by the Council from time to time.

The appointment will be subject to the approval of the Minister of Health, and will be for the period from January 1st, 1934 to March 31st, 1934, and possibly, thereafter, from year to year.

Applicants must possess the necessary qualifications specified in the Public Health Acts, and the various Orders relating to the appointment of Medical Officer of Health.

Applicants must also possess a thorough knowledge of Welsh, and be able to converse in that language.

Applications, sealed and endorsed "Medical Officer of Health," giving particulars of age, experience, and qualifications, accompanied by copies of two recent testimonials, must reach the undersigned, not later than Wednesday, December 13th.

D. PUGH JONES,
Clerk to the Council.

Rural Council Offices,
Dolgelley.
November 22nd, 1933.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.

PUBLIC HEALTH LABORATORY.

Applications are invited for the post of WHOLE-TIME ASSISTANT. Applicants must be registered Medical Practitioners with some experience of practical bacteriology, preference given to holders of D.P.H.

Commencing salary £350 per annum.

Applications, with copies of three recent testimonials, should be submitted not later than December 20th to the Registrar, College of Medicine, Newcastle-upon-Tyne.

EXTENDED PERIOD FOR APPLICATIONS.

THE SOUTHALL - NORWOOD URBAN DISTRICT COUNCIL.

MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified Medical Practitioners who possess a recognised diploma in Public Health for the above Urban District, subject to the provisions of the Public Health (Officers) Act, 1926, and the Sanitary Officer's Order, 1926.

Candidates must not be more than 55 years of age.

The person appointed will be required to perform all the duties imposed on a Medical Officer of Health under relevant Acts and Orders, to act as Medical Officer to the Council's Isolation Hospital, and Medical Officer to the Maternity and Child Welfare Centre, and will also be required to carry out all such duties as the Council may, with the consent (if necessary) of the Ministry of Health, from time to time direct.

The person appointed must reside within the Urban District, must not engage in private practice, and must devote whole-time to the duties of the office.

The appointment will be subject to the approval of the Ministry of Health and to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

The commencing salary will be £800 p.a.

Further particulars and application form will be sent on receipt of a stamped addressed foolscap envelope, and the form must reach me by 12 o'clock noon on December 11th.

Canvassing, either directly or indirectly, in any manner whatsoever, will be a disqualification.

Council Offices, Southall. HERBERT E. BURWELL, Clerk to the Council.
November 28th, 1933.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners for appointment at each of the undermentioned hospitals:—Appointments in each case for six months in the first instance.

Duties assigned by medical superintendents and include if necessary assistance at other establishments under Council's control. Remuneration and conditions subject to review. No accommodation for a married man.

1. FULHAM HOSPITAL, St. Dunstan's Road, Hammersmith, W.6.—CLINICAL ASSISTANT. Salary £100 a year, with meals on duty.
2. ST. OLAVE'S HOSPITAL, Lower Road, Rotherhithe, S.E.16.—HOUSE PHYSICIAN. Salary £80 a year, with board, lodging, and washing.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 3), County Hall, S.E.1, returnable by December 15th. Canvassing disqualifies. Further enquiries should be addressed to Medical Superintendents at respective hospitals.

LONDON COUNTY COUNCIL.

RESIDENT MEDICAL SUPERINTENDENT required ST. PETER'S HOSPITAL (444 Beds), Whitechapel. Person appointed will be under direction of Medical Officer of Health, and must assist at other Council establishments if required. Salary £1,000—£50—£1,250. Unfurnished quarters valued £100 a year. Candidates other than members of Council's Staff must be not over 45 years of age, and must be fully qualified medical practitioners for at least 5 years, and have been house physician or house surgeon in public general hospital, and have experience of hospital administration. Remuneration and conditions subject to review.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Clerk of the Council, County Hall, S.E.1, returnable by Monday, December 11th. Canvassing disqualifies.

WARNEFORD GENERAL HOSPITAL LEAMINGTON SPA.

The Committee invite applications for the post of HONORARY RADIOLOGIST, with charge of the Electro-therapeutic Department.

Candidates must be fully qualified in Medicine and Surgery and hold the D.M.R.E.

Election will be for eight years as from February 1st, 1934, the applicant appointed will be eligible for re-election.

Applications, together with testimonials, certificate of registration, and of age, should be sent to the House Governor & Secretary on or before Wednesday, December 13th.

A copy of the rules and regulations will be forwarded on application to the undersigned.

EDWARD L. WIRGMAN,
Nov. 24th, 1933. House Gov. & Secretary.

NOTICE OF ELECTION

MIDWIVES (IRELAND) ACT, 1918

1 Notice is hereby given pursuant to the Midwives (Ireland) Act 1918 as amended and adapted by the Central Midwives Board Order 1923 and the Regulations under the said Act that the Returning Officer will at the Offices of the Board 35 St Stephens Green Dublin on Friday 15th Day of December now next ensuing between the hours of 11 a m and 1 p m proceed to the nomination and if there is no objection to the election of FOUR MEMBERS of the Central Midwives Board

Every registered medical practitioner is qualified to nominate a candidate

Each candidate must be nominated by a separate nomination paper

Every registered medical practitioner resident in Saorstat Eireann is entitled to take part in nominating four candidates but no more

Every nomination paper must state the names address and qualification or qualifications of the candidate nominated and must be signed by not less than six registered medical practitioners resident in Saorstat Eireann as nominating such candidate and the address and registered qualification or qualifications of each medical practitioner so signing must be appended to his signature

Every nomination paper must contain a declaration in writing signed by the person nominated acknowledging that such person consents to be nominated

2 Forms of nomination paper may be obtained at the Central Midwives Board Office 35 St Stephens Green Dublin between the hours of 11 a m and 1 p m on any day (not being a Sunday or public holiday) before the said 15th day of December 1933

Any application for a nomination paper to be sent by post must be accompanied by a prepaid addressed envelope

Every nomination paper must be delivered to the Returning Officer by post or otherwise either at the place above appointed for the purpose between the hours of 11 a m and 1 p m on the 15th day of December or at any place at which the Returning Officer may be and at any time on any day before the said 15th day of December 1933

In the event of the election being contested voting papers will be issued to the persons entitled to vote thereat as soon as practicable after the said 15th day of December and the day for the counting of the votes will be the 17th day of January 1934

Votes cast by voting papers received by the Returning Officer on or after the said 17th day of January will not be counted

(Signed) EDWARD COEY BIGGER
Returning Officer

COUNTY BOROUGH OF DARLINGTON

ASSISTANT MEDICAL OFFICER OF HEALTH PUBLIC ASSISTANCE AND TUBERCULOSIS MEDICAL OFFICER

Applications from qualified Medical Practitioners are invited for the combined appointment of Public Assistance Medical Officer under the terms of the Public Assistance Order 1930 and Assistant Medical Officer for Tuberculosis and other services The duties will not include any domiciliary visiting for Public Assistance Committee

Applicants must not exceed 40 years of age and have had at least three years post graduate experience in general medicine and surgery and in Public Health work

The person appointed will be required to give full time service under the *Authority to act* generally under the direction of the Public Assistance Officer and the Medical Officer of Health to carry out such duties as may *from time to time* be assigned to him to pass a medical examination to contribute to the Superannuation Fund under the appropriate Superannuation Act and to reside in a house provided by the Authority The *appointment* will be terminable by three *months notice*

The combined salary is £500 per annum rising to £700 by annual increments of £25 A rental of £40 per *annum* will be required for house provided All fees or emoluments received will be required to be paid over to the Local Authority

Application forms and particulars as to duties may be obtained from the Medical Officer of Health Feetham s Darlington to whom applications endorsed 'Assistant Medical Officer of Health' together with copies of *three* recent testimonials must be delivered not later than 5 p m *on Tuesday*, December 12th

H HOPKINS
November, 1933 Town Clerk

ESSEX COUNTY HOSPITAL
COLCHESTER (160 Beds)

Wanted in January ASSISTANT HOUSE SURGEON (male) Salary £120 per annum with board, washing, and residence Medical and Surgical qualifications required

Applications with three recent testimonials, to be sent by Tuesday, December 12th to—

ALFRED G BUCH, Secretary

ROYAL NORTHERN HOSPITAL
Holloway N 7

Applications are invited for the post of HOUSE SURGEON vacant on January 15th, 1934 The appointment is for nine months (six months as House Surgeon and three months as Casualty Officer) Salary at the rate of £70 *per annum with board, residence and laundry* Applications with copies of testimonials should be sent by December 11th to the undersigned from whom forms of application and rules can be obtained

CHILBERT C PANTER Secretary

ST MARK'S HOSPITAL FOR CANCER, FISTULA AND OTHER DISEASES OF THE RECTUM City Road E C 1

Application are invited for the positions of CLINICAL ASSISTANTS in the Out Patients Department from January 1st 1934 for the sessions on Tuesdays Thursdays and Fridays at 5 p m and Saturdays at 1 30 p m The appointments are for six months in the first instance A fee of three guineas is payable on appointment Applications to reach the Secretary of the Hospital (from whom further particulars may be obtained) by Dec 11th next

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THE GENERAL INFIRMARY AT LEEDS
(628 Bed)

RADIO SURGICAL HOUSE SURGEON (Male or Female)

Applications are invited for the above post Salary *£100 per annum with board residence and* laundry The appointment is for six months subject to renewal Candidates must be fully qualified and registered Applications with copies of testimonial to be sent in at once to the undersigned

S CLAYTON FRYERS
House Governor & Secretary

NATIONAL TEMPERANCE HOSPITAL
Hampstead Road N W 1

Applications are invited for the post of HOUSE SURGEON (male) The appointment will be for a period of six months at a salary of £100 per annum and will date as from December 21st Preference will be given to those who have held a resident post Candidates must submit applications stating qualifications age etc with copies of not more than three testimonials by Friday, December 8th addressed to the Secretary

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NATIONAL TEMPERANCE HOSPITAL
Hampstead Road N W 1

Applications are invited for the post of HOUSE PHYSICIAN (male) The appointment will be for a period of six months at a salary of £100 per annum and will date as from December 21st Preference will be given to those who have held a resident post Candidates must submit applications stating qualification age etc with copies of not more than three testimonials by Friday, December 8th addressed to the Secretary

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NATIONAL TEMPERANCE HOSPITAL
Hampstead Road N W 1

Applications are invited for the post of CASUALTY OFFICER (male) The appointment will be for a period of six months at a salary of £120 per annum and will date as from December 21st Preference will be given to those who have held a resident post Candidates must submit applications stating qualifications age etc, with copies of not more than three testimonials by Friday, December 8th addressed *to the Secretary*

MANCHESTER EAR HOSPITAL
Grosvenor Square *All Saints*

The Board invite applications for the post of RESIDENT HOUSE SURGEON Salary £120 per annum (24 beds) Candidates must be *duly qualified and registered* Applications with copies of four recent testimonials to be forwarded to Mr REGINALD S MILFORD (Hon Sec Manchester Ear *Hospital) c/o* Mr W J FLLAM 33, Brazennose Street Manchester, 2

ROYAL BERKSHIRE HOSPITAL READING

A vacancy for a HOUSE SURGEON will occur *on* January 9th 1934 The candidates must be fully qualified and registered Remuneration at the rate of £150 per annum with board residence and laundry

Applications with copies of testimonials to be sent to the undersigned on or before Monday, December 11th

F A LYON, Secretary

ROYAL EASTERN COUNTIES INSTITUTION FOR DEFECTIVES

MEDICAL SUPERINTENDENT required for the Branch at BRIDGE HOME Witham Essex (370 male beds) Age not over 40 Must have had not less than two years residential experience *in a mental deficiency institution* a mental hospital or a public assistance institution General experience will be an additional *qualification*

Commencing salary £950 a year Rooms (sitting room bathroom and 2 or 3 bedrooms), with board attendance and laundry will be provided temporarily till a Superintendents house is built Wife or children s board etc, will be charged at a rate to be agreed on depending on age but at not more than £1 per week each

Apply before December 14th giving age qualifications experience *married or single*, and copies of testimonials to Medical Superintendent Royal Institution Colchester

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SOUTH EASTERN HOSPITAL FOR CHILDREN, Sydenham S E 26

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER (Lady) The appointment will be for six month from December 27th Honorarium £120 per annum, with board *residence, and* laundry Applications by letter only, stating age and qualifications with copies of three testimonials should be sent to the Hon Secretary Mr F E DENT, 182 Turner Road Dulwich Village S E 21 to be received not later than Saturday December 16th

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CHESTER ROYAL INFIRMARY
(211 Beds)

HOUSE SURGEON (male) required for December 18th Salary *£150 per annum with board* lodging and washing Application list closes December 7th Application form may be obtained from W H GRACE M D M R C P, Hon *Superintendent of Resident Medical Staff*

THE SCHIFF HOME OF RECOVERY, COBHAM SURREY
(64 Surgical Beds)

Vacancy January 4th 1934 RESIDENT SURGICAL OFFICER male Three months appointment Salary rate £200 per year all found Particularly suitable for reader Applicants must be unmarried and have been Resident Surgical Officer or House Surgeon in *General Hospital Preference to constituent Hospital*

Full particulars with testimonials should be received by the Secretary Superintendent not later than December 20th

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CONNAUGHT HOSPITAL
Walthamstow E 17
(115 Beds with Four Resident Medical Officers)

RESIDENT CASUALTY OFFICER (male) required Salary *£100* per *annum* Appointment for six months from January 1st, with board residence and laundry Applications stating age nationality qualifications and *experience* accompanied by copies of not more than three recent testimonial should be received on or before Saturday Dec mber 9th

KENELM S ELLISON Secretary

RADCLIFFE INFIRMARY AND COUNTY HOSPITAL OXFORD

Applications are invited for the post of HOUSE PHYSICIAN which will become vacant on January 1st 1934

The appointment is for six month with salary at the rate of *£120 per annum* with board etc

Candidates must be male and qualified

Application with four copies of three testimonial must be sent to the undersigned on or before Tuesday December 12 h

A G E SANCTUARY Administrator

THE BURSLEM HAYWOOD AND TUNSTALL WAR MEMORIAL HOSPITAL

Wanted JUNIOR RESIDENT MEDICAL OFFICER Salary £150 per annum *with* board and residence Must be fully qualified Experience in Ophthalmic and Ear Nose and Throat work will be an advantage Applications stating age and experience together with copies of three recent testimonials to be sent to me

C E LOWNDES
High Lane, Burslem, Stoke-on Trent Secretary

Books and Pamphlets published by the British Medical Association, on sale at the B.M.A. House, Tavistock Square, W.C.1.

368 pp. 8vo. Price 3s. post free. Stiff Covers.

Medical Insurance Practice

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Handbook for Recently Qualified Medical Practitioners

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Report of Committee on Nutrition

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Hospital Model Forms 1s. per 100 post free.

ROYAL INFIRMARY, BLACKBURN.
(240 Beds—Five Residents.)

THIRD HOUSE SURGEON (male) required, at a salary of £175 per annum, with board, residence, laundry, etc. Applications, with copies of testimonials, stating age, nationality, experience, etc., to be sent at once to the undersigned.

Royal Infirmary, Blackburn. T. DEWHURST, Gen. Supt. & Secretary.

This Institution is recognised for the Surgical practice required for the F.R.C.S. final examination.

THE HOSPITAL FOR WOMEN, Soho Square, W.1.

Applications from fully qualified men and women are invited for the post of RESIDENT MEDICAL OFFICER for a period of six months commencing January 1st, 1934. The salary is at the rate of £100 per annum, with board, residence, and laundry. Applications and testimonials must reach the undersigned by Monday, December 11th.

J. P. HEMING, Secretary.

ROYAL ISLE OF WIGHT COUNTY HOSPITAL, RYDE, I.W.

RESIDENT HOUSE SURGEON wanted for January 4th, 1934, either sex, unmarried. Single-handed appointment. Doubly qualified and registered. State age and nationality. Salary at the rate of £180 yearly, with board, residence, and laundry. Apply, enclosing copies of testimonials, to Secretary before Tuesday, December 12th. Return third-class railway fare for selected candidates.

A. S. GORDON, Secretary.

THE MOUNT VERNON HOSPITAL, NORTHWOOD, MIDDLESEX.
(For the Treatment of Cancer.)

There is a vacancy for an ASSISTANT CLINICAL PATHOLOGIST. Applicants must be fully qualified and registered. Full-time appointment, non-resident. Salary £500 per annum. Applications, with copies of three testimonials, should reach the undersigned not later than December 9th.

Offices: 32, Fitzroy Sq., W.1. W. J. MORTON, Secretary.

CENTRAL LONDON OPHTHALMIC HOSPITAL,
Judd Street, St. Pancras, W.C.1.

Applications are invited from registered medical practitioners for the post of JUNIOR HOUSE SURGEON, which will become vacant on December 27th. Salary £100 per annum, with board and residence.

Applications, with copies of three testimonials, should reach the undersigned on or before Friday, December 15th.

GEORGE WATTS, Secretary.

SOUTHEND-ON-SEA GENERAL HOSPITAL.
(256 Beds—Six Residents.)

Applications are invited from duly qualified and registered Medical Men for the post of SECOND HOUSE SURGEON, including work in Special Departments.

Duties to commence January 1st, 1934, for six months. Salary £100 per annum, board, residence, and laundry.

Applications, stating age and experience, accompanied by three recent testimonials, should be sent on or before December 19th next, to the Joint Secretaries.

Telephone: WELBECK 2728.
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TRAINED NURSES FOR MENTAL, MEDICAL, SURGICAL, AND FEVER CASES.

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WANTED BY CONJ. LONDON (BART'S) act. 34, PARTNERSHIP preferred, or PRACTICE £1,200—£1,500 p.a. with good panel, within 60 miles of London, W., N.B., or S.W. Must have 6-bedroomed house with garden. Capital to £5,000 if necessary.—No. 1813

WANTED. — PARTNERSHIP PREFERRED, better-class, with small panel, or Practice with good panel. London or Town in South, e.g., Southampton. £1,500 p.a. or less with scope. Applicant is 44, and has ample capital. —No. 2355.

WANTED BY M.D., B.S., AET. 30, PARTNERSHIP preferred or PRACTICE. Middle-class with panel. South of London. £1,000/£1,300. House to rent, schools, and sport. Capital to £3,000.—No. 2562.

EAST COAST WATERING PLACE. — OLD-established dispensing non-panel PRACTICE averaging £2,000 p.a. Fees 3/6 to 10/6. Midwifery £2 2s. up. Premium 1½ years' purchase. Good house and garden, 6 bedrooms, etc. For sale at £2,750, substantial mortgage. Scope for surgery, also panel if desired.—No. 9329.

DOCTOR'S MODERN HOUSE FOR SALE.—East Coast.—Growing place in delightful country. No opposition near. Scope for active man. House has elec. light, cent. heating, etc., good garden and garage. No premium asked for nucleus of practice. Suit retiring practitioner.

NUCLEUS OF £200 P.A. IN WEST LONDON, with panel of 60 and immense scope. Lock-up premises at 27/- per week. First floor could be acquired if needed.—No. 9237.

LONDON, W.C. — OLD-ESTABLISHED PRACTICE. Over £700 p.a., increasing, with growing panel now 300. Practice mostly better-class type (visits 5/- to 21/-, surgery 2/6 to 10/6), but ample scope for working and panel class in new colony of flats. Small flat to rent.—No. 9236.

S. WALES TOWN.—£1,050 P.A., INCLUDING panel of 1,468 and some contract and club work. House, with 2 recep., 5 bed., bath, etc., 2 surgeries, etc. Small garden and 2 garages. Freehold and goodwill £1,750, but might rent. —No. 9184.

WITHIN 20 MILES OF LONDON, NORTH. Share in mixed and panel Practice, guaranteed at £600, with option to increase. Fees 5/- to 21/-. Small house to rent in rapidly growing district.—No. 9233.

POPULAR LANCS RESORT. — HALF SHARE in Practice of £2,550. Panel worth £400. Fees 5/- to 10/6. Midwifery 3½ to 7 guineas. Good house, 2 recep., 4 bedrooms, etc., and sep. professional accom. On rental. Half share 2 years' purchase, 2/3 down.—No. 9230.

NORTH WALES. — OVER £600 P.A. ON Coast. Old-estab. mixed PRACTICE. Panel about 200. Appointment worth now £33. Visits 5/- to 10/6 or more. Large house, with 3 recep., 6 bedrooms, etc. Rent only £65. Premium required for goodwill only £800 cash. —No. 9227.

EASTERN COUNTY.—AVERAGE £1,190 P.A., with small panel. Very old-established Town PRACTICE. Fees 7/6 and 5/-. Mids. £4 4s. House, with 3 recep., 4 bedrooms, and dressing. Sep. Surgery, etc., and garden. For sale. Prem. £2,200 payable as agreed.—No. 9226.

LONDON, N. — WELL-ESTABLISHED INcreasing PRACTICE. Receipts last year £1,250. Panel 670. No midwifery, but ample scope. Car not necessary. Visits 3/6 to 7/6. Surgery 2/6—3/6. Premises in main road comprise cons. and wait. rooms, and 7 living rooms. Rent on lease at £150 p.a., or sell leasehold. Premium for goodwill £2,000.—No. 9224.

SURREY TOWN.—ABOUT £600 P.A. APpointment £100. Visiting fees 5/- to 21/-. Scope at lower fees. Midwifery £4 4s. up. Some panel. Corner house, with 3 recep., 4 bedrooms, 1/4 acre of garden and good garage to rent. Premium £1,200.—No. 9223.

SPA PRACTICE.—ENGLAND.—AVERAGE NOW £380. Normally about £1,000 decrease through ill health, etc. Fees £1 1s. and £2 2s. Corner house in good position, 2 recep., cons., 5 bedrooms, etc. Small garden. Rent £100. Premium £500.—No. 9222.

ASSISTANTS REQUIRED. — HONG-KONG. $800 per month. Young man, 26/28, able to undertake Eye work. WARWICKSHIRE. £450 and house. YORKS. £360, indoor, with view to Partnership. Urgent.

LOCUM required for Ophthalmic Practice in West End for two months or possibly longer.

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LONDON, S.W.—Old established [illegible] PRACTICE [illegible] residential locality. Excellent [illegible] with good personality. Detached [illegible] Receipts approx. £1,000 p.a. Panel 2,600. Premises for Practice and freehold house £2,000.

LANCS.—Old established [illegible] PRACTICE well-equipped house to rent or may be purchased. Receipts nearly £1,000 p.a. Panel approximately 800. Premium 1½ years purchase.

NORTH WALES.—Old established Colliery PRACTICE. Modern house to rent at £60 p.a. Receipts approximately £1,000 p.a. Panel [illegible] Appointments of £100 p.a. Premium [illegible] offer.

MIDDLESEX, N.W.—Middle class G.P. [illegible] rapidly growing residential locality. Charming [illegible] detached or freehold house. Panel [illegible] fruit trees etc. Average receipts £640 p.a. [illegible] Investment all round scope. Premium £980.

NR. MANCHESTER.—Middle class MEDICAL [illegible] Well appointed house on main road to be rented [illegible] Receipts average £450 p.a. Panel [illegible] Scope for surgery. Premium 1½ years purchase.

HAMPSHIRE (COAST).—Good-class PRACTICE [illegible] to be retired. Present owner. Receipts average [illegible] Panel 542. Excellent detached house with large garden [illegible] rental or house to be purchased. Premium [illegible] £1,000.

YORKSHIRE—PARTNERSHIP in better class suburban Practice. Suitable house available. Receipts £3,890 p.a. Panel over 3,000, rapidly increasing. Good appointments. A 2/8 share for disposal at 2 years' purchase. Suitable only for Bachelor.

ESSEX (Country Town).—Very old established good class G.P. Excellent house to be rented at £100 p.a., or freehold may be bought. Receipts approximately £1,620 p.a. Panel 1,051. Three appointments. Suitable only for Surgeon. Premium £3,236 8s.

SOUTH WEST COAST.—Old established good class residential PRACTICE. Excellent detached house in own grounds to be rented on lease. Receipts approximately £2,800. Fees 5/- to 1 guinea. Scope for surgery. Premium 1 years purchase.

LONDON.—Old established mixed middle and working class G.P. House to be rented on lease. Average receipts nearly £1,000 p.a. Panel 1,180 (increasing). Fees 2/6 up. Two appointments. Premium to include certain furniture, etc. 2 years purchase.

LANCS. (Seaport Town).—Mixed middle and working class PRACTICE. Good house to rent on lease. Receipts approximately £1,000. Panel 500. Appointments. Premium 1½ years purchase.

SOUTH COAST.—Well established select G.P. Excellent freehold house (3 reception rooms, 4 bedrooms, garage, etc.). Receipts approx. £800 p.a. Premium 2 years' purhase. For freehold house £1,750 (a suitable mortgage could be arranged).

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1 BIRMINGHAM (or within 50 miles thereof).—Mixed PRACTICE with a panel of 1,000 upwards and receipts of £1,500—£3,000. Very urgently required. Capital available.

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3 SOUTH COAST.—Middle and lower class PRACTICE. Receipts for last four years average £632. Panel 542. Nice house, 5 beds, etc.

4 SOUTH WALES.—Well-established mixed PRACTICE. Receipts about £725. Suitable house, with garden and garage.

FINANCIAL ASSISTANCE afforded to approved applicants for the purchase of Practices or Partnerships on very reasonable terms. Full particulars on application.

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2 Number of small PRACTICES at very low premiums. Scope in every case. Good chance for anyone with small capital. London, coast, and country.

3 HANTS.—*Seaside Town.*—Well-established mixed class PRACTICE. Receipts average £622 p.a., panel about 550. Nice house, excellent garden. £150 p.a. Premium £1,000.

4 YORKS.—Large Town.—PARTNER required for large mixed-class PRACTICE. Receipts nearly £4,000 p.a. including 3,000 panel. Quarter share at moderate premium.

5 LANCS.—SEAPORT TOWN.—Old-established PRACTICE. Receipts now about £900 p.a., have been much more. Present panel 800. House rent £1 2s. weekly. Premium 1½ years purchase.

6 YORKS.—Fashionable Town.—Old established PRACTICE, held 25 years, greatly neglected of late. Receipts now £400 a year, have been much more. Nice house, rent £100. Premium £500 or near.

7. Near CAMDEN TOWN, N.W.—Well established PRACTICE, steadily increasing. Receipts cash £200 p.a. and 240 panel in addition. Premium £250 to include drugs and furniture. Surgery, rent £1 2s. 6d. weekly.

8 SOUTH WALES.—Well-established PRACTICE. Vendor retiring. Receipts nearly £300, panel small. Nice house, rent £70. Vendor's own property. Premium £250.

9 WANTED.—PRACTICES OR PARTNERSHIPS. Incomes £600 to £1,000 per annum, early sale almost assured. We have a large number of applicants wishing to get settled for the winter, any part or district.

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Dub[illegible] Douglas.

[illegible] Glasgow

Tact[illegible] Dublin

British Medical Bureau

(THE SCHOLASTIC, CLERICAL & MEDICAL ASSOCIATION LTD.)
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The **Manchester Medical Agency**, lately under the control and Management of the Manchester Medical Committee, has now been taken over by the **British Medical Bureau** as their **Northern Branch.**

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Practices and Partnerships for Disposal. Full particulars sent free.

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2 WITHIN 10 MILES OF LONDON.—PRACTICE DOING £550—£600 p.a. in Industrial Town. Panel 444. Nice house (2 bedrooms, etc.) with garage to rent. Scope for increase. Premium £650 cash.

3 S.W. OF ENGLAND.—WELL-ESTABLISHED PRACTICE IN Market Town. Receipts average £1,400 p.a., including good panel. Very good house (7 bedrooms) with good garden for sale. Premium two years' purchase.

4 SOUTHAMPTON.—NUCLEUS OF PRACTICE (HELD BY MEDICAL Woman) in rapidly growing area. Receipts 1932, £170; those for 1933 show considerable increase. Six-roomed house, with garden and garage, in good position on main road. Ample scope for increase. Premium—House and Nucleus—£1,000.

5 MIDLANDS.—PARTNERSHIP IN WELL-ESTABLISHED PRACtice of about £1,400 p.a. in a rapidly growing residential District. Panel over 1,600. Excellent chance for young energetic man. Premium one-third share, £800.

6 N. OF ENGLAND. — OLD-ESTABLISHED NON-DISPENSING PRACTICE, averaging £920 p.a., in important City. No panel. House (6 bedrooms, etc.) in best residential part with garage and walled-in garden to rent. Considerable scope for young energetic man. Premium £1,250.

7 S. MIDLANDS.—VERY OLD-ESTABLISHED COUNTRY PRACTICE, about £630 p.a., in beautiful part—about 25 miles from London. Panel 419. Excellent house (7 bedrooms) with central heating, electric light, main water, and new drainage. Garages and garden of over an acre, also orchard, and 13 acres of land to rent on lease. The property is admirably adapted for the reception of Resident Patients. Scope for increase. Premium one and a half years' purchase.

8 S. MIDLANDS. — PARTNERSHIP IN OLD-ESTABLISHED Practice of about £3,300 p.a. in growing Country Town. Panel 1,986. Visits 5/- (cash), 6/6, 7/6, 10/6. Not much midwifery. Choice of houses. Considerable scope for increase as building is going on at a great rate. Premium one-half share two years' purchase, cash.

9 WITHIN 15 MILES OF LONDON.—PARTNERSHIP IN SOUND old-established Practice in important and growing Town. Cash receipts average £5,257 p.a., including appointment and clubs, and panel 3,800. Visiting fees 4/- to 10/6 (few 3/-). Small detached house (2 large bedrooms), etc., for sale or rent. Premium one-fourth share, two years' purchase. Good Hospital.

10 SHROPSHIRE.—WELL-ESTABLISHED PRACTICE AVERAGing £700 p.a., in pleasant Market Town. Panel 170. House to rent. Scope for increase. Premium one and a half years' purchase.

11 NORTHAMPTONSHIRE. — PARTNERSHIP IN OLD-ESTABlished Practice, averaging £1,718 p.a., in small town. Panel 1,930. Good scope for young energetic man. Premium for two-fifths share two years' purchase.

12 KENT COAST.—NUCLEUS OF PRACTICE (HELD BY MEDICAL Woman), in small pleasant Town. Panel and Public Medical Service recently started. Visits 5/- to 10/6, medicine extra. No midwifery. Well-situated house (5 bedrooms), central heating, electric light, good garden, and garage, to rent. Scope for increase as building is going on. Good local Hospital. Reasonable offer entertained.

13 MIDLANDS. — VERY OLD-ESTABLISHED AND EASILY worked Country PRACTICE about 8 miles from the County Town. Cash receipts average between £650 and £700 p.a., including panel about 600. Suitable house, with 4 bedrooms, electric light, garage, and garden for sale or rent. Scope for young energetic man. Premium one year's purchase.

14 LONDON, E.—OLD-ESTABLISHED PRACTICE OF £250 P.A. in the Forest Gate district. Panel 60. No midwifery. Modern house (5 bedrooms) in good residential part. Electric light and heating and nice garden for sale or rent. Scope for increase. Premium £385.

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Practices and Partnerships for Disposal (continued).

15 N DEVON — OLD ESTABLISHED PRACTICE IN PIC turesquely situated Watering Place Receipts average £1,173 p a, including panel 474 Excellently situated house in very good state of repair both inside and out containing 8 bedrooms, etc Price of leasehold £800 The Practice is particularly suitable for one not too robust or young who needs country life Salmon river and sea fishing, hunting, etc Cottage Hospital Premium £1 850

16 PARTNERSHIP IN OPHTHALMIC PRACTICE IN FIRST RATE town Applicants should be well qualified, aged 30—40, and experienced

17 BIRMINGHAM — PARTNERSHIP IN WELL ESTABLISHED and increasing Practice in good Suburb Panel over 1 200 rapidly increasing Suitable house to rent Excellent scope and unrivalled prospects for the right man Premium for share worth about £800 p a, £1,350

18 RIVIERA —SEASON PRACTICE ABOUT £800 P A CAPABLE of large increase

19 LONDON, S W —WELL ESTABLISHED OPHTHALMIC PRACTICE averaging £900 p a in Suburban District Fee for consultation and examination £1 1s Well situated house to be sold or let Premium £1,200

20 S WALES — PRACTICE BETWEEN £250—£300 P A IN beautifully situated village about 4 miles from important town Small panel Nice house (6 bedrooms) electric light, gas and company's water Garage and garden Premium house and Practice only £1,500 for quick sale

21 W OF ENGLAND —PARTNERSHIP IN OLD ESTABLISHED Practice over £2 200 p a in County Town Panel about 1 000 Visiting fees 5 to £1 11s 6d Suitable house available Excellent educational facilities Premium one half share two years purchase Exceedingly good prospects for well qualified physician (preferably a M R C P) with opportunity of getting on staff of Hospital in near future

22 LONDON S E —LOCK UP PRACTICE OF ABOUT £350 P A in Suburban District within 5 miles of Charing Cross Panel 320 Premises consisting of Surgery and Waiting Room on ground floor, to rent on lease Premium £500 or near offer

23 N OF ENGLAND —SPA PRACTICE, AVERAGING £380 P A in famous Health Resort Fees £1 1s and £2 2s occasionally 10 6 Semi-detached corner house (5—6 bedrooms) in best part which can be rented Premium £500

24 SHROPSHIRE BORDER — WELL-ESTABLISHED PRACTICE in large Industrial Village amidst beautiful country Income about £700 p a including panel rapidly increasing Small detached modern house (4 bedrooms) with electric light gas, for sale or rent All kinds of sport Cottage Hospital Premium £800 Would suit either Medical Man or Medical Woman

25 SURREY — PARTNERSHIP IN SOUND OLD ESTABLISHED good mixed-class Practice about £2 650 p a in the Croydon area Small panel Very little midwifery Scope for increase Premium one half share 2 years purchase

26 MIDDLESEX — MIXED WORKING CLASS PRACTICE OF about £1 020 p a in rapidly growing district within 10 miles of the Marble Arch Panel about 1 120 Corner house (5 bedrooms), with garage and fair sized garden, for sale Scope for increase Premium £2 000

27 S COAST —NON DISPENSING PRACTICE AVERAGING OVER £450 p a in well known Health Resort Panel 250 Visits 3 6 to 10 House in excellent position facing sea, and containing 6 bedrooms, etc Price of freehold £2 400 Premium for Practice £400

28 LONDON, E C —OLD ESTABLISHED PRACTICE OF ABOUT £1 650 p a, including appointments panel and Public Medical Service worth over £500 p a Visits 2 6 to 7 6 Practically no midwifery Introduction up to 12 months will be given Premium £1,500

29 S E COAST —OLD ESTABLISHED PRACTICE IN SEAPORT Town Cash receipts average £1,260 p a including appointments worth £130 p a and a panel of 1 115 Corner house (4 bedrooms), with separate surgery accommodation Premium for House and Practice £2,600

30 BIRMINGHAM —WELL-ESTABLISHED GROWING PRACTICE in good Suburb Cash receipts last year £1,400 Panel nearly 1 200, rapidly increasing House on Key Site No other resident Practitioner allowed on Estate Good reason for selling Building going on in immediate vicinity (600 maisonettes being erected in near future Price of house £525, £250 deposit, rest in rent Premium for Practice £2 400

31 S WALES —SMALL PRACTICE IN A COLLIERY DISTRICT doing about £150 p a Accommodation to rent Scope for young energetic man Premium £150

32 S COAST —A WELL-ESTABLISHED PRACTICE OVER £1 000 p a in popular Resort Panel 850 Excellent scope Premium two years purchase

33 N KENSINGTON —PRACTICE OF ABOUT £300 P A PANEL 200 Corner house to rent Premium £475

34 NOTTINGHAM —SMALL PRACTICE OF ABOUT £255 P A Panel 200 Corner house (4 bedrooms) Rent £60 p a Premium £500

35 EASTERN COUNTIES —COUNTY TOWN —VERY OLD ESTABlished middle and upper class PRACTICE averaging £1,190 p a Panel 120 Visiting fees 7 6 to 15 6 Ten roomed house in good residential part with garage and garden for sale Scope Premium £2,200

36 LONDON, S W —WELL ESTABLISHED EYE EAR NOSE AND Throat Connection in Suburban District Cash receipts last twelve months £432 (mostly from Eye work) including appointment worth about £120 p a Corner detached non basement house (7 bedrooms) with garages and very nice garden Price of freehold and Practice £2 350

37 GLOUCESTERSHIRE —PARTNERSHIP IN VERY OLD ESTABlished Practice of nearly £1,750 p a in small town in beautiful part of the country Panel over 1 350 Fees average 7 6 Premium one half share 2 years purchase

38 FAMOUS INLAND WATERING PLACE AND HEALTH Resort —Well established non dispensing PRACTICE. Receipts last three years averaged £986 p a, including a select Panel of 280 Fees 5/ to £1 1s. Particularly attractive house with large garden, for sale Scope Premium £750

39 SUFFOLK AND NORFOLK BORDERS —PRACTICE OVER £300 in Market Town Panel 87 Nice house (6 bedrooms) garage, and good sized garden Price of freehold £850 Excellent schools Plenty of sport Cottage Hospital Premium £450

40 LONDON E.—CASH AND PANEL PRACTICE OF OVER £600 p a in populous district Panel 590 Small house to rent on lease Premium £800

41 LONDON, W —GOOD MIDDLE CLASS PRACTICE £400 P A in suburb within easy access of the West End Panel over 100 Attractive double fronted house with nice garden for sale Scope for increase Premium 1½ years' purchase.

42 HOME COUNTIES — OPHTHALMIC PRACTICE BETWEEN £300 and £400 p a in desirable Residential Town under 15 miles from London Good detached house (4 bedrooms) with large garden for sale Good reasons for plenty of scope for increase. Premium £300

43 LONDON E —OLD ESTABLISHED PRACTICE IN POPULOUS area Receipts average £950 p a including good panel Nice convenient house, with garden and garage to rent Scope Premium £1,900

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NORTH-EAST COAST.—Better working and middle-class PRACTICE in large town. Cash receipts last year £1,509, including £850 from panel, club, and appointment. Panel 1,200. Central Surgery, with good living accommodation. Price (freehold) £1,150. Premium—Practice—best offer. Long introduction if desired.—No. 511.

LARGE LANCS CITY.—Middle-class PRACTICE, established 50 years. Cash receipts last year £1,500. Panel 725. Scope. Excellent corner house, 2 reception, 6 bedrooms, etc., garage, and garden, to rent. Premium £2,500.—No. 508.

LONDON, S.E.—PRACTICE between £400 to £450 p.a. Panel 125. Great scope. Nice house in pleasant district, with garden and garage. Rent £90 p.a. Suit retiring doctor or young man willing to develop. Premium £450.—No. 521.

BEDFORDSHIRE.—Country PRACTICE with £400 to £500 p.a. Panel over 100. Good house can be rented at £60 p.a. Premium £400 for quick sale.—No. 517.

LANCS TOWN, eight miles from Manchester. — Old-established mixed PRACTICE, averaging £700 p.a. Panel 639. Scope for increase. District rapidly developing. Good house, 2 reception, 3 bedrooms, garage, and garden (separate entrance to surgery). Premium—Practice and house—£1,350.—No. 493.

CO. DURHAM.—LARGE TOWN.—Old-established mixed PRACTICE, averaging over £800 p.a. Panel 600. Scope. Good house, 2 reception, 4 bedrooms, 3 professional rooms. Garage and garden. Premium £950.—No. 422.

LARGE LANCS TOWN. — Very old-established middle-class PRACTICE, averaging last 2 years £3,047 p.a. Panel 500. Appointments £300 p.a. Partnership with succession in 12/18 months, suggested. Good semi-detached house, 3 reception, 6 bedrooms, garage, and garden. For sale or would rent on lease. Vendor retiring. Premium 1½ years' purchase.—No. 464.

NORTH-WEST COAST.—PARTNERSHIP in middle and upper working-class Practice in popular seaside resort. Cash receipts last year £2,552. Panel 820. Scope for increase. Good house (on sea front), 2 reception, 4 bedrooms, 3 professional rooms, garage, and small garden. For sale, or may be rented for two years. Cottage Hospital. Premium—one-half share—2 years' purchase.—No. 512.

DORSET.—Old-established mixed PRACTICE in good district. Average cash receipts £1,200 p.a., excluding appointments £100 p.a. Panel 1,256. Scope for increase. Excellent semi-detached house, 3 reception, 4 bedrooms, garage and garden. Price £1,300. Premium—Practice—1½ years' purchase.—No. 510.

SCOTLAND.—MEDICAL WOMAN'S PRACTICE in Country District. Cash receipts last year £565. Panel 100. Detached house, with beautiful views, 3 reception, 4 bedrooms, garage, and large garden. Premium, best offer.—No. 506.

NORTH-WEST COAST.—Large residential and seaside town.—Old-established PRACTICE. Cash receipts about £1,200 p.a. Panel 1,500. Excellent detached corner house (freehold), 3 professional rooms, 5 bedrooms, and 2 reception rooms, garage, and good garden for sale. Prem.—Practice—1½ years' purchase.—No. 417.

NR. MANCHESTER.—Small PRACTICE of over £500 p.a. Panel 778. Scope for increase. House, 2 reception, 4 bedrooms, and professional rooms. Rent £35 p.a. Premium, best offer.—No. 484.

NEAR NORTH-WEST COAST. — Country PRACTICE of over £800 p.a. in beautiful district. Panel 329. Scope. Good sport. Premium, best offer.—No. 477.

DERBY. — Small old established PRACTICE, capable of considerable increase. Average cash receipts £530 p.a. Panel 509. Excellent modern house, 3 reception, 5 bedrooms, and garden. For sale or to rent. Prem.—Practice—£500. Vendor retiring.—No. 486.

DERBYSHIRE. — Small PRACTICE in beautiful district. Cash receipts £300 to £400 p.a. Panel 80. Good scope. House, 2 reception, 3 bedrooms, and nice garden. Alternative accommodation available. £68 p.a., including rates. Premium £100.—No. 514.

MANCHESTER.—Old-established mixed PRACTICE. Cash receipts last year £660. Panel 788. Scope. Good corner house, 2 recep., 4 bedrooms, garage. Rent £60 p.a. Premium 1½ years' purchase. Could be worked along with another small Practice for sale, quite near, doing £300 p.a., with a panel of 350.—No. 437.

SOUTH COAST.—Established middle-class PRACTICE in fashionable Seaside Resort. Average cash receipts £623 p.a. Panel 542. Excellent detached house, 5 bedrooms, 3 reception. Garage and very good garden. For sale or would rent on lease. Premium—Practice—£1,000.—No. 516.

MANCHESTER.—Mixed PRACTICE, averaging £1,000 p.a. Appointments (transferable) £200—£250 p.a. Panel 850. Good corner house, 2 reception, 3 bedrooms, 3 professional rooms; garage and small garden. Premium—Practice—1½ years' purchase, or near offer.—No. 492.

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1 WITHIN 15 MILES OF LONDON.—Old-established better middle-class PRACTICE, held by Vendor for the past ten years, situated in a prosperous market town. Good train service to town. Gross cash receipts averaging £1,300 p.a. Selected panel of 450. One appointment worth £180 p.a. Fees 3/6 to 10/6; few at a guinea. Very commodious house with good garden containing 4 rooms on ground floor, 5 bedrooms, bathroom, etc. Separate entrance to *professional* rooms. Good garage and stabling. Price for freehold £3,000, £1,500 on mortgage. Premium £2,000.

2 NORTHANTS.—PARTNERSHIP.—A one-third share (with increase later) is offered in a well-established Practice averaging £1,400 p.a., offering large scope for expansion, situated in a suburb of good residential town. Suitable house available. Premium £800.

3 NORTH LONDON.—LOCK UP SURGERY.—Old-established panel and working class PRACTICE, producing about £300 p.a., including panel of 466 patients. Fees 1/6 to 3/6. Suitable accommodation can be rented at £50 p.a., part sublet at £25 a year.

4 EASTERN COUNTIES.—Very sound old-established country PRACTICE, producing about £1,300 p.a., including panel of 800 and appointments worth £60 p.a. Fees 3/- upwards; visits 3/- upwards. Midwifery from 42/-. Very easily worked and offers good scope for increase. Very nice detached house with ample accommodation, large garden, etc., can be rented at £60 p.a. Premium £2,400. Sport of all kinds and schools within easy reach.

5 LANCS. — LARGE TOWN.—Very sound old-established middle and working-class PRACTICE averaging for the last three years nearly £4,600 p.a., and for the immediate past six months £2,650. Panel of over 3,000. Appointments worth about £60 p.a. Fees 2/6 to 12/6. Not much midwifery. Good house on rental at £80 a year. Premium 1½ years' purchase.

6 HOME COUNTIES. — PARTNERSHIP.—A one-fourth share (with guaranteed minimum income of £600 p.a., and increase later as arranged) is offered in old-established good mixed-class Practice situated in attractive residential market town within 20 miles of London. Gross cash receipts average approximately £2,000 p.a. Panel of about 1,150. Visits and medicine from 5/- upwards. Suitable small house available on rental at £65 a year. Premium for share 2 years' purchase. Large scope for development. Ingoing Partner who should be between 28 and 30 years of age, must be experienced in Midwifery.

7. KENT.—LARGE TOWN.—A one-third share is offered after a preliminary assistantship in a very old-established good mixed-class PRACTICE averaging £3,270 p.a. Panel of nearly 3,000. Fees 3/6 to 1 guinea. Suitable house can be rented at £100 a year. Sport of all kinds. Good schools. Premium for share 2 years' purchase. Ingoing Partner should be married and have had at least five years' general practice and be preferably English or Scottish.

8 NORTH DEVON.—FAVOURITE SEASIDE RESORT.—Very old-established PRACTICE held 10 years by Vendor. Cash receipts average £1,175 p.a. including appointment (transferable) worth over £100, and panel producing £340. House has ample accommodation (8 bedrooms, etc.). Vendor's leasehold properties having about 56 years to run. Price £800. Premium £1,850.

9 WITHIN 150 MILES NORTH OF LONDON.—COUNTY TOWN.—Old-established mixed-class PRACTICE averaging nearly £1,100 p.a. including panel of 118. House contains consulting and waiting room (separate entrance), lounge, 2 reception rooms, 4 bedrooms (2 fitted with hot and cold water basins), dressing room, bathroom, etc. Garden of 1/4 acre. Large garage. Electric light. Vendor's freehold. Price £2,000, part on mortgage. Premium £2,200.

10 WESTERN SUBURB.—Old-established better middle-class non-panel PRACTICE, in well-populated area, averaging for the last three years over £2,200. One appointment worth £80 p.a. Visits from 3/6 to 10/6. Not much midwifery. Suitable house with 3 reception, 6 bedrooms, etc. Rent on lease £90 per annum. Premium £4,000. Good introduction given.

11 PARTNERSHIP. — HOME COUNTIES.—A one-fourth share is for disposal (owing to the retirement of one of three Partners) in an old-established good mixed-class *Practice, in beautiful residential* district within easy reach of London. Gross cash receipts approximately £3,400. Panel of 1,400. Well-situated small modern house, with 2 reception, 3 bedrooms, etc. Garden. Rent £59 p.a. Premium two years' purchase.

12 IMPORTANT INLAND SPA.—Old-established better-class non-dispensing PRACTICE averaging about £380 p.a. Receipts have been considerably more and the Practice could be increased, if desired. Fees 1 and 2 guineas and occasionally half a guinea. House is a corner one in good residential district with ample accommodation, newly decorated. Can be rented on lease at £100 a year. Garden. Excellent social and sporting facilities. Premium £500.

13 SOUTH WALES.—Beautiful Country District within 4 miles of large town. Small PRACTICE producing between £300 and £350 p.a., offering good scope. Visiting fees from 5/-. Very little midwifery or night work. Well-situated house with well-kept garden, containing 2 reception, 3 good-sized bedrooms and servant's room. Electric light and gas throughout. Garage. Price for Practice and house £1,500.

14 MIDLANDS.—Old-established middle and better-class PRACTICE in clean and attractive manufacturing city. Cash receipts average over *£1,600 p.a.*, including appointment worth £165 (transferable) and panel of 1,220. Visits 5/- to 2 gns. Midwifery discouraged, fees 5 to 15 gns. Exceptionally good house in own grounds with ample accommodation fitted with every labour-saving device and economically run. Situated in best residential part. Cottage in the grounds is let at £37 a year. Price freehold, £5,000 (£3,500 on mortgage). *Premium £3,500. Scope for active man.*

15 LADY DOCTOR'S PRACTICE — LONDON, SOUTH EAST.—The half share is offered in a well-established middle and working-class Practice averaging for the last three years £1,188 p.a. Panel of about 600. Two appointments worth about £130 a year. Fees from 2/6. Small house containing 1 reception room, 3 bedrooms, bathroom, etc., and *professional rooms*. Price for freehold £750. Premium for share 2 years' purchase. Ill-health reason for sale. Preliminary assistantship of one to two months offered.

16 EGYPT.—Well-established PRACTICE producing about £950 p.a., and offering scope for increase. Fees 10/6 to 2 gns. Excellent accommodation can be rented at £16 10s. monthly. Premium to *include all furniture, drugs, drug bottles*, instruments, etc., £2,000.

17 EASTERN COUNTIES.—ASSISTANTSHIP with view to Partnership (after a preliminary period of six months at a salary of £440 p.a., with free house) is offered in an old-established good mixed-class Practice situated in pleasant residential and agricultural district within about 15 miles of the coast. Gross cash receipts approximately £3,000. *A third share is for disposal at a premium of 2 years' purch*

18 EASTERN COUNTIES. — FAVOURITE SEASIDE AND HOLIDAY RESORT. — Good mixed-class PRACTICE established many years, producing for last twelve months £1,600. Panel brings in £300 p.a. and appointment worth £100 p.a. Fees 3/6 to 7/6, with medicine extra. Nice house with 2 reception, 5 bedroom, etc. Garage. *Garden. Price for freehold £2,250. Golf, shooting, and other sport.* Premium 1½ years' purchase.

19 OPHTHALMIC PRACTICE.—Within eighty miles of London.—Practice is increasing and offers good scope for further development. Average gross cash receipts for the past three years £554. Last year over £700. Fees 1 to 2 guineas. Opposition slight. Choice of houses. Premium £700.

20 RIVIERA.—Old-established PRACTICE the receipts from which have averaged over £1,600 p.a., but have decreased recently owing to Vendor's ill-health. Very good prospects of extension. Fees from £1 1s. Very easy work. Suitable flat can be rented at £160 p.a. Premium £3,000.

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3 BUCKS, BERKS or near locality.—Better-class PRACTICE, averaging about £1,500 p.a. with good scope. Panel not necessary. Ample capital for purchase of house and Practice.

4 SOUTH OF ENGLAND.—Good town with educational facilities. Income £1,200 to £1,800, with substantial panel. Fair-sized house, *with garden*.

5 SOUTH COAST TOWN or near locality.—PRACTICE averaging about £1,500 p.a. with panel of 1,000 or thereabouts. Small house, preferably on rental. Capital available.

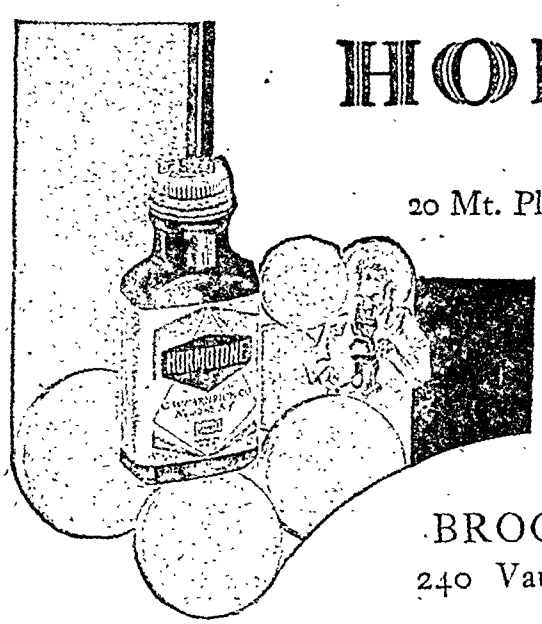
6 LONDON OR SUBURBS.—PRACTICE, producing £1,400 to £1,600 p.a., with panel of 1,500. Good house with garden.

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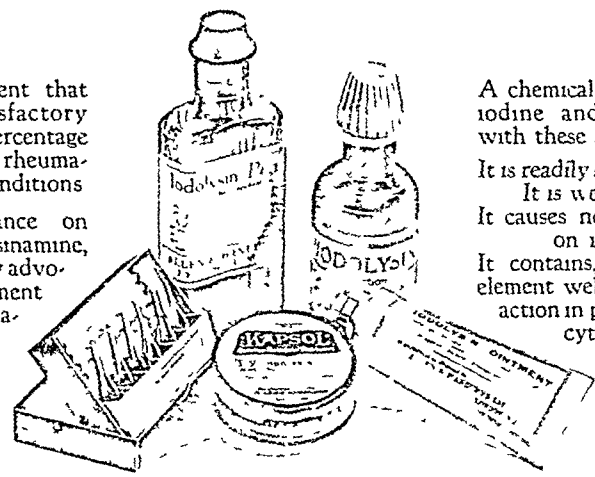
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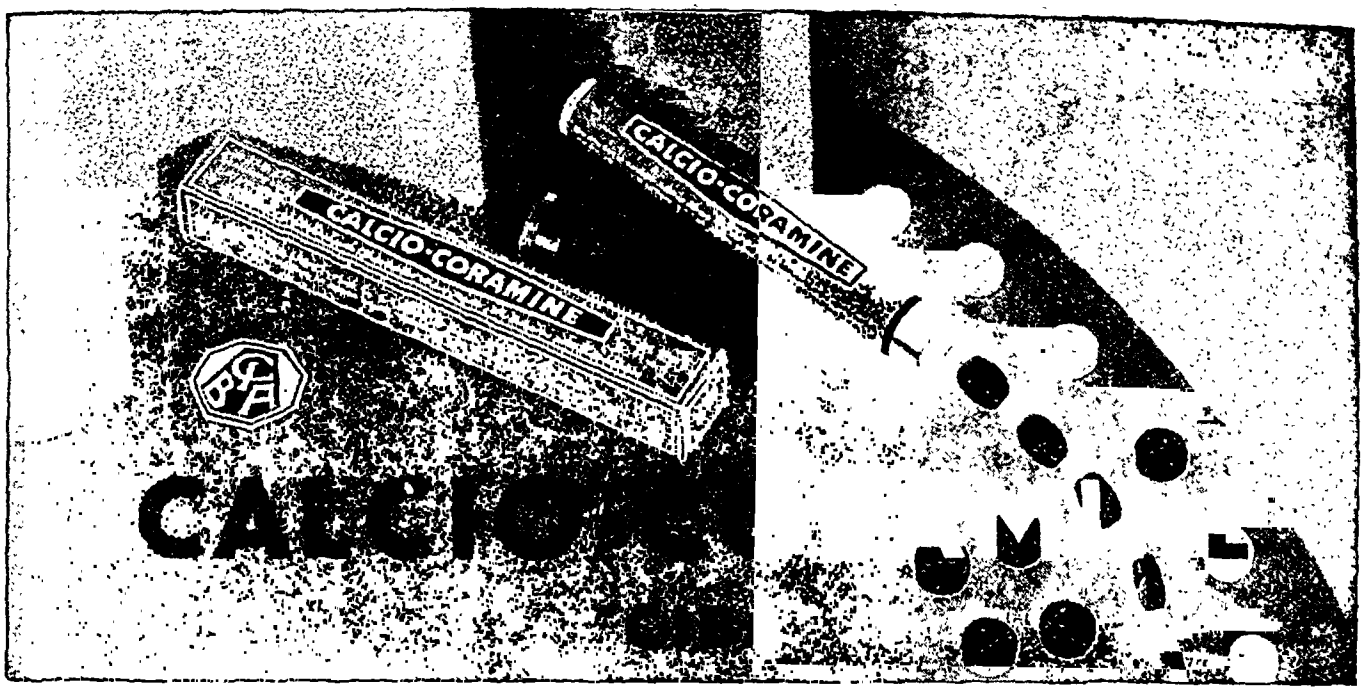
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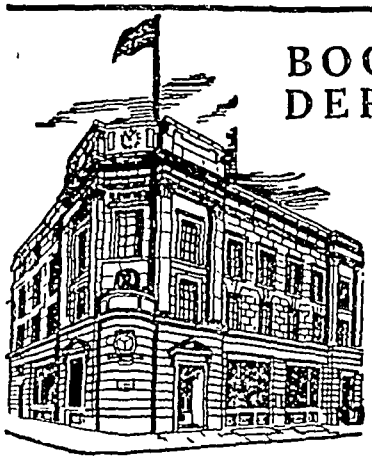
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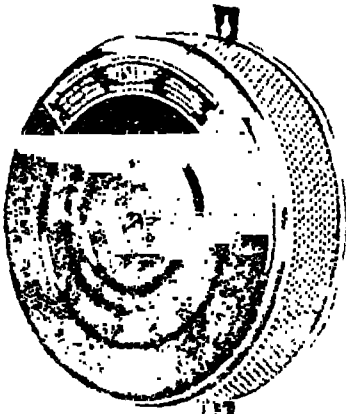


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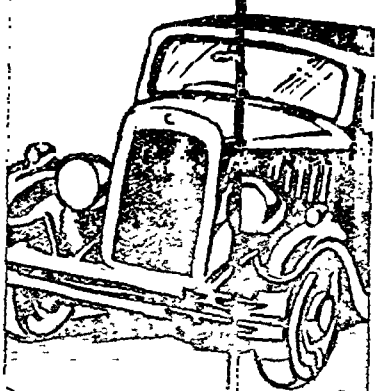
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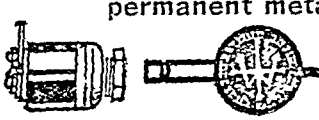
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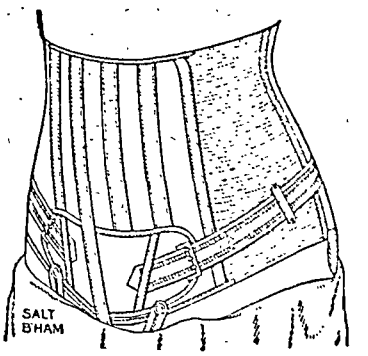
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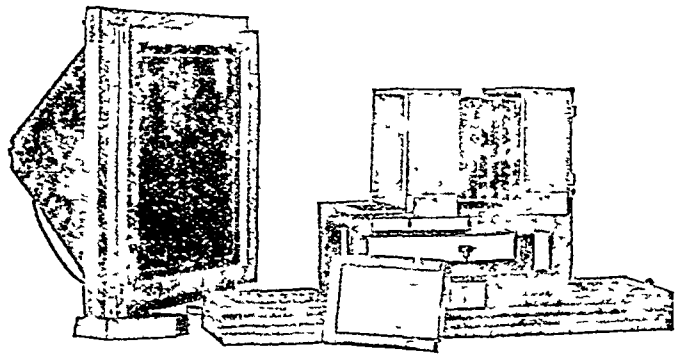
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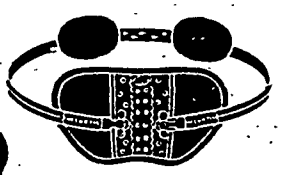
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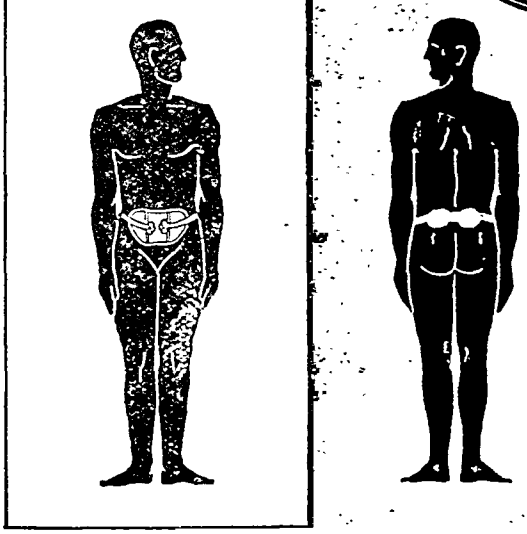
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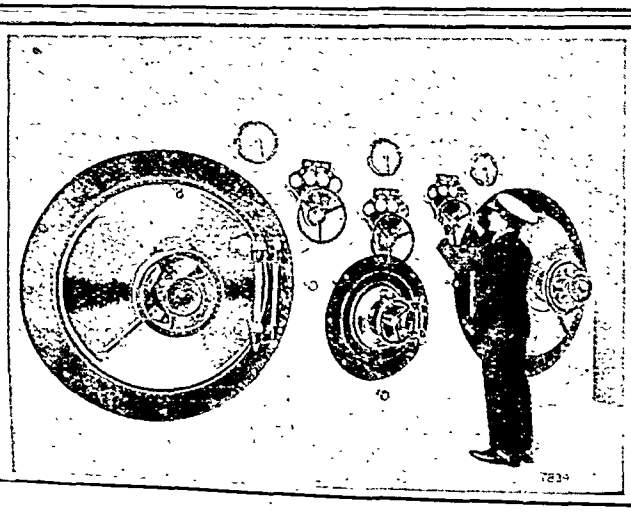
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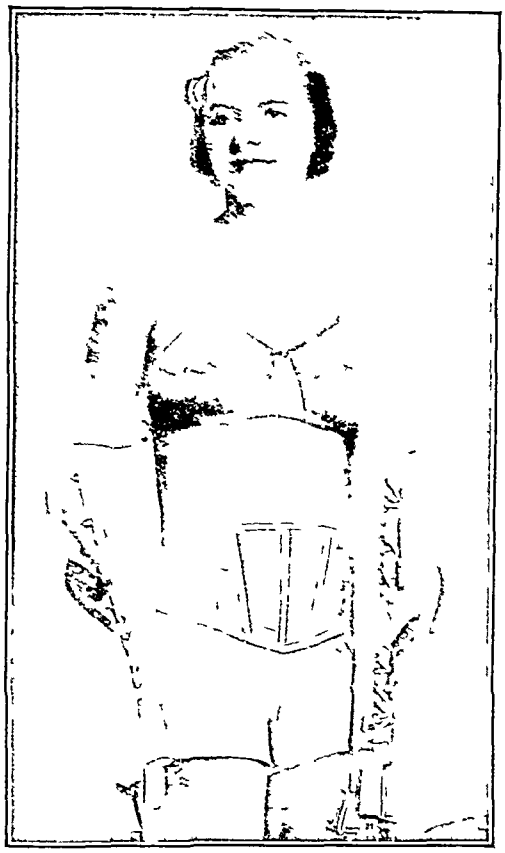
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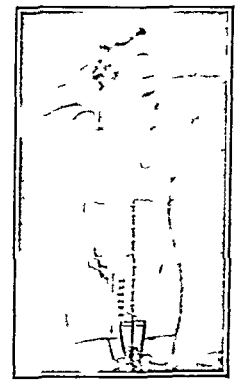
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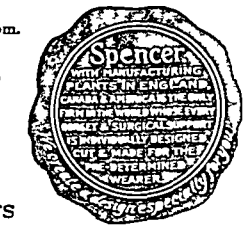
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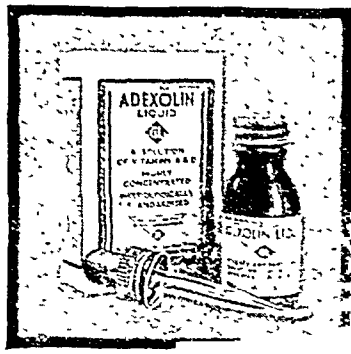
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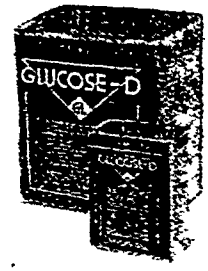
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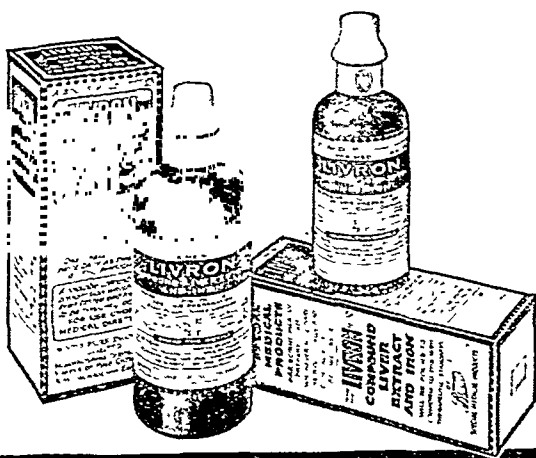
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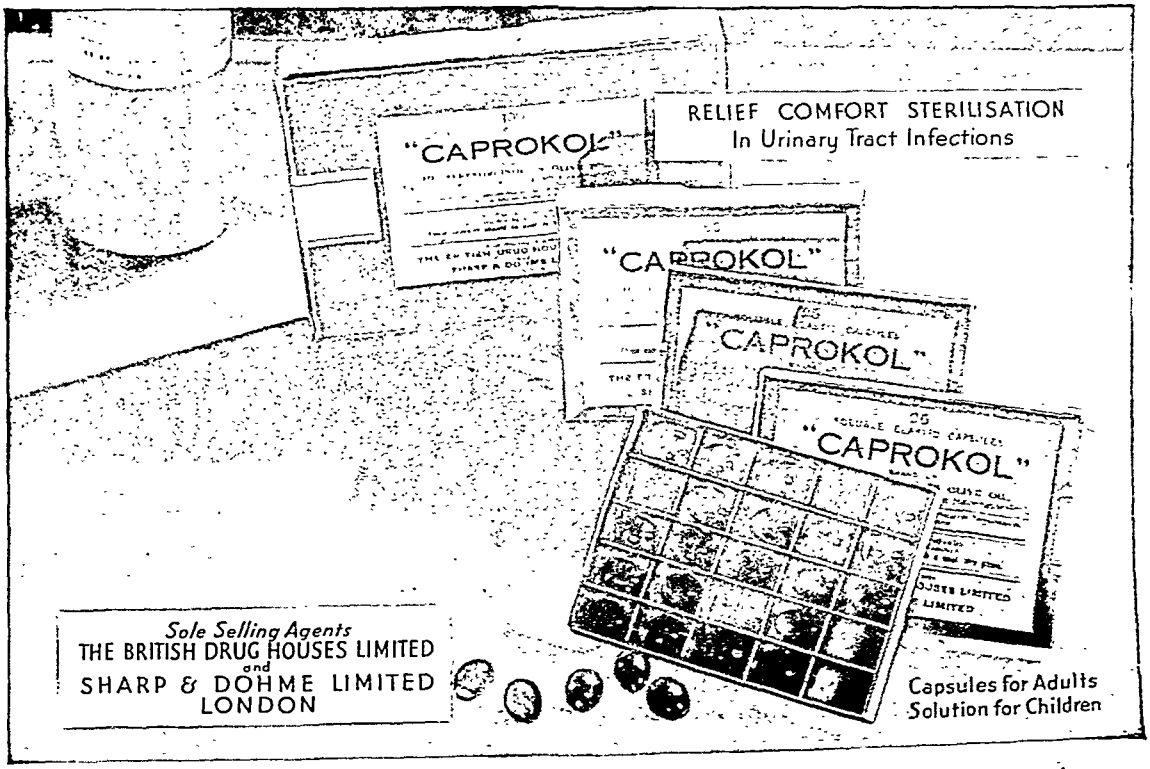
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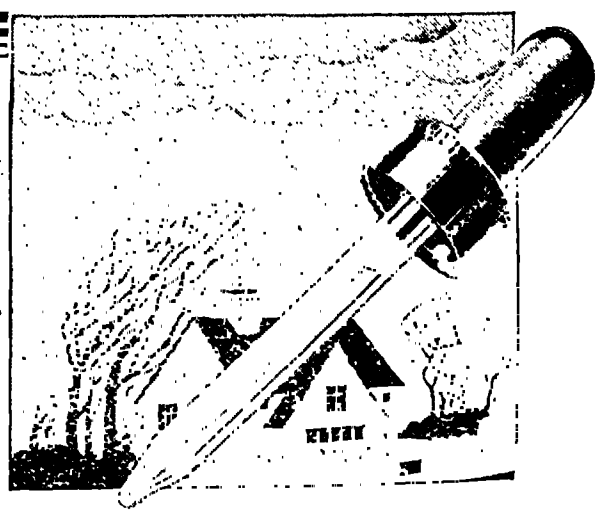
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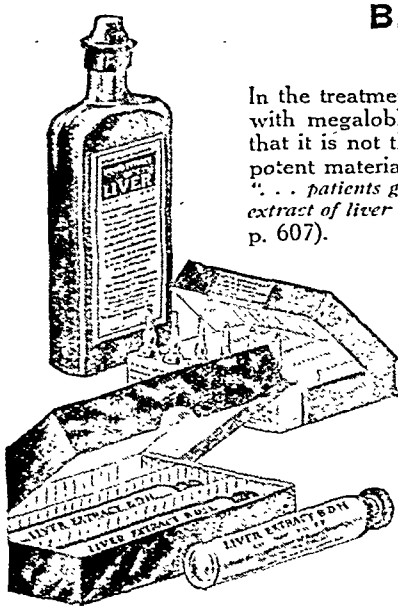
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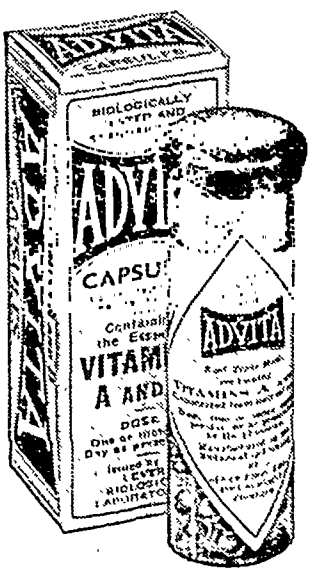
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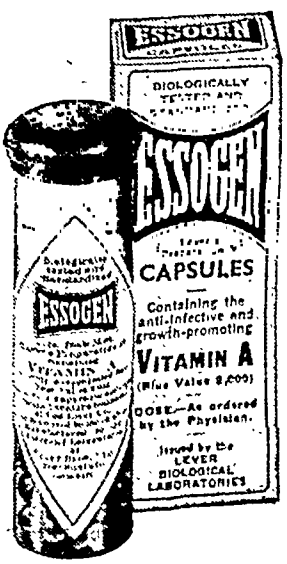
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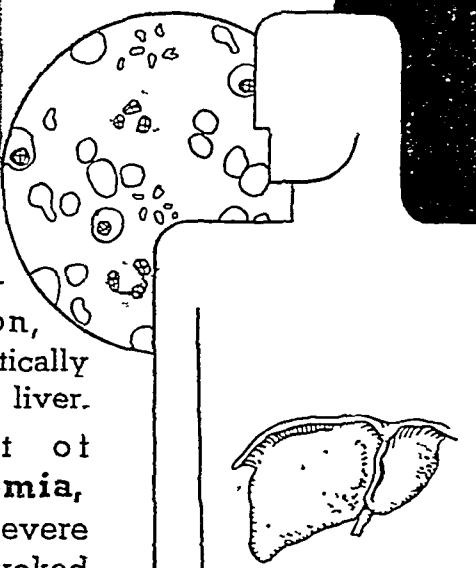
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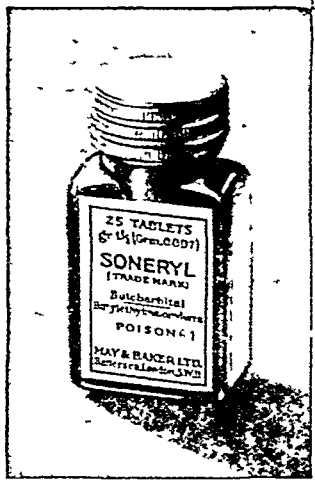
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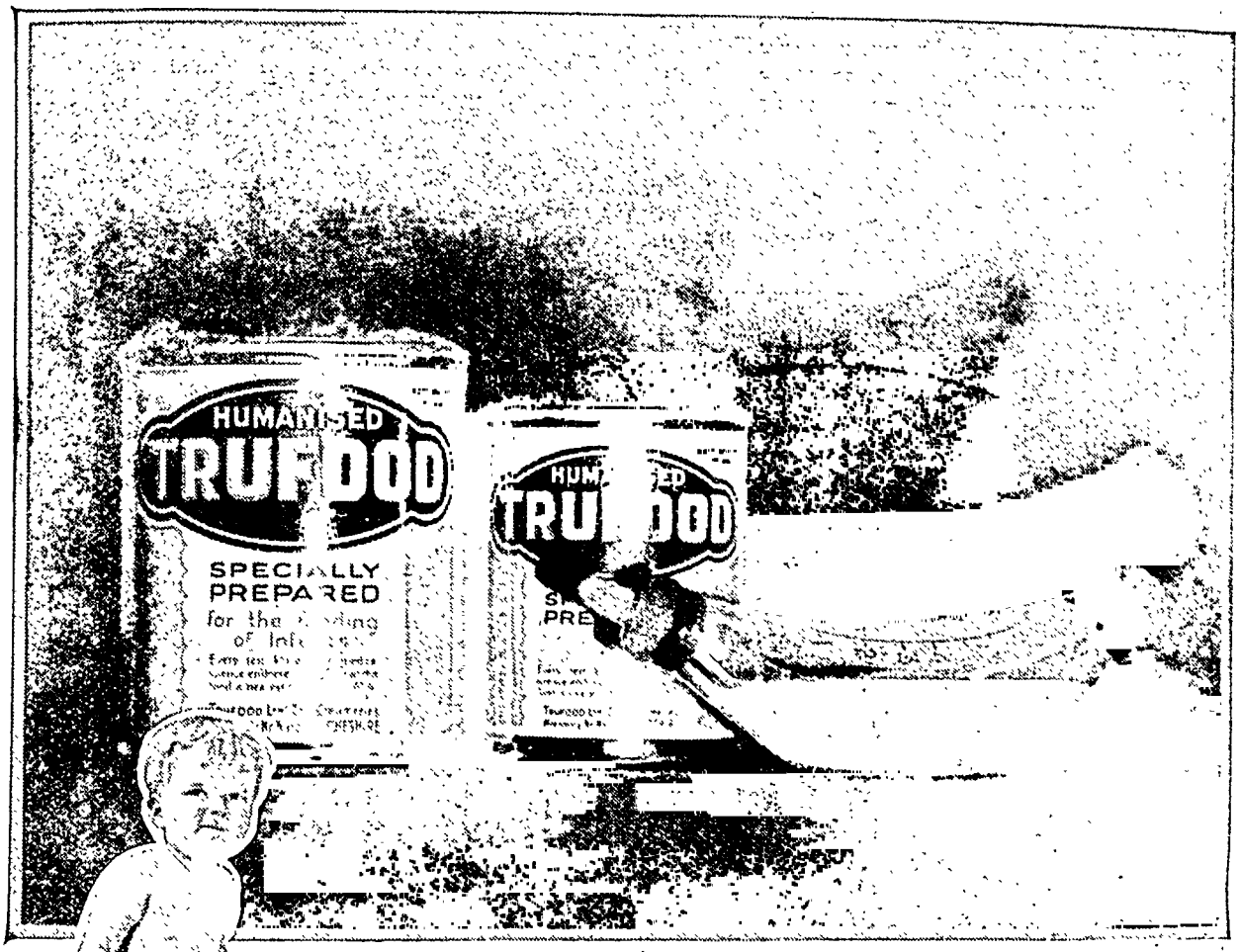
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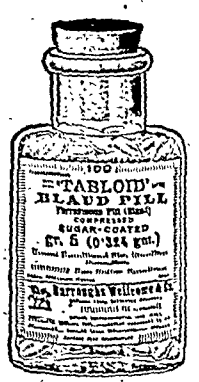
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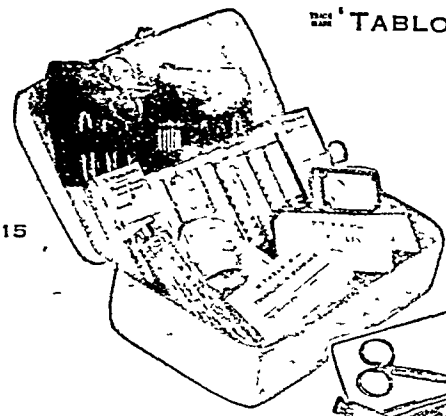
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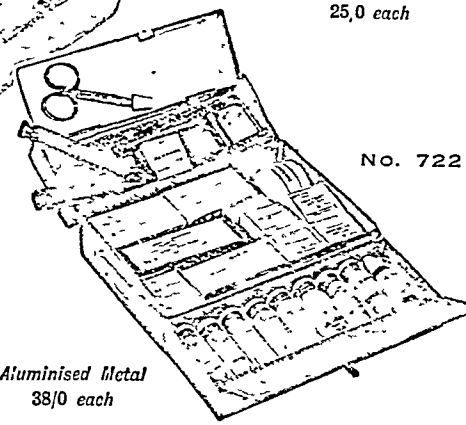


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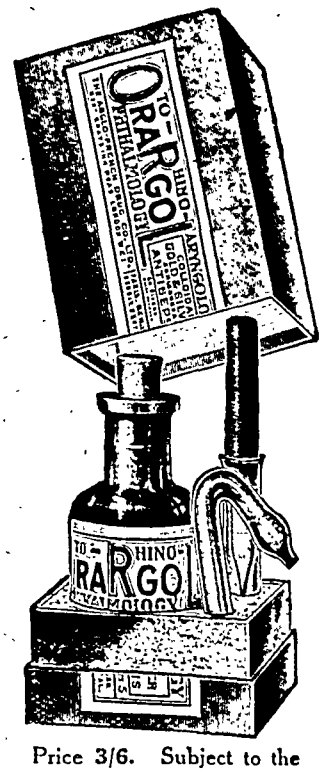
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An Address

ON

EUGENICS—AND THE DOCTOR*

BY

LORD HORDER, K.C.V.O., M.D., F.R.C.P.

PHYSICIAN IN ORDINARY TO THE PRINCE OF WALES; SENIOR PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL

I propose in the first instance to discuss what is meant by eugenics, then to deal with the attitude of the public towards eugenics, and lastly to consider the position of the doctor in relation to eugenics.

The science and practice of eugenics began with Sir Francis Galton fifty years ago. It is noteworthy that the credit of introducing this important aspect of preventive medicine, and also the credit of founding the whole practice of preventive medicine, which we owe to Edward Jenner fifty years before Galton's work, belong to two Englishmen. Galton defined his own word "eugenics," as "the study of agencies under social control that may improve or impair the racial qualities of future generations either physically or mentally." The basis of eugenics is therefore a biological affair, and its aim is to institute control, so far as this is possible, over the biological factors in human health and human happiness. Our American cousins, who have a happy knack of hitting off the simple essentials of social activities by expressive names, have a society which they call "The Human Betterment Foundation," and the aims of this society are very similar to those of our "Eugenics Society." It will be seen that Galton's definition includes two main influences which it is proposed to place under social control for the benefit of the race—the influence of environment during the individual's lifetime; and the influence of heredity in the begetting of a new individual. These two agencies are, as we know, inclusive of all the factors upon which the future generation is improved or impaired. Whilst being entirely sympathetic towards all environmental agencies that make for human betterment, our own Eugenics Society does not engage directly in any of these. Its policy and its work are directed almost entirely towards the better endowment of future generations through the study of heredity, and the practice of the indications for racial improvement which such researches yield.

Of the *moral* basis of eugenics I shall speak later. The *scientific* basis is our knowledge that like tends to breed like, and that the children of parents possessed of natural qualities which are above or below the average will probably themselves be above or below the average in respect of this same quality.

When racial improvement takes place in nature it does so by a process of natural selection. That is, all types, good and bad, being reproduced in unrestricted numbers, over-population takes place, with a struggle for existence, during which those individuals less capable of survival are eliminated in early life. This natural process is a brutal one, but is very effective. Modern civilization has changed all this, partly through the restriction of families, partly through those so-called humanitarian efforts by which weak types are preserved as long as possible, and are allowed to breed, and, now and again, by war. Unfortunately several of these modern interruptions of natural processes tend inevitably towards deterioration of the individuals in successive generations, and, therefore, eventually to deterioration of the race. Eugenics aims first of all at improving upon natural selection by introducing control over the reproduction of *unfit* types, such as the mentally deficient, and by encouraging fertility among types possessed of qualities that are above the average. There is therefore a dual purpose in eugenics: it is negative in its attitude towards the unfit, it is positive in its attitude towards the fit. Throughout the whole of its efforts in this country it seeks only to operate by voluntary measures, thus doing nothing by which the liberty of the individual may be infringed. Such an ideal as this last-named presupposes for success the development in society of a eugenic sense, and it is hoped that such a sense will arise, and will spread, when it is once realized how dependent future generations are upon inherited qualities, and how possible it is to control the transmission of good qualities on the one hand and to check the transmission of bad qualities on the other.

A recent national stocktaking shows some very unpalatable facts. In 1917–18 we were all of us staggered to find that of the possible recruits of 17 to 18 years of age only one in three was perfectly sound. To-day it is estimated that one in 120 persons is feeble-minded, one in 200 is insane, and one in ten is too dull, or is too sickly, to be capable of being absorbed into industry. The expense to the nation of educating and caring for all these inefficients is enormous. But this is not so serious, by far, as is the fact that the future stock is being continually recruited from these inefficients.

THE PRACTICE OF EUGENICS

Let me now pass in review some of the measures by which eugenics may hope to change all this. The Eugenics Society advocates the voluntary sterilization under proper safeguards, of mental defectives, mental convalescents, and persons who suffer from gross mental and physical defects that are proved to be transmissible. Compulsory sterilization of such individuals, though legally enforced in some countries, is not advocated here. At present the operation of sterilization, even if desired by the patient and his responsible relatives, is probably an actionable offence in Great Britain. In the matter of birth control it is suggested that local authorities should be empowered to provide, under medical supervision, instruction in contraceptive methods for married women who ask for it on economic and eugenic grounds, in addition to gynaecological and medical grounds, which are those on which alone such instruction can be given at present. This is a serious position as it now stands because the practice of birth control, from want of adequate knowledge, is prone to act dysgenically rather than eugenically upon the whole community. Another serious result of the veto put upon the spread of contraceptive methods is that the practice of abortion is indirectly encouraged. The segregation of mental defectives and mental convalescents, as complementary to sterilization, is also recommended.

Another measure that should tend towards improving the stock is a scientifically designed system of family allowances, so as to equalize the standard of living between parents and non-parents doing equivalent work. And still another is to amend the present system of income-tax allowances, and to extend it, so as to make taxation less where the expense of bringing up children is greater.

While these and supplementary measures constitute the *practice* of eugenics, *research* into the problems of heredity is being constantly encouraged and carried out. And in order to encourage that eugenic conscience which, once more, is indispensable if voluntary, rather than compulsory, measures are to be adopted, it is urged that instruction in biology be included in all school curricula.

* Opening address of the Hampstead General Hospital Post-Graduate Session, 1933–4.

ATTITUDE OF THE PUBLIC

What, now, is the reaction of society towards the problems of the mentally and physically unfit, and towards the practice of eugenics? In the minds of the great majority of people there is *no* reaction at all. Either from sheer exigency, or from a fundamental in*ability* to think clearly, there is a dull acceptance of the facts of life as they are. Indifference, with a steady drift to a *worse state of things* as a consequence. In the minds of those more fortunately situated, and who are able to project the problem outside themselves and think about it, the reaction *differs considerably*. One section of these, meliorist in type, regarding this as being the best of all possible worlds, considers an effort to exercise biological control over heredity as meddlesome *interference*. To improve the individual by environmental influences they allow to be a good thing, but to "tamper with Nature," as the phrase goes, gives them a mental shock, and they gasp at the thought of such boldness. This seems to be due to mere lack of imagination. Every time we prolong the life of an individual who, but for our humanitarian efforts, would die an early death, we also, of course, interfere with Nature. Eugenics proposes to exercise interference at an earlier stage in the natural process; that is really the only difference.

Another section of the thinking public has got the question of racial improvement mixed up with religion. And unfortunately, when this is so, the entanglement seems invariably to influence them in the direction of opposing, rather than supporting, active measures of a eugenic kind. It would be interesting to discuss the meaning of this lien which religion holds in some minds over biological processes and our control of them. But this would lead to a long digression. The primitive association of procreation with magic, and, later, with divine influence, seems to be the origin of this attitude of mind. We must not forget that it is only in quite recent times that the biological facts underlying conception and childbirth have been known. Prior to this the appearance on the earth of a new individual was, not unreasonably, regarded as a direct act of Providence. If we add to this the fact that physically and mentally deficient offspring were by many races deemed to be possessed of some special sign of grace, we may see how deeply rooted is this prejudice against efforts at control in the sphere of eugenics. How far we are from getting sanctions for eugenic activities from this particular section of the community may be judged by two sentences taken from a speech made by the Bishop of Exeter, Lord William Cecil, at the Lambeth Conference three years ago. Said the Bishop: "If the Lambeth Conference should approve of birth control . . . then there will be a new breach in the growing unity of Christendom." And he continued: "If life has been sweet to us why should we deprive others of the privilege we value and enjoy? Every child deprived of the privilege of life is treated cruelly and unjustly. . . ." I resist the temptation to make my own comments, but I will quote those of Mr. Pitt-Rivers. "From this utterance," he says, "those of us with lively imaginations may conjure up the sorrowful sound, among the unborn hosts, of the indignant protests of countless aments and dements," frustrated in their desire to "gibber their inarticulate joys and sorrows in this mundane vale of tears."

ALTRUISM AND EUGENICS

But there is a third section of the thinking public, a section which is slowly growing, which has developed the eugenic conscience of which I spoke. Its attitude of mind is the converse of that which is expressed in the old question: "What has posterity done for me?" There is, of course, no bargaining with posterity. But in the matter of human betterment there is no bargaining with our contemporaries either. The desire and the will to do our fellow creatures a service—"a good turn"—are things outside the possibility of contracts. They express one of the most fundamental impulses in human nature, an impulse which has slowly, probably painfully, evolved with the moral progress of the race, and has become, for some folk, so intertwined with their very nature that it seems at times more fundamental in them than their religion itself, or certainly than their religious concepts. This instinct has withstood much analysis by psychologists and much scorn from philosophers. So far as can be judged, this altruistic spirit runs parallel with the evolution of the human race on its moral side; indeed, it is perhaps the best expression of this evolution. If so, it must increase, not decrease. Like all other human motives its effectiveness in the dynamic sense depends upon science, which marches side by side with it, and, like it, is constantly advancing. These two things, linked together—the spirit of altruism, and science, which can make altruism a practical affair—these together must of necessity lead us to be sympathetic towards eugenic efforts.

In an age when the facts of heredity were unknown, and the trend of racial development was hidden, this spirit of devotion to the welfare of others directed itself, quite naturally, to a man's contemporaries. And this is still a fruitful field for its seed-sowing. But in the light of modern biological knowledge we must surely feel it our duty to project this altruism forward to those who follow us, seeing that it is so certain that their welfare depends largely upon the generations that go before. In the eugenic sense the answer to the question "Who is my neighbour?" becomes "The human being who comes after you and who becomes what he will because of you." A new reading is given by eugenics to the Latin tag: "Quis cito dat, bis dat." And I suppose it might also be urged that even the Boy Scout's day's good deed is a better thing done early in the day than late.

If I may refer once more to religion, for in this section of the community of which I am now speaking are many for whom religion is a very real thing, I would say that I hope at long last we have got rid of the old notion that there is any opposition between religion and science. It were indeed a sad stricture upon religion if our concept of it may not include whatever added value comes from that control over life which science gives us. Equally would it be a sad stricture if the concept of religion may include control over the physical elements of air, earth, and water, so that these become our servants and not our masters, yet denies recognition of control on the biological plane, which is so much more vital, and is so much more closely bound up with our happiness and our blessedness. No; we must believe that religious thought and emotion, permeating the whole conduct of life as they do, or are alleged to do, and giving conduct its direction—we must believe that these things are an incentive to every activity which makes for betterment in the moral and in the physical state of our children and of our children's children. Or else—for I see no third alternative — there is some flaw in ourselves, some smoke in the flame, some hostile animus in the ego, which obstructs us in the full employment of the best thing we have so far snatched from the beasts—a warm and yearning desire to do good to our fellow men.

THE DOCTOR'S POSITION

I now pass to the third part of my subject. What of the doctor in relation to all this? There are those who hold that, as the doctor is the servant of the community and of the State (which is only the organized community), he should wait upon public opinion before offering his help in furthering eugenic efforts. In so far as this means that it is no part of the doctor's function to act as publicist, or even as reformer, in this or any other matter affecting the public weal, I am in agreement with the principle. I am wont to say that when a doctor becomes a publicist he ceases to be a good doctor. I have a lot of evidence on this point. Medicine is a jealous mistress and does not tolerate rival attractions. Moreover, a doctor's chief function is personal and not public. I am speaking now of the general practitioner. But since the basis of eugenics is the laws governing heredity and the facts relating to heredity, it follows that the practical interest of the doctor in these things must be aroused, and kept awake, in order to accumulate reliable data upon which to proceed. And no set of men and women can make such valuable contributions to the science of heredity as those who are engaged in the study and practice of medicine. At the present time there are several ways in which these useful contributions can be made.

GENETICS IN THE MEDICAL CURRICULUM

The facts already known in relation to genetics should be taught as part of the medical student's curriculum. It is quite true that the medical curriculum is already over-full. But if something which is relatively less important were taken out—and there is a great deal that is relatively unimportant when compared with the study of heredity—room might easily be provided. In the curriculum as it stands the only fragment of genetics that the student comes across is a little elementary embryology. Here and there, later in his clinical work, are scattered items of a detached sort, such as the fact that certain rather rare diseases, like colour-blindness and bleeding, have familial and sex qualities in their transmission. But of the general principles involved in genetics, and how to apply these to particular cases, the student learns nothing. I doubt very much if many doctors emerge duly qualified from their six years of study able to state precisely what it was that Mendel discovered in connexion with heredity.

This being so, enormous opportunities for adding to our knowledge of genetics are lost by the lack of training, and therefore lack of interest, and by ignorance of how to collect valuable facts, among practitioners. The "family histories" of patients are of such a meagre kind that they are almost useless to the expert when he comes to study diseases in which inheritance plays an important part. Even the notes taken about patients during their stay in hospitals, where facilities in this direction are much greater, are extremely scanty where heredity is concerned.

But perhaps, after all, we must not expect the busy practitioner to give up the necessary time to these matters. Here and there are a few whose routine admits of special attention being given to an adequate investigation into the heredity factor in the incidence and characters of certain disease-processes which present themselves. And there crops up, now and again, even in a busy practice, the man who is attracted by such an investigation, and who adds quite materially to our knowledge by his painstaking researches. We must not forget that the father of preventive medicine was himself a busy English general practitioner, and what Edward Jenner did one hundred years ago others can do to-day. But for the most part such studies as I am now discussing are impracticable in the sphere of everyday curative medicine. I have already pointed out that eugenics is really a branch of preventive medicine, and a branch that is fraught with a deeper and more lasting effect than any other. Just as the public health service requires special training and special experience amongst its officers, so genetics, to be properly followed, and to be made a scientific basis for practical measures for human betterment, demands a number of doctors who shall give up their whole time to this purpose. In other words, for the thorough pursuit of this study there should be, attached to the Ministry of Health, a small group of medical men and women, to whom the vital statistics connected with life and death and disease should be readily available on the one hand, and contact with hospitals and with general practitioners, so as to be in touch with clinical material, should be possible on the other.

QUESTIONS AWAITING ANSWERS

The questions which await answers from such intensive study by such a group of workers are both important and numerous. There are very large gaps in our knowledge of the causes of disease which cannot be filled until we have information about the heredity factors entering into them. But even of greater importance than the influence of heredity in the production of actual organic disease, as it seems to me, is its operation in the prevalence of defective types as regards function and resistance. Again and again, after the most careful and detailed examination of patients, are we left with the inescapable conclusion that the material is bad, has been bad from the beginning, or has become bad prematurely. Whether it be the nervous system or the heart or the blood vessels or the kidneys—and the list by no means ends here—there are individuals, and there are families, in which the stuff yields too soon, or yields even before the main stress of function comes upon it at all. Why does the neurasthenic state dog some people's lives from the very start? What do they really mean when they say "I was always very highly strung"? Why do the members of certain families all develop heart disease at a certain age? Why do one man's arteries last for eighty years and another man's fail at forty? In most cases we are quite ignorant of the answer. And yet there must be an answer. Can there be much doubt that we should find the answer in the study of genetics? Then the very important question of resistance of the tissues, and of the individual as a whole, to microbic infection; how little we really know about this!

Anthropology overlaps very closely with genetics. This is readily understood. Indeed, it was Galton's painstaking investigations in anthropology which led him to the conception of the extension of preventive medicine which he bequeathed to us under the name "eugenics." Stature, bulk, complexion, and a number of other characters and attributes, and the ways in which these are affected by intermarriage. Why is the rheumatic child, *par excellence*, a blonde, and why so often a rufous blonde? What is the nature of this strange connexion between the pigment of the skin and hair and infection by the rheumatic virus?

And the psychological problems that we meet, though doubtless still more difficult, do not many of them go back much farther in their origins than the beginnings of the complexes which the psychologists unearth in such dramatic fashion? What is the flaw that attracts the complex, and when did the flaw first appear? Surely, again, the explanation lies hidden in heredity and requires genetic research for its discovery.

Eugenics and General Practice

Until the doctor knows more about heredity he cannot properly advise young persons who consult him on the question of marriage because they have a growing consciousness that their duty to their offspring is no longer entirely covered by feeding, housing, and educating it, but that something can, and should, be done to protect it against tendencies to mental and physical defects, and make the stuff of the next generation better than their own. The problem of consanguinity, and its risks to children following marriage, comes more and more frequently before us, and is not an easy one to advise upon at any time. There is an increasing tendency to seek a medical overhaul by both parties prior to marriage, or even prior to engagement, and some knowledge of the laws of heredity is essential if helpful advice is to be given. It would be a sad thing if the growth of a eugenic conscience in the community anticipated sound knowledge on the part of the medical profession. Yet such a possibility is by no means a remote one. I am not sure that many of us have not been already caught with our lamps unlit in the matter of giving advice on contraception, when patients show a reasonable desire to exchange the casual, half-surreptitious, and rubber-shop affair that birth control has largely been so far, for a really sound and scientific statement of the position, and for precise directions adapted to the particular indications of the case which is presented to us.

It is the duty of the doctor, as guardian of the health and happiness of the individual, to be well informed on all that makes for these desiderata. It is also his duty to the State to know what are the factors tending to racial deterioration, to point them out clearly, to issue the necessary warnings, and to indicate the remedies. He must be in the van in all these matters, for he has special opportunities in regard to them, and he is best fitted to make this contribution to the welfare of his fellows. True, as a servant of the community he must await the development in the community of the will to avail itself of the power of science to improve the stock. But the very fact that he has special knowledge and that he is himself a citizen—which both he and others sometimes forget—constitutes him a natural leader in the march of racial progress, and he cannot conscientiously escape this duty any more than others can conscientiously deny him this privilege. Though he may not force an issue, and though he must not speak before his knowledge is ripe, his position in eugenics is paramount; for without him this newest and most hopeful of the humane sciences must inevitably stand still.

THE LATE SURGICAL COMPLICATIONS OF FRACTURE OF THE MANDIBLE*

BY

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It is probably safe to say that 90 per cent. of all fractures of the mandible met with in civil life and resulting from riding, hunting, boxing, or motor car accidents will unite soundly in good position, with good dental occlusion, and without loss of external contour, provided they receive a minimum of interference from the surgeon and a maximum of expert attention from the dentist. The ordinary uncomplicated fracture of the lower jaw is, in fact, purely a dental problem, and one which does not often fall within the purview of the surgeon. In about 10 per cent. of patients in civil life, however, late complications ensue requiring operative interference. This figure was, of course, much higher during the war, when gunshot wounds and accidents, entailing much comminution and loss of bone substance, were the rule rather than the exception. The concentration of these patients at the Queen's Hospital, Sidcup, and in other centres during and after the war led to such an accumulation of valuable experience in their treatment that the care of cases in civil life has since then been much improved. Little, indeed, has been added to our knowledge of the subject in the past ten years, while it might even be said that some of the lessons learnt then have been forgotten. In this communication we have not dealt with the immediate treatment of the fractured mandible, but have confined our remarks to a discussion of the later complications of this condition as they have occurred in our experience since the war. These complications may be conveniently grouped according to whether they involve the bone or the surrounding soft parts.

* Part of this paper was read to the London Medical Society, and was published in the Medical Society's *Transactions*, vol. lvi, 1933.

Complications Involving the Bone

Mal-union

Union in bad position usually results from incorrect or inefficient fixation of the fragments, from unopposed muscular action or from the drag of contracting scar tissue. Except in the case of the edentulous jaw, it is a matter of considerable importance. Good dental occlusion may in fact be termed the prime requisite of successful immediate treatment. Its corollary, symmetrical external contour, is no less important, especially in woman. Mal-union is therefore particularly liable to take place where, with moderate loss of bone substance—that is, with more than 1½ cm.—efforts have been made to secure approximation of the fragments at the expense of dental occlusion. With fractures in the anterior half, the usual deformity is a lingual rotation of the fragments and a corresponding narrowing of the mandibular arch. If these cases are seen early it may be possible to separate the fragments by elastic traction, but if bony union is established and dental treatment unavailing, nothing short of osteotomy and bone grafting will suffice.

Two further deformities following fractures at the angle may result from inability to control a long posterior edentulous fragment. The posterior ramus has a strong tendency to be displaced forwards, upwards, and inwards by muscular action, where it unites with the anterior fragment to produce the well-known "flat angle." Conversely, it may be displaced forwards, upwards, and outwards, the resulting deformity being a marked prominence or outward bowing at the angle, which gives a peculiarly lop-sided appearance to the whole face. Provided good occlusion has been obtained and union is firm, it cannot be too strongly urged that these two deformities are of cosmetic importance only, and should be treated as such. A moderate degree of mal-union in fractures of this type is not incompatible with good function provided the teeth are in alignment. Attempts to control a long posterior edentulous fragment by means of intermaxillary blocks, or by direct fixation within the mouth at the time of the accident, are almost certainly doomed to failure. The only really satisfactory method is that devised by Darcissac and advocated by Ivy and Curtis. Here the angles of the jaw on one or

both sides well behind the fracture line are exposed through external incisions, and holes drilled in them through which wire hooks may be passed. Elastic traction in a downward and backward direction, taking purchase from rods embedded posteriorly in a plaster-of-Paris head-cap, can then be obtained, and good apposition of the bone ends effected.

Osteotomy may be necessary for severe malocclusion, or for marked irregularity of external contour such as occurs in the case of the too prominent angle. It is performed either by means of a Gigli saw introduced along a trocar through a tiny submandibular incision and carried round the inner surface of the mandible through the floor of the mouth, or, more directly, after exposure of the bone by means of the chisel. After division of the jaw the fragments are reset and resplinted or held firmly apart by a dental appliance of the cap-splint and rigid-bar type preparatory to bone grafting.

In the case of the " flat angle " (occurring after bony union) a simple compromise is effected by grafting fat beneath the skin over the depressed area until the contour is even on both sides.

Delayed Union

Delay in union of the fragments of a fractured mandible, as with any other bone, may be a matter of months or years. It is the most common surgical complication in civil practice, and, from the preventive standpoint, easily the most important. In our experience the factors responsible for delayed healing are usually multiple, and in any given instance the relative importance of each is difficult to assess. It is therefore essential that every possible cause be investigated and carefully eliminated.

Although most fractures of the mandible are compound and are necessarily infected from the buccal cavity, sepsis *per se* does not appear to be the deciding factor in delayed union. Everyone has seen sound bony union occur in the continued presence of sepsis, and repair become almost complete before the infected bone clears up or the last sequestrum is discharged. That it is of importance, however, cannot be denied, particularly if it is associated with an extreme degree of bone necrosis and comminution, or with surgical or other foreign bodies in the neighbourhood of the fracture line. Among the ordinary foreign bodies we include interpolated soft tissues, sequestra, and teeth or portions of teeth. The last we feel to be most important, and especially so if the *x*-rays show periapical absorption. Other infected teeth are also important foci of chronic sepsis. Surgical foreign bodies include anything which has been introduced at the time of the injury, but, more particularly, wires, plates, or screws used by the surgeon in an unwise effort to secure a precarious immobilization by direct means. We are strenuously opposed to any method of intra- or extra-oral fixation entailing foreign bodies which penetrate the medullary cavity of the bone ends and lie in the fracture line. These must soon cause necrosis and absorption. If none of these factors appears to be present poor approximation of the fragments or inadequate fixation must be held responsible.

The treatment of patients presenting themselves with delayed union must therefore include, in conjunction with a competent dentist, a careful review of the methods of previous fixation and of the reasons for their inefficiency. An investigation must then be made into the conditions present at the site of fracture, and a thorough search begun for all possible causes of continued sepsis. Good *x*-rays in many positions are, of course, essential. With removal of all foci of infection, drainage of abscesses, and interdental fixation in good position, sound union may be predicted in most cases. As an adjunct to treatment electro-vibro-massage and other methods of increasing the blood supply at the bone ends are useful. The splints should be removed at the earliest possible moment, and simple massage and voluntary movements instituted. In a few instances, however, bone fails to be laid down in the fracture line, and the case becomes one of non-union.

Non-union

Absolute failure of union with the development of a pseudo-arthrosis is rare in civil practice, but it may follow any of the causes enumerated above. Thus, while it may not be considered as established for many months in the case of preventable causes being allowed to persist, it may be determined immediately by the interposition of soft tissues, or by extensive loss of bone at the time of the accident. It was fairly common during the war in gunshot wounds with severe sepsis and much comminution, and is seen at present as a result of explosions and bad collision accidents. Strenuous efforts have usually been made to obtain union, but the most prolonged fixation and careful treatment are unsuccessful. Between the eburnated bone ends lies a mass of fibrous tissue, which effectually precludes the chance of osteoblastic activity. The amount of movement between the fragments varies considerably, and in certain cases where occlusion is reasonably good and bone loss small the fibrous union may be sufficiently firm to give a satisfactory functional result. These cases require no interference or, at the most, careful removal of the interposed tissue, freshening of the bone ends, and resplinting in good position. For losses over 1½ cm., however, it is usually necessary to graft.

Loss of Bone Substance

As this condition constitutes the most serious of all the surgical complications of fractures of the mandible it warrants careful attention. It may be stated at once that whenever the loss of bone substance has been so extensive that reasonable approximation of the fragments and occlusion of the standing teeth are incompatible, bone grafting will become necessary.

In general, these conditions are fulfilled when the final gap exceeds 1.5 cm., although exceptional instances occur when bony union takes place with even wider separation. Approximation of the fragments in recent fractures with loss of bone would probably result in more certain bony union, but only at the cost of complete loss of dental occlusion and marked distortion of the jaw. Only when the mandible is completely, or almost completely, edentulous, or in old and enfeebled patients in whom grafting is impracticable, is it permissible to secure approximation at the expense of occlusion. On the other hand replacement of the fragments in normal position, irrespective of the amount of bone loss, places the surrounding soft parts under normal tension, largely precludes the possibility of their interposition, and allows the gap to fill with blood clot in which osteogenesis may proceed normally. Torn strips of periosteum, the presence of which can only be guessed at, may cross the defect and hasten the process materially, thus accounting for those cases in which bony union has resulted in gaps of apparently over 1.5 cm. Ample opportunity must be given for union to take place spontaneously, and all the factors already discussed must be carefully considered before bone grafting is decided upon. Non-union with good occlusion, due to too great separation of the fragments, which can be corrected by bone grafting, is to be preferred to bony union by approximation obtained at the cost of loss of function.

It is of supreme importance to wait until all sepsis has subsided and all possible foci of infection and foreign bodies are removed. At least three months should elapse

from the last signs of sepsis before bone grafting is undertaken. In the meantime, the fragments are controlled by means of splints adapted to the individual case. Experience during the war has given us a wide variety of methods of bone grafting, each with its own indications. It is not proposed to discuss full details of operative technique, but rather to indicate the advantages and disadvantages of each.

BONE GRAFTING

Pedicle Graft.—This method, advocated by Cole, consists in the removal of a block of bone from the lower border of one of the fragments, and shifting it bodily, complete with its muscular attachments, into the gap. It has the advantage of being easy to perform, is not liable to sepsis, and may be used for small defects. Its disadvantages are that the union is liable to be springy, as it occurs only along the lower border of the mandible, and no regeneration of the bony tissue of the alveolar portion takes place. It is unsuitable for large gaps and, cosmetically, it is indifferent. On the whole, it offers little over the plain block graft from the ilium or tibia.

Block Tibial Graft.—The adoption of the simple method of cutting a suitable block of bone from the tibia and wiring it between the fragments in an end-to-end position has long been advocated by Albee. Lane first showed that the use of wire in the absence of sepsis is a perfectly safe procedure, and that it gives considerable inherent stability to the fragments during healing. The tibia as a source of bone, however, has certain disadvantages. The graft is difficult to shape and to manipulate, and its removal may be followed by a good deal of weakness in the leg. Furthermore, the osteoblastic activity of the graft is not great. For these reasons tibial grafts have been largely abandoned except for very small defects.

Osteoperiosteal Graft.—This graft, attributed to Delagénière, is obtained by removing a very thin strip of cortical bone from the tibia, complete with the overlying periosteum. It is divided into four pieces, which are then inserted into the prepared mandibular defect so that they entirely enclose the gap with the bone surfaces facing each other across it. The grafts contain all the elements necessary for osteogenesis, and at the same time are flexible and easily adjustable. No disability of the leg follows this operation. Consolidation, however, requires a much longer period, and during this time no dependence can be placed on the graft itself for maintenance of the mandibular fragments. It is useful for very small or for very large gaps, and, in particular, where an acute curve is required, such as in the region of the symphysis. It is also useful where the blood supply of the bone ends is poor, and in children where the crest of the ilium is still cartilaginous.

Osteochondral Rib Graft.—This method (Gillies, 1919) entails the use of the seventh or eighth rib of the opposite side, including the costochondral junction and the bone as far round as the point of maximum convexity. It is only indicated where the loss of bone includes the whole of the ascending ramus. The bony portion of the graft is wired to the refreshened anterior fragment, while the point of maximum convexity forms the new angle of the mandible, and the ascending ramus is represented by that portion of the costal cartilage which runs upward to the sternum. A false joint in the neighbourhood of the glenoid fossa is thus made, and a cosmetic and functional result accrues.

Iliac Graft.—This is so superior to all other types that it has almost entirely superseded grafts from other sources, except in children, where the crest of the ilium is cartilaginous. A curved piece of bone, easily bent and manipulated, and consisting of a tough outer shell of compact bone and a considerable amount of cancellous tissue, may be cut with ease from the iliac crest behind the anterior superior spine without any subsequent disability. The osteogenetic power of this graft is high. As originally described by Lindemann, it consisted in a shaped iliac block wired between the fragments with end-to-end union. Chubb, who elaborated the method with extraordinary success at Sidcup, obtained perfect union in over 90 per cent. of 100 successive cases. He states that the aim in every case is to obtain a sound carpentering junction between the graft and the jaw fragments, the bones being so trimmed that they fit end-to-end with accurate apposition of the largest obtainable area of exposed vascular bone tissue. The method was evolved principally to control the endentulous fragment, and to facilitate union by early removal of the splints so that the junctions are exposed to the stresses of voluntary muscular action. Bone deposition is greatly stimulated by early stress, so that union of ivory hardness may be obtained at the end of three to four months.

A simpler method, and one not demanding so high a degree of craftsmanship, is to clear the ends of the fragments for 1 to 2 cm., to remove a shaving from the outer side of the bone ends, and to wire the graft to them in close overlapping apposition. We have obtained good results in this way. Kilner uses mattress sutures of wire introduced through appropriately placed holes drilled in the graft and the bone ends. This enables considerable dependence to be placed on the stability of the graft for the replacement and control of the posterior fragment. Figi utilizes chromic catgut by the same technique. Billington and Round omit all fixation and splints, and merely place the graft in a soft tissue cavity overlapping the bone ends, but in close contact with them. Two weeks later, while the union is soft, the jaw is manipulated into position and splinted. Experience shows, however, that some control of the posterior fragment is desirable.

The present position of bone grafting of the mandible may therefore be summarized as follows.

1. The ilium is the best source of supply, and the iliac graft will be found satisfactory in the vast majority of cases. It should be fixed by wire, and an overlapping junction probably results in earlier union and is certainly easier to perform than an end-to-end junction.

2. The pedicle graft is useful for small defects, but has no advantages over the plain block iliac graft.

3. The osteoperiosteal graft is indicated in very large gaps, in very small controlled gaps, and in tissues the blood supply of which is poor; it is also useful for bony losses in the symphysis region, where a marked curve is required.

4. The osteochondral graft is indicated where the condyle of the mandible is lost, together with the whole of the ascending ramus. It has a distinct field where half the mandible is removed surgically and a false joint is required.

Fixation

In any of the special circumstances which have been enumerated the method of fixation is particularly important. There are, in general, three types of intra-oral fixation: interdental and intermaxillary wiring; metal cap splints; circumferential wiring. The first depends upon sound standing teeth in both upper and lower jaws, though not necessarily in the posterior fragment. The second requires sound standing teeth in both upper and lower jaws, or standing teeth in the lower jaw only, provided they are in both fragments. Circumferential wiring is carried out by passing a wire round the fragment so that it may be hitched up to an intra-oral plate or splint bridging the gap. It is of particular use in edentulous patients

and where the central edentulous fragment has become depressed below the level of the two adjoining fragments There is no doubt that for immediate fixation in the majority of cases intermaxillary or interdental wiring is the method of choice It is quick, easily applied at short notice and requires no elaborate dental fitting or apparatus Metal cap splints, *when properly applied*, undoubtedly give the most accurate fixation, and should be used where intermaxillary wiring has failed, where delayed union makes the most perfect fixation necessary, or preparatory to bone grafting They are particularly indicated where, with standing teeth in both fragments, rigid fixation may be obtained without immobilizing the temporo mandibular joint.

Complications Involving the Soft Parts

Obliteration of the Buccal Sulcus

In nearly all cases which have been bone grafted loss of the alveolar ridge obliterates the inferior buccal sulcus In a few severe fractures of the lower jaw also the injury is so extensive that the sulcus is partly or completely destroyed In riding, flying, or motoring accidents, or in those resulting from explosions, the lower lip or cheek may be so severely lacerated that the same effect is produced Other causes are extensive destruction of the alveolar ridge and continued sepsis at the site of fracture When the fracture heals and the sepsis clears up it is found that the buccal sulcus is so shallow as to make the fitting of a stable denture impossible The treatment of this complication is exceedingly satisfactory By the Sidcup modification of the method of Esser, called the "buccal inlay," the adhesions between the mandible and the lower lip or cheek are separated, and the resulting raw area grafted with a Thiersch graft cut from a hairless portion of the body, preferably the inner side of the upper arm Pressure is maintained on the graft by means of a Stent mould of the defect held by a dental appliance previously fitted to the lower teeth After ten days, when epithelialization is complete, the mould is removed and is replaced by a gutta percha or vulcanite mould of similar shape This is maintained *in situ* until all tendency for the cavity to contract has ceased When this period is over the denture can be fitted

Facial Deformities Resulting from Fracture of the Mandible

In dealing with mal-union mention was made of the treatment of irregularities of contour of the jaw, such as the "flat" or too prominent angle Any such unevenness may be simply dealt with, on the one hand, by means of fat grafts introduced at appropriate sites, and on the other by the removal of excess bone, so that the jaw line is smoothed out and normal symmetry regained In addition to concealing the defects of bony contour, it is frequently necessary to excise and resuture depressed scars of the chin or cheek caused by the original injury These are frequently associated with the deep depressions adherent to the bone, which indicate the former presence of sinuses Careful excision of all scar tissue and freeing of the skin from deep structures, together with local rearrangement of fat flaps or the introduction of fat from elsewhere, followed by resuture, will do much to obliterate all trace of what would otherwise remain as an unsightly disfigurement

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THE CRONIN LOWE SERUM REACTION FOR MALIGNANCY

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Widespread interest has been aroused by the recent publication by Cronin Lowe[1] of a reaction claimed to be diagnostic of malignancy This new test is a development of the vanadic acid flocculation reaction devised by Bendien[2] which, when coupled with a means of subjecting the precipitated protein to a spectrophotographic examination, was said to lead to results of diagnostic value It has now been generally accepted, following upon the serious criticisms levelled against the value of the spectrophotographic examination by Smith, Holiday, and Marrack,[3] that the serum reactions as described by Bendien do not provide any basis for arriving at a diagnosis of malignancy, hence the need of replacing them by others likely to prove more successful

The test devised by Cronin Lowe is of a triple nature, the vanadic acid preparation of Bendien being performed on (1) *untreated serum*, (2) *heat inactivated serum*, and (3) *ether extracted serum* In general, with a given vanadic acid mixture in the region of "first precipitation," if A, B, and C are used to denote the yields of protein deposit resulting respectively from each phase, then A is greater than B and less than C If from these values a ratio be computed in the form of $\frac{C-A}{A-B}$, then a ratio greater than unity is observed for malignant cases, while other serums show a ratio less than unity It is claimed that on this basis an accurate diagnosis as to the presence or absence of malignancy can be made in at least 95 per cent of cases, and if certain grossly septic cases held to be responsible for introducing a complication into the reaction be left out of account the figure is raised to 98 per cent These results are so striking that if the necessary confirmation be forthcoming the Cronin Lowe reaction would represent practically the most valuable diagnostic test known to clinical medicine The present investigation was undertaken with a view to formulating an opinion with regard to the value of the test

Our initial results fell lamentably short of the success which had been reported, and, after full investigation, and seeing no hope of reconciling our findings with his, one of us communicated with Dr Cronin Lowe, who thereupon kindly provided us with very full technical details upon all the points of procedure which were regarded as being likely to cause discrepancies in results Further work performed with the aid of this extra information still left us far short of achieving a diagnostic reaction, and we are thus obliged to conclude our investigation by presenting results which provide no confirmation of the usefulness of the triple reaction as a test for malignancy It should be made clear that the present paper deals solely with results obtained subsequent to receiving the private communication from the original author.

TECHNIQUE ADOPTED

Every precaution was taken to reproduce exactly the conditions laid down by Cronin Lowe. Unfortunately, however, the interferometric apparatus employed by him in the estimation of the protein deposits was not part of the equipment of this laboratory, and is too expensive an instrument to acquire solely for the purpose of this investigation. It was thus necessary to substitute an alternative method of protein estimation. This may account for some of the difference in the accuracy of our diagnostic results as compared with the original, but it could only affect those near to unity ratio and could make no serious alteration in the general trend of the findings. Moreover, the original author has himself expressed the opinion that the interferometer is by no means to be regarded as indispensable to the success of the test. After testing the application of several different methods of protein estimation we adopted the Wu colorimetric method[1] as being the most suitable for the purpose as well as accurate and convenient.

The procedure adopted is exactly that described in the original paper up to the point of estimating the protein deposits. These are dissolved in 2 c.cm. of N/70 NaOH, allowed to stand until practically colourless, then transferred to a 10 c.cm. graduated tube, 5 to 6 c.cm. of distilled water being used for the purpose. After the addition of 1 c.cm. of 20 per cent. sodium carbonate and 0.1 c.cm. of the special Wu "phenol reagent," the volume is made up to the 10 c.cm. mark with the distilled water. Following thorough mixing, the colour is allowed to develop for twenty minutes and then compared in the colorimeter with a standard similarly prepared from 0.5 c.cm. tyrosine standard solution (containing 0.02 per cent. of the amino-acid), 2.5 c.cm. of the sodium carbonate, and 0.25 c.cm. of the phenol reagent in a total volume of 25 c.cm. This standard provides a colour intensity in close approximation to that from 1 mg. of protein deposit, corresponding to 40 units, which is the index of "first precipitation" accepted by Cronin Lowe. (Actually, if the whole of the protein deposit consisted of serum globulin the figure would be 1.04 mg.; if albumin, 1.10 mg.)

TABLE I.—*Malignant Cases*

Case No.	Reactions: Malignant	Reactions: Non-malignant	Clinical Conditions	Evidence of Disease H.=Histological O.=Operative C.=Clinical
3	—	5. 0.9/26.2	Epithelioma of cheek	H.
6	1. 21.9/0.5	—	Carcinoma of oesophagus	C.
8	—	7. 4.2/28.6	Carcinoma of breast	H.
9	—	4. 8.8/11.4	" " "	C.
10	5. 18.4/8.8	—	" " "	H.
12	—	6. 4.6/11.0	Rodent ulcer	C.
15	—	B.* 21.6/23.6	Carcinoma of breast; died	C.
18	A.* 12.3/9.9	—	Carcinoma of rectum	H.
23	4. 9.9/8.4	—	Carcinoma of transverse colon	O.
27	5. 12.6/3.1	—	Malignant papilloma of bladder	H.
30	—	5. 2.6/19.8	Malignant thyroid; glands in neck	H.
37	—	B* 5.3/19.2	Carcinoma of right alveolar margin	C.
38	—	2. 0.8/3.8	Epithelioma of palate; glands in neck	C.
43	2. 1.2/-1.6	—	Carcinoma of stomach; died	P.M.
45	O.* 12.2/7.8	—	Carcinoma of colon, ulcerating through skin	C.
50	—	3. 5.4/15.4	Carcinoma of bladder; died	O.
52	—	3. 3.6/24.1	Carcinoma of lung; died	P.M.
54	3. 9.2/0.9	—	Carcinoma of breast	C.
55	3. 24.8/5.8	—	Carcinoma of sigmoid	O.
57	4. 0.0/-1.1	—	Carcinoma of caecum	O.

* The usual Bendien scale has been extended below 1 in successive steps in the order: I, O, A, B.

TABLE II.—*Non-malignant Cases*

Case No.	Reaction: Non-malignant	Reaction: Malignant	Clinical Condition	Evidence of Disease H.=Histological O.=Operative C.=Clinical
1	4. 7.0/29.4	—	Peptic ulcer	H.
2	5. 8.7/16.5	—	Appendicitis	H.
4	—	5. 17.8/12.0	Peptic ulcer	H.
5	—	5. 20.8/12.5	" "	H.
7	5. 10.0/14.1	—	Alveolar abscess	O.
11	1. 0.0/15.9	—	Chronic nephritis	C.
13	O. 4.2/20.8	—	Tabes	C.
14	O* Ether throw markedly negative	—	Chronic nephritis	C.
16	—	O. 12.4/3.7	Intestinal obstruction; died	P.M.
17	—	5. 34.6/11.4	Chronic mastitis	H.
19	—	5. 8.2/3.5	Hyperpiesis and arthritis	C.
20	—	6. 27.4/19.4	Hyperpiesis	C.
21	—	6. 27.0/6.8	"	C.
22	6. 12.0/31.0	—	"	C.
24	5. 3.6/13.6	—	Disseminated sclerosis	C.
25	—	5. 19.0/8.0	Hyperpiesis	C.
26	6. 1.6/21.6	—	Fatty hernia	O.
28	5. 1.7/15.1	—	Pulmonary tuberculosis	C.
29	6. 6.3/15.0	—	Cholelithiasis	O.
31	3. 15.0/20.4	—	Transverse myelitis	C.
32	—	5. 15.8/3.2	Nephritis	C.
33	—	4. 21.6/10.0	*Pulmonary tuberculosis*	C.
34	6. 11.8/22.7	—	Simple enlargement of prostate	H.
35	6. 9.1/10.7	—	Suspected lactating carcinoma of breast, shown to be non-malignant on section	H.
36	—	5. 18.5/17.9	Simple chronic lobular mastitis	H.
39	—	4. 19.8/10.9	Chronic nephritis	C.
40	3. -3.8/6.0	—	Pulmonary tuberculosis	C.
41	6. 5.6/24.8	—	Lipoma of breast	H.
42	6. 2.9/9.6	—	Tuberculous hip	C.
44	5. 6.9/15.7	—	Virilism	O.
48	—	5. 11.7/7.5	Duodenal ulcer	O.
49	3. 0.0/19.4	—	Food poisoning (mental case)	C.
53	4. 8.6/18.7	—	Rectal obstruction; no *abnormality following* barium enema	O.
56	—	6. 16.1/9.7	Benign tumour of breast	H.
58	5. 0.0/23.4	—	Haematuria proved to be non-malignant	C.

* A markedly lipaemic serum in which it was very obvious on inspection that C was much less than A, and A only slightly greater than B. The enumerator was therefore clearly less than the denominator; hence, according to rule, the reaction must be styled non-malignant.

INTERPRETATION OF FINDINGS

The present investigation has dealt with a series of fifty-nine cases, of which twenty were definitely malignant and thirty-five were non-malignant but pathological, while four cases remain unclassified because the presence or absence of malignancy could not be decided upon with certainty. No normal healthy cases were included. The essential data furnished by the investigation has been assembled in Tables I and II, wherein the reaction ratios are shown for each case, immediately preceded by the Bendien number denoting the first precipitation tube. With the diagnosis is given the nature of the evidence upon which it is based. For convenience in the tabulating of results reactions have been recorded as malignant or non-malignant according as to whether the calculated ratio falls

greater or less than unity, without reservation in the first instance in regard to those which are likely to be affected by the experimental error of the method. In the final review of the results of this type it is essential that such inherent errors be brought into account. The notable absence of any such qualification about Cronin Lowe's results constitutes a serious criticism of his findings, a point which will be raised again at a later stage.

In determining the extent to which results are strictly reproducible we have found that, in general, duplicate results lie within 5 per cent. of the mean, and that it is impossible to ensure consistently any better agreement than is represented by this margin; in other words, an individual reading cannot be guaranteed as being within a narrower range than two units—that is, 5 per cent. of forty—of the correct figure. Allowance must therefore be made for a possible maximum error of four units on both numerator and denominator. Thus only those cases in which the difference between numerator and denominator is greater than eight units may be regarded as lying clearly outside possible error, and these are described as "frankly" malignant or non-malignant in reaction according as to whether the ratio exceeds unity or not. Those in which the difference is between four and eight units can only be regarded as "presumably" malignant or non-malignant. The remaining results cannot be classified by the reaction formula. On this basis the results recorded in the tables may be summarized thus:

A. Malignant cases.

(1) Number giving frankly malignant reactions ...	5
(2) Number giving presumably malignant reactions...	1
(3) Number giving frankly non-malignant reactions...	6
(4) Number giving presumably non-malignant reactions	1
(5) Number impossible to classify	7

B. Non-malignant cases.

(1) Number giving frankly non-malignant reactions	17
(2) Number giving presumably non-malignant reactions	3
(3) Number giving frankly malignant reactions ...	9
(4) Number giving presumably malignant reactions...	4
(5) Number impossible to classify	2

In practice, using the reaction for diagnostic purposes, one would probably be obliged to reserve judgement on those which did not fall into Groups A1 and B1, A3 and B3. In such circumstances, so far as our present series is concerned, a verdict could be given on thirty-seven out of fifty-five cases submitted for investigation (67 per cent.). Of these the reaction, according to our findings, is only capable of providing the correct result in twenty-two cases, or 60 per cent. By carrying out duplicate or triplicate tests, the majority of the cases falling into Groups A2 and B2, A4 and B4 would find satisfactory confirmation on the malignant or non-malignant side as they now stand. If, therefore, we include these cases for the purposes of calculating the correctness of results, we have a verdict given on forty-six cases out of fifty-five —that is, 84 per cent.—which is right in twenty-six instances—amounting, that is, to 57 per cent. correct.

In view of the large percentage error on the series taken as a whole, little is to be gained by an analysis of the malignant cases into groups according to the site of the tumour, or of the non-malignant cases into the types of disease which comprise them. Among the malignant diseases the most satisfactory group is that associated with the gastro-intestinal tract. The results in all six cases examined fall on the right side, but of these only one gives what is described as a frankly malignant reaction. A less satisfactory conception of the possible value of the test in relation to the diagnosis of malignancy in the gastro-intestinal tract is obtained when we turn to the corresponding group on the non-malignant series, for they likewise have, if anything, a tendency to a ratio exceeding unity, four out of seven cases responding in this manner, and thus represent a large error. The only other prominent feature is to be discovered in the group of cases of well-marked hyperpiesis, of which four out of five give a frankly malignant reaction. Finally, attention might also be directed to Cases 3, 7, and 12, which represent superficial and highly localized growths, and which give reactions of the non-malignant type.

DISCUSSION

It is at once obvious that, from whatever angle one looks at these results, they conflict sharply with those of Cronin Lowe. His diagnostic test has clearly been of no diagnostic value in our hands. The total discrepancy is so wide that there appears to us at present no means of fully accounting for what are really diametrically opposed findings. A different choice in the method of protein estimation could scarcely have made any appreciable difference to the most important groups of our series, as has already been explained. Indeed, many of the major errors which have been encountered could quite well be noted on naked-eye inspection of the three deposits before engaging on the estimation stage. The technique involved in the preliminary treatment of the serum and its fractional precipitation might be held responsible as leaving sufficient latitude for notable discrepancy. It should be emphasized, however, that before commencing upon the series we were at pains to ensure that quite independent interpretation of the technique described in full detail by the original author in the personal communication already mentioned gave reasonably close agreement in the final formula (within the range of ± 2 units of the mean as noted in an earlier section). We hope, therefore, to make it plain that we have adopted throughout every practicable measure to ensure the avoidance of discrepancies arising out of possible differences in technique.

Coming now to the examination of the results published in Cronin Lowe's original paper, it is possible to direct serious criticism against some of the important aspects of the reaction as a diagnostic test. Neither from the text nor from the tables does it appear as if there were any borderline cases. Every ratio, no matter how near to unity, is given significance according as it falls on one side or other. Thus, to take examples, from Table II there is a 15/17 ratio recorded as a non-malignant, and a 38/40 ratio as a malignant, result. Accepting for the moment that this last ratio has somehow crept into its wrong place, and laying stress only upon the practical equality of numerator and denominator, it seems to us wholly unjustifiable to rely upon these and similar figures for diagnostic purposes, since, even supposing the protein estimation is itself capable of the highest degree of accuracy, the preliminary procedure does not lend itself to mathematically precise results. It involves a somewhat crude and inefficient form of lipoid extraction, followed by a flocculation reaction of a type which can sustain no claim to being capable of providing knife-edge partition of protein. One is therefore justified in assuming a critical attitude towards figures which depend for their significance upon minute differences in protein deposits. In the cases cited they amount to 0.05 mg. of protein.

Moreover, this ratio upon which the diagnosis rests cannot be held to be an expression of any special property (or simple interplay of properties) belonging to the particular blood serum against which it is recorded. There are

no general terms by which it is possible to relate the inactivated "throw" with the ether "throw." Quite an arbitrary standard is chosen upon which to fix the reagent to be applied. Move one to the right or left on the Bendien scale and the ratio becomes numerically quite different, and may even be reversed in regard to the sign of the numerator-denominator difference. In other words, a serum showing a non-malignant reaction when associated with one Bendien number may show a malignant reaction with the next. If the ratio were an expression of some property of the serum then there ought to be at least some semblance of order to be made of the changing results as conditioned by slight systematic alterations such as that mentioned. In practice we find these changes as recorded by the ratio to be chaotic, and this fact alone raises doubts as to whether diagnosis based upon this highly unstable factor could be made dependable to the extent of 98 per cent.

One final point confirms our scepticism. We have found no evidence that the ratio has any relation whatever either to the general condition of the patient or to the degree of malignancy. In the large number of cases dealt with in the original paper no connexion was traced either. Such correspondence as existed between clinical malignancy and the reaction was arrived at on the basis of the primary Bendien reaction, not of the ratio. It would be extremely unlikely that any factor capable of picking out so exactly one type of disease from all other pathological cases, and especially one that was capable of being recorded in arithmetical form, would not reveal in the course of extensive examination some directional evidence of the course or severity of the disease which it diagnoses.

SUMMARY

The application of the Cronin-Lowe reaction as a diagnostic test for malignancy has been studied in the course of an examination of a series of fifty-nine pathological cases. In our hands the reaction gives a correct result in only 60 per cent. of cases. Attention is drawn to certain inherent defects in the method as a means of diagnosis. Our conclusion is therefore that the method has no diagnostic value.

We have to express our warmest thanks to the physicians and surgeons of Charing Cross Hospital, and to Dr. Avery of the London Jewish Hospital, for permitting access to their patients and lending their helpful assistance in points of diagnosis; to Dr. H. W. C. Vines for placing at our disposal his histological and post-mortem findings; to Mr. L. D. Scott of the biochemical department for his co-operation and technical assistance; and also to the ward sisters for their kind help.

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SIMPLE ACHLORHYDRIC ANAEMIA IN ADULT MALES

BY

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Cases of ear diseases were formerly somewhat wittily divided into those which benefited by syringing and those in which syringing did no good. Similarly, cases of anaemia could be divided into (1) those which benefited by iron, and (2) those in which iron did no good. Cases of anaemia of the first group might well have been supposed to be due to a deficiency in the amount of iron ingested or to a defect in its assimilation, but if we were to carry our analogy further we should come to divide ear diseases into (1) "syringing-deficiency" cases, and (2) all the other cases. With regard to cases of auricular fibrillation in which digitalis is a necessary "food," one may truly speak of "digitalis-deficiency symptoms" arising on the omission of digitalis. In regard to anaemia, some cases are now acknowledged to be really due to iron deficiency in some way or other, notably a large proportion of the cases in which anaemia is associated with gastric achlorhydria or extreme hypochlorhydria, and which have been grouped together by Witts under the heading "simple achlorhydric anaemia."

We cannot here enter into the history of the clinical separation of this group of cases from those of pernicious anaemia (Addison's anaemia, Biermer's anaemia), in nearly all of which there is gastric achlorhydria or achylia, but which are not markedly benefited by the administration of iron. It will be sufficient for us to point out that L. J. Witts[1] found that of cases of chronic microcytic (hypochromic) anaemia 86 per cent. occurred in women, and that the women affected were mostly in the reproductive period of life and of the so-called "asthenic constitution"; gastric achlorhydria was present in 80 per cent. of the women, constituting cases of "simple achlorhydric anaemia" (Witts and others). In regard to the occurrence of "simple achlorhydric anaemia" in children, we would refer especially to papers of F. M. B. Allen and G. P. McCullagh[2]—three of whose cases were in one family—and of L. G. Parsons,[3] who thinks that simple achlorhydric anaemia of adults is very similar to, if not identical with, "nutritional anaemia of infancy."

During recent years we have seen four cases which we class as simple achlorhydric anaemia in adult males. During the same period under observation at the hospital there have been at least forty typical cases of simple achlorhydric anaemia in women. Thirty of these were summarized by Dr. O. B. Bode and Dr. W. Weisswange,[4] and Dr. O. B. Bode and Dr. G. Krumm[5]; these patients were mainly between 40 and 50 years of age, and an "asthenic constitution" was not specially noted in them. Following are résumés of the four cases in adult males.

CASE REPORTS

1. A dock labourer, aged 56, came under observation in September, 1930. He was a fairly well built man, but pale, and had for several months been troubled with breathlessness on exertion. Blood count: haemoglobin, 40 per cent.; erythrocytes, 3,700,000; colour index, 0.54; leucocytes, 4,650 per c.mm. (basophils 1 per cent., eosinophils, 6 per cent., polymorphonuclears 73 per cent., lymphocytes 27 per cent., monocytes 3 per cent.). Fractional examination of the gastric contents showed complete achlorhydria, even after subcutaneous injection of histamine. Negative Wassermann reaction. Brachial blood pressure: 130/80 mm. Hg. Nothing special was noted by ordinary examination of the thorax, abdomen, urine, etc.

The patient was treated with ferrum reductum and with hydrochloric acid and pepsin with meals. In January, 1933 (about two and a quarter years later), the blood count gave: haemoglobin, 95 per cent.; erythrocytes, 4,800,000. He still had complete achlorhydria, even after subcutaneous injection of histamine; the gastric contents contained a little

pepsin after the histamine. Dr. Price-Jones, who kindly examined blood films, stated that they still showed traces of anaemia; there were anaemic red cells (quite a number), some achromic and many hypochromic; the mean diameter was on the small side, and there was a trace of microcytosis. The Price-Jones curve had the look of a *normal curve, but* the variability was too high.

2. The second case was that of a sausage maker, aged 34, who came under observation in September, 1932, with a history of having been subject to recurrent diarrhoeal attacks for the past ten or eleven years. Fractional examination of the gastric contents showed complete achlorhydria, even after subcutaneous injection of histamine, but pepsin was present. Brachial blood pressure: 120/75 mm. Hg. Negative Wassermann reaction. Though the patient looked somewhat pale, *his blood* showed hardly any anaemia, and he was treated only by hydrochloric acid and pepsin with his meals, and by carbo animalis when he had diarrhoea.

On October 21st, 1933, he said that he still tended to have loose motions and "dared not eat raw fruit" for fear of inducing a regular attack of diarrhoea. Blood count: haemoglobin, 81 per cent.; erythrocytes, 4,320,000; colour index 0.94; leucocytes, 4,800 per c.mm. (eosinophils 1 per cent., polymorphonuclears 70 per cent., lymphocytes 19 per cent., monocytes 10 per cent.). Dr. Price-Jones examined blood films in February, 1933, and wrote that there were a very few anaemic red cells scattered through the films, but too few to estimate; the mean diameter of the red cells was on the low side of normal mean; there was no microcytosis, and the variability of the distribution was also quite healthy. This case should perhaps be called one of achlorhydria rather than one of *achlorhydric anaemia, but for a man the blood count really* shows slight anaemia. We have recently seen two young women, aged 21 and 18 respectively, without decided anaemia though one showed complete achlorhydria and the other complete achylia.

3. An instructor of boxing, swimming, and cricket, aged 64, came under observation in May, 1933, for cutaneous pruritus in upper limbs and back. He was a well-built, slightly anaemic man. *Blood count: haemoglobin, 55 per cent.*; erythrocytes, 4,200,000; colour index, 0.65; leucocytes, 3,600 per c.mm. Fractional examination of the gastric contents showed complete achlorhydria, even after subcutaneous injection of histamine; a little pepsin present after the histamine. Brachial blood pressure: 165/90 mm.Hg. Negative Wassermann reaction. Otherwise nothing special. Fasting blood sugar: 0.095 per cent. He was treated with ferrum reductum and with hydrochloric acid and pepsin after meals. In July, 1933, his blood count was: haemoglobin, 71 per cent.; erythrocytes, 4,680,000; colour index, 0.76; leucocytes, 7,300 per c.mm. (eosinophils 5 per cent., polymorphonuclears 53 per cent., lymphocytes 33 per cent., monocytes 9 per cent.). No ova of intestinal worms were found in the faeces. A certain amount of pruritus still remains.

4. A commercial traveller and collector, aged 32, came under observation in December, 1932, with the history of looking pale for a long while and having had dyspeptic troubles for the previous four months. For some time he had had a sore tongue, which the dentist told him was not due to his teeth. In 1931 he had double pneumonia, and (at another hospital) was given two blood transfusions. Blood count (December, 1932): haemoglobin, 38 per cent.; erythrocytes, 2,400,000; colour index, 0.8; leucocytes, 5,750 per c.mm. (polymorphonuclears 77 per cent., lymphocytes 20 per cent., monocytes 3 per cent.); anisocytosis, poikilocytosis, and a little basophilia punctata. Fractional examination of the gastric contents showed complete achlorhydria, even after the subcutaneous injection of histamine; pepsin present after the histamine. Brachial systolic blood pressure: 115/45 mm. Hg. Negative Wassermann reaction. Vitiligo. In February, 1933, the spleen could be felt during inspiration.

The presence of achlorhydria was confirmed in January and July, 1933. In July no enlargement of the spleen could be detected, and the blood count gave: haemoglobin, 75 per cent.; erythrocytes, 5,000,000; colour index, 0.75; leucocytes, 6,950 per c.mm. (eosinophils 2 per cent., polymorphonuclears 62 per cent., lymphocytes 29 per cent., monocytes 7 per cent.); *very slight anisocytosis and poikilocytosis.* The out-patient treatment, doubtless somewhat irregularly taken, had been ferrum reductum and an acid pepsin mixture with meals. We have included this case, though Dr. Price-Jones, who examined blood films of December, 1932, and February, 1933, wrote that the extreme degree of poikilocytosis did not suggest simple microcytic anaemia.

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SEASONAL INCIDENCE OF ECLAMPSIA IN HONG-KONG

BY

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It is generally believed that the incidence of eclampsia is affected by climatic changes—for example, Tweedy[1] states that the disease is more common (in Ireland) when the weather is cold and damp, but that it occurs in hot countries more frequently than in countries with a temperate climate. He suggests that this may be connected with an insufficient consumption of water by the patient. It is exceedingly difficult to say how frequently any disease occurs among the Chinese. I know that a search of the more reliable hospital records in this colony has only yielded the histories of ninety-seven cases of eclampsia extending over an average period of, say, six years, the total population being upwards of a million. There have probably been many more cases during this period which have never found their way to any hospital.

It occurred to me that it might be of interest to compare the actual incidence of eclampsia and severe albuminuria in the different months of the year, Hong-Kong being a semi-tropical place, which has very definite seasonal changes. Unfortunately our cases are too few to warrant any sweeping deductions being made, but their publication may perhaps be of interest for comparison with statistics of the incidence of the disease in other parts of the world.

The climate of Hong-Kong may be described as semi-tropical; the winter is cool and dry, and the summer is hot and very damp. Officers of the Army and other much-travelled people tell us that the summer climate is unusually enervating, even for a tropical country. Although the temperature itself is never excessively high, the average humidity is very great. To go into further detail, we find that the months of January and February are more or less cold, the sky is frequently overcast, but there is little rain. Some time late in March a change occurs; the wind, which in winter usually blows from the north-east, turns to the south, or south-west, the temperature rises, the air becomes damp, and there are frequent showers. The weather does not become definitely hot until about the first week in May, and from then until the middle of September the hot and damp weather lasts. Throughout this time the rain comes at irregular intervals, usually associated with the proximity of a typhoon. About the middle of September a change is again noticeable, the wind, having been more or less southerly all the summer, tends to change to the north-east again. During the months of October, November, and December there is almost constant sunshine, the air becomes dry, and the temperature falls as Christmas approaches. The times at which seasonal

variations occur may be illustrated by a comparison of the following mean temperatures and rainfalls:

	Mean Temperature	Rainfall	Humidity
March ...	... 63.1°	2.8 in.	82%
May ...	... 76.9°	11.9 in.	84%
August...	... 81.6°	14.5 in.	84%
October	... 76.2°	4.8 in.	72%

The following table gives the average temperature, rainfall, and humidity in each month of the year, and the number of cases of eclampsia and severe albuminuria (other than eclampsia) which have occurred in each month.

Month	Mean Temperature	Total Rainfall	Mean Relative Humidity	Total Number of Cases	
				Eclampsia	Marked Albuminuria No Fits
		Inches	Per cent.		
January ...	59.9	1.315	75	11	6
February ...	58.8	1.804	78	10	4
March ...	63.1	2 833	83	3	—
April	70.2	5.556	85	4	—
May	76 9	11 954	84	9	1
June	80.9	15.449	83	6	3
July	82.0	14.595	83	6	6
August ...	81.6	14.519	84	3	6
September ...	80.6	9.714	78	11	6
October ...	76.2	4.835	72	10	1
November ...	69.3	1.733	63	10	5
December ...	62.9	1.013	69	14	3
Year ...	71.9	85.380	79	97	41

It will be seen that out of the ninety-seven cases of eclampsia sixty-six occurred during the months of September to February inclusive, as against thirty-one in the period March to August. Although our cases are far too few to prove that this is the true seasonal incidence of the disease in Hong-Kong it may be of interest to examine the table and to endeavour to find out if there are any suggestive factors which might exert an influence. The following points may be noted:

1. During the period September 1st to February 28th the humidity is lowest—that is, it is always below 80 per cent., whereas in the period March 1st to August 31st it is constantly over 80 per cent.

2. The period September to February includes the three coldest months of the year (December, January, and February); in the other period we have the three hottest months.

3. The months June, July, and August have the heaviest rainfall.

4. If the month of March be compared with February, and September with August, it will be seen that in March the temperature, rainfall, and humidity are higher than in February, but that the incidence of eclampsia in our series is lower. In September there is a drop of 1° in temperature, and nearly five inches less rainfall than in August; the humidity is reduced by 6 per cent., and, lastly, there is a marked increase in the number of eclamptic cases recorded.

The cases of marked albuminuria (without fits) have been taken from our own clinic; the condition is perhaps more common in the hot weather.

I wish to acknowledge any indebtedness to Mr. Claxton, lately director of the Royal Observatory, Hong-Kong, and to Dr. Chan, Dr. Lam, Dr. Bau, Dr. Ruttonjee, and Dr. Cheng for their kindness and help in obtaining particulars of cases at the Tung Wah (Eastern and Western), Kwong Wah, and Wanchi Hospitals.

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Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

CERVICAL RIB WITH SYMPTOMS DUE TO DROPPING OF THE SHOULDER CAUSED BY AN OBLITERATIVE PLEURISY

Radiology has shown the frequency with which cervical ribs occur, and clinical evidence shows that only 5 to 10 per cent. of them ever give rise to symptoms of any sort. From the *x-ray shadows* it is impossible to tell which cervical ribs are likely to cause symptoms and which are likely to remain silent, and the development of symptoms in a small percentage of cases has had many explanations, the common basis of which has been dropping of the shoulder due to strain or trauma.

Dr. Hurst, in a personal communication, told me that during the war he saw several cases develop as the result of handling a rifle, and he quoted a case of Sir Farquhar Buzzard's which was caused by the wearing of a heavy fur coat. Steindler[1] states that the twisting of the arm, the



pressure of a rifle, the wearing of a pack, or the excessive use of the arms may all cause symptoms in these cases, and that, quite frequently, the first symptoms appear during periods of ill-health, anaemia, or general debility where there is muscular weakness.

Other explanations, dependent on the time of ossification of the transverse processes and the growth of the rib at puberty, have been mentioned by Babcock[2] and Grisson,[3] but most authorities are agreed that the development of symptoms is most frequently due, not to any growth in size of the cervical ribs, but to drooping of the shoulder and consequent traction on the cervical roots, so that a compression neuritis results from pressure against the rib, against the fibrous band between the accessory rib and the first rib, or against the scalenus anticus.

The dropping of the shoulders in these cases is very often merely an implication from the history, and where it is bilateral direct evidence may be difficult to obtain; also, since drooping of the shoulders and a bad stance are so common among the general population, the evidence for this factor as the cause of symptoms is not clear-cut. The case I am about to describe appears to me to make the evidence more clear.

CASE HISTORY

A woman, aged 31, developed pulmonary tuberculosis in 1931. The disease was unilateral and left-sided, and artificial pneumothorax was performed, which was kept up for four months until the patient developed a large pleural effusion.

This was slowly reabsorbed, but instead of the lung becoming re-expanded, the chest wall fell in as the fluid disappeared, and the patient was left free from symptoms of tuberculosis, but with the left side of her chest collapsed and contracted. The contraction gradually became more pronounced, and there was very marked dropping of the left shoulder. The chest wall began to fall in during October, 1931, and in February, 1932, the patient complained of slight pain in the left forearm. Little attention was paid to this, and she was not seen again until January, 1933, when she complained of loss of power in her left hand, and stated that for some months she had had a sensation of "pins and needles" from the inside of the left elbow to the little finger and the lateral margin of the ring finger. Definite wasting of the intrinsic muscles of the hand was present; there was weakness of the forearm, and partial anaesthesia of the ulnar border of the forearm and of the little and ring fingers. The right arm was not affected. X-ray examination revealed a cervical rib on either side. Palliative treatment proved of no avail, and Mr. Grant Massie operated. He approached the rib from in front, and divided the band between the accessory rib and the first rib; the scalenus anticus was divided also. It was not considered necessary to remove the rib, and there has already been considerable improvement in the patient's symptoms.

References

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CONGENITAL DILATATION OF THE COLON TREATED BY DIVISION OF THE LUMBAR SYMPATHETIC CORD

The main features of the case reported below are that the constipation has been cured and the general condition of the child improved, but the colon has not been altered in any way. It is hardly to be expected that the colon would lessen much at the age of 2½ years, when the child was operated upon, but if operation could be undertaken at an earlier age, one would expect some shrinkage of the bowel.

The patient, a female, was first seen at the age of 6 months, and admitted to the Royal Manchester Children's Hospital in November, 1930. She was a full-time baby weighing 8 lb., and was breast-fed. The main symptom was extreme constipation, associated with attacks of vomiting and flatulence, during which the abdomen became very distended. Purgatives had little effect unless given in large doses at frequent intervals, and often the bowels remained unevacuated for intervals of a week.

On admission to hospital the child weighed 12 lb., and was fairly well nourished. The abdomen was uniformly distended and tympanitic. The bowels were difficult to move except with a high enema, when much loose motion was passed, together with some hard faecal masses. Nothing else abnormal was found. The *x*-ray report was as follows: "About three pints of barium suspension were introduced into the colon with ease. A very large uniform dilatation of the whole colon was seen filled with the barium, together with much gas." After a stay in hospital for three weeks the child was taken home by her parents.

Two years later, in October, 1932, at the age of 2½, she was again sent to hospital. She had remained very constipated, and during the previous few months had had attacks of subacute intestinal obstruction, during which she was very ill and the abdomen much distended. The *x*-ray showed a condition similar to that found two years previously. As this had become dangerous and no improvement had taken place it was decided to operate.

The abdomen was opened by a left paramedian incision. The whole of the large bowel was seen to be enormously dilated and hypertrophied, particularly in the sigmoid region. The second, third, and fourth left lumbar ganglia of the sympathetic cord were excised, and it is interesting to note that within a few minutes of the excision of the ganglia the sigmoid colon collapsed almost to a normal calibre. Learmonth and Rankin[1] advise division of the pre-sacral nerve and the branches of the inferior mesenteric plexus, which runs with the inferior mesenteric artery. Theoretically, this would seem to be the operation of choice, because the intestinal tube must derive its nerve supply bilaterally. Excision of the pre-sacral nerve is stated by some writers to have undesirable effects on the bladder and other pelvic viscera.

The child was seen again in April, 1933, six months after operation. During this period she had kept well in every way; the bowels had moved regularly. Small quantities of liquid paraffin had been given for several weeks after operation, but this soon became unnecessary. The child looked well, and had gained over 3 lb. in weight since operation. A further *x*-ray examination was made. The colon still showed very great distension and dilatation.

Comments

1. Removal of the left lumbar sympathetic chain, including the second, third, and fourth ganglia, has relieved the symptoms.

2. The visible gradual collapse of the sigmoid colon after division of the sympathetic might be due to relief of spasm at the pelvic rectal angle.

3. The onset of the symptoms, when the child was a few months old, and the changes in the bowel wall suggest that the condition may be congenital and analogous with congenital pyloric stenosis.

4. Earlier diagnosis and operative treatment, before hypertrophy and dilatation of the bowel are pronounced, is indicated.

Reference

[1] *Ann. of Surg.*, October, 1930, p. 710.

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Reports of Societies

PROGNOSIS OF PEPTIC ULCERS

A discussion on the prognosis of peptic ulcers was held in the Section of Medicine of the Royal Society of Medicine on November 28th, with the president, Sir Farquhar Buzzard, in the chair.

Dr. Charles Bolton explained that the aspect of prognosis with which he proposed to deal more especially was the probability of permanent healing. This depended on the stage of development to which the ulcer had advanced. He reviewed the facts which were known in this connexion, illustrating his points with lantern slides of healing ulcers, radiographs, and statistical tables. As regards prognosis in the acute type of ulcer, no statistics were forthcoming, but there was ample reason to believe that it healed in the vast majority of cases. When acute toxic ulcers were experimentally produced in animals, these healed invariably in three to four weeks. There was no reason to believe that man was exceptional in this respect. In necropsies on patients dying from haemorrhage it was usual to find that the ulcers were well advanced towards healing, their tissues being indurated, and the fatality being due to the invasion of an artery caught up in the fibrosed mass. Many slides were shown of multiple ulcers, and it was stated that such multiplicity was associated with a process of healing—namely, scarring. Moreover, the ulcers in patients dying from acute infective diseases not uncommonly showed signs of healing. When this did not ensue in acute ulceration, a subacute or chronic condition set in. There were three good reasons for believing that the cause of this was the functional disturbance of the stomach, leading to delayed emptying and hyperacidity of the gastric contents. In the first place, when medical treatment was directed towards the rectification of these two conditions, it resulted in the healing of the ulcer. Moreover, Crohn had shown that

while an ulcer was healing under medical treatment, the emptying time of the stomach was shortened, and the acidity of the contents was as a rule diminished. Thirdly, it had been shown experimentally that a delayed emptying of the stomach, associated with hyperacidity, converted an acute ulcer into the subacute type. Bacterial infections played the chief part in the formation and spread of peptic ulceration. Passing to subacute and chronic ulcers of the stomach and duodenum, Dr. Bolton said that the prognosis was not so good as in the case of acute ulcers, but in his own experience and in statistical records generally there had been ample evidence that in proper conditions they would heal well. At necropsies, for example, scars were as frequently found as open ulcers. At operations, scars and healing ulcers were sometimes excised. The *x*-ray signs of ulcer disappeared under medical treatment in about 70 per cent. of the cases, or, including those much reduced in extent, in 80 to 90 per cent. Dr. Bolton had found that seven out of twelve cases remained healed, and that 80 per cent. of all recurrences appeared within two and a half years. If the symptoms had continued less than a year before adequate treatment was begun, cure might be expected in 60 per cent. of the cases, but if the condition had dragged on without proper medication for more than five years, the chance of cure was reduced to 5 per cent. There were three possible causes for the return of symptoms. The ulcer might persist in an unhealed condition. A new ulcer might form in another situation. The scar might break down; the incidence of this event was difficult to substantiate. The scar was, however, less resistant than the normal stomach wall, because the mucous membrane covering it was deformed, thin, and elementary, and was implanted on a fibrous tissue which was poorly supplied with blood. Lantern slides of the histological appearance were shown to demonstrate this point. The speaker stated that the prognosis was unsatisfactory in these cases in proportion to the chronicity of the lesion. While there were at present too few statistical data as regards *x*-ray follow-up cases to justify a reliable assessment, it was probable that at least 50 per cent. probably healed. The early institution of full and adequate medical treatment might be expected to cure 90 per cent. of cases of peptic ulcer. The part played by surgery in peptic ulcer was intervention in cases of lesions which would not heal, or recurred. The best prognosis would be obtainable when there was a judicious combination of medicine and surgery.

Dr. J. J. CONYBEARE remarked that the exact diagnosis of chronic peptic ulcers by radiography and chemical investigations was an accomplishment of comparatively recent date, and, consequently, few cases had as yet been carefully watched for long periods with a view to determining whether cure was absolute. He devoted himself particularly to two aspects of prognosis—namely, the additional risks of death from ulceration and the question of later morbidity. The probability of survival after perforation had much increased during the last ten to fifteen years. Thanks mainly to improvements in surgical technique, no more than 1 per cent. of patients died now from this complication. Haemorrhage occurred in 10 to 20 per cent. of all cases, but the risk of death due to this was relatively small. In a survey at Guy's Hospital covering ten years 2 per cent. of patients had died from this cause, and in the case of peptic ulcer as a whole the mortality rate from haemorrhage might be taken as 1 in 400. Another danger was that of malnutrition following pyloric stenosis which might terminate fatally, or lead to the onset of intercurrent infections, such as tuberculosis. As regards the risk pertaining to surgical operations, which were undertaken in 20 to 30 per cent. of all patients with peptic ulcers, the approximate death rate had been recorded by Broster as 6.4 per cent. The speaker had found well over 5 per cent. in a series of 290 cases. So the operative death rate worked out as about 1 per cent. or rather more. As regards surgical complications, there were such possibilities as gastro-duodenal fistula and the rare gastro-colic fistula, which was particularly dangerous. It had been stated by workers at the Mayo Clinic that a high proportion of ulcers showed malignant changes, but Dr. Conybeare cited a series of statistical investigations which indicated that this conclusion was disputable. Whereas the symptoms in gastric ulcer were of long standing, Alvarez and others had shown that the symptoms in gastric carcinoma lasted for two years or less only, and that carcinoma in this situation was usually primary. So malignant degeneration of peptic ulcer might be regarded as a relatively rare event. The risk of life in the case of a chronic peptic ulcer might be assessed at 5 per cent. of cases. Dr. Conybeare then dealt at length with the investigations of Balfour and Hunter into the mortality of cases of operations for gastric ulcer. In a series of 521 patients so treated, there had been thirty-six deaths in the first year, twenty-one in the second, eleven in the third, seven in the fourth, and six in the fifth. Comparison with the figures for the expectation of life in the population generally showed that in the sixth year there was hardly any difference between the two figures, and it was evident that there was a steady decrease in the risk after the first two years. A similar investigation at the Mayo Clinic of 1,651 cases of duodenal ulcer had shown that the death rate for all years was much the same as that for the general population, indicating that the danger from this disease was inconsiderable. Coming to the question of the forecasting of the general health of peptic ulcer patients after medical and surgical treatment, Dr. Conybeare stated that about 90 per cent. responded quickly to strict treatment begun early, but there was a serious fall in the number when there had been long periods of delay before adequate therapy was instituted. The figures of Einhorn and Crohn were quoted. These showed how gravely the recovery was prejudiced by each successive year of delay, the rate falling from 90 to 50 per cent. in cases treated solely on medical lines. Barford's results were also cited. In gastric ulcer the percentage in the "satisfactory" and "fairly satisfactory" groups amounted to 52; recurrences were observed in 33 per cent. The duodenal ulcer figures were better still, being respectively 69 and 24 per cent. The speaker also reported a series of cases operated on in Guy's Hospital from 1910 to 1915. He then dealt with the factors which influenced the prognosis in individual cases. It was clear that the prognosis was better when the condition was diagnosed in the first six to twelve months. Elderly patients yielded less favourably to therapy, owing to the general circulatory impairment of the body and locally. An individual factor of a psychological nature also came into play—namely, the willingness or the reverse to submit to the necessarily irksome and restrictive treatment, and to persevere for long periods with a completely altered mode of life.

Mr. L. N. PYRAH agreed that acute and subacute ulcers tended to heal. He described an inquiry made at Leeds into the after-histories of patients operated on between 1922 and 1931. Two grades of "satisfactory" had been defined, including patients who were found to be perfectly fit or with only very rare attacks of slight abdominal discomfort with very occasional and mild vomiting. Two grades of cases labelled "unsatisfactory" included patients whose diet necessarily remained restricted and who still had slight symptoms, and patients with persisting acute symptoms of typical peptic ulcer. The investigation had brought out the fact that there was a definite risk of recurrence even after two years. Young patients under 30 who had been submitted to posterior gastro-enterostomy for chronic gastric ulcer had only a 60 per cent. chance of cure. It had not proved possible to formulate a general rule as to the effect on prognosis of delayed commencement of treatment or age of the ulcer. It was probable that the patient with stenosis of the duodenum was the more likely to be relieved. The prognosis was less satisfactory in cases of greatly increased gastric acidity, and still less so in patients with rapid emptying of the stomach. These two conditions, and also hypertonicity, prejudiced cases subjected to gastro-enterostomy. Partial gastrectomy was preferable for chronic duodenal ulcer, but in many instances excellent results followed gastro-enterostomy. An additional risk of partial gastrectomy was the subsequent appearance of

anaemia, and the operative risk attached to this procedure was greater than in the case of gastro-enterostomy. There was no one specific operation for the case of duodenal ulcer which had resisted medical treatment. Partial gastrectomy might be commended for chronic gastric ulcer. The type of anaemia which might follow it was the persistent microcytic, but occasionally the appearances more resembled those of pernicious anaemia.

Dr. A. M. COOKE based much of his contribution on the *St. Thomas's Hospital Reports*, and on certain special investigations which had been undertaken at that institution. He indicated the limitations of the practice of drawing confident conclusions from statistical statements as regards sequels in peptic ulcer cases. He emphasized the danger of the onset of deficiency diseases in this condition. Milk, which had often to form the staple diet, was defective in vitamins, and scurvy and pellagra-like conditions had been known to appear. Another danger was that of alkalosis, consequent on too energetic alkali treatment or the loss of acid by vomiting. Relapses might often be traced to irregularities as regards the times at which meals were taken. The speaker pleaded for the more prompt resort to operative treatment in severe cases of gastric haemorrhage. The mortality risk was much increased by continued bleeding, which often was found to proceed from one single chronic and indurated ulcer. There was a mortality rate of 74 per cent. in the case of patients who had continued to bleed after admission to hospital.

TREATMENT OF CARCINOMA OF THE OESOPHAGUS

At a meeting of the Section of Laryngology of the Royal Society of Medicine on December 1st, with Mr. MUSGRAVE WOODMAN in the chair, a discussion took place on recent advances in the treatment of carcinoma of the oesophagus from the surgical and radiological aspects.

Professor G. GREY TURNER, in opening, said that the oesophagus was still the realm of experimental surgery. Although his first case of excision was carried out twenty-five years ago he was still undecided on many matters of technique. For some years he had been expecting that in radium or in deep *x*-ray therapy remedies would be found which would displace radical operations ; but his own experience of these measures had been very disappointing. The problem of the surgical treatment of cancer of the oesophagus had always been hampered by the inaccessible situation of the part involved and by the almost universal idea that malignant disease of this organ was of a peculiarly virulent type and liable to disseminate at a very early stage. The examination of patients who had died of the malady certainly disclosed, as a rule, extensive local spread and dissemination of the glands, but these cases had usually been allowed to drag on unchecked by any form of treatment. Even in the worst cases there was probably a stage at which the disease remained localized for a considerable time. In all probability cancer of the oesophagus was like similar disease in other situations, and while perhaps one-third of the cases were unusually malignant, in two-thirds the baneful effects were largely a question of environment. In the past there had been little attempt to deal with these cases radically at an early stage. As a rule, difficulty in swallowing had been allowed to drag on until it became not only a great discomfort but a serious menace to life. In very many patients three to six months had elapsed between the first onset of the symptoms and the stage at which some active treatment was seriously considered. With regard to malignant disease of the cervical oesophagus, he quite realized that the results of extirpation had been very encouraging, as in the series reported by Logan Turner. It seemed to him, however, that the difficulties of the restoration were very great, and that removal was often hampered by the desire of the surgeon to leave conditions favourable for repair. On the next occasion when he had to deal with this condition he proposed freely to excise the growth without regard to repair of the defect, and to make an upper oesophageal or pharyngeal fistula, and at a later date construct an extrathoracic oesophagus. He proceeded to speak particularly of his efforts to remove growths of the intrathoracic oesophagus. He had always been fascinated by the case in which Torek removed such a carcinoma and the patient lived for thirteen years and died of another cause. One of his pictures showing the oesophagus enucleated and lying on the front of the thorax had led him to develop the operation which he had designated the " pull through " method of removal. This plan had at least rewarded him with one complete success. He had also explored an oesophageal growth from the abdomen on eleven occasions in which he was not able to complete the removal. In the " pull through " the oesophagus was removed by combined enucleation from the abdomen and from the neck. The upper end of the cervical oesophagus was fixed at the neck and the operation was completed by the formation of a new extrathoracic oesophagus. In the case referred to in which this method had been completely successful, he was able to show to the meeting a cinematograph film illustrating the ability of the patient to take ordinary food through his new gullet, for he had always felt that there could be little satisfaction in carrying this operation to a successful issue unless it was possible in some way to restore the power of natural feeding. Professor Turner gave a detailed account of the procedure he had followed in this operation. The lessons of unsuccessful cases had also been remarkable and stimulating. One patient lived for eight weeks after the removal of the whole stomach and spleen, together with the thoracic oesophagus. Failure was due to sloughing of the cervical oesophagus, and death occurred from the spread of a slow infection ; but there was never any acute mediastinitis. As a result of his experience of the treatment of this condition he felt that radical surgery seemed to hold out considerable promise. It would be better not to attempt the repair of the oesophagus, but after recovery from the excision to supply the defect by making a new oesophagus by the anterior route. For growths of the upper end he would suggest an excision, with formation of a cervical fistula, and completion by a new oesophagus. For the lower end he would adopt the plan he had outlined with great particularity in the case illustrated, but for the middle portion he was inclined to give further consideration to the posterior mediastinal or the transthoracic route. More information as to the exact living anatomy of these growths was required, and for this he looked to the radiologists and those who made oesophagoscopic examinations as well as to the result of surgical operation. Those who had always looked on the cancer problem dolefully would be inclined to nourish the hopeless attitude with regard to this particular matter. To those more optimistic he would like to add the encouragement of his experience. He could not forget that when Sir Spencer Wells was doing his pioneer work on ovariotomy his mortality was so high that there were those who said he ought to be prosecuted, and yet it was now known how safe a harbour he finally reached and how largely his pioneer work helped to lay the foundation of the success which abdominal surgery enjoyed to-day. Many might criticize the case which he had presented at length that evening, which was so recent that there could be no assurance as to the ultimate freedom of the patient from recurrence. To them he could only say that the restoration of the capacity of normal feeding, with some hope of freedom from recurrence, had already proved an ample reward for the patient and his friends, who had been led to believe that his condition was beyond all human aid. He was reminded of a visit he paid thirty years ago to Sir Spencer Wells's former home at Golders Green. Over the portal of the front door he was delighted to read these words, " Do to-day's work to-day." That he had always believed to be an excellent motto for the investigator ; it was a mistake to allow doubt and fears for the future to interfere with the work in hand.

Mr. F. J. CLEMINSON brought forward, with Mr. J. P. MONKHOUSE, a series of unselected cases of carcinoma of the oesophagus which were treated radiologically between the years 1925 and 1932 in the throat department of the Middlesex Hospital. There were eighty-nine cases in all—seventy-nine in men and ten in women. A preliminary

biopsy in seventy-two cases showed seventy of them to be squamous-celled carcinoma. In six cases the growth was situated in the upper part of the gullet, in fifty cases in the middle part, and in twenty-three in the lower part. The general mode of treatment was, after oesophagoscopy, to remove a fragment of growth for section, then by *x* rays to determine the length of the stricture, and from the information so derived the dose of radon to be used and the length of the applicator were decided upon. Radon was placed in position and left for seven days. He exhibited the various applicators, the chief of which was Souttar's tube, the seeds being made to adhere to a strapping around the tube. Screening was with 0.5 mm. of platinum. The survival period was dated from the moment at which the patient sought advice in the out-patient department. For the whole series the average survival period was five to six months, being 8.5 months for the ten women and 5.2 months for the seventy-nine men. The previous history of dysphagia in the women averaged 5.4 months and in the men 3.8 months, so that the longer previous history was associated with the longer survival period, suggesting that a short history did not necessarily indicate that the case was less advanced. In some of the more recent cases the dose of radon had been increased by 50 per cent., but if anything these patients had survived for shorter periods than the others. The only trace of silver lining in a rather gloomy cloud was that the number of cases was so small that the figures had nothing more than a suggestive value.

Dr. W. M. LEVITT said that hitherto the results of *x*-ray treatment in carcinoma of the oesophagus had been disappointing, although the disease was histologically of a type which should prove radio-sensitive. Post-mortem evidence, moreover, had shown that metastases were relatively uncommon in cancer of the oesophagus. The problem of the treatment was therefore in a large number of cases that of the treatment of the local disease. On the assumption that the failure of the disease to respond to *x*-ray treatment as hitherto applied had been due to insufficient dosage reaching the growth, a technique had been worked out at St. Bartholomew's Hospital to apply enormously increased dosage to the oesophagus. The principle was the application of a large dose of *x* rays to multiple long narrow fields placed at intervals all round the chest wall. The accuracy of firing upon the oesophagus had been confirmed. This treatment was carried out daily for five or six weeks, very intense doses of very hard rays being applied. Eight unselected cases had been treated by this method, all having high degrees of obstruction. In one of these patients treatment had been abandoned because of the occurrence of symptoms of pulmonary disease, and this patient had since died of empyema. With regard to the other seven, he showed skiagrams taken before and after treatment, indicating that the growth had disappeared, apparently completely in six cases, and in a seventh partially. In all the cases the obstruction had been relieved, and radiographic investigation had shown that thick barium paste was swallowed with ease. It was clear that as a result of *x*-ray treatment it was possible to restore normal or almost normal oesophageal function, and one might be permitted to hope that some of these cases, which were all very recent, might be permanently cured. It was only by the use of an adequate dose of very hard rays, such as could be given by modern high-voltage apparatus, that the best results were reached.

Mr. WOODMAN took up Professor Turner's remark that the radiologist was the best person to decide whether the growth was fixed or not. He thought that was open to a certain amount of doubt. The oesophagoscope could tell quite accurately what the growth looked like, how much it moved, and all about it. He could confirm, from a study of the lymphatics of the oesophagus, what had been said with regard to the relatively slow spread during the earlier stages, though when the condition did develop the spread was very rapid. With regard to radon seeds, he thought they all had experience of cases in which the growth had been eliminated by implantation of radon seeds in the oesophagus, but the patient had not lived, because, as a rule, the growth was not approached from the outside. A corollary to the method of treatment which Mr. Cleminson had described would be to apply radon seeds from outside as well as inside.

Sir THOMAS DUNHILL said that he thought it a good thing that everyone should work on this problem in his own way, and those working in different ways should group themselves together and help by co-operation. No one method had as yet been established as the only advisable method. He was bound to believe that in the beginning these growths were local, confined to the mucous membrane, then invading the submucosa, and that it was some time before they got outside. Patients would be given the best chance of their lives by getting rid of the growth at this stage, even though it meant removing the viscus which contained the growth. If the radiologists and radium workers could cure the condition and still leave the patient with his oesophagus it was an ideal method, but in the meantime, he thought, surgeons must continue their work. He himself had tried to approach these growths transpleurally, and he thought that method of approach did not add greatly to the gravity of the operation, while it did assist its safety. He was filled with admiration for the courage and resolution of Professor Grey Turner.

Mr. GORDON-TAYLOR said that on several occasions he had successfully extirpated a carcinoma of the cervical oesophagus by the employment of the principles underlying Mr. Wilfred Trotter's technique. He quite agreed with Professor Grey Turner about the difficulty regarding the lower end of the oesophagus. He had explored the thoracic oesophagus many times and in many ways, but never to his satisfaction. The nearest approach to satisfaction was when he employed the old extrapleural method of Lilienthal. He was glad to have the opportunity of publicly congratulating Professor Turner upon the memorable case which he had presented to the Section.

Dr. N. S. FINZI said that it was over twenty years since he first showed in the Royal Society of Medicine a number of cases of carcinoma of the oesophagus treated by radium. In one of these cases there had been a growth behind the sternum, which disappeared after *x*-ray treatment so completely that no trace of it remained at all; in fact, many people did not believe it had ever existed. That patient remained well for about two years, but it was eventually found that he had a spread of carcinoma along the oesophagus below the region where the original growth had been. On post-mortem examination it was found that the part which had been treated was still free from growth. Among the cases treated by radium there was one patient who had lived for six years, and died subsequently of gastric ulcer.

Mr. WALTER HOWARTH said that the possibility of local excision seemed to depend on the mobility of the oesophagus. The only mobile portion of the oesophagus was just below the cricoid down to about the sternal notch. He had met with only about two cases in that situation with which he had been able to deal. One of these was in a man, aged 65, who was seen by him three and a half years ago with oesophageal obstruction due to carcinoma at the upper end of the oesophagus just below the cricoid. It was thought that it might be possible to excise this portion of the gullet, but, on exposing it from the outside, it was not possible to hook the lower end up into the wound, as it extended almost to the sternal notch. Ten radon seeds, one millicurie each, with silver filter, were inserted into the growth. The patient had remained quite well since then, and the growth had become replaced by a fibrous structure. This had been dilated on two occasions. The other part of the gullet where it was comparatively mobile was just below the aortic area and above the diaphragm, but he had yet to meet with a satisfactory case in that region. He added that sometimes what appeared through the oesophagoscope to be a small malignant ulcer might in fact be an enormous growth fixed all round the aorta and the bifurcation of the trachea. He was now inclined to abandon the use of radium because of the difficulty of knowing the extent and fixity of the tumour in the thoracic cavity, and by simple intubation and the use of deep *x* rays a better result might be attained.

Mr L F O'SHAUGHNESSY referred to the method of end to end anastomosis of the oesophagus, which he had found successful in the necessary surgery for innocent tumours of the lower portion of the gullet. Mr G LENART MARTIN said that he was glad to be able to carry back from that meeting a ray of hope. He had not been satisfied at all with radium, there seemed to be immediate cure of the local growth, but nevertheless the growth went on and the patient went downhill. Mr H P NELSON referred to the parallel use of radium in the rectum, pointing out that better results were obtained when the rectum was exposed from outside and radium needles applied from outside. It seemed to him that if radium or radon was to be effectively applied to the oesophagus it was necessary to approach it from outside, but the difficulty was to get an even distribution of rays all round the oesophagus. He had employed a method whereby the radium was wrapped round the oesophagus in the form of a collar, but not stuck into the oesophagus. He was quite certain that the approach to the oesophagus should be transpleural. Dr T B JOBSON referred to encouraging results from the implantation of radon seeds, and Dr G H STEELE spoke to the same effect. Dr J H D WEBSTER paid a tribute to the work of Dr Levitt and Dr Finzi, and thought that in the x ray method there lay the greatest hope.

Professor GREY TURNER, in replying on the discussion, contented himself with the remark that any method which held out the slightest prospect of success should be utilized, but it was necessary to remember that the good results claimed were those which attended the work of experts, and it must not be thought that those results could be repeated by all and sundry.

SMALL-POX IN 1870-4

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on November 24th, Dr J D ROLLESTON delivered his presidential address on "The Small-pox Pandemic of 1870-4."

The president began by stating that the first compulsory Vaccination Act for England and Wales, passed in 1853, was to a large extent due to the Epidemiological Society of London, a committee of which had drawn up a report on the state of small pox in England and Wales and other countries, and on compulsory vaccination. Although the United Kingdom suffered severely in the pandemic, the incidence and fatality of small pox would have been considerably higher had it not been for this law. The pandemic arose in the north west, north east, and south west of France before the outbreak of the Franco-Prussian War, in the last quarter of 1869, and then spread throughout the country. The total number of deaths from small pox in France during the epidemic was estimated between 60,000 and 90,000. The unsatisfactory vaccination state of the civilian population and Army in France was then considered, and a description was given of the incidence, fatality, and characteristics of the pandemic in England and Wales, London, Scotland, and Ireland, and of foreign countries, with special reference to Germany and the German Army. The lack of accommodation for small pox cases in London at the onset of the epidemic led to the rapid opening of three hospitals by the Metropolitan Asylums Board at Hampstead, Stockwell, and Homerton respectively. The transport of the patients left much to be desired, as an ambulance service at that time had not yet been established. The possibility of aerial convection of small pox, which formed the subject of Power's classical report on the Fulham Small Pox Hospital in the next decade, was variously asserted and denied by different authorities in the London epidemic of 1871-2, especially in regard to the Hampstead Hospital, which, as the result of a suit brought by Sir Rowland Hill against the Metropolitan Asylums Board, remained closed for three years. The incidence and fatality of small pox was shown to be heavy in the civilian population in Germany as compared with the well vaccinated Army, but to be lower in the South German States, where primary vaccination was compulsory, than in Prussia and Saxony, which had no vaccination laws.

In conclusion, further statistics were given illustrating the difference in small pox fatality in various countries and groups of individuals according to their vaccination state. A vote of thanks to the president for his address was moved by Dr E W GOODALL and seconded by Sir William HAMER.

ORTHOPAEDIC CASES

The annual general meeting of the British Orthopaedic Association was held in Edinburgh on November 24th and 25th.

Calcium in Bone Disease

Mr D GREIG (Edinburgh), opening a discussion on acute osteomyelitis and repair of fractures, said that bone was at the mercy of its blood supply, and was decalcified by the hyperaemia of infection, injury, neoplasm, and disuse. In acute osteomyelitis the liberated calcium was redeposited within the periosteum to form the new involucrum. The operation of diaphysectomy removed the available calcium and accounted for failure of bone regeneration, it should never be performed until the new bone was well developed. Similarly, in fractures calcium liberated from the broken surfaces was redeposited within the fracture haematoma. Mr STIRLING (Edinburgh) said that "fracture serum" contained up to thirty times as much calcium as blood serum, the calcium was dissolved out of the bone by the acidity of the serum, which attained a maximum after five days and returned to normal within twelve days. Experimental work indicated that metal interfered with this normal acidity, the union of fractures was therefore delayed by plating. Ivory and beef bone did not inhibit acidity, the reaction to stainless steel had not yet been investigated. Experiments also showed that union was delayed by any injection of the fracture haematoma or by tearing of its wall, this fact should be considered when treating any fracture by local anaesthesia, early deep massage, or operative reduction. Mr WATSON JONES (Liverpool) mentioned that if it was true that decalcification was due to acidity, the experimental observation that metal inhibited acidity was at variance with the clinical fact that metal (other than stainless steel) always decalcified adjacent bone. The important practical point was that hyperaemia caused decalcification and if in a fracture the initial hyperaemia was perpetuated by the repeated trauma of inadequate immobilization, by infection, or by the irritation of metal or ivory, there was excessive decalcification and delayed union or non union. The only important cause of non union was inadequate immobilization.

Mr STRUTHERS and Professor MURRAY DREWNAN (Edinburgh) demonstrated cases of parathyroid osteodystrophia fibrosa, and referred to the frequent delay in skeletal recalcification after removal of the parathyroid tumour. Mr C P STEWART (Edinburgh) said that calcium balance depended on three factors: (1) calcium intake (diet and vitamin D activity), (2) parathyroid activity (mobilization of calcium from the bones), and (3) rate of bone cell proliferation (local phosphatase activity and hydrogen ion concentration). The three factors were interrelated but the first was of greatest importance in rickets and osteomalacia, the second in osteitis fibrosa and the third in Paget's disease.

Sciatica and Low Back Pain

Mr W A COCHRANE (Edinburgh), reporting the results of dissection of the lumbo sacral plexus and the lumbar vertebrae, pointed out that a high or pre fixed plexus predisposed to stretching of the nerves. He postulated that the coincidence of such an anatomical variation with an extra presacral vertebra or with sacralization of the fifth lumbar transverse process, might explain cases of sciatica. Mr WATSON JONES (Liverpool) remarked that anomalies of the lumbar vertebrae were rarely found in sciatica, but muscle spasm, lumbar rigidity, and scoliosis were very common. Treatment by spinal manipulation failed in at least 40 per cent of cases, but immobilization by a head suspension plaster jacket invariably gave relief. Mr BLUNDELL BANKART (president) said that 50 per cent of cases of sciatica scoliosis could be cured by manipulation. He had occasionally exposed the interarticular joints by operation and found the nerve roots to be very

closely in contact with the joints. Mr. Mercer (Edinburgh) described an operation for excision of the fifth lumbar transverse process by an anterior extraperitoneal approach. The bone was much more easily exposed and removed than by the usual posterior approach.

Other Communications

Professor John Fraser (Edinburgh), in a communication on lipoid granulomatosis of bone, said that the disease was due to an error of lipoid metabolism accounting for excess of cholesterol, which was deposited in blood vessels and led to granuloma formation. Symptoms were caused by local pressure effects, and included diabetes insipidus from pituitary involvement, loosening of the teeth, and extensive bone calcification. The bone condition was to be differentiated from neoplasm and gumma, and responded well to deep *x*-ray therapy.

Mr. J. Bruce (Edinburgh), speaking on disorders of the metatarsal bones, traced the evolution of the foot, and said that congenital anomalies of the first metatarsal, including shortening, abnormal varus position, and undue mobility, predisposed to strain of the other metatarsals. Compensation of the increased load caused subperiosteal thickening of the metatarsal shafts (Deutschlander's disease). Decomposition resulted in metatarsalgia, spontaneous or "march fracture" of the metatarsal neck, and Köhler's or Freiberg's disease of the metatarsal head. The recent calamitous report of a case of "march fracture" mistaken for sarcoma, in which the leg had been amputated, emphasized the necessity for recognition of these disorders.

Mr. Stewart Middleton (Edinburgh), discussing arthrogryposis multiplex congenita, said that in this condition the skeletal muscles were replaced by connective tissue, and the resulting muscle shortening caused deformities which were very difficult to correct but had little tendency to relapse. Investigation of experimental herds of sheep in which the disorder was inbred showed that the muscles developed normally but underwent secondary degeneration before birth of the lamb. It was therefore an intrauterine muscular dystrophy, and he suggested the nomenclature "myodystrophia foetalis deformans." Mr. B. Macfarland (Liverpool) remarked that in human cases there were three objections to the theory of muscular dystrophy: (1) there was no progression after birth, (2) there was rarely any family history, and (3) the condition could occur in one limb, the child being otherwise normal. Mr. Stewart Middleton, in reply to Mr. Bankart, said that there was no evidence of a primary neurological lesion.

Mr. Clarke (Manchester) reported eighty-seven recent fractures of the carpal scaphoid treated by immobilization for periods up to nine months. Bony union was secured in 80 per cent. of cases. Of ten neglected recent fractures (one to three months' duration) treated conservatively, only one united by bone. In such cases he advocated freshening of the fractured surfaces by operation, followed by prolonged immobilization. If the fracture remained ununited arthritis of the wrist, which could not be relieved by any operation, invariably developed. Mr. Alan Todd (London) advocated excision of the whole proximal row of carpal bones for old ununited fractures with arthritis of the wrist. Mr. Trethowan (London) reported a case of "osteochondritis dissecans of the scaphoid."

Mr. N. Dott and Mr. R. Stie[illegible] advocated manipulative reduction of [illegible] of the hip, but said that repeated manipulations impaired the end-result. In cases in which the upper lip of the acetabulum was underdeveloped they made a new lip by open operation at an early age instead of waiting for redislocation.

CHILD GUIDANCE

At a meeting of the Liverpool Medical Institution, held on November 23rd, with the president, Dr. H. R. Hurter, in the chair, Dr. A. Dingwall Fordyce read a paper on the meaning of "child guidance" and its practice.

Dr. Fordyce said that environment and education had gradually become more and more closely associated with medical work, their relation to, and importance for, health had been more clearly determined, and guidance by the doctor in charge had been increasingly sought for. Unsuitable environment might lead to the development of poor physical health with various symptoms or to mental stress exhibiting itself in various forms of eccentricity or misbehaviour. In other cases the *fons et origo mali* was educational; the symptoms, or stammer, or misbehaviour were primarily due to a faulty reaction between the particular child and the educational demands that were made upon him. Recent advances in psychological knowledge, both educational and medical, had opened up avenues of approach to correct diagnosis which were of great value, but many of the tests and observations were only accurate—and therefore of value—when conducted by experts in the subject, and the conclusions of those specialists were usually based on a great deal of painstaking work which was often not fully recognized. Advances in psychology, the correlation of education and educational methods with medicine, and the elucidation of features of environment were the important addenda to paediatrics in the branch of child guidance. For diagnosis and treatment in poor cases the service of a clinic was necessary. Dr. Fordyce then detailed the work and methods of the Liverpool Child Guidance Clinic, and read a précis of typical cases. Finally, the speaker referred to Sir George Newman's report for 1932, and to the increasing need for "child guidance," expressing the opinion that it was all-important that the approach to the subject should be controlled by medical practitioners.

Dr. M. Barton Hall said that Dr. Fordyce had stressed the fact that child guidance was no new concept, but the application of psychological methods of approach to a specialized group of children and young people. During the past nine and a half years, at the Liverpool Psychiatric Clinic—a clinic which dealt with early mental, nervous, and behaviour disorders in persons of all ages—26.6 per cent. were found to be under 20 years of age—that is, either children or adolescents still in the stage of normal physical, mental, and personality development. The significance of this lay in the fact that, unlike the general medical approach, which was concerned essentially with diagnosis and treatment, psychological medicine had to concern itself very largely with the problem of prophylaxis. In this way it was far more closely allied in its function to the public health service than to medical practice, and had a similar duty to perform. Child guidance might be said to have originated in Dr. William Healy's study of juvenile delinquency and its causes. Just as in general medicine symptoms which appeared to be of minor importance might result in the most serious consequences if they were left uninvestigated, so one of the aims of a clinic such as Dr. Fordyce described was to investigate the very earliest signs of behaviour disorder and prevent the more serious forms of delinquency arising. A further prophylactic function of the clinic concerned the psychoneuroses. The elucidation of the causes underlying, and factors contributing to, childish fears, anxieties, obsessions, etc., in their early stages should do much to prevent the development of more chronic forms of neurosis in later life. It was difficult to say how far child guidance could be considered as a means of preventing the onset of actual mental disorder, but with increasing knowledge of the temperamental patterns which were found to precede such disorders it was extremely likely that much might be done by preventive measures in this field also. It was important to emphasize that the child guidance clinic was not a place but a method. Whether it formed an integral part of hospital administration, as at Guy's Hospital, was attached to a school medical department, as in Birmingham, or was an independent clinic, as in Liverpool, did not much matter, but just as public health measures were directed towards the maintenance of physical health in the child so child guidance was a method by which the earliest manifestations of any aberration in mental health were noted, observed, and, where possible, corrected before they had developed to serious dimensions.

Dr. Norman B. Capon pointed out that the child guidance movement aimed at studying the "whole

child including the three aspects of physical, mental, and spiritual health An experienced general practitioner was often able to achieve much in this direction The speaker urged that the clinic should be under the general direction of a paediatrician, and he pointed out the danger that potentially healthy children might develop into 'problem children' if their well meaning over-anxious parents became obsessed by references to child psychology in the lay Press and on the wireless

Bronchiectasis

DR L T BAKER BATES, in a paper on some aspects of bronchiectasis said that the diagnosis of bronchiectasis prior to the introduction of lipiodol was limited to the advanced case, and the frequency of the condition was very difficult to estimate Post mortem statistics were of no value, clinical observation revealed the advanced cases and lipiodol the early ones the incidence of which varied with the thoroughness with which these cases were investigated Discussing the factors in the production of bronchiectasis, he said that in congenital bronchiectasis the dilatation alone was congenital and only if a chronic infection developed in the congenitally dilated bronchi did symptoms appear Infection in the first instance might produce a loss of tone in the bronchi leading to temporary dilatation, aided by stagnation of secretions and tension The relation of inspiration and cough to the intrabronchial pressure were then considered, it being pointed out that cough was a symptom of bronchiectasis and not a factor in its production Pulmonary atelectasis was an important factor in the production of the condition The effect of atelectasis on the intrapleural pressure was discussed, also the relation between pneumonia and atelectatic bronchiectasis The part played by pneumonia in the production of apical cavitation was also considered The speaker said that it was to lipiodol that we owed the elucidation of the pathology of bronchiectasis, the changes visible on a direct *x* ray were secondary to an inflammatory process extending from the bronchial wall producing fibrosis and a chronic interstitial pneumonia The work of Hudson and Reinberg on the presence of motor phenomena in the tracheobronchial tree was discussed together with the delay in the rate of excretion of lipiodol from atelectatic and post pneumonic areas and its relation to bronchiectasis A classification of the anatomical types of bronchiectasis was given, and the significance of triangular shadows and their relation to bronchiectasis and pneumonia discussed Dr Baker Bates also dealt with dry bronchiectasis, and stressed the absence of haemoptysis in certain cases Mentioning the symptoms, physical signs, and diagnosis of the early case, the speaker said that they depended on (1) the position of the bronchial dilatation —least in apical cases, (2) the type of dilatation, and (3) the presence or absence of secondary infection, and its severity Sputum was a complication and not a necessary manifestation of the condition Haemoptysis occurred in over 60 per cent of the cases under consideration The limitations of the direct *x* ray in diagnosis were noted also the extreme value of lipiodol in all obscure and early pulmonary conditions after phthisis had been excluded

DR A E CONNOLLY said that bronchiectasis could, in many cases, be demonstrated by direct radiography, the bronchiectatic cavities being even visible in a shrunken lobe Upper lobe bronchiectasis, in some cases probably of congenital origin, might closely simulate pulmonary tuberculosis but the radiographic appearances were distinctive The presence of bronchiectasis with shadows indicative of healed pulmonary tuberculosis was often regarded owing to physical signs and recurrent haemoptyses as due to a reactivation of a tuberculous process when the pulmonary disability was bronchiectasis

DR O T THOMAS said that examination by lipiodol injection of the bronchial tree was of great value in sanatorium work Many cases which were admitted with persistently negative sputum over a long period, and often with a history of haemoptysis, showed on examination by this method clear evidence of bronchial dilatation DR WALLACE JONES said that since the introduction of lipiodol the diagnosis of bronchiectasis had become comparatively simple, except in the dry and symptomless type He emphasized that the chief difficulty at present was to know what to do for the patient when the diagnosis had been established MR HUGH REID said that with early diagnosis it was found that in many cases the disease was limited to the lower lobe of the lung For such conditions the operation of choice was lobectomy Recent work, and particularly the substitution of the one stage for the two stage operation, had reduced the mortality to a reasonable level In this operation, now done under gas and oxygen anæsthesia, the chest was opened through an incision in the seventh intercostal space, the wound retracted, and the lower lobe of the lung brought through a tourniquet and cut off The stump was sewn up and invaginated, and the wound closed Thoracoplasty had a limited application, and combined sometimes with extrapleural plumbage was not a difficult or dangerous operation, as long as the nursing was efficient Phrenic evulsion and artificial pneumothorax were, on the whole, disappointing

CONGENITAL PYLORIC STENOSIS

At a meeting of the Birkenhead Medical Society, held on November 3rd, DR G S SWAN read a paper on the above subject He said that congenital pyloric stenosis, or, more correctly, hypertrophic stenosis of the pylorus in the newborn was a condition which had only been generally recognized in the last thirty or forty years It was first noted by Beardsley of America and had been fully described by Robert Hutchison and others There was still some controversy as to whether the hypertrophy was congenital or secondary to spasm of the pylorus The fact that the older writers laid stress on the main treatment of these cases being medical and reported many successes (as much as 75 to 80 per cent), was a definite indication that spasm was the primary condition and hypertrophy secondary There was a further proof that the condition was primarily spasmodic, in that the symptoms did not come on at birth, but generally a fortnight or more later Pathologically there was shown considerable thickening of the circular muscular sphincter of the pylorus which was sometimes cartilaginous in consistency A further striking fact was that the vast majority of these cases occurred in boys, and that nearly half were first babies Four personal cases recently treated at the Birkenhead and Wirral Children's Hospital were all boys A very definite history was always obtained The child was healthy when born, and thrived well for the first week or ten days, then vomiting began, irregularly for a few days and later persistently after each feed Usually the child was taken off the breast and a food was tried The remarkable thing was that for the first twenty four hours the vomiting ceased, and then recommenced with renewed vigour The process might be repeated several times before medical aid was sought By this time the vomiting had taken on its peculiarity and had become projectile, and there was a large amount of mucus present Emaciation was now rapid, though the child was not cachectic, and constipation was marked Babies who had persistent vomiting and constipation should always be suspected of hypertrophic stenosis The clinical signs were fortunately very definite and unmistakable Two signs which were pathognomonic of this condition were (1) visible peristalsis of the stomach the peristaltic wave crossing the abdomen from left to right above the navel, and (2) the presence of a tumour at the pylorus about the size and shape of the terminal phalanx of the little finger Peristaltic action of the stomach was visible almost immediately after the intake of food In discussing treatment of this condition DR SWAN said that one recognized a certain divergence of view, although now it was generally recognized that surgery held out more hope of cure His own view was that surgery was necessary immediately the condition was diagnosed.

Writers of twenty years ago preferred to treat all cases medically, and with considerable success. The surgical death rate was then very high, probably because medical treatment was tried for some weeks, and by the time surgery was suggested the child was too weak to withstand the combined effects of anaesthesia and opening of the abdomen. If surgery were undertaken early the vast majority of cases would recover. As a rule vomiting ceased within twenty-four hours, and the child might only vomit once or twice after operation. Within three days an increase in weight was usually shown; within ten days the child left the hospital well on the road to recovery. Treated medically, with daily stomach lavage and small feeds, there was always considerable anxiety. Emaciation was rapidly progressive, vomiting was difficult to control, and the child reached a point after three or four weeks when death seemed imminent; there was then a sudden change for the better, and accepted the theory that spasm was the prime factor, the spontaneous cure was probably due to the reaching of a point of extreme weakness from starvation—the point where the musculature was too feeble to remain any longer in spasm. The convalescent period was slow, and any time from two to three months might elapse from the onset of symptoms before the child regained its birth weight. Surgically, two or three weeks after operation would be sufficient for the child to regain its birth weight. Drugs were of little or no use. Minute doses of opium might, however, be given to allay the restlessness, but opium, unfortunately, aggravated the severe constipation. Dr. Swan then gave brief histories of four cases.

A LINGUAL GROWTH

The November meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland was devoted to a discussion of clinical cases, with the president, Mr. HENRY STOKES, in the chair.

Dr. OLIVER CHANCE showed a man, aged 63, who had first consulted him last February. The patient stated that eight months previously he had felt his tongue rubbing against his teeth. He filed his teeth down, but his tongue got worse and worse. The tongue was completely immobile and its whole anterior aspect indurated. There were enlarged glands in the left submaxillary region. Dr. Chance regarded the case as one of inoperable cancer, and recommended a mouth wash, tooth extraction, and morphine when necessary. Two months ago, however, the tongue appeared to be quite well, and the enlarged glands had all disappeared, except for some in the submental region, which had broken down into a large fungating mass. The Wassermann reaction was negative and the chest free from tuberculosis both clinically and adiologically. The fungating mass did not respond to ides in large doses.

Mr. F. J. HENRY said he had seen a somewhat similar se, at first diagnosed as actinomycosis, but which ntually turned out to be a squamous carcinoma. Mr. J. COOLICAN suggested that the tongue condition might be a simple septic one, while the condition of the neck might be a branchiogenetic carcinoma. Dr. R. R. WOODS thought it possible that the condition was similar to the semi-malignant granulomatous conditions seen in the nose. These yielded very fairly well to radiation. Dr. CHANCE, in reply, said that two possible diagnoses had occurred to him—one was a primary tuberculous lesion, of which four cases were mentioned by Butlin, the other was a granuloma.

At a meeting of the Cork Clinical Society, on November 17th, Dr. C. B. PEARSON discussed a case of impacted ureteric calculus, and Dr. D. F. HEGARTY a case of renal calculus, both showing specimens and pyelograms. Dr. B. HONAN brought forward a patient with early mental changes, and the diagnosis and treatment were discussed. Professor J. M. O'DONOVAN showed a patient with mitral stenosis, and demonstrated some new points in the diagnosis of this condition, especially with electrocardiography and radiography.

Reviews

CONCERNING EMBOLISM

Embolism has figured largely in the literature of the last twenty years, and Dr. SIGURD FREY'S monograph[1] furnishes a very complete presentation of that subject both from the descriptive and from the literary point of view. His book includes the discussion of every form of embolism, together with a critical examination of the numerous problems relating to the subject. It appeals mainly to the clinician, with stress on the pathological and physiological problems involved. The centre of interest turns naturally on blood embolism, and more especially on pulmonary embolism in its more serious and fatal form. Scheidegger has recently made a statistical study of fatal cases of post-operative pulmonary embolism, and his figures give the impression that pulmonary embolism is of more frequent occurrence than is generally supposed. His tables refer to nearly 21,000 operated cases of all kinds, and he found that fatal pulmonary embolism occurred in no less than 4 per cent. of exploratory laparotomies, in 2.8 per cent. of the sum total on the stomach and intestines, in 3.1 per cent. of gynaecological operations, and in 0.69 per cent. of the sum total of operations of all kinds. Apparently in nearly three-fourths of the cases the source of the embolus was thrombosis of the veins of the lower limbs and pelvis, but as to the cause of the thrombosis little is known, although theories abound. There is a general opinion, however, that infection is an important factor, and that obesity and possibly the position of the patient during and after the operation are of influence.

As is well known, Trendelenburg was the first to attempt to save life by extracting an embolus from the pulmonary artery. Between 1908 and 1923 he operated on twenty cases, and, although unsuccessful in all, his efforts were not fruitless, for in 1924 Kirschner, employing his method, had a success, and since that date the operation has been performed 102 times by different surgeons, with complete success in eight cases. Dr. Frey gives a full description of the technique of Trendelenburg's operation, and in this, as in all other parts of the work, his book shows evidence of his thoroughness in the treatment of the subject.

SURGICAL ANATOMY

Those who, like Mr. GRANT MASSIE, come in contact with students in the hospital ward as well as in the dissecting room realize what a small proportion of the facts so painfully acquired in the anatomy department remain as useful knowledge at the close of clinical training. It is true to say that the student who gives up active interest in anatomy on passing his second examination breaks off his studies at the point where their real interest begins. The clinical curriculum is so full nowadays that continuity of study in this matter is largely in the hands of the student himself; and he will do well to start systematic reading of a book on applied anatomy directly he commences his hospital practice. In *Surgical Anatomy*[2] Mr. Massie has compressed into small compass a mass of information of special use to the fourth- and fifth-year student. The second edition of this book follows orthodox lines, and is written on a regional basis, short anatomical description being supplemented, as occasion arises, by information on diagnostic and operative procedure.

[1] *Die Embolie.* Von Dr. Sigurd Frey. Leipzig: G. Thieme. 1933. (Pp. 178; 36 figures. Kart. M.12.)

[2] *Surgical Anatomy.* By Grant Massie, F.R.C.S. Second edition. Churchill's Empire Series. London: J. and A. Churchill. 1933. (Pp. 458; 147 figures. 18s. net.)

The difficulty in writing a book of this kind is that of knowing what to leave out. Here—where, for the sake of completeness, an attempt is made to cover the whole ground—descriptive compression is carried at times to the point of ambiguity. The student, for example, who had not already a fairly thorough anatomical knowledge would derive little benefit from the bald statement that the pharyngeal wall includes the bucco-pharyngeal fascia, the pharyngeal aponeurosis, and the prevertebral fascia. The effects of median nerve section are described on page 179 without mention of the flexor longus pollicis. It is a question whether such brevities are worth inclusion at all, as they confuse rather than instruct. Accounts of arterial anastomoses, and of operations for ligation in continuity—illustrated often by whole-page coloured plates—occupy perhaps a disproportionate amount of space in view of the fact that these operations are so seldom performed. Such expressions as "adduction of the wrist" might with advantage be replaced by "abduction of the hand"; the words "above" and "below" by "superficial" and "deep," or "proximal" and "distal," as they are apt to cause the reader unnecessary confusion. There are some remarkable omissions on the clinical side, Kocher's method of reducing dislocation of the shoulder being given without any mention of the greatest bar to replacement—the spasm of the subscapularis. An account of the perirenal fascia is given without any reference to its bearing on prolapse of the kidney. Prolapse of the kidney is stated to be a possible cause of nausea, pain, and even jaundice, but there is no direct reference to hydronephrosis—the main indication for nephropexy. A method of exposure of the radius is given with no mention of the risk of injury to the posterior interosseous nerve. In this way the whole point of some important procedures is apt to elude the student.

These, however, are the exceptional blemishes in a book which, for the most part, is remarkably clear and informative, well printed, and illustrated. The section on the abdomen is particularly good, as is the new matter on the anatomy of infections of the hand. Here the student is shown, by opposing diagrams, what to do and what not to do when incising the hand. But the best-written part of the book is the new section at the end on the surgery of the autonomic nervous system. This is an outstandingly clear summary of present knowledge. Altogether this sizeable volume is one we can recommend to the student who has his second examination safely behind him.

ARTERIAL HYPOTENSION

Professor GIRAUD's wide review of Arterial Hypotension in Chronic Diseases[3] is based on a report presented by him to the French Congress of Medicine at Montpellier in 1929. This report was one of three on the subject of low blood pressure; the other two—on permanent idiopathic hypotension by Drs. Lian and Blondel, and on acute and subacute hypotension by Professor A. Dumas of Lyons (who has recently contributed to the *Nouveau Traité de Médecine* what is really a monograph on the whole subject of arterial tension)—are also in process of publication. Professor Giraud's volume is a storehouse of the opinions expressed on the subject, and has more than four hundred references, the vast majority, naturally, before 1930; in one of them, about the hypotensive action of thyroid extract, Sir William Hale-White appears as "Kalwhite." The subject is systematically divided up; thus a fall of both the systolic and diastolic pressures, and of each separately, and of a general and of a local distribution, are considered. The low blood pressure in tuberculosis—between 110 and 90 mm. Hg systolic and about 70 diastolic—is very thoroughly discussed. For example, the frequency of a low blood pressure has suggested that it may dispose to, rather than be caused by, tuberculous infection; in this connexion the author points out that a recent development of hypotension is much more significant than a low pressure of long standing, but is not a proof of tuberculosis, as other conditions may have the same effect, and only arouses the suspicion of early tuberculosis and indicates the need for an exhaustive clinical investigation. Hepatic disorders are frequently, and ordinary cirrhosis particularly, found to show a low blood pressure. Psychopathic conditions are also commonly associated with arterial hypotension, especially those of a depressive character; the causal relations between the state of the pressure and of the mind are discussed, and the general conclusion is reached that hypotension is usually secondary rather than primary.

[3] ... *dans les Maladies Chroniques*. Par ... la Faculté de Médecine de Montpellier. Gas ... Par ... 259; 40 fr.)

CHEMISTRY AND PHYSICS OF CONTRACEPTIVES

It has been said that the discovery of a cheap, fool-proof, and infallible contraceptive would create a world revolution as critical as that which followed the discovery of language. There exist, it is true, even to-day, contraceptive expedients that are so nearly certain in their effect that the difference hardly matters; but these, by reason of their nature and cost, or of the skill with which they have to be applied, can exercise but a limited influence on human affairs, and even this, it may be added, not entirely beneficial. The policy of *laissez-faire* in contraception has produced a situation in which the most rigorous control of the size of the family is being exercised among the economically, and some would say genetically, best endowed social groups; and to this dysgenic tendency the only effectual corrective—failing the social control of the means of reproduction—would be in making the practice of contraception as accessible to the poorer and more ignorant strata of society as it is to the well-to-do and better educated.

Dr. C. I. B. VOGE's study of the *Chemistry and Physics of Contraceptives*[4] is a valuable and original contribution to this end. It may be true, as Professor Julian Huxley recently suggested, that to future generations chemical and physical contraceptives will seem as primitive as bone-shakers in an age of motor cars; but for the present the most promising lines of investigation are indubitably into the action of spermicidal agents *in vivo*, with the object of discovering substances which, while not injuring human tissue, will destroy or immobilize spermatozoa in the vagina in less time than the most active of them could pass unscathed through the cervical canal. Dr. Voge does not, it must be confessed, claim that he has found such a contraceptive; but he does intelligently, systematically, and scrupulously clear the ground, first by stating the nature and indicating the complexity of the problem, and then by setting out the results of the most detailed study of proprietary contraceptives that has yet been undertaken. Even to those familiar with the literature on contraception it may prove surprising to discover that there are at least 150 branded chemical contraceptives on the market, all or nearly all claiming something like perfection and all, needless to say, defective in a number of important respects. Used in conjunction with a mechanical contraceptive most of these can confer a high degree of security; very few could alone achieve the desired end in persons of average fertility. Dr. Voge's work is concerned with analysing the factors underlying the inadequacy of existing chemical contraceptives and

[4] *The Chemistry and Physics of Contraceptives*. By C. I. B. Voge, B.Sc., Ph.D., F.R.S.E. London: Jonathan Cape. 1933. (Pp. 288; illustrated. 12s. 6d. net.)

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MILK: RAW AND PASTEURIZED

At a two-day symposium held in B.M.A. House, London, by the Food Group of the Society of Chemical Industry on the subject of "bread and milk," a number of important papers were read. Four in particular may be considered here. Professor J. C. Drummond of University College reported the results of experiments on rats to determine whether the nutritive value of raw milk was deleteriously affected by low-temperature pasteurization. Comparable groups of young rats were fed, the one on raw and the other on pasteurized milk, together with dry biscuit prepared from white flour and water. The animals were kept under observation for a year. No difference between the two groups was noticed, except that at the end of the experimental period the animals on raw milk were, on the average, rather heavier than those on pasteurized milk. Reproduction was very unsatisfactory; only a few litters were produced, and not a single one was reared. With the possibility in mind that the diet was deficient in mineral substances and in vitamin B, another experiment was carried out in which eight groups of rats were compared. Two groups had raw or pasteurized milk and biscuit alone; in two this diet was supplemented by an iron and copper mixture; in two by yeastrel; and in two by iron, copper, and yeastrel. The experiment lasted twenty-four weeks, during which time no marked difference in the rate of growth was observed. With regard to breeding, however, striking differences were noticeable. While the rats on raw or pasteurized milk alone had few litters and failed to rear any satisfactorily, those having the yeastrel supplement bred freely and reared a considerable proportion of their young. Rats on the mineral supplement likewise bred freely, but were less successful in rearing their litters. In all these respects the animals on pasteurized milk behaved as creditably as those on raw milk. Though the total number of animals used in these experiments was not large, Professor Drummond concluded that no evidence had been obtained to suggest that pasteurization adversely affected the nutritive value of milk for rats. Very similar experiments, carried out on mice, were reported by Professor G. S. Wilson and Dr. M. P. Cowell of the London School of Hygiene and Tropical Medicine. These animals, presumably on account of their more rapid metabolism, were found to be more susceptible to the basal diet of milk and biscuit than were rats. Not only did they fail to breed, but they failed to thrive at all. Most of them died in the course of a few weeks, frequently in a severely anaemic condition. Further trials showed that this was due to a deficiency of mineral substances in the dietary, and when an iron and copper mixture was added to the milk good growth and reproduction occurred, though the does were usually unable to rear their young. The addition of yeastrel to the dietary overcame this defect, and when both mineral mixture and yeastrel were added growth, reproduction, and rearing of the litters appeared to be almost as satisfactory as on a normal stock diet. So far as mice were concerned, it would appear that cow's milk was deficient in iron and copper and in some factor, possibly of vitamin nature, which was required for successful lactation. No significant difference was found between the mice on raw milk and those on pasteurized milk so far as the general development, survival time, production of litters, or successful rearing of the young was concerned. It was noticed, however, that the average weight of young mice at weaning was definitely greater when reared by does on raw milk than by those on pasteurized milk. The experiments were not yet completed, but the tentative conclusion was drawn that, while raw and pasteurized milks appeared to be of approximately equal value for the growth and reproduction of mice subsequent to weaning, for the development of mice during their first four weeks of life raw milk appeared to possess certain advantages over pasteurized milk.

Dr. F. C. Minett and Mr. E. J. Pullinger of the Royal Veterinary College, London, contributed a paper on disease-producing organisms in milk. Examination of graded and ungraded milk samples had revealed the frequency with which cow's milk was infected with pathogenic micro-organisms. While examination of twenty-six samples of certified milk failed to detect the presence of tubercle bacilli, it did show that seventeen samples contained *Br. abortus* and sixteen samples mastitis streptococci. Of thirty-nine Grade A (T.T.) samples, one contained tubercle bacilli, thirty-one *Br. abortus*, and twenty-nine mastitis streptococci. A large proportion of these milks, belonging to the two highest grades, neither of which was allowed by law to be pasteurized, was therefore found to be contaminated with organisms potentially pathogenic for human beings. Samples of raw milk coming into London in 3,000-gallon tanks were examined both before and after low-temperature pasteurization. Of forty-three samples of raw milk every one contained virulent tubercle bacilli, while at least twenty-seven contained *Br. abortus*. Of the same number of milks after pasteurization not a single one contained either of these organisms in the living state. Discussing these results, the authors laid stress on the necessity of pasteurizing milk for the protection of the human population, and on the desirability of eradicating tuberculosis, contagious abortion, and mastitis from cattle in order to obtain a healthy animal population. There was no reason why these two policies should be in any way incompatible.

The fourth paper, by Professor H. D. Kay, director of the National Institute for Research in Dairying at Reading, was on a different plane. The three papers

already considered were definite contributions to our knowledge of milk. Professor Kay's paper was calculater rather to belittle the knowledge we already had than to make use of or extend it. A great deal of our information on the frequency of milk-borne disease which has been most carefully collected and sifted by workers really anxious to ascertain the truth was either neglected or decried. With a gay facetiousness he suggested that one of the causes for the low consumption of milk in this country was " the cumulative effect on the half-wits of the population of the fear of drinking milk brought about by a somewhat too vocative propasteurization propaganda," and the fear of developing simultaneously bovine tuberculosis, undulant fever, diphtheria, scarlet fever, and septic sore throat if a drop of raw milk was consumed. The paper appeared to be an attempt to please the agriculturists on the one side and the hygienists on the other. It certainly found no favour in a gathering of scientific workers interested in applying modern knowledge to practical affairs.

ALTERNATING CURRENT IN MEDICAL PRACTICE

The direct current which was so general a decade or two ago is fast disappearing and is being replaced all over the country by alternating current from the National Grid, and it is appropriate, therefore, to consider briefly some of the problems arising out of this change as they affect the medical profession. The reason for the change is largely that alternating current is so much easier to transform into higher or lower voltages. The direct current can only be reduced by resistances, which are wasteful in heat, or by the clumsy method of the rotary converter. The alternating current, owing to its power of inducing another current in an adjacent wire, can be readily changed by a transformer. For the ordinary purposes of light and power the change means very little. The same lamps will use both kinds of current if the voltage is the same, and apparatus such as the vacuum cleaner and electric fan can be fairly easily converted.

For the medical man the change has more practical implications. A practitioner who gives light treatment will find that his radiant heat or infra-red apparatus is not affected—again provided that the voltage is the same—but that he cannot use alternating current with an ultra-violet light lamp designed for direct current. He has a wide choice of mercury tubes and arcs which will take alternating current, but the cost of these changes has to be borne by the supply company making the change. The radiologist welcomes the alternating current, for it saves him one stage of conversion. In the days of the direct supply he had to manufacture in some way alternating or interrupted current in order to be able to induce the very high voltage he needs for the *x*-ray tube. He can now put his alternating current straight into a transformer and get a similar current of the voltage he needs ; this can be put straight into a self-rectifying tube or can be rectified with a valve apparatus. The exponent of diathermy has a similar advantage, for this apparatus, which is very much like that of a wireless telegraphy transmitter, uses alternating current as it comes from the mains, and carries its own internal transformer. The electrotherapist who requires ionization currents or a small direct current for anodal galvanism will have to use a valve rectifier or rotary converter if he is relying on the house current, but he may find it more convenient to use a battery of cells or accumulators. It is possible that alternating current supply may again bring into wider use the pantostat, an apparatus which employs a small rotary converter and changes the current from the mains into low-voltage sinusoidal, direct, or faradic current. Unfortunately the pantostat fed by direct current from the mains is not easily rewound to receive alternating current and to give out low-voltage direct and alternating current—another expense for the supply company.

The alternating current is, when all the evidence has been taken into consideration, definitely more dangerous to life than direct current. The Home Office statistics are strongly in favour of this point of view. Dr. F. L. Pearl[1] says that recent experiments on rats have not confirmed the belief that alternating currents are three or four times as dangerous as direct, but points out that the rat recovers spontaneously from ventricular fibrillation and that mortality statistics vary with different experimental animals. In certain experiments, he says, alternating current has proved more apt to produce haemorrhage, but the direct current was more destructive to nerve cells, inducing an intenser nervous inhibition and setting up cardiac fibrillation in a much shorter time. It is, however, wise to play for safety and regard the alternating current and any leak from wires carrying it as an additional source of danger. Therefore, leads into apparatus made of metal should be regularly overhauled and renewed and adequately earthed. Indeed, it would be better in all hospitals and nursing homes to replace metal shock-cradles and bedside lamps with types in which the whole stand is made, as far as possible, of non-conducting material.

The treatment of electric shock is likely to concern the general practitioner progressively more than it has done in the past. Any person unconscious from shock, according to Dr. Pearl, is suffering either from ventricular fibrillation, or from failure of the respiratory centre, or from both. Respiratory failure can often be combated by the Schaefer method of artificial respiration, which must be begun as soon as possible and continued even in the face of apparent failure. Jellinek went so far as to say that no patient was ever killed by electricity, but only by asphyxia. Pearl's experience, however, has been that in most cases artificial respiration has been useless, even when properly given: no amount of it, he points out, will cure a fibrillating ventricle. Nevertheless, it is not easy to distinguish the cause of the failure of respiration in a given case, and Jex-Blake advises the rescuer to continue artificial

[1] *Arch. of Surg.*, 1933, xvii, 227.

psychologists in its analysis of what seems in New York to be a very serious problem. The author, Dr. C. P. Armstrong, quotes Slawson's figure of 54 per cent. as the proportion of criminals who have run away from home earlier in life. The number of runaways seems to increase with age fairly regularly. They are superior both in verbal and in abstract intelligence to other delinquents, but inferior to the average school child; with concrete situations they are slightly more capable, reaching the "dull normal" level. A significant fact is that only a fifth of them are of white American parentage. Most are graded too high in their schools. They come as a whole from families at the lowest economic levels, and more than half are from disrupted families. They have had more radical changes in their home situation than the "incorrigible" group and many more than the "unlawful entry" group with which they are compared. About 12 per cent. are only-children, and there is a consistent tendency for the runaway to be the oldest child. Pathological conditions of body or mind are commonly found in the parents, and nervous habits and physical defects in the child. The habit of running away seems to be easily formed, and over a third of the group had previous desertions to their debit. Nearly all had other charges or complaints made against them. The reasons for running away seem chiefly to be intolerable situations at home, ill-treatment by parents or step-parents, overwork at home tasks or employment after a day at school, or a school situation in which they are forced to do work for which they have no capacity and their natural abilities are neglected. In fact, as the author concludes, a runaway is the victim of a bad social system for which he is quite unfairly held responsible. In many cases running away is a normal reaction to an environment which threatens the well-being of body and mind alike. That the American law treats it as a crime is the fault of the law and not of the child.

FOREIGN PRACTITIONERS IN SPAIN

The fact that the economic crisis has not had the same repercussions in Spain as in other countries will account in some measure for the recent increase in the numbers of foreign doctors who have gone to practise there. Antisemitic feeling in Germany is, however, responsible for many of these importations, and, as the subject has recently been debated by the General Council of Spanish Medical Colleges, it is clearly one that merits attention. The situation has been discussed editorially in the *Revista Medica de Barcelona*. The first aspect—which our contemporary calls the purely commercial one—is instanced by the case of the wholly undistinguished practitioner who wishes to practise in Spain, believing the economic conditions there to be more favourable than at home. His nationality, his imperfect command of the language, and the fact that his academic qualifications are not recognized by the Spanish Government are, in most cases, effective obstacles to his ambitions. Next is the case of the foreign professor who, though not without a certain measure of scientific distinction, proves to be completely ignorant of the Spaniard's "way of thinking." He arrives in their midst believing his prestige sufficient to make him a welcome candidate for a university chair, the directorship of a clinic, or some post of like importance, while at the same time he makes no attempt to conceal his contempt for many of their most revered institutions. If this class of foreigner wishes for a welcome, he must show himself able and willing to adapt himself to his new surroundings, and in all sincerity to co-operate with his new colleagues. Lastly, there is that type of visitor against whom the *Revista* particularly warns its readers. This is the bluffer.

> "We know of an actual case where one of this species was courteously allowed to give a theoretical course on a certain specialty, for which a number of medical men duly entered their names. It transpired that they had been completely misled by an erudite prospectus, the lectures themselves proving to be more suited to a class of junior students than to a gathering of post-graduates all well acquainted with the subject under discussion. Later it became known that this lecturer had come to Spain with the idea that our standard of knowledge was exceptionally low, and it is not to be wondered that his audience rapidly vanished. It is, however, all-important that we should make due distinction between such cases, of which this is by no means a unique instance, and those where persons come to us, no matter from where, with some new technique or theory which they wish to develop in our midst, making us, in a sense, sharers in their labours. . . . We must never close our door to any foreigner who offers us in all good faith valuable scientific knowledge in return for a cordial reception."

None the less the *Revista Medica* expresses its disgust for those "imported, self-styled savants, who from ignorance and incompetence have the idea that the medical profession of Spain can be satisfied by their insignificant contributions." There is a forthright flavour about medical journalism in Barcelona that might perhaps be called "the Wakley touch."

THE NUTRITION REPORT

Now that the smoke has blown away we may attempt to form some estimate of the reception by the public—as represented by the Press—of the recent report of the Nutrition Committee of the British Medical Association. Comments in the weekly journals and in nearly every morning and evening paper in the country, and the large sale of copies of the pamphlet, show how widespread is the interest in dietetic problems. A rapid survey of press cuttings affords the detached observer an interesting glimpse into the way modern journalism treats and presents news. Such a survey shows that what Mr. George Blake says in his pamphlet, *The Press and the Public*,[1] is unfortunately all too true. Only a few papers made any attempt to understand the significance of the report. Interviews with dock-labourers, charladies, ex-mayors, and town councillors were held to be of more importance than a balanced presentation of the report and comment based on reasoned criticism. Headlines like "Statistics No Use," "Mothers' Sacrifice," "'Nonsense,' says Housewife," "Let the Doctors Prove it," "Horrible Idea," cannot be said to clarify the position for the man in the tram, who includes in his daily budget a penny for trustworthy information. The weekly reviews gave the report extremely good notices, and at least four of the more responsible daily papers gave their readers a fair idea of what the findings and purpose of the report were. For the rest, the "stunt" periodicals vied with each other in that art of malpresentation of news which is such an unfortunate feature of journalism to-day.

[1] Faber and Faber. (1s. net.)

"HORMONES AND GENETICS"*

BEING A CONSIDERATION OF SOME OF THE FACTORS CONCERNED IN THE RESPONSE MADE BY CERTAIN TISSUE CELLS TO HORMONIC INFLUENCES

BY

C. J. BOND, C.M.G., F.R.C.S.

One of Mendel's most important contributions to genetic knowledge was his establishment of the particulate nature of the heredity process. He showed that in plants—and the same is true of animals—the factors or gene complexes on which hereditary characters depend are transmitted in a particulate manner. They do not lose their identity during the passage from one generation to the next and under appropriate conditions of mating may reappear in their original form.

It is not necessary to stress the importance of this knowledge to physiology or to preventive medicine. Let us take, for example, diabetes which, as we know, depends on some defect in the quantity or quality of the secretion poured out by the cells which line the acini of the pancreatic islets into the blood stream which thus controls carbohydrate metabolism. It is true that the continued administration of insulin will supply the missing hormone and so enable the patient to resume normal life, and, in some cases, to marry and beget children. But the administration of insulin, even over long periods although it may ameliorate the symptoms, does not remove the pancreatic defect on which diabetes depends (except, possibly, when given at a very early stage). Since diabetes is, to a certain extent, an hereditary disease—that is a disease which shows a familial incidence—this means that, unless steps are taken to prevent the handing on of this pancreatic defect to offspring the saving of the lives of a number of individuals liable to suffer from diabetes may lead to unfortunate results from the racial point of view. No one will regard with equanimity the possibility of breeding and rearing a race of citizens who throughout life are dependent on the continued use of insulin for their well-being.

Again, if we take the case of hypothyroidism we are not justified in thinking that when we have shown a certain defect (for example cretinism) to be associated with lack of iodine in the water or food we have explained its occurrence. This discovery, though useful only pushes the solution of the problem one stage further back. We still want to know what are the antecedent genetic factors which predispose to this endocrine functional defect. The attainment of fuller knowledge about the physiology of the pancreas and of other endocrine glands is vitally necessary but we also want fuller knowledge concerning the physiology of the germ cells—that is the cells which transmit these special defects in certain organs.

In thus speaking of diabetes as the result of an hereditary pancreatic defect I do not wish to suggest that this is the whole of the story concerning this disease. We know, for instance, that while insulin promotes the taking up by the tissues of the sugar in the blood adrenal medullary also assists in the liberation of sugar from the liver, where it has been stored in the form of glycogen. The posterior pituitary gland also aids in the manufacture of fat from the sugar while thyroxine stimulates the oxidation of the sugar by the tissues. Hence we are concerned not only with the pancreas but with the harmonious working of other endocrine glands in diabetes. At present we do not know to what extent genetic factors may also be concerned in their departure from healthy function.

The same seems also to be true to a certain extent in hypothyroidism. No doubt the thyroid defect which we recognize clinically as cretinism or myxoedema is associated with lack of iodine. But this only means that in some individuals the thyroid gland is less successful in dealing with minute quantities of iodine than it is in others, and this difference may depend on genetic factors.

Certain facts, such as for example the high incidence of cretinism in certain Swiss valleys, in which extensive inbreeding of the population has occurred, do point to the importance of hereditary factors. Moreover a number of cases have been recorded of the birth of twins in which one twin has been a cretin and the other normal. Here the ante-natal environment—that is the supply of iodine and maternal hormones—has been the same in both twins. If such twins are of the binovular kind and not 'identical' then the suggestion is that the germ cells from which they originated were of different genetic constitution in respect of thyroid efficiency.

The same thing happens in connexion with the pituitary gland. Instances have been recorded* in which one twin was an achondroplastic dwarf and the other was normal. The case mentioned by the late Sir F. Treves, of the so-called elephant man, though not a twin, is of interest here. This man had an enormous bony overgrowth and skin hypertrophy affecting the bones of the skull, trunk and limbs. The pituitary was very large. I had an opportunity of seeing and photographing him at Leicester at an early stage in his illness. The deformity then was much more marked on the right side of the head and trunk, the left arm and leg were only very slightly affected. This hemilateral difference in the effect of the pituitary secretion must have been due to a greater receptivity of the tissues on the right side of the body to the pituitary hormone, and this leads naturally to a discussion of the important question of tissue susceptibility to both internal and external environmental stimuli. Dr. Eric Pritchard, in a letter to Dr. Allan Warner, reports three cases of achondroplasia in twins, in each case only one twin was affected, the other was normal.*

OTHER EXAMPLES OF TISSUE SUSCEPTIBILITY TO HORMONIC STIMULI

While the regulation of the functional activities of the organism by endocrine influences has been greatly emphasized in recent years at any rate in vertebrate physiology, certain facts still remain which suggest that the circulation in the blood stream of certain internal secretions is not by itself adequate to explain the entire phenomena in all cases. I have already alluded to the striking differences in physiological reaction shown by binovular twins—that is twins from different germ cells—when reared under similar ante-natal and post-natal conditions. These differences are I suggest due to a dissimilar genetic constitution.

Now the same or a like kind of genetic dissimilarity is sometimes seen in the way the tissue cells react to the same hormonic influence on the two sides of the body. In a lecture on The Genetic Significance of Hemilateral Asymmetry in the Vertebrate Organism delivered at the University of Birmingham in May 1932 instances were given showing asymmetry of secondary sex characters in birds. At the Birmingham meeting of the British Association in 1913 a gynandromorphic pheasant was shown with male plumage and a well-developed spur on one side and female plumage and no spur on the other. An ovotestis was also present. In this case it is difficult or impossible adequately to explain the asymmetric distribution of secondary sex characters by a hormonic secretion circulating equally on both sides of the body. There must be some difference in the capacity of the epidermal tissue cells to react to the secretion formed by the sex glands—some difference that is in maleness or femaleness—on the two sides dependent on chromosomal or gene differences in the constitution of the tissue cells. Further the embryological evidence shows that this irregular or asymmetric distribution of character or cell potentialities takes place at a very early stage in the division of the ovum—that is at the time when the growth of the embryo is being determined on a bilateral plan. Lillie† and Juhn have suggested that this asymmetry depends on a difference in the growth rate of the feathers in relation to the hormonic threshold on the two sides of the body.

* Contribution to a discussion on genetics at the meeting of the British Association, Leicester, 1933.

* See also 'Mongolism in Twins.' *Lancet*, April 15th and August 12th, 1933.

Then we have the left-sided growth of the spur in certain female fowls. If a four-toed breed, such as the Game or Andalusian, is crossed with a five-toed breed like the Houdan or Silky Fowl, a condition of genetic instability may arise. The hybrid chickens of the F1 and F2 and later generations often show asymmetric toe development. In certain cases female birds may develop a spur on one leg only, and more frequently on the left side. In such cases, by cross breeding, a condition of somatic asymmetry has been brought about in which the tissues on the two sides of the body differ in responsiveness to the hormonic stimulus. Professor Crew* has recorded the case of a fowl in which there were marked skeletal and other differences on the two sides. The bird was a male hybrid from a Light Sussex and Rhode Island cross, and the asymmetric bone development suggested a difference in tissue susceptibility to the pituitary hormone on the two sides of the body.

Corresponding differences have also been observed in the human subject. I have already mentioned the case of the "elephant" man, and other examples are also given in my Birmingham lecture.

Gynandromorphism in Insects.—In insects and some other invertebrates the development of the secondary sex characters is determined by chromosomal or gene agencies, and hormonic stimuli play little or no part. As Julian Huxley has said† the development of the sex characters in the higher vertebrates is under the control of a two-switch mechanism—chromosomal and hormonic. In insects, on the other hand, the second mechanism is absent, and the development of the secondary sex characters—for example, the male antennae—is under the control of the chromosomal mechanism only. This is well shown in the case of gynander ants and butterflies.

Acquired Immunity and Genetic Factors

Now if this hypothesis of a difference in receptivity to hormonic influences in the tissues on the two sides of the body be well founded, then we should expect to find an unequal or asymmetrical response to other stimuli, besides those elaborated by the sex gonads. It is true that the skin eruptions which result from the circulation in the blood stream of the toxins of disease organisms, such as the virus of the exanthematous fevers, are, for the most part, symmetrically distributed on both sides of the body. But medical men have not been on the look out for asymmetrical distribution in such cases. Further, they would be of somewhat rare occurrence. It may be, therefore, that when closer attention is drawn to the subject more cases of asymmetrical distribution will be recorded.

I must explain that we are not now concerned with the immunity to certain diseases which characterizes some species of animals and certain races of mankind. Such inborn capacities to resist invasion are the outcome of prolonged racial experience of disease, and depend on genetic factors. The acquired immunity which depends on individual experience of disease, though not based on germ cell variation and selection, yet throws some light on the way in which the somatic tissues—for example, the defensive cells—transmit the newly acquired character of immunity to their cell descendants, though not to offspring. I say not to offspring because we know that the acquired immunity which follows an attack of small-pox or measles is not handed on to children. At the same time we also know that the acquired immunity which follows recovery from small-pox is persistent and usually lifelong, while that which follows vaccinia is only temporary. The same thing is seen in other infective diseases. Thus the immunity which follows recovery from a localized staphylococcal infection, accompanied with suppuration, is often very evanescent, while that which follows an attack of one of the virus diseases, such as measles, is usually lifelong, though even in measles the evidence shows that the persistence of the immunity varies in different families. That is to say, it has a genetic basis.

* See *Journal of Genetics.*
† *Science of Life*, p. 374.

What is the meaning of this difference? Does it depend on the fact that the reaction in the localized form is mainly concerned with cytoplasmic cell elements, while in the generalized form it reaches and affects the nucleus and the nuclear heredity mechanism of the cell? In an interesting article on immunity in the virus diseases C. H. Andrewes[3] suggested that "the immunological properties of viruses are probably related to the small size and the *intra*-cellular parasitism of these agents." If for "intracellular" we read "intranuclear" parasitism, then the causal relation between intranuclear invasion and the transmission of the immune state to cell descendants in the virus infections becomes more readily understood.

The element of minute size in a virus infection as compared with a bacterium or coccus may explain why the former can pass through the nuclear membrane while the coccus or bacterium can only act on the cytoplasm of the cell. The presence of so-called nuclear inclusion bodies in the case of certain virus infections, herpes, varicella, etc., affords evidence that the nucleus is affected in these diseases. E. V. Cowdry[4] finds inclusion bodies in the nuclei of the liver cells in experimental monkeys in yellow fever, but does not regard it as proved that these actually represent the virus. The essential point is, however, that the nuclear heredity mechanism of the cell must be affected before the adaptive response made by the cell to the disease organism—that is, the immune state—can be handed on to the cell descendants of the individual cell, or cells, which make the response. In the acquired immunity reaction the capacity to resist re-invasion *is* so handed on. We know, for instance, that after recovery from such an attack the individual remains immune. At the same time we also know that this immunity is not handed on to the germ cells of the same individual, for his children are born susceptible to the disease.

Now there is some recently acquired evidence that the secretions of some of the endocrine glands play a part in keeping the defensive mechanism of the body up to the mark in resisting infection. We also know that some vitamins, especially vitamin A, exercise a very important influence in the same direction. Although the subject of acquired immunity does not bear very directly on the genetic side of endocrine physiology, there can, I think, be little doubt that a study of the way in which somatic cells (for instance, thyroid cells in relation to iodine and the cells of other endocrine organs) react to environmental stimuli, and a fuller knowledge of the mechanism by which such reactions are handed on to later generations of these somatic cells, are matters of great importance. The moral to be drawn from the observations I have brought forward surely is this: that physiology, pathology, and genetics have many important points of contact, and can mutually assist each other.

References

1 Armstrong, H.: *British Medical Journal*, 1928, i, 1106.
2 Warner, A.: Ibid., 1928, ii, 983.
3 Andrewes, C. H.: *Lancet*, 1931, i, 989.
4 Cowdry, E. V.: *Amer. Journ. of Path.*, March, 1933, p. 149.
5 Lillie, F. R.: *Science*, lxxiv, 387.

The medical and biological section of the first congress of the Association pour la Documentation Photographique et Cinématographique dans les Sciences, which was held in Paris at the beginning of October, devoted special sessions to the preparation of surgical films and radiology. Among the subjects demonstrated by cinematographic films were a plastic mammary operation, cataract extraction, excision of a skin cancer, plastic surgery of the face, resection of the megacolon, tissue culture by Dr. Carrel of New York, Caesarean section, gastrectomy, a normal confinement, and subtotal hysterectomy. Discussions centred round the technique of reproducing such operations by films suitable for demonstration to clinics, and the most recent developments of radiological and cinematographical apparatus.

HEALTH OF THE SCHOOL CHILD

SIR GEORGE NEWMAN'S REPORT*

SCHOOL DENTAL WORK

The aim of the school dental service is to secure that as many children as possible leave school with a complete and sound set of permanent teeth and that they should be trained in the care of their teeth and taught the necessary principles of dental health. Out of the 316 educational authorities in the country only four have no school dental scheme, and in two of them the provision of a scheme is now under consideration. During 1932 the number of children dentally inspected was 3,302,338, and of these 2,285,644 required treatment. This latter number was an increase of 8 per cent. on the preceding year, but the number actually treated only showed an increase of 5 per cent. ; a reason for this seems to be that the demand for treatment is growing more rapidly than the supply. At the end of the year the dental staff was equivalent to 555 whole-time dentists working in 1,281 clinics. There was a definite increase in the number of permanent fillings and of extractions of permanent teeth. The removal of teeth for caries means that they could have been saved at an earlier age, and a complete dental scheme should provide for conservative treatment of the permanent teeth on an average rate of not less than one permanent tooth per year per child. Some authorities, Sir George Newman says, do not realize the difference between dental treatment and other forms of treatment. An operation for tonsils or the supply of glasses for an error of refraction does not usually need repetition, but dental caries occurs year after year in the treated as well as in the untreated child, and the dental staff should be on a scale that is much greater than that of the medical staff.

There remains the important factor of the education of the parent and of public opinion, which must aim at making all concerned appreciate the fact that dental disease undermines health and leads to physical disablement. The cardinal words of dental education should be: that dental disease is dietetic, that cleanliness prevents decay, and that the price of healthy teeth is dental vigilance. Some authorities endeavour to bring a little pressure to bear on reluctant parents by refusing any casual dental treatment to a child who has not received the advised attention after the previous inspection. There is a good deal of difference of opinion as to whether this is or is not a satisfactory method. The essential thing is that the dental service must be an educational scheme of conservative dentistry and not a scheme of extraction for a never-ending stream of casuals. An important factor in the rate of inspection is the provision of an attendant to marshal the children and render clerical assistance. The Board of Education feels that there are three kinds of treatment which should be watched carefully from the point of view of economy: general anaesthesia, root treatment of septic teeth, and orthodontia. There is little need for uneasiness on the score of extravagance, but full value for money is not being obtained in all areas.

RHEUMATISM

The London County Council again presents the outstanding example of work for the prevention of rheumatism. Its rheumatism scheme is hardly rivalled now in any city of the world. The number nominated for institutional treatment has increased by 30 per cent. since 1931 ; this does not indicate an increase in incidence, but only in realization. After May 1st, 1932, beds were provided for all children nominated. Of those discharged from hospital 67 per cent. were fit for the ordinary curriculum of an elementary school, and only 12 per cent. had to be sent to schools for physical defectives. Kensington is one of the three metropolitan boroughs in which compulsory notification of acute rheumatism in children is in force. The yearly numbers notified since 1927 have been successively: 159, 105, 95, 66, and 41. Many school medical officers refer to inadequate provision or total lack of special school-hospital provision for the prolonged institutional treatment of rheumatic children. An interesting investigation into the problems of congenital heart disease is being carried out at Kingston-upon-Hull ; the whole question is, in the words of the report, well worth much further attention. Recently published analyses of hospital cases of heart disease have emphasized once again the great importance of the prevention of acute rheumatism in the child. On the most conservative estimate, acute rheumatism was the aetiological factor in 80 per cent. of cases, and no other factor was present with any degree of constancy. The mortality ascribed to rheumatic fever fell once more last year by 12 per cent. to a new low record. This says a great deal for the efforts of the school medical service in prevention.

EPILEPSY

The number of schools for epileptic children recognized by the Board of Education has remained for the last twenty years at the number of six, all residential, but their accommodation has steadily increased from 488 in 1913 to 609 this year. Nevertheless, it is often difficult to obtain a place for an epileptic child within a reasonable time. On December 31st, 1932, the number of children ascertained to be suffering from severe epilepsy was 1,939, of whom 932 were at no school or institution. An additional 4,335 were suffering from milder forms of epilepsy, such as petit mal, which may have almost as damaging an effect upon intelligence and character as the severe fit. A long waiting period is greatly to be regretted for children of this kind.

Since the national crisis prevents an increase of accommodation, the report suggests as a remedy for congestion that the children who show themselves least receptive of the educational provisions of the schools should give way to brighter children. Few children in the certified schools are of a very high grade of intelligence ; many are very dull and a few appear to be ineducable. All have their "off-days," when the intelligence they usually possess appears to be clouded by their malady. Experience of child guidance clinics suggests that emotional factors have much to do with the use made by normal children of their innate abilities. The intelligence quotient appears to be constant both in normal and in mentally defective children, but so few tests have been made on epileptics that it is not possible to apply these generalizations to them. Most of them seem to have fairly constant quotients, but some seem to reach a certain stage and then fall back. No medical officer can claim to have done all that he might to estimate the future educability of an epileptic child unless he makes a mental test. There seems to be a fairly general opinion that the memory of the epileptic is poor, and that the marks he gains on the Binet scale are more on the mechanical side than on those tests which require concentration or reasoning. All epileptics are emotionally unstable, even at their best, whether they suffer from severe fits or not. The question that must be asked is: Which of these various kinds of epileptic children will benefit most by attendance at a residential school? The institutions are schools, not hospitals, and unless a child can take advantage of the education offered he should not be retained even if he is benefiting physically and temperamentally.

It appears that at present at least one-third of the population of the special schools for epileptics is either mentally defective or ineducable, and that if the ineducable were eliminated some sixty places (10 per cent.) would become available for children of higher mental ability, while if the only slightly educable were excluded as many as one hundred places would become vacant. The process should, of course, be gradual, beginning perhaps by excluding children with an intelligence quotient of 50 per cent. or less, or with inability after tuition to read and understand an infants' primer by the age of 10 or 11. A trial period should not last more than six months on an average, and in any case not more than a year ; a kind heart is not always the best guide in this matter of allotting the available accommodation.

* Concluded from page 1042.

The same principles apply to children who seem to be deteriorating mentally.

The arrangements for admission could also be improved; no child with an intelligence quotient below 50 should be sent even on trial, and a record of the mental examination should be forwarded with the admission form. Admission even on trial should seldom be justifiable with a quotient below 60. The low-grade mentally defective epileptic excluded from a special school should be notified to the mental deficiency authority, whose duty it is to provide care (not education) for such children. The report also calls for further research into the whole problem of intelligence and mental deterioration in epileptics.

Physical Training

A revised edition of the syllabus of physical training has been published by the Board of Education. It is now primarily a junior book suitable for children from the time they enter infant school to the age of 11 or 12. It contains, however, ample material for teaching children up to the age of 14. Great emphasis is laid on the importance of regular daily exercise in the open air, without too much regard to weather conditions. The exercises recommended have been carefully overhauled, and the object of each lesson is to give the children active and free movement and plenty of vigorous exercise, while teaching them control of their muscles, dexterity, and economy of effort.

A new physical training college for men has been opened at Leeds: probably few people realize that until now men wishing to take up physical training have had to go abroad for their instruction or pick up partial training at vacation courses. A vicious circle was set up by the common belief that the prospects for a gymnast in schools were not good enough to attract the kind of men needed for what is in fact one of the most important posts on the staff, but the vicious circle has been broken by the foundation of this college, and Sir George Newman is confident that there will be no shortage of suitable students. When it opened in September the college had over thirty students, all of whom were graduates of a British university or certified teachers.

If, says the report, there is one test of the strength, tone, and balance of the body, it is posture. About three-quarters of the children in an elementary school at the age of 12 years show more or less serious defects of posture. Some of them will grow out of their malpositions or malformations, but others will remain in their present condition or become worse. The three chief causes of these deviations from the normal are: homes involving overcrowding, lack of rest and sleep, undernourishment, and bad habits; unsatisfactory school conditions, such as bad light and bad ventilation, unsuitable desks, and lack of attention to fatigue and exercise; and, lastly, the manifold effects of diseases such as rickets and tuberculosis. It has been proved beyond question that good posture can be ensured during school life, and the report puts a pertinent question: Why not in all schools? It is clear that all teachers should pay special attention to the problem. Keenness among the teachers is not the only necessity; there must also be a competent organizer of physical training. These officers do extremely valuable work at relatively negligible cost; what the school doctor is to the school medical service the school organizer is to physical training. He is not primarily a teacher but a demonstrator, the inspirer and source of enthusiasm and encouragement. There are at present 165 organizers serving 185 authorities. The report this year contains eight representative extracts from the reports of physical training organizers. These extracts give a most remarkable glimpse of the physical movement going on in the elementary schools; it is comprehensive and altogether larger and wider than the old school drill, and a new spirit is vitalizing the whole. There is "joyous mental reaction," interest, and adventure, with the ultimate end of discipline, noble character, and courage. A child's physical training must be an education which will fit him in after-years for leisure, for play, and for recreation as well as for work. Every child in the school should receive the benefit of physical education.

Healthy Living

The report observes that remarkably little time or attention is given in the formal education provided by the State to the "art of living," although to-day there can be no question that public opinion demands that it shall be taught. Buildings have been re-formed and specialized, teachers trained, school children fed, medical supervision and physical culture introduced. No doubt practice is better than precept at all times, and hygiene never can be taught as an abstract subject, because it concerns a way of life. The child going from a small and cramped home spends its day in a large, dry, airy class-room, where cleanliness, order, and punctuality prevail and discipline is obvious. If it needs nourishing, it will be nourished; it will be exercised, taught to make things, and to rest. Upon this foundation the teacher builds a superstructure when he attempts to teach the subject of hygiene.

The Board of Education has recently published a handbook, *Suggestions on Health Education*, which points out to teachers the best way of bringing home to their pupils the principles underlying the art of living. One of the first difficulties under which the teacher labours is the low standard of health with which the nation appears to be content. Hygiene should therefore be closely associated with physical training. A second difficulty is that the lessons on hygiene seem to be detached from the life at home or at school; the teacher claims that health should be built on ideal surroundings of beauty, light, and air, yet the school in which he teaches is dull and drab and may lack sunshine and even fresh air. The third difficulty which many teachers experience is to make clear to the mind of the child how the means of health actually work. It should not, however, be difficult to explain the facts of good water supply, sanitary houses, suitable food, fresh air, and exercise.

A far wider and deeper interpretation of the education of the body than that available at present would constitute a great advance in preventive medicine. The future health of the nation depends far less upon housing or medical services than it does upon an educated people. The teachers themselves must be educated; he (or she) needs a good working knowledge of the facts, growth, and functioning of the human body, and only on that foundation can he apply any system of exercise with intelligence and aptitude. Sir George Newman regards it as of the first importance to provide teachers with a firmer foundation of elementary science, biology, physiology, and the factors associated with personal and national health.

To-day there are 147 open-air schools and a very much wider comprehension of the value of education in the open air than was available a generation ago. Of the ordinary school building plans approved by the Board, 80 per cent. contain the open-air principle in construction or application. An open-air school is not merely lessons in the garden; it comprises a way of life and a system of education and medical supervision. It is not only applicable to children suffering from subnormal health; it should be the privilege of all. There has also been a substantial increase in the number of camp schools; the London County Council provides seven camps which housed 4,479 children last year.

The findings of 1932 indicate no increase in undernourishment; most of the local reports record a decline. Even in the hard-pressed industrial areas, it is stated, malnutrition among school children shows no increase during 1932. During the year seventeen more local authorities provided school meals, bringing the total to 174, while there are still 142 authorities who do not provide meals. The total number of meals provided in 1932 was 62,300,000—an increase of 14,300,000 on the previous year. Schemes to provide milk under the auspices of the National Milk Publicity Council have also increased in number; it is estimated that 900,000 children received milk in 1932 in over 200 areas. Many of the teachers give voluntarily of their spare time and enthusiasm to the work of providing food or milk.

The school medical officer, in addition to reporting cases of malnutrition, to testing whether a child should be placed on the feeding list, and to inspecting the register

of attendance at meals, regularly approves the dietary and hygienic conditions of the feeding centres, advises on the quality, quantity, and cooking of the food, and gives his judgement on the effects of feeding on the physical well-being of the children. The increase which has taken place in the number of meals supplied at the request of the parents illustrates the growing sense of parental responsibility. Provision of school meals was never meant to be a form of poor relief; it was to be educational, economic, medical, and preventive.

The report, in its summary and conclusions, stresses first of all the need for constructive health teaching. The school doctor started as an individual concerned in the education and treatment of physical defects, but he is now involved in the larger task of ensuring the physical, mental, and moral improvement of the coming generation. One thing, however, remains yet to be done: the training of the body—hygiene and physical training. Moreover, the school medical service is still being hampered by the continued influx year by year of large numbers of young children suffering from impaired health, and it is the pre-school child who remains a problem and will continue to remain a problem until local authorities and voluntary agencies concentrate on him as they concentrated on the subject of infant mortality. The subdivision of the child into two age periods—a pre-school period and a school period—is administratively artificial; the age of 2 to 5 is critical in that the seeds of disease may be sown then for a lifetime. Some local authorities realize their responsibilities, but some do not.

Finally, the report notes that the responsibility of the mother for the welfare of her child has not been taken from her, but has indeed been greatly stimulated and increased by the work of the school medical service. The education of the child in health will often fail unless her interest is ensured; any growth in parent-teacher co-operation augurs well for child health.

Nova et Vetera

ORIGIN OF THE LANCASHIRE AND CHESHIRE BRANCH

At a recent science meeting of the Lancashire and Cheshire Branch of the British Medical Association, held in the Warrington Museum and Library, a paper entitled "A Brief Historical Sketch of the Lancashire and Cheshire Branch of the British Medical Association (1837–49)" was read by the president, Dr. J. S. Manson. This paper was based on newspaper cuttings and other documents describing the origin of the Branch, and its progress during the first twelve years.

It was first named "The Newton Medical and Surgical Association." These documents had been preserved by the late Dr. Charles White and Dr. E. E. Bowden, who gave them to Mr. McAdam, the librarian, for safe keeping. The branch held its inaugural meeting at the Legh Arms Hotel, Newton-le-Willows, on June 30th, 1837, when Dr. Holme, senior physician to the Manchester Royal Infirmary, was elected president. Drs. John Sharp and G. W. Hardy of Warrington were appointed secretaries.

At the second meeting Dr. Jeffreys of Liverpool succeeded Dr. Holme as president, and Dr. Kendrick of Warrington was appointed a vice-president. The third meeting was held at Warrington on June 27th, 1839. The business meeting was held at the Music Hall, Bewsey Street, and from there the meeting adjourned to the Nag's Head Hotel, Sankey Street, for dinner.

As Newton was more convenient for the train service then available, the Branch continued to meet there, and at the sixth meeting Dr. Kendrick was elected president. At the thirteenth meeting, in 1849, the name was changed from "The Newton Medical and Surgical Association" to "The Lancashire and Cheshire Branch of the Provincial Medical and Surgical Association."

Dr. Harold Watkins of Newton showed two prints of the early meeting places of the branch—one of the old Legh Arms Hotel, now demolished, the other of the building of the Lancashire Conservative Association. Portraits of Dr. Kendrick and Dr. G. W. Hardy were also exhibited. The meeting was greatly interested to learn of the important part that Warrington and Newton played in the establishment of this large Branch of the British Medical Association.

A number of old medical books, some of them very rare, were on view, but a special feature of interest was a description by Miss G. Cicely Banks, F.R.C.S.Ed., of a rare mediaeval water ewer, known as an aquamanile. This is among the possessions of the Warrington Museum; there are only five in Great Britain, and only thirty-four known in the whole world. Miss Banks, who is a member of the Lancashire and Cheshire Historical Society, described its use as a means of cleansing the fingers at table before forks were invented. It was given to the museum by a daughter of Dr. Kendrick.

The meeting adjourned for tea at the Old Academy, where much interest was taken in the exhibition of Priestley's relics and works, and in a paper of Professor John Fulton of Yale University, U.S.A., on "The Warrington Academy (1757–86) and its Influence upon Medicine and Science." An account of this paper by Dr. Manson appeared in the *British Medical Journal* of April 29th (p. 752).

AMERICAN OBSTETRIC WORTHIES

The reawakened interest in the history of medicine has nowhere been more marked than in the United States, and a little book, *Chapters in American Obstetrics*,[1] is an instance in point. In it Professor Herbert Thoms has brought together a number of essays on prominent personalities in his country and their contributions to obstetrics. Naturally its special appeal must be to our transatlantic brethren, but it contains much of general interest in the history of the subject.

The two contributions of America that are generally accepted as having passed into obstetric history are those of Oliver Wendell Holmes on *The Contagiousness of Puerperal Fever* and those associated with the discovery of ether as an anaesthetic by the Boston school and its introduction into midwifery practice, both of which have their place among these essays. As Osler had done forty years ago in America, and Cullingworth somewhat later in this country, the author of this book links Holmes with Gordon of Aberdeen and Semmelweis as the important triad which proved the contagious nature of puerperal fever. By his *Treatise on Etherization in Childbirth*, Channing of Boston seems to have done for ether in America what Simpson of Edinburgh did for chloroform on this side of the Atlantic. His name is unfamiliar to us, and there is the more reason to be grateful for having our attention drawn to the part he played in the crusade for anaesthesia in America.

A noteworthy essay is one in which Professor Thoms claims for Stearns and Prescott the chief credit for the introduction of ergot into scientific obstetrics. The quotation of the six indications for its administration and the attention drawn to its unfavourable consequences in unsuitable cases by Stearns shows little variation from the practice of a century later. Another describes a bipolar manœuvre for the performance of cephalic version in cases of shoulder presentation, advocated by Marmaduke Wright some years preceding the publication by Braxton Hicks of the method that bears his name.

Possibly of greatest interest to cisatlantic obstetricians will be the chapter on the prominent midwives in the colonial days of the sixteenth and seventeenth centuries, for the most part imported from England or Holland, with extracts from the ordinances governing their practice. Throughout the series the author's occasional asides and extracts from letters, books, and addresses of the various worthies illuminate the thought, ethical standards, and professional customs of these olden days, and make pleasant reading.

[1] *Chapters in American Obstetrics*. By H. Thoms, M.D. Springfield and Baltimore, U.S.A.: C. C. Thomas; London: Baillière, Tindall and Cox. 1933. (11s. 6d.)

Ireland

Irish Medical Graduates at Dinner

The autumn dinner of the Irish Medical Schools' and Graduates' Association took place at the May Fair Hotel, London, on November 30th, with Professor T. G. Moorhead in the chair, when the principal guests were Sir W. P. Byrne, who was Principal Under Secretary of the Lord Lieutenant of Ireland during 1916–18, and Mr. Butler Aspinall, K.C. In proposing their health Sir William de Courcy Wheeler pointed out that the dinner was being held on St. Andrew's Day, perhaps a friendly gesture to their Scottish brethren. Irishmen in London, he said, were sometimes inclined to be homesick, but the next best thing to going back to the country where, " politics apart, ' earth's crammed with heaven ' " was to forgather at these functions. Sir William Byrne, in responding, recalled his summons to Ireland during the war in order that he might do what he could in maintaining authority of government in that country. It was a job which it would be any man's pride to attempt and any man's glory to perform, but it was made easier by the welcome which he received from many classes of citizens, not least the professional institutions, and not least among these the representatives of the medical profession. Professor Moorhead said that his new duties on the General Medical Council had claimed an unexpected amount of his time, and had prevented him from preparing a speech, but he managed to make an excellent impromptu one, seasoned with fishing stories from Connemara. Since they last met together in London on St. Patrick's Day, he said, the Annual Meeting of the British Medical Association had been held in Dublin. By universal consent it was most successful, and one of the most pleasant functions in its programme was the luncheon of the Irish Medical Schools' and Graduates' Association, which was attended by 160 people. Ireland continued to send out from its universities large numbers of graduates —some 80 per cent. of the total—into other parts of the British Commonwealth, and he hoped that nothing would ever interfere with that export of brains for the good of the world. The eyes of Ireland had always been turned over-seas, and Irishmen were ever looking for " the land of heart's desire," to discover eventually that that land was the one which was washed by the four seas of Ireland herself. It was delightful to see, last July, so many Irish graduates finding their way back again " to share Ireland with us for a week," but perhaps the best mixture of all came from the Malay Peninsula, which sent as its representation one Englishman, one Scotsman, and one Irishman. Dr. Moorhead entered a plea for more members for the Graduates' Association. His gillie one day, not liking to tell him that the north-west wind was still preventing the fish from rising, said in an encouraging way that there was " a touch of north-south that morning," and there was more than a touch of " north-south " about the Association, into which people came from every part of Ireland. He went on briefly to review events in Dublin. Dr. R. J. Rowlette had become a member of Dail Eireann. He hoped that the medical schools and the university life in general would maintain full representation in the Dail. With regard to Irish hospitals and sweepstakes proceeds, one thing which it was hoped to establish was a research institute. This would be on an international basis ; it would have research scholarships, open to every nationality, and would be something of which Ireland might well be proud. A radium institute was also projected. The Royal Dublin Society deserved every credit for what it had done with regard to Irish radium, but a centralized institute was needed where treatment could be given. The amalgamation of some Dublin hospitals was in the air, and on his return he hoped to bring together a group of representatives of three or perhaps four hospitals to discuss the matter seriously. Colonel G. A. Moore gave the company a taste of real Irish oratory in proposing the health of the president, and during the evening Viscount de Moraes delighted them with some Spanish and Portuguese folk songs.

Recent Advances in Medicine and Therapeutics

At a meeting of the Biological Society of the Royal College of Physicians and Surgeons the president, Professor Leonard Abrahamson, in an address on " Recent Advances in Medicine and Therapeutics," stated that a survey of the medicine of recent years revealed the emergence of a completely new general outlook. For centuries advance in medicine had rested on the basis of morbid anatomy, and correlation of clinical data with post-mortem findings had represented the limit of endeavour. As time went on it became clear that the examination of dead tissues afforded an incomplete guide to the changes in the living body, and that little more could be expected from study in that direction. With the advent of biochemistry and the application of physiological principles the outlook and methods of investigation had changed completely. The study of the chemistry of the blood opened out a wide field for research, and brought with it the solution of many problems which, by their nature, had eluded the most minute investigation. Referring to the progress of surgery in Ireland, Professor Abrahamson said that while a certain degree of conservatism was to be recommended he believed that some forms of surgery had received less attention than they merited from the Irish surgeon. The lack of progress in this, as in other directions, was due to the difficulty of carrying out specialized work in small general hospitals. The archaic hospital system that obtained in Dublin militated definitely against advance in medicine and surgery. Whatever the advantages of numerous small hospitals, the disadvantages preponderated. When one reflected that, even with the unexpected money available from sweepstakes, no attempt had been made radically to change the present system, it was not hard to despair. Dublin was the centre of Irish medicine, and the sweepstakes had been introduced to solve the problem of the Dublin hospitals. This problem, however, had not been solved, and was not measurably nearer solution. Yet money was being spent all over the country. Nobody could cavil at the provision of proper hospitals in various parts of Ireland ; but until the Dublin hospitals had been brought into line with those of other capitals not one penny should have been spent outside the city. The staffs of the hospitals should realize that the blame did not lie altogether on the shoulders of those responsible for the allocation of the sweepstakes money. It was the duty of the hospital staffs and governors to provide a scheme for the amalgamation of the hospitals and for the utilization of the money available to the best advantage. They had failed to produce this. He hoped that the opportunity had not passed, for if it had it would not recur in their time, nor for many generations. The chairman, Mr. J. Owens, said that he would urge the necessity for the amalgamation of hospitals. It seemed a waste that all the hospitals in the city should deal with emergency cases, and he would suggest that, while a number of the hospitals be left to deal with these cases, a hospital with accommodation for 1,000 patients should be established outside the city, where medical men would get an opportunity for specialization. Proposing a vote of thanks

to Dr Abrahamson for his comprehensive paper Professor T G Moorhead said he looked forward to a time when, in an *Erewhon* the only doctors required would be police men to imprison the people who became ill , anyone who became ill would do so through his own fault They were measurably within distance of that period

Dr. Joseph Power, Ardfinnan

After forty years Dr Joseph Power, Ballyneety, Ard finnan, has resigned his office of dispensary doctor of the Ardfinnan District South Tipperary Health Board Dr Power played a leading part in the Irish medico political fights of the last twenty years in Ireland, par ticularly on such matters as the medical certification dispute under the National Health Insurance Acts the fixing of graded salaries compulsory pensions for Poor Law medical officers, etc He has been chairman of the Irish Medical Committee for over twenty years, and is a past president of the South Eastern Branch of the British Medical Association, in the work of which he took a deep personal interest Colleagues and patients and friends in the Ardfinnan district have opened a pre sentation fund Subscriptions are limited to £1 1s , and members of the medical profession who desire to show their appreciation of Dr Power s work for the improve ment of Poor Law medical services are asked to send their donations to Dr John Stokes, Apsley House, Cahir, Co Tipperary

England and Wales

The Society of Apothecaries

A Yeomanry Dinner of the Society of Apothecaries of London was held in their hall on December 5th, the Master, Dr J O Wakelin Barratt, presiding Sir William Willcox, the Senior Warden in introducing Professor Edward Mellanby, F R S , Secretary of the Medical Research Council, to receive the Honorary Free dom of the Society, said that it was the greatest honour the Society had in its power to bestow Among the first two honorary freemen, appointed in 1670 was Dr Wharton of Wharton s duct fame Professor Edward Mellanby s appointment at Sheffield had been a fortunate one in that he was both a laboratory worker and a clinician The old antagonism between the ' lab man and the clinician was now breaking down Professor Mellanby was well known for his pioneer work on rickets on calcium in medicine, and on vitamins Perhaps as important as these was his work on alcohol, which was quoted by brewers and teetotallers alike! Sir William after paying a gracious compliment to Mrs May Mellanby, congratulated Professor Mellanby on his appointment as Secretary of the Medical Research Council , no better choice, he said, could have been made Professor Mellanby, having expressed his gratitude for the honour conferred upon him remarked that he thought this must be due to the fact that he had increased the sales of cod liver oil He referred to the late Sir Walter Fletcher s great interest in the Society of Apothecaries Medicine Professor Mellanby said, was the least static of all pro fessions, and one in which research must always play a very large part One of his first duties as Secretary of the Medical Research Council had been to prepare the annual report , in surveying the twenty years during which the Council had been in existence, he had been astonished at the amount of work done and the advances made during that period Despite the gloomy forecasts of the mathematical physicists that the whole world would ultimately become uninhabitable, medicine still retained the Victorian outlook—that disease, pain, and suffering were becoming less, and would continue to do so Lieut Colonel C T Samman, proposing ' The Guests, con gratulated the new honorary freeman of their ancient Society, and extended a warm welcome to the other distinguished visitors Mr H S Souttar, responding to the toast, said that he was animated by two sentiments the honour he felt at being a guest, and the desire to do honour to the Society Long before the building of the present hall the Apothecaries had been energetic on behalf of their profession About the time when the power of the Apothecaries was at its height, drugs were being used differently on the Continent Catherine de Medici was employing them for other than medicinal purposes, and with marked political success Profes-or Arthur Harden, also replying for the guests, said that he was glad to see his old friend, Dr Wakelin Barratt, who had done important work in the laboratory elevated to the position as Master of the Society He would like, he continued, to lay stress on the present intimacy between biochemistry and medicine Biochemistry now professed to examine into the processes of life Who would have thought that investigation of the suprarenal would have led to the isolation of vitamin C? He hoped that the close connexion between biochemistry and medi cine would continue for the benefit of humanity Dr Cecil Wall, proposing ' The Society of Apothecaries, ' reminded his audience that this was the eve of the foundation day of the Society In an interesting review of the history of the Society in the early nineteenth century, he pointed out that it had played a very great part in the evolution of the medical profession at that time, when the Colleges of Physicians and of Surgeons were little interested in the welfare of the people The apothecaries at this period changed from tradesmen to professional men and they had done this by reorganizing their education In a brief reply the Master said that theirs had always been a fighting Society It wished to move in harmony with the other licensing bodies and with medico political organizations

CORRESPONDENCE

Cancer and Co-operation

SIR,—Surely Mr Lockhart Mummery in his letter in the *Journal* of November 25th has missed one of the main points of Professor Gask s presidential address As I understood it Professor Gask was anxious to get co opera tion and co ordination of the clinical work done in all the general hospitals Great as the achievements have been of the British Empire Cancer Campaign I cannot believe that even Mr Lockhart Mummery can claim that there has been any real effort to co ordinate the clinical work in the hospitals Perhaps such a thing is im possible among clinicians who as a race seem to find independence of action and thought the guiding principle in life

In your issue of January 14th last you were kind enough to publish my suggestions on this point but obviously such a scheme cannot be carried out until most of the general hospitals have agreed to set their own houses in order in the matter of standardizing their methods of cancer treatment. In one hospital I know of, about twenty different techniques have been used in the treatment of cancer of the tongue —I am, etc ,

London W 1, Nov 30th MALCOLM DONALDSON.

and they only await official instructions to bring the teaching up to date.—I am, etc.,

Leeds, Nov. 29th. R. BROOMHEAD.

SIR,—I have been much interested in the correspondence in your columns which has arisen from Mr. Haughton's article on the above subject on October 28th. Mr. Watson Jones and Mr. Stowell particularly are very severe in their comments on the St. John Ambulance methods. I have not heard of any case where these methods have aggravated the injury, and am by no means sure that aggravation might not arise if all cases of fracture of the dorsal and lumbar spines were turned on the face for transport, however carefully the first-aid man might direct his probably unskilled assistants. As far as I know, neither Mr. Watson Jones's hospital nor any other hospital in Liverpool has made any request to the St. John Ambulance Association or Brigade in Liverpool to use the method he advocates (as has been done at Leeds), when no doubt local arrangements to fall in with his wishes might have been made.

I would suggest to Messrs. Watson Jones and Stowell that the right way to approach this problem would have been to obtain a resolution from the British Society of Orthopaedic Surgeons and from the Orthopaedic Section of the Royal Society of Medicine, and have this transmitted to the Ambulance Department of the Order, and not to depreciate the valuable voluntary services of the first-aid organizations in the columns of your *Journal*.—I am, etc.,

G. C. E. SIMPSON, F.R.C.S.,
Liverpool, Dec. 2nd. District Officer, St. John Ambulance Brigade.

Heartburn in Pregnancy

SIR,—Dr. E. B. Rayner (November 25th, p. 970) has raised a very interesting point. He finds that of forty-five pregnant women suffering from heartburn, thirty-four had therapeutically a gastric hypo-acidity. When they were given dilute hydrochloric acid the heartburn disappeared. I have observed the same fact. I have been attempting to stop vomiting of pregnancy by giving acid. hydrochlor. dil. and an acid-producing diet to increase the amount of calcium circulating in the blood. In two cases I noticed that heartburn, which had been a trying feature, ceased on giving the acid.

Hurst has suggested that the mode of infection in cholecystitis may be that a chronic gastritis leads to a diminution of the acid secretion of the stomach, and consequently an increase in the alkalinity of the upper part of the small intestine. Thus bacteria which thrive in the colon and lower small intestine may rise to the duodenum and so to the gall-bladder. With this theory in mind I have treated digestive disturbances in several cases of cholecystitis with acid. hydrochlor. dil. Three patients who complained of heartburn not only lost this aggravating symptom, but in common with several others who did not have heartburn improved remarkably in health. All three were stout women. All were given hydrochloric acid and a good mixed diet with plenty of protein and a modicum of fat. All have lost weight—one from 17 stone to 14—and none of them had any other form of treatment. One had chronic eczema, which has almost gone. One was almost crippled with arthritis of the knees and fingers, and can now walk half a mile.

The explanation of the heartburn in both types of cases may lie in some work I did with Dr. Moll in 1926.[1] Wondering why so many persons with overacting thyroids had digestive disturbances (including a few cases of heartburn) we performed Rehfuss tests on fifty and found achlorhydria in twenty-two and hypochlorhydria in fifteen. In seeking to explain this we found that the presence of bile in the stomach and the height of the total chloride curve suggested duodenal regurgitation; that the rapidity of emptying of the stomach—sometimes less than fifteen minutes—suggested a patulous pylorus, and was in accord with the hypermotility of the lower intestinal tract, which so frequently leads to diarrhoea. We found that stimulation of the sympathetic with adrenaline lowered the hydrochloric acid curve of people with hyperacidity, and that nicotine, which paralyses the sympathetic, had the opposite effect.

Pavlov showed that gastric secretion stops in frightened animals. Shupfer showed that section of the anterior and posterior roots of the fifth to ninth dorsal segments caused a constant hyperchlorhydria. Gaultier showed that section of the splanchnic nerve produced hyperchlorhydria. It is therefore reasonable to suppose that stimulation of the sympathetic reduces gastric secretion and makes the sphincters atonic. The consequence is not only diarrhoea and regurgitation of bile and alkalis into the stomach, but also regurgitation of stomach contents into the mouth. In pregnancy the sympathetic tone is greater than normal, and so we can offer an explanation of the heartburn of some pregnant women. In cholecystitis the probable explanation is that gastric catarrh produces a physical obstruction to the work of the oxyntic cells, and the dilution and bathing of the stomach contents with mucus prevents the chemical stimulus to the secretion of gastric juice. The resultant low acidity allows rapidity of emptying from lack of stimulus to the pylorus, and causes heartburn from lack of stimulus to the cardiac sphincter.—I am, etc.,

Leeds, Nov. 27th. R. A. MURRAY SCOTT.

SIR,—Dr. A. S. Garden and Dr. S. H. Fairrie advocate (*Journal*, December 2nd, p. 1047) the importance of dietetic treatment in dealing with heartburn of pregnancy. The former suggests, among other things, that the frying-pan be set aside, the latter that "hot sloppy food, soup, stews, milk puddings, and semi-liquid 'sweets' should be excluded from the dietary."

This is sound advice to those who are in the economic position to carry it out, but when one considers the limited resources at the disposal of a working-class home, and the difficulty of catering for the individual in a large family, such restrictions would be quite impracticable. The simpler the advice given the more chance there is of it being carried out, and the stressing that meals should be small and dry, and that constipation should be avoided, ought not to prove too difficult a routine to follow.

In conclusion, I would add that treatment by acid. hydrochlor. dil., as recommended by Dr. E. Brian Rayner (*Journal*, November 25th, p. 970), has not been in my experience an unqualified success. In the ante-natal department of the Royal Maternity and Simpson Memorial Hospital, Edinburgh, cremor alkalinus, bisodol, and MacLean's powder are the preparations found most effective to-day, and of these I favour the latter.—I am, etc.,

Edinburgh, Dec. 2nd. CLIFFORD KENNEDY.

Late Results of Injection of Varicose Veins

SIR,—I was greatly interested in Messrs. D. Patey and R. C. Tatham's article in the *Journal* of November 11th (p. 861). This merely points to what I have constantly emphasized, especially in my recently published book, *The Cure of Haemorrhoids and Varices*, and in a recent communication to the *Lancet*—namely, that no local surgical treatment for the destruction of the offending veins relieves the patient of his tendency to develop other

[1] *Lancet*, January 8th, 1927.

varicosities In considering the subject of "recurrence" there are two questions that need consideration

1 *Recanalization*.—I have practised varicose vein injections since 1925, and over 3,000 patients have passed through my hands I quite agree that the chemical nature of the sclerosing fluid used does not make much, or any, difference my impression is that quinine is the most "lasting" in its late effects, even as it is the most "certain" of doing its work at the time, although lithium salicylate seems to be a good "second" I do, however, emphatically feel that the actual technique employed in the doing of the injections does matter vastly in considering this question of recanalization If the empty vein method be adopted, followed by very tight local compression of the vein, the clot will be much smaller (The compression should be effected by a strip of tightly rolled wool crushed over the vein and the skin from each side almost folded over to burv the wool in a furrow held by elastoplast, which is retained in position for four days) I feel that the smaller the clot—which this technique definitely secures—the less likelihood is there of recanalization, at least, this has been my experience I feel that the statement made in Messrs Patey and Tatham's paper that "recanalization is of frequent occurrence" is misleading I appreciate the difficulty of giving percentages I should say that it was only an occasional occurrence Again, I have found that veins recanalize more frequently at the centre of the back of the calf than elsewhere I have encountered exceedingly few internal saphenous veins that have recanalized My own big internal saphenous was injected (2 c.cm of salicylate of soda 30 per cent, and 1 c.cm of quinine two days later) in 1928, and there is still no sign of it Also, I have never yet needed to resort to the combination of local excisions or ligations Great bulging varices (like small sponges) on the inner side of the knee can receive a large dose—preferably of lithium salicylate—by Colt's down ward flushing method, and if they are *tightly* compressed afterwards for a few days by a pad and elastoplast, one or two weekly injections cure Several such cases have been sent to me by doctors with the remark that they were too big for injection"

2 *Subsequent Appearance of Other Veins*.—In my book I have reproduced photographs of a waitress (*a*) before injection and (*b*) three and a half years later The second photograph shows that the large original veins have disappeared without sign of recurrence, but other veins have developed during the period, because the causes of the original veins (namely, standing long hours, unhealthy surroundings) remain uncorrected No destructive treatment for one set of veins removes from the patient the tendency to the development of others—the same principle applies in all chronic disease It is most essential, therefore, to bear in mind all the factors that go to produce varicosity (and ulceration), and where possible, to eliminate those factors that may be present in each individual case that one has locally treated Standing and the wearing of tight garters should be interdicted The endocrine aspect of varicosity was stressed by Sicard, and in obese cases thyroid helps The general health and habits of the patient should be improved, so that he will be less liable to infective diseases, which, by the general lowering of the tone of the muscular system, cause varicosity by their toxaemias Habits of healthier and more regular active fresh air exercise should be instituted, so as again to improve the muscular tone of the legs and prevent "stagnation" and oedema formation Diet should be regulated so as to lead to "thinning," particularly reducing meat In spite, however, of general measures, other veins will appear in many cases It must be appreciated that the fundamental cause of the pathology of leg varicosity is, first, the destruction of vein valves, which leads to *waterlogging by the force* of gravity, plus the consequent lack of tone in calf muscles and calf vein walls *If a case comes early and* presents only an isolated varicose vein, which is successfully cured by injection, *in an otherwise healthy calf with* good muscular tone and no oedema, this case will need *no further treatment apart from "general health"* suggestions But, unfortunately, there is that large class whose legs show *not only varicose veins, but also general* "brawny" thickening of years' standing which has led to oedema *When the injection treatment* is finished, such legs will, for a short time, feel lighter, but, unless some local support is worn, the heavy, swollen condition will return in a few months, with the development of other varices Therefore, for some subsequent months, and often permanently, local leg supports must be worn in order to retain the leg in normal proportions and to assist in the regaining of muscle tone Half spread cotton elastic adhesive bandages, elastocrépe, specially woven cotton stockings, and elastic stockings are the best local after care treatment for such "middle and old age legs"

I am convinced, therefore (1) that recanalization is rare and local incision is *unnecessary if the "empty* vein" and "tight bandage" technique be followed, and (2) that there is no real "cure" *for varicose veins, but* that (3) the combination of injection with suitable after care offers such great palliation that it *often amounts to* "cure"—I am, etc,

Liverpool Nov 24th STUART McAUSLAND

Hot-water Bottle Burns during Basal Narcosis

SIR,—*Since avertin and the other so called basal narcotics* have come into such general use before anaesthesia, *a word of warning appears to be necessary in the use of* hot water bottles during the long sleep which follows the *use of these drugs*

It is this prolonged sleep, low blood pressure, and the *appearance of low vitality with, perhaps, a chilly feel* which tempts nurses quite naturally, to put hot water *bottles in the beds of these patients Under no conditions* should this be allowed, as these people are particularly *prone to burns, even though the bottle is only just warm* covered and used outside blankets A hot water bottle is *a potential danger after any anaesthetic but becomes an* actual danger after the use of basal narcotics, and should *be rigidly prohibited*.—I am, etc,

London W 1 Dec 2nd Z MENNELL

"How Do Drugs Act?"

SIR,—As one who makes the homoeopathic principle the basis of his prescribing I am always interested in the references to homoeopathy in current medical literature, even when these references are of a critical character One cannot be sincere in one's search for truth unless one is ready to accept criticism

It is greatly to be regretted, however that such criticisms as do appear are characterized either by a complete ignorance as to the nature of homoeopathy or else by a presentation of the subject in such a way as to prejudice judgement without giving any really adequate arguments either for or against Under the latter heading must be placed the remarks of Professor Langdon Brown in his paper printed in the *Journal of* December 2nd (p 1007) After paying tribute to the "valuable ideas" of Hahnemann, which he admitted were progressive conceptions, he goes on to say that the crystallization of the homoeopathic ideal into a creed is fatal to progress, as is shown by the fact that homoeopathy has added nothing to our knowledge in pathology or diagnosis, with

the exception, which he admits, of Dudgeon's sphygmograph.

How contributions to the studies of diagnosis or pathology are going to establish the truth or otherwise of what is purely a therapeutic principle I do not know. Surely any therapeutic principle can only be judged by results. The principle of similars is a generalization from observed phenomena, not a mere theory. It is not a "creed," as Professor Langdon Brown would make out, but a definite attempt to provide some guiding principle in that appalling wilderness which is labelled modern therapeutics. It has not the support of the medical teachers in the universities, it is true, but as the majority of those teachers have not the remotest idea of the facts and real teachings of homoeopathy, and have, moreover, not the slightest intention of enlightening themselves on the subject, they are not very competent to give to medical students any views on it. Neither has it the support of rich and powerful manufacturing chemists, and so it loses the very cheap and useful "press" which other therapeutic measures (mostly short-lived) possess.

Nevertheless, it has come to stay, and is experiencing quite a renascence in Germany. If leading lights of the profession wish to criticize it, they had first of all better find out exactly what it is and what it teaches, and then if they feel that it is useless as a therapeutic principle, let them demonstrate its uselessness by the only method which should appeal to scientific men—the method which the homoeopaths themselves employ to demonstrate its truth—the method of experiment.—I am, etc.,

Liverpool, Dec. 2nd. F. B. JULIAN.

Treatment of Coronary Thrombosis

SIR,—As Dr. W. N. Leak, in your issue of November 25th (p. 997), asked for comments, may I be permitted to make a few which I venture to think throw light upon the origin and nature of this condition?

Coronary thrombosis is becoming more common, and affecting younger people. It is a manifestation of arterial degeneration, the most common lesion of intrinsic or inherited disease. The vascular changes are the result of the invasive action of the protein particles in the plasma hydrated through inherited disease. These hydrated particles invade the aorta and myocardium and cause hyperplastic sclerosis of the smaller vessels. During life, through the action of various external agents or invaders, the protein particles are subjected to alternate dehydration and rehydration. The rehydrated particles show a tendency to undergo precipitation, and readily do so in an artery with a narrowed lumen. Any chemical product able to restore such particles to the circulation causes the signs and symptoms occasioned by the blocking of the vessel to disappear. The drug best able to do this is acetylcholine, because the chlorine atom, being free to roam where it wishes in the molecule, has an instantaneous electrovalent or dehydrator action. Moreover, the vehicle of the compound has a dilator action upon the narrowed vessel. Cardiazol and coramine are not quite as effective as acetylcholine.

The hydrated protein particles may undergo the cyclical change of gelation after precipitation, to cause intravascular clotting, but "thrombosis"—a term which is not strictly applicable—is not the primary change or the cause of the manifestation. When protein particles undergo hydration the viscosity of the plasma is raised. Contramine has its uses in cases of arterial degeneration, and to avoid further attacks it is essential to remove the invaders constituting extrinsic disease, because upon the intrinsic form medicine has no influence.—I am, etc.,

London, W.1, Nov. 25th. J. E. R. MCDONAGH.

Passive Immunity to Diphtheria

SIR,—In the interesting paper on the duration of passive immunity to diphtheria which appears in the *British Medical Journal* of November 25th (p. 969), the authors state "only three experiments can be traced which bear resemblance to the present study," and then quote two investigations by Kolmer and Moshage and one by Zuckerman. Several years ago I published a paper upon the Schick test (*Lancet*, 1922, i, 312), and therein dealt with the subject in question, giving the results of the investigation of 109 cases.—I am, etc.,

Wolsingham, Co. Durham, Nov. 27th. T. E. DICKINSON.

Deaths from Pellagra

SIR,—I have certainly no desire to engage in controversy on this subject, but the further letter from Mr. Frederick L. Hoffman, LL.D. (*Journal*, November 18th, p. 943), leaves me no alternative but to reply. The facts at issue are relatively simple.

In 1917 Petersen collected the figures for the number of deaths from pellagra as recorded in the health offices of the various States in the U.S.A. For 1915 10,663 deaths from pellagra were entered. Petersen sets out his reasons for believing that the actual mortality was 50 to 75 per cent. greater than that entered in these records—namely, 16,000 to 19,000 deaths. Similar conclusions have been expressed by other clinical investigators with first-hand field experience. On the other side, Dr. Hoffman, as a statistician, has consulted "the figures from 1910 onwards, as tabulated in the United States Census Office," and finds that only 2,843 deaths are there entered for 1915 (cf. the 10,663 recorded by Petersen), and that the maximum figure ever shown was 6,989, for 1928. He concludes from this that the number of deaths in a year has never been higher than 7,000. There is a clear divergence of evidence here, and it is not for me to say which figure gives the more correct representation of the facts. I only feel that Dr. Hoffman in his second letter might have examined the reasons for the divergence in question instead of indulging so freely in the use of adjectives such as "preposterous" and the like.

In any case, as I said in my earlier letter, I cannot see that the fixing of a precise maximum (if such can be determined) matters very much. The passing reference in my original article, which Dr. Hoffman called into question, was but a purely incidental allusion, illustrating in a broad way the practical significance of vitamins, by showing that thousands die in a year from a preventable deficiency. It was obvious that I was not concerned in attempting to make any exact estimate of pellagra mortality. I am quite ready to concede that the data on which I based my figure of a "peak value" of 30,000 may possibly have been a rather high estimate; on the other hand, it seems certain that Dr. Hoffman's contention that the 7,000 figure has never been exceeded cannot be sustained in view of the data of Petersen for 1917, quoted above, and of Wheeler and Sebrell's figures from the Public Health Service, of 7,416 deaths actually certified from pellagra in 1930.

The relation between the real mortality attributable to pellagra and the figures to be found in official statistics is of some interest. Writing in 1917 Petersen, after referring to the "total number of deaths recorded for 1915" as 10,663, adds:

"There is very little doubt that the diagnosis of pellagra submitted on the death certificates to the various State health offices is almost invariably correct. The statistics err only in the omission of a vast number of deaths actually due to pellagra but improperly entered on the records as deaths due to other causes. It is very probable that the actual mortality from the disease is from 50 to 75 per cent. greater

than is indicated in the statistics presented. This condition is brought about by the following causes: pellagra, contrary to the usual opinion, is a relatively chronic disease in the white race, and the death, when it does take place, is almost invariably attributed to the diarrhoea or its resulting inanition. Symptomatic diagnoses, such as dysentery, tuberculosis of the intestine, and chronic gastro-enteritis, are found commonly recorded for deaths due to pellagra, as well as symptomatic diagnoses referable to the changes resulting in the central nervous system. We have also to consider that a certain number of deaths recognized by the physician as due to pellagra are not entered by that name on the death certificate because of the prejudice on the part of the laity to a diagnosis involving to a certain extent the social status of the family."

This may be read side by side with Dr. Hoffman's contention:

"It would be a wrongful indictment of our medical profession to assume that a large number of cases of pellagra during recent years has been reported under other titles as the result of false diagnosis."

No doubt cases are recognized more readily now than they were a few years back, but the following extract from an editorial in the *Lancet* (June 24th, p. 1356) is of interest: "Only a short time ago we were inclined to consider pellagra as an exotic disease in which we, who lived at home, need not take any but a detached interest. A good deal of evidence is now available in support of the view that pellagra develops in European countries, not as a rare curiosity, but as a comparatively common complaint, particularly in institutions for the insane. In a recent number of *Hospitalstidende* three papers by four authors show that in Denmark, at any rate, pellagra is to be easily found for the looking. . . . These observers suggest that other asylums might yield a goodly crop of cases of pellagra were they to be searched with this disease in mind."—I am, etc.,

Cambridge, Nov. 28th. LESLIE J. HARRIS.

*** This correspondence is now closed.—ED., *B.M.J.*

Road Dangers

SIR,—It seems a curious anomaly that in the matter of motoring accidents the attention of the medical profession appears to be concentrated only on the difficulties of providing hospital accommodation for the victims and of collecting fees for first aid, while prevention, the first consideration in the case of most other diseases, receives no attention. The relative facts and figures should be fairly clear to all readers of the daily papers, though these cases are often inadequately reported, and the Press could probably render good service by supplying more regular, complete, and uniform information. The medical profession, who are probably all daily users of motor vehicles and who may not be unduly biased by commercial interests, should also be able to exert a good influence in many directions.—I am, etc.,

London, N.W.8, Nov. 28th. R. J. CLAUSEN.

A Christmas Gift Fund

SIR,—Publicity to my appeal for the Christmas gift fund of the Royal Medical Benevolent Fund was very kindly accorded in your issue of November 11th. I acknowledge, very gratefully, the sum of £300 already received. This will suffice to enable us to deal with our annuitants. We still require £300 in order that the most deserving of our grantees shall be given a Christmas gift of 30s. each. May I ask all who can to help now? There is still time to send a donation to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, Cavendish Square, London, W.1.—I am, etc.,

THOS. BARLOW.
President.

November 29th.

Obituary

The death, on November 23rd, of Dr. FRANCIS GAYNER of Redhill removed a man of exceptional qualities of mind and heart. Born in Sunderland in 1870, he was educated at the Friends School, Scarborough, and then worked for a time as an accountant and also in the office of his father, a well-known Sunderland shipowner. In 1895 he entered King's College, Cambridge, and at once became prominent for his interest in natural science, obtaining first-class honours in the 1898 Tripos. He spent his vacations exploring Scandinavia and Finland, and after his Cambridge career travelled in Ceylon, the Far East, North America, and the Nile Valley, acquiring a valuable collection of the Lepidoptera as well as many fine specimens of Oriental art. He was a member of the British Ornithologists' Union and a fellow of the Entomological Society. With this wide outlook on life and his scientific talent he then started medical training at the London Hospital. He obtained the diplomas M.R.C.S., L.R.C.P. in 1905, and graduated M.B., B.Ch.Cantab. two years later. His first appointment was that of house-physician at Addenbrooke's Hospital, Cambridge, after which he spent a year in research in connexion with the Cambridge committee for investigating special diseases. He then went into partnership at Redhill, and practised there until his death. Among the posts he had held were those of medical officer to the London Hospital Annexe at Reigate, the Provincial Police School, the Royal St. Anne's School, and the Post Office. Through twenty-six years of general practice Dr. Gayner found time to continue his natural history activities, being a member of the Linnean Society and the Holmesdale Natural History Society, Reigate. He had been a member of the British Medical Association since 1908, and was also for many years a member of the Surrey Panel Committee, resigning in 1926. He married the daughter of the late C. T. Heycock, F.R.S., his tutor at Cambridge, and with her aid was able to express fully his zest for hospitality in their home, with its beautiful garden at Redhill. He had proposed to relinquish his professional life at the end of this year.

We regret to record the death, on November 6th, of Dr. GRACE H. GIFFEN DUNDAS, medical officer for maternity and child welfare to the county borough of Middlesbrough. Dr. Dundas, who was a native of Kelso in Scotland, went to Middlesbrough in 1920, and had previously acted as medical officer to the maternity and child welfare scheme at Leith, and as deputy medical officer of health at Ilford. The high standard of the Middlesbrough scheme is due to her untiring efforts in the cause of maternal and child welfare, and her kindly disposition and motherly care were universally esteemed by all the mothers and children with whom she came into contact. Dr. Dundas had many original ideas, one of the latest of which was classes for fathers, the idea of fathercraft being that husbands should co-operate with their wives in the care of the health of their children.

The Services

Lieut.-Colonel (temporary Major-General) Sir Leonard Rogers, K.C.S.I., C.I.E., F.R.S., retired Indian Medical Service, relinquishes the temporary rank of Major-General on ceasing to be employed, and is granted the honorary rank of Major-General.

The King has conferred the Efficiency Decoration upon Major Idwal Jones Williams, R.A.M.C., under the terms of the Royal Warrant dated September 23rd, 1930.

DEATHS IN THE SERVICES

Lieutenant David Bethune Purves, R.A.M.C., died suddenly on November 23rd, aged 30. He was the only son of the late Rev. David Purves, D.D., of Elmwood Church, Belfast, and was educated at Edinburgh University, where he graduated M.B., Ch.B. in 1928. He joined the R.A.M.C. as lieutenant on February 22nd, 1931.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

In the House of Commons on December 5th the Unemployment Bill was read a second time. Sir FRANCIS FREMANTLE and Dr. A. SALTER spoke on its medical aspect. On the same day in the House of Lords the Road Traffic (Emergency Treatment) Bill was read a second time on the motion of Lord MOYNIHAN. A warning was given that the Government would not accept responsibility for the Bill. The Education and Employment of Young Persons Bill, which proposed a gradual raising of the school-leaving age, was defeated on second reading in the House of Commons on December 1st.

The Parliamentary Medical Committee met at the House of Commons on November 29th, but adjourned so that its members could attend a meeting of the Empire Parliamentary Association. This latter was addressed by Dr. H. L. GORDON of the Mathari Mental Hospital, Nairobi, who described his researches into the mental capacity of the East African natives, and the possibilities of their mental development.[1] Dr. Gordon was unwilling to draw final and sweeping deductions from his experiments. Sir Edward Grigg, a former Governor of Kenya, and other members with African experience agreed that the experiments should be repeated more widely and the results published. In an answer previously given the Secretary for the Colonies had indicated that at present Colonial revenues could not be expected to pay for such research.

Sir John Gilmour hopes to introduce early in the New Year the Bill dealing with lotteries and betting. He also announces that the Government will not introduce the Performing Animals (Regulation) Amendment Bill, which was debated by the House of Lords last May.

Nutrition Report of the B.M.A.

Mr. HUDSON told Mr. Tinker, on November 30th, that the Nutrition Report of the committee of nine doctors appointed by the British Medical Association was at present under consideration by the Ministry of Health Advisory Committee on Nutrition. The report did not, as Mr. Tinker suggested, state that the average unemployed family was not getting enough food to keep it in reasonable health. It was no part of the committee's duty to determine any such point. The Annual Report for 1932 of the Chief Medical Officer of the Ministry of Health, which examined fully the state of health of the average unemployed, showed that at present there were no grounds for apprehension.

Opposing, in the House of Commons on November 30th, the motion for the second reading of the Unemployment Insurance Bill, which had been moved by Sir Henry Betterton, Mr. ARTHUR GREENWOOD said the present scales of relief were not adequate to meet the needs of people who had undergone long periods of trade depression. This was borne out by the result of the inquiry by the British Medical Association. According to the B.M.A. Committee, an independent body, a man, wife, and three children, of specified ages, needed to spend £1 2s. 6½d. per week on food alone. The maximum benefit under the present scale which a man, wife, and three children could receive would be £1 9s. 3d., leaving 6s. 8½d. for the week's rent, coal, lighting, clothes, and all the other necessary items of working-class expenditure. Even if every working-class housewife could measure out her food in calories and keep it down to £1 2s. 6½d. the balance left, in cases where people had been out of work for long periods at a time, was bound to mean a degradation of the home life, and a degradation of the physique of the individual. The Bill would provide inadequate money payments which, if the British Medical Association was right, would undermine the health and physique of the people. The Labour Opposition believed provision should be made for the unemployed on a scale which, in the words of the B.M.A. Committee's reference, would enable "health and working capacity to be maintained." Mr. LUKE THOMPSON asked whether in any clause of the Bill there could not be inserted some provision whereby an insured person could be maintained in health insurance, if not in cash benefit at least in medical benefit, and be assured for pension benefits also. Mr. BUCHANAN said he had listened to the Prime Minister the other day saying that the salary cuts of teachers, doctors, and civil servants would be reconsidered when the Budget statement was made in April or May. The first thing that ought to be done before the teachers, before the doctors, before members of Parliament were considered was to restore the cuts of the unemployed.

[1] See *British Medical Journal*, November 18th, 1933, pp. 923 and 931.

Road Traffic (Emergency Treatment) Bill

In the House of Lords, on December 5th, Lord MOYNIHAN moved the second reading of the Road Traffic (Emergency Treatment) Bill. He said that last June he introduced a similar measure, to which the House gave generous approval. A special committee, of which he was a member, had heard evidence from witnesses representing the British Medical Association, the British Hospitals Association, the Automobile Association, and the Royal Automobile Club, and certain amendments to the Bill had been made. It had been recognized that hospitals were suffering great loss in respect of in-patient treatment, and of emergency treatment or first-aid given in connexion with road accidents. The loss to the hospitals was roughly assessed at about £30,000 a year. In his original remarks he had stated that only about one medical practitioner in five received any recognition or remuneration for his work in connexion with a motor accident. In a very large number of cases considerable expense was caused to the doctor called in. Cases had been quoted to him where motor accidents had cost the doctor £50 in expenses in six months. A closer examination and discussion with doctors showed that his former estimate of one in five was far from correct. It was more accurate to say that only one in twenty or twenty-five received either verbal or written thanks, or remuneration for the work he had done. The only question was: What fees should be paid, and by whom should they be paid? He had originally suggested a maximum sum of three guineas as meeting the case, but it had been pointed out that that maximum would be quite likely to become the standard fee, and if that were the case a standard fee of three guineas would obviously be very greatly in excess of what was required to remunerate some doctors for their attendance. The committee had decided that a fee of 12s. 6d. would be a fair one to charge. He had suffered a certain degree of criticism from members of his own profession for acceding to this decision. He had no doubt that in a great many cases that sum would be found to be too little, but it was very considerably in excess of exactly nothing. As to the source from which the money should be obtained, the committee took the view that the best plan was that the risk should be part of the general third-party risk. The number of motor licences of mechanically propelled vehicles on the road was, at the last return, 2,229,576. If a fee of 1s. were added to the insurance premiums it was quite obvious that the amount required to pay the hospitals and medical practitioners for emergency treatment would be easily covered.

Lord DAWSON OF PENN supported the Bill. He said it would be admitted that there was here a very real grievance. Medical men worked long hours every week. They looked forward to a quiet day on Sunday, but that was the day of all others when they were most likely to be called out. The expenses in which a doctor might be involved as a result of attending motor accident cases were very considerable. He was told of many instances where the dressings alone amounted to a substantial sum, and for all this the doctors at present got nothing. It could not be said that 12s. 6d. was a princely sum in these circumstances. It was just about the amount which one would pay to a plumber for mending a broken pipe, yet it was the sum offered to men who had undergone years of training to qualify themselves for their profession.

The EARL OF PLYMOUTH said that the Bill differed from the previous one introduced by Lord Moynihan. Clause 4 now made the liabilities imposed by the Bill into third-party risks to which the Road Traffic Act applied. Clauses 6 and 7 were new, and he imagined that Clause 7 had been introduced to go some way towards meeting the objection that the owner

of a vehicle would be called on to pay fees for emergency treatment, even if he might have been in no way responsible for the accident, or might not have been present when it occurred. That clause made it clear that he was in no circumstances entitled to recover what he had had to pay from any person to whose negligence the accident was actually due. Although the Bill had undoubtedly been altered in various respects, in principle it seemed to be more or less the same as the original Bill. Payments under the present Bill fell on the owner of the vehicle, whether he was negligent or not, and Clause 4 required him to insure against those liabilities. It therefore followed clearly that if an authorized insurer made a payment for emergency treatment under the Bill he would at once become liable to make further payments to the hospital provided for under the Road and Rail Traffic Act, whether or not there was any legal liability on the part of the owner of the vehicle. The result of that would be that the liability of authorized insurers under the Bill would be increased, a great deal more than he imagined even the select committee or the promoters intended originally. He would be liable for payments up to £50 in relation to an in-patient of a hospital, and £5 in respect to an out-patient, whether or not there was any legal liability on him apart from this Bill. In those circumstances no doubt the House would wish to amend the Bill if it went to committee. The Bill gave to a doctor an enforceable right against the owner of a motor vehicle in an accident to recover remuneration in respect of emergency treatment to any injured person. In these circumstances it would be reasonable to provide that should a doctor apply for payment under the provisions of the Bill he should not be entitled to charge for any treatment against any other person. He believed other amendments had been suggested to Lord Moynihan, which the noble lord would accept. The main objections to the Bill remained unaffected by the alterations which had been made. The Bill, like the earlier one, undoubtedly ran counter to the established principle of common law, and would, in effect, fasten liability on a man in respect of an accident for which he might not be in the slightest degree responsible. He presumed that the promoters of the Bill were quite satisfied that in practice medical practitioners could readily recover the small fees to which they would be entitled under the Bill. Human nature being what it was, one could not help thinking that in many cases the motorists would be very likely to ignore any letters from medical practitioners asking for a payment of 12s. 6d. in connexion with an accident. Medical practitioners and hospitals had a substantial grievance. He doubted, however, if the Bill provided a right or even a fair way of dealing with the matter. The Government could not accept the particular remedial measures which had been proposed, and it therefore was not in a position to accept responsibility for the Bill. In the circumstances he was not able to give any undertaking now that if the Bill reached the House of Commons the Government would be prepared to provide facilities for its passage there.

Lord MOYNIHAN said that obviously the present situation called for remedial measures of some kind. Lord Plymouth's remarks had not been very helpful. Lord Dawson of Penn had been President of the British Medical Association, and it was part of the duty of the Association to protect, so far as it could, the rights of its members and of the general practitioners throughout the country. Very careful consideration had been given to the point in regard to payment, and on balance it was decided that, although the 12s. 6d. might be less than was adequate in some cases, in many it would be adequate. His object in bringing in the Bill was that the present grievances of the hospitals and general practitioners should by some means or other be remedied. He was not wedded to the exact steps which should be taken to achieve that end, but those grievances were considerable and increasing. If they could be removed by the payment of a reasonable sum of money every year he was quite indifferent to the source from whence that money was derived. It was fantastic to suggest that because a man was called on to pay an additional shilling for his insurance he would withhold his usual subscription to a hospital. Speaking not only for himself, but for all the people connected with the hospitals and for the general practitioners of the country, he asked the House to give the Bill a second reading.

The Bill was read a second time.

Unemployment Bill

In the House of Commons on December 5th the debate on the second reading of the Unemployment Bill was concluded, and the Bill was read a second time. Sir FRANCIS FREMANTLE said that the Bill was one of the finest schemes for unemployment relief that this or any country had yet had. There was, however, a flaw in the Bill, in that it brought the able-bodied unemployed man under the Poor Law for medical relief. These men would now have to leave the panel doctor and be looked after by the district medical officer. The official reply to that objection was that the district medical officer was often the same man as the panel doctor, but such a reply was unworthy of the Government. The objection contained no reflection on the district medical officers, but on the system. The system of district medical officers was, in some ways, grossly inefficient and unfair to the patient and to the doctor. The friendly relations that existed between doctor and patient were now to be broken, yet the essence of sound medical treatment was to be found in such friendship. Unless the point was met in committee it could not be said that these people were being saved from the stigma of the Poor Law. Dr. SALTER contended that the Bill in its present form could hold out no hope of the unemployed securing additional benefit. In an enormous number of cases actual starvation existed. He lived in a working-class street in his own constituency, and every day he saw how the people were going downhill through lack of adequate nourishment. The Government was creating wholesale a C3 race, both physically and mentally.

Leprosy in India

On December 4th Sir SAMUEL HOARE told Mr. Tom Smith that the number of persons classified as lepers in the Indian Census Report for 1931 was 147,911. The corresponding figure in the 1921 Census Report was 102,513. It was probable that on each occasion the real number was considerably in excess of that returned. There was no reason to suppose that leprosy was increasing in India. Many persons suffering from the disease in a mild form who would formerly have not been regarded as lepers were now so classified. There were no figures on record for any years except the census years. Since 1931 surveys, treatment, research work, and propaganda connected with leprosy had been steadily expanding, so that many more lepers were receiving treatment than was the case previously. Most of the local Governments had now set up organizations for the treatment of lepers. In addition, the Indian branch of the British Empire Leprosy Relief Association was engaged on research work in leprosy, in surveying the incidence of the disease, and in training doctors in modern methods of treatment. More detailed information would be found in the journal *Leprosy in India*.

Health Insurance: Payment of Arrears.—In reply to Mr. Parkinson, on November 30th, Sir HILTON YOUNG stated that no penalty would attach to those members who did not pay their arrears before December 31st, 1933, but paid them before March 31st, 1934, other than the application of the general rule that an interval of twenty-eight days must elapse between the date of payment of arrears and the consequent revision of the insured person's benefit rates. Answering Mr. Clarry on the same date, Mr. SHAKESPEARE denied that there was ground for assuming that the national health insurance scheme as a whole was insolvent on its present basis.

Electric Lighting in Operating Theatres.—Mr. Thorne, on December 4th, asked the Ministry of Health if he was aware that at many hospitals the electric light had failed while patients were about to undergo, or were undergoing, operations, and if he would appoint a committee to inquire into these cases with a view to making some alternative lighting in hospitals compulsory. Mr. SHAKESPEARE replied that the Minister had no information to show that this difficulty had occurred except on rare occasions. He did not think that a committee of inquiry was necessary. If Mr. Thorne would give particulars of any cases the Minister would have inquiries made.

Chemical Defence Experiments at Oxford and Cambridge.—Mr. DUFF COOPER told Mr. T. Williams, on November 29th, that certain scientists at the Universities of Oxford and Cambridge carried out experiments on chemical defence problems, for which payment was made to them from Army funds.

Osteopaths.—Replying to Mr. Hall Caine on November 30th, Mr. SHAKESPEARE said he did not think any public interest would be served by the appointment of a committee to consider what steps, if any, should be taken to control and regularize the activities of osteopaths.

Local Authorities' Expenditure on Hospitals.—In a statement supplied to Dr. Salter on December 1st, Sir HILTON YOUNG wrote that the estimated expenditure of Poor Law authorities in England and Wales on the treatment of persons suffering from bodily or mental infirmity in Poor Law establishments or in receipt of domiciliary relief during the year ended March 31st, 1932, was £6,770,628. Details distinguishing the cost of the district medical and hospital services would be found on page 16 of Part I of the Local Taxation Returns for England and Wales, 1931-2. The total expenditure of local authorities in England and Wales in the same year on hospital services under the Public Health Acts, including hospitals for the treatment of infectious disease, was approximately £10,750,000. Expenditure on hospital services was also incurred under the Maternity and Child Welfare Act, but the amount could not be precisely stated. The amounts mentioned did not include capital expenditure.

Traffic Noises at Night.—Mr. OLIVER STANLEY told Sir W. Davison, on November 29th, that he was considering whether it would be practicable and desirable to institute a scheme, in a definite area in London, for an experimental period, which forbade the sounding of horns or sirens by motor drivers between certain hours with a view to lessening traffic noises at night.

Motor Accident Damages.—Mr. STANLEY told Mrs. Copeland, on November 29th, that he was aware of cases where serious or fatal bodily injury had been sustained in motor accidents and it had proved impossible to recover damages even when judgement had been obtained in the courts, as the insurance companies had repudiated liability on various grounds such as misstatements in proposal forms, or the withholding of material information. This and other points connected with insurance against third-party risks required of owners of motor vehicles were receiving his consideration.

Notes in Brief

Sir Hilton Young states that the remaining volumes of 1931 Census Tabulations for England and Wales will be published during the next six months.

Extensive inquiries are being made by the Safety in Mines Research Board into the results of the use of timber and steel respectively on the number of accidents from falls in or near the working faces of mines.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Albert Edward Platt, M.B.Sydney, has been elected to the Gwynaeth Pretty Studentship for a period of three years, from December 1st, 1933.

At a congregation held on December 2nd the following medical degrees were conferred:

M.B., B.CHIR.—G. F. Carey.
M.B.—G. J. Meikle, W. S. Dyson, J. G. V. Smith.

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—(With special knowledge of Psychiatry): W. Blyth, Doreen P. Firmin, Edith G. Limmex, J. Valentine. (With special knowledge of Mental Deficiency): D. Magrath.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The Bradshaw Lecture will be delivered by Professor A. H. Burgess at the College on Thursday, December 14th, at 5 p.m. His subject will be "Electro-surgery."

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At the monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on December 4th, the following were admitted Fellows of Faculty: James Inglis Cameron, M.B., Ch.B., Charles Aikman Gourlay, M.D., D.P.H., D.T.M. and H., Rajinder Singh Grewal, L.M.S., Andrew Hunter, M.B., Ch.B.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At the monthly meeting on December 1st, the following were admitted as Licentiates in Medicine and Midwifery of the College under the conjoint scheme with the Royal College of Surgeons in Ireland:

J. F. M. Byrnes, P. Fitzpatrick, T. H. B. Flannery, J. S. Gibson, J. P. Gilmartin, L. D. Golding, J. W. Green, J. T. Guinan, E. Healy, C. Murphy, M. B. McCann, Honor M. Purser, B. Rosefield.

A letter was read from the secretary of the committee of management of the Conjoint Board stating that P. V. O'Reilly was eligible for the Captain Massy-Miles Prize.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—H. L. Canaval, A. C. E. Cole, S. Grodd, E. G. Houghton, H. G. Howitt, H. R. Kasday, E. C. Rowlands.

MEDICINE.—R. Fleming, H. D. Robinson, A. L. L. Silver, H. B. Thornton.

FORENSIC MEDICINE.—C. A. Boucher, C. N. Chowdary, W. C. Heunis, G. L. R. Tapsall, G. Wilson.

MIDWIFERY.—C. N. Chowdary, C. W. Cross, H. R. Kasday, A. G. Manley, J. Richter, S. E. Roberts, H. D. Robinson, S. M. Sabet, R. Sugarman.

MASTERY OF MIDWIFERY.—J. H. Mulvany.

The diploma of the Society has been granted to Messrs. A. L. L. Silver, G. L. R. Tapsall, and H. B. Thornton.

Medical News

Professor W. W. Jameson, dean of the London School of Hygiene and Tropical Medicine, will leave London shortly before Christmas on a visit to India, in company with representatives of the Rockefeller Foundation (Dr. Russell, its medical director, and Dr. Heiser, its representative in the East) and Dr. Fitzgerald, dean of the Toronto Medical School. They expect to arrive at Colombo on January 4th, and will visit, among other places, Madras, Calcutta, Delhi, and Bombay. The object of the tour is to study various public health problems in which the Foundation is interested, and gain some first-hand knowledge of medical work in India.

The winter dinner of the Australian and New Zealand Medical Association in England will be held at the Trocadero Restaurant, Piccadilly, on Friday, December 15th, at 8 p.m., when Mr. L. Graham Brown will preside, and Mr. Cecil Rowntree will be the official guest of the Association. All medical visitors from Australia and New Zealand, whether members of the Association or not, are cordially invited to be present. The honorary secretaries are Mr. E. T. C. Milligan and Mr. Philip J. Jory, 26, Queen Anne Street, W.1 (Langham 1579).

Dr. S. Aschheim, honorary professor of gynaecology at the University of Berlin, will deliver a lecture on "Biological Pregnancy Tests" in the medical theatre of the University, Edmund Street, Birmingham, on Monday, December 11th, at 4 p.m. Members of the medical profession and students of medicine are invited to attend.

At the next meeting of the Illuminating Engineering Society, to be held at the Lighting Service Bureau, 2, Savoy Hill, Strand, W.C., on Tuesday, December 12th, at 6.30 p.m., a paper entitled "An Analytical Basis for a Lighting Code: a Method of Computing Values of Illumination for Various Classes of Work," will be read by Mr. A. W. Beuttell, chairman of the technical committee.

A post-graduate course in oto-rhino-laryngology will be held by Professor Portmann at the Hôpital Franklin, Paris, from December 11th to 16th. The fee is 250 francs.

The opening pages of the December issue of the *Practitioner* are devoted to constipation, diarrhoea, and allied problems, the contributors being Dr. Chalmers Watson, Mr. J. P. Lockhart-Mummery, Dr. R. W. B. Ellis, Mr. J. Geoghegan, Dr. C. B. Heald, and Mr. H. E. Griffiths.

We have received the first issue of the *Indian Journal of Pediatrics*, edited by K. C. Chaudhuri, and to be published quarterly. It contains a foreword by Sir Nilratan Sircar, a birthday greeting from Dr. Robert Hutchison, and an introduction by Professor Adelbert Czerny.

The first Mexican Medical Congress was held at Mexico from October 23rd to 30th, concurrently with the celebration of the centenary of the foundation of the Faculty of Medicine.

The twelfth reunion dinner of the British Serbian Units Branch of the British Legion was held in London at the Lysbeth Hall on December 2nd; the president, Lieut.-Colonel A. E. Kidd of Dundee, was in the chair, and the company numbered over 120. After the toasts of the King and the King of Yugoslavia had been honoured, and the national anthem and the national hymn had been sung, Colonel P. H. Mitchiner proposed the health of the guests, and gave some impressions of a recent visit to Serbia. This toast was supported by Miss Smales, R.R.C., matron of the Victoria Hospital for Children, Chelsea. In reply, His Excellency M. Diouritch, the Yugoslav Minister, emphasized again the great help rendered to Serbia during the war by British medical units such as those commanded by Colonel Kidd. The toast of "The Branch and its President" was proposed by Captain B. H. Aldridge, chairman of the British Legion (London Branch), and the president handed the Mitchiner silver bell (a cup given for miniature rifle shooting) to Miss Marx, the honorary secretary of the Branch, who won it with a score of over 98 per cent. A very enjoyable evening concluded with dancing to the music of the Ridgeway band.

The Joint Tuberculosis Council held its autumn meeting on November 25th, twenty-six members being present. Dr. Evelyn Holmes had written asking for cerebro-spinal fluid from cases of meningitis, fluid from pleural effusions, and pus from cases of surgical tuberculosis for culture experiments she was carrying out by the Danish method. Members promised help. A large part of the meeting was spent discussing the memorandum now shortly to be circulated concerning the best utilization of residential institutions for tuberculosis. The need for efficient *x*-ray plants in order to facilitate modern methods of treatment was emphasized, and stress was also laid on the extinction of the former differences between the sanatorium and the hospital. A memorandum had also been prepared by the committee on thoracic tuberculosis in children, summarizing present-day knowledge of the significance of tuberculin tests and radiographic examination, and suggesting ways of prevention and treatment.

Dr. Mathilda Theyssen, who was born at Treves, and qualified in Paris in 1865, has recently celebrated her ninety-fifth birthday at Freiburg i. Br. During the war of 1870 she served with the Red Cross, and subsequently practised at Strasbourg for fifty years.

Lord Moynihan has accepted the presidency of the Association of Certificated Blind Masseurs (blind chartered masseurs and masseuses).

Sir Arthur Mayo-Robson, emeritus professor of surgery, Leeds University, left estate of the gross value of £101,401. His bequests include £1,000 to the General Infirmary, Leeds, to endow an annual prize in surgery; £100 to the Leeds and West Riding Medical Charitable Society; £250 to his old friend and colleague, Mr. J. Cairns Forsyth, F.R.C.S.; £100 to the Fellowship of Medicine; and £200 to the Medical Department of Leeds University, towards the endowment of the old students' centenary fellowship.

Dr. Paul Delmas, professor of medicine at Montpellier, has been nominated Commander of the Legion of Honour, and Professor Jules Euzières, dean of the faculty, has been promoted to the rank of Officer.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, *British Medical Association House, Tavistock Square, W.C.1*, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Scarlet Fever Immunity

Dr. C. J. HILL AITKEN (Kilnhurst, near Rotherham) writes: When I had scarlet fever many years ago I fought it on my own and flatter myself I made so good a job of it that I am now, and have been since my sojourn in Edinburgh Fever Hospital, immune. Can anyone tell us if those who are assisted in their fight by antiserum will have a less perfect immunity than have those who have no such injection?

Income Tax

Assistant Living Out

"M.B." has been living out since December, 1932. He receives £300 salary plus £100 for board and lodgings, and has been assessed on £400. Is this correct?

*** Yes. As was explained in an answer in February last, if the board and lodging allowance is paid to the assistant for him to expend, then he is liable to tax on the amount so received. If the principal finds and pays for the accommodation for the assistant's use, then in our opinion the value would not be chargeable to tax; but the point is not entirely free from doubt where (as would usually be the case) the assistant had some choice with regard to the accommodation provided

Return to the United Kingdom

"R. M." practised abroad for many years, but returned to England in June. He spent the period July to November abroad, and takes up a practice in England in December or January. What is his position as regards income tax?

*** He ranks as a British resident for the whole of the financial year. He is liable to account for tax (*a*) on all income arising in the United Kingdom, and (*b*) on such of the income from his foreign appointment as he may receive in the United Kingdom—this would not, of course, include any accumulation of past savings abroad.

Expense of Assistant, etc.

"DEVON" inquires what allowance he can claim for the board and lodging of an assistant or locumtenent.

*** So much depends on the precise circumstances that it is difficult to suggest any weekly figure. Probably £2 per week is a fairly common amount to charge in a provincial town where rent, rates, etc., and domestic expenses generally are reasonable. If the assistant is living with the family, it is probable that a reasonable estimate can be made on a proportional basis.

LETTERS, NOTES, ETC.

An Appreciation from Over-seas

Dr. HUGHES STEELE (Wellington, N.Z.) writes: For purposes of health I made a voyage to England from Wellington, New Zealand, where I am engaged in practice. At the same time I thought that I would take the opportunity of "freshing-up" and doing some post-graduate work. I had not been to London since the war, and it was with fear and trepidation I contemplated this issue, feeling that I would be out of touch with my contemporaries and would be like a "stranger in a strange land." On the contrary, my experience has been the exact opposite, and I cannot speak too highly of the help, consideration, and kindnesses which have been showered on me by those members of our profession with whom it has been my good fortune to come in contact. Had I arrived with the highest letters of commendation and been lauded to the skies I could not have had greater kindnesses or more consideration shown to me: My object in writing this letter is to say to those colonials who are hesitating to come over to take a post-graduate course owing to fear of isolation and being out of touch: "Come! you will never regret it." I trust I am not out of place in making especial reference to one of the senior surgeons at the Prince of Wales's Hospital, and also to one of the L.C.C. Whitechapel Clinic staff, who have not only been kindness personified, but the former has been my "guide, philosopher, and friend," though I knew them not till meeting them at their respective clinics. I return home soon with heart-felt gratitude and visions of—who knows? —perhaps another equally pleasant prospective visit.

Birth on the Railway Track

Dr. W. R. H. POOLER (Wellington, Salop) writes: I read with interest Dr. N. C. Hyphen's account, in the *Journal* of December 2nd (p. 1023), of the birth at Paddington Station (G.W.R.). I note that he refers to a previous case in which the foetus was dead. This may be the case that I attended some ten years ago as a student on "district" at St. Mary's. The birth actually took place in the w.c. in the ladies' waiting room. The foetus had been caught on the pan of a "flush-out" type of closet. It was macerated, and there was no doubt that it had been stillborn. The placenta had not yet been delivered, and the cord was intact. After division of the cord, the mother was removed to hospital on a hand ambulance, while the foetus, wrapped in newspapers, followed in a borrowed perambulator. The young woman made a perfectly uneventful recovery. The neighbourhood of Paddington Station seems to have had its fair share of exciting midwifery, for not long after my case one of my colleagues attended a birth on the pavement in Praed Street itself. In this case the mother was to have been admitted for her confinement, but she left things too late and, while walking to the hospital in the early morning and yet a few yards from its doors, delivered herself of a living child. She completed the journey on her own feet, while the junior obstetric officer followed carrying the baby, the placenta being still unborn and the cord intact.

Concurrent Herpes Zoster and Chicken-pox

Dr. G. D. SUMMERS (Lincoln) writes: A painter, aged 63, came to me on September 16th for a slight cough and again on the 25th for repeat medicine. On September 26th he had three patches of herpes zoster on the left side of the thorax, all on the same level, one inch below nipple; each patch was a little larger than a penny. He had no pain, felt quite well, and wished to remain at work. On September 29th he told me it had spread. I found typical chicken-pox scattered all over trunk, legs, and forehead. He was still not ill, and had no temperature. On October 7th all scabs of chicken-pox were off, and on October 21st so were the herpes zoster scabs. On October 28th he complained for the first time of pain in the region of herpes zoster patches; this became worse, was violent on November 1st, and subsided slowly by November 8th. He was fit for work on November 13th.

Psycho-analysis or Psychoanalysis

Dr. ERNEST JONES writes: The reviewer of Dr. Karin Stephen's *Psycho-Analysis and Medicine* in your issue of November 25th (p. 975) expresses astonishment because she in her book, and I in my preface to it, omit the hyphen in "psycho-analysis," and asks for an authoritative statement on the attitude of psycho-analysts towards this linguistic point. I am sorry to say that I never saw the proofs of my preface, and do not know the motives of either Dr. Stephen or her printer for changing my spelling. I imagine that the question is purely one of personal taste. For my part it would seem to me that the conjunction "oa" in English usually expresses a long "o" sound, and that where one wishes to indicate a division between two sounds, and even two words, in such a conjunction it is more convenient, and more in accordance with our language, to insert a hyphen.

Book-keeping: The Doctor's Bugbear

Dr. W. H. ROWTHORN (Sheffield) writes: If there is one part of general practice detested more than another it is book-keeping. It is assumed that this will be taught to a man when he commences the practice of his profession by acting as an assistant. It is also assumed, naturally, that his principal is qualified to teach this subject, but when we consider that he himself has never learnt it it is obviously impossible for him to impart knowledge to others. In my avocation, that of a locumtenent, I have taken charge of about two hundred practices, but never yet have I seen two similar methods of book-keeping. I have, however, noticed that the one who considers he has the best method is he who has this done either by his wife or some other person. Yet, after all, the keeping of books is a very simple matter, providing, of course, the proper method is adopted at the commencement. Some years ago the *Journal* published half a dozen "Simple Methods of Book-keeping," in which I had the honour of having mine placed first. I have seen as many as seven books used to conduct a practice, yet the actual number required never need exceed cash book, ledger, and a combined day-book with visiting list. By using this method I have had 280 bills in the post two hours after the quarter has expired. If book-keeping were made part of the student's curriculum this chaotic condition would rapidly disappear.

Heraldic Shields

Messrs. H. K. Lewis and Co., Ltd., whose close and friendly association with the medical profession began ninety years ago, have sent us specimens of their hand-painted shields of the arms of universities, hospitals, colleges, and schools. These are made of mahogany, 8 inches by 6 inches, with concealed attachment for hanging on a wall. The craftsmanship is of the best and the colouring very effective. The number of shields so far produced is fifty-one. These include the London teaching hospitals and medical corporations, the provincial universities and medical institutions, and Scottish and Irish universities and medical schools, six of the English public schools. A list of these decorative mementos of academic life, with prices, may be had from the Medical Stationery and Equipment Department, H. K. Lewis and Co., Ltd., 136, Gower Street, W.C.1.

Confidence Trick: A Warning

Dr. HENRY BERGH (Staines) writes: Drs. A. J. P. Alexander and W. F. Lyle, whose letter appeared in the *Journal* of November 25th (p. 1004), may be interested to hear the conclusion of their Irishman's adventures. He turned up at Staines, again with the story of haemoptysis and a raised temperature. This time, however, he was "the son of a general in the Free State Army." He misled my partner to the extent that he had him *x*-rayed and admitted to a nursing home. At the home the matron's suspicions were aroused by a Maidenhead hospital bandage on him, a stethoscope among his clothes, and his repeated requests for heroin. On ringing up Maidenhead they told her that after being there for some days he had left that morning for a West End nursing home! Whilst at the home he tried to obtain some money from the Roman Catholic priest. We informed the police, who arrested him; whilst at the police station he swallowed a phial of morphine, including glass and cork. It was here that I saw him. I found him very panic-stricken and regretting his hasty action. However, after appropriate treatment he was sent to the infirmary, from where he was handed over to "B" Division to be charged.

Death after Operation

With reference to the report published in our Medico-Legal column last week under this heading (p. 1051), Mr. McNeill Love wishes to state that he did not perform the operation, which was of a gynaecological nature; he acted as an assistant to a specialist in that branch of surgery.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 41, 42, 43, 44, and 45 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 295.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

414 An Early Symptom of Varicella

O. LADE (*Münch. med. Woch.*, August 4th, 1933, p. 1215) remarks that although varicella is usually harmless the admission of cases to hospital may disorganize the work of an entire department, and that it is desirable that some early symptom of infection should be discovered before the eruption appears. He claims to have found in many cases a prodromal symptom which has hitherto escaped attention—namely, a peculiar diarrhoea or very soft stool occurring precisely fourteen days prior to the eruption. Any child unaccustomed to diarrhoea who passes such a stool should be isolated immediately. Lade has verified this observation in a large number of cases in children's homes during a period of several years, and has been able to predict in many cases the exact date of the appearance of the eruption. The question of the mode of invasion of the infection of varicella is still uncertain, but this prodromal diarrhoea appears to incriminate the intestinal tract. The diarrhoea may be due to the primary toxic action, while the eruption is evidence of the systemic effect of the infection. The author suggests that further observations on this point may not only assist in the early diagnosis of varicella, but, as prodromal diarrhoea does not occur in varioloid, may throw light on the occasionally difficult differential diagnosis between this disease and varicella.

415 Deaths from Appendicitis in U.S.A.

Reviewing the American appendicitis record for 1932, F. L. HOFFMAN (*Spectator*, U.S.A., August 3rd, 1933) states that the death rate in American cities, which was 13.3 per 100,000 in 1910, rose to 18 in 1929 and 1930, since when it fell to 17.4 in 1931 and 15.7 in 1932. Different American cities show remarkable variations in the death rate. In 1932 the rate for Salt Lake City was 46.9, and two other cities had figures of over 40. Union City, New Jersey, showed the low figure of 1.5, and in three other cities there were no deaths from appendicitis at all. Hoffman can offer no satisfactory explanation for these extraordinary differences, which are maintained from year to year with approximate consistency. It is estimated that in 1931 20,000 deaths occurred in the whole of the U.S.A.—a rate of 15.2 per 100,000, as compared with 7.2 for England and Wales. Disparity between urban and rural rates is held to result in some degree from movement towards cities by patients requiring treatment. Hoffman quotes statistics from fourteen Canadian cities; these correspond closely to the United States experience, except that the death rate rose from 15.1 in 1931 to 15.6 in 1932. He emphasizes the importance of this problem and the need for further research into the various factors—local, therapeutic, etc.—concerned.

416 Arteriography in Diagnosis

TH. NAEGELI (*Deut. med. Woch.*, August 4th, 1933, p. 1196) discusses the history and uses of arteriography. Opaque solutions were first employed by intravascular injection in man in 1923, and since then a large literature on the subject has accumulated. An ideal contrast-medium for arteriography must have no local deleterious effect on the vessel, must be inert pharmacologically, and must be opaque to *x* rays. The solutions in general use are 40 per cent. uroselectan, 22 per cent. abrodil, and thorotrast. The smallest quantity sufficient to produce filling of the required vessel is injected under local anaesthesia and rigid aseptic precautions. Radiographs are taken in the normal way, serially or cinematographically, the latter giving some idea of the functional condition of the vessels. The practical value of arteriography is said to lie in the exact diagnosis of arterial disease, especially in the differentiation of spasm and organic disease in such conditions as intermittent claudication. Emboli or thrombi can be accurately localized, and the condition of the collateral circulation determined before amputation, thus giving some guide as to the level at which to amputate. Encephalo-arteriography (injection of contrast-media into one or both internal carotid arteries) has also proved of value in localizing cerebral tumours and is, it is claimed, safer than encephalography, while injection of contrast-media into the aorta by a similar route to that used for splanchnic anaesthesia has thrown light on some obscure abdominal tumours. Finally, by passing a fine catheter up the cubital vein to the right side of the heart a filling of the pulmonary arteries may be obtained which is said to localize lesions in the lungs more accurately than bronchography in some cases.

Surgery

417 Cisternal and Lumbar Puncture

E. GOLDNER (*Med. Welt*, August 5th, 1933, p. 1106) discusses the indications and dangers of cisternal and lumbar puncture. She states that normally lumbar fluid has a slightly higher cell count and greater protein content than cisternal fluid. In pathological conditions the same holds good if the process is generalized throughout the central nervous system or localized in the cord; but if the disease process is localized in the brain the changes in the cisternal fluid are more marked than in the lumbar. Unpleasant sequelae follow lumbar more frequently than cisternal puncture. Headache, vertigo, vomiting, and pains in the limbs are not uncommon. These are more frequent after withdrawal of a normal than an abnormal fluid, but are particularly common in cases of cerebro-spinal syphilis. Puncture is frequently unsafe in arterio-sclerosis, as change of pressure may determine the onset of cerebral haemorrhage, or, in cisternal puncture, the needle may damage a sclerotic vessel. Puncture may cause an intracranial abscess to rupture by lowering the pressure, and, as is well known, is particularly dangerous in cerebral tumour of the posterior fossa. Therapeutically, lumbar and cisternal puncture find their chief use in meningitis, where they may be used together and the subarachnoid space irrigated. In coma, especially the uraemic type, lumbar puncture is useful and, finally, serums and drugs, such as N.A.B., may be given by this route.

418 A Modified Technique for Cisternal Puncture

A. VON SÁRBO (*Wien. klin. Woch.*, August 11th, 1933, p. 996) claims that his technique of performing cisternal puncture overcomes the dangers and disadvantages of methods hitherto employed. Fatalities have occurred from injury to the floor of the fourth ventricle, also haemorrhage from puncture of the internal vertebral venous plexus, and painful paraesthesiae of the face and limbs have been recorded. Admixture of blood with cerebro-spinal fluid renders the specimen valueless. In one operation the surgeon attempts to puncture the cisterna at the margin of the foramen magnum, but occasionally the cisterna is missed. In another, simpler operation the surgeon locates the spinous process of the axis with his index finger and slides the needle along his finger-nail. Here, there is danger of missing the atlanto-occipital membrane and passing the needle between atlas and axis. Von Sárbo emphasizes the fact that the inferior mesial portion of the atlanto-occipital membrane is very thin, and is adherent closely to the dura mater. In this operation the membrane is punctured at this point. The author advises the following modification.

The external occipital protuberance and the spinous process of the axis are located. Two-fifths of an inch above the latter the skin is scratched in the mid-line and painted with iodine. With a fine needle, 2½ inches long, the skin is pierced in the direction of the glabella. The needle passes easily to a depth of 1 2/5 to 1 3/5 inches, when slight resistance is felt. This is the atlanto-occipital membrane. By slow, steady pressure, the needle enters the cisterna; the stylet is withdrawn. When under pressure the fluid flows spontaneously; otherwise it should be aspirated with a syringe. By this technique the needle lies in the cisterna, almost parallel to the floor of the fourth ventricle. Von Sárbo affirms that lumbar puncture cannot be compared with the cisternal method, either for relieving pressure, as in epilepsy or meningitis, or for serological purposes.

419 Lymphogranuloma Inguinale

S. HELLERSTRÖM and E. WASSÉN (*Hygeia*, August 15th, 1933, p. 545) have conducted an epidemiological and aetiological study of lymphogranuloma inguinale (climatic bubo), which they have found to be much more common than was formerly thought to be the case. Accurate information about this disease was not available before 1925, when Frei introduced the intracutaneous reaction, which has made it possible definitely to distinguish this disease from others. In 1932 a questionary was sent out from Sweden to about 350 foreign skin and venereal disease hospitals. Inquiries were also made at home by the State Medical Service in Sweden. Replies were obtained from 150 hospitals, which sent in reports on a total of 1,636 cases of lymphogranuloma inguinale and 215 cases of esthiomène (genito-ano-rectal elephantiasis). It would seem that lymphogranuloma inguinale has long existed in Europe, and is not of recent importation from other continents. How common it is in certain European countries is shown by the fact that in Helsingfors alone 100 cases were observed between October 1st, 1929, and November 1st, 1932, although only those cases were considered in which the disease was diagnosed by Frei's reaction. In Sweden 132 cases were diagnosed between 1927 and 1932, and in Copenhagen only one specialist observed as many as thirty-five cases between 1928 and 1932. As regards the apparent relative rarity of this disease in women, it is possible that they often act simply as carriers. It may be that their lymphatic glands are relatively resistant, or that the virus is conducted to other glands than those of the inguinal region. The frequency with which a positive intradermal reaction to lymphogranuloma inguinale is obtained in cases of esthiomène stresses the close relationship between these two conditions.

Therapeutics

420 Therapeutic Value of Choline Compounds

Acetylcholine, a constituent of ergot, inhibits the heart and increases intestinal movements; it also causes dilatation of the small arterioles, and hence lowers the blood pressure. I. STARR *et al.* (*Amer. Journ. Med. Sci.*, September, 1933, p. 313) report investigations which indicate that a synthesized choline derivative (acetyl-β-methylcholine chloride) should be employed preferably in all cases when acetylcholine could be used. In forty-seven cases this new drug, injected subcutaneously, was found to bring about promptly and vigorously a fall in blood pressure, a rise in the pulse rate, flushing, sweating, and salivation. The action begins within a minute or two of the injection, lasts for two or three minutes, and has completely ceased in fifteen to twenty minutes. The only untoward effect observed was a transient attack of asthma in a patient who had previously suffered from this disease. Given by mouth, the drug has a much milder effect; even in large doses it does not cause discomfort, although considerable blood pressure and pulse rate changes have been noted. The ethyl ether of β-methylcholine, given by mouth or subcutaneously, was found to have less effect on the cardiovascular and gastro-intestinal systems, but more on the salivary and sweat glands. W. O. ABBOTT (ibid., p. 323) discusses the action of acetyl-β-methylcholine on the gastro-intestinal tract of normal persons, in abdominal distension, and in certain other conditions. He finds the oral route of administration preferable, so avoiding the secretory and cardiovascular effects. He reports that there is an increase in the gastro-intestinal tone and movements, slight stimulation of gastric secretion in some cases of hypochlorhydria, a comfortable laxative effect, and the relief of abdominal distension in certain cases in which other measures have failed. The action of this drug in paroxysmal tachycardia and peripheral vascular disease is described by I. STARR (ibid., p. 330), who mentions that any untoward effects can be quickly abolished by injecting atropine. Subcutaneous introduction of acetyl-β-methylcholine caused the immediate termination of twenty-five attacks of paroxysmal tachycardia in nine patients; relieved or prevented vascular spasms in Raynaud's disease initiated by mild, but not severe, degrees of cold; caused a rise of the skin temperature of the feet in thrombo-angiitis obliterans; and brought about temporary reduction of blood pressure in hypertension, with some relief of headache.

421 Treatment of In-growing Toenail

F. KLAGES (*Zentralbl. f. Chir.*, July 29th, 1933, p. 1762) describes Voelcker's method of treatment of in-growing toenail and states that by this means all but a few severe and long-standing cases have been cured as out-patients. Under local anaesthesia a convex silver splint is clipped closely to the nail over the ulcerated area and extending widely over normal nail tissue; a light bandage is then applied. The splint is made of thin, slightly flexible sheeting: it has been tolerated as long as three months (a new epithelial surface being formed underneath), and its main action is to eliminate the painful stimulus caused by pressure on the granulation tissue.

422 Arteriography in Vessel Disease of the Limbs

R. DEMEL and M. SGALITZER (*Wien. klin. Woch.*, August 18th, 1933, p. 1017) discuss the use of arteriography as a therapeutic measure in some vascular diseases of the limbs. During investigation of cases of endarteritis obliterans, thrombo-angiitis obliterans, peripheral arteriosclerosis, and angiospasm, improvement was noticed in some cases after this measure. This observation has been pursued further, and, in a series of fifty-eight cases, intra-arterial injection of 40 per cent. uroselectan or 20 per cent. abrodil caused definite improvement in twenty-one (31.2 per cent.). Improvement in the colour and surface temperature of the limb was usually rapid. Pain was considerably diminished, and the patient was enabled to walk further. In one case arteriography caused such improvement that amputation, which had seemed inevitable, was not necessary. The failures consisted chiefly of advanced arteriosclerosis or endarteritis obliterans.

423 Digitalis Dosage

O. ZIMMERMANN (*Med. Klinik*, September 1st, 1933, p. 1204) draws attention to the importance of accurate control of digitalis preparations. It is indifferent whether the frog or cat method is used for standardization so long as the standard League of Nations (Hygiene Committee) preparation of powdered leaf is used as control. Such questions as rate of absorption and cumulative action are entirely ignored by such methods. Further, it is possible to observe a considerable and even dangerous discrepancy between the activity of certain digitalis preparations as indicated by the makers and that actually observed in the treatment of a cardiac case. The preparation digalen in its most recent form is said to possess an activity represented by 1 c.cm. digalen (41 drops) = 0.1 gram pulv. dig. fol. titr. (standard leaf powder). The author reports that as long as he used fairly small doses—for example, 15 to 20 drops twice a day—his patients frequently made astonishingly good progress. But he was struck by the very rapid fall in pulse rate, amounting in some cases to bradycardia.

When, in more severe cases he used bigger doses—for example, 40 drops twice a day—the results left no doubt in his mind that he was using greater doses of actual digitalis glucosides than were indicated by the activity figure given above. In half the cases so treated the general results (pulse, diuresis, etc.) were excellent but on account of bradycardia the digitalis had to be stopped on the sixth or seventh day. The bradycardia lasted for some days after the stoppage of the drug. In the other half of the cases there was definite evidence of digitalis intoxication: headache, vertigo, nausea, and vomiting. In some cases heart block occurred. The conclusion is drawn that the most recent digitalis has chemically twice the activity attributed to it by the producers, since on the basis of 1 c.cm. = 0.1 gram pulv. dig. fol. titr. the high incidence of toxic symptoms should not have occurred.

Anaesthetics

424 Avertin Anaesthesia

G. Rietman and V. Bonsirven (*Bruxelles Medical*, June 25th, 1933, p. 938) state that the absorption of avertin (tribromoethanol) by the rectal mucosa is very rapid; its maximum concentration *in the blood being attained in* thirty minutes. It is carried directly to the liver where its loses its toxicity by association with the glycuronic acid, and is eliminated by the kidneys; hence the necessity of good hepato-renal function to obtain a perfect and innocuous anaesthesia. This method should be preceded by a *complete examination and preparation* of the patient. The former includes a determination of the age, sex, weight, height, etc., and tests of the arterial tension, urine, and blood. Hypotension, albuminuria, and a raised blood urea are contraindications. On the evening *before operation* a mild purge and enema should be given, and an hour before operation a subcutaneous injection of scopolamine (0.00025 gram) and morphine (0.005 gram). A correct dosage estimation is said to be the keynote of success in this type of anaesthesia. A standard dosage cannot be computed, as infants and men tolerate this anaesthetic well, and women and the aged poorly. The authors estimate the dosage by ascertaining the anaesthetic weight (calculated by comparing the actual weight and height) and such factors as the age, sex, and general condition. The addition of the coefficients chosen for these factors gives the dosage in centigrams. The general state 'coefficients are: very good 8, good 7, mediocre 6. The age-sex ones are: in infants 4, men 3, women 2, the aged 1. Thus the dosage when the general state is very good is: infants 12 cg., men 11 cg., women 10 cg., the aged 9 cg., etc. This dose is dissolved in forty times its volume of water, previously heated to between 38° and 40° C. The injection must be given very slowly and under low pressure. Half an hour should elapse between the operation and the injection. Complete anaesthesia can be obtained with a few whiffs of ether. After effects such as bradypnoea and circulatory disturbances resulting from the fall in tension, may occur, mainly due to an overdose or too rapid absorption of the anaesthetic. In these conditions nerve and cardiac tonics and hypotensors (camphorated oil, ephedrine, etc., and coramine in bradypnoea) are indicated.

425 Hypnotics and Pre-anaesthetic Sedatives

A. R. Parsons (*Irish Journ. Med. Sci.*, July, 1933, p. 304) reviews the various hypnotic and sedative drugs—natural and synthetic. He discusses their chemical and physical composition, their more important fields of action, and the risks *attendant on* their use. Chloral is commended as being especially beneficial in sleeplessness with high blood pressure, but it must be cautiously administered if there is any tendency to cardiac failure. This danger is absent in the case of paraldehyde, which can be safely employed in acute croupous pneumonia, and in delirium tremens, in doses of one-half to two drachms. The delayed action of sulphonal is inconvenient, but the author doubts whether it causes haematoporphyrinuria, as it has been alleged to do. Sodium luminal is very soluble, can be administered hypodermically, and promises to be of service in status epilepticus. Prominal, another derivative of luminal, is less toxic; it has little hypnotic effect, but has a full *anti-epileptic action*. Sodium amytal has been found more useful than nembutal in relieving the pains of parturition, and less liable to be followed by restlessness. A case is mentioned of its efficacy *in strychnine* poisoning. Nembutal, however, is commended as a hypnotic analgesic, and pre-operative sedative. The warning is necessary that the barbiturates require a higher degree of alkalinity than that of the blood to keep them *in solution*. Failing this they may be precipitated in the colloid state, act as a foreign body in the blood, and produce undesirable effects by disturbing the colloidal equilibrium of that fluid. Oral administration is, it is concluded, safer than intravenous. The author adds that it seems probable that the barbiturates are broken down *in the liver, and that, consequently*, the main contra-indication to their use is the presence of any hepatic disease, whether organic or functional. The broken-down products are eliminated in part by the kidneys, and so any serious disease of these organs must be excluded before prescribing the barbiturates.

426 Deaths from Percaine Anaesthesia

E. Behr and A. Zeckel (*Nederl. Tijdschr. v. Geneesk.*, July 29th, 1933, p. 3465) record two cases in which death followed lumbar anaesthesia by percaine. The first was a woman, aged 57, in whom 2 c.cm. of a 0.4 per cent. solution of percaine was used for a ventral hernia; the second case—also a woman aged 42—was given 10 c.cm. of percaine for Caesarean section. In both instances severe lesions in the spinal cord, membranes, and nerve roots ensued. As the result of their histological examination the writers conclude that, in addition to the toxic and myelolytic action of the anaesthetic, individual factors, the nature of which is still obscure, are of considerable *importance*.

427 *Sodium Soneryl as a Basal Anaesthetic*

B. Desplas and G. Chevillon (*Paris Méd.*, July 15th, 1933, p. 77) report that since their previous article (June, 1932) they have used sodium soneryl as a 'preliminary narcotic' in 140 additional cases, the total number of cases of general anaesthesia under these conditions being 199, including ninety-one laparotomies, twenty-one operations on the limbs, four cases of mammary cancer, nineteen thoracic and intrathoracic operations (empyema, pulmonary abscess, etc.), five goitres, and other operations on the neck. Sodium soneryl was administered orally in 2½ grain cachets. For adults they recommend administration of 4½ grains at 9 o'clock *on the night* before operation, followed usually by 6¾ grains one hour before operation. In enfeebled patients this is reduced to 4½ *grains, but in robust individuals* the dose is increased to 9 or 11 grains. In gastric operations the writers recommend that the morning dose should be given one and a half or two hours before operation. Their general experience was that on the night preceding operation the patients slept soundly, and that when the anaesthetic was given they were still sleeping or very drowsy. Anaesthesia is induced very slowly as soneryl causes slow, shallow respiration, less anaesthetic is required, and muscular relaxation is complete. The patients recover consciousness quickly, and post-operative vomiting is rare. Soneryl as a basal anaesthetic is they state particularly useful in regional anaesthesia in gastric, thoracic, or cervical operations. Frequently patients *remain somnolent for* twenty-four hours or more after operation. Many have no recollection of the anaesthetic. Pulmonary complications followed in two cases only, one patient dying *from* bronchopneumonia after cholecystotomy for a neoplasm. Some nervous patients are very agitated on recovery from anaesthesia, but not more so than after ordinary ether administration. The writers believe that sodium soneryl, administered orally as a basal anaesthetic, lessens the dangers and inconveniences of general anaesthesia. They are now testing the effects of intravenous injection of the drug.

Obstetrics and Gynaecology

428 Phenyl Mercury Nitrate in Gynaecology

L. H. BISKIND (*Surg., Gynecol. and Obstet.*, August, 1933, p. 261) confirms previous reports on this substance, which combines high bactericidal potency with relatively low toxicity for man and animals. Seventy consecutive unselected cases of vaginal and cervical infections were treated. Optimal results followed the employment of a 1 in 1,250 solution. The first patients were instructed to use an alkaline douche daily, but subsequently a 1 in 25,000 dilution of phenyl mercury nitrate (one drachm of 1 per cent. glycerin solution diluted with a quart of water) was substituted. The first twelve patients received the salt in very dilute solutions. In the remaining fifty-eight cases the full saturation strength (1 in 1,250) was used. The following was the technique employed. Smears were taken after exposure of the urethral and cervical orifices. The vagina was cleansed with dry cotton-wool and the cervical canal with a dry cotton applicator. Phenyl mercury nitrate was then applied with another swab, and held *in situ* while the vagina was swabbed thoroughly with the same solution. The applicator was removed from the cervix, and a tampon, saturated at its distal end with the solution, was inserted. The patient removed this after twenty-four hours and commenced the daily douche. In thirteen cases the clinical diagnosis of acute gonorrhoeal endocervicitis was confirmed bacteriologically; in eight others the clinical diagnosis was unconfirmed. Although other treatments had failed in many of these patients, twenty-one women with definite gonorrhoeal endocervicitis reported in three to seven days after treatment that the discharge had lessened or had disappeared. Successful results were obtained in cases of vaginitis, bartholinitis, and recto-vaginal fistula. Two cases of *Trichomonas vaginalis* infection were unrelieved.

429 Causes and Sequels of Abortion

A five-year study of abortion, comprising 341 cases, is recorded by R. E. WATKINS (*Amer. Journ. Obstet. and Gynecol.*, August, 1933, p. 161), who concludes that contraceptive measures should be more widely taught in view of the fact that criminal abortion occurred in no less than half the series. Repeated abortion was noted in 45.4 per cent. of all cases, and 81 per cent. of the patients were married. Pyrexia was a sequel in 90.3 per cent. The author advises against any unnecessary evacuation of the uterus by mechanical means in such cases, since pyrexia usually follows such intervention. Perimetrial invasion by bacteria undoubtedly occurred, and must be considered as prejudicial to the future health. There was a rapid decline in the temperature after the expulsion of the uterine contents, attributable to the establishment of drainage or to cessation of the infected and necrotic uterine contents under the increased pressure. It would follow that a medicinal agent is indicated in such cases to expel or help to expel the retained products of conception. Hospital supervision is necessary in all cases of abortion, and it should be remembered that infected patients will nearly always develop an immunity to their infection if afforded the opportunity to do so. Under conservative management the mortalty rate was 0.88 per cent. (three deaths). The streptococcus is usually responsible for the fatal issue, but the gonococcus may complicate the clinical picture. Peritonitis due to organisms invading through the Fallopian tube is rare unless active gonorrhoea is present. Perforation of the uterus is probably more frequent than is suspected, but such injuries tend to heal if the intestine is not injured. Hydatidiform degeneration of the chorion has been incriminated as a factor in abortion, but it was found in only two cases in the author's series. Conservative treatment appears to be the best procedure except in dangerous uncontrollable haemorrhage, which occurred in thirty-six cases in the series reviewed. A retained placenta, causing moderate bleeding, was the indication for evacuation of the uterus in seventy-eight other instances.

Pathology

430 Pancreatotropic Effects of Anterior Pituitary Extracts

K. J. ANSELMINO, L. HEROLD, and FR. HOFFMANN (*Klin. Woch.*, August 12th, 1933, p. 1245), considering the theory of Wilder that spontaneous hypoglycaemia is frequently associated with hypofunction of the anterior pituitary, attempted to produce direct evidence of an influence of anterior pituitary extracts on the pancreas. Rats of 140 to 180 grams weight were taken, and, after uniform feeding with bread-and-milk for three weeks, were injected during three days with anterior pituitary extracts, after which they were killed. The extracts were prepared by aqueous extraction of fresh acetone-dried anterior pituitary powder. The tail of the pancreas of each animal was examined histologically and compared with the normal. In the latter the tail of the pancreas contains very few islets, and it is very rare to see several islets in one field of the microscope. After six or seven injections of the anterior pituitary extracts there were four or more pancreatic islets to be seen in one field, and the individual islets were much bigger than normal. Sometimes several islets were seen to have run together to produce a single giant islet. The islet cells were increased in number, and the cell nuclei were increased in size, as was also the finely granular protoplasma. The beta cells were present in greater numbers than the alpha cells. The acinar cells were also increased in size, and the whole gland was much more richly supplied with capillaries than is the normal. The whole picture was that of a very much increased activity of the gland. According as the dose of anterior pituitary extract was greater, the changes in the pancreas occurred more quickly. The cessation of the injections is followed by a relatively slow disappearance of the pancreatic changes. Investigation of the nature of the pancreas-stimulating substance showed it to be similar to that of the gonadotropic hormone but not identical with it.

431 Rapid Diagnosis of Meningococcal Types

G. RAKE and H. W. SCHERP (*Journ. Exper. Med.*, September, 1933, pp. 341 and 361) describe the isolation of type-specific carbohydrate fractions from meningococci Types I, II, and III. The substances in Types I and III appear to be identical. Two group-specific substances have also been isolated. One of these is a polysaccharide, the other is a protein. In another paper G. Rake (ibid., p. 375) describes the application of this knowledge to the rapid diagnosis of the infecting type of meningococcus in cases of cerebro-spinal fever. In this disease the type-specific soluble carbohydrate substances tend to go into solution in the spinal fluid, and can be demonstrated in it by a precipitin reaction. In performing this test 0.1 c.cm. of each of the four type serums is placed in a small tube, and 0.1 c.cm. of the spinal fluid, cleared by centrifugation, is layered carefully on top of it. The tubes are incubated at 37° C. for two hours, and then transferred to the ice-chest overnight. Readings are made immediately after mixing, and after one, two, and eighteen hours. After one hour it is advisable to mix the two fluids thoroughly. The amount of precipitable substance depends on the number of the meningococci in the spinal fluid. If these are numerous, the precipitable substance is sometimes sufficient to give an immediate precipitin reaction. If they are very few, then the reaction may be negative, even after eighteen hours. Altogether twenty-three spinal fluids have been examined by this method from cases of cerebro-spinal meningitis, and in seventeen of them a type-specific precipitinogen has been demonstrated. No differentiation has proved possible between Types I and III, and results with Type IV have been unsatisfactory owing to the absence of a good antiserum. The diagnosis of type has been subsequently confirmed by agglutination of the organisms in culture. The value of the direct precipitin test on the spinal fluid is, in positive cases, to allow of the more rapid administration of monospecific serum than is possible when the organisms have first to be cultivated and then tested by agglutination.

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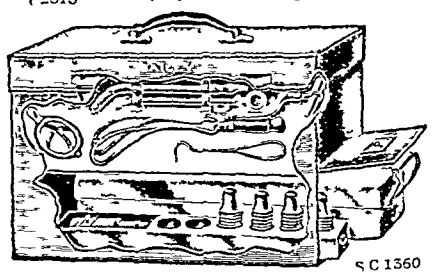
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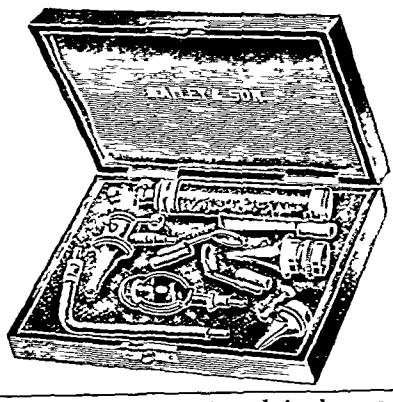
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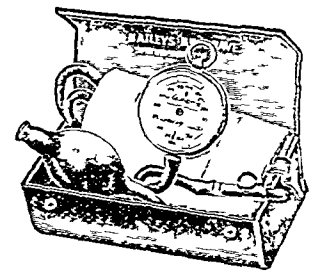


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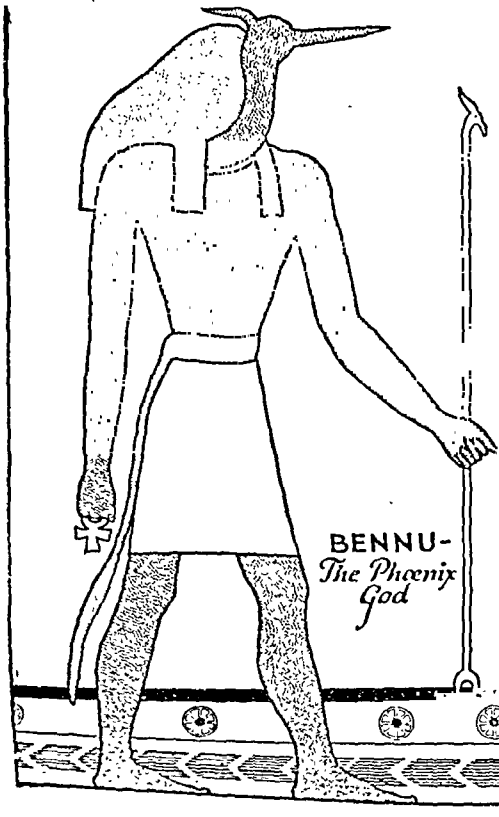
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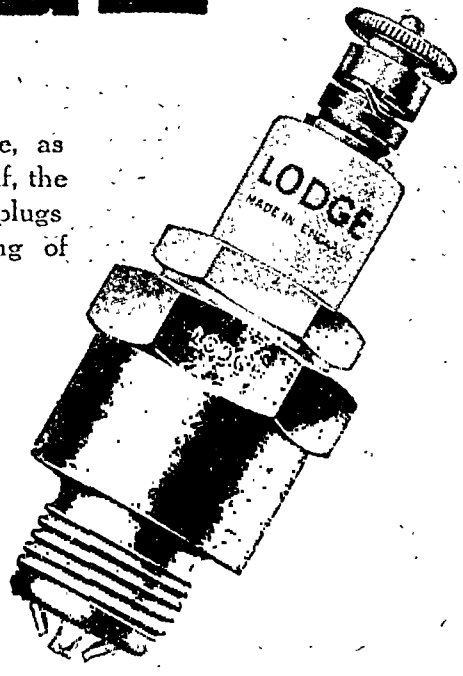
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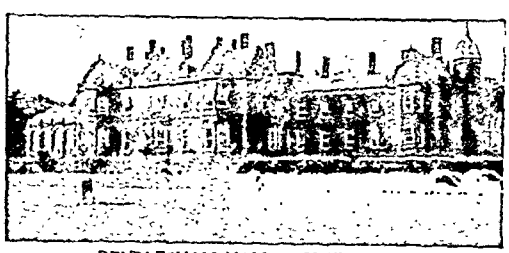
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FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS

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For full particulars apply to *The Secretary*, Nordrach-upon-Mendip, Blagdon, Bristol. *Telegrams*: Nordrach, Blagdon. *Telephone*: Blagdon 25.

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Established 1898 for the treatment of Tuberculosis. Radiators and Electric Light throughout. Hot and cold water and shower bath in nearly all rooms. Powerful X-ray Plant. Ultra-violet Rays. Full Nursing Staff. All forms of treatment available. Farm of 120 acres, including 40 acres of wood. Herd of Tuberculin-tested Guernsey cows kept. Resident Physicians—ARTHUR DE W. SNOWDEN, M.D., B.Ch.(Cantab.), A. G. E. WILCOCK, M.R.C.S., L.R.C.P., COLIN CASSIDY, M.B., B.Ch.(Cantab.)

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Consulting Laryngologist: SIDNEY BERNSTEIN, M.R.C.S.Eng., L.R.C.P.Lond. (Attends Regularly.)
Apply: The Secretary, The Cotswold Sanatorium, Cranham, Gloucester. *Telephone*: 41 WITCOMBE. *Telegrams*: "HOFFMAN, BIRDLIP."

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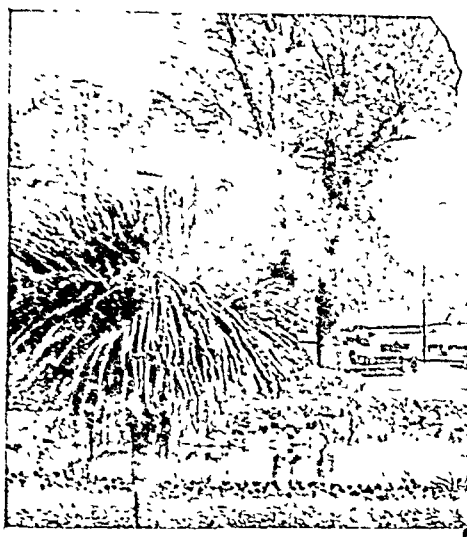
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Admission free without ticket

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PUBLIC ASSISTANCE COMMITTEE.

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APPOINTMENT OF JUNIOR RESIDENT MEDICAL OFFICER

Applications are invited from registered Medical Practitioners for the appointment of Junior Resident Medical Officer to the above Hospital and Institution, comprising 300 and 520 beds respectively

Candidates must be unmarried

Preference will be given to applicants having previous Hospital experience especially in midwifery and in the administration of anæsthetics

Salary at the rate of £225 per annum together with the usual residential emoluments

The appointment will in the first instance be for a period of six months the successful applicant being eligible for reappointment for a further period of six months at the end of that period

Forms of application may be obtained from the County Medical Officer of Health Public Assistance (Hospital and Medical) Department County Offices Preston, to whom all applications accompanied by copies of not more than two recent testimonials must be forwarded not later than Monday, December 18th

County Office GEORGE FTHERTON
Preston Clerk of the County
November 28th 1933 Council

ESSEX COUNTY HOSPITAL, COLCHESTER (160 Beds)

Wanted in January ASSISTANT HOUSE SURGEON (male) Salary £120 per annum with board washing and residence Medical and Surgical qualifications required

Applications with three recent testimonials, to be sent by Tuesday December 12th to—

ALFRED G BUCK Secretary

LONDON COUNTY COUNCIL

Applications invited from Medical Practitioners for appointment at each of the undermentioned hospital Duties assigned by Medical Superintendents and include if necessary assistance at other establishments under Council's control Remuneration and conditions of service subject to review

1 ST [illegible] am Road S OFFICER, (annualis £25 to £425 Candidates must be medical practitioners of at least seven standing and have held a resident appointment in a general hospital for at least six months Duties mainly medical No accommodation for a married man or for a woman

*2 FULHAM HOSPITAL St Dunstan's Road Hammersmith W6—CLINICAL ASSISTANT Salary £100 a year with meals and quarters

*3 ST OLAVE'S HOSPITAL Lower Road Rotherhithe SE16 — HOUSE PHYSICIAN Salary £80 a year with board lodging and washing

*Appointment for six months in the first instance Accommodation for a married man

Application forms obtainable (stamped addressed foolscap envelope necessary) from Clerk of the Council (Hospitals Department) County Hall SE1 returnable by December 15th (December 22nd in the case of St Olave's Hospital) Canvassing disqualifies Further enquiries should be addressed to Medical Superintendents at respective hospitals

LONDON COUNTY COUNCIL

RESIDENT MEDICAL SUPERINTENDENT required ST PETER'S HOSPITAL (444 Beds) White Lodge Persons appointed will be under direction of Medical Officer of Health and must assist at other Council establishments if required Salary £1 000—£50—£1 250 Unfurnished quarters value £100 a year Candidates other than members of Council's Staff must be not over 45 years of age and must be fully qualified medical practitioners for at least 5 years and have been house physician or house surgeon in public general hospital and have experience of hospital administration Remuneration and conditions subject to review

Application forms obtainable (stamped addressed foolscap envelope necessary) from Clerk of the Council County Hall SE1 returnable by Monday, December 11th Canvassing disqualifies

KENT AND CANTERBURY HOSPITAL CANTERBURY (137 Beds)

HOUSE SURGEON (male) required to commence duties on January 1st 1934 Six months appointment Salary payable at the rate of £120 per annum plus board residence and laundry There are two other Residents

Applications stating age and particulars of qualification and enclosing copies of testimonials should be forwarded to the undersigned as soon as possible

W T SOUTHWOOD
Superintendent & Secretary

DISTRICT INFIRMARY ASHTON UNDER LYNE
(General Hospital—200 Beds mainly Surgical)

Wanted for January 1st next a MALE HOUSE SURGEON Six months appointment Salary at the rate of £150 per annum with board residence and laundry

The Resident Staff comprises a Resident Surgical Officer and three House Surgeons

Applications with testimonials to be sent to the undersigned

FRANK OLIVER
General Superintendent & Secretary

COSSHAM MEMORIAL HOSPITAL, KINGSWOOD BRISTOL

Applications are invited for the post of RESIDENT MEDICAL OFFICER (Male) to commence duties on January 1st 1934 Salary £150 per annum with board residence, and laundry

To remain for six months in the first instance Applicants should be British nationals, thoroughly qualified and registered

Applications not later than December 16th to

E J HAWKINS Secretary

THE INFANTS HOSPITAL
Vincent Square Westminster

Applications are invited for the post of CLINICAL ASSISTANT in the Radiological Department Applications should state qualifications and should be received by the undersigned not later than December 10th

ALFRED J SMALL, Secretary

NORTH LONSDALE HOSPITAL BARROW IN FURNESS (150 Beds)

RESIDENT CASUALTY OFFICER (male) appointment to commence January 2nd 1934) Applications are invited for the above resident appointment from fully qualified practitioners experienced in the administration of anæsthetics Salary £150 per annum with board residence and laundry

Applications stating age qualifications, experience and nationality accompanied by copies of three recent testimonials should be sent to the Secretary not later than December 15th

NORTH ORMESBY HOSPITAL, MIDDLESBROUGH (200 Beds.)

HOUSE PHYSICIAN required, male and unmarried Salary £120 per annum with board residence and laundry There are three Residents and the successful candidate will be eligible for the post of House Surgeon in due course

Application stating age qualifications previous experience (if any) with copies of three recent testimonials should be sent to the undersigned at once

GEORGE WATTS
Nov 21st 1933 Secretary Supt

TORBAY HOSPITAL TORQUAY
(146 Beds)

HOUSE SURGEON (male) required. Duties commence December 28th Salary £175 per annum, with board residence and laundry allowance Candidates must be fully qualified registered and unmarried

Applications stating age nationality qualifications and experience to be sent to the undersigned on or before December 16th with copies of not more than three recent testimonials

E L GRIST
December 2nd 1933 Secretary

ROYAL ALBERT EDWARD INFIRMARY & DISPENSARY WIGAN (180 Beds)

HOUSE SURGEON (male) required for period of six months commencing January 1st, 1934 Salary £150 per annum with board apartments and washing Staff consists of RSO and three House Surgeons Applications stating age and qualifications with copies of three recent testimonials should be addressed to the undersigned as soon as possible

A STANLEY BRUNT
November 27th, 1933 Gen Supt & Sec

ROYAL INFIRMARY, BLACKBURN
(240 Beds—Five Resident)

THIRD HOUSE SURGEON (male) required at a salary of £175 per annum with board residence laundry etc Applications with copies of testimonial stating age nationality experience etc to be sent at once to the undersigned

Royal Infirmary T DEWHURST
Blackburn Gen Supt & Secretary

This Institution is recognised for the Surgical practice required for the FPCS final examination

LIVERPOOL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST
Mount Pleasant LIVERPOOL

Applications are invited for the post of HON SURGEON to the Hospital Candidates must be Fellows of the Royal College of Surgeons of England and have had special experience in Chest surgery

Copies of not more than three recent testimonials should be sent in with application to the Medical Board as above not later than December 30th

THE INFANTS HOSPITAL
Vincent Square Westminster

The Committee of Management invite applications for the post of ASSISTANT OPHTHALMIC SURGEON

Candidates must be Fellows of the Royal College Surgeons of England

Application with copies of testimonials should be delivered to the undersigned not later than December 16th

ALFRED J SMALL Secretary

MANCHESTER EAR HOSPITAL, Grosvenor Square All Saints

The Board invite applications for the post of RESIDENT HOUSE SURGEON Salary £120 per annum (24 beds) Candidates must be duly qualified and registered Applications with copies of four recent testimonials to be forwarded to Mr REGINALD S MILFORD (Hon Sec Manchester Ear Hospital) c/o Mr W J ELLAM 33 Brazennose Street, Manchester, 2.

WOOLWICH AND DISTRICT WAR MEMORIAL HOSPITAL, Shooters Hill, London, S.E.18.
(General Hospital—112 Beds.)

(a) HOUSE PHYSICIAN;
(b) HOUSE SURGEON.

The Board of Management invites applications from suitably qualified male candidates for appointment as (a) House Physician, and (b) House Surgeon, for a period of six months from January 1st, 1934. In addition to his surgical duties the House Surgeon will have the care of a Maternity Unit of eight beds. An honorarium of £100 per annum will be paid in respect of each appointment, plus board, residence, and laundry.

Applications, accompanied by copies of not more than three recent testimonials, should be addressed to the undersigned (at the Hospital) to reach him not later than Saturday, December 23rd. The Appointments Committee will meet on Friday, December 29th, to interview shortlisted candidates who will be advised of time and place to attend.

R. S. G. HUTCHINGS, Secretary.

CHESTERFIELD & NORTH DERBYSHIRE ROYAL HOSPITAL.
(220 Surgical and Medical Beds.)

CASUALTY OFFICER
(DEPUTY RESIDENT SURGICAL OFFICER).

Applications are invited from fully qualified men for the above post. The appointment is for six months. Candidates must have held previous Hospital appointments.

Duties include House Surgeon to the Ear, Nose, and Throat Department.

Salary at the rate of £200 per annum, with board, apartments, and laundry.

Applications, stating age, together with copies of three recent testimonials, should be sent to the undersigned on or before the 15th instant.

December 4th, 1933. G. SUNNUCK, Supt. & Secretary.

WARRINGTON INFIRMARY & DISPENSARY.

The Board of Management invite applications for the post of HOUSE SURGEON (male), unmarried. (There are two other Residents.)

Applicants, who must be of British nationality must be duly qualified Medical Practitioners.

Salary £150 per annum, with board, apartments, and laundry.

Applications, stating age, with copies of three recent testimonials, should be sent in at once to the undersigned.

The position will become vacant on Dec. 19th.

By Order,
December 4th, 1933. HENRY L. BOOT, Supt. & Secretary.

THE WILLESDEN GENERAL HOSPITAL, Harlesden Road, N.W.10.

OUT-PATIENT DEPARTMENT; CLINICAL ASSISTANTS.

Applications are invited for appointment to the following sessions:

EAR, NOSE, AND THROAT—Wednesday Afternoons.
GYNAECOLOGICAL—Thursday Mornings.
SURGICAL—Friday Afternoons.
SKIN.—Saturday Mornings.

Applications are to be received not later than first post on Tuesday, December 12th, and should be addressed to the Secretary of the Hospital, from whom further details of the appointments may be obtained.

WILLESDEN GENERAL HOSPITAL, Harlesden Road, N.W.10.

Applications are invited from fully qualified and registered candidates (unmarried) for the appointment of a Resident Officer, to hold the appointment of CASUALTY OFFICER for a period of three months from January 1st, 1934, followed by a six months' appointment as HOUSE SURGEON. (Total nine months.)

Salary at the rate of £100 per annum.

Applications to be received by the Secretary not later than first post on Tuesday, Dec. 12th. November 22nd, 1933.

NOTTINGHAM CHILDREN'S HOSPITAL.

Applications are invited for the post of RESIDENT HOUSE SURGEON (Woman). The salary will be at the rate of £150 per annum, with apartments, board, and laundry. The appointment will be for six months. Duties to commence on February 1st, 1934.

Applications, together with testimonials, and stating age, qualifications, and experience, to be sent to F. PRAGNELL, the Honorary Secretary, 1, King John's Chambers, Bridlesmith Gate, Nottingham, by December 19th. Selected candidates will be required to attend at the Hospital for a personal interview on January 2nd, 1934, when the appointment will be made.

HOSPITAL OF ST. CROSS, RUGBY.

Applications are invited for the post of MALE RESIDENT MEDICAL OFFICER. Qualified. (Three R.M.O.'s.)

Salary to commence at the rate of £100 per annum for first three months, £125 per annum for second three months, and at the rate of £150 per annum for subsequent months. Full board, washing, etc., provided.

Six months' appointment, and eligible on completion of service for further extension of six months.

The candidates must be prepared to commence duties on Monday, January 15th, 1934.

The practice of the Hospital offers excellent opportunities for wide experience.

Certificates and others fees shared by R.M.O.'s.

Applications, stating age, nationality, and full details, with copies of three recent testimonials, to be sent to the undersigned before Monday, January 1st, 1934.

(Signed) W. COCKBURN, Superintendent & Secretary.
Hospital of St. Cross, Rugby.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

The Committee invite applications for the post of PHYSICIAN in charge of the Skin Department (with charge of beds) and with supervision of Light Treatment. One attendance weekly required. An honorarium to cover travelling expenses will be paid. Candidates must be Fellows or Members of the Royal College of Physicians, England.

Applications, with copies of three recent testimonials, which may be printed or typewritten, should be sent as soon as possible to the undersigned from whom further particulars may be obtained.

CHARLES H. BUSSELL, Secretary.
December 1st, 1933.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.1.

Applications are invited for the post of HOUSE SURGEON (male) for six months from January 1st, 1934 (first two months in Casualty and Out-patient Department). Salary at the rate of £120 per annum, with board and residence.

Applications, stating age, experience, and qualifications, accompanied by copies of four testimonials, to be sent to the undersigned not later than December 14th, from whom rules and other particulars can be obtained.

By Order of the Committee of Management,
Nov. 20th, 1933. W. H. SIDNELL, Secretary-Supt.

THE BOLTON ROYAL INFIRMARY.
(306 Beds, including two Auxiliary Hospitals.)

Applications are invited for the post of HOUSE PHYSICIAN. Salary £200 per annum, with board, residence, and attendance. Duty to commence February 1st, 1934.

The Infirmary has a very well-equipped Pathological Department, and this post offers an exceptional opportunity for experience in clinical pathology.

Preference will be shown to applicants who have had experience in laboratory work.

Applications, stating age, nationality, and previous experience, together with copies of testimonials, should be forwarded to the undersigned not later than December 20th.

ALBERT E. BRISCOE, Secretary.

LONDON HOSPITAL, E. 1.

Applications are invited for the post of SURGICAL FIRST ASSISTANT AND REGISTRAR. There are two vacancies. Candidates must be Fellows of the Royal College of Surgeons. The salary is £300 per annum, payable by the Hospital and Medical College jointly.

The appointment is for one year, but is renewable annually, on application, for two further periods of one year. Applications should arrive at the Hospital not later than by the first post on Saturday, January 13th, 1934.

Further particulars may be obtained from the House Governor.

ARTHUR G. ELLIOTT, House Governor.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn Road, W.C.1.

ASSISTANT IN THE OUT-PATIENT DEPT.

There is the following vacancy:
FIRST ASSISTANT for attendance on Wednesdays at 2 p.m.

The duties are to assist the Surgeons and the post is an honorary one.

Applications, which may be for periods of three, six, or twelve months should be sent to the undersigned immediately.

JOHN H. YOUNG, Secretary-Superintendent.

THE ROYAL INFIRMARY, SHEFFIELD
(600 Beds.)

The Weekly Board of Management invite applications for the undermentioned posts which are tenable for six months from Jan. 1st, 1934:

TWO HOUSE SURGEONS;
HOUSE PHYSICIAN;
OPHTHALMIC HOUSE SURGEON;
ASSISTANT CASUALTY OFFICER; and
ASSISTANT AURAL AND OPHTHALMIC HOUSE SURGEON.

The salary attached to each appointment is £80 per annum, with board and residence; after six months' service £100 per annum.

Applications, with copies of testimonials, to be sent to the undersigned forthwith.

Board Room. JNO. W. BARNES, F.C.I.S., Gen. Supt. & Secretary.
December 4th, 1933.

THE PRINCESS BEATRICE HOSPITAL, Richmond Road, Earl's Court, S.W.5.
(General Hospital—80 Beds.)

ALTERATION OF DATE.

RESIDENT MEDICAL OFFICER (male) required to act as House Physician and Casualty Officer for six months as from January 1st, 1934. Salary at the rate of £110 per annum, with board, residence, and laundry. Previous resident experience essential. Applications to be sent to the House Governor, stating age and previous appointments, not later than Tuesday, December 12th, accompanied by copies of three recent testimonials.

THE PRINCESS ELIZABETH OF YORK HOSPITAL FOR CHILDREN
(Formerly East London Hospital for Children), Shadwell, London, E.1.

The Board of Management invite applications for the post of ASSISTANT PHYSICIAN. Candidates must be Graduates in Medicine of an English University and Fellows or Members of the Royal College of Physicians of London. There is an honorarium of £40 per annum attached to the post. Applications, with copies of testimonials, must be delivered to the undersigned by Monday, December 11th, from whom further information may be obtained.

By Order,
J. F. RUSSELL, Secretary.

THE ROYAL PORTSMOUTH HOSPITAL, PORTSMOUTH.
(Five Resident Medical Officers.)

Applications are invited for the post of HOUSE PHYSICIAN (male) qualified. Salary at the rate of £130 per annum, with board, etc., to commence duty on January 1st, 1934. Six months' appointment. Eligible on completion of term for extension or other resident posts. Applications, stating age, nationality, etc., and copies of three recent testimonials, to be sent to the undersigned not later than December 19th, from whom all particulars can be obtained.

B. WAGSTAFF, Secretary.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.1.

Applications are invited from duly qualified and registered medical men for the following post:

RESIDENT CASUALTY OFFICER.

Duties to commence February 1st, 1934, for six months. Salary £150 per annum. Candidates, who must have held previous resident Hospital appointments, should submit applications, stating age, and accompanied by copies of three recent testimonials, to the undersigned on or before January 6th, 1934.

REGINALD R. GARRATT, Secretary.

RESIDENT MEDICAL OFFICER. — THE Committee of Management of the HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.3, invite applications for the post of Resident Medical Officer. Salary £350 per annum, with board and residence, and an additional £50 for services in connection with paying patients. Candidates must be registered practitioners and qualified in Medicine and Surgery, single and not under 25 years of age. Applications, with copies of testimonials, must reach the undersigned not later than Monday, December 18th.

FREDERICK WOOD, Secretary.
Brompton, S.W.3. November, 1933.

ROYAL BERKSHIRE HOSPITAL, READING.

A vacancy for a HOUSE SURGEON will occur on January 9th, 1934. The candidates must be fully qualified and registered. Remuneration at the rate of £150 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, to be sent to the undersigned on or before Monday, December 11th.

F. A. LYON, Secretary.

INDIAN MEDICAL SERVICE

Recruitment of European Officers.

Applications are invited from medical men for permanent commissions in H.M.'s Indian Medical Service. The terms offered include a gratuity of £1,000 on retirement after six years' service, or £2,500 after 12 years' service, together with free return passages for those who no longer desire to remain in the Service. In other respects the terms will be as detailed below.

Candidates must be European British subjects under 32 years of age at the time of application, and must be registered under the Medical Acts in force in Great Britain and Northern Ireland

CAREERS.

The Indian Medical Service offers wide opportunities of medical experience, including clinical, preventive, specialist, and research work. At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army Promotion is on a time scale up to the rank of Lieutenant Colonel, and by selection to the ranks of Colonel and Major-General. An officer may apply after one year's Indian Service to have his name registered for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of civil officials and for general medical administrative purposes, to specialist (for example, public health and bacteriological) services; to research posts, and to professorships at the Medical Schools.

NOTE.—*It is not possible to state at present what, if any, prospects of employment on the civil side will be open to Indian Medical Service Officers under the proposed new constitution for India*

PAY.

Owing to the state of the financial emergency at present prevailing in India the existing monthly rates of pay, which are as follows, are subject to a temporary reduction of 5 per cent.

Rank.	Service in Rank.	Basic Pay.	Overseas Pay	Year of Total Service.
		Rs	Rs	
Lieut.	—	500	150	1st
			150	2nd
			150	3rd
Capt.	(i) During first 3 years' service as Captain	650	150	4th
			£15	5th
			£15	6th
	(ii) With more than 3 and less than 6 yrs' service as Captain	750	£25	7th
			£25	8th
			£25	9th
	(iii) With more than 6 years' service as Captain	850	£25	10th
			£25	11th
			£30	12th
Major	(i) During first 3 years' service as Major	950		
	(ii) With more than 3 and less than 6 years' service as Major	1100		
	(iii) With more than 6 years' service as Major	1250		
Lieut.-Col.	(i) Until completion of 23 years' total service	1500	£30	13th and over
	(ii) During 24th and 25th years service	1600		
	(iii) After completion of 25 years' total service	1700		
	(iv) When selected for increased pay	1850		

EXTRAS.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

ANTEDATES IN COMMISSION.

Any service rendered by an officer during the war as a medical or combatant officer, or in a position usually filled by an officer, may be counted as service for increments of pay, promotion, retirement and retired pay, but not for gratuity.

One half of any service in the ranks during the war may be counted as service for retirement and retired pay only.

Candidates possessing certain higher medical qualifications may be granted an antedate of one year in their commissions. Past service in certain hospital appointments may also render candidates eligible for an antedate of one year. Persons holding or about to hold resident posts at recognized hospitals may be seconded in those posts for a period not exceeding one year. The maximum period of antedate, secondment, or antedate and secondment combined, admissible under this paragraph, is limited to one year.

OUTFIT ALLOWANCE.

Officers on appointment will receive an allowance of £50 towards the cost of outfit.

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice, so long as it does not interfere with their proper duties.

LEAVE.

Leave can be taken at reasonable intervals, and adequate rates of leave pay are provided. Extra leave (known as study leave), which may not exceed 12 months in all during an officer's service, may be granted to officers desirous of pursuing special courses of study of a post-graduate nature. During such leave, study allowance, at present fixed at the rate of 12s. a day in the United Kingdom, £1 a day on the Continent of Europe, and £1 10s a day in the United States of America, is granted to an officer in addition to ordinary rates of leave pay.

PENSIONS.

The rates of pension are as follows.

	Per annum £
After 17 years' service for pension	400
,, 18 ,, ,, ,, ...	430
,, 19 ,, ,, ,, ...	460
,, 20 ,, ,, ,, ...	500
,, 21 ,, ,, ,, ...	540
,, 22 ,, ,, ,, ...	580
,, 23 ,, ,, ,, ...	620
,, 24 ,, ,, ,, ...	660
,, 25 ,, ,, ,, ...	700
,, 26 ,, ,, ,, ...	750
,, 27 ,, ,, ,,	800

These rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent. in all. At present a reduction of 8⅓ per cent is being made on this account

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

PASSAGES.

An officer on appointment is provided with free passage to India. The families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges

Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot, lasting approximately six months, prior to their embarkation for India on first appointment Information as to the rates of pay admissible during this period and subsequently up to arrival in India is contained in the memorandum referred to below.

A memorandum giving full details regarding these appointments and forms of application may be obtained from the Under-Secretary of State for India, Military Department, India Office, London, S.W.1. The Selection Committee will meet at the India Office early in January next, and the selected candidates will be required to join a course of instruction commencing early in February, 1934, prior to sailing for India in the Autumn of 1934. Applications should be submitted as soon as possible.

SHANGHAI MUNICIPAL COUNCIL.

PUBLIC HEALTH DEPARTMENT.

ASSISTANT MEDICAL OFFICER.

An additional Assistant Medical Officer is required in the Public Health Department of the Shanghai Municipal Council.

Candidates, who may be of either sex, preferably unmarried should be less than 30 years of age, and have general experience both in Clinical and Laboratory work. A knowledge of manufacture of vaccines is desirable. Some experience of Clinic work or school medical examination would be an added qualification. The candidate appointed would, however, be expected to be able to work either in a Laboratory or in charge of hospitals according to the exigencies of the Service. He would gain practical experience in Small-pox Lymph manufacture, Rabies treatment and diagnosis, cholera work, etc., and whether employed on the clinical or laboratory side would be working in reasonably modern and well-equipped establishments with opportunities for research.

Salary for three years, Taels 650 per mensem, or Taels 700 per mensem if holding a D.P.H. or its equivalent. Thereafter rising by triennial increements of Taels 100 to Taels 1,250 or Taels 1,300 if with D.P.H., subject to satisfactory service. After six years on the maximum pay a final long service increase of Taels 100 per mensem is granted.

Service is under Letter of Appointment which is for three years in the first instance.

The present value of the Tael may be estimated at 1/9, but further particulars regarding pay, repatriation pay, the rate of exchange, leave rules, superannuation fund, and other benefits, may be obtained from the COUNCIL'S AGENTS.

First-class passages provided with half pay during voyage and seven months' leave is given on full pay with first-class passage after every period of 5 years' service in Shanghai.

Enquiries which should be endorsed "Assistant Medical Officer" should be forwarded to the COUNCIL'S AGENTS immediately.

JOHN POOK AND COMPANY,
Agents for the Municipal Council of Shanghai.
68, Fenchurch Street, London, E.C.3.
December, 1933.

CENTRAL LONDON OPHTHALMIC HOSPITAL.

Judd Street, St. Pancras, W.C.1.

Applications are invited from registered medical practitioners for the post of JUNIOR HOUSE SURGEON, which will become vacant on December 27th. Salary £100 per annum, with board and residence.

Applications, with copies of three testimonials, should reach the undersigned on or before Friday, December 15th.

GEORGE WATTS, Secretary.

THE STAMFORD, RUTLAND & GENERAL INFIRMARY, STAMFORD.

HOUSE SURGEON (British, male or female) wanted for December 30th, for a period of six months. Salary at the rate of £200 per annum, with board, residence, and laundry in the Infirmary. Candidates to forward three recent testimonials, with particulars as to age, qualifications, and experience, to us not later than December 16th.

STAPLETON & SON,
Stamford. Secretaries.

MACCLESFIELD GENERAL INFIRMARY.

(General Hospital—100 Beds.)

A vacancy for a SECOND HOUSE SURGEON will occur early in January for a period of six months. Salary £150 per annum, with board and residence. Candidates must have had experience in the administration of Anæsthetics.

Applications, with copies of three testimonials, should be sent to the undersigned.

A. E. HANRAHAN, Secretary.

KING GEORGE HOSPITAL, ILFORD

(8 miles from London).

Wanted, a HOUSE SURGEON, to commence duty on January 1st, 1934, for a period of ten months; eight months as House Surgeon, and two months as Deputy Resident Medical Officer in charge of the Casualty Department. Salary £100 per annum; £10 bonus on completion of appointment, and two weeks' holiday. Forms of application may be obtained from the undersigned.

C. HEPWORTH, Secretary.

BRISTOL GENERAL HOSPITAL.

The Committee invites applications for the following appointments, which became vacant on February 1st next:

TWO HOUSE PHYSICIANS; TWO HOUSE SURGEONS; RESIDENT OBSTETRIC OFFICER; HOUSE SURGEON to the Special Departments; and a CASUALTY HOUSE SURGEON.

The appointments will be for six months at salaries at the rate of £80 per annum, and at the rate of £100 per annum for the Casualty House Surgeon, and in the event of second appointments being held, at the rate of £100 per annum in each case, with board, residence, etc., provided in the Hospital.

Candidates must be registered under the Medical Acts and produce testimonials of good personal character and ability, and must have recent experience in the administration of anæsthetics.

Forms of application, etc., to be obtained from the Secretary must be returned completed with copies of testimonials, addressed to the undersigned on or before Monday, January 1st, 1934, from whom further particulars may be obtained.

THOMAS W. GREGG, Secretary.

CITY OF STOKE-ON-TRENT.

RESIDENT MEDICAL OFFICER AND ASSISTANT TUBERCULOSIS OFFICER.

Applications are invited for the post of Resident Medical Officer and Assistant Tuberculosis Officer at a salary of £350 per annum, together with board and residence, at the Stanfield Sanatorium, Stoke-on-Trent, for one year only.

Applicants must have had previous experience in the treatment of tuberculosis. General Hospital experience or the possession of the Diploma in Public Health will be considered additional qualifications. The successful candidate will be required to carry out any other duties when called upon by the Medical Officer of Health.

Applications, stating age, qualifications, and experience, accompanied by copies of not more than three recent testimonials, and endorsed "Resident Medical Officer," to be forwarded to the undersigned on or before December 15th.

Town Hall, E. B. SHARPLEY,
Stoke-on-Trent. Town Clerk.
November 29th, 1933.

THE CHILDREN'S HOSPITAL, SHEFFIELD.

(110 Beds—Three Residents.)

Applications are invited for the following post, vacant January 1st, 1934:

HOUSE SURGEON.

The appointment is for six months, with salary at the rate of £100 per annum, with board, residence, and laundry.

Candidates (male and unmarried), who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of three recent testimonials to the undersigned.

T. H. G. GARTLAND, Secretary.

SOUTH EASTERN HOSPITAL FOR CHILDREN, Sydenham, S.E.26.

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER (Lady). The appointment will be for six months from December 27th. Honorarium £120 per annum, with board, residence, and laundry. Applications by letter only, stating age and qualifications, with copies of three testimonials, should be sent to the Hon. Secretary, Mr. E. E. DENT, 182, Turney Road, Dulwich Village, S.E.21, to be received not later than Saturday, December 16th.

THE GENERAL HOSPITAL, BIRMINGHAM.

Applications are invited from qualified Medical Practitioners for the post of RESIDENT SURGICAL REGISTRAR for twelve months, in the first instance, from January 1st, 1934, at a salary at the rate of £100—£20—£140 per annum.

Applications must reach the undersigned not later than December 18th.

A. H. LEANEY,
December 5th, 1933. House Governor.

MANCHESTER HOMOEOPATHIC DISPENSARY, Gt. Jackson St., MANCHESTER.

ASSISTANT MEDICAL OFFICER.

Applications are invited for the above position (non-resident), which offers an opportunity for valuable experience with the certainty of a good Practice in due time. Salary £150 per annum.

Applications should be addressed to the Honorary Secretary, 55, Dale Street, Manchester.

CITY AND COUNTY OF KINGSTON-UPON-HULL.

HULL MUNICIPAL MATERNITY HOME AND INFANTS' HOSPITAL. (104 Beds.)

JUNIOR RESIDENT MEDICAL OFFICER (Woman).

Applications are invited from unmarried or widowed Women Medical Practitioners for the appointment of Junior Resident Medical Officer at the above Institution.

Salary £100 per annum, together with board, washing, and residence at the Maternity Home. Salary at present subject to a temporary deduction of 2½ per cent. under the City Council's economy measures.

The appointment will be for six months with a possible extension for a further period of six months.

Forms of application and conditions of appointment may be obtained from the undersigned.

Completed applications (in an envelope endorsed "Junior Resident Medical Officer, Maternity Home."), together with copies of three recent testimonials, must be received by me not later than mid-day on Tuesday, Dec. 12th.

Guildhall, NICOLAS GERBIE, M.D.,
Hull. November, 1933. Medical Officer of Health.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL.

Wanted, to commence duties early in January, RESIDENT HOUSE SURGEON (male or female and unmarried) possessing a medical and surgical registered qualification. Practical experience in the administration of anæsthetics is required.

Salary £175, with apartments, board, and laundry. All applications, stating age, etc., with copies of testimonials, to be sent to me at once.

9, Leicester Rd., FRANK H. TOONE,
Loughborough. Secretary.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.

PUBLIC HEALTH LABORATORY.

Applications are invited for the post of WHOLE-TIME ASSISTANT. Applicants must be registered Medical Practitioners with some experience of practical bacteriology, preference given to holders of D.P.H.

Commencing salary £350 per annum.

Applications, with copies of three recent testimonials, should be submitted not later than December 20th to the Registrar, College of Medicine, Newcastle-upon-Tyne.

RADCLIFFE INFIRMARY AND COUNTY HOSPITAL, OXFORD.

Applications are invited for the post of HOUSE PHYSICIAN which will become vacant on January 1st, 1934.

The appointment is for six months, with salary at the rate of £120 per annum, with board, etc.

Candidates must be male and qualified.

Applications, with four copies of three testimonials, must be sent to the undersigned on or before Tuesday, December 12th.

A. G. E. SANCTUARY, Administrator.

HARROGATE ROYAL BATH HOSPITAL.

(Special Hospital for Rheumatic and Allied Diseases.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male) to commence duties beginning February 1st, 1934.

The appointment will be for a period of six months. Salary at the rate of £156 per annum, with board, residence, and laundry.

Applications, stating qualifications, age, etc., with copies of recent testimonials, to be forwarded to the undersigned on or before Wednesday, January 10th, 1934.

E. P. L. DIXON, M.A., Secretary.

BECKETT HOSPITAL AND DISPENSARY, BARNSLEY. (155 Beds.)

CASUALTY OFFICER (male) required, January 8th, 1934, to deal with the injuries and fractures. Capability to perform emergency operations a recommendation.

Salary £250 per annum, together with board, residence, and laundry.

Applications, stating age, qualifications, and experience (Ophthalmology desirable), accompanied by testimonials, should be sent to the undersigned by December 16th.

ARTHUR L. BOURNE,
December 5th, 1933. Secretary-Supt.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the *Medical Secretary of the British Medical Association* B M A House Tavistock Square W C 1 (in the case of Scottish appointments, with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh)

(a) British Islands.

Town or District	Town or District	Town or District
CONTRACT PRACTICE	**CONTRACT PRACTICE** *(contd)*	**CONTRACT PRACTICE** *(contd)*
EBBW VALE MON *(Workmen's Medical Society)*	MARDY GLAMORGAN *(Workmen's Medical Scheme)*	OGMORE VALLEY GLAMORGAN *(Wyndham Colliery Medical Aid Society)* *(Workmen's Medical Scheme)*
CILFACH GOCH GLAMORGAN *(Workmen's Medical Scheme)*	NEATH AND DISTRICT *(Medical Aid Association)*	**PUBLIC HEALTH**
LLWYNPIA CTYDACH VALE PENYGRAIG GLAMORGAN *(Workmen's Medical Scheme)*		GLOUCESTERSHIRE EDUCATION COMMITTEE *(Lady School Medical Inspector)*
LOWESTOFT MEDICAL INSTITUTE *(Medical Officer)*	OAKDALE MON *(Medical Officer for Medical Aid Association)*	KENT COUNTY COUNCIL FARNBOROUGH INSTITUTION HOSPITAL *(Resident Assistant Medical Officer)*

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B M A House Tavistock Square, W C 1.

Town or District	Hon Sec of Division or Branch	Town or District	Hon Sec of Division or Branch	Town or District	Hon Sec of Division or Branch
NEW SOUTH WALES. *(All Friendly Society Appointments)*	Dr J G HUNTER (Medical Secretary New South Wales Branch), 135, Macquarie St, Sydney, N S W	**QUEENSLAND.** *(Brisbane Associated Friendly Societies Institute)*	The Hon Sec Queensland Branch British Medical Association, B M A Building Adelaide St, Brisbane	**WELLINGTON, NEW ZEALAND** *(Contract Practice Appointments)*	Dr G F V ANSON (Hon Sec New Zealand Branch) British Medical Association P O Box 156 Wellington New Zealand
VICTORIA. *(All Institute or Medical Dispensaries)*	Dr J P MAJOR (Hon Sec., Victorian Branch British Medical Association Medical Society Hall, East Melbourne, Victoria.	*(Toowoomba Associated Friendly Societies Medical Institute Toowoomba)*		**WESTERN AUSTRALIA.** *(Contract and Lodge Practices)*	Hon Sec, Western Australian Branch British Medical Association No 6 Bank of N S W Chambers, St George's Terr Perth, Western Australia

December 6th, 1933 By Order of the Council G C ANDERSON Medical Secretary

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MANCHESTER ROYAL INFIRMARY

RESIDENT MEDICAL OFFICER

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment which will become vacant on February 1st 1934

Applicants must not be less than twenty five years of age They must be registered, and hold a Medical and Surgical qualification

The appointment is for twelve months, renewable for a period of one year

Salary £200 per annum with board, residence and laundry allowance

Full information is obtainable from the undersigned to whom applicants must send twelve copies of their application and testimonial on or before 9 a m on Thursday, December 14th

By Order
FRANK G HAZELL
Nov 24th, 1933 Gen Supt & Sec.

THE CANCER HOSPITAL *(FREE)*
(Incorporated under Royal Charter),
Fulham Road London S W 3

The Committee are prepared to receive applications for the post of HOUSE SURGEON to commence duties on February 1st, 1934 Salary at the rate of £100 per annum

The appointment is for six months and subject to rules a copy of which may be obtained from the Secretary

Previous experience as a House Surgeon is indispensable

Applications with three (copies only) testimonials to be sent to the undersigned not later than the first post on Saturday, Dec 16th

CLEMENT COBBOLD, Secretary

ROYAL EASTERN COUNTIES INSTITUTION FOR DEFECTIVES

MEDICAL SUPERINTENDENT required for the Branch at BRIDGE HOME Witham Essex (370 male beds) Age not over 40 Must have had not less than two years residential experience in a mental deficiency institution a mental hospital, or a public assistance institution General experience will be an additional qualification

Commencing salary £550 a year Rooms (sitting room, bathroom and 2 or 3 bedroom) with board attendance and laundry will be provided temporarily till a Superintendent's house is built Wife or children's board etc will be charged at a rate to be agreed on depending on age, but at not more than £1 per week each

Apply before December 14th giving age qualifications experience married or single and copies of testimonials to Medical Superintendent Royal Institution, Colchester

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NORFOLK AND NORWICH HOSPITAL
NORWICH (392 Beds)

Applications are invited for the following posts (a) HOUSE SURGEON (b) HOUSE SURGEON to Special Department (Ear Nose and Throat and Ophthalmic) Preference will be given to candidates who have held previous Hospital appointments Salary for both posts £120 per annum, with board residence and laundry Candidates (male) who must possess registered qualifications should forward applications stating age nationality, etc, together with copies of testimonials, to the undersigned not later than first post on Tuesday Dec 12th

FRANK INCH,
Dec. 2nd, 1933 House Gov & Sec.

THE LADY CHICHESTER HOSPITAL, HOVE (For Early Nervous Disorders).
(60 Beds)

Medical Woman required as HOUSE PHYSICIAN for six months Salary at the rate of £100 per annum with board lodging and laundry

Also JUNIOR required with board lodging, and laundry and honorarium at the rate of £50 per annum The successful candidates will be required to enter on their duties on January 1st 1934

Applications must be made in writing and be accompanied by testimonials and sent to the Secretary Mr P F SPOONER 10 Old Steine Brighton

November 25th, 1933

BIRKENHEAD GENERAL HOSPITAL.
(195 Beds)

Applications are invited for the appointment of HONORARY ASSISTANT SURGEON

Candidates must be Fellows of the Royal College of Surgeons of England or Edinburgh, or be prepared to obtain this qualification within 3 years of appointment

Application stating age qualifications and experience accompanied by copies of three testimonials, should be sent to the undersigned not later than December 16th

Candidates will be required to furnish sixty copies of their application and testimonials for the use of the Committee and Medical Board.

Canvassing is prohibited and will disqualify

W H DANIELS F C I S
November 27th, 1933 Secretary Supt

British Medical Journal
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1
T/A: ARTICULATE, WESTCENT, LONDON.
Tel.: EUSTON 2111 (4 lines).

SMALL ADVERTISEMENT RATES.

Up to Six Lines (32 Words) 9s.
Each Additional Line, 1s. 6d.
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MEMORIAL TO THE LATE DR. PERCY T. HUGHES

A FUND has been opened by the Staff of the Worcestershire Mental Hospital with the object of ERECTING A MEMORIAL to the late Dr. Hughes, Medical Superintendent of that Hospital from 1906 to 1933, and Lecturer on Mental Diseases in the University of Birmingham. Former colleagues and other friends are invited to join in subscribing to the Fund. Contributions may be sent to the Honorary Treasurer, Mr. W. M. J. COLEMAN, Clerk's Office, Barnsley Hall Mental Hospital, Bromsgrove, Worcestershire, by whom they will be gratefully acknowledged, or to the present Medical Superintendent. The Fund will be closed on January 15th, 1934.

A Meeting will be held thereafter to decide the form of the Memorial.

MR. C. F. BACON, R.N., RET.—THE WIDOW of the above would be very grateful if the London nerve specialist, who examined her husband on, or about, October 14th, 1931, would COMMUNICATE with her at Boughton Lane, Loose, Maidstone, Kent.

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WITHIN 20 MILES OF LONDON, NORTH. Share in mixed and panel Practice, guaranteed at £600, with option to increase. Fees 5/- to 21/-. Small house to rent in rapidly growing district.—No. 9233.

EASTERN COUNTY.—AVERAGE £1,190 P.A., with small panel. Very old-established Town PRACTICE. Fees 7/6 and 5/-. Mids. £4 4s. House, with 3 recep., 4 bedrooms, and dressing. Sep. Surgery, etc., and garden. For sale. Prem. £2,200 payable as agreed.—No. 9226.

LONDON, N[illegible] year
creasing ample
£1,250. Pane 7/6.
scope. Car no
Surgery 2/6—3/6. Premises in main road comprise cons. and wait. rooms, and 7 living rooms. Rent on lease at £150 p.a., or sell Pshold. Prem. for goodwill £2,000.—No. 9224.

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LANCASHIRE.—PARTNERSHIP in old established industrial G P. Scope for surgery. Receipts £2,250 p.a. Panel approximately 2,900. Freehold house if desired at £700. Premium for two-thirds share 2 years' purchase, to include book debts, drugs, etc.

LONDON, S.W.—Old established middle class G P., situated in pleasant residential locality. Excellent scope for energetic man with good personality. Detached corner house, garden and garage. Receipts approx. £500 p.a. Panel 300. Premium for Practice and freehold house £2,000.

LANCS.—Old established Town PRACTICE with excellent house to rent or may be purchased. Receipts nearly £1,600 p.a. Panel approximately 800. Premium 1½ years purchase.

MON.—Old-established Colliery PRACTICE. Medium sized house to rent at £60 p.a. Receipts approximately £900 p.a. (including Panel and appointments of £600 p.a.). Prem. 2 years purchase or near offer.

MIDDLESEX, N.W.—Middle class G P situated in rapidly growing residential locality. Charming modern house to be rented or freehold may be purchased. Large garden with tennis lawn, fruit trees etc. Average receipts £640 p.a. Panel 268. Excellent all round scope. Premium £950.

HAMPSHIRE (Coast).—Good class PRACTICE suitable for semi-retired Practitioner. Receipts average over £600 p.a. Panel 542. Excellent detached house with large garden and garage for rental or leasehold may be purchased. Premium for Practice £1,000.

YORKSHIRE.—PARTNERSHIP in better class suburban Practice. Suitable house available. Receipts £3,890 p.a. Panel over 3,000, rapidly increasing. Good appointments. ⅛ 2/8 share for disposal at 2 years' purchase. Suitable only for Bachelor.

LONDON.—Old established mixed middle and working-class G P. House to be rented on lease. Average receipts nearly £1,000 p.a. Panel 1,180 (increasing). Fees 2/6 up. Two appointments. Premium to include certain furniture, etc. 2 years' purchase.

LANCS (Seaport Town).—Mixed middle and working-class PRACTICE. Good house to rent on lease. Receipts approximately £1,000. Panel 500. Appointments. Premium 1½ years purchase.

SOUTH COAST.—Well established select G P. Excellent freehold house (3 reception rooms, 4 bedrooms, garage, etc.). Receipts approx. £800 p.a. Premium 2 years purhase. For freehold house £1,750 (a suitable mortgage could be arranged).

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2 S.W. OF ENGLAND—OLD-ESTABLISHED PRACTICE AVERAging £1,253 p.a. in delightfully situated Market Town. Nice house standing in own grounds. Price £1,050. Premium for Practice £1,880.

3 LONDON, S.W. — PARTNERSHIP IN OLD-ESTABLISHED Practice of about £2,600 p.a., in pleasant Suburban District. Small panel. Visiting fees 5/- to 7/6. Corner residence (5/6 bedrooms) with garage and garden. Good educational facilities. Premium one-half share, one and a half years' purchase.

4 S.W. OF ENGLAND.—WELL-ESTABLISHED PRACTICE IN Market Town. Receipts average £1,400 p.a., including good panel. Very good house (7 bedrooms) with good garden for sale. Premium two years' purchase.

5 SOUTHAMPTON.—NUCLEUS OF PRACTICE (HELD BY MEDIcal Woman) in rapidly growing area. Receipts 1932, £170; those for 1933 show considerable increase. Six-roomed house, with garden and garage, in good position on main road. Ample scope for increase. Premium—House and Nucleus—£1,000.

6 MIDLANDS.—PARTNERSHIP IN WELL-ESTABLISHED PRACtice of about £1,400 p.a. in a rapidly growing residential District. Panel over 1,600. Excellent chance for young energetic man. Premium one-third share, £800.

7 N. OF ENGLAND. — OLD-ESTABLISHED NON-DISPENSING PRACTICE, averaging £920 p.a., in important City. No panel. House (6 bedrooms, etc.) in best residential part with garage and walled-in garden to rent. Considerable scope for young energetic man. Premium £1,250.

8 S. MIDLANDS.—VERY OLD-ESTABLISHED COUNTRY PRACTICE, about £630 p.a., in beautiful part—about 25 miles from London. Panel 419. Excellent house (7 bedrooms) with central heating, electric light, main water, and new drainage. Garages and garden of over an acre, also orchard, and 13 acres of land to rent on lease. The property is admirably adapted for the reception of Resident Patients. Scope for increase. Premium one and a half years' purchase.

9 S. MIDLANDS. — PARTNERSHIP IN OLD-ESTABLISHED Practice of about £3,300 p.a. in growing Country Town. Panel 1,986. Visits 5/- (cash), 6/6, 7/6, 10/6. Not much midwifery. Choice of houses. Considerable scope for increase as building is going on at a great rate. Premium one-half share two years' purchase, cash.

10 WITHIN 15 MILES OF LONDON.—PARTNERSHIP IN SOUND old-established Practice in important and growing Town. Cash receipts average £5,257 p.a., including appointment and clubs, and panel 3,800. Visiting fees 4/- to 10/6 (few 3/-). Small detached house (2 large bedrooms), etc., for sale or rent. Premium one-fourth share, two years' purchase. Good Hospital.

11 SHROPSHIRE.—WELL-ESTABLISHED PRACTICE AVERAGing £700 p.a., in pleasant Market Town. Panel 170. House to rent Scope for increase. Premium one and a half years' purchase.

12 NORTHAMPTONSHIRE. — PARTNERSHIP IN OLD-ESTABlished Practice, averaging £1,718 p.a., in small town. Panel 1,930. Good scope for young energetic man. Premium for two-fifths share two years' purchase.

13 KENT COAST.—NUCLEUS OF PRACTICE (HELD BY MEDICAL Woman), in small pleasant Town. Panel and Public Medical Service recently started. Visits 5/- to 10/6, medicine extra. No midwifery. Well-situated house (5 bedrooms), central heating, electric light, good garden, and garage, to rent. Scope for increase as building is going on. Good local Hospital. Reasonable offer entertained.

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Practices and Partnerships for Disposal (continued).

14 MIDLANDS — VERY OLD ESTABLISHED AND EASILY worked Country PRACTICE about 8 miles from the County Town Cash receipts average between £650 and £700 p.a., including panel about 600 Suitable house with 4 bedrooms electric light, garage and garden for sale Price £1,300 freehold Scope for young energetic man Premium one year's purchase

15 LONDON, E.—OLD ESTABLISHED PRACTICE OF £250 P.A. in the Forest Gate district Panel 60 No midwifery Modern house (5 bedrooms) in good residential part Electric light and heating and nice garden for sale or rent Scope for increase Premium £585

16 S. DEVON — OLD ESTABLISHED PRACTICE IN PICturesquely situated Watering Place Receipts average £1,173 p.a. including panel 474 Excellently situated house in very good state of repair both inside and out, containing 8 bedrooms etc Price of leasehold £800 The Practice is particularly suitable for one not too robust or young who needs country life. Salmon river, and sea fishing, hunting, etc Cottage Hospital Premium £1,850

17 PARTNERSHIP IN OPHTHALMIC PRACTICE IN FIRST RATE town Applicants should be well qualified, aged 30—40, and experienced

18 BIRMINGHAM — PARTNERSHIP IN WELL-ESTABLISHED and increasing Practice in good Suburb Panel over 1,200 rapidly increasing Suitable house to rent Excellent scope and unrivalled prospects for the right man Premium for share worth about £800 p.a., £1,350

19 LONDON, S.W.—WELL ESTABLISHED OPHTHALMIC PRACTICE averaging £900 p.a. in Suburban District Fee for consultation and examination £1 1s Well situated house to be sold or let Premium £1,200

20 S. WALES — PRACTICE BETWEEN £250—£300 P.A. IN beautifully situated village about 4 miles from important town Small panel Nice house (6 bedrooms) electric light gas and company's water Garage and garden Premium house and Practice only £1,500 for quick sale

21 W. OF ENGLAND.—PARTNERSHIP IN OLD ESTABLISHED Practice over £2,200 p.a. in County Town Panel about 1,000 Visiting fees 5/ to £1 11s 6d Suitable house available Excellent educational facilities Premium one half share two years purchase Exceedingly good prospects for well qualified physician (preferably a M.R.C.P.) with opportunity of getting on staff of Hospital in near future

22 LONDON, S.E.—LOCK UP PRACTICE OF ABOUT £350 P.A. in Suburban District within 5 miles of Charing Cross Panel 320 Premises consisting of Surgery and Waiting Room on ground floor, to rent on lease Premium £500, or near offer

23 N. OF ENGLAND.—SPA PRACTICE, AVERAGING £380 P.A. in famous Health Resort Fees £1 1s and £2 2s, occasionally 10 6 Semi-detached corner house (5—6 bedrooms) in best part which can be rented Premium £500

24 SHROPSHIRE BORDER — WELL-ESTABLISHED PRACTICE in large Industrial Village amidst beautiful country Income about £700 p.a. including panel, rapidly increasing Small detached modern house (4 bedrooms) with electric light, gas, for sale or rent All kinds of sport Cottage Hospital Premium £800 Would suit either Medical Man or Medical Woman

25 SURREY — PARTNERSHIP IN SOUND OLD ESTABLISHED good mixed-class Practice about £2,650 p.a. in the Croydon area Small panel Very little midwifery Scope for increase. Premium one half share 2 years purchase

26 MIDDLESEX — MIXED WORKING CLASS PRACTICE OF about £1,020 p.a. in rapidly growing district within 10 miles of the Marble Arch Panel about 1,120 Corner house (5 bedrooms), with garage and fair sized garden, for sale Scope for increase Premium £2,000

27 S. COAST.—NON-DISPENSING PRACTICE AVERAGING OVER £450 p.a. in well known Health Resort Panel 250 Visits 3/6 to 10/ House in excellent position, facing sea, and containing 6 bedrooms etc Price of freehold £2,400 Premium for Practice £400

28 LONDON, E.C.—OLD ESTABLISHED PRACTICE OF ABOUT £1,650 p.a., including appointments, panel and Public Medical Service, worth over £500 p.a. Visits 2/6 to 7/6 Practically no midwifery Introduction up to 12 months will be given. Premium £1,500

29 N.E. COAST.—OLD ESTABLISHED PRACTICE IN SEAPORT Town Cash receipts average £1,260 p.a., including appointments worth £130 p.a. and a panel of 1,115 Corner house (4 bedrooms), with separate surgery accommodation Premium for House and Practice £2,600

30 S. WALES.—SMALL PRACTICE IN A COLLIERY DISTRICT doing about £150 p.a. Accommodation to rent. Scope for young energetic man Premium £150

31 N. KENSINGTON.—PRACTICE OF ABOUT £300 P.A. PANEL 200 Corner house to rent Premium £475

32 NOTTINGHAM.—SMALL PRACTICE OF ABOUT £255 P.A. Panel 200 Corner house (4 bedrooms) Rent £60 p.a. Premium £500

33 EASTERN COUNTIES.—COUNTY TOWN.—VERY OLD ESTABlished middle and upper class PRACTICE averaging £1,190 p.a. Panel 120 Visiting fees 7/6 to 15/6 Ten roomed house in good residential part with garage and garden for sale Scope Premium £2,200

34 LONDON, S.W.—WELL ESTABLISHED EYE, EAR, NOSE AND Throat Connection in Suburban District Cash receipts last twelve months £432 (mostly from Eye work) including appointment worth about £120 p.a. Corner detached non-basement house (7 bedrooms) with garages and very nice garden Price of freehold and Practice, £2,350

35 GLOUCESTERSHIRE.—PARTNERSHIP IN VERY OLD ESTABlished Practice of nearly £1,750 p.a. in small town in beautiful part of the country Panel over 1,350 Fees average 7/6 Premium one half share 2 years purchase.

36 FAMOUS INLAND WATERING PLACE AND HEALTH Resort.—Well established non-dispensing PRACTICE. Receipts last three years averaged £986 p.a., including a select Panel of 280 Fees 5/ to £1 1s Particularly attractive house with large garden, for sale Scope Premium £750

37 SUFFOLK AND NORFOLK BORDERS.—PRACTICE OVER £300 in Market Town Panel 87 Nice house (6 bedrooms) garage, and good sized garden Price of freehold £850 Excellent chools Plenty of sport Cottage Hospital Premium £450

38 LONDON, E.—CASH AND PANEL PRACTICE OF OVER £600 p.a. in populous district Panel 590 Small house to rent on lease Premium £800

39 LONDON, W.—GOOD MIDDLE CLASS PRACTICE £400 P.A. in suburb within easy access of the West End Panel over 100 Attractive double fronted house with nice garden for sale Scope for increase Premium 1½ years' purchase.

40 HOME COUNTIES — OPHTHALMIC PRACTICE BETWEEN £300 and £400 p.a. in desirable Residential Town under 15 miles from London Good detached house (4 bedrooms) with large garden for sale Good reasons for plenty of scope for increase. Premium £300

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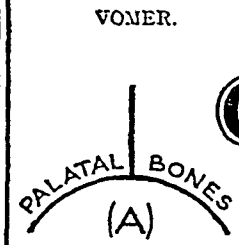
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WB 301

Jaw distortion in Infancy

When an infant is put to the breast it obtains its food by a pushing and munching action. In the artificial feeding of infants, however, the usual course is to allow the baby to suck at a teat and this results in quite a different method of jaw movement and a different mode of jaw development.

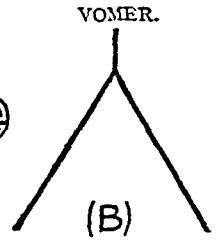
The dental arches of most artificially fed infants are narrowed and this gives rise to abnormalities in nasal structure which favours the incidence of enlarged tonsils, adenoids and protruding teeth.



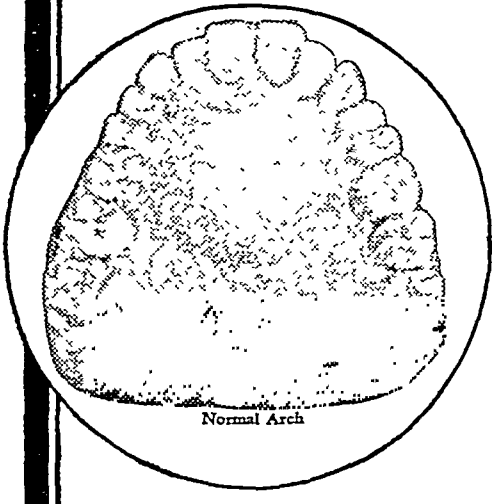
A.—Normal Palate.

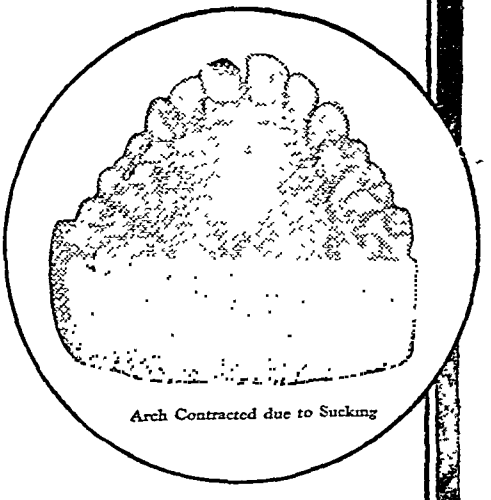
The

Cow & Gate NATURAL TEAT



B.—Abnormal Palate.


Normal Arch


Arch Contracted due to Sucking

is designed to overcome these drawbacks. By its use, the infant can only derive its food by a natural munching action. This teat will therefore prevent malformation of the palate bones and will ensure a natural and normal jaw development.

Full information and trial teats may be had on application.

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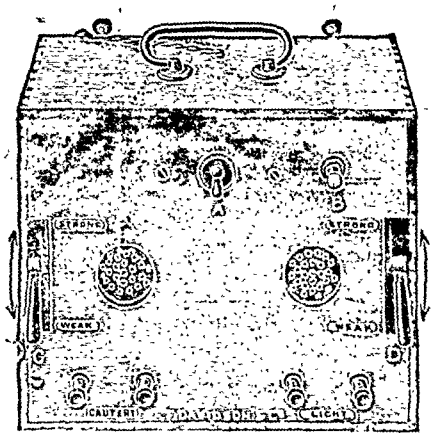
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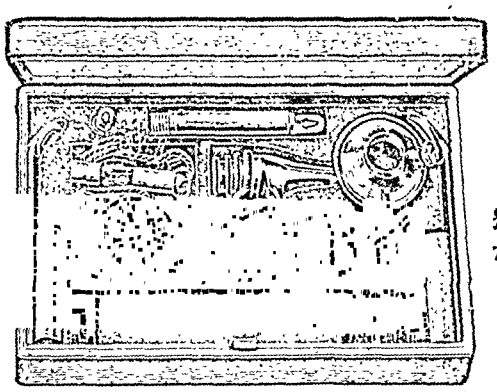
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FOR LIGHT AND CAUTERY
Price £6 10 0
10½" × 8" × 5"
Weight 14 lbs.

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Contained in box with carrying handle.
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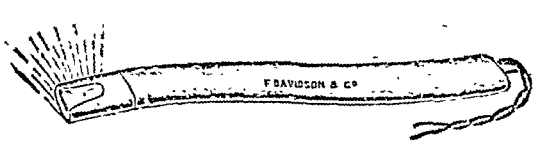
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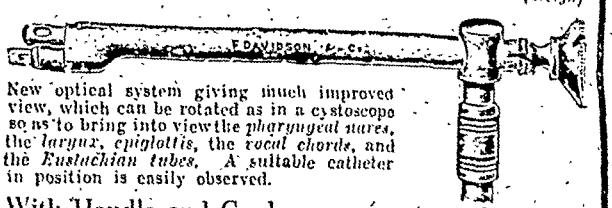
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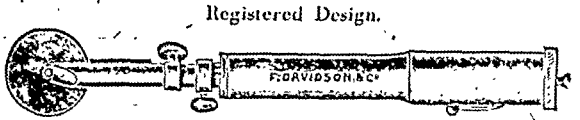


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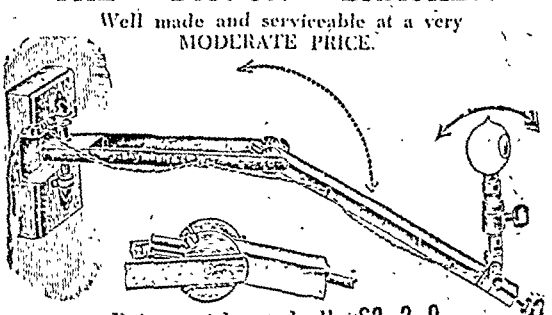


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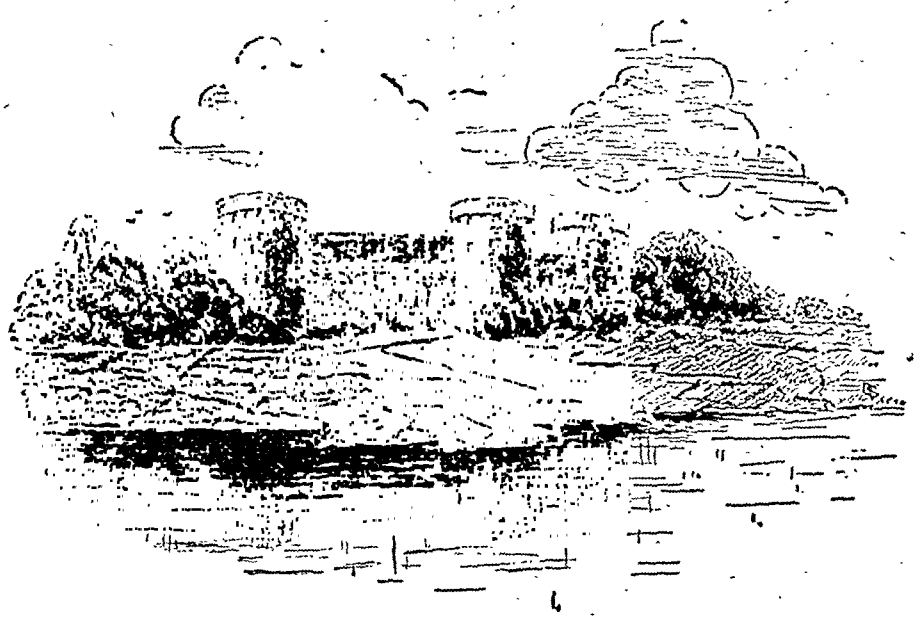
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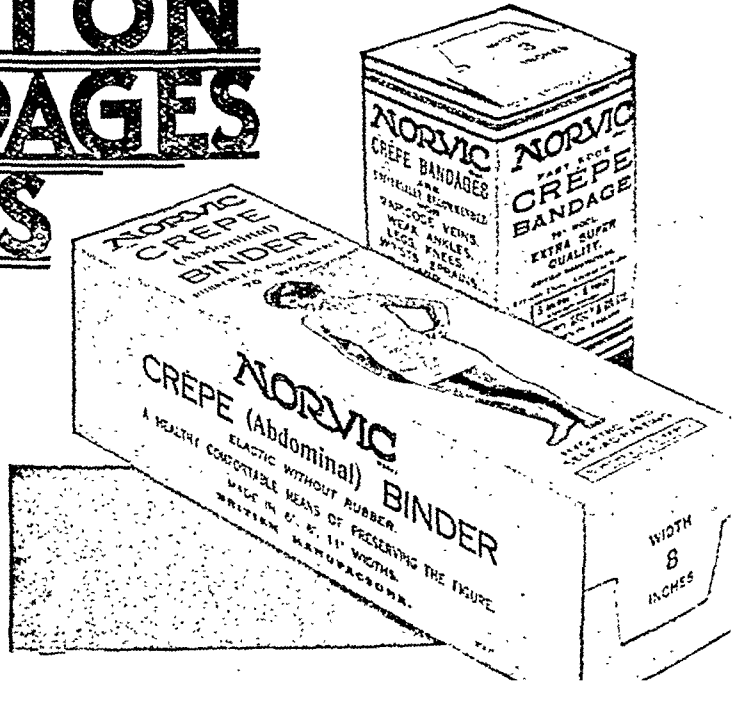
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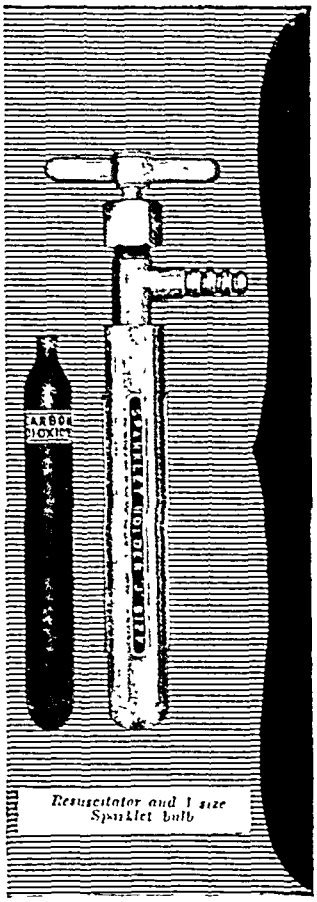
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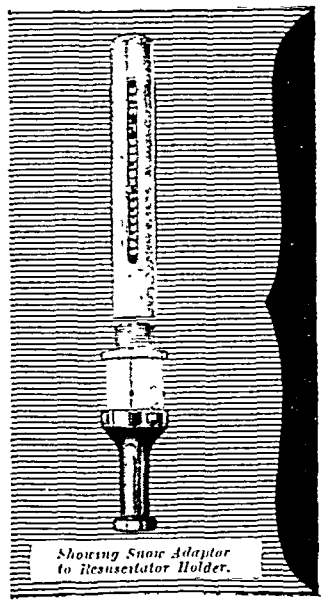
Extra if required:—

RUBBER BAG AND FACE MASK, for use in the administration of oxygen, or oxygen and CO_2 Mixture Gas Mention whether ADULT or INFANT size mask is required . 17/6

RUBBER TUBING with NASAL TIP, for use in treatment of ASTHMA, VASOMOTOR RHINITIS, and HAY FEVER 2/6

Of all leading Surgical Instrument Houses.

The Sparklet Pocket RESUSCITATOR



Showing Snow Adaptor to Resuscitator Holder.

MAKE YOUR OWN CO_2 SNOW PENCILS

Not only can the RESUSCITATOR, above described, be used for the administration of Carbon Dioxide in respiratory emergencies, and in the treatment of ASTHMA, HAY FEVER, etc., but with the aid of the Sparklet CO_2 SNOW ADAPTOR, CO_2 Snow Pencils may be produced by the Practitioner, INSTANTLY—ANYWHERE—and at LOW COST.

Write for booklets "The Uses of Carbon Dioxide in General Practice" and "The Uses of Carbon Dioxide Snow in the Treatment of Skin Blemishes" to—

Sole Makers: SPARKLETS LTD., Head Office, LONDON, N.18.
Town Showroom: 93, REGENT STREET, W.1.

ADAPTOR .. 12/6
RESUSCITATOR HOLDER, if required... ... .. 5/-
Prices in British Isles

The Sparklet Pocket CO_2 SNOW ADAPTOR

Body Support in Sickness

TWO IDEALS ACHIEVED

1. MINIMUM SURFACE UNIT PRESSURE

An improvement of far reaching consequence has recently been made in supporting the body during illness, as a result of the introduction of Dunlopillo Cellular Latex, an entirely new material made up of innumerable tiny air cells in Latex.

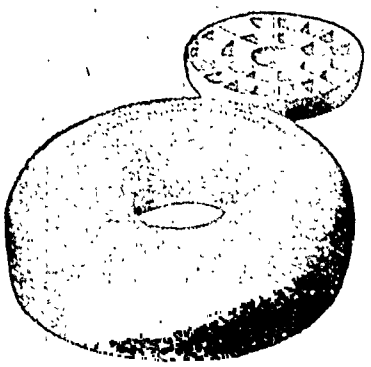
It is soft, yielding, and presents a perfectly uniform surface pressure to the body. When weight is applied in one part of a Dunlopillo unit, there is no corresponding increase in pressure or hardness in another part. It is soft enough to mould itself perfectly to the shape of the body, and by giving support over the largest possible area, offers the minimum resistance per square inch.

2. NO HEATING

Dunlopillo Cellular Latex is completely porous and has no impervious skin. As it is depressed and released by the body being supported, air is forced in and out of the pores and heating is entirely avoided.

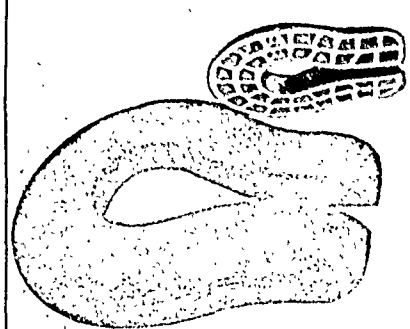
Dunlopillo Cellular Latex is now available as mattresses and cushions for sick room and domestic use. In addition to fulfilling the important functions indicated above, Dunlopillo units have the extra advantage of being substantially germ-proof, requiring no sterilization in the majority of cases.

Dunlopillo units never require punching up; they always spring back to their original shape immediately weight is released. The mattress never requires turning, an important labour-saving advantage for institutions.



RING CUSHION

An ideal, easily carried cushion for travel, holidays, etc., and of special benefit to invalids and elderly people.



HORSE-SHOE CUSHION

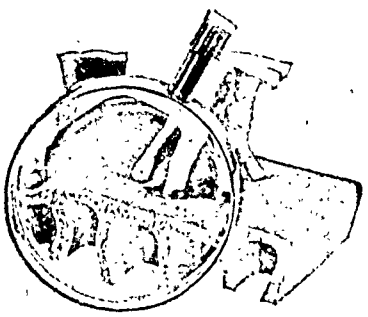
Specially designed to prevent bed sores. Used with the open ends towards the head, the body is gently cushioned and ventilation provided at the base of the spine. The tapering edges prevent any jar should the patient slip off the cushion.

DUNLOPILLO

CELLULAR LATEX

Made under British Patents

A MATTRESS. Possesses immense advantages over other kinds of mattress—is slightly antiseptic and substantially germ-proof, so that sterilisation is usually unnecessary. Provides uniform support yielding exactly the same degree over all the surface. Has the complete scientific comfort of every Dunlopillo product. In special waterproof bed-sheeting cover, it is eminently suitable for incontinent cases.



Manufactured by: DUNLOP RUBBER CO. LTD. (General Rubber Goods Div.), Cambridge St., MANCHESTER

Obtainable from all Hospital and Medical Suppliers

LONDON: Rubber House, Brooke's Market, E.C.1

C.F.H.

3P/45

SALTAIR SURGICAL SERVICE

Guarantee

"We guarantee to alter exchange or accept the return of any appliance without cost ordered by the Medical Profession, if not found Suitable within fourteen days from date of supply."

Salt and Son Ltd.

INDIVIDUAL TO THE PATIENT

Every Saltair Surgical Appliance is individual to the patient. Every Appliance is guaranteed to the Practitioner who orders it. Those two facts are primarily responsible for the success of a business based upon conscientious care and high ideals. The knowledge that the Appliance he orders will be made to the particulars he himself supplies is, in itself, very satisfying to the Doctor. Add to this the perfectly definite Guarantee (reproduced above) and it immediately becomes apparent how very useful and trustworthy is SALTAIR SURGICAL SERVICE from the Medical Man's viewpoint. Details of any type of appliance sent upon request.

GUARANTEED TO THE PRACTITIONER

London Consulting Rooms:
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Female fitters in attendance Mondays to Fridays.
Orthopaedic Mechanician Wednesdays only
by Appointment.

SURGICAL SERVICE
SALTAIR

SALT & SON LTD BIRMINGHAM 2

The Applications *of* MARMITE (YEAST EXTRACT) *in* Medicine and Dietetics

A new booklet has just been issued under this title. It embodies the most recent references which have appeared in medical literature to the uses of Marmite, particularly in connection with Vitamin B deficiency and with anæmias. The information contained therein should prove of interest to those engaged in general practice as well as to specialists in dietetics and in anæmias.

Any member of the medical profession who has not yet received a copy of this new booklet is invited to apply to :—

THE MARMITE FOOD EXTRACT COMPANY LTD.
Walsingham House, Seething Lane,
London, E.C.3

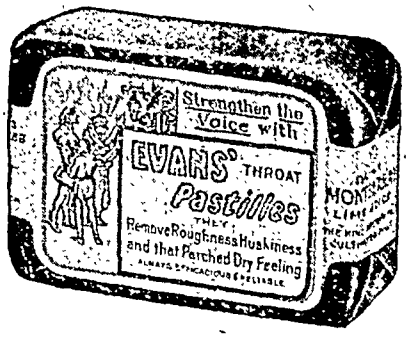
In Jars: 1 oz. 6d., 2 oz. 10d.
4 oz. 1/6, 8 oz. 2/6, 16 oz. 4/6.
SAMPLE ON REQUEST

Quotations for Marmite specially packed for use in Hospitals, Clinics, Welfare Centres, etc., on application.

3311

EVANS' THROAT PASTILLES

Packed in tins 1/- each.



Liverpool Throat Hospital Formula.

Evans' Throat Pastilles are antiseptic and demulcent. They are prepared to a formula of the Liverpool Throat Hospital and are therefore ideal for general prescribing purposes.

Physicians will find these Pastilles a personal safeguard during seasons when colds are prevalent amongst their patients, especially during foggy or frosty weather.

EVANS SONS LESCHER & WEBB LTD.
LIVERPOOL LONDON DUBLIN

RELIABLE PREPARATIONS

CREODYNE

(Duncan)

A palatable preparation of Lacto-Creosote, Codeina, Aconite, &c., specially suited for affections of the respiratory organs—Chronic Bronchitis, Coughs, Catarrh, &c.

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MIST. VALERIAN SEDAT.

(Duncan)

A well-blended preparation of Scotch-grown Valerian in combination with Bromide, Hyoscyamus, &c. Indicated in the treatment of Hysteria or whenever a nerve sedative is required.

In bottles of 4, 8, and 16 fluid ounces.

SAMPLES ON APPLICATION.

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EDINBURGH and LONDON

104/8 Holyrood Road. 155/7 Farringdon Road, E.C.1.

Valentine's Meat-Juice

IN Vomiting of Pregnancy, in the Exhaustion following Haemorrhage or Prolonged Labour, and before and after Abdominal Operations, the Ease of Assimilation and Power of Valentine's Meat-Juice to Restore and Strengthen has been Demonstrated in

Hospitals for Women.

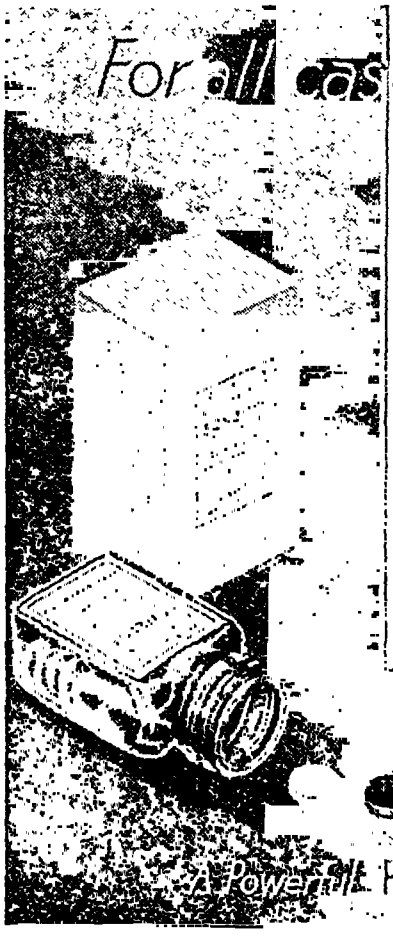
The quickness and power with which Valentine's Meat-Juice acts, the manner in which it adapts itself to and quiets the irritable stomach, its agreeable taste, ease of administration and entire assimilation recommend it to physician and patient.

Physicians are invited to send for Clinical Reports.



For sale by European and American Chemists and Druggists.

Valentine's Meat-Juice Co., Richmond, Vir., U.S.A.



For all cases of INSOMNIA
whatever the cause .....

In painful conditions, febrile or nervous states, Soneryl soothes the patient and induces sound refreshing sleep.

Descriptive literature and sample on request.

"SONERYL"
TRADE MARK
BUTOBARBITAL
A Powerful HYPNOTIC and ANALGESIC

Prepared in the laboratories of
MAY & BAKER Ltd
Battersea
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AN AID IN FIGHTING CHRONIC SEPSIS

POTASSIUM
MANGANESE
PHOSPHORUS
CALCIUM
SODIUM
IRON

Chronic cholecystitis, chronic prostatitis, chronic colitis are but a few of the rather common conditions which give rise to a state of chronic sepsis.

Compound Syrup of Hypophosphites "Fellows" in these conditions supplies the required mineral elements. The dose suggested is one teaspoonful four times daily, in water.

SAMPLES ON REQUEST

FELLOWS MEDICAL MFG. CO., LTD.
286 St. Paul Street, West, Montreal, Canada.

COMPOUND SYRUP OF HYPOPHOSPHITES
"FELLOWS"
(TRADE MARK)

OESTROFORM

A standardised preparation of the crystalline ovarian follicular hormone

Although Oestroform has been available for medicinal use for less than a year its administration already is being adopted with considerable success in the treatment of various conditions arising from metabolic disturbances of ovarian origin, as the following case reports indicate:—

Menstrual disturbances at puberty	"Two cases with excessive pain and period every fortnight. Both these cases had ½ c.c. three times a week for a month, and thence only for the week preceding the period. After three months' treatment . . . periods regular and nearly free from pain.
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Artificial climacteric due to deep X-ray therapy	"Symptoms were very severe, flushes, sweats and melancholic mental symptoms. The dosage was 2 c.c. three times a week for a month . . . Symptoms well under control . . .
Hyperemesis of early pregnancy	"One c.c. daily for three days . . . absolutely stopped in three cases . . ."

Literature and sample on request

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ETHER - SOLUBLE - TAR - PASTE

ANTISEPTIC — EMOLLIENT — NON-STAINING

"E.S.T.P."

SPECIALLY INDICATED IN ECZEMAS

In 1-oz., 4-oz., 8-oz. pots, and special hospital packings

W. MARTINDALE, 12 NEW CAVENDISH STREET LONDON W.1

FOR SKIN AFFECTIONS

QUALITY

PURITY·ACTIVITY·STABILITY

INSULIN 'A.B.'

The world-wide supremacy of Insulin 'A.B.' is due to its unequivocal purity no less than to its well-known potency and stability under all conditions. Insulin 'A.B.' contains the minute quantity of phenolic preservative originally recommended by the Medical Research Council and still considered necessary by bacteriologists (*Lancet*, Sept. 12, 1931, pp. 582-584) as a complete safeguard against the development of bacteria that may be accidentally introduced during self-administration.

Full particulars and the latest literature will be sent free to members of the Medical Profession

Supplied in three strengths:

20 units per c.c. Packed in bottles containing:
5 c.c. (100 units) 2/- each
10 c.c. (200 „) 4/- „
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80 units per c.c. Packed in bottles containing:
5 c.c. (400 units) 8/- each

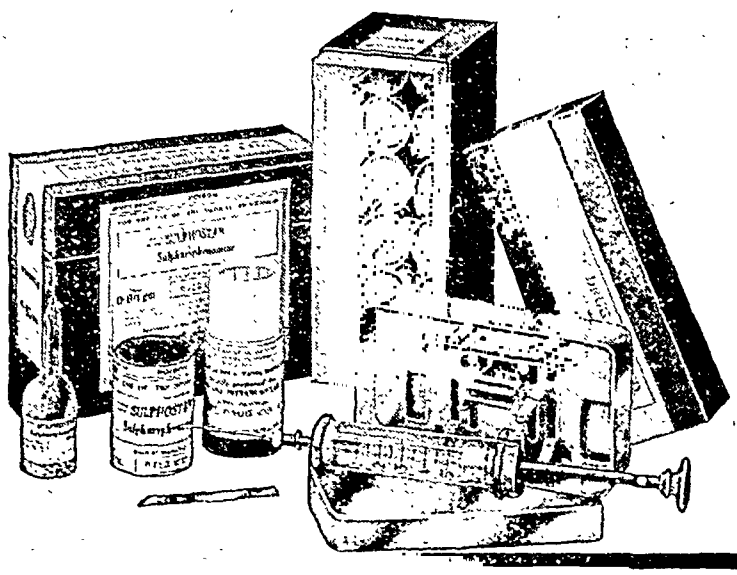
Joint Licencees and Manufacturers:

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TRADE MARK BRAND

SULPHARSPHENAMINE



THE Arsphenamine compound recommended for deep subcutaneous or intramuscular administration in the treatment of Syphilis.

It possesses low toxicity, great stability and a solution is easily and rapidly prepared.

Particularly suitable for Congenital Syphilis.

Approved by the Ministry of Health for use in Public Institutions

Manufactured under Licence No. 19 Therapeutic Substances Act 1925

DOSES:

0.005 gm. to 0.90 gm. (24 doses)

Supplied in single ampoules and in boxes of ten ampoules.

Literature sent on request

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BOOTS PURE DRUG COMPANY LIMITED

NOTTINGHAM - - - ENGLAND

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A BALANCED FORMULA

For the treatment of painful and febrile conditions

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BRAND

ANALGESIC, ANTIPYRETIC TABLETS

Acetphenetidin 2·15 gr., Sodium Salicylate 1·75 gr., Quinine 0·45 gr., Caffeine 0·25 gr., Salicylic Acid 0·15 gr., Citric Acid 0·25 gr., Amylum q.s.

Non-toxic *Non-depressant* *Not habit-forming*

Samples free on request

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THE WORLD-RENOWNED NATURAL MINERAL WATER



This Natural Alkaline Mineral Water may be prescribed with absolute confidence with regard to its purity and natural condition. It is bottled at the Springs under the most careful supervision, and to ensure fresh supplies is imported with regular frequency.

NATURAL VICHY SALT for Drinking and Baths

The VICHY WATERS, being almost devoid of Sulphates, are most agreeable to the taste, and are daily relied upon by Physicians the world over in the treatment of Gout and Rheumatism and for Affections of the Liver, Stomach, etc.

VICHY DIGESTIVE PASTILLES prepared with Natural Vichy Salt.

CAUTION.—Each bottle from the STATE SPRINGS bears a neck label with the word "VICHY-ETAT" and the name of the SOLE AGENTS:

INGRAM & ROYLE, Ltd.

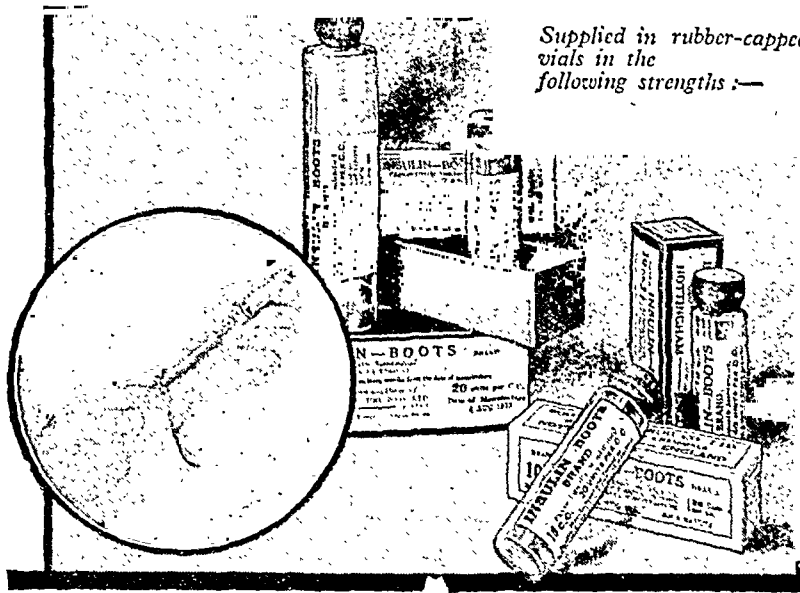
Bangor Wharf, 45, Belvedere Rd., London, S.E.1 And at Liverpool & Bristol

Samples free to Members of the Medical Profession

INSULIN—BOOTS

INSULIN B.P.

Prepared under strict scientific control in the laboratories of Boots Pure Drug Co. Ltd, under Licence No. 19 Therapeutic Substances Act 1925. Physiologically Standardised. Every batch of Insulin — Boots is clinically tested in a large London hospital before issue.



Supplied in rubber-capped vials in the following strengths :—

20 units per c.c.	5 c.c. vials 10 c.c. vials 25 c.c. vials
40 units per c.c.	5 c.c. vials 10 c.c. vials
80 units per c.c.	10 c.c. vials

Obtainable from any branch of

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MIL-SAN

the scientific contraceptive

. . . its independence of variables

Since MIL-SAN is a viscous jelly, it is completely independent of all variable physiological conditions. The importance of this is recognised by medical men who have had clinical experience of chemicals applied in any form where the time before the release of the chemical depends upon the factors of temperature, moisture or pressure. Obviously this is peculiarly so with a contraceptive, where the conditions may vary so widely.

The uncertainty of these factors explains why MIL-SAN has been produced in a form which is independent of them. There is nothing to melt, dissolve or foam, and all risk of these actions failing does not arise since MIL-SAN is applied with all its ingredients ready to act immediately.

MIL-SAN is stable in all climatic conditions, is non-injurious, and non-toxic. Its low pH ensures the immediate immobilisation and death of spermatozoa despite the buffering action of the seminal fluid, while its low surface tension causes it to penetrate rapidly into the rugae of the vaginal and cervical flora. Full information is sent on request to all interested members of the medical profession.

The NON-INJURIOUS character of MIL-SAN was examined in an advertisement in this journal of September 23rd. Its EFFICIENCY and NON-TOXIC properties on October 21st and November 25th respectively. Its HYGIENIC properties will be set out in the issue of January 13th.

MIL-SAN Prices: Complete Outfit, 7/6; Refill Bottles, 5/-. Special Offer: Complete Outfit and 3 Refill Bottles, 21/-. (12 applications in each bottle.) Post free in Great Britain.

MIL-SAN Regd. Trade Mark

MENOSINE LIMITED

24, MAPLE STREET, LONDON, W.1. MUSEUM 6760.

VITAMINS

in scientifically-balanced amounts

That vitamins act specifically in many well-defined conditions is now generally recognised—as for example Vitamin D in rickets and Vitamin C in scurvy.

In clinical practice, however, the physician is concerned rather with those vague borderline conditions which result from lack of balance of vitamins than with specific diseases which are the outcome of an acute shortage of one particular vitamin.

It has been shown that for the maintenance of good health the ***mere presence*** of vitamins in the dietary is not sufficient—***proper balance*** is the essential factor. Herein lies the value of Radiostoleum inasmuch as the vitamins contained in it (Vitamins A and D) are present in scientifically-balanced proportions.

Radiostoleum, therefore, supersedes cod-liver oil, halibut-liver oil and other fish-liver oils in which there is no fixed relationship between the content of one vitamin and that of another.

By prescribing Radiostoleum, therefore, the physician ensures not only a sufficiency of Vitamins A and D but also the necessary balance.

RADIOSTOLEUM

(Vitamins A and D)

Samples and literature on request

THE BRITISH DRUG HOUSES LTD. LONDON N-1

VP/188

WHEN WINTER *is upon us—*



HORLICK'S MALTED MILK Co. Ltd. SLOUGH, BUCKS. *British Throughout*

Influenza and other winter ills make easy victims of those who are overtired and fatigued. For both doctor and patient it is imperative to use every means to increase resistance to infection. The newer knowledge of nutrition emphasizes the part that diet can be made to play in preventing and overcoming disease.

Horlick's Malted Milk contains 15% of easily digested protein and 60% of malt sugar (maltose and dextrin). It presents tissue-forming and energy-giving elements in balanced proportions. Malt sugar has a high nutritive value; it is "un sucre vivant et minéralisateur." Tests have shown that malt sugar is more effective than other sugars in warding off fatigue and in increasing energy. Horlick's contains Vitamins A, B and D, and stimulates blood regeneration.

Recent tests on human subjects show that Horlick's is easily digested and absorbed and speedily affects metabolism —thus confirming the clinical experiences of doctors during the past fifty years.

PURE CRYSTALLINE

VITAMIN C

(ASCORBIC ACID B.D.H.)

By the manufacture of the antiscorbutic Vitamin C on an industrial scale The British Drug Houses Ltd. have made available for medicinal use still another vitamin in a crystalline form and in a state of chemical purity.

Vitamin C, therefore, can now be prescribed with that same certainty of precision in dosage as is assured when, for example, pure crystalline Vitamin D in the form of Radiostol Solution or of Radiostoleum is prescribed in the treatment of rickets (*Lancet*, October 21st, 1933, p. 911).

For convenience in use pure crystalline Vitamin C (B.D.H.) is issued in the form of tablets for oral administration, each tablet containing 5 milligrams of the pure vitamin.

The tablets are available in tubes of 25 at 6*s.* 0*d.* per tube.

Full particulars are obtainable
from the principal pharmacists

THE BRITISH DRUG HOUSES LTD. LONDON N-1

Vit.C/187

A Distinct Advance Over Preparations of Acetyl-Salicylic Acid

Acetyl-salicylic acid possesses a notable disadvantage. Physicians have proved that it cannot be tolerated by patients suffering with a delicate stomach. Consequently, the value of this medicament in the wide field in which it is indicated is very seriously reduced.

"Alasil" completely overcomes this objection. By combining calcium acetyl-salicylate with "Alocol," unfavourable secondary action upon the stomach is prevented. This beneficial influence is undoubtedly due to the presence of "Alocol" (Colloidol Hydroxide of Aluminium), which preparation has brilliantly stood the test of practice in the treatment of hyperacidity and other ill conditions of the gastric tract. "Alasil" is therefore a triumph over acetyl-salicylic acid. It enables higher doses to be administered and maintains the patient's system under its influence for a greater length of time. Analgesic, Antipyretic, and Sedative, "Alasil" is indicated in all cases where acetyl-salicylic acid has been used heretofore.

A supply for clinical trial with full descriptive literature sent free on request.

A. WANDER, Ltd., Manufacturing Chemists,
184, Queen's Gate, London, S.W.7.

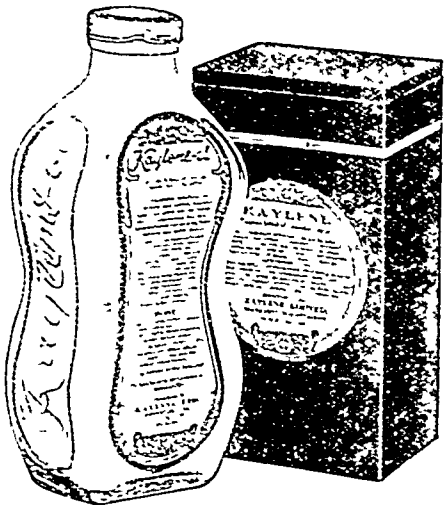
Alasil

M.235

KAYLENE

for

ACUTE COLITIS



TOXAEMIA — *ABOLISHED*
DIARRHOEA— *CONTROLLED*
STOOLS — *CONSOLIDATED*

DOSAGE: Kaylene being completely non-toxic can be given in any quantity which may be needed to reduce the frequency of evacuation.

Initial dose for average case of Ulcerative Colitis: 3ii in water 2 hourly.

N.B.—For residual constipation ℞ *Kaylene-ol.*

Samples and "Adsorption" literature obtainable from:—

KAYLENE LIMITED,

WATERLOO ROAD, CRICKLEWOOD
LONDON - - - - N.W.2

For **CORYZA, HAY-FEVER, ASTHMA**

and all **ALLERGIC** conditions, prescribe

QUEEN **NON-IRRITANT FACE POWDERS, etc.**

Numerous different complexion tints. Also QUEEN after-the-bath powder, Nursery Powder, Toilet Creams and Lotions. For men patients, QUEEN Levigated Talcum. These toilet preparations are delightful to use, and contain no Orris root or other irritant or injurious constituents. See B.M.J., July 8th, 1933, page 43, col. 2. These preparations are obtainable only from Boutalls' branches, or post free from—

BOUTALLS LTD. (Chemists) 150 Southampton Row, **LONDON, W.C.1.**

NOVOCAIN

The Original Preparation
English Trade Mark No. 276477 (1905)

The Safest and most Reliable Local Anaesthetic for all Surgical Cases.

The Oldest and— *—still the Best.*



Cocaine-free Local Anaesthetic

Does not come under the restrictions of the Dangerous Drugs Act

WRITE FOR LITERATURE

THE SACCHARIN CORPORATION LTD., 72, Oxford Street, London, W.1

Telegrams: SACARINO, RATH, LONDON *Telephone*: MUSEUM 8096.

Australian Agents:
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THE DENTAL & MEDICAL SUPPLY CO., Ltd.,
128, Wakefield Street, Wellington.

For the rearing of robust infants—

also for invalids, the aged, and all persons of weak digestion

ROBB'S have been used with unqualified success for over a century and still receive the hearty recommendation of Doctors and Nurses throughout the world.

Prepared with pure full-cream milk containing the right elements for building up sound flesh, bone, teeth, and muscle.

Infants can be reared upon **ROBB'S NURSERY BISCUITS** with absolute safety; and will always be happy, contented, and enjoy restful sleep.

Robb's

NURSERY BISCUITS AND BISCUIT POWDER

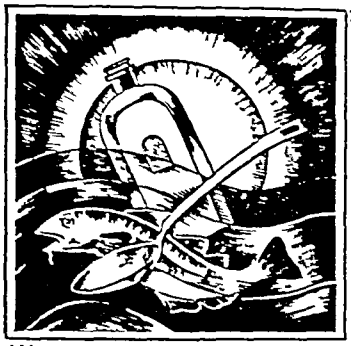
ROBB'S NURSERY BISCUITS being a malted food are highly nutritious and easy of assimilation—they are most adaptable as a diet for nursing mothers, invalids, and the aged.

ROBB'S NURSERY BISCUIT POWDER is specially recommended for use in a feeding bottle as also for invalids and convalescents.

Also Table Rusks, Charcoal Biscuits, Ginger Nuts, and Dietetic Biscuits.

Send for large free sample and descriptive booklet, etc.

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1

Patients prefer Norwegian Medicinal Cod Liver Oil

because of its purity and because its taste is much less pronounced than that of other oils.

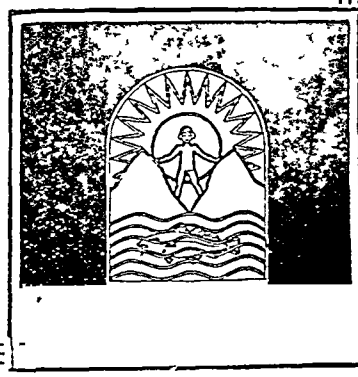
The latest scientific investigations made by Professor Poulsson at the Vitamin Institute of Oslo, show that the vitamin D content of Norwegian medicinal cod liver oil is as much as one hundred per cent. greater than that of the next best brands. That is why Norwegian medicinal cod liver oil is the most effective medicine against rickets.

Norwegian medicinal cod liver oil is also very rich in vitamin A; in addition it contains a substantial amount of iodine.

Norwegian Medicinal Cod Liver Oil

world famous for its high quality.

Printed matter will be sent on application to Reklame fondet for Norsk Medicintran, Post box 226, Bergen, Norway



FABRITIUS, OSLO

ENDOMIN

From the Laboratories of

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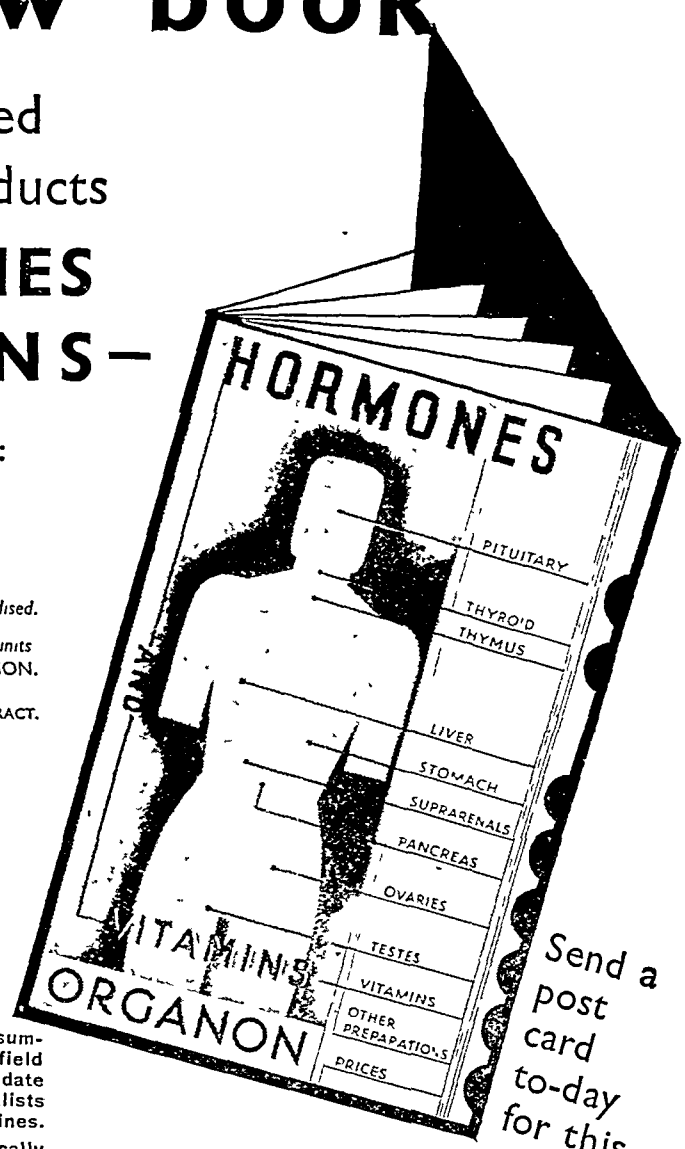
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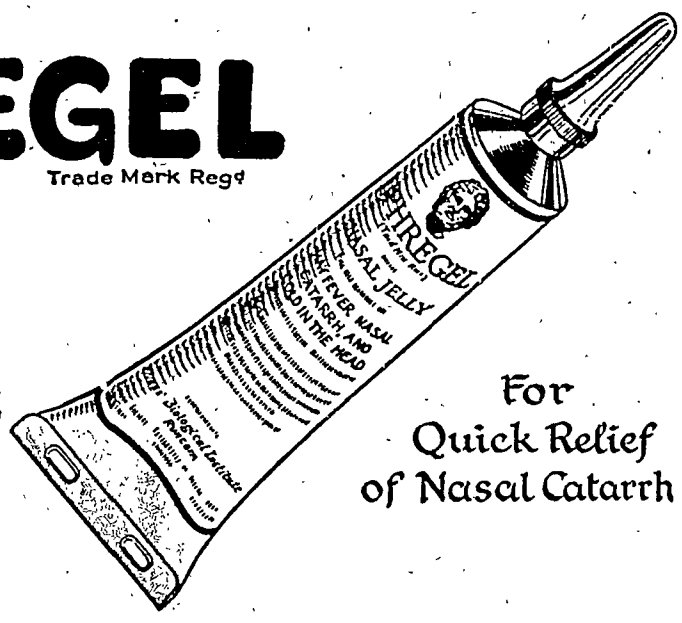


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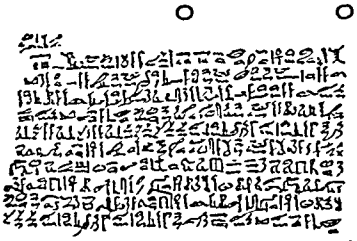
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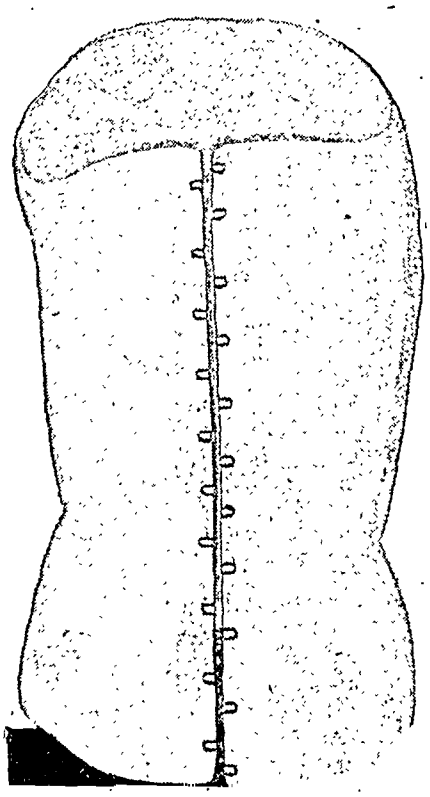
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ON

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BY

REGINALD MILLER, M.D., F.R.C.P.

PHYSICIAN TO ST. MARY'S AND THE PADDINGTON GREEN CHILDREN'S HOSPITALS

My subject has been suggested to me by a note which I received last autumn from the head of a preparatory boarding school. It ran: "All my children have returned to school this term suffering from 'acidosis': what is this new disease?" At the present time this is an awkward question. Used as it now is in innumerable children without any obvious discrimination, what is meant by the term "acidosis"? Is it in fact a disease, or a disorder, or a syndrome: is it a clinical diagnosis or merely a biochemical label? At one time the term "acidosis" was kept for a biochemical state, and the phrase "acid intoxication" was used to denote the clinical condition arising therefrom; and if this distinction has now unfortunately lapsed, we must be certain that the symptoms we describe as "acidosis" are not only associated with, but are actually the expression of, the altered blood state.

As I understand it, this modern type of acidosis, which is being recognized in such numbers of children as to tempt us to call it for the moment the pandemic type, derives from the study of cyclical vomiting and other acute forms in which acidosis is present. It is, or at all events it was originally meant to be, the condition of the child prone to cyclical vomiting in between its attacks, the persistent state predisposing to such acute attacks. In order to unravel this rather complicated subject it seems best first to sketch the story of the recognition of the more obvious acute cases, of which so-called cyclical vomiting is the type; secondly, to trace the evolution of the idea of the modern or pandemic type; and lastly to endeavour to draw conclusions on the whole question.

ACUTE TYPE: CYCLICAL VOMITING

The starting-point of the subject of cyclical vomiting is S. Gee's paper entitled "On Fitful or Recurrent Vomiting," published in 1882.[1] This very brief article consists of the notes of nine cases, preceded by an introduction of under 500 words, which opens with the sentence: "These cases seem to be all of the same kind, their characteristic being fits of vomiting, which recur after intervals of uncertain length." It will be seen, therefore, that Gee did not recognize any element of periodicity about the attacks, such as the term cyclical was meant at first to connote; nor did he recognize the presence of acetonaemia. He did, however, specially mention the occurrence of pale stools as one of the features of some attacks. Later the condition was redescribed, apparently independently, in America and, I think, in France and Germany.

The association of acetonaemia with this type of case came much later, although the occurrence of β-oxybutyric acid in diabetic urine was known as early as 1884, and acetonaemia many years before that (W. Osler[2]). I mention this because it is probable that in those days the clinical symptoms of acidosis were regarded as those of diabetic coma, which has little resemblance to an attack of cyclical vomiting. Thus Griffith[3] in America writing on "Recurrent Vomiting in Children (Cyclic Vomiting)" stated: "Acetonaemia may occur, but acetone cannot be considered the poison which produces recurrent vomiting, since the symptoms of acetonaemia are not such as these cases exhibit." L. E. Holt[4] credits D. L. Edsall[5] with being the first to emphasize the importance of the acetonaemic symptoms in cyclical vomiting. From that time the view was put forward that in cyclical vomiting there developed an acidosis of unknown origin (cryptogenic acid intoxication, it was called), and that the symptoms of the attack were explained by, and were due to, the presence of this acetonaemia. This view was never universally accepted, for there have always been those who regarded the acetonaemia as a secondary development, the result and not the cause of the symptoms of cyclical vomiting.

In the meantime, L. G. Guthrie[6] (1894) described the condition which became known as "delayed chloroform poisoning" and later as "post-anaesthetic poisoning." He did not recognize the presence of acetonaemia, but he called attention to the extraordinary degree of fatty disease of the liver found in his fatal cases; and he connected the death with the condition of the liver, suspecting some toxaemia, probably from the intestine, upsetting an already diseased liver. Six years later the first necropsy on a case of cyclical vomiting was reported in America by Griffith,[3] and in 1905 the first English necropsy was reported by F. S. Langmead[7]; in both of these advanced fatty change was found in the liver. It was, I think, Langmead (who had in the meantime described the acetonaemia of salicylate poisoning[8]) who first emphasized the striking similarity in the condition of the liver in cyclical vomiting and post-anaesthetic poisoning.[9] He regarded both disorders as examples of acidosis of unknown origin. This pathological connexion between the two groups of cases is of importance. It was at first a matter of debate whether in cyclical vomiting the changes in the liver were mainly primary or merely the result of the vomiting; but the occurrence of the same peculiar changes after the administration of a known liver poison like chloroform supports the idea that, as Guthrie thought, some toxic action on the liver is the primary cause of the symptoms.

It has been already stated that Edsall's view, that the symptoms of an attack of cyclical vomiting were merely the results of the ketosis, was never universally accepted. Even in the early days it was recognized that there were many points against such an hypothesis, such as the dissimilarity between cyclical vomiting and diabetic coma; the occurrence of acetonuria in a great number of children free of any symptoms; the rapid supervention of acidosis and ketosis in conditions of starvation, and its development as a secondary phenomenon in meningitis, pneumonia, and other diseases ushered in by vomiting. In 1911 E. Mellanby[10] published very careful observations on a case of cyclical vomiting, and was unable to make the occurrence of acetonaemia coincide with the onset or offset of the symptoms, and he expressed the view that "acidosis may probably be disregarded as a cause of any abnormality in any disease, except, it may be, in diabetes."

Of late years further evidence against Edsall's view has accumulated. By means of ketogenic diets it has been possible to produce a marked ketosis in children, yet no symptoms develop. L. Findlay[11] has recorded that "even in a case suffering from a mild attack of cyclical vomiting the institution of a ketogenic diet did not interrupt a steady and rapid recovery." A recent review of this subject by J. C. Spence[12] regards the vomiting and drowsiness of cyclical vomiting as due to a recurrent toxaemia, and the ketosis provoked as an

* A post-graduate lecture delivered at St. Mary's Hospital, October, 1933

epiphenomenon. On the other hand, it must be admitted that the sign of hyperpnoea (the air-hunger of Kussmaul) is due to acidosis.

Chronic "Pandemic" Type

Passing to the modern conception of the acidosis child it is clear that it is coloured by the idea of a tendency to ketosis. In the fourth edition of his book on *The Nervous Child*, the first edition to contain a chapter on "The underlying disturbance of metabolism in the nervous child," H. C. Cameron[13] wrote: "The condition, commonly called acidosis, is therefore more strictly a ketosis, because, although ketosis is a form of acidosis, yet it is one only of the many varieties of acidosis." This was published in 1929, and the next year A. A. Osman tells us of the history of the discovery of this type of case. Writing with H. G. Close,[14] he states that seven years previously, when collecting cases of cyclical vomiting for investigation in the Children's Department at Guy's Hospital, he had observed:

"that those children who had been given extract of malt, largely with the object of securing regular attendance as out-patients, ceased to have further attacks of the disorder. This at once suggested that sugar in some form was the needed antidote. It became apparent, too, that not only was cyclical vomiting easily prevented by this simple and harmless measure, but that a large number of the other common symptoms of debility in children, such as headaches, recurrent abdominal pains, constipation, "growing pains," pallor, and undue fatigability, were also cured and prevented, and that the giving of extra sugar, in any form, quite frequently resulted in a rapid and marked improvement in the general health, spirits, and appearance of the child. In fact, without any other form of treatment, or alteration in the daily regime, a pale, dispirited, ailing child would often be converted into a high-spirited, healthy, and happy being."

Now the first conclusion which Osman draws from his investigations is that "the state of subnormal health in children, usually called 'debility,' is generally associated with some degree of 'acidosis,' defining this as a reduction of the plasma bicarbonate only." But before discussing this, attention must be paid to the significance of the terms as he uses them.

No one will quarrel with the definition of the term "acidosis," but it should be noticed that it does not imply an associated ketosis. Osman found acetonaemia to be quite exceptional in his subnormal children, and indeed the average plasma bicarbonate in the acetonuric children was even a little higher than the average for the plasma bicarbonate in the subnormal group. But it is difficult to understand the point of his paper unless we are meant to infer that acidosis thus defined predisposes a child to ketosis, and we are told that cyclical vomiting occurred in one-third of the normal children investigated but in one-half of the subnormal group with acidosis. Under the name of cyclical vomiting Osman includes not only cases of recurrent attacks of sickness, but also of diarrhoea and of pyrexia, and each of these three forms may occur singly or together. I have already quoted the list of symptoms which he finds so benefited by the administration of sugar, and mention here that he discusses the propriety of adding to them asthma and lowered resistance to infection, while train-sickness and bed-wetting are vaguely mentioned in the clinical notes of his cases.

We are now in a position to discuss Osman's contentions, and to attempt to form an opinion on his proofs of the presence of an acidosis in subnormal children, and more particularly of its clinical significance. His plan of argument in support of the presence of an acidosis is very simply conceived. He took two groups of children, one consisting of thirty-eight normal children and the other of seventy subnormal or debilitated children, found the value of the plasma bicarbonate readings in each child, and presented an average reading for each group. The figures worked out at 0.0299M as the average for the normal group, and 0.0276M for the subnormal group. Now these figures are average figures, and if we are going to admit the presentation of average figures as a reliable guide, we should wish at least for a considerable difference between one average and the other; here the difference is small. The readings were obtained by an unusual but accepted titration method, and I have not been able to find any standard figures by this method for comparison; but it must be pointed out that the average figure for the subnormal group (0.0276M), although lower than that for the normal group, is well within the range of readings in the individual normal cases (0.0263–0.0321M). I cannot therefore see that Osman has proved beyond dispute the presence of a biochemical acidosis in these cases. But if it is present, what proofs are there that it is of clinical significance? Osman does not give any figures showing that this type of acidosis varies in connexion with vomiting attacks, or that the administration of sugar alters it in any individual cases. We are left to infer that it is connected in some way with cyclical vomiting because this disorder was rather more common in the acidosis group than in the normal group of children investigated, and the good effects were attributed to the administration of sugar. That the type of child who suffers from vomiting attacks can justly be labelled as subnormal has long been known, and is no proof of the effect of acidosis. The arguments based on the effects of glucose therapy I shall consider later.

H. C. Cameron, whose forceful writings on this subject have been so widely read, bases his teaching more on clinical experience than on biochemical investigations. In his new book,[15] published this year, he still alludes to cyclical vomiting as "acetonaemic vomiting," and still regards the acidosis child as one showing latent or overt ketosis. The treatment adopted is designed on this hypothesis, and its success is used to prove the truth of this view. There has, perhaps, been some change in the balance of emphasis, and more stress (as it seems to me) is now laid on the lowered carbohydrate reserve in these acidosis children, which Cameron has called glycopenia.

This is an important point. Doubtless it was first put forward to explain the alleged tendency to ketosis. H. Josephs[16] described recurrent vomiting as "spontaneous hypoglycaemia in children." Osman, however, failed to find any evidence of hypoglycaemia, and, although he admits that this does not exclude the possibility of a diminished glycogen reserve in the liver and elsewhere, strongly deprecates the use of the term glycopenia. Many recent authors have agreed on the probability of a diminished glycogen reserve in the liver, and indeed it is hardly possible to study the debilitated child and its easy fatigability without being sure that this is so. For this condition of diminished glycogen store without actual hypoglycaemia, Cameron's term of glycopenia seems (as is to be expected) both neat and appropriate. On the significance of this glycopenia I comment later.

Discussion

Now let us see if we can piece together these disjointed facts and make something coherent of them. Our dilemma is obvious. While it was believed that these so-called acidosis children were always on the verge of acetonaemia, and that when the attack came, even though its exciting cause were obscure, it was no more than an

exacerbation of a chronic ketosis, the remedy of giving sugar and alkalis and of withholding fats was all in order. But now that it is clear that the marked ketosis is the result and not the cause of the vomiting attacks, and that between attacks there is no ketosis nor any other form of acidosis worth considering, we are left in the peculiar position of having a remedy with, so to speak, no malady attached to it.

My own study of these cyclical vomiting and acidosis children, so-called, leads me to certain conclusions which I will put before you. In the first place, I believe that definite organic conditions are responsible for a much larger proportion of the cases than is generally recognized. Chronic disease of the appendix (which many deny to be possible in children) is not uncommonly to be found, and other conditions worth bearing in mind are atonic dilatation of the stomach and such rarer lesions as partial obstruction due to congenital duodenal ileus. But, setting these aside and dealing only with cases in which the origin of the disorder may justly be called obscure, I believe that there are three factors at work. All these have been noted by various writers on the subject, but two of them have been overshadowed by acidosis views, and the third, as I think, at least partially misinterpreted. They are: (1) intense poisoning of the liver, (2) intestinal toxaemia, and (3) lowered glycogen reserve.

Intense Poisoning of the Liver.—This was noted by Gee in his original paper. The occurrence of pale stools in the attack was one of its features, and many authors agree that this factor is important. The fatty degeneration of the liver found post mortem, so extreme as to be comparable only to that found in post-anaesthetic vomiting, is surely sufficient proof of the importance of this factor. It is to this that the onset of the attack may be attributed.

Intestinal Toxaemia.—The presence of intestinal toxaemia is to my mind incontestable, and has again been emphasized by many writers on the subject. I quite agree with Osman that cyclical vomiting is not particularly associated in between attacks with acetonuria, but I would point out, as others have done before me, that it is particularly associated with indicanuria, and careful investigation will show the other signs of intestinal indigestion and toxaemia—the enlarged abdomen, the passage of mucus in the stools, and the occurrence, either persistently or occasionally, of foul undigested stools, and so on. I claim that the writings of Osman and Cameron are not only in consonance with this view, but are hardly explicable on any other hypothesis. When we find that cyclical vomiting may consist of recurrent attacks of diarrhoea or bouts of pyrexia with no vomiting at all, what does it mean? When we read Cameron's description of the acidosis child, with its pallid face, coated tongue, ringed eyes, foul breath, bad appetite, and abdominal pains, and when we remember that this condition persists for months or years, how can we believe that this is a picture of mere fatigue, however nervous the child? It is without doubt the picture of fatigue induced and kept up by toxaemia. And since the toxaemia is not a ketosis and is acting in chief on the liver, it is clear that the explanation of the "obscure" case is intestinal toxaemia. It is a curious thing that in the writings of these authors on acidosis in children there is no serious study of the condition of the stools, nor even mention of the prevalence of indicanuria and its increase with the exacerbations of the symptoms.

Lowered Glycogen Reserve.—In the absence of hypoglycaemia there is no satisfactory method of proving a diminished glycogen reserve in the liver; yet it is difficult, on clinical grounds, not to suspect this condition in these children, and we may readily accept Cameron's description of them as glycopenic if the term is used in this sense. The success that was claimed for glucose therapy was attributed to the prevention of ketosis; but since this explanation is no longer acceptable, it may be suggested that the administration of sugar is of use in rendering the liver less susceptible to poisons brought to it from the alimentary tract. It is established that a liver containing a supply of glycogen is less vulnerable to poisons than one which is depleted; and this hypothesis accounts for the facts that attacks follow not only digestive upsets, which increase the dose of poison carried to the liver, but also periods of excitement or emotionalism, which may be taken to deplete further the glycogen reserve in the liver, and render it temporarily more vulnerable to the intestinal poison. In addition, sugar is, of course, a good food and a mild laxative. If it is objected that this explanation is rather slight to cover the good effects of glucose therapy, I can only say that in my opinion these benefits have been greatly overrated. In my experience in the very numerous instances where the intestinal toxaemia is at all profound, glucose therapy is a complete failure, and prolonged treatment directed towards the improvement of the intestine itself is essential before cure results. As to the other line of treatment advocated, the reduction in the intake of fat, except that it prevents a child from being grossly overfed with fats, I believe it to be unnecessary. I would go further, and say that in my experience this course pursued over many months is definitely harmful.

SUMMARY

In the difficult and complex problem of the cases passing under the names of cyclical vomiting and acidosis, it seems that we must no longer invoke a ketosis as the cause of the symptoms. In acute phases it is a result and not the cause of the attack, and in the interim stages it is not notably present. The exciting cause of the attack is an acute poisoning of the liver, shown by the frequent occurrence of pale stools and the results of necropsies, and the predisposing causes are probably a diminished glycogen reserve in the liver, rendering that organ vulnerable to poisons, and certainly an intestinal toxaemia, persistent with exacerbations. In mild cases the administration of glucose is of help, probably acting by protecting the liver against the effect of toxic absorption from the intestine, but in severer cases patient treatment of the intestine itself is necessary for cure. The withholding of normal supplies of fat in the diet is unnecessary and may be harmful.

It would be a benefit to revise our present terminology. The phrase "cyclical vomiting" has clearly outlived its usefulness, and the term "acidosis," never a happy one for a clinical condition, can hardly, in the light of recent knowledge, be regarded as appropriate.

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ON THE CLINICAL RECOGNITION OF STRUCTURAL DISEASE OF THE PERIPHERAL VESSELS*

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Impairment of the circulation to a limb may result in two ways: from structural disease of the vessels with a consequent permanent reduction in their calibre, or from excessive narrowing (spasm) of vessels that are yet able widely to expand. A first and essential step in understanding most disorders of the peripheral circulation is to determine whether any structural lesion of the vessels is present or not, and if so, its extent. Much indispensable information may be gained from a simple examination of the patient, and this may be amplified and rendered more precise by the use of certain tests. Many of the methods now employed are little known, and some confusion seems to exist as to the interpretation of others. During recent years considerable attention has been devoted to the peripheral circulation in health and disease by workers in this department, and the present seems an opportune time to give an account of the methods we have found to be most serviceable in identifying structural disease of the vessels.

Physical Examination of the Limbs

Abnormalities of appearance of the extremities in vascular diseases are chiefly of three kinds: gangrene, indolent ulceration, and colour changes; and these may all appear in affections of the arteries that are either primarily spasmodic or primarily structural. Gangrene implies a prolonged and complete interruption of the blood supply to the affected area; and while possibly it is invariably associated with thrombosis of the vessels concerned, such a change may be restricted to the site of the lesion, the vessels elsewhere being patent and the main malady essentially spasmodic. Indolent ulceration may be due to an impaired blood supply from spasmodic or structural narrowing of the vessels, but it also occurs in a number of low-grade chronic infections. Thus widespread structural disease of the vessels may be suspected, but cannot be diagnosed from lesions of these kinds.

Abnormalities of colour are of two kinds: change in depth and change in tint. In the absence of severe anaemia abnormal pallor of an extremity indicates emptiness of the minute vessels. Such a condition usually results when blood is massaged out of a part by movement, and its inflow is prevented by spasmodic or organic obstruction of the arteries; less commonly, it may result from active contraction of the minute vessels, as in Bier's spots and in certain forms of the white finger of Raynaud's disease.[1] Increased depth of colour is due to a dilatation of the capillaries and venules of the skin as a result of injury, such as is probably produced by impaired blood supply, long-continued cold, and possibly low-grade inflammation. Cyanosis confined to one or more limbs is due to local slowing of the blood flow relative to the oxygen requirements of the skin. When a limb is cold its arteries or arterioles are narrow, such narrowing being excessive in patients suffering from Raynaud's disease[1] and acrocyanosis[2]; in cold skin cyanosis is frequently due to constriction of arteries that are yet capable of dilating widely. In a limb that has been warmed it may be assumed that normal vessels tend to be dilated; cyanosis in such a limb provides strong presumptive evidence that the arteries cannot fully expand and are structurally diseased. In assessing the significance of cyanosis it is to be remembered that with equal rates of blood flow high-coloured skin will be bluer than pale skin, for the vessels that contribute most to the excessive coloration of the skin—the venules—are those in which the blood has been largely robbed of its oxygen.

Postural changes in skin colour are common in structural disease of the vessels, but are by no means confined to these. A deepening and blueing of the skin when the limb is dependent is commonly due to passive widening of toneless minute vessels consequent on the hydrostatic increase of venous pressure. Such a colour change is seen in any form of long-continued injury to the skin, as, for example, in skin that has been reddened by exposure to ultra-violet light. Conspicuous pallor of the skin when a limb is raised and maintained for a few minutes some distance above the level of the heart is strongly suggestive of a structural lesion of the vessels; and the height at which such pallor occurs is used as an index of the degree of disease by Buerger.[3] When a limb is raised blood drains from the skin, and conspicuous pallor will occur if blood fails to enter freely from the arterial side, as it may if the head of pressure is reduced by structural changes in the vessels. The pallor is probably associated with grossly deficient blood flow to the skin, for it has been observed by Buerger and ourselves to be followed by reactive hyperaemia when the foot is again lowered.

The rate at which colour returns to skin that has been blanched by pressure is frequently used as an index of the rate of the cutaneous blood flow. It is an unreliable test, because the return of colour is often from the surrounding venous plexuses rather than from arteries, and the rate of return then depends chiefly on the pressure in those plexuses. If a warm limb is congested by hanging it down, and its circulation is arrested while the skin is full of blood, the colour returns quickly to an area of skin blanched by pressure with the finger, although circulation to the limb has ceased.

Temperature

Perhaps the most important indication we possess of the adequacy of the blood flow through a limb is the temperature of the limb's surface, for the difference between this temperature and that of the atmosphere is governed by the rate of blood flow through the skin.

Before using the skin temperature as an index of vascular disturbance it is essential to realize that it has wide fluctuations in health; it is largely by variations in cutaneous blood flow that body temperature is regulated. Exposure of the body to cold has a twofold effect on the circulation to the skin. First, the cooling of the superficial arterioles tends directly to narrow them, and secondly, a generalized cutaneous constriction is set up through the vasomotor nerves, evoked in part reflexly by the stimulus of cold to the skin, and in part by the action of cool blood returning from the skin on a central mechanism.[4] Thus it comes about that when the air is cool the peripheral vessels are constricted and the extremities are cool; when the air is warm the cutaneous arteries and arterioles dilate and the extremities are warm.

The level of air temperature necessary to produce vasodilatation and warm extremities varies from subject to subject; it largely depends on the warmth of clothing. Persistently cold extremities may be due either to vascular disease or to high vascular tone, and the latter may be normal or abnormal according to the circumstances in which it is displayed. Thus coldness of the extremities does not suffice for the diagnosis of arterial disease or arterial spasm. Of greater significance is an inequality of temperature between two symmetrical limbs similarly treated, and exposed for the same length of time. In

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these circumstances the smaller blood flow through the colder limb must be ascribed to a local cause, and, in the absence of disuse, consequent on manifest diseases of the nervous or locomotor systems, unilateral coldness is almost always, if not always, due to structural disease of the corresponding blood vessels.

Nevertheless, although it is the rule for a limb more affected by structural vascular disease to be persistently colder than its fellow, the reverse is occasionally found. In two of our patients with thrombo-angiitis the limb carrying the more grossly diseased vessels has been persistently the warmer (for example, Case 1 of table). Morton and Scott[5] have noted the same phenomenon in some cases of endarteritis. They appear to consider that it is usual for a limb to be warm when its vessels are affected by structural disease, provided that this is not extreme, and they ascribe coldness under these circumstances to a reflex vaso-constriction. A little consideration shows, however, that such a conception is as yet unnecessary, and therefore undesirable; for, unless the body is hot, sympathetic tone is always present, and experiment goes to show that it affects symmetrical limbs equally. It is therefore to be expected, and is indeed the rule, that when an additional structural change is present in the vessels of one limb the circulation through that limb will be slower than in its fellow. When the limb having the more affected vessels is the warmer, then some other factor must be called to account for this. There is as yet no reason to suppose that vasomotor tone is locally withdrawn to compensate for structural disease, and we suggest that in such warm limbs the circulation is largely maintained by the opening of collateral channels lying particularly in the skin or subcutaneous tissues.

Pulsation of the Arteries

Arterial pulsation may be detected with the finger or by means of Pachon's oscillometer. The latter method, in general, confirms palpation, but in addition will record pulsation in situations such the calf of the leg, where the vessels lie deep and are inaccessible to the finger; moreover, being instrumental, it is more reliable in demonstrating inequalities of pulsation on the two sides. The readings obtained are subject to conspicuous errors, however, and the instrument must be used with corresponding caution. In normal subjects it is usual to feel pulsation in both the large vessels at the wrist and at the ankle, and to record pulsation as far distally as these points. It sometimes happens in normal subjects, and in cases of Raynaud's disease, that the pulse cannot be felt in one or more of these vessels when the limbs are cold, and it is therefore essential in determining the patency of the vessels that the limbs should be warm in order to relax vessels that are capable of opening up.

Babinski and Heitz[6] observed a number of cases of functional coldness of one limb following war wounds, where the oscillometric pulsations were greatly reduced in the injured limb when this was cold. On soaking the limbs at 40° C. for ten minutes the pulsations became as great in the injured as in the sound limb, whereas in cases where the main artery to the limb had been tied, the pulsations remained small after the limb had been warmed. We would suggest, therefore, that when testing the limbs for pulsation of the vessels, it is of the greatest importance before concluding that a pulse is absent or diminished to make the patient feel warm, and to soak his limbs in water at 40° for ten or more minutes before examining the vessels. The failure of pulsation in an artery of a limb when body and limb are warm is the most certain sign we possess of structural disease in that vessel.

It is important to realize, however, that pulsation may be retained in one or more of the main vessels of the foot or hand after the smaller arteries have become extensively diseased[7]; and it should also be recognized that the circulation to a limb may be almost normal in the absence of pulsation in its vessels, as is the case in the legs of patients with coarctation of the aorta.[8]

Allen's Test.—Allen[9] has described a simple method for recognizing an organic obstruction of the ulnar or radial artery at, or distal to, the wrist. After the patient has clenched both hands tightly for one minute, the observer compresses digitally both radial arteries at the wrist, and the patient's hands are relaxed. When the ulnar artery is patent, colour quickly returns to the hands, and is then little changed by release of the radial. When the ulnar artery has been obliterated by disease, then the colour returns only slowly to the hand, until the radial is released, when the palm and fingers flush brightly. To test the patency of the radial artery the same method is used, though with ulnar compression. In practice we have found the rate at which the colour returns to normal hands to be very variable during compression of the radial artery; when, however, there is a striking difference between the behaviour of the two hands, then the test provides strong evidence that the ulnar (or radial) artery on one side is obliterated.

Capillary Pulsation

In extremities that have been warmed by immersion in water at 42° to 45° for ten minutes, it is usually possible in normal subjects to elicit capillary pulsation in the palmar surfaces of the hands and plantar surfaces of the feet by light pressure with a glass slide.[10] The presence of capillary pulsation indicates that the arteries and arterioles supplying the corresponding area of skin are patent, and is a valuable sign that there is no appreciable structural defect of any of these vessels. Some find difficulty in detecting this pulsation, however, and its absence should not be considered adequate evidence of structural blocking of the vessels.

The Veins

An examination of these vessels is sometimes important in identifying thrombo-angiitis, for as Buerger[3] emphasized, the veins become thrombosed in many cases. The veins share in the general vascular relaxation produced by warmth, and the most satisfactory method of demonstrating the superficial venous plexus is to immerse the foot for ten minutes in water at 35° to 40°, and then to distend the veins by obstructing them in the leg with pneumatic pressure of 60 to 70 mm. Hg.

From this brief account it may be seen that much indispensable information may be gathered from relatively simple clinical methods, and a large proportion of cases of structural disease of the vessels may be diagnosed in this way. There are cases in which information thus gained is equivocal, and the diagnosis remains in doubt. Moreover, it is not enough merely to identify a permanent blocking of the vessels; it is essential for purposes of treatment to recognize, so far as possible, the extent of the disease, and the measure to which it has been corrected by the opening up of collateral channels. Several tests now to be discussed have been devised to meet these requirements.

TESTS FOR STRUCTURAL DISEASE OF THE VESSELS

I. *Intermittent Claudication*

Intermittent claudication is a term used to indicate a condition in which pain develops in the muscles of a leg and causes limping on walking. This pain frequently becomes so severe that the patient has to stop, but after a few minutes of rest it disappears, and exercise can be resumed. The mechanism of intermittent claudication has been fully discussed in an earlier publication.[11] The

appearance of this highly characteristic pain, in the absence of severe anaemia, in which it also occurs,[12] may be taken as an indication that structural disease of the corresponding vessels is present; and the degree to which exercise is curtailed by pain provides an approximate index of the extent to which the muscular circulation is impaired. A history given by an intelligent patient is usually sufficient to elicit these points, but it is important to recognize that in the presence of gross disease of the vessels pain may be prevented from developing during exercise in one of two ways. In the first place the exercise may never be sufficient to elicit pain; this is often the case when two legs are unequally diseased, and the curtailment of exercise by pain in the more diseased limb prevents the development of pain in its fellow. Secondly, when only one limb is diseased, the development of pain in this may be prevented by a peculiarity of gait, the work being done mainly by the healthy leg or by an unusual group of muscles that is well supplied by blood. So it is sometimes desirable to test the development of pain under standard conditions. If, after the circulation to the leg of a healthy subject has been arrested, the ankle-joint is repeatedly and fully extended against resistances at the rate of one complete movement per second, pain begins in the calf muscles; or if the joint is flexed against resistance it begins in the anterior tibial muscles. It comes in twenty to thirty seconds, and becomes unbearable after seventy to ninety seconds, disappearing in five seconds or less after the circulation is released.[11] If a patient with diseased vessels works his leg in the same way but without circulatory arrest, then the times taken for pain to begin, to become intolerable, and to disappear after exercise is stopped, provide guides to the adequacy of muscular blood flow. As the times of onset and intolerance of the pain depend on the amount of exercise undertaken, it is usually desirable to compare the times so elicited with the times obtained when the patient repeats the exercise in the same limb with its circulation arrested; a period of fifteen or more minutes should be allowed to elapse between these tests.

II. *The Effect on Skin Temperature of Removing Sympathetic Vaso-constrictor Tone*

The capacity of the skin vessels to dilate may be tested by following thermo-electrically the course of the skin temperature when sympathetic tone is removed. To obtain a striking effect it is necessary that vaso-constrictor tone should be initially high, as when the subject has been previously lying thinly clad at a room temperature of 16° to 18° C. On removing sympathetic tone the extremities in normal subjects quickly become warm, and the capacity of the vessels of the limb to convey blood is best gauged by the final level of temperature so attained. The rise of temperature almost always begins slowly in the proximal parts of the limbs.[15] Sympathetic vaso-constrictor tone can be removed by paralysing the sympathetic fibres by means of a local anaesthetic. Thus sympathetic fibres may be blocked by injecting novocain or a similar preparation around the appropriate ganglia of the sympathetic chain (White[13]), around the mixed nerves, (Lewis,[1] Morton and Scott[5]) or, in the case of the lower limbs, into the spinal canal (Morton and Scott,[5] Telford and Stopford[11]). A simpler method of releasing sympathetic tone, and one causing less discomfort to the patient, is to raise the body temperature, either by enclosing the subject with the exception of the limbs to be examined in a chamber heated by electric lights (Lewis and Pickering[15]), or by immersing one or both of the remaining limbs in water at 42° to 45° (Pickering,[4] Gibbon and Landis[16]).

These methods of producing vaso-dilatation in the limbs differ in efficiency in the upper and lower extremities. Many cases of Raynaud's disease examined when the vessels are in spasm show no rise of skin temperature of the little finger when the sympathetic fibres of the ulnar nerve are blocked by novocain; while these same patients show a full and normal vaso-dilator response to warming the body; this difference has led us to suggest that the sympathetic contains vaso-dilator as well as vaso-constrictor fibres.[15] In the lower limbs, on the other hand, Landis[17] has observed three cases of acrocyanosis, which failed to respond to warming of the body, yet showed a normal response to blocking of the sympathetic fibres; working independently we have found this to be true for some normal subjects also. In identifying structural disease of the vessels, body-warming is adequate and is the simplest method to use in the case of the upper limbs; nerve anaesthetization is the best method in the lower limbs.

Some confusion seems to exist over the interpretation of this test. In normal subjects exposed to air temperatures of 18° to 20°, the skin temperature of the extremities rises to 32° or more when the peripheral vessels are fully dilated by either of the methods described. The measure of organic obstruction to the flow of blood to the skin is gauged, in this test, by the deviation of the final level of skin temperature attained from the normal of 32° and not by the total rise of skin temperature, the latter depending largely on the initial temperature of the extremities.

Many workers[3 14] consider that if, in this test, a rise of skin temperature is obtained, then the condition of the vessels is one characterized ordinarily by spasm, and that the degree of rise indicates the measure of spasm. It is to be pointed out that if this interpretation is to be adopted then the vessels of every normal subject would have to be regarded as in a condition of spasm, and the word would lose its proper significance. A rise of skin temperature occurring after paralysis of the sympathetic fibres indicates that the vessels were constricted initially, at least in part, by sympathetic tone. It is not to be overlooked that sympathetic tone is a normal phenomenon, and the most important single factor in the control of body temperature; a rise of temperature shows simply that the vessels have the capacity to dilate, but if the dilatation is imperfect the temperature reached may show it, and indicate the degree to which they are permanently constricted by structural disease of their walls.

The test gives important indications for treatment. If a lesion is present in an extremity that is habitually cool but which becomes warm during the test, then it is reasonable to anticipate some improvement to result from the removal of sympathetic tone. As a temporary therapeutic measure we have frequently found it sufficient to keep the body warm by hot-water bottles and blankets, the limb being uncovered or covered lightly. A more lasting effect may be obtained from sympathectomy. In assessing the probable value of this operation it is well to be cautious, for the immediate effects are more striking than the later, the vessels regaining a certain measure of tone after sympathectomy.[18] Our experience agrees with that of Morton and Scott,[5] who consider that if in the test a skin temperature of less than 28° C. is finally reached then sympathectomy is inadvisable.

*The Reactive Hyperaemia Test**

When the circulation to a warm normal limb is arrested for five minutes and released a bright flush (reactive hyperaemia) spreads at once throughout the limb, reach-

* This important test was mentioned but not discussed in an earlier publication.[11]

ing the tips of the digits in two to five seconds. The rapidity with which this flush appears in any piece of skin depends on the patency of the vessels leading to it. In using this test to detect structural lesions of the vessels it is essential that the vessels of the limbs should be dilated, which can be ensured by maintaining the body and limbs warm. If the limbs are cold, then in normal subjects, and especially in subjects with spasmodic affections of the arteries (Raynaud's disease and acrocyanosis), the arteries or arterioles of the skin are constricted and the appearance of the flush is delayed and may be prevented. A test of this kind introduced by Moszkowicz[1] fell into disrepute for the very reason that he failed to control the temperature of the limbs. One other precaution must be taken—namely, to empty the limbs of blood before arresting the circulation to them; for if the skin vessels are engorged with blood throughout the period of vascular occlusion, plasma is lost from the contained blood, and the normal vessels are left packed with blood corpuscles, a condition of stasis which greatly delays the return of fresh blood to the skin at the release.

The test should be performed in a room at 20° or over, and if the subject is not already comfortably warm he must be made so by warming him with hot-water bottles and blankets. If the upper limbs are being examined the patient may be sitting; if the lower limbs then he should be lying down. The limbs are warmed by immersing them for ten minutes in water at 35°; they are then lifted high out of the water in order to pale the skin, and the circulation is abruptly arrested by inflating to above systolic pressure a sphygmomanometer cuff wrapped around the upper arm or thigh. The limb is returned to the water bath, and after four and a half minutes is lifted out, laid horizontal in a good light, and dried; it should be pale still. A half-minute later the circulation is released and the course of the flush observed. When the vessels are patent—that is, in normal subjects and patients suffering from uncomplicated Raynaud's disease and acrocyanosis—the flush reaches the tips of the digits in less than five seconds, is bright in colour, and reaches a maximum intensity in fifteen seconds or less, and fades quickly. In subjects with structural disease of the vessels the flush spreads slowly and in patches, and may not appear in the tips of the digits until a minute or more after circulatory release. In these cases, too, the flush is commonly a little cyanotic in tint, and often lasts for very long periods of time.

The manner of this test may be modified to suit individual cases provided that the precautions emphasized are borne in mind. Thus it may be made upon bed-ridden patients, the limbs being kept warm by covering with blankets and hot bottles. (It should be remembered that it is easy to burn the skin with a hot bottle when the circulation is deficient.)

The reactive hyperaemia test demonstrates whether the circulation to the skin is reduced by the presence of structural disease of the vessels. All of our patients who were known, on other grounds, clinical or pathological, to have structural lesions of the vessels, and who had complaints referable to an impaired blood supply to the skin, have shown an abnormal response to this test. A few examples are given in the accompanying table.

In two of our patients pulsation was absent in all the vessels of a limb while the reactive hyperaemia test was normal; in both there was reason to believe that a localized thrombosis had occurred in the main vessel at its origin from the aorta, the vessels distally being healthy. The more completely investigated of these cases was a man found to have an aneurysm of the abdominal aorta in 1921, the femoral pulses being then present. The left femoral pulse disappeared in 1923, the right between 1927 and 1931, after which he had pain in both legs on walking. When examined in December, 1931 (then aged 52), the lower limbs were warm and of good colour, though no arterial pulsation was palpable at any point. The reactive hyperaemia test was normal, a bright flush appearing in the toes within five seconds of circulatory release. Five days later he died from uraemia; a large aneurysm of the abdominal aorta was found completely filled with laminated clot, the circulation to the legs being adequately maintained by large anastomotic channels. The vessels were dissected in the length of the leg by Dr. Ronald Grant and found to be healthy. Although this patient suffered from intermittent claudication, indicating that the blood supply to the muscles of the legs was inadequate to heavy demands of exercise, he had no symptoms or signs referable to the skin. The normal reactive hyperaemia time must be ascribed to the large collateral supply to the skin, and to the healthy state of the vessels distal to the point of circulatory arrest (the thigh).

The advantage of the reactive hyperaemia test is that it requires no apparatus except that which is readily available to the practitioner, and is, in our experience, as delicate as any single test yet devised. For the simple purposes of diagnosis we regard it as likely to supplant, almost completely, all tests depending on simple release of vasomotor tone. Another point in its favour is that it gives us an indication of the lowest level for amputation that is consistent with survival of the skin flaps. At the moment the site for amputation is usually selected

Table Comparing the Results of Clinical Examination with the Times of Reactive Hyperaemia in Patients with Structural Vascular Disease

Case	Diagnosis	Age	Leg	Arterial Pulsation				Excursions of Oscillometer			Time of Reactive Hyperaemia						Remarks
				Fem.	Pop.	Post Tib.	Dor. Ped.	Knee s.d.	Calf s.d.	Ankle s.d.	Calf min.	Calf sec.	Heel min.	Heel sec.	Toes min.	Toes sec.	
1	Thrombo-angiitis	40	R	+	—	—	—	1	¼	0	0	15	0	45	0	50	Intermittent claudication right leg. Right leg persistently warmer than left.
			L	+	+	+	+	9	8	2			0	5	0	10	
2	Thrombo-angiitis	25	R	+	+	—	—	10	6	2			0	4	0	10	Claudication left leg. Healed ulcers left toes. Right toes reach 31°. Left 29° after body warming. Sympathectomy gave a fair result.
			L	+	—	—	—	¼	0	0			0	15	0	40	
3	Thrombo-angiitis	47	R	+	+	—	—	5½	1½	0	0	5	0	25			Left leg amputated three years before. Extensive gangrene dorsum right foot. Successful amputation lower third of right leg.
4	Diabetic gangrene	64	R	+	—	—	—	0	0	0	0	5	0	37	1	30	Gangrene three right toes. Successful amputation lower third of thigh.
			L	+	—	—	—	¼	0	0	0	5	0	13	0	35	
5	Senile gangrene	52	R	+	+	+	—	6	2½	½			0	5	0	55	Bilateral intermittent claudication. Healed ulcer right toe.
			L	+	+	+	—	6½	4	1			0	5	1	0	
6	Diabetic gangrene	74	R	+	+	—	—	4	1	0			0	5	0	15	Gangrene of right great, third, and fourth toes. Successful amputation of these toes. The flaps became septic, necessitating removal of a metatarsal.
			L	+	—	—	—	2	0	0			0	11	0	28	

on the basis of average results in an experience of a large number of cases of similar type; occasionally it is selected by ascertaining the lowest limits of arterial pulsation. When amputation is made at a low level in order to give the patient a relatively useful limb the flaps not infrequently become gangrenous, and a second and higher amputation is necessary. Moszkowicz[19] originally suggested that the site of amputation should be decided by the absolute lower limit of the reactive flush, a suggestion which has been found to be impracticable. We have already indicated why this test is unreliable; if due precautions are taken the flesh extends eventually to all parts of the living skin. It is clear that if the test is to be of value in selecting the lowest safe site for amputation then some arbitrary time limit for the appearance of the flush must be set that is compatible with the healing of such skin when cut into flaps. At the moment we cannot state what this time is with finality, but we suggest as a working basis that if a bright flush appears in the heel within fifteen seconds of circulatory release then amputation just above the ankle is safe, and if the flush appears in the toes within twenty seconds then amputation of the toes is likely to be successful. Illustrative cases supporting this suggestion are Cases 3 and 6 in the table.

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STUDIES ON THE AETIOLOGY OF BLOOD DISEASES

A PATHOGENIC AGENT IN NORMAL HUMAN BONE MARROW

BY

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In January, 1932, we began researches on the aetiology of pernicious anaemia and acute leukaemia. The work is still incomplete, but since there has been a compulsory break in the course of our investigations we wish to report the results so far obtained. In our experiments we have used rabbits, and we have tested the effect of intrathecal injections of bone marrow and blood obtained from human cases. All experiments made with blood have been completely negative; with bone marrow the results have been striking.

In each experiment with bone marrow a little marrow was ground in saline until a fine emulsion was formed; then into each rabbit 0.3 c.cm. of the emulsion was injected through the occipito-atlantal membrane into the theca. Only rabbits weighing 2,500 to 3,000 grams were used. Cultural tests were made of all inocula. Cerebro-spinal fluid and portions of brain were taken post mortem from all animals that had received injections, and these, too, were tested by cultural methods. We shall place on record only experiments in which all cultural media used in the tests remained perfectly sterile. The injection of bone marrow emulsion was followed by an incubation period of from a few days to three weeks; then, in almost all our experiments, a very characteristic picture developed. As a rule, the first symptom to appear was a paresis of the hind legs. In a few of our experiments, however, the earliest symptoms appeared in the muscles of the neck, spasmodic contractions pulling the head into the most grotesque attitudes. Rabbits in which symptoms appeared first in the muscles of the neck showed abnormal voracity, whereas those of the other type lost appetite and weight. In some rabbits symptoms progressed for a time, and then remained stationary or even disappeared; in others disability progressed steadily until death, which occurred within a few days or weeks of the date of the injection. We give in briefest outline a few typical protocols:

EXPERIMENT I

Test of Bone Marrow from a Case of Acute Leukaemia

Rabbit 252.—January 14th, 1932, injection; January 28th, complete paralysis of hind legs; February 10th, moribund, killed.

EXPERIMENT II

Test of Bone Marrow from a Case of Acute Leukaemia

Rabbit 300.—July 28th, 1932, injection; August 9th, complete paralysis; August 10th, moribund, killed.

Rabbit 301.—July 28th, 1932, injection; no symptoms developed.

Rabbit 302.—July 28th, 1932, injection; August 9th, paralysis of hind legs; August 18th, complete paralysis; September 16th, moribund, killed.

EXPERIMENT III

Test of Marrow from a Case of Pernicious Anaemia

Rabbit 299.—July 26th, 1932, injection; August 19th, paralysis of hind legs; August 29th, dead.

EXPERIMENT IV

Test of Marrow from a Case of Pernicious Anaemia

Rabbit 387.—November 15th, 1932, injection; December 5th, complete paralysis; December 20th, dead.

Rabbit 288.—November 15th, 1932, injection; no symptoms developed.

It is evident that in rabbits we have produced a definite encephalitis by the intrathecal injection of bone marrow taken from cases of pernicious anaemia and acute leukaemia. We have tried to find whether this encephalitis is transmissible from rabbit to rabbit. We have taken bone marrow, brain, and liver from encephalitic animals, and of each of these we have made emulsions which we have injected intrathecally into fresh normal rabbits in 0.3 c.cm. doses. The following are summarized protocols of the experiments.

EXPERIMENT V

Rabbit 305.—August 29th, 1932, injection of bone marrow from Rabbit 299 (pernicious anaemia); no symptoms developed.

Rabbit 306.—August 29th, 1932, injection of brain of Rabbit 299; September 12th, spasmodic contraction of muscles of the neck, distorted position of head, frequent rotations round the body axis, abnormal voracity; September 15th, moribund, killed.

Rabbit 307.—August 29th, 1932, injection of liver of Rabbit 299; September 1st, complete paralysis; September 3rd, moribund, killed.

EXPERIMENT VI

Rabbit 317.—September 15th, 1932, injection of bone marrow of Rabbit 306, an animal which represented those of the first passage; October 6th, paresis of forelegs; October 15th, moribund, killed.

Rabbit 318.—September 15th, 1932, injection of liver of Rabbit 306; October 6th, paresis of hind legs; October 10th, killed.

Rabbit 319.—September 15th, 1932, injection of brain of Rabbit 306 ; no symptoms developed.

Thus the encephalitis of Rabbit 299 (pernicious anaemia) was transmitted to Rabbits 306 and 307 by means of emulsions of brain and liver, and the condition was passed on again to Rabbits 317 and 318 by means of emulsions of liver and bone marrow of Rabbit 306.

Passage from Rabbit 307 was attempted, but with negative results. Attempts to transmit from Rabbits 300 and 302 (acute leukaemia) also failed.

Before these results can be discussed with profit it is necessary to give the results of control experiments in which rabbits were injected intrathecally with human bone marrow taken from cases not suffering from disease of the haemopoietic system. The following protocols are representative of all.

EXPERIMENT VIII

Rabbit 381.—November 10th, 1932, injection ; November 17th, paralysis of hind legs ; December 12th, moribund, killed.

Rabbit 382.—November 10th, 1932, injection ; November 17th, paralysis of hind legs ; December 5th, moribund, killed.

EXPERIMENT IX

Rabbit 385.—November 14th, 1932, injection ; November 21st, complete paralysis ; November 22nd, dead.

Rabbit 386.—November 14th, 1932, injection ; November 21st, complete paralysis ; November 22nd, dead.

EXPERIMENT X

Rabbit 391.—November 21st, 1932, injection ; December 1st, complete paralysis ; December 3rd, dead.

Rabbit 392.—November 21st, 1932, injection ; November 25th, paralysis of hind legs ; December 12th, dead.

EXPERIMENT XI

Rabbit 488.—April 28th, 1933, injection ; May 6th, paralysis ; May 24th, dead.

Rabbit 489.—April 28th, 1933, no symptoms developed.

Thus, in rabbits, the intrathecal injection of normal human bone marrow produced symptoms exactly like those produced by marrow from cases of pernicious anaemia and acute leukaemia. So far encephalitis produced by normal human bone marrow has not been successfully transmitted from one rabbit to another—at least, we cannot say that we are certain that it has been. Certain experiments were suggestive, but the symptoms which developed were not sufficiently pronounced and typical to be accepted with confidence. Twenty rabbits were injected intrathecally with emulsions of bone marrow, liver, or spleen of normal rabbits, but no symptoms of encephalitis appeared. Similar negative results were obtained when bone marrow from guinea-pigs was injected into rabbits.

HISTOLOGICAL FINDINGS

Striking changes were found in the livers of eight rabbits which had been injected with human bone marrow. In paraffin sections stained with haematoxylin and eosin the liver cells resembled plant cells rather than animal cells, the whole organ presenting a honeycomb-like appearance. The picture strongly suggested liver cells packed with glycogen, and Best's stain applied to tissue which had been fixed in a suitable manner showed that massive deposits of glycogen were indeed present. This massive deposition of glycogen was observed only in rabbits which had been injected with human bone marrow and had developed symptoms of encephalitis. These histological findings closely resemble those described by v. Gierke,[1] Schönheimer,[2] van Crefeld,[3] and Beumer and Loeschke[4] as occurring in a disease of children which is characterized by an enormous enlargement of the liver due to massive deposition of glycogen in the liver cells. In the livers of our rabbits, besides the enlargement of parenchyma cells, we frequently found marked perivascular cellularity. It seems doubtful whether this cellularity is of any pathological significance, since the same histological appearances were sometimes found in the livers of normal rabbits.

Another remarkable histological finding in our rabbits was an extraordinary degree of haemosiderosis of the spleen, detectable by the Prussian-blue method. A long series of control observations demonstrated that normal rabbit spleen is, as a rule, free from haemosiderin. In only one control rabbit was haemosiderin detected, and then the amount was very small. In most of the intrathecally injected rabbits the spleen was blue throughout when stained for iron. The haemosiderin was sometimes observed as early as the second or third day after the injections. In some cases it was still present after five weeks. This histological change in the spleen has nothing to do with the encephalitis. It was observed also in rabbits which had been injected with rabbit organs and had shown no symptoms of encephalitis. Even the intrathecal injection of cerebro-spinal fluid taken from normal rabbits produced a marked haemosiderosis of the spleen in rabbits. This effect is probably only a consequence of a meningeal irritation. If this is the true explanation and if we can accept the view that endothelial cells are altered in such conditions, then here is an interesting proof that the central nervous system has an action upon the reticulo-endothelial system.

In our encephalitis rabbits the blood picture was, as a rule, unchanged. In one animal, Rabbit 302, a marked anaemia was observed seven weeks after the injection (haemoglobin 38 per cent.), but that is all we have found.

DISCUSSION AND SUMMARY

Our experiments have demonstrated that in normal human bone marrow there is an agent which is pathogenic for rabbits. It causes an encephalitis if injected intrathecally into those animals. This agent cannot be one of the common bacteria, since all our sterility tests have proved negative. That the agent is a living virus is an attractive suggestion. The fact that the agent was present in all specimens of normal human bone marrow tested by us demonstrates that generally the agent is non-pathogenic for man, but this does not exclude the possibility that under some special conditions this same agent may become pathogenic for man and cause disease. It will be of importance to determine whether the agent is confined to human bone marrow.

Since our attempts to transmit the encephalitis from rabbit to rabbit through an indefinite series have met with indifferent success, we think that as yet there is insufficient proof that the agent we have been studying is a living thing. Even if the transmissibility of the encephalitis were accepted, several different interpretations would have to be considered. The matter will be more fully discussed in a subsequent paper. Here we only mention the suggestion that possibly a virus normally present in rabbits might be stirred up to produce an encephalitis when human bone marrow is injected intrathecally. We have in mind, of course, the virus of Kling.[5] We think that this explanation cannot be the true one for the following reasons: (1) the intrathecal injection of bone marrow produces encephalitis with almost complete regularity, whereas the encephalitis virus of Kling is present in the brains of only a limited number of rabbits ; (2) bone marrow of rabbits and guinea-pigs never produced encephalitis, although in such cases the non-specific irritation of the brain must be the same as with human bone marrow. It is, of course, possible that in the isolated experiments in which encephalitis was transmitted from one rabbit to another we were really dealing with an agent similar to that of Kling.

Our results seem to be of especial interest with regard to the researches on the aetiology of Hodgkin's disease, which were published by Gordon[6] during the course of our

shadows which suggested old calcified tuberculous gland at the root of the lung, but there was no evidence of any changes in the suprarenal glands. A Mantoux test gave a marked positive reaction with vesiculation, followed by induration, which persisted for several weeks in dilution 1 in 10,000 ; with dilutions 1 in 100,000 and 1 in 1,000,000 the results were negative. There was a marked general reaction, the temperature rose to 103.8° F. and the pulse to 112 per minute, with headache, recovery being only completed on the fifth day. There were no symptoms pointing to a focal reaction. Laboratory investigations showed: red cells per c.mm., 6,010,000 ; haemoglobin, 94 per cent. ; colour index, 0.78 ; white cells per c.mm., 6,800. Differential count gave: polymorphonuclears, 43.2 per cent. ; lymphocytes, 51.2 per cent. ; and eosinophils, 5.6 per cent. Meinicke reaction negative. Blood urea 40 mg. per cent. Urine normal. Blood sugar fasting, and twenty-four hours after an injection of eucortone, 72 mg. per cent. ; after 50 grams dextrose half-hourly readings gave the figures 109, 83, 72, and 80. On another occasion, ninety-six hours after the last injection of eucortone, the blood sugar was 80 mg. per cent. ; the boy felt weak and fainted. The blood pressure was 78/50. After the administration of eucortone, 5 c.cm. intravenously, and 50 grams of dextrose by mouth half-hourly estimations of blood sugar yielded the following results, 117, 113, 94, 68, and 78. Blood pressure readings taken at ten-minute intervals after an injection of eucortone showed no rise of blood pressure.

Progress of Case

From February 6th till March 15th, inclusive, the patient received 5 c.cm. eucortone intravenously each day, with the exception of the ninety-six hours above-mentioned. Under this treatment he remained free of most of his symptoms, such as vomiting, insomnia, anorexia ; but there was only a gain of 2 lb. in weight. There was but slight lessening of pigmentation, and the blood pressure varied between 70/50 and 78/50. On March 1st three horizontal lineae atrophicae had appeared on either side of the spine opposite the eighth and ninth dorsal spincus processes. Lines of lighter colour, like those already mentioned above, had appeared, two on each side, symmetrically placed along the pectoral margin of the axilla, and one running from the sternal notch towards the umbilicus.

On March 16th whole-gland suprarenal (Armour) was substituted for the eucortone ; three tablets, each of 2 grains dried gland (= 10 grains fresh gland), were given by mouth thrice daily. Within two days the patient expressed himself as feeling much better and stronger than he had done for many weeks. In the following ten days he gained 3 lb. in weight and the blood pressure rose to 90/55.

On March 31st whole-gland suprarenal was replaced by a special extract of cortex prepared by Allen and Hanburys for oral administration. It was given in doses as suggested, but the gland equivalent was unknown to me at the time. Within twenty-four hours the lad said he did not feel so well, his appetite began to fail, there was immediate loss of weight, and the blood pressure fell to 78/48. It was then found that this liquid extract, which was being given in doses of half an ounce thrice daily by mouth, only contained 1 gram of cortex per 3 c.cm. It also contained 0.05 per cent. adrenaline. A return to whole gland by mouth was made on April 5th, with immediate benefit ; all previous symptoms disappeared, the blood pressure rose to 88/58 in forty-eight hours, weight increased, and appetite was excellent. During the ensuing two weeks improvement was rapid ; he was able to walk several miles, muscular power was good ; to exercises directed to correct the kyphosis he responded well. The pigmentation was diminishing very considerably, and the blood pressure remained higher than previously. The pulse sounds noted during sphygmomanometrical readings appeared almost normal. About the middle of April it was noticed that the breasts were enlarged, resembling those of a girl a year before puberty, but without changes in the nipples. During forty-eight hours, April 18th to 20th, treatment was discontinued, with no obvious ill effect.

On April 21st cortin organon, 5 c.cm. by mouth, was given. By the evening of that day symptoms of suprarenal insufficiency developed. These had not been noticed during the previous two days, when treatment had been withheld. After three days on 5 c.cm. by mouth, 5 c.cm. were given twice daily intramuscularly, with some improvement. Cortin is a preparation of suprarenal cortex made at Oss in Holland by N. V. Organon, who very kindly sent me a supply for a trial at the instance of Dr. Alison Macbeth: 1 c.cm. represents 50 grams of fresh gland. The dose advised—namely, 5 c.cm., intravenously—for maintenance is doubtless about correct, and corresponds fairly closely to that of eucortone.

A second return was made to dried whole gland, and the patient took his discharge from hospital on May 4th, 1933, with a supply of tablets. He came up once two weeks later for more tablets, and then disappeared ; all efforts to trace him failed. On July 1st, 1933, he returned in a condition of collapse, with all his previous symptoms returned. Weight, 119 lb. ; temperature, 98° to 99° F. ; pulse 72/84 ; blood pressure, 60/36. There were present extreme asthenia, negativism, nausea, vomiting, and abdominal pain. During the first week, 10 c.cm. eucortone was given daily ; later an oral preparation of eucortone, made by Allen and Hanburys, was tried, and the addition of adrenaline subcutaneously was made. The patient continued to lose weight, and it was impossible to get him to take nourishment. A return was made to intravenous eucortone, kindly provided by Allen and Hanburys: 10 c.cm. were given twice on the first day (July 22nd) and the second day, then 10 and 5 c.cm., and thereafter 5 and 5 c.cm. each day. There was some response in that a little nourishment was taken and the extreme sense of weakness was less marked ; the blood pressure remained at 60/36. Eucortone was then discontinued, as the supply had come to an end. Twenty-four hours later the patient collapsed, became comatose, and died. Necropsy was refused.

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TREATMENT AND CONTROL OF ESSENTIAL HYPERTENSION

A NEW THERAPEUTIC MEASURE

BY

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In 1917 Cyriax[1] reported good results in cases of moderately high blood pressure obtained by what he described as "mobilization of the spinal column," by which he meant active and passive movements of the vertebral joints, and passive manipulations, vibrations, pétrissage, etc., of the erector spinae muscles. His explanation of raised pressure was, apparently, that congestion of these parts led to irritative states of the erector spinae, setting up a series of sensory stimuli to the posterior spinal nerves, which in turn gave rise to a series of pressor effects. Whatever the explanation, his figures seemed to show a definite diminution of the blood pressure in his patients.

Although unwilling to accept the theory on which the treatment was based, I ventured to modify his method by substituting electrical stimulation of the skeletal muscles, and submitting patients with high grades of pressure to treatment on these lines. As a preliminary the patients were tested to see what effect the resulting muscular contractions had on the pulse rate, particularly as some of them were on the verge of cardiac failure, a few actually exhibiting oedema of the ankles and a more than moderate enlargement of the heart. In every case [illegible] dropped, sometimes by [illegible]

few it remained stationary; in none did it rise. It was argued, therefore, that the method of treatment, instead of throwing a burden on the heart, actually relieved it, and the treatment was carried out with greater zest.

CLINICAL MATERIAL

Case 1.—A woman, aged 58, and unmarried, complained that her left leg had suddenly become stiff, and that her speech had become bad two years previously. Family history: father had died of "stroke" at the age of 62; he was paralysed for two months; mother had died of bronchitis at the age of 40; one brother had died of nephritis, while two were well; one sister had high blood pressure, one had died of stroke, six were well. Previous history: none of any significance; patient was fat two years ago. Habits: no alcohol, no smoking; exercise, housework.

Condition before treatment: the patient was thin, had left-sided hemiparesis, with dysarthria; she could not get into her car, and walked very slowly. Heart: left border one inch outside mid-clavicular line; first sound +, aortic second sound ++. Lungs: *nil*. Blood pressure 240/140. Urine: specific gravity 1014; no albumin or sugar. After treatment the blood pressure readings were as follows:

Date	Systolic	Diastolic
September 12th, 1932	240	140
„ 15th, „	200	136
„ 21st, „	184	130
„ 27th, „	180	122
„ 30th, „	230	122
	200	120
October 5th, „	175	120

The patient states that she can now get into the car alone, "feels lighter," and walks better. The left border of the heart is just outside the mid-clavicular line, with a heaving apex beat and an accentuated aortic second sound.

Case 2.—A woman, aged 56, unmarried, complained of a "swaying feeling in the head" of six months' duration. Family history: as for Case 1. Previous history: none of any significance. Habits: no exercise; no tobacco or alcohol. Heart: left border just outside mid-clavicular line; aortic second sound +. Lungs: *nil*. Urine: specific gravity 1012; no albumin or sugar. Blood pressure readings were as follows:

Date	Systolic	Diastolic
September 12th, 1932	210	128
„ 16th, „	170	110
„ 21st, „	158	105
	160	105
„ 23rd, „	178	108
„ 27th, „	148	98
(Exercise started)		
September 30th, 1932	170	112
October 5th, 1932	155	105

On October 8th, 1932, the left border of the heart was in the mid-clavicular line; the patient stated that she felt quite well, and had no swaying feeling in the head.

In neither of these cases was rest enjoined or medicine given, and there was no restriction of diet. In both there was marked diminution of the size of the heart, disappearance of symptoms, a considerable fall in the pressure, and obvious general improvement. But one of the patients, the younger, seemed to have improved more than the elder, who appeared, when she first came to me, to have reconciled herself to a condition of inactivity engendered by a fear of fatal apoplexy.

Case 3.—A clerk, aged 49, married, with seven children, when seen on May 18th, 1932, complained of weakness, and, on interrogation, breathlessness and pain over the lower part of the sternum following exertion (of two years' duration). Family history: father died of enlarged liver at the age of 48; mother died suddenly of "debility"; of six brothers, one had kidney disease, two were dead—one dying of typhoid. Previous history: none of any significance. Habits: a little alcohol occasionally, but no tobacco; exercise, a little walking; food, three good meals a day.

Condition before treatment: Tightness under the sternum, palpitation, dyspnoea on exertion, slight giddiness; bad teeth; bowels constipated. Pulse 90, regular, and of high tension. Heart: apex beat in the sixth space, anterior axillary line. Vessels: palpable. Blood pressure 260/160. Urine: no albumin. Lungs: *nil*.

On May 25th the blood pressure had fallen to 218/142, and the patient said he felt better. The following were the blood pressure readings:

Date	Blood Pressure		Remarks
	Systolic	Diastolic	
May 18th, 1932	260	160	—
May 25th, „	218	142	—
May 28th, „	210	120	No pain under the sternum; heart smaller
June 1st, „	192	120	—
June 3rd, „	190	122	Left border of heart finger-breadth outside nipple line
June 6th, „	—	—	Left border of heart just outside nipple line
June 17th, „	—	—	Left border of heart in nipple line
June 22nd, „	182	118	—
Aug. 16th, „	180	115	Left border of heart in nipple line; no pain under sternum
Aug. 19th, „	—	—	Patient ceased attendance

Case 4.—A carpenter, aged 60, married, with nine children, was admitted to hospital on June 17th, 1932, complaining of loss of power of the right limb; he had had a similar attack three years before. Family history: father died, aged 60 (? boil in cheek); mother died, aged 83, of old age. Previous history: malaria, nothing else of significance. Habits: a little alcohol occasionally, but no tobacco; exercise, his work; food, formerly two good meals a day.

Condition before treatment: Slight paresis of left side of face, speech slurring. Pulse 90; rhythm regular, high tension. Vessels: thick. Heart: left border half an inch outside the nipple line; aortic second sound accentuated. Blood pressure 210/110. Urine: a trace of albumin, no casts. Lungs: *nil*. Wassermann reaction negative. Nervous system: knee-jerks and biceps response normal on the left side.

July 4th, 1932: Babinski's reflex positive on right side; no sensory phenomena. After daily treatment blood pressure is 132/92. The patient's speech is normal, and power of the lower limbs has returned; the left border of the heart is internal to the nipple line.

Case 5.—Hotel manager, aged 56, married, with ten children, was admitted on April 3rd, 1932. He complained of breathlessness and palpitation, and occasional swelling of the legs. Family history: father died of old age at 72; mother died of heart trouble at 68; five brothers, all well; four sisters—one dead, the remainder well. Previous history: was in the police force, 1895–1918; admitted to hospital four times, once with diabetes; had had malaria in 1892. Habits: a fair quantity of alcohol, but no tobacco; no exercise now.

Condition before treatment: Fat and short-necked type; had palpitation and shortness of breath, while teeth were slightly infected; legs were swollen. Pulse 40, regular. Heart: three-quarters of an inch outside the nipple line, aortic second sound accentuated. Blood pressure 180/120. Lungs: *nil*. Urine: a trace of albumin, but no casts.

On July 29th the blood pressure was still 180/120, but there was no swelling of the legs; the heart was as before; pulse 84; no oedema. Patient complained of headache about 1.30 a.m. Renal involvement was feared, and a urea concentration test was done on August 2nd (blood urea 27 mg. per 100 c.cm.). Concentration before test 1.3 per cent.; after one hour 2.5 per cent.; after two hours 2.0 per cent.; after

three hours 2.0 per cent. The treatment was continued, and the following were the subsequent blood pressure readings:

Date	Systolic	Diastolic	Remarks
August 8th ...	162	100	Patient felt much better; no headache; no swelling of the feet
August 13th ...	170	106	Left border of heart in the nipple line. Patient felt much better
August 18th ...	—	—	Left border of heart in the nipple line

In this case the failure to respond to treatment in the early stages suggested renal involvement and impaired renal function, but the blood urea and the urea concentration test gave figures which indicated efficient functioning. Therefore the treatment was continued until the diastolic pressure fell to 100, and the patient felt very much better.

Case 6.—Hotel manager, aged 41, married, with two children. He complained of occasional throbbing in the head. Family history: father died at the age of 54 years, and mother at the age of 66; two brothers and five sisters, all well. Previous history: patient consulted a doctor about four years previously for "feeling dizzy suddenly," and one year previously had complained of headache; no history of any other illnesses. Habits: alcohol formerly, but little now; exercise, only walking associated with work; tobacco, fifteen cigarettes a day; food, had eaten well previously.

Condition before treatment: Headache occasionally, dyspnoea slight; nothing else of significance. Pulse: 85, regular, good volume and tone. Heart: left border in nipple line, second aortic sound accentuated. Urine: specific gravity 1011, a trace of albumin. Blood pressure 220/150.

Three weeks of treatment made no reduction in his blood pressure. Renal involvement was suspected, and the urea concentration test was done; the concentration in the second hour specimen was 1.7 per cent. Treatment was discontinued, but the patient "felt very much better."

The patients whose records are given above received no special medicine, nor was absolute rest ordered for any of them. Cases 4 and 5 happened to be in hospital; the others came for treatment from home. The diet was restricted in all of them.

DISCUSSION

Prior to adopting this method of treatment I had tried diathermy in a large number of cases of hypertension. I was never able to convince myself that pressure was reduced to an extent which could not be explained by the simultaneously ordered rest, in spite of Clifford Allbutt's[2] statement nine years ago that "d'arsonvalization by the auto-condensation method is the most valuable immediate aid we possess for hyperpiesia." But it was always strikingly evident that this treatment made the patients feel better, particularly when the kidneys appeared to be involved. They nearly always stated they were much better. With the diathermy I often combined radiant heat, particularly in renal cases. The striking reduction of pressure obtained in non-renal cases in the above series would therefore appear to be due to the mobilization of the muscles in the manner described.

The results recorded above indicate:

1. That in some cases of hyperpiesia the blood pressure drops to low limits, even to normal figures, without rest or medicinal aid; there is also relief from distressing symptoms.
2. That in other cases the patients are relieved of their symptoms and proclaim that they feel better, but that pressures will not fall. These cases show impaired renal function as gauged by the urea concentration test.
3. That the heart enlarged as a result of the strain of hypertension gets astonishingly smaller with the fall of pressure.

It is difficult to give an explanation of the mechanism by which the reduction of pressure is brought about. I was encouraged to try it by my belief that sedentary occupations or lack of sufficient exercise play an important part in the aetiology of essential hypertension, and, if I may be allowed to put it figuratively, that the rusty arterioles and capillaries of sluggish muscles were a cause of elevated pressure. It was found in the series that when an appreciable degree of diminution of pressure was not obtained the urea concentration test showed impaired renal efficiency.

All the patients were treated in hospital. The machine used was the ordinary pantostat—the faradic current—with a Lewis Jones interrupter in circuit to prevent irregular contractions and uneven, unpleasant shocks. Ordinary batteries have not so far been used, but there is no reason why any method of stimulation should not answer, so long as sudden shocks and irregular contractions are avoided. The Smart-Bristowe coil ought to prove useful. In the absence of electricity, massage would, I imagine, answer; but I am not in a position to vouch for good results. When pressures drop low as a result of treatment—namely, below a diastolic pressure of 110—the patients are taught exercises with which the muscles may be kept in action—particularly the trunk muscles—or advice is given that mild exercises may be resorted to. The patient should be carefully watched, particularly when cardiac enlargement and symptoms are present, or the doctor may one day be called upon to face a charge of "electrocution" when death due to heart failure is attributed to electrical shock. I have deliberately refrained from using subsidiary measures in order to establish the efficacy of this method of treatment, but I am of the belief that therapeutic doses of the drugs ordinarily used (not patent medicines) would prove very useful in maintaining the good results obtained, particularly in those cases in which the blood pressures have not fallen too near normal limits. To establish that the combined measures will give more satisfactory results than those already obtained must remain part of the programme of the future.

So widely is it accepted that arterial hypertension, when it throws its strain on the myocardium, takes the patient gradually to hypertrophy, dilatation, and failure, that we find East and Bain in *Recent Advances in Cardiology* describing "the third stage" of high blood pressure, as much as to imply that the changes are irrevocable. They probably are, but only when the vessel changes have taken place. If such changes have not taken place it would appear from these observations that extreme grades of enlargement can be reduced to moderate grades, and moderate grades to slight ones.

It is now sixteen years since Cyriax published his paper, but the methods of treatment which might have been developed from his findings are still not in vogue. This method of treatment was referred to briefly by me at the discussion on essential hypertension at the Annual Meeting of the British Medical Association in Dublin.

I have to acknowledge here my gratefulness to Miss Bevan, sister-in-charge of the electrotherapeutic department, General Hospital, Colombo, for the pains she has taken in connexion with these cases, and my indebtedness to my colleagues of that institution for helping me to carry out this treatment on their patients.

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Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

PRIMARY BRONCHIAL CARCINOMA WITH SECONDARY VERTEBRAL DEPOSITS

This case is of interest because symptoms were due to spinal cord compression, and the nature of the primary growth remained unsuspected till necropsy was performed.

A labourer, aged 50, on May 10th, 1933, noticed pains in both shoulders and in his back, which came on suddenly and forced him to leave his work; he said he was not subject to backache or rheumatism. During the next few days the pains were less troublesome, but on May 13th he became constipated, and medicine afforded him little relief. At the same time he noticed that his urine was cloudy. On May 30th he complained of weakness and numbness of his lower limbs, the right leg becoming slightly weaker than the left. The next day he was unable to pass water, and was admitted to the medical ward of this hospital.

On examination he was found to be a well-developed man, of good colour, with no signs of muscular wasting. No

abnormality of the cranial nerves was detected. There was anaesthesia to pain and thermal sense from the fifth thoracic segment downwards. Abdominal and cremasteric reflexes were absent, and the abdominal muscles were atonic. The lower limbs were not rigid; muscular power was diminished in the left leg and absent in the right. Superficial and deep reflexes were present on the left side and exaggerated on the right. Other findings were: left border of heart six and a half inches from mid-line and right border behind sternum; on auscultation diminished air entry in left axilla; bladder at level of umbilicus; cerebro-spinal fluid normal, no increase of pressure; Wassermann reaction negative. X-ray examination of the chest confirmed the displacement of the heart to the left, but failed to identify the cause.

From June 1st onwards the patient's condition rapidly deteriorated. He failed to regain bladder control, having to be catheterized daily, and, in spite of every precaution, cystitis and bed sores developed. He became incontinent of urine and faeces, and complained of tightness around his chest and of headache. He died on June 15th.

A post-mortem examination was performed, the findings of which were of the greatest interest. There were secondary metastatic deposits in the vertebral canal at the levels of the fifth and sixth thoracic segments, and again at the first and second lumbar segments; in the first situation there was haemorrhage into the growths. The right lung contained a large carcinoma growing from the outer wall of a branch of the right bronchus. It was two and a half inches in diameter, and, with a circumscribed surrounding area of acute congestion, involved the middle and lower lobes of the lung. There were dense pleural adhesions between the diaphragm, chest wall, and lung. The mediastinum was pushed over to the left, but the left lung showed no pathological changes other than collapse of portion of the lower lobe. The heart muscle, valves, and aorta were normal. There were secondary deposits in the liver, mediastinum, and abdominal glands. Microscopical examination of sections of the growth revealed an adenocarcinoma of the small-cell type.

It is rather surprising that such a large thoracic tumour should have grown so insidiously to such dimensions without giving rise to pulmonary symptoms such as cough, haemoptysis, sputum, pain in the chest, or dyspnoea.

I am indebted to Dr. Harold Wacher, honorary physician of this hospital, for permission to publish this case.

H. A. F. ROFE,
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Reports of Societies

FEMALE SEX HORMONES AND GONADOTROPIC SUBSTANCES

LECTURE BY PROFESSOR ASCHHEIM

At a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on December 8th, with Professor W. BLAIR-BELL in the chair, Professor S. ASCHHEIM of Berlin lectured on the presence and effect of female sex hormones and gonadotropic substances.

Professor Aschheim began by paying a tribute to British medicine, especially in the field of endocrinology. There were, he said, several ovarian hormones, two of which were known—namely, the oestrogenic hormone, which was formed in ripe and ripening Graafian follicles, and the hormone produced by the corpus luteum. The first of these was responsible for the occurrence of "heat" in animals, and was recognizable by a number of test methods which he described. By one principal test—that of uterine growth—the proliferation of the mucosa and of the musculature, the formation of new blood vessels, and the obvious hyperaemia all proved that the oestrous hormone was a substance capable of stimulating the development of the atrophic organ and of producing premature development of the infantile organ. On the basis of the test methods and of present knowledge of the occurrence of the oestrous hormone in the human body, it was possible to form a conception of the significance of this hormone and of its share in physiological and pathological processes.

The chief site of production was the follicular apparatus of the ovary, and the amount of the hormone present in the blood increased from the time of maturation of the follicle until the commencement of menstruation, at which point it again fell. Its excretion in the urine ran parallel with its presence in the blood. According to Siebke, from 1,200 to 2,000 mouse units were excreted during a complete menstrual cycle. In pregnancy the hormone content of the blood rose, and an increased excretion in the urine might even be demonstrated from the eighth week onwards. In the third month some 3,000 mouse units were excreted daily, while in the last months of pregnancy 50,000 or even 70,000 units might be found in the urine in twenty-four hours. Although the hormone was demonstrable in the ovary during pregnancy, it was possible that the placenta was the chief site of production during this period, since in women who were castrated early in pregnancy the hormone continued to be present both in the blood and in the urine. At the end of pregnancy the placenta contained some 1,500 to 2,000 mouse units of hormone. It might safely be assumed that the growth of the uterus during pregnancy was partly due to the influence of the hormone, though whether that was the only factor responsible for the conversion of the small non-pregnant uterus into the powerful muscular organ present at the end of gestation was not yet certain. It seemed that other factors played a part in the further growth of the uterus. The question as to whether the hormone had still other functions to fulfil in pregnancy—whether, for example, it was a necessity to the embryo, into whose circulation it entered—was still unanswered.

The lecturer next referred to the part played by the hormone in certain gynaecological disorders. In young girls with a severe form of menorrhagia, in association with a cystic hyperplasia of the endometrium as revealed by curettage, and in women with a similar condition at the commencement of the climacteric, there was not infrequently found an increased excretion of hormone in the urine, and it seemed likely that the condition was due to an excessive hormone production. Again, in the type of ovarian tumour known as a granulosa cell, in association with which a hypertrophic endometrium and enlarged uterus were found even in very old women, the presence of oestrous hormone had often been demonstrated in the tumours themselves, with an excretion of hormone in the urine, so that it seemed justifiable to attribute such uterine changes to a pathological hormone production. The hormone was formerly known as the female sex hormone, because it was first found in the ovary. Professor Aschheim, however, considered it better called the oestrogenic or oestrous hormone, for it had a wide distribution, and had even been extracted from plants, being also present in many flowers and fruits. Through a chance clinical observation he had been led, a few years ago, to the discovery that mineral oils contained oestrogenic substances. Certain petroleum oils were found to contain as much as 1,000 to 2,000 mouse units per kilogram, and substances found in bituminous material possessed all the biological characteristics shown by the oestrous hormone obtained from urine in pregnancy; whether there was chemical identity remained to be shown. Another property of the oestrous hormone was the production in infantile or castrated animals, on injection, of an increase in the metabolism of the uterus as measured with the Barcroft-Haldane or Warburg apparatus. The lecturer glanced briefly at the other known hormone—that produced by the corpus luteum. He mentioned that the hormone prepared by Corner and Allen from the corpora lutea of pigs had all the properties which could be demanded of a substitute for the corpus luteum.

THE GONADOTROPIC HORMONE OF THE ANTERIOR PITUITARY

The lecturer next turned to the gonadotropic substances. He pointed out that the dependence of the genital glands upon the hypophysis was recognized some time ago from

pathological, anatomical, and clinical observations. After long experiment it became possible to distinguish the pathological from the physiological changes, and to collect the chief findings in the ovary into three test reactions for the gonadotropic hormone of the anterior pituitary—namely: (1) formation of large follicles, sometimes with bursting of the follicle, and the formation of normal corpora lutea; (2) formation of follicles containing blood; (3) formation of corpora lutea enveloping ova. The first reaction represented a physiological process; the second and third were pathological. The anterior pituitaries of both men and women, young and old, and of the most various types of animals all acted in the same way, so that the anterior pituitary secretions were defined as a sexual non-specific hormone controlling the genital glands. It was true to say in all respects in the female, though only partially in the male, that the anterior pituitary was the motive power of sexual function. When the anterior pituitary was removed sexual function ceased, whereas after castration the hormone production in the anterior pituitary not only continued but actually increased. Some years ago he had endeavoured to ascertain whether gonadotropic substances, similar to those of the anterior pituitary, could be demonstrated in pregnant women, and he found that the placenta, decidua, and corpus luteum of pregnancy all gave the three test reactions in the infantile mouse. Further, the blood stream of pregnant women also gave the reactions, although after delivery the active substances rapidly disappeared from the blood. He was thus led to ask the question: What happened to the hormones? Were they destroyed in the body or were they excreted? He discovered the presence of the hormone in the urine of pregnant women; it was clearly demonstrable even a few days after the first period had been missed. On these observations he had based his test reaction for the diagnosis of pregnancy, and over a period of six years, in rather more than 13,000 cases, the original method had shown an accuracy of 98.25 per cent. These early investigations formed the starting point of systematic analysis of the urine for the presence of hormones. The question whether the placenta produced the hormone or merely stored it had been from the first an open one. It was surprising that the implantation of anterior pituitary fragments from pregnant women was inactive in animal experiments, whereas the hypophysis of, for example, a pregnant rabbit, was active. Amongst animals the hormones were only found in the urine in pregnant monkeys. The gonadotropic substances were found in man, in the amniotic fluid, and in the blood of newly born children, and were excreted in the urine in the first few days of extrauterine life. Of their significance in pregnancy in women nothing definite was known. It was possible that they assured continual function of the corpus luteum. He was led several years ago to wonder whether the various factors obtained in the ovary—that is, the maturation of the follicles on the one hand, and the formation of corpora lutea on the other—were due to different quantities of one and the same substance or whether two different substances were responsible. His investigations had led him to consider that there were two factors—the follicle-ripening factor and the luteinizing factor, the so-called prolan A and B. He gave a detailed account of his experiments in this connexion, and added that from work on which he was at present engaged there was no doubt in his mind that administration of the two factors in the proper sequence would give good therapeutic results in women suffering from amenorrhoea due to ovarian insufficiency resulting from a functional disturbance of the hypophysis. Therapeutic employment of a mixture of the two factors as obtained from the urine of pregnancy gave only purely fortuitous results.

In conclusion Professor Aschheim advanced some arguments in justification of the direct application of the results of animal experiment to human therapy. A further remark was that certain changes found in the ovaries of pregnant women could only be considered as a result of the presence of abundant quantities of these gonadotropic substances; in this class was the marked overgrowth of the theca in atretic follicles. If the organism was flooded by excessive amounts of hormones, as was the case in hydatidiform mole, large lutein cysts were formed which corresponded to the ovarian changes found in animal experiments. He advised a cautious use of the available anterior pituitary hormone, but he was convinced that the chemists would ultimately succeed in preparing the hormones separately, so that they could be employed in proper dosage and sequence with good results and without causing any damage. In the field of hormone research investigators were obliged to select individual glands out of the whole endocrine system and to study them and analyse the various subdivisions of their action. There was still an enormous mass of work to be done in this direction, and the problem was further complicated by the close connexion of another branch of study on hormone research—namely, the study of the vitamins. It was already known that the function of the endocrine glands was very greatly dependent upon the presence of certain vitamins in the diet. Chemists, biologists, and clinicians had thus a great common task to carry out, and it would require the co-operation of the research workers of the whole world to solve these problems.

Professor Aschheim, who addressed the section in English for an hour and a half, illustrated his theme by means of the most excellent lantern slides—mainly of microscopical sections.

DISCUSSION

Professor E. C. DODDS said that the only criticism of Professor Aschheim's lecture was that he had unduly minimized his own part in these investigations. But for the original investigations of Aschheim and Zondek none of the chemical work which had been done on the oestrus-producing hormone would have been possible at all. Prior to the discovery of this hormone in the urine the only source was the ovary, the follicular fluid, and the placenta, and the hormone was made by a process of extraction with volatile solvents from these sources. This resulted in the extraction of a large quantity of material with similar properties to the hormone, with the result that no idea of the composition of this compound could be arrived at. The compound excreted in the urine was not contaminated with similar bodies, and following the contribution of Aschheim and Zondek the organic chemists were able to attack the problem at once. Professor Aschheim had referred to the source of the hormone, and had said that he had studied a case of ovariectomy in early pregnancy. The speaker had also been able to study such a case, investigating the excretion of both oestrin and prolan in this patient. The ovaries had been removed for a bilateral cystic condition about the third month of pregnancy. The patient went to term, and it was found that the amount of oestrin and prolan excreted in the urine differed very little from that in a patient with ovaries; therefore he thought the ovaries could be disregarded as the source of oestrin in pregnancy. With regard to the question of the specificity of the oestrous test, or even the study of the vaginal or the uterine changes, this must be regarded as rather doubtful. Observations had shown that a great many compounds were excreted in the urine of pregnant animals, many of which were capable of producing oestrus, and whilst they possessed the same type of structure chemically they did differ in some important respects. With Dr. Cook of the Cancer Hospital he had been able to demonstrate that some compounds differing markedly from the chemical structure of oestrin were able to produce all the reactions of oestrus. He thought that caution should be shown in the study of oestrogenic agents before any biological action was regarded as specific. This applied particularly to Professor Aschheim's important observation that coal, and oils extracted from coal, contained this oestrus-producing agent. Professor Dodds added that he had never been convinced that there were two prolans—prolan A and prolan B. He thought it dangerous to argue on histological evidence

for two separate factors. Personally, as a biochemist, he would never be convinced until two solutions in two entirely separate and unconnected bottles had been produced, one which would produce luteinization and the other maturation of the follicles. Until this could be done it was, he thought, very unwise to specify prolan A and B.

Dr. A. S. PARKES said that as one whose job it was to carry out full-time research on this subject he could appreciate even more than most people the extraordinary industry and fertility of ideas which characterized the work in Berlin. With regard to the source of oestrus-producing hormone in the non-pregnant animal, there could be little doubt that the Graafian follicles represented one side of production, but the substance was undoubtedly produced in animals which had been deprived of the Graafian follicles. Was there a possibility of other tissues in the ovary producing this particular substance? Then there was the question of the possible identity of the gonad-stimulating substances found in the urine of pregnancy and those found in the anterior lobe of the pituitary body and the placenta. It was known that there were certain slight differences in the biological action of preparations made from these various sources, but at the same time the main action—that of stimulating the resting gonad to some form of activity—was the same, and it did seem probable that the substances, if not identical, were closely related chemically. The importance of this point, of course, was quite obvious, particularly since the urinary substances were far more easily come by than those in the anterior lobe itself.

Professor BLAIR-BELL also expressed scepticism as to the presence of two distinct bodies—prolan A and prolan B. He had always held, as Professor Dodds had so convincingly argued, that there might only be one. One had always to take into account the fact that the corpus luteum and the follicular cells of the granulosa were to a certain extent antagonistic. Professor Aschheim had thrown a flood of light upon what it was that caused rupture of the follicle. In thanking him very warmly he added, however, that there was still a great deal in this subject that was hypothetical, and the Aschheim-Zondek test must not be regarded as the alpha and omega. The chemical nature of prolan must be identified before there could be positive proof. Professor Blair-Bell showed and described a number of histological sections bearing on the subject.

In reply, Professor ASCHHEIM reiterated his belief in the presence of the two substances prolan A and B. His experiments, he thought, had proved that they must be different substances. As to the source of production of the ovarian hormone in castrated animals it was very difficult to say. It might be that substances from the food taken into the blood had a bearing on the problem, and that other organs contained or produced the same substance.

SPINAL ANAESTHESIA

At a meeting of the Section of Anaesthetics of the Royal Society of Medicine, held on December 1st, Mr. ETHERINGTON WILSON read a paper on "Intrathecal Nerve Root and Rootlet Block: Some Contributions and a New Technique," illustrated by films.

Mr. Etherington Wilson stated at the outset that his paper dealt with percaine as the anaesthetic agent, and that the experiments to be described were concerned only with that drug. He defined the levels of anaesthesia to be obtained, and classified them into three zones: (1) including the lower limbs to the groins, (2) extending up to the umbilicus, and (3) reaching to the nipple line. The films showed numerous experiments he had performed with glass tubes representing the spinal canal, and demonstrated the rate of ascent of the percaine solution injected in the canal. The rate of the ascent of the percaine solution in the "canal" was shown to vary according to the angle of the spine, the amount injected, the method of injection, and the temperature and specific gravity of the fluid injected. Mr. Etherington Wilson then gave the deductions he drew from these experiments. He kept his patients sitting upright for the lumbar puncture, and for a given number of seconds afterwards, the exact number varying according to the level of the anaesthesia required. Films illustrating this technique in the operating theatre were shown.

In the discussion that followed numerous questions were asked, and the technique was criticized and compared with existing methods.

CONSTIPATION IN CHILDHOOD

At a meeting of the Medical Women's Federation on November 28th, with Professor M. F. LUCAS KEENE in the chair, Dr. JEAN SMITH read a paper on constipation and colic in childhood.

No one, Dr. Smith said, could fail to be impressed with the extreme frequency of these complaints. The stamp duty on patent medicines, many of which were purgatives, had increased in Great Britain from £43,692 in 1860 to £360,377 in 1914, representing no less than £2,000,000 spent by the public on patent medicines in that year. Intestinal peristalsis, although partly dependent on nervous control, was largely independent of extrinsic nerves, and the movements continued in excised portions of bowel placed in oxygenated Locke's solution. The vagus and the pelvic nerves stimulated peristalsis by their action on Auerbach's plexus, and the sympathetic fibres inhibited peristalsis. Intestinal contents, thyroid gland secretion, and various emotions such as excitement or fear, stimulated Auerbach's plexus and caused increased peristalsis; excessive stimulation produced abnormal peristalsis with colic and spasm. Colic might follow fright, emotional upset, or severe cold; and measures which lessened the irritability of the vagus, such as warmth, rest, and quiet, would alleviate colic. Stimulation of the sympathetic might explain the constipation said to result from the use of adrenaline in asthma.

In the healthy breast-fed infant there should be two to three golden-yellow, homogeneous, inoffensive stools in the twenty-four hours; the usual times of action were after the first morning feed, in the early afternoon, and again in the evening. In the bottle-fed baby, the more closely the food resembled breast milk the more closely did the stools resemble those of the breast-fed infant. The higher the protein content the more alkaline and formed were the stools; hence constipation almost invariably resulted when an infant was taken off the breast and put on artificial food, especially on cow's milk mixtures. Sugar and fat were laxatives and might properly be used to correct constipation due to an ill-balanced diet. Constipation in childhood might be divided into (1) colonic constipation, and (2) dyschezia. Colonic constipation might be due to food poor in mechanical and chemical excitants. Although few people would risk putting a child of under 4 months on undiluted cow's milk, many infants were given dried milk mixtures made up in the same concentration as undiluted cow's milk, or even stronger, and this was one of the commonest causes of constipation at this age. Older children were often given a diet deficient in roughage and consisting largely of white bread, potatoes, and sugar. Anyone who had tried to work out an adequate diet for a family living on unemployment pay knew what a heart-breaking problem it was to include sufficient foods providing roughage. In all the carnivora the intestinal tract was relatively short, the caecum was never large and often absent, while the hind-gut might be absolutely straight; in the herbivora the hind-gut and caecum were capacious, and in the African monkey, which was chiefly vegetarian, the gut approximated to the human pattern, the capacious colic loop indicating the need for a supply of roughage. In nearly all cases of constipation in childhood due to inadequate roughage the deficiency could be made good by giving extra fruit and vegetables, especially prunes, apples, oranges, and green vegetables; and by substituting whole-meal for white bread. Colonic constipation might also be due to deficient ductless gland secretion, as in cretinism. Thyroid extract increased the frequency of bowel action in this condition, but it was irrational and dangerous to give gland extracts for constipation in cases

which did not exhibit signs of hyposecretion. Deficient excitability of the intestinal mucosa was another cause of constipation, and resulted from the prolonged use of purgatives, or followed in the wake of acute enteritis. Weakness of the intestinal musculature might result from lack of bowel training, or follow rickets, anaemia, or fevers. Inhibition of motor activity occurred temporarily, in association with painful conditions of the abdominal viscera, and prolonged inhibition occurred in Hirschsprung's disease. The diagnosis in Hirschsprung's disease was made by giving a barium enema, when the enormously dilated colon could be observed radiographically. Mild cases were relieved by massage and enemata, but in severe cases ganglionectomy offered the best hope of improvement. Other cases of colonic constipation were those in which excessive force was needed to carry the faeces to the pelvic colon. Extreme bulk of faeces due to a heavy protein content, and insufficient water to drink, were common causes, and congenital strictures were sometimes responsible for the condition in the early weeks of life. Kinking of the colon was sometimes regarded as a cause, but the sigmoid colon was very large in the young child, and might take up a variety of positions. In a recent investigation of a large number of healthy children under 3 years of age no case of constipation was found, although 87.5 per cent. had a kinked type of colon.

In cases of dyschezia—the second great group of cases of constipation in childhood—there was inability to defaecate completely; the condition was commoner than was usually supposed, and would be diagnosed more often if rectal examinations were more frequently made. Disregard of the call to empty the bowel was the usual cause, and was influenced by such factors as late rising, hurried departure for school, and inadequate lavatory accommodation. Constipation was almost unknown in India, China, and Japan. The Indian mother supported the buttocks of her child on her big toes, so that he could defaecate between her feet, and taught him regular habits in this way from a very early age. In China the mother supported the child's buttocks in her hands, and held him erect with his back firmly against her breast, pressing his thighs against his abdomen; the position forced the infant to strain. In a few infants the defaecation reflex was weak, and in these cases the soap stick beloved of the midwife found its justification. Some infants suffered from colic and constipation as a result of getting too little food, and symptoms disappeared when the feeds were augmented. Constipation was seldom a cause of other illnesses in childhood, but it was responsible for certain cases of vomiting in early infancy, and of flatulence and colic. A loaded colon and rectum might be the exciting cause of enuresis, and *B. coli* pyelitis was also associated with constipation. Before a line of treatment was adopted the training the child had received, his diet, and the character of the stools should be noted; pain on defaecation, or the presence of blood in the stools, suggested a tear of the anal mucosa, or a small fissure. In all stubborn cases a rectal examination was important. If there was any suspicion of Hirschsprung's disease a barium enema would help. In obstinate cases of long standing, when dietetic and hygienic measures were only partially successful, laxatives such as cascara and liquid paraffin might be given temporarily. Apart from acute febrile illnesses and renal disease there were few conditions in childhood which called for the use of purgatives. It was difficult to improve on the advice of a well-known physician, given almost a century ago:

"Everything in the shape of medicine ought to be given most sparingly, and only under professional advice, while even the medical adviser should consider twice before he gives a single dose of hyd. c. creta."

Dr. H. H. CHODAK GREGORY asked whether the "weekly dose"—her bugbear for thirty years—was as prevalent everywhere as in London. Mothers commonly gave their children a large dose on Friday or Saturday, but if the bowel was to act automatically why upset it once a week? In most poor homes there was limited lavatory accommodation, and in some cases it was easier for the children to form the habit of going to the closet after midday dinner. Some children had difficulty in spite of training, and in these glandular deficiency or poor co-ordination between peristalsis and relaxation of the colon must be considered. Training must not be allowed to become a fetish. One child who had been brought up very strictly was in such terror of not passing a motion daily that she developed an inhibition, and became so severely constipated that she had incontinence of faeces and resembled a case of Hirschsprung's disease. She recovered with careful treatment and training in hospital.

Dr. ELIZABETH HUNT had also been impressed by the commonness of the weekly dose. She had found that almost every child with urticaria papillosa had been given syrup of figs, and she thought the commercial preparations must contain some drug giving rise to the skin condition. She did not approve the use of liquid paraffin: she had seen too many cases of pruritus ani associated with its administration, and she thought that a mineral oil which could irritate the skin could not be good for the mucosa.

Dr. OCTAVIA LEWIN had found that constipation often improved if children were put on a time-table: up at 7 o'clock, breakfast at 8, lavatory at 8.30, school at 8.45. Soap, she thought, should be used only as a last resource, if at all; it was bound to act as an irritant, and it would be better to dilate the baby's anus with some other lubricant. If an infant had a normal motion every second day he could be left alone to develop regular habits.

Dr. A. H. NICOLL said that she had found that if children were placed in the right position to defaecate they nearly always had a motion. She thought suggestion had an enormous influence; as she had once heard it oddly expressed, the physician should work side by side with the patient.

Dr. LETITIA FAIRFIELD mentioned the importance of a low lavatory seat; the child experienced considerable difficulty in defaecating if his legs were dangling. Children going off to school in the morning were liable to be fussed and anxious about their lessons, and some of them would be more ready to give their attention to defaecation at midday. A brick or a block of wood to be used as a foot-rest often helped them considerably, and in schools the lavatory seats should be low. Some mothers thought it indecent to talk about bowel action, and consequently the children had no vocabulary to tell the mother if anything was wrong.

In reply, Dr. JEAN SMITH said that the weekly dose was extremely prevalent, and when an attempt was made to keep records of its frequency in hospital cases there were found to be literally no exceptions. It was true that some children could acquire the habit of emptying the bowel at midday, but the gastro-colic reflex was more powerful in most people after the first meal of the day. She agreed that lavatory accommodation was often unsatisfactory, and small children were sometimes afraid of falling through the seat. She had never seen any evil results from the use of the soap stick, which was convenient and familiar to mothers.

FUNCTIONAL UTERINE HAEMORRHAGE

At a meeting of the North of England Obstetrical and Gynaecological Society at Sheffield on November 24th, with the president, Mr. LEYLAND ROBINSON, in the chair, Dr. A. LLOYD POTTER (Liverpool) read a paper on functional uterine haemorrhage.

He said that there was a large group of cases in which profuse uterine bleeding occurred in the absence of any obvious reason, and it was to this group that the term "functional haemorrhage" was applicable. Dr. Potter referred to the work of Dr. Wilfred Shaw, who had found that the elastic tissue content of the uterus increased after each pregnancy and varied directly with the parity of the patient. He had thought it necessary to confirm this work, and for this purpose had taken a series of sections from uteri of varying parity. The specimens included uteri from cases of functional bleeding, fibromyomata, endometriomata, and chronic salpingo-oophoritis, and a normal uterus removed at post-mortem examination. He had stained throughout by Werlhoff's method with a counterstain of Van Gieson. His observations had amply confirmed Wilfred Shaw's work; he thought that it could

be stated definitely that the elastic tissue content of the uterus bore a direct relation to the parity thereof, that it was in no way a sign of subinvolution, and that it was not associated with the causation of functional bleeding. Discussing the pathology of functional uterine bleeding, Dr. Potter said that it was possible to classify the majority of the 165 cases he had examined into two groups—metropathia haemorrhagica and epimenorrhoea. Of his cases 34 per cent. could be included in the group metropathia haemorrhagica. In these the enlargement of the uterus had been due to true hypertrophy of the muscle fibres, and not to an increase in the amount of elastic tissue. The endometrium was thickened and polypoid formation was common, the microscopical appearance being similar to that of the premenstrual phase. Almost all the available ovaries showed follicular cysts and a singular absence of active luteal tissue. Forty-eight per cent. of his cases were of the epimenorrhoeal type. The most striking feature in these was oedema of the stroma of the endometrium and an increase in the number of thin-walled capillaries in the endometrium. In the ovaries available for examination the general picture pointed to hyperactivity of the follicular mechanism and an increase in the amount of active luteal tissue. A few cases he described as being of the hypomenorrhoeal type, in which the patients complained of excessive loss at infrequent intervals, and in this group *there were no characteristic* pathological findings. Another small group included cases of post-menopausal bleeding of functional origin and without any gross lesions. He thought the haemorrhage in these was due to the continuance of the pituitary action for some little time after the menopause. There remained 8 per cent. of the total number of cases, which he was quite unable to classify. He considered that in these some ovarian or pituitary dysfunction was responsible for the altered menstrual cycle.

Case Reports

Mr. GLYN A. DAVIES (Sheffield) showed a specimen of an interesting foreign body in the bladder.

The patient, a multiparous woman aged 43, had been treated by radium for carcinoma of the cervix. After the third application of radium it was found necessary to catheterize the patient, and on withdrawing the instrument the nurse had discovered that it was broken and that the top end of the catheter was missing. Cystoscopic examination revealed the presence of a portion of catheter in the bladder with the jagged end downwards. It was decided to perform a suprapubic cystotomy in order to remove the foreign body but in the early morning, before operation, the piece of catheter was passed spontaneously. Mr. Davies raised the question as to whether glass catheters should be employed at all, and if they were used and broken off whether or not one should wait, and if so, how long. Mr. Davies also described a case of ectopic gestation. The patient, who had been married five years, had had no children. She was admitted as an emergency because of pain in the right iliac fossa and vaginal bleeding, and she had said that ten days previously she had felt something burst inside. Two days before admission she had had right shoulder-tip pain. On admission, laparotomy was performed, and a right ruptured isthmial pregnancy, with tubal mole almost extruded, was found. A right partial salpingectomy and partial oophorectomy was done, *followed by* uneventful recovery. Eighteen months later the patient returned with a history of seven weeks' amenorrhoea, and with the presentiment that she might again be suffering from a pregnancy outside the womb. Examination revealed a slightly enlarged uterus and movable cystic swelling on the right side. She was kept under observation, and a positive Aschheim-Zondek test was obtained in the urine. Eighteen days after admission to hospital she passed a decidual cast, and the following day collapsed with severe abdominal pain, worse on the left side, and referred to both shoulder tips. Laparotomy revealed a large quantity of free blood in the peritoneal cavity, a fairly large right ovarian theca lutein cyst, and a ruptured isthmial pregnancy in the left tube. This was excised and the cyst wall in the right ovary was also removed.

Mr. A. A. GEMMELL (Liverpool) reported a case of uterine prolapse in a newborn child.

The confinement had been normal, but the child was born with a large spina bifida in the lumbar region. *On the fourth* day, after a long bout of crying, a lump was noticed at the vulva, and examination showed the cervix to be protruding from it for about a quarter of an inch. The prolapse could be reduced, but immediately recurred, so it was kept in position by means of a pad on the vulva. Twelve days later the prolapse spontaneously disappeared, and never reappeared up to the time of the child's death some two months later.

Mr. JOHN CHISHOLM (Sheffield) gave an account of a case of chorion epithelioma after full-time pregnancy.

The patient, a primipara 31 years of age, had been delivered of a live infant at term after an uneventful pregnancy. The puerperium was normal and she got up on the fourteenth day after labour. *One month after delivery she began to pass* small clots, and when her doctor was called in thirty-seven days after delivery he found she had a temperature of 100° F., and as he considered her to be a case of puerperal sepsis he arranged for her admission to the special hospital. After admission her symptoms settled down, but six days later a bright red loss commenced, and the pulse rate rose and became of poor quality, necessitating transfusion with gum saline. Under anaesthesia a portion of tissue the size of a walnut was removed from the uterine cavity, and was found microscopically to be chorion epithelioma. Unfortunately, this was not reported, and as the symptoms continued exploration of the uterine cavity was again carried out some fourteen days later. More tissue was removed, and again definite chorion epithelioma was found. On the same day a report on the urine was received, the Aschheim-Zondek test being positive. Complete panhysterectomy was performed, followed by uneventful recovery, and three weeks later, as the Aschheim-Zondek test was negative, the patient was allowed *to go home. There had been no return of symptoms and no* evidence of recurrence.

THE ASCHHEIM-ZONDEK TEST

At the last meeting of the Section of Obstetrics and Gynaecology of the Royal Academy of Medicine in Ireland, with the president, Dr. T. M. HEALY, in the chair, Dr. BETHEL SOLOMONS showed a kymograph for use with Rubin's test. (Details of this were given in the *Journal* of December 9th, p. 1079.)

Professor DAVIDSON and Mr. A. A. MCCONNELL read notes of a case of hydronephrosis and pyelitis complicating pregnancy, and Dr. R. M. CORBET and Dr. T. J. D. LANE showed a specimen of a tuberculous kidney which had been removed from a patient at the fifth month of pregnancy.

Dr. N. M. FALKINER, in a paper on the Aschheim-Zondek test in early pregnancy, gave details of the case of a married woman, aged 23, who had attended him on September 18th. She had complained of indigestion and amenorrhoea, the date of the last menstrual period being August 10th. On September 19th a specimen of urine was sent to the Pregnancy Diagnosis Station, Edinburgh, the report on which was as follows: "While there is no indication of pregnancy, the urine contains small quantities of ovarian hormone and/or gonadotropic hormone of the first type. We inform you of this fact in case you should consider endocrine treatment." On September 20th the patient started to bleed, and a cast of the uterus was expelled after a good deal of pain and moderate haemorrhage. There was considerable shock, which seemed out of proportion to the amount of bleeding, so a ruptured ectopic gestation was suspected. On bimanual examination it was found that the vulva and vagina were nulliparous, the cervix was healthy, and the fundus retroverted, the appendages were not felt. Convalescence was normal. Macroscopical examination of the uterine cast showed that it was not complete, it measured 1½ inches in length and appeared quite fresh. It was fixed some sixteen hours after being passed. Microscopically the decidua was typical of the sixth week of pregnancy in that the compact layer was composed of well-formed decidual cells. Haemorrhage throughout the decidua was copious. At one point was seen a small *aggregate of villi, which most probably only represented* a portion of the constituents of the chorionic sac. At first sight this aggregation of villi appeared to represent a complete gestation of an early stage of development. All the components of the trophoblast were well shown: proliferating plasmodium, resorption plasmodium, Langhans's cells, and developing vascular core to the villi. A search for embryonic constituents had proved negative. Dr. Falkiner said that in view of the negative Aschheim-

Zondek reaction in association with the presence of active villi, it was pertinent to review their standpoint to this test and its use in guiding treatment with the female sex hormones at their disposal. Davis of Chicago had stated that it was usually possible to give a positive diagnosis of pregnancy in the first two weeks following the missed menstrual period. The actual source of the hormone or hormones concerned in the production of the Aschheim-Zondek reaction was still doubtful, and Greenhill, in a collective review of the literature of 1932, had said that most authorities, including Zondek, were uncertain whether to attribute it to the pituitary gland or to the chorionic villi. Certain facts pointed to the likelihood that the chorionic elements were directly responsible. For instance, the test was more definite when the chorionic elements of the placenta were active. It was also strongly marked in cases of chorion epithelioma, and if the anterior part of the pituitary gland could be shown by histological methods to be more active during pregnancy it would support the idea that the anterior pituitary liberated the gonadotropic hormones. However, no work as yet published had shown this to be the case. In the present instance, Dr. Falkiner said, the amount of chorionic tissue and its relative inactivity had combined in producing the negative result of the pregnancy test.

The PRESIDENT said it was time [illegible] in Dublin began to carry out the [illegible] in their laboratories and avoid the necessity of sending specimens away. The test would be of greatest value about six weeks after the first missed period. It was, however, of some use in menopause cases and in cases of "vague bleeding," which were so frequently seen. He was disappointed with the results he had obtained from giving theelin, and was not much impressed with the results obtained from antuitrin S. He had given it to two patients with severe dysmenorrhoea who up to the time of treatment had only complained of pain. After treatment with antuitrin S they had nausea as well.

Dr. R. M. CORBET said that he had had an accurate positive result from the Aschheim-Zondek test in a specimen taken twelve days after the first missed period. He had used antuitrin S with occasional good results in the treatment of metrorrhagia, but had never prescribed it in cases of threatened abortion or repeated abortion. He thought that in order to get benefit from a luteinizing hormone the time to administer it was during the latter part of the period. The substance must be given before the ovum was embedded, and not after. If it was given after six weeks' pregnancy it was simply waste of time. He referred to three patients who, after several miscarriages, had gone to full term on the administration of corpus luteum. Professor A. H. DAVIDSON said he no longer employed antuitrin S. The chief difficulty about this drug was its expense. He had tried it in cases of metrorrhagia with very varying effects, while in cases of dysmenorrhoea he had got extremely good results. Many of the patients had been almost completely relieved of pain. He thought that it was a drug which was quite worth giving and from which very definite results could be expected.

Dr. BETHEL SOLOMONS said that he believed he had used most of the hormonic preparations which were available. He had obtained good results from some, none from others. He hoped that the future would bring forth more definite information.

At the December meeting of the Cork Clinical Society Dr. J. MURPHY brought forward a case of aortic aneurysm. The aneurysm was easily palpable as a tumour in the suprasternal notch. There was a difference of 15 mm. in the blood pressure of the right and left brachial arteries, and with the usual other signs there was well-marked irritation of the left cervical sympathetic chain. Subsequently three short but comprehensive and highly interesting addresses were delivered: on hyperemesis gravidarum, by Professor KEARNEY; on eclampsia, by Dr. E. V. CANTILLON; and on the occipito-posterior position, by Dr. P. CAGNEY. A prolonged discussion on these obstetrical subjects followed.

Reviews

HYDATID OF THE LUNG

The monograph on intrathoracic hydatid cysts[1] by Drs. BRUN and DE BEAUJEU is based on their twelve years' experience in Tunis, where hydatid disease is endemic and fairly prevalent. The authors state that rarely a week passes without a case of hydatids coming under their observation or for operation, and though eight out of ten cases are hydatids of the liver, infection of the lung is of frequent occurrence. Clinically, even large pulmonary cysts may remain latent or present no physical signs, while symptoms may be absent. Haemoptysis is not common, and if it occurs one thinks more of pulmonary tuberculosis. Expectoration of portions of the hydatid cyst is the only real diagnostic feature.

The authors have not found the serological tests satisfactory; the complement-fixation reaction is, in their experience, unreliable, and the intradermal skin test of Casoni inconstant. Eosinophilia is of doubtful value in diagnosis in a country where intestinal parasites are common. Radiology offers, therefore, the most satisfactory means of demonstrating the presence of pulmonary hydatid cysts, and as a preliminary to operation it is invaluable in determining the size and exact situation of the cysts, for many cysts that are small and centrally placed should not be operated upon. From the nature of the cyst, which is filled with fluid of high salt content, a shadow is thrown on the *x*-ray screen, and this is usually circular, oval, or elliptical with regular contours. The early observers, among whom Béclère may be cited, remarked on the rounded shadows with clearly marked contours "as if traced with a compass" which hydatid cysts throw, as do all pathological processes which compress the lung without destroying it. Authors in the Argentine, however, whose experience in this disease is very great, state that there is always a reaction in the surrounding lung, which produces a blurring of the shadow on the screen or *x*-ray film, and Escudero is quoted as saying that he would reject a diagnosis of hydatid if the contours of the shadow are clearly defined. The Australian authority, Dew, says that the unruptured cyst throws a characteristic spherical shadow, and the surrounding lung tissue appears remarkably clear in contrast, so that cysts one to two inches in diameter may be confidently diagnosed. Further, he says that adventitial changes round the parasite are very rare in lung cysts. The present authors agree that this is their experience also. An exception is sarcoma of the lung, which may give a clearly demarcated round shadow; but a second photograph taken in a month will show the rapid progress of a malignant condition. The authors recommend photographs in different planes for localization rather than stereoscopic pictures. A series of well-reproduced radiographs illustrates the various points.

In treatment the authors are conservative, though recognizing there is no medical treatment. They rightly point out that puncture is inadequate, and even dangerous, and by no means all hydatid cysts of the lung should be operated upon. Non-suppurating cysts smaller than a hen's egg should be left alone, especially if they are centrally placed. Much less risk is run by the patient if these small cysts are evacuated spontaneously through the bronchi than by surgical intervention. The indications for operation are large cysts with clear fluid which are compressing the lung to a great extent, and suppurating cysts. The former may be evacuated and closed without drainage, but suppurating cysts must have the cavity drained and

[1] *Les Kystes Hydatiques intrathoraciques centraux et parietaux.* Par R. G. Brun et A. Jaubert de Beaujeu. Paris: N. Maloine. 1933. (42 figures. 50 fr.)

the pleura also. Dr. Brun uses local anaesthesia, having first made a careful survey of the site and character of the cyst with *x* rays, and in thirty-nine cases has had only one death, which occurred in a case of suppurating cyst. The book is useful and the argument clearly stated.

INTRACRANIAL TUMOURS

Accounts of intracranial tumours from a pathological standpoint have hitherto been confined mainly to monographs on particular forms of new growth. Professor PERCIVAL BAILEY, in his work on *Intracranial Tumours*,[2] has now provided a systematic treatise on the whole subject, including all types of new growth, regarded from that standpoint. The object to be aimed at in the diagnosis of intracranial tumours is to recognize the presence of the tumour before the three cardinal symptoms of hypertension appear; and the one cardinal symptom to be looked for in this early stage is a steadily increasing alteration of nervous function. The author considers that about 85 per cent. of intracranial tumours can be correctly localized from the clinical symptoms alone, and the localization of the remainder has been to some extent facilitated by the introduction of the methods of ventriculography and encephalography. Localization alone is, however, insufficient; the surgeon needs to have a knowledge of the histological structure and behaviour of the various types of intracranial tumours if attempts to remove unremovable growths are to be avoided.

In his book Professor Bailey has succeeded in keeping these two ideas, localization and structure, in close association throughout. Each chapter deals with one particular form of new growth, and the clinical cases introduced in illustration are so chosen that successive chapters exhibit the various syndromes corresponding to differences in localization. Thus, under medulloblastoma the syndrome of the cerebellar vermis is described; under oligodendroglioma, the syndromes of the thalamus, the parietal lobe, and aphasia; and so forth. The illustrative cases are admirably described in the manner of a clinical demonstration, and form a selected series of great value. The classification of the twenty-eight types of tumour dealt with is, in the main, that which is usually accepted. The gliomas are divided into seven distinct subclasses, in accordance with recent advances in the knowledge of the histology of these growths, to which Professor Bailey has himself largely contributed; and it is considered necessary to regard each of these as a separate entity with clearly cut differential characters. The book is intended for the use of students, and is, in fact, an amplification of demonstrations and clinics given by the author to his students at the University of Chicago. It is an extremely clear and simple exposition of a complex subject.

A SIXTH VENEREAL DISEASE

Dr. HUGH STANNUS'S recent book, *A Sixth Venereal Disease*,[3] provides what many venereologists badly need—a summary of almost all that has been written about a disease which has been recognized for many years, but about which most of us are lamentably ignorant. Moreover, the author speaks with authority, for it was he who with Marshall Findlay described the first proved case whose infection was acquired in Great Britain. The other five venereal diseases are syphilis, gonorrhoea, chancroid, genital infection caused by Vincent's organism (called by some Americans the fourth venereal disease), and granuloma venereum, though in a recent article in the *Journal of the American Medical Association*, lymphogranuloma inguinale is called the fourth venereal disease by H. N. Cole of Cleveland.

As regards nomenclature, most people nowadays use the term "lymphogranuloma inguinale (L.I.)" for the disease of temperate climes and "climatic bubo (C.B.)" when acquired in the Tropics. The two are one and the same disease, and include esthiomène, chronic ulcer, and elephantiasis of the genito-ano-rectal region and inflammatory stricture of the rectum, all of which may be regarded as phases or sequelae of the infection. The author suggests "poradenitis" as a suitable name for the disease.

"C.B." seems to have been recognized as a not uncommon tropical disease for fifty years or more, but it was as lately as 1913 that Durand, Nicholas, and Favre described "L.I." as a clinical entity. Since then numerous cases have been recorded, and it seems clear that in the past the diagnosis has often been missed, and no doubt still is. The author gives a very clear account of the clinical picture and pathology, the latter showing why in all probability the disease was often ascribed to syphilis or tuberculosis. No causal organism has been found, but there seems no doubt that it is a filter-passing virus; for diagnosis the Frei reaction, which is clearly described, seems quite specific. Much work has been done and great progress made in animal transmission, a detailed account of which is set out. Forms of treatment are numerous—an indication that none is very successful—and the disease is notoriously difficult to clear up; the general opinion seems to be that surgical procedure should be limited. The insistence that esthiomène, genital elephantiasis (other than that due to filariasis), and inflammatory stricture of the rectum are always, or nearly always, due to the virus of "L.I." or "C.B." will come as a surprise to many who were brought up to believe that the last-named, at any rate, was commonly due to syphilis. However, the author makes out a very good case, though perhaps he is a little inclined to overstate it. "L.I." is so frequently associated with one or more other venereal diseases, and perhaps also with tuberculosis, that it is difficult to know exactly which manifestations to ascribe to each.

Dr. Stannus's little volume of 270 pages represents an enormous amount of work—more than 900 papers having been consulted. If he has succeeded in arousing the interest of medical men in a disease hitherto often unrecognized he should be amply rewarded. No better account of a most interesting condition is to be found in the literature.

THE PROBLEM OF SUICIDE

Various observers, both in this country and abroad, are devoting more and more attention to all the aspects of suicide, which they are coming to regard as a disease. A very little reflection shows that the problem is bound up with all kinds of social factors, and that in order to understand even a small part of it the student must be familiar with the educative influences that moulded the present generation, the ideas which are current concerning life and death, and the social conditions which make life too difficult for some persons to bear. In addition he must be, by calling if not by occupation, a psychologist, for it can very seldom happen that a man, however oppressed by circumstances, takes his life unless he is suffering from an unresolved emotional conflict. Dr. LOUIS DUBLIN'S book, *To be or not to be*,[4] is one of the most valuable contributions to the scientific study of

[2] *Intracranial Tumors*. By Professor Percival Bailey. London: Baillière, Tindall and Cox. 1933. (Pp. xxiv + 476; 155 figures. 35s.)

[3] *A Sixth Venereal Disease*. By H. S. Stannus, M.D. London: Baillière, Tindall and Cox. 1933. (12s. 6d.)

[4] *To be or not to be*. A Study of Suicide. By Louis I. Dublin, Ph.D., and Bessie Bunzel, M.A. New York: Harrison Smith and Robert Haas. 1933. (Pp. x + 443. 3.50 dollars.)

BRITISH INSTITUTE OF RADIOLOGY

ANNUAL CONGRESS

The annual congress of the British Institute of Radiology, associated with an exhibition of apparatus by some twenty firms, was held at Westminster Central Hall from December 6th to 8th. It was opened by Lord HORDER, who spoke of the need for a close liaison between radiology and general medicine. He said that there was a tendency in these days for certain valuable therapeutic measures to cut themselves adrift and stand alone, but he saw no sign of it in the case of radiology.

Dr. STANLEY MELVILLE, in a brief presidential address, discussed the position of radiology in the diagnosis of lung disease. He said that a stage had now been reached when so much detail was shown in the radiogram as to be an embarrassment, and at this point interpretation became an extremely difficult problem. Possibly the greatest advance in the examination of lung conditions was the introduction of lipiodol. The value of stereoscopy in chest work was insignificant. The stereoscopic radiogram might be useful to the unlearned, but not to the man who knew what he was looking for. It was always possible to take a view in the lateral as well as in the oblique plane, and these two views would give much more information than stereoscopy. He thought, also, that the upright position had been emphasized beyond its real importance. It had only two advantages: the early screening had been done without moving the patient, and the fluid levels in the cavity were better demonstrated. The disadvantages were equally definite: it was not possible to centre the tube with such accuracy as to obtain an identical picture months or years after the original radiogram had been taken; the breast in the female, being dependent, threw a much heavier shadow than would otherwise be the case, and, again, by this method it was impossible to deal with very ill patients.

TUMOURS OF BONE

The first medical discussion of the congress was on tumours of bone, and was opened by Professor WOODBURN MORISON, who said that the most important advance on the radiological side in the study of bone lesions had been due to the organization of the Registry of Bone Tumours by the American College of Surgeons, an idea conceived in 1920 by Cotton of Boston. One of the principles of the Registry was that no opinion of a single expert, however famous, was final. The Registry's classification of bone tumours was as follows: (1) metastatic tumours of bone; (2) extraperiosteal sarcoma; (3) osteogenic tumours; (4) inflammatory conditions; (5) benign giant-cell sarcoma; (6) angioma, benign and malignant; (7) Ewing's sarcoma; and (8) myeloma. Up to a recent date 912 cases had been registered and classified, the largest groups being osteogenic sarcoma of the femur (177), and osteogenic sarcoma of bones other than the femur (210). The next largest group consisted of Ewing's tumour (eighty-nine cases). Replying later to the complaint that no provision seemed to be made in the Registry for certain curious and rare diseases, Professor Morison said that that was intentional. Any such case was pigeon-holed, and as other cases occurred they were added, until, on sorting them out—if it appeared that a new entity had arisen—it was included in the classification.

Dr. DUNCAN WHITE described bone tumours as representing one of the most difficult branches of radiotechnique. Everyone had experience of the devastating results of wrong diagnosis. The only way in which more accurate diagnosis could be obtained was by the institution of a registry such as had been started in America, and he hoped that in this country within a very short time there would be a similar collaboration between pathologists, radiologists, and surgeons in the endeavour to place the diagnosis of bone tumours on a sounder basis. He refused to put the radiologists last, because he felt that in the majority of instances the differential diagnosis of bone tumours was more likely to be accurate in the hands of a radiologist than in those of a surgeon. With regard to Ewing's tumour, which Professor Woodburn Morison had described as something like a "will-o'-the-wisp," in one analysis of 1,800 tumours, both primary and malignant, from one clinic, sixty cases of this particular tumour were recorded, and in another analysis of something like 1,200 malignant bone tumours, presumed to be primary, there was an incidence of 6 to 7 per cent. of Ewing's tumours.

Dr. STEWART HARRISON (who is associated with the Zürich clinic of Professor Hans Schinz, the president-designate of the fourth International Congress of Radiology) discussed three classes of tumours which, taken together, were the most common in his clinic and the treatment of which was doubtful. These were: (1) epiphyseal tumours (not malignant), named giant-celled tumours; (2) malignant tumours with bone-forming elements; and (3) bone endothelioma. With regard to the diagnosis of bone tumours he did not feel that the radiologist had the last word. It was far too easy to forget that the nature and length of the history and the constitution of the tumour were important. Syphilis must also be excluded, for almost every bone tumour could be imitated by syphilis of bone. With regard to Ewing's sarcoma, in the canton of Zürich during the last three years he had seen about sixty cases among a total of some 600 bone tumours. As for treatment of the three classes of which he had spoken, the treatment of choice for giant-cell tumours was radiation, the tumours being comparatively sensitive and the results of deep *x*-ray therapy excellent. For the second class, osteogenic sarcoma, there was no effective treatment, metastases in his experience invariably developing in the lungs. Ewing's sarcoma was exceptionally sensitive to radiation, and he described and illustrated one satisfactory case.

Most of the remainder of the discussion was taken up by the exhibition of cases. Mr. C. THURSTAN HOLLAND referred to a few cases of so-called benign tumour of bone, which pointed certain morals, radiological and surgical. Dr. J. F. BRAILSFORD showed some unusual cases, and on the subject of Ewing's tumour confessed that he did not know what it was, for very few of the radiograms and microscopical appearances given in the literature were found to agree. Dr. J. E. A. LYNHAM demonstrated some cases to illustrate diagnostic difficulties, and, finally, Dr. GILBERT SCOTT referred to the responsibility of the radiologist in deciding whether a tumour of bone was simple or benign. It was of vital importance to decide whether a tumour was *simple* or *malignant*; a good working rule was that if the reactions were not of the usual type that were met with in benign conditions one must always expect some form of malignant tumour—bearing in mind, however, that it was possible for a malignant condition to be grafted on to a benign.

RADIATION OF NEOPLASM

The second medical discussion took the form of a review of the radiation of neoplasms, with special reference to the value of *hard* and *soft* rays. Four opening papers were presented. Dr. W. M. LEVITT said that it could not be too strongly urged that the all-important factor in determining whether a growth would regress or not on exposure to *x* rays was the dosage applied. The reason for failure was due to the limitations imposed. There was a dose beyond which radiologists dare not go lest irreparable damage be caused to healthy tissues. He described his treatment of carcinoma of the oesophagus by intense doses of hard *x* rays (see *British Medical Journal*, December 9th, p. 1072). Dr. RUSSELL REYNOLDS said that benign growths yielded more readily to *x* rays of long wave-length, whereas malignant neoplasms usually required a shorter wave-length for successful treatment. He looked upon short wave-lengths as representing more drastic treatment, to be used when longer waves failed.

His endeavour was to maintain as long a wave-length as possible if the results were satisfactory. Dr. G. F. STEBBING said that there were two properties of short waves which were of value: their greater penetration and their selective action for malignant tissue. For the treatment of malignant tumours he considered that the beam produced by relatively large masses of radium held out great hopes. Dr. F. HERNAMAN-JOHNSON said that he was not so convinced of the direct action of the rays as formerly; a large amount of evidence, both clinical and experimental, emphasizing the indirect effect, had been accumulated. It was said by some that because certain forms of sarcoma almost melted away under *x* rays, the action on the cells must be direct, but that, in his view, did not follow. Large gummata had been known to disappear after the internal administration of potassium iodide, in which the action was certainly not direct.

Dr. DUNCAN WHITE said that the problem of to-day was to try to ascertain whether or not there was some differential action dependent upon the wave-length of the radiation employed. The depth dose and the treatment of a deep-seated lesion were improved by the employment of high voltages, but he thought the subject ought to be considered with special reference to more superficial lesions. Dr. DOUGLAS WEBSTER took up a reference which Dr. Hernaman-Johnson had made to breast cancer and Dr. Russell Reynolds to mastitis, and said that he failed to see that the use of lower voltages which they advocated had anything to commend it. He himself had treated over a hundred cases of mastitis, and in quite a number of them a malignant change had taken place. He thought it was a dangerous method to treat these cases of mastitis with low voltage.

Dr. FRANGCON ROBERTS believed that no difference of action had been proved as between long and short waves. It was a question of penetration pure and simple. If long waves could be got as deeply as short then the effect would be the same. The discussion must therefore resolve itself into the relative merits of heavy and light dosage. Speaking in advocacy of larger doses, he said that he had never been able to understand the point of view of those who thought that radiologists must not on any account take risks. In the cases of carcinoma of the oesophagus shown by Dr. Levitt, for example, a surgeon would, without hesitation, have put in a Souttar's tube, but the same surgeon would probably be horrified at the thought of the radiologist taking any risk at all, even to the extent only of causing an erythema of the skin. He agreed with a writer in the *British Medical Journal* that those who advocated the small dose brought British radiotherapy into disrepute.

Dr. L. A. ROWDEN called attention to the value of post-operative radiation, also pre-operative, although for the latter it was difficult to get the cases. Dr. N. S. FINZI said that with shorter waves it was easier to get adequate doses at depth, and the effect on superficial growths such as epitheliomata led one to think that the shorter wave-lengths gave better results in similar cases. It had been stated that sarcoma responded better to long wave-lengths, but the truth was that sarcoma responded to many wave-lengths. Lymphosarcoma—the most readily responding growth of all—while it yielded well to long wave-length radiation, yielded even better to short. He did not believe that carcinoma of the breast was a condition in which usefully to employ long waves. Better results were obtained by the "glancing" method of treatment than by long wave-lengths directed straight on to the growth.

All the four openers replied, and Dr. HERNAMAN-JOHNSON, whose contribution had received the chief criticism, agreed that the dosage was infinitely more important than the wave-length. With regard to cancer of the breast, very few people died from that condition or from recurrences in the breast itself, or even in the axilla; they died from metastases, and the real problem of cancer of the breast was to prevent the metastases. A lump in the breast could be got rid of in many ways, but the ultimate result was very generally unfortunate. It was in the preventive treatment for metastases that he had always maintained that large doses were useless and even harmful.

X-RAY AND RADIUM TREATMENT IN THE FUTURE

The fourteenth Mackenzie Davidson Memorial Lecture was delivered in association with the congress by Dr. N. S. FINZI. Speaking of high-voltage *x* rays, Dr. Finzi said that, given the clearances required, the necessary voltages were now producible, but the difficulty was to get tubes which would tolerate a really high voltage. Most radium treatment in England was done by means of short-distance surface applications at 1 or 1½ cm., or by interstitial radiation by means of needles or seeds containing radium or radon. The use of large masses of radium had been little tried in this country. A five-gram unit was to be tried out at the Radium Institute, and he hoped that no report would be made on it before five years, whatever pressure might be exerted by eminent people. All over the world there had been far too great a tendency to use radium and *x* rays as separate treatments, and not to consider whether the one, the other, or both together was the most suitable. Every radiologist working at malignant disease must have a full knowledge and experience of both branches, otherwise his patients would suffer. The tendency at present was all the other way, and there was no justification for it. Was the future for the treatment of malignant disease with radium or with ultra-high-voltage *x* rays? Whatever the voltage or filtration, one would never produce exactly the same rays from an *x*-ray tube as from radium. One factor that might influence treatment in the future was the discovery of new sources of radium in ores of higher grade. There seemed to be such quantities of payable ore that the price of radium must soon fall. Canadian radium had already been sold for just under £10 a milligram. The most recent price in England was £16 per milligram. It seemed to him likely that the future would depend upon the ability of the manufacturer to construct a tube capable of working with voltages of a million or more. If such a tube did not materialize in the near future it would have to be considered what could be done with large masses of radium.

In discussing certain administrative aspects Dr. Finzi urged the need for funds to be found for the establishment of research. As for the future of radiological practice, the expenses of the private radiotherapist were very high. If a surgeon reduced his fee to one-half or even one-quarter he might still make a profit—not so the radiotherapist, who, when his fees might seem high to the ignorant, might still be incurring a loss; and if the future lay in high-voltage *x* rays or large masses of radium the position might become impossible. The only solution would be to have an institution where apparatus could be at the disposal of a number of practitioners. Brussels, Paris, Stockholm, and New York had radiotherapeutic institutes, and in each case except Stockholm there were other important radiotherapeutic services in hospitals in the same city. In England there were a number of radium centres, but only a few had tackled *x*-ray therapy seriously. As for the radium surgeon, he would emerge in part from the ranks of the surgeons and in part from those of the radiotherapists.

X-RAY PHYSICS

A number of papers on the physical and technical side of radiology were read at the congress, including two on the new fluorazure (zinc sulphide) intensifying screens, and others on the high-voltage system for *x*-ray work. Mr. T. E. ALLIBONE and Mr. F. E. BANCROFT demonstrated a new continuously evacuated tube for deep therapy. The final event of the congress was the sixteenth Silvanus Thompson Memorial Lecture, by Dr. A. BOUWERS, D.Sc., of Eindhoven, Holland, on modern *x*-ray developments. He exhibited what was described as the smallest *x*-ray apparatus, weighing only 7 lb., but capable of taking perfect photographs in two seconds; he had another which weighed only 10 lb. In *x*-ray therapy, he said, a good deal had been achieved in the direction of simplification, reproducibility of dose, and protection. He pleaded for an open mind and a critical attitude towards modern developments. Even the high-tension transformer with valve rectification, which practically replaced the induction coil, might not be the last word on the subject.

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HEALTH SERVICES IN SOVIET RUSSIA

In Soviet Russia, with its population of a hundred and sixty millions, the reorganization and development of health services, after the civil disorders of the revolution, was a task of the first magnitude. The manner in which it has been undertaken, and in appreciable measure carried out, is set forth, from a socialist standpoint, in a recent brochure[1] by Dr. A. Roubakine. In each constituent republic of the Soviet Union a central Board of Health has been formed. The local health areas are medical districts, each furnished with doctors and hospitals. To provide the large number of doctors required for these purposes, and also to ensure that their outlook conforms with the workers' and peasants' ideals, the "historic but useless" link between medicine and the universities has been severed. The medical schools are placed directly under the republican Boards of Health. The time-honoured medical unity has been divided up into three separate specialisms—(1) treatment and prophylaxis, (2) hygiene and sanitary science, and (3) maternity and child welfare. The length of the courses is three and a half to four years, with a further year of probationer service. The student must combine with his specialism the study of social science, including economics and the Marxian philosophy. He must also at the same time undergo his military training and acquire materialistic views. By these means it is sought to widen his outlook, and prevent him from becoming a narrow specialist, as in bourgeois countries. In 1930–1 74.6 per cent. of medical students in Russia were women and 25.4 per cent. men.

Dr. Roubakine tells us that in bourgeois countries the private doctor is a mere purveyor of medicine, trafficking in the health of his customers, and even viewing their good health with disfavour. Medical standards are quite different in the socialist State, in which the doctor is a salaried official and has no financial concern with his patients. The Soviet Government is, in principle, hostile to the private doctor, though a few such still survive in Russia for the time being. It is hostile also to professional secrecy, a thing which, according to the social doctrines of those in power, is harmful to the community and benefits no one but the doctor. Under the Soviet regime the prevalence of the major infections has been notably reduced. Seven million vaccinations and revaccinations against small-pox are carried out in the course of a year. Wide use has been made of immunization against diphtheria, scarlet fever antitoxin, antityphoid vaccine, and antimalarial measures. For tuberculosis the south coast of the Crimea is now the national sanatorium. All persons suffering from venereal disease are under compulsion to obtain and to continue treatment.

Under the Soviet system of national insurance workers of all classes are insured in respect of sickness, disablement, unemployment, industrial disease, and death. The benefits of the scheme extend, where appropriate, to the dependants of workers. All contributions are paid by the State together with various industrial corporations. The workers make no contribution, and they themselves, directly or indirectly, administer the insurance fund. All pharmacies belong to the State and all pharmacists undergo a prescribed training. No pharmacist may treat disease. No drug may be sold with a label showing the name of a disease for which it may be used. No secret remedies are permitted, and no medicines may be patented. Further, all the spas in Russia have been taken over by the State and made accessible to the workers and peasants, who receive their treatment free and their railway journeys at reduced rates. After sections devoted to physical culture, which is considered useful alike for work and for national defence; to health propaganda, which is regarded as a means of combating religious influences; and to scientific research, for which team work is commended, Dr. Roubakine describes the arrangements made for maternity and child welfare. Free treatment is provided for expectant mothers and women in childbed. If manual workers, they receive a money payment for eight weeks before and after delivery; if clerical workers, for six weeks. Their situations are kept open for them for four months. Then, if necessary, they receive an allowance from State or insurance funds. At the consultation centres, where the rights of women are carefully explained, the normal provisions are: women's clinic, infants' clinic, milk supply for infants, food for children, beds for sucklings, and a crêche. The aim is to provide or ensure skilled attendance for all births in the Union. The first five-year plan made medical care available to 27.2 per cent. of labours of women in rural areas and over 80 per cent. in towns. It is hoped that the second five-year plan will raise the figure for rural areas to 82 per cent. and for the towns to 100. The problem of the abandoned children, which lately attained grave proportions, has been met and (according to this observer) finally solved by unexampled efforts.

The Russian law on abortion is that it may be carried out up to the third month of pregnancy, in hospital, by doctors. Non-medical persons inducing abortion and doctors inducing it in private practice are liable to prosecution. Since abortion was legalized the number of known abortions has risen, because clandestine abortions have declined. The birth rate has been substantially unaffected. The legalization of abortion is defended as being protective of maternity. Feeling itself unable to put down abortion, the Soviet Government has sought to protect women against its dangers. Nevertheless, abortion is regarded as an evil in itself, being injurious to the mother, and a scheme of scientific birth control is the best weapon against it.

[1] *La protection de la Santé publique dans l'U.R.S.S.* Par Dr. A. Roubakine. Paris: Bureau d'Editions. 1933. (Pp. 91. 4 fr.)

The brochure is described in a prefatory note as a window opened wide on the future of humanity. Dr. Roubakine himself, in the work proper, displays a less genial temper. He writes as one inspired by a consuming dislike of what is not hammered on his own anvil, and from time to time turns aside from his narrative to denounce the shortcomings of medical services in bourgeois countries. These digressions, a few of which have been noted above, do not, however, extinguish the interest of the story which he has to tell. The Soviet Government, on his showing, has envisaged its formidable health problem with courage, and, by applying measures many of which follow lines pursued in Western Europe and elsewhere, has already obtained, in various directions, a tangible return. Theoretical health measures, however, are of little avail in a country experiencing the pangs of a famine and typhus epidemic rivalling in magnitude those of 1920–2.

RHEUMATIC DISEASES

One of the most interesting medical movements of the last decade is the new effort for the systematic investigation and treatment of rheumatic diseases. It followed naturally the publication of official reports in England and Sweden showing for the first time the serious medical, social, and economic implications of these diseases, especially in their chronic forms, among industrial workers. Societies and committees were formed to prosecute these studies in many countries, and numerous reports and papers have been published in *Acta Rheumalogica*, which is the journal of the parent body of these committees, the International League Against Rheumatism. Already some books embodying the results of this work have appeared, by medical men engaged in research work or attached to health resorts or new treatment centres. Such are *Rheuma*, by Dr. van Breemen (Amsterdam) in 1926 (published in Rotterdam); *Rheumatismus und Gelenkerkrankungen*, by Dr. Schulhof (Budapest), 1926; *Arthritis and Rheumatoid Conditions, their Nature and Treatment*, by Dr. Ralph Pemberton (Philadelphia), 1929; and *Gelenkerkrankungen*, by Dozent Dr. Ernst Freund (Vienna), 1929. To these must now be added the well-written and well-documented treatise, *Rheumatismus*,[1] by Dr. Anton Fischer, who has for several years been associated with the rheumatism research institute at the Landesbad of the Rhine Provinces at Aachen.

Of the above-mentioned authors only Dr. Pemberton restricts himself to the elucidation of the well-defined clinical pictures of arthritis in adult life. A number of writers, following the Swedish school, feel bound to include in the same category the "rheumatic" or "cardiac" fever of children, which many others prefer to regard as a separate clinical entity. Dr. Fischer even describes this specific infective disease of childhood as a "true rheumatism." Obviously a confusion of meaning must impair the value of scientific communications on these subjects so long as the same name is given to the acute and chronic, inflammatory and degenerative, diseases in which the organs of locomotion are involved. The old pathology dies hard, and we may well agree with Dr. Freund that in this case, at least, morphological classifications have led us nowhere, and that morbid anatomy has proved of little value to the physician. It will be recalled that the British Medical Association Committee on Arthritis, whose report appeared in our issue of June 17th, 1933, adopted a clinical grouping as the most practical solution of the problem of nomenclature; and that it wholly excluded from its purview the joint affections of acute and subacute rheumatism.

A full, well-illustrated section of Dr. Fischer's work is devoted to "primary joint arthritis," which has long been called in England *rheumatoid*, a name the more convenient at the present time in that it does not suggest either the origin or the nature or the morbid anatomy of the disease. According to Fischer this malady is always infective and inflammatory, the result of septic foci in predisposed individuals, and such foci are commonest in the mouth and urogenital tract, the part played by the colon being too much emphasized by English physicians. By him, as by most authorities, rheumatoid disease is to be sharply differentiated from degenerative arthritis (called by him arthrosis or arthropathy), which is regarded as non-inflammatory, but little associated with constitutional liabilities and usually non-infective. It is rather static and functional in character, often painless, and anatomically marked by destruction of cartilage and bony changes at the margins of the joints. Rheumatologists are more and more agreed that this form of progressive chronic articular degeneration is a well-differentiated clinical picture, and that the English term "osteo-arthritis" is another convenient non-committal word. Incidentally, an interesting comparison has been made between the condition of the skin in inflammatory and that in degenerative cases: in the first it is hot and reddened, in the second cold and hard and glossy. Various factors are inevitably involved in the aetiology of "rheumatic" diseases of the joints and soft parts. Spondylitis, we are told, is trophic, static and postural, traumatic, degenerative, and infective. The arthritis of the climacteric period is stated to be due in the main to the increase of weight and faulty position, with possibly predisposing endocrine imbalance. Rheumatism of the muscles and fibrositis are inflammatory and infective, and similar changes in the nerve trunks can be traced to compression and infection.

Dr. Anton Fischer follows the majority of German authorities in disregarding Schade's observations on chill as a general and also localizing factor in rheumatic disease, and makes no reference to defects in capillary circulation in rheumatic tissues, as described by Schulhof. In the present work trauma is exalted as the only deleterious external influence, despite much evidence on the prevention of rheumatism by the avoidance of chill, especially when combined with fatigue, as shown, for example, by recent measures in Russian factories. The chief interest of Fischer's work is theoretical,

[1] *Rheumatismus und Grenzgebiete. Fachbücher für Ärzte.* Band XV. Berlin. Julius Springer. 1933. (Geb. M.18.)

The brief section on treatment we find unsatisfying. Physical treatment is given an important place, but the rationale of physical remedies is not adequately discussed, nor yet (as already noted) the probable influence of defective peripheral circulation, which must be related to the external uses of heat and cold. The establishment of separate bath departments in hospitals is advocated, so as to avoid the tendency to immobility and stiffness, and to provide facilities for functional treatment by movement and manipulation under water, even at the price of pain. It is better to suffer than to become helpless. Large tanks for re-educational exercises are recommended, such as those used at the fine establishment of the Aachen Landesbad, as well as continuous baths at constant temperature for bed-ridden patients.

RECOVERY FROM TUBERCULOSIS

In 1930 it was ordained that those tuberculous persons who had "recovered" (the official criterion for recovery being five years' uninterrupted quiescence of the disease) should have their names removed from the dispensary registers. Whatever may have been the reason for, or the wisdom of, this regulation, one result of it is very apparent in the report that the London County Council has issued,[1] setting forth the condition, in 1931, of those tuberculous persons who were discharged from the Council's institutions in 1921. These patients numbered 4,160; of these 2,340 are dead, 837 are alive, and 983 are untraced. It appears that the removal of the names of "recovered" patients from the dispensary registers accounts for the bulk of this group of 983 untraced patients. In this respect the regulation seems to have done harm. In the first place, it is probable that a large proportion of these untraced patients are alive, and if this number could have been added to the 837 known survivors, it is quite possible that the actual survivors might have numbered 35 to 40 per cent. of the total cases. This, considering the great number of advanced cases treated (920 in stage B3, and 1,454 in stage B2), would have been a very encouraging result, whereas a survival rate of 20.1 per cent. is not. In the second place, this large number of untraced patients renders these valuable figures useless for actuarial analysis; and, though we can draw some broad conclusions from what may be called rough percentage examination, experience has shown that only precise actuarial methods can extract the real truth. When one considers the great amount of labour expended both by the central administration and by the departmental officers in collecting these figures, it seems a pity that a regulation of debatable worth should so emasculate them. Regulations for the improvement of the public health must be founded on sound medicine, and whatever administrative reasons there may have been for this regulation we may be sure that no clinician and no pathologist would stand sponsor for it. It ignores the fact that tuberculosis is a chronic disease, and that patients who have been symptomless, or nearly so, for ten years may often need treatment again or for the first time. It is true, as the report shows, that survival for five years after treatment very materially increases the chance of permanent quiescence, but that is a very different thing from "recovery." The report deplores the fact that in spite of all efforts the number of early and treatable cases (stages A and B1) in each year remains the same, about 25 per cent. of the total. This, the report says, is not to be attributed to want of skill of tuberculosis officers or general practitioners—a very proper conclusion—but to the fact of "the disease being relatively widespread in the lungs *at the outset* (our italics) and to its being past the early stages when definitely recognizable"—a very questionable conclusion. The general practitioner is often blamed, but as a matter of fact missed diagnoses are not so common. The real position is that the patient does not consult the doctor until the disease is "relatively widespread," for pulmonary tuberculosis is in so many cases relatively symptomless in its earlier stages. To say that it is not "definitely recognizable" in its early stages is wrong. If the patient has the luck or the good sense to consult a doctor during the early stages, and if the doctor exercises reasonable care, it is definitely and incontestably recognizable. This is the position in the early stages, and exactly the same dangerous silence of activity may be present in the later and so-called quiescent stages of successfully treated cases; and yet after five years' quiescence they are officially "recovered."

[1] *Residential Treatment of Tuberculosis—After-Histories of Patients Discharged During 1921.* London: P. S. King and Son, Ltd. 1933. No. 2397. (1s.)

SOCIAL INSURANCE

It is difficult to indicate within small compass the scope and content of the voluminous report on "Compulsory Pension Insurance" recently issued by the International Labour Office in Geneva.[1] It contains a systematic examination, on international lines, of the essential features of "compulsory invalidity, old-age, and widows' and orphans' insurance." Its range is therefore wider than would commonly be understood by social compulsory "pension" schemes in this country, for it covers cash payments such as those made under "disablement benefit" which are not in Great Britain described as "pensions." On the other hand, it is not concerned at all with unemployment insurance, nor is it concerned primarily or in detail with medical benefit or other treatment schemes. In relation to its main theme, these latter are considered only (but in a very interesting fashion) as "benefits in kind" established by, or associated with, "insurance institutions" in the interest of individual or public health with a view to lessening the need and demand for cash payments for invalidity, old age, or survival. "It has been attempted first of all to make such general remarks as permit each of the various schemes to be given its proper place in the development of ideas and of institutions, and secondly, to describe each scheme in sufficient detail to show its characteristic features."

The report is thus a work of reference rather than one for consecutive reading. It is full of information admirably ordered. The statements of fact and of laws are models of conciseness and condensation, and, as tested by the references to Great Britain, these qualities have not led to any sacrifice of precision.

[1] *Compulsory Pension Insurance.* Studies and Reports, Series M, (Social Insurance) No. 10. Geneva: Industrial Labour Office; London: P. S. King and Son, Ltd. 1933. (16s.)

The scope of compulsory insurance in the several countries, the risks covered and the cash benefits secured, the financial resources from which these are provided, and the administrative organization set up are all fully dealt with, and the legal provisions made by the various countries in relation to these matters are sufficiently set out. In addition, however, to its indisputable value as a work of reference, some of the chapters of a general character make very interesting reading. Here, especially for those not concerned with insurance or pension schemes, attention may be called to the chapter on "the role of insurance schemes in combating social diseases"—tuberculosis, rheumatic diseases, cancer, venereal diseases—and to the few excellent pages setting out the reasons for and against the principles of contributions from the insured persons, from the employers, and from the public authorities. The report takes account of all the laws and regulations of which the International Labour Office was aware up to September 30th, 1932.

STRYCHNINE IN BARBITURATE POISONING

The increasing popularity of the barbituric group of hypnotics has naturally increased the frequency of accidental and suicidal poisoning with these drugs. Haggard and Greenberg[1] demonstrated a remarkable antagonism between strychnine and barbiturates, and showed that the effects of an overdose of either drug could be relieved by administering the other. Barbiturates have been found valuable in the treatment of strychnine poisoning,[2] and conversely large doses of strychnine have been found of use in the treatment of barbiturate poisoning.[3] Bertrand-Fontaine and Claas[4] reported recently an astonishing result with this form of therapy. A young woman took 17 grams (more than half an ounce) of veronal and was found ten hours later in deep coma. She was treated with injections of 1/6 grain of strychnine every one or two hours. The patient was comatose for sixty hours, during which time she received a total of no less than 6 grains (0.39 gram) of strychnine sulphate. Although signs of lung collapse developed at one period she finally made a complete recovery. The case is worthy of note for two reasons: first, the recovery after a very large dose of veronal and prolonged coma, and, secondly, the fact that the large quantities of strychnine given did not produce any toxic effects. The amounts given would certainly have caused convulsions in a normal person. The smallest lethal dose of strychnine for a normal person is as low as half a grain. The authors, in their account of the case, emphasized the obvious clinical improvement that followed each injection of strychnine. In the same journal other writers report other striking successes with this form of treatment of barbiturate poisoning. A patient[5] poisoned with 4 grams (60 grains) of gardenal (sodium phenobarbitone) recovered after being given 0.17 gram (3 grains) of strychnine in three days. Another patient,[6] who attempted suicide by taking 2 grams (30 grains) of gardenal, also recovered, although in this case the amount of strychnine given was much smaller—namely, 26 milligrams (1/2 grain). Accounts are given of three cases[7] of unsuccessful treatment by strychnine. Other observers publish notes on successes with other forms of treatment for barbiturate poisoning—namely, frequent doses of adrenaline,[7] bleeding combined with ouabain injections,[8] and intravenous injection of hypertonic glucose.[9] Several methods of treatment of barbiturate poisoning may therefore be attended with good results, but the evidence regarding the strychnine treatment is the most convincing. The strychnine-barbiturate antagonism was first demonstrated experimentally, and these experiments appear to have provided a very useful therapeutic method.

[1] Haggard and Greenberg: *Journ. Amer. Med Assoc.*, 1932, xcviii, 1133.
[2] Kempf, MacCallum, and Zerfas: Ibid., 1933, c, 548. See also annotation in the *British Medical Journal* of October 7th, 1933 (p. 656).
[3] Ide: *Gaz. Méd. de France*, June 1st, 1933, p. 398.
[4] Bertrand-Fontaine and Claas: *Bull. et Mém. Soc. Méd. des Hôp. de Paris*, 1933, xlix, 1177.
[5] Harvier and Antonelli: Ibid., 1933, xlix, 1184.
[6] Eschbach: Ibid., 1933, xlix, 1183.
[7] Huber: *Bull. et Mém. Soc. Méd. des Hôp. de Paris*, 1933, xlix, 1269.
[8] Baviéty: Ibid., 1933, xlix, 1270.
[9] Isaac-Georges: Ibid., 1933, xlix, 1271.

BLOOD TESTS IN ANTHROPOLOGY

Until the introduction of blood grouping, sometimes called the isoagglutination test, most of the work on anthropology was based on the measurements of the skeleton and on external appearances. Although morphology is of the greatest importance in investigating the origin of racial groups it cannot be relied on exclusively; if progress is to be made other branches of biology must be brought into use. Professor V. Suk of Brno University has done much valuable work in correlating racial characteristics with those of the blood. He has recently published[10] the results of a long series of experiments with the precipitin test on the immunological specificity of different human races. The serums used for immunization were taken from students and soldiers at Brno, who represented perfect types of what have been classified as European races—Gipsy, Alpine, Nordic, Baltic, Jew; in addition, Dr. Suk had a small quantity of pure-blooded Eskimo serum from the Moravian mission station in Northern Labrador. For the precipitation work he used twenty-five different kinds of serum from representatives of various European types, and also from seven Kalmuks, Buddhists from the Don territory. He made 405 experiments, each with eight dilutions. The most decided results were in the Eskimo-Kalmuk group. Both these races are phylogenetically old and geographically isolated, with well-marked morphological characteristics. The study seems to show that the more established the group is the more decided is the result. The reactions when various kinds of European serum were tested against one another were, on the average, not nearly so marked. Dr. Suk concludes that the Eskimo and Kalmuks are real races, or constant varieties of the species *Homo*. On the other hand, the different European types are not fully established biological races, but groups in the process of making. In all probability, he thinks, the only true races will be found to be the four races of Huxley. The blood-grouping tests were done on over 4,000 persons, 3,000 being Czechs from Brno and the remainder Ruthenians and Germans from Carpathian Ruthenia. This material gave six different shades of hair colour and six different eye colours, and some connexion might have been

[10] *Acta Soc. Sci. Nat. Morav.*, 1933, viii, F. 68.

expected between these old-established racial characteristics and the blood groups. Yet there was no definite correlation, and the results bore out the words of Matthew Young, that blood-grouping might not be such an important criterion of racial type as its most ardent supporters had anticipated. Previous work on the correlation of blood grouping and dental decay[1] has led Professor Suk to regard the blood groups as a constitutional character. The present study serves as a useful warning to all workers who rely on any one method. Professor Suk has produced good evidence that the types known as Gipsy, Alpine, Baltic, Nordic, Jew, and the like, are superficial variations induced by habit and environment on a single race. The Eskimo serum, to give an example of the effect of diet, always has a strong fishy smell; modern anthropological research has detected visible bodily changes in the populations of Northern Europe and the United States within the last fifty years. Not only do the European types appear to be considerably plastic, but they are not, apparently, developing into true Nordic, Dynaric, and such other races, but into English, German, Italian, North American, and such races. Moreover, owing to the present ease of migration and social selection, it is doubtful whether these will ever attain the full status of true races in the sense of Mongol, Negro, Australian, and European.

PROFESSOR JOHN JOLY

With the death, on December 8th, of Professor John Joly, Sc.D., F.R.S., Dublin loses a scientific worker of high repute. After graduating with first-class honours at Trinity College, Dublin, he was, in 1882, appointed lecturer in engineering, and in 1893 became lecturer in experimental physics. His interest in the college was not confined to the lecture room, but showed itself in many other directions. He made a special point of considering all aspects of the students' lives, and it was he who organized and carried on for thirty years the "lantern evenings" for students, and originated the idea of opening the library at night. Until about ten years ago he served on the board of the college, and was for a long time a member and secretary of the academic council. From the medical point of view Professor Joly will chiefly be remembered in connexion with radium. He induced the Royal Dublin Society to found the Radium Institute, and, in collaboration with the late Dr. Walter Stevenson, invented and elaborated the deep-seated application of radium in hollow needles—a process known as "the Dublin method," which has since had world-wide usage. This invention really effected a revolution in radium therapy, for it enabled the surgeon to get uniform radiation within a comparatively large mass. It was this part of his work of which Professor Joly was perhaps most proud. Earlier researches resulted in the invention of the steam calorimeter, which gave greater accuracy in calculating the specific heat of materials, and enabled him to determine the specific heat of gases of constant volume. Another invention was the meldometer for accurate determination of the fusion point of minerals; while by means of his incandescent electrical furnace he succeeded in analysing with ease the metal aluminium, which was, at the time, a chemical curiosity. His field of work extended even to colour photography, and the technique he evolved as early as 1896 still produces most accurate and beautiful results. He also made contributions to botany in connexion with the ascent of the sap in plants, and with the colour of Alpine flowers. By means of the sodium content of the ocean he devised a method of calculating the geological age of the earth, and later, with others, he applied the radium content of rocks to this determination, thus bringing himself to a consideration of the bearing of radio-activity in geology.

[1] *British Medical Journal*, 1923, i, 525.

THE NUTRITION REPORT

The report of the Nutrition Committee has been criticized by some on the ground that it allows too little money for the purchase of the foodstuffs detailed in the specimen diets. This may very well be the case in certain localities, and the committee was fully alive to the fact that housewives unfavourably placed in regard to markets might find it impossible to purchase at the minimum prices mentioned. The committee pointed out, however, that the cost scale for each locality could be readily worked out, and it simply rests with the intelligence of individuals and authorities to do so. The report itself contains a sufficient answer to our correspondent (p. 1144) who complains on these grounds, and we recommend her to study its pages carefully and then work out the cost scale for her particular market. Some critics consider the quantities of food to be too little. None, however, have so far challenged them as being excessive. In other quarters the opinion has been voiced that the report should have gone into details in regard to the menus and dishes which the cook could evolve out of the foodstuffs listed. In answer to this latter criticism it may be pointed out that culinary customs, the likes and dislikes of individuals, and local specialities are so varied that the committee would have brought down the wrath of cooks in general on its head had it ventured into the kitchen. It is for schools of cookery and domestic science to interpret the findings of the Nutrition Committee in ways which will suit the palates of their local communities.

ST. BARTHOLOMEW'S MEDICAL COLLEGE

On December 8th the Prince of Wales, who is a "perpetual student" of the medical college and also president of the hospital, paid an informal visit to the new medical college of St. Bartholomew's Hospital in Charterhouse Square. He was received at the entrance of the college by Lord Stanmore, president of the college and treasurer of St. Bartholomew's Hospital, the Lord Mayor of London, Professor L. N. G. Filon, Vice-Chancellor of the University of London, Professor Kettle, president of St. Bartholomew's Medical College Students' Union, Mr. Stanhope Furber and Mr. J. G. Youngman, secretaries of the Students' Union, and Mr. W. Girling Ball, dean of the medical college. After a tour of the buildings—which have not yet been converted for their new purpose—the Prince of Wales took tea in the Great Hall, where a large number of guests were assembled. He was received by Lord Horder, senior physician to the hospital, Professor George Gask, vice-president of the college and senior surgeon to the hospital, and Mr. Reginald Vick, warden of the college.

The College Council still needs £81,000 to complete the scheme—£56,000 to pay off the deficit, and £25,000 for alterations—and appeals to all old Bart's men to do what they can to bring the matter to a speedy and successful conclusion.

PATHOLOGICAL MUSEUM, BOURNEMOUTH, 1934

One of the features of the Annual Meeting of the British Medical Association at Bournemouth next July will be the Pathological Museum. It has been arranged to hold this in a central building adjoining that in which the sectional work is carried on, and the material will be grouped under the following heads: (*a*) exhibits bearing on discussions and papers to the various Sections; (*b*) specimens and illustrations relating to any recent research work; (*c*) instruments relating to clinical diagnosis and pathological investigation; (*d*) individual specimens of special interest, or a series illustrating some particular subject. It is also hoped to gather together a series of exhibits relating to neurology; illustrations bearing upon heredity and mental and physical deterioration; and a series of *x*-ray and other photographs. The committee in charge of the organization of the Museum asks for the co-operation of pathologists and others in securing specimens of medical interest on the lines indicated above. Offers of assistance should be sent to the honorary secretary of the Museum Committee, Dr. C. G. H. Morse, 10, Madeira Road, Bournemouth.

THE NATURE OF INSULIN

The Board of Trade announces that the tribunal constituted under Section 1 (5) of the Safeguarding of Industries Act, 1921, as amended by the Finance Act, 1926, has issued its decision on the complaint that "insulin and its salts" has been improperly excluded from the list H iii, issued by the Board of Trade, of articles chargeable with duty under the Safeguarding of Industries Act. The hearing was reported briefly in the *British Medical Journal* of November 25th, p. 989. A majority of the members of the tribunal have decided that "insulin and its salts" should be added to the list, and the list is being amended accordingly with effect as from December 14th, 1933.

We regret to announce the death, in his eighty-third year, of Sir William Whitla, LL.D., M.D., honorary physician in Ireland to the King, emeritus professor of materia medica and therapeutics in Queen's University, Belfast, and consulting physician to the Royal Victoria Hospital and the Ulster Hospital for Women and Children. Sir William Whitla was president of the British Medical Association when it last met in Belfast in 1909.

The British Guiana Branch of the British Medical Association celebrated its fiftieth anniversary by a dinner in Georgetown on December 13th.

ST. MARY'S HOSPITAL NEW MEDICAL SCHOOL

OPENING BY THE KING

The King, accompanied by the Queen, and attended by the Minister of Health, opened on December 12th the new building of the Medical School and Pathological Institute of St. Mary's Hospital, Paddington.

The buildings, when completed by a nurses' home, will cover an island site adjacent to St. Mary's Hospital, having on its three sides Praed Street, Cambridge Place, and South Wharf Road. The Medical School occupies about two-thirds of the present structure, leaving rather more than one wing for the Inoculation Department. The general plan consists of four floors, with a courtyard floor or basement. The courtyard floor, which with its pleasant loggia opens out on what is to be a formal garden, contains the students' dining room, recreational rooms, a swimming bath, and other provision for amenities. On the ground floor, reached immediately from the fine main entrance, is the library and speech hall—the handsome focus of the whole building. Here also are the administration rooms, students' common room, and a gymnasium not yet equipped. The first floor is in part occupied by the gallery of the library, and contains also the chemistry department. The second floor is devoted to laboratories for chemistry, physics, pharmacology, and physiology; the third floor again to physiology and anatomy, and anatomy with biology is also carried on to the fourth floor.

Both externally and internally the building is very pleasing. In the hands of Sir Edwin Cooper, the architect, decoration, although subdued, has not been sacrificed to utilitarianism, and there are many sympathetic touches. The brickwork is warm in tone; the semi-headed main windows are treated with coursed rusticated arches on the masonic model, and the setting back of the topmost story all round gives an architectural completeness to the structure. The library and speech hall will hold a company of 800, and has accommodation for 30,000 volumes. It is handsomely panelled in oak, with sturdy Ionic piers and galleried recesses. The lecture theatres each extend to the height of two stories, are well lighted, well equipped, with lantern screens and blackboards, and the seats radiate fanwise from the lecturer's desk. The walls contain felt, so that the acoustic properties may be as perfect as possible. The swimming bath is a noteworthy feature, for it includes an ultra-violet ray purification plant. There is a garage underground for fifty cars, and also provision for a steel locker for every student.

The anatomy department contains the Henry Davis museum, with its fine collection of embryological specimens. The physiology department includes the Waller memorial research laboratory. In addition to the large laboratories with places for many students, there are a number of single rooms for research workers and staff, also preparation, dissecting, and demonstration rooms. The Inoculation Department, always to be associated with the name of Sir Almroth Wright, has its own main entrance, and in this building again the laboratories and classrooms are excellently arranged and furnished. A bridge link from the first floor, very ably contrived, connects the new building with the main hospital.

The task of building has been going on since August, 1930, and many persons are to be congratulated on the virtual completion of a great achievement. Some of the benefactors were mentioned by the Dean at the opening ceremony; much is owing also to the architect, Sir Edwin Cooper, and the builders, John Mowlem and Co., but the man whose hand has been felt behind every part of the undertaking, and to whom its boldness of conception and planning are primarily due, is the Dean himself, Dr. C. M. Wilson.

THE ROYAL CEREMONY

The opening ceremony took place in the new library and speech hall, where a distinguished company assembled, including civic and municipal representatives, governors of the hospital, the medical and surgical staff, professors and lecturers in the medical school, and the deans of sister schools. There first passed in procession to their allotted places the Presidents of the Royal College of

Edinburgh Royal Infirmary

At the annual meeting of the League of Subscribers of the Royal Infirmary of Edinburgh, when Mr. J. W. Thomson, president of the League, was in the chair, the report showed a successful financial year, £20,753 having been raised by small subscriptions. This was a decrease of £363 on last year's total, due, however, to the contribution from a large group being forwarded too late for inclusion in the year's accounts. It was stated that the Board of Management of the institution had appointed a special committee to consider the future finances of the Infirmary in view of its prospective expansion. The figures ascertained by the committee had made it clear that if the income of the Infirmary remained at its present level, when the proposed extensions were carried out there would be an estimated yearly deficit of £35,000. The present sum raised by the League of Subscribers and by mine workers and other employees in public works amounted to £32,000, and it was hoped that this might be increased by £12,000. It was suggested that if every insured person in the city of Edinburgh contributed one penny per week, a total far in excess of £20,000 would be secured; there was still a great number of workpeople who did not contribute at all. The executive believed that the amount of contributions in their area might be doubled. Mr. Wallace Cowan, a member of the Board of Management, presented a preliminary statement of the work of the institution for the past year. The scheme before the Board included not only a new maternity hospital, but a new home for the nursing staff, and it was anticipated that the capital cost of the scheme, with which the Board intended to proceed in a restricted form, would exceed the capital already subscribed for the extension fund by nearly £50,000. There would therefore have to be another call on the public for this balance, and it should be kept in mind that a substantial addition to revenue would have to be raised annually for the maintenance of the enlarged institution.

Edinburgh Hospital for Incurables

At the annual meeting of the Royal Edinburgh Hospital for Incurables, including the Longmore and Liberton Hospitals, Mr. J. J. Herdman, chairman of the Board, said that patients under treatment during the course of the year had numbered 327, of whom fifty-five had been admitted during the period under review. There had been 188 applications for admission, of which they had been able to accept 118. Of the applicants, over one-third suffered from cancer, and the number of these cases admitted during the year had been forty-four, with an average period of residence extending to seven and a half months per patient. In the other wards, providing 186 beds, the average residence was two and a half years, although patients were occasionally retained for much longer periods; at present two patients had been in the hospital for thirty-two and thirty-three years respectively. There was a deficiency on the ordinary revenue of the hospital of £4,780, but there had been an increase in the extraordinary income amounting to £4,725, which virtually met this deficit. Extraordinary income from legacies was, however, fluctuating, and it would be satisfactory to have a larger number of annual subscriptions. Professor R. W. Johnstone of Edinburgh University said he could conceive of no better remedy for the despondent or pessimistic person than a visit to the wards of the Hospital for Incurables, where he would find in the midst of all the suffering a general atmosphere of serenity and quiet courage. He (Professor Johnstone) was impressed with the fact that the condition of incurability was relative. He was also impressed with the analysis of the diseases which filled the beds of the hospital, because it gave reason to believe that medical knowledge was making progress in the struggle against many of these conditions, particularly against rheumatic affections, tuberculosis, and cancer. With regard to cancer, there had undoubtedly been progress since an adequate supply of radium had been placed at the disposal of the Royal Infirmary. For advanced cases these hospitals formed the most perfect complement to the other voluntary hospitals of the city.

England and Wales

London School of Medicine for Women

The annual dinner of the London (Royal Free Hospital) School of Medicine for Women took place on December 7th at the Savoy Hotel, and was attended by a large number of members of the staff, past and present students, and friends of the hospital and school. Mr. J. Gay French, F.R.C.S., who is retiring from the chairmanship of the Medical Committee, presided. The Hon. Mrs. Alfred Lyttelton, in proposing "The School and Hospital," confessed that she found it difficult to address so many highly trained and expert people, because in her young days she and the other children of the family had none of the opportunities of present-day education. They were just told what to do in the simple round of home life, perpetually dosed with castor oil and rhubarb, and, at a later stage, put on a regular regimen, while marriage was the only ambition set before the girls, and such a thing as going to college was never thought of. She was cheered, however, by the thought that if one was conscious of a lack of early training one could recognize that the completely expert things were continually changing as time went on. There was no need nowadays to look upon a person who had been trained in medicine as absolutely beyond criticism. Nevertheless, it was a very good thing to have in the background of one's life the sort of training that a medical man or woman had received. The chairman, in response, gave some reminiscences of his own twenty-one years at the hospital, during which time the area covered by the hospital buildings had been doubled, the number of students had grown from 147 to 338, the staff of the hospital from 14 doctors to 27, and the income from £13,000 to £30,000. The Royal Free Hospital now had a very large out-patient department and one of the finest operating theatres in England. The latest development was an extension of the pathological department in the Albert Levy wing. This year also there had been established a new nurses' home, in which there was a private bedroom for each nurse. He expressed the thanks of all friends of the hospital and school to the matron for her part in the supervision of the new developments. Dr. L. S. T. Burrell, in proposing "The Guests," extended a warm welcome to Lady Galway, the Hon. Francis Rodd, the Editors of the *Lancet* and the *British Medical Journal*, and others. In responding, Dr. F. M. R. Walshe said that to "eager young things" who were about to embark hopefully upon a career in medicine he would impart the advice which he received during the war from an elderly doctor, who told him that he had achieved success by writing a textbook—an easy thing to do if one had the use of a good library. After the war he had tried to put that advice to the test, but found that all his contemporaries were doing the same thing, and it only remained for him to review for inadequate reward the books these other people were compiling! Lady Galway, who also replied, said that even lay people had come to realize the importance of preventive work. In reply to the toast of his health, proposed by Dr. Helen Boyle,

and given musical honours, Mr Gay French acknowledged the kindness he had received from colleagues and students during his twenty one years at the hospital Throughout that time as chairman of the Medical Committee he had had one of the most loyal committees of which any London hospital could boast One thing which had touched him very deeply was the connexion he had been able to retain with his old students He often received letters from them, even from as far afield as China, India and South Africa For an old chief it was the very greatest honour to know that students in different parts of the world turned to him when help was needed

Royal Surgical Aid Society

The annual meeting of the Royal Surgical Aid Society was held at the Mansion House London, on December 6th The Lord Mayor, who presided said that the meeting marked the completion of the Society s seventy first year, it having been established in 1862 The Society he said was doing invaluable work in ministering to the relief and comfort of the suffering poor by providing surgical appliances of every description It was a valuable adjunct to the work of the hospitals He regretted the falling off in income last year, which, at £55,154, was less by £2,741 than in the previous period During the year 29,554 patients had been relieved and 38 477 appliances supplied The grand total of patients relieved and appliances supplied since the commencement of the society seventy one years ago was 1,032,557 patients and 1,523 427 appliances On the motion of Sir George Broadbridge the report was adopted The Lord Mayor said he would like to make a suggestion why were the meetings always held in London? He was delighted to have placed the hall at their disposal and to have presided, but why not hold a meeting say, in Liverpool or some other city or town in the north? Something might be done on those lines to extend the appeal of the society

Memorial to Dr. Percy Hughes

A fund has been opened by the staff of the Worcestershire Mental Hospital with the object of erecting a memorial to the late Dr Percy T Hughes, medical superintendent of that hospital from 1900 to 1933, and lecturer on mental diseases in the University of Birmingham Former colleagues and other friends are invited to join in subscribing to the fund Contributions may be sent to the honorary treasurer, Mr W M J Coleman clerk s office, Barnsley Hall Mental Hospital, Bromsgrove, Worcestershire, by whom they will be gratefully acknowledged , or to the present medical superintendent. After the fund is closed on January 15th, 1934, a meeting will be held to decide the form of the memorial

Demonstration of Hydrotherapy

A demonstration of hydrological treatments held at the hot mineral baths of Bath on December 6th was attended by many physicians and surgeons from Somerset, Gloucester, and Wiltshire to whom invitations had been sent by the Bath Spa Committee It was felt that the actual demonstration of methods of treatment would be helpful in informing the medical profession in these counties of the facilities at their disposal and easily accessible by their patients Treatment by the hyperthermal water, various kinds of douche massage the recently installed thermal vapour treatment (a method lately devised by Bath and only obtainable there) and other forms of balneotherapy were demonstrated the electrotherapy department was also shown Drs Vincent Coates A Gordon Watson G R P Aldred Brown and J B Bennett, physicians to the Royal Mineral Water Hospital, conducted the parties of medical guests around the establishment and explained the uses of the various methods of treatment Dr F G Thomson, consulting physician to the hospital, gave an address on the physiological principles of hydrological treatment The visitors were welcomed by the spa director, Mr John Hatton, on behalf of the Spa Committee Tea was afterwards served on the terrace adjoining the concert room, where the pump room orchestra played After tea the Roman baths were visited under the guidance of Mr A J Taylor, architect to the Spa Committee

Medico-Legal Society

Sir Bernard Spilsbury, the president, took the chair at the annual dinner of the Medico Legal Society, held at the Holborn Restaurant on December 8th Proposing the health of medicine and the law, Lord Atkin said that every year the interrelation between the medical and the legal professions increased Medico legal problems were constantly being brought before the courts Besides the ordinary questions of how wounds were produced and with what weapon, and whether and what poison had been taken, a whole range of new problems arose under the Workmen s Compensation Act Industrial diseases were becoming more important day by day He could not understand why, when the truthful resolution of these problems was essential to the administration of justice, the country did not make an organized effort to obtain the best instruction and education in forensic medicine by means of a medico legal institute in London These institutes existed in nearly every other capital Some members of the society possessed international reputation and would be able to attract students from all over the world He considered the coroner s court to be an absolutely essential tribunal, which performed beneficial work in a most efficient, temperate, and judicial manner Lord Dawson of Penn, in reply, said that lawyers had many things to teach doctors , no profession managed its holidays so well, and they were much better protected than doctors from unqualified rivals It was impossible to conceive of a genius coming from without and claiming that he had all the qualifications of a Lord Chancellor He would be politely received, but he would certainly disappear Law was free from one difficulty in that nobody thought of it except in terms of reasonableness whereas the doctor s trouble was that men insisted on thinking of medicine in terms of magic The law had passed through this stage during the period when mediæval jurists had been in the habit of trying animals for offences Lord Dawson welcomed the suggestion of a medico legal institute, but suggested that it should form part of an academy of medicine in which all branches of the profession would be integrated and its collective knowledge on the practical side made available to the Government of the day So wide was the growth of expert knowledge in every direction that one mind could not compass it and some authoritative means must be found of bringing that knowledge impartially to the service of the community Judges had so far shown amazing intellectual grasp of the new achievements of science, but they would not always be able to keep pace, and would before long find the need for technical assessors Such men had assisted the Admiralty Division for a long time if it were right to use assessors for the wreckage of ships, why not use them for the wreckage of human lives? Another recent change in the relations of law and medicine was the growth of the idea of curing the offender rather than of punishing him To meet this new and difficult problem the two professions must unite more closely in reviewing the doctrine of responsibility Sir R Graham Campbell, also in reply, commented on the lamentable tendency of medical witnesses to take sides and contradict each other in the witness box Sir

Bernard Spilsbury, in reply to the toast of the Medico-Legal Society, recalled the admiration of an American visitor at the design of the society's badge, which the visitor had unfortunately misunderstood to represent medicine on the one hand and law on the other pushing Truth down into a well. Lord Riddell proposed the health of the guests, and Sir Holburt Waring, in reply, said that when he first began his teaching work at St. Bartholomew's it became apparent to him that the teaching of forensic medicine was sadly in need of improvement. He was fully in sympathy with the project for a medico-legal institute, but hoped it would not be combined with either an undergraduate or a post-graduate school, but would be housed in a well-equipped and independent building.

London County Council Pathologists

Hitherto the fixed staff at the laboratories under the management of the London Central Public Health Committee has included places for eleven part-time pathologists. As a result of transfers, termination of appointments, and resignations, the number of part-time pathologists has now been reduced to five, and it is proposed to terminate the services of these on December 31st next. The staff at each of the five group laboratories at general hospitals has been strengthened by the addition thereto of an assistant pathologist, and as a result it is possible to take from the group laboratories the work so far performed by the part-time officers. Only full-time officers will be engaged in future. Compensation under the Local Government Act, 1929, may be payable in the case of three of the part-time pathologists, but is not likely to amount to more than about £140 a year. The reduction of the fixed staff by eleven part-time pathologists will result in a saving of approximately £1,865 in the current financial year, and of £3,400 in 1934–5 and subsequent years.

CORRESPONDENCE

Alternating Current in Medical Practice

SIR,—The leading article in the *Journal* of December 9th (p. 1081) on alternating current in medical practice is a very timely one in view of the increasing distribution of these currents and their employment for so many purposes.

It has for a long time been recognized that the alternating are far more dangerous than the direct currents; but the reason for the increased danger associated with their employment does not generally appear to be recognized. The explanation is to be found in the relative velocity of the hydrogen ion, a relative velocity which is also the main fundamental principle governing electrotherapy. When an electric current is established the hydrogen ion—possessing a velocity greater than any other ion, and being five times faster than any other ion conveying the current from the positive to the negative pole—causes a momentary concentration of hydrogen ions at the negative pole, and so causes an electro-chemical action of an acid character, which excites the nerves and other tissues in its neighbourhood. At the abrupt break of the current, again owing to its relatively high velocity, the hydrogen ion rushes away from the point from which it is proceeding—namely, the positive pole—and so causes a brief relative excess of hydroxyl ions in this region, which excites the nerves in the neighbourhood of the positive pole by an electro-chemical stimulation of an alkaline character.

When administering electrical treatment, or when taking electrical reactions, we employ a very low voltage, and the reaction is weak and is confined to the neighbourhood of the active electrode. But when a person is brought into contact with a high-tension wire, a high-voltage current passes through him to earth, pervading his whole body and in its path stimulating the vagus nerve, and this results in the inhibition of respiration and the heart's action. This may prove to be a fatal "electric shock."

Now when an alternating current is employed at the usual periodicity of 50 per second, this will result in 200 shocks per second—namely, a make-and-break shock in one direction, followed by a make-and-break shock in the alternating direction, at each cycle of the current. On the other hand, in the case of the direct current an "electric shock" would only occur when the current was made and when it was broken. In the interval between make and break the only danger from the direct current would arise from the overheating of the tissues, which would be greater than from the alternating current, due to the high amperage of the passing current. Apart from this heating effect the constant current, as D'Arsonval[1] has stated, is only dangerous at make and break. On these grounds it is not difficult to visualize the far greater danger of "electric shock" from alternating than from direct currents.

It would appear that, in the case of high-tension shocks, inhibition precedes fibrillation of the cardiac muscle, and if the high-tension voltage is sufficiently high, apparent death from failure of respiration will occur before fibrillation is established. This is a very important point in relation to the treatment of "electric shock"; it is perhaps best shown by the early experience of electrocution in the United States. Electrocution was introduced into New York State in 1890. At first a voltage of 1,500, with a periodicity of 15 to 30, was employed. It was found that, though respiration was inhibited and sensibility abolished almost immediately, yet the heart continued to beat, and, when additional shocks were not administered, respiration was in some cases restored. Therefore, in order to avoid these disconcerting recoveries, a new technique was adopted in 1899. A current of 1,500 to 2,000 volts was applied for seven seconds, then a current of 200 to 400 volts for thirty seconds, and finally a current of 200 volts for a few seconds. In this way a respiratory inhibition was primarily secured, and was followed by a fibrillation of the ventricles, due to the lower tension, and thus a fatal result was ensured. In two cases an immediate necropsy was performed, and revealed to view a rhythmical contraction of the auricles with the ventricles in a state of fibrillation.

Of especial interest to electrotherapists is the fact that fibrillation may be set up by currents of quite low voltage if the cardiac area lies in the path of the current. Deaths from this cause are said to have occurred in Germany even from the low-voltage currents derived from panto-stats. D'Halluin,[2] owing to the almost certain fatal termination of fibrillation, goes so far as to state that we arrive at the paradox that currents of moderate or even low voltage may be even more dangerous than those of very high tension. Fibrillation ensuing from the use of alternating currents is clearly due to direct electrical stimulation causing arrhythmia of the cardiac muscles; but the fibrillation which some observers have recorded as resulting from the direct current would appear to be secondary to the heating action of the very high amperage which is necessary for their production. Prévost and Batelli[3] needed a direct current of 500 volts for the production of fibrillation.

Electrotherapists may employ the very valuable alternating currents of low frequency with absolute safety

[1] D'Arsonval: *C. R. de l'Acad. des Sci.*, April 4th, 1887.
[2] *Journ. de Radiol. et d'Electrol.*, June, 1920.
[3] *Journ. de Physiol. et de Pathol.*, 1899, pp. 399, 427.

provided the lines of force of the current do not pass through the cardiac area—that is to say that the current may be passed from foot to foot or leg to leg, but not from hand to hand or arm to arm. The risk of the latter arrangement is evidently very remote, for such a technique is daily employed, and, so far as I know, no untoward results have been recorded in this country. But a theoretical and remote risk would appear to exist which can be entirely overcome by employing four in place of two electrodes, and connecting the upper electrodes on the arms or shoulders to one terminal of the apparatus and the two lower electrodes on the hands or forearms to the other terminal. In this way the lines of force of the current are confined to the arms, and do not pervade the cardiac area. Alternating currents of a tension as low as 10 volts can set up fibrillation in a dog's heart.

There appears at present to be no practical treatment of cardiac fibrillation; the treatment suggested by D'Halluin[2] of the intravenous injection of potassium is quite unpracticable as an emergency measure. The dosage of the potassium has to be accurately adjusted to the body weight or to the cardiac volume, and it has to be very slowly injected, or it may be fatal even though the dose is not excessive. All authorities are agreed that the treatment of "electric shock" is by immediate and prolonged artificial respiration. Jellinek has shown that death from a high-voltage shock is at first only apparent, and that life can often be restored by immediate artificial respiration, and this view is confirmed by the revivals which occurred in the early electrocutions in America. But it cannot be too strongly emphasized that it must be commenced at once and continued for a considerable time. "Recovery is common after three hours, and has occurred after eight hours."[1] Whatever other measures may be adopted they should not be such as would interfere with the performance of artificial respiration. Many lives have probably been lost by not adopting this simple procedure at once and by delaying this treatment until the patient has been transported to hospital. With the police, firemen, railwaymen, and so many others trained in artificial respiration there can be no excuse to-day for this fatal delay. All those employed in the generation, supply, or employment of high-tension electricity should be thoroughly trained and periodically examined in the efficient performance of artificial respiration.—I am, etc.,

Oxford, Dec. 10th. W. J. TURRELL.

Marking X-Ray Films

SIR,—May I appeal through your columns to radiologists to assist their medical and surgical colleagues by marking all films before or immediately after they have been developed with the name of the patient and the date? To many this appeal may seem absurd and uncalled for: my experience tells me that it is not. Even in these enlightened days one frequently sees a patient who produces a series of radiograms, not one of which is named or dated. Often one has to rely entirely on the patient to sort out the films. In some cases, it is true, the films are enclosed in a number of envelopes, labelled clearly, but one is never sure that the films are in their right envelopes, and sometimes there is strong presumptive evidence that they have been mixed. In other cases labels giving the necessary details have been gummed to the films, but invariably some at least of these have become detached, and the surgeon is little better off. Yet again, the films may be neatly marked with some index number and letters, which are obviously useless to anyone outside the department in which the films were taken.

To any surgeon asked to give an opinion on the patient's condition in the immediate or distant future it is essential that each film should be marked with the patient's name and the date on which it was taken. A pencil is all that is required. It is really amazing to find that this practice is not universal, even in London. Even when it is intended that a film should never leave the institution in which it was taken, it is a great convenience to the physician or surgeon concerned to find the date on each film. The common practice of marking the film when it is dry in black or white ink, though of great convenience to all concerned, is not essential. Owing to the frequency with which a patient is sent nowadays by his or her doctor to the *x*-ray department of the nearest cottage or other hospital for radiographic examination, I appeal especially to those in charge of these departments.—I am, etc.,

London, W.1, Dec. 7th. H. A. T. FAIRBANK.

Vallecular Dysphagia

SIR,—I read the article by Drs. McGibbon and Mather on vallecular dysphagia in the *Journal* of December 2nd with much interest. The condition is evidently not so rare as I thought when I described my original case in 1931. I have not come across another since then, but perhaps this is because I have been looking for the distressing symptoms of dyspnoea and gross dysphagia, from which my patient suffered, but which were absent from Dr. McGibbon's cases. Perhaps if we are on the watch for the milder symptoms cases of vallecular dysphagia will turn out to be relatively common.

On one point Dr. McGibbon is not quite explicit. He describes my treatment as "diathermy puncture of the valleculae"; actually streaks were burned deeply in an antero-posterior direction from the base of the tongue well on to the epiglottis. The object of this was to cause fibrous contraction of the streaks in healing so as to diminish the size of the valleculae and pull the epiglottis forwards. This was fairly successful, so much so that when I proposed later to amputate the epiglottis the patient refused, saying that he was satisfied with his condition and could carry on quite comfortably. I do not think that section of the pharyngo-epiglottic folds was of any value. Dr. McGibbon did not give any details of the results of treatment in his cases. I gather that some at least were not severe enough to need treatment, but it would be interesting to know the methods he used in the others and the results he obtained.—I am, etc.,

Dublin, Dec 7th R. R. WOODS, F.R.C.S.I.

The Needs of the Middle-class Patient

SIR,—I shall be grateful if you will allow me to raise briefly one or two points in connexion with the circular which has recently been issued by the British Provident Association.

The objects of that association I may assume to be well known to your readers. Yet I find sometimes, even among medical men, misunderstanding as to the scope of its activities, and occasionally something in the nature of a prejudice against it. The latter, I have observed, usually arises from an entirely erroneous belief that general practitioners' treatment is included among the benefits provided by the B.P.A. It is so included in at least one other medical provident society—for example, the University Provident Society—whose first year's working was reviewed a short time ago by the Regius Professor

[1] *Lancet*, June 2nd, 1928.

of Medicine at Oxford. He showed, as might have been expected, that by far the largest claim account came under the head of general practitioners' service. It was, indeed, carefully considered by the British Provident Association whether such a benefit should be included, but, as it would have meant doubling the subscription, and as the middle classes, to which the B.P.A. is specially intended to apply, are able to pay for the ordinary services of a medical attendant, the idea was rejected.

The main purpose of the B.P.A. is, in fact, to guarantee to its subscribers a private pay-bed in a hospital or nursing home in case of illness requiring institutional treatment, and substantial assistance towards the cost of medical, surgical, and consultants' fees. The association is not out to make money, nor is it linked up with any hospital or clinic. Choice of institution, as of the physician, surgeon, and consultant, is left entirely free to the patient.

The growth of the B.P.A. since its reorganization eighteen months ago has been steady, though not as rapid as had been anticipated. Whatever the reason for this may be, it is certainly not due, in my opinion, to any serious defect in the scheme itself or to any adequate remedy having been provided from other sources for these particular needs of the great middle class, which in these days simply cannot afford the necessarily heavy and still increasing expenses entailed by serious illness requiring institutional treatment. There is no need to stress this point in a journal read by the medical profession. Every doctor is completely familiar with the facts and with the financial distresses and embarrassments involved even to households considered fairly well-to-do.

My main purpose, therefore, is to invite members of the profession, and especially the general practitioner, earnestly to consider whether it is not almost a professional duty which they owe to their patients to bring the work and purposes of the British Provident Association to their notice, and to urge them to study the circular to which at the outset I referred. Really, the rate of growth of the B.P.A. lies mainly, I believe, in the hands of the medical profession. I can see no possible detriment to the legitimate self-interest of the doctor. On the other hand, I can see those bonds of mutual esteem and confidence between doctor and patient which (as a profession) we value so highly drawn much closer if, when the day of serious trouble and large expense comes, the patient has the security of mind and purse which is guaranteed to him as a subscriber to the B.P.A.—I am, etc.,

Nottingham, Dec. 4th. R. G. HOGARTH.

Testimonial Farce

SIR,—Surely there is an extremely simple procedure, and one which is already adopted by a few public authorities, which entirely obviates the tedious business of giving and getting testimoniais.

The candidate in his application nominates three or more persons who have agreed to act as referees. Should the candidate's application be considered seriously the referees are then consulted. The referee, in making his report, which in the ordinary way is not seen by the candidate, has not the feelings of the candidate to consider, and his report is therefore much freer, more confidential, and unbiased, thus a truer index of the candidate's worth is obtained.

Should this method be universally adopted it would be a great relief to those who are constantly worried for testimonials, and to those unfortunates who, under the usual present methods, have to worry to obtain them.—I am, etc.,

Dartford, Kent, Dec. 5th. PHILIP MORTON.

Pulmonary Tuberculosis in Childhood

SIR,—I am much interested in your leading article on this subject in the *Journal* of December 2nd (p. 1035), in which you comment on the work of Drs. Chown and Medovy, saying that acceptance of their straightforward dogma would go a long way towards stamping out tuberculosis among children. But is the problem quite so simple as these authors ask us to believe? Their arguments are based largely on the familiar plea for earlier diagnosis, since "in the early phases treatment and cure have the merit of extreme simplicity and complete effectiveness." This earlier diagnosis is to be founded on *x*-ray examination of "every child who reacts to tuberculin." The original paper goes on to state that:

"In a child with a positive contact history and a positive tuberculin reaction, a roentgenogram will almost invariably prove the presence of tuberculosis in the chest. In children who react to tuberculin, but for whom no contact with active tuberculosis can be discovered, evidence of recent or healed pulmonary tuberculosis will be found roughly in one-half."

It is not surprising that if we are to find "early cases" in this way, treatment and cure should be so simple and effective. I venture to suggest that the majority of such children are not "cases" at all, in so far as they are not suffering from tuberculous disease, nor will they suffer even if left completely alone. Indeed, it is not unreasonable to ask where are these undiagnosed and apparently neglected cases to-day, and what is happening to them? They are said to be frequent, yet are they not curiously silent? The number of late cases which eventually come to light either by coming under treatment or from death certification is extraordinarily small, even though we have not yet adopted the case-finding methods of our transatlantic colleagues.

I have called attention to this previously,[1] and showed that, whilst such work might be valuable as research, it could be productive of only slight immediate practical result. Nor should it be accepted as proved that continuous contact and superinfection is the chief factor in the production of gross disease. Search as we may we cannot obtain a definite history of contact with a case of pulmonary tuberculosis, either recent or remote, in approximately two-thirds of such cases. Theoretically, of course, it is possible that superinfection from unascertained sources may have taken place in these children, but, if so, this can have been only of a casual nature, and similar influences must rule over all children who, despite them, remain healthy. Again, notwithstanding the fact that most of the children who are diagnosed in sanatoriums as having the benign type of disease, and who come from infected homes, return to the same infected surroundings, their prognosis remains extremely good.

Infection must take place before one can suffer from tuberculosis, but some factor beyond infection or superinfection determines in the majority of cases who will gravely suffer from the disease and who will remain unscathed. Before embarking on immense efforts to chase this will-o'-the-wisp of the "early case" by tuberculin testing and *x*-raying practically the whole child population in our cities, I would suggest that the small practical results likely to be obtained should be a little better appreciated.—I am, etc.,

London, N.2, Dec. 9th. F. J. BENTLEY.

Compound Fractures of the Tibia

SIR,—Mr. Simpson-Smith's article on the "Treatment of Compound Fractures of the Tibia" (*British Medical Journal*, December 2nd, p. 1019) interested me very much, because, for the last three years, I have been using an essentially similar method, with equally satisfactory

[1] *Lancet*, 1932, i, 689.

results My technique is slightly different, in that I usually obtain access to the fracture through a clean incision, and do not make use of mechanical fixation of the fragments After obtaining perfect apposition of the broken ends I steady the limb while my assistant closes the wound, and support it while the plaster cast is being applied Holding the limb, I admit, is often the most difficult part of the operation

I would venture to draw Mr Simpson Smith's attention to an article entitled "The No-foreign Body, Tight Fitting Window Cast Technique in the Open Reduction of Fractures," by V L Sorrell, published in the *Journal of Bone and Joint Surgery* (vol vii, No 2) The author describes a method of mechanical fixation which is almost identical with that used by Mr Simpson Smith.

I would be glad of information as to the value of the application of antiseptics to contaminated wounds Of late years, although making full use of antiseptics outside the wound, I have tended more and more to the use of normal saline for cleansing the tissues I have reason to think that antiseptics may be more injurious to the defensive powers of the tissues than to the invading organisms I must confess, however, to an illogical affection for bipp in certain surgical procedures —I am, etc,

Northampton, Dec 4th C C HOLMAN

SIR,—Mr A Simpson-Smith is to be congratulated on his excellent article and work on the above subject, as reported in the *Journal* of December 2nd I feel that he is working on sound lines The late Sir William Macewen of Glasgow impressed on his students the value of early excision, careful debridement, and immediate closure of wounds Winnett Orr has shown what can be done with bone already infected The principle of absolute rest is universally accepted

In Mr Alex MacLennan's unit at the Royal Hospital for Sick Children, Glasgow, I have treated cases of compound fracture of the tibia by excision, débridement, and flushing with acriflavine The fractured ends were then "mated," and the limb controlled manually by an assistant while it lay on the table After closure of the wound and the application of sterile gauze dressing over the whole of the anterior aspect of the leg, plaster of Paris bandages were applied to form an anterior gutter splint enclosing fully three quarters of the circumference of the leg Once this had set it was possible to lift the limb and apply a circular soft bandage Over this a plaster bandage was wound, thus completing a Böhler type of splint In my limited experience I have so far been satisfied as to alignment, union, and freedom from sepsis

I am impressed by the mechanical value of Mr Simpson-Smith's clamp method, and I hope to have the opportunity of trying it —I am, etc,

Glasgow, Dec 4th R S KERR

Treatment of Fractures of the Spine

SIR,—"Interested" (*Journal*, December 2nd, p 1049) commences by saying that he does not doubt that the prone position may be adopted with definite advantage in hospital, after the fracture has been located by expert examination assisted by *x* ray photography Later he appears to contradict himself by quoting an opposite view behind which there is great authority, so that, although "Interested" does not doubt, we are in great doubt as to what his views really are If correct handling of the case is to be delayed, as "Interested" suggests, until there has been complete examination of the patient in hospital, we shall continue to be saddened by the distressing disasters which result from incorrect transport

There is an obvious fallacy in the argument of "Interested" when he compares a sagging stretcher with a flat, firm bed, consisting of a mattress over fracture boards From a long personal experience of the intelligence of first aiders, I would offer "Interested" my assurances that there is no difficulty in teaching them to distinguish between the cervical and the thoracic and lumbar portions of the spine The history of the injury and the presence, if the patient is conscious, of persistent localized pain will in most cases enable the first aider to suspect a fracture of the spine and to treat the patient accordingly I must put "Interested's" mind at rest and relieve his anxiety by telling him that in simple fractured spine there is often very little shock, and that if proper use is made of blankets and other means of conserving the patient's warmth he need have no fear that the prone position will increase shock

In my previous letter I took it for granted, perhaps erroneously, that the importance of preventing and treating shock was emphasized, as it ought to be, in all first aid courses of instruction —I am, etc,

Teddington, Dec 4th THOMAS E A STOWELL

SIR,—"Interested" may be assured that his problems have not been overlooked Despite their careful consideration, the lifting of cases of fractures of the spine in the prone position is still advocated A few administrators may have opposed it, but there is no disagreement among the surgeons who are actually treating these cases It is *important to recognize that one single hyperflexion movement* by lifting face upwards will suffice to sever the cord in a severe fracture dislocation, of what value is a certain routine in hospital if the cord has already been severed on the way to hospital? Why lifting a patient face downwards should embarrass the heart or lungs any more than lifting face upwards is difficult to understand I dealt with this point in the *British Medical Journal* nearly two years ago, and further experience has confirmed the fact that this difficulty does not in fact arise The objection is purely theoretical, and has no practical significance

The problem of the cervical injury merits more serious attention, but even here there is no practical difficulty The question is what to do when there is paraplegia but no other evidence to assist in localizing a spinal injury The answer is to treat as a broken back by face down transportation (which means supporting the pelvis at one end, and the shoulders *and head* at the other, so that the whole spine is in extension) Paraplegia is very common in dorso lumbar fracture dislocations, it occasionally occurs in cervical injuries from intraspinal haemorrhage without bone injury (Thorburn's gravitation paraplegia)—a condition not affected by posture, it is practically non-existent as a complication of cervical fracture dislocations in patients who survive the immediate effects of the accident In a series of 200 fractures of the spine I have only seen one cervical *fracture* with paraplegia "Interested agrees that transport the wrong way up is 'courting death" He will also agree that death should not be courted in two hundred dorso lumbar fractures because there is a possibility of error of diagnosis in one Even assuming an error of diagnosis in that particular case, the position is still met by the fact that even in face down transportation the cervical spine is extended —I am, etc,

Liverpool Dec 5th R WATSON JONES

How Do Vitamins Act?

SIR,—I have read with great interest the illuminating lecture of Professor Langdon Brown, "How Do Drugs Act?" in your issue of December 2nd, in which he draws an analogy between the action of hormones and that of vitamins, which he calls "exogenous hormones" This is a conception which I put forward nearly ten years ago (*Lancet*, 1924, i, 633), when I pointed out that vitamins,

contrary to the then generally accepted view, were not substances necessary to the growth and life of every cell, but had a specific action on certain tissues resembling that of hormones. As Sharpey-Schafer had coined the word "autacoid" for substances found in the body and having a drug-like action, I suggested the name "trophacoid" for analogous substances present in the food. The name matters little. What matters is the clear recognition of the fact that the diseases resulting from a deficient supply of vitamins are not diseases *sui generis*, but fall into line with those due to endocrine dysfunctions. Like the latter, they are the result of specific pathological changes in certain tissues, the changes varying in degree with the degree of deficiency in a particular vitamin or combination of vitamins, and the length of time over which this deficiency is operative. These deviations from the normal can sometimes be restored by supplying the vitamin which has been lacking, in the same way as the changes resulting from endocrine dysfunction can be restored by the requisite hormone. But with some of the vitamins, especially A and B, these primary pathological changes, if maintained long enough, lead automatically to the development of other pathological conditions, which are thus an indirect effect of the vitamin deficiency, and which, therefore, do not disappear when the vitamin is supplied. An understanding of this relationship is important in assessing the therapeutic possibilities of vitamins. It is even more important in showing that the failure of a vitamin to "cure" a pathological condition does not necessarily prove that there is no aetiological relation between that condition and the deficient vitamin supply. Such a simplification between cause and effect holds good for those pathological conditions which represent a primary effect, but not for those where a secondary pathological change has developed on the basis of the primary one.

A deficient supply of vitamin A produces as one of its primary effects an atrophy of the mucous membranes of the respiratory and of the digestive tracts,[1] and of the mucous glands, such as the para-ocular glands. This enables the rather avirulent bacteria normally in contact with these tissues, and kept in check by their secretions, to infect first these tissues, to penetrate from there into the blood stream, and to set up metastatic infections elsewhere, although the effectiveness of the humoral defences is not diminished by the lack of vitamin A.[2] These findings have been amply confirmed since. I may point out in passing that the evidence available at present does not seem to me to justify the extension of this change in the epithelium of the mucous membranes to all epithelium, as Mellanby suggests. The xerophthalmia, for instance, is due to the atrophic change induced in the para-ocular glands, and not to a weakening in the cornea.

Vitamin A may be expected to restore the atrophic condition of the mucous membranes, but it cannot be expected to act upon the metastatic infections, which originated from the infected mucous membranes. Under experimental conditions it does not even free the mucous membrane of the respiratory tract from its infected conditions. Young rats which have been submitted to a vitamin A deficient regime sufficiently long, and are then put back on a vitamin A diet, will resume their growth and live for a year or more. But a large number of them will still show heavily infected lungs. The absence of vitamin B produces effects similar to those of vitamin A, if it is continued over a long period by allowing the animals to recover from a B-deficient diet and repeating this procedure many times. In such an experiment I have seen even xerophthalmia develop on a diet which was free from vitamin B but contained cod-liver oil. This is due probably to the defective absorption of food in the absence of vitamin B.[1]

It was on grounds such as these that I opposed Mellanby and Green's conception of vitamin A as a generally anti-infective agent. I pointed out then (*Lancet*, 1930, i, 1153) that the exaggerated claims made for vitamin A would be followed by disappointment, which would discredit the more limited though really effective action of this vitamin. It is a melancholy satisfaction to be able to say "I told you so," but some recent writings appear to justify my forecast. If this came to pass it would be deplorable. For the extent to which an adequate supply of vitamin A and B can prevent a variety of chronic infective conditions is still not realized. That this aetiological relation is not yet recognized is due to the fact that, for the reasons given above, these conditions, when once established, cannot be cured by an adequate supply of vitamins. The proof depends on the less spectacular but more rational evidence of preventing them. Any doubt on this point should have been allayed by the large-scale experiments carried out recently by R. McCarrison (*British Medical Journal*, 1931, i, 966). This experiment also shows once more that in order to maintain an organism in perfect health it is not necessary to add preparations especially rich in vitamins if the diet is built up around a sufficient amount of milk, butter, and bread which has not been deprived of its vitamin B content.—I am, etc.,

Imperial Cancer Research Fund, Dec. 5th. W. CRAMER.

[1] Cramer, W.: *Lancet*, 1923, i, 1046; ibid., 1924, i, 633.
[2] Cramer, W., and Kingsbury, A. N.: *Brit. Journ. Exper. Path.*, 1924, v, 300.

"How Do Drugs Act?"

SIR,—All medical men interested in Hahnemann's teaching will be gratified by Professor Langdon Brown's reference to the value of Hahnemann's contribution to medicine. But his followers are not prepared to admit that wisdom perished with him, or that no further "progressive conceptions" have emanated from the homoeopathic body since his time.

The Regius Professor of Physic rather unreasonably expects a body of clinical pharmacologists—for that *is* what homoeopaths are—to contribute to the sister sciences of pathology and diagnosis, and claims that they have failed to do so. But in the course of their work they have produced a considerable body of research which has already proved of value to medical men in general. I would particularly refer to Bach and Wheeler's prolonged researches into the role of the non-lactose-fermenting organisms in maintaining chronic disease.[2] Again, attention should be drawn to Paterson's work on bacterial dissociation.[3] In the field of physiology Boyd's work on the periodic fluctuations of the electric field of the human body is an important contribution.[4] As for apparatus, Boyd's emanometer must not be forgotten. True, this *is still an instrument* of the research laboratory, but its inventor has devised many refinements of technique since his striking results were investigated by Lord Horder's Committee and published (in 1924). This is an instrument of diagnosis—and diagnosis of a refined degree. It is not so much a matter of determining a label, a disease-name, as an investigation of the patient's idiosyncrasies! It is here that the outlook of homoeopathy departs from the orthodox and approaches that of the neo-Hippocratist, or perhaps the "return to Aesculapius," already commended by Professor Langdon Brown.[5] The homoeopath attempts to diagnose the patient's "reactions as an individual" (the professor's own phrase), and it is the

[1] Mottram, J. C., Cramer, W., and Drew, A. H.: *Brit. Journ. Exper. Path.*, 1922, iii, 179.
[2] *Chronic Disease*, London, 1925.
[3] *British Homoeopathic Journal*, July, 1933.
[4] *Brit. Journ. Radiology*, April, 1932.
[5] Individual Psychology Pamphlet No. 4.

diagnosis of the patient's specific pharmacological idiosyncrasy that leads to the successful prescription This stone which Professor Langdon Brown neglected in his address, is indeed the 'head of the corner" for the modern homoeopath

All this, Sir, should go to prove that the homoeopathic ideal, far from being crystallized out, is still a supersaturated solution, from which we may expect in the future fresh showers of many faceted crystals —I am, etc ,

Bristol Dec 9th FRANK BODMAN

SIR,—Wishing to enlarge my knowledge of "how drugs act" I have gone carefully through a great part of the homoeopathic literature during the last two years, and on the basis of that work I cannot agree with Professor Langdon Brown on the sterility of homoeopathic work in pathology and diagnosis The work of the homoeopaths has given us important experimental research into the action of drugs on healthy individuals which affords a far deeper insight into drug action than animal experimentation The homoeopaths have given also to diagnosis an extraordinarily accurate study of symptoms and the most precise method of the diagnosis of the individual patient It would have spared me many errors and much groping in the dark if I had known of the work of Hahnemann and his disciples earlier in my career

The place of homoeotherapy in contemporary medicine is very well defined On the basis of a careful diagnosis of the disease as well as of the patient the physician has to choose his remedy from three great groups, the aetiological medicines, such as *arsenic for syphilis, the antipathic* medicines such as laxatives for constipation, and the homoeopathic medicines He will be guided in his choice by the results of clinical experience, the only universal law that can be accepted in medicine This mode of handling cannot be called eclecticism, but must be considered as action according to a definite principle—the Hippocratic principle that 'there are conditions which are better treated by similars and others better treated by contraries"

Thus no modern teacher of therapeutics has the right any longer to be ignorant of homoeotherapy No modern physician has the right to withhold from his patients the benefits of homoeotherapy when this is indicated It all comes down to the question of efficiency The physician who is master of these three groups of remedies is a better healer than he who confines himself to those listed in our school materia medicas, or on the other hand, than one who chooses exclusively from the homoeopathic materia medica Reform in the teaching of therapeutics on that point is the more necessary in that I am under the impression that, if we except the few diseases for which we have potent aetiological medicines, most morbid conditions are better treated by similars The old antipathic methods of the medicine bottle and pharmaceutical proprietary preparations seem to have a very limited sphere *of action* —I am, etc ,

London W 1 Dec 11th A P CAWADIAS

*** We regret that we cannot find space for a number of other letters discussing this particular feature of Professor Langdon Brown's address —Ed , *B M J*

Treatment of Rodent Ulcers

SIR —Most of those who adopted Dr Adamson's method of treating rodent ulcers by scraping followed by a single large dose of unfiltered *x* rays will agree that it is the best treatment from every point of view Except where the age or whim of the patient, the site or extent of the lesion, or the involvement of underlying cartilage or bone suggests the use of radium it should be the routine procedure If the scraping is efficiently performed it is seldom necessary to give more than a four pastille dose, and sometimes a two pastille dose is sufficient Under these conditions the cosmetic result is excellent , indeed, if the lesion has been a small one its original site can often not be determined This method is also suitable for the many cases of early epithelioma which come within the province of the dermatologist —I am, etc ,

Leeds Dec 9th JOHN T INGRAM

SIR —In recent correspondence in the *Journal* on the treatment of rodent ulcer no mention appears to have been made of treatment by electro surgical methods, in favour of which I have abandoned both radium and excision and judging from several cases I have treated that have been previously *x* rayed and had CO_2 snow applied, the diathermy method compares very favourably with any other

There are two methods available—the monopolar and the bipolar *The former is used in most cases especially* where there is underlying bone—for example the side of the nose With this current the surface is sprayed , the eschar is then removed with a sharp spoon This is repeated until the bed of the ulcer is reached This is sprayed and the eschar left on The resulting scar is thin, soft, and has minimum contraction I recently treated a case of a rodent ulcer at the inner canthus, which had been treated with radium three years previously, recurred as a squamous epithelioma, and had extended on to the lower half of the eyeball In the bipolar method a loop is used and the surface of the ulcer spokeshaved to the requisite depth A coagulating current is finally turned on and the eschar again allowed to remain and separate spontaneously

These methods have the following advantages (1) they can be done under local anaesthesia in the consulting room , (2) there is no after pain (3) there is a minimum of scar tissue, due, as Wyeth explained, to regeneration of normal tissue , (4) they are under complete control as to depth affected where there is underlying bone—this is of considerable importance (5) the treatment can be repeated, and when recurrence occurs there is no alteration in the character of the cells —I am etc ,

Bournemouth Nov 28th W ARCH MEIN, F R C S F R C P Ed

Primary Thrombosis of Subclavian Vein

SIR —The following case is of interest as it occurred in a gunner attached to the Royal Garrison Artillery, and although not a rower his case corroborates the views of Dr C H S Taylor of Cambridge as to the anatomical cause of this condition (November 4th, *p* 818) Dr Taylor states

> In rowing there is little abduction of the upper arm There is however a good deal of shoulder play at different parts of the stroke so that the clavicle pivoting about the sterno-clavicular joint goes through a considerable range of movement At the finish of the rowing stroke the outer end of the clavicle is pulled backwards and downwards and I would suggest that this action may cause pressure on the subclavian vein as it passes over the first rib and that such a pinching of the subclavian vein is assisted by the pressure of the backward and downward swinging clavicle against the contracted anterior scalene muscle combined as Pearce Gould and Patey suggest with pressure on the vein by the contracting subclavius muscle'

REPORT OF CASE

Gunner W a powerfully built man was employed as mess waiter at the officers' mess and one of his duties was to polish the metal ends of the barrels of some small calibre field guns He was left handed and one day I noticed that his left upper arm and forearm were twice the size of the right with a certain degree of oedema of the back of his hand The skin was slightly cyanosed with some cellulitis,

but no tenderness on pressure and no pain, except a feeling of weight in the whole limb. Radial pulse was good. There were prominent veins over the left pectoral region. I could feel no thickened or hard vessels in his upper arm or axilla, and there was no evidence anywhere of a septic focus or enlarged glands. There was no history of venereal disease or tuberculosis or parasites. I excused him all duty which entailed the use of his left arm, and later, when it was possible, had him admitted to hospital. Apart from absolute rest and fomentations no other treatment was considered necessary. He informed me that the question arose as to whether the upper arm should be incised, but this was not done, and he returned to me for treatment on his discharge. I continued the rest, lead lotion, and a firm-pressure bandage, and the condition completely cleared up after a month.

This condition at first sight is alarming, and the question to decide is whether the upper arm should be incised. The brawny appearance, with the degree of cellulitis, in my case certainly warranted a right diagnosis and decision for treatment. The other point to emphasize in this case is that the condition can occur in persons other than rowers and so-called athletes, and that it can be produced by the same anatomical mechanism as has been suggested by Dr. Taylor.—I am, etc.,

JOHN N. MCINTOSH, M.B.

Port Royal, Jamaica, Nov. 11th.

Treatment of Chorea by Induced Pyrexia

SIR,—In a letter in your issue of November 18th (p. 940) Dr. Harwood Stevenson criticized the conclusions which I drew in my article on "The Treatment of Chorea by Induced Pyrexia" (*Journal*, November 4th, p. 815). His objection, which at first sight would appear well founded, was that the new method of treatment should not be abandoned simply on the grounds that, although it cuts short the choreic movements, it does not put an end to the infection in the heart. He suggests that the method should be used in a manner similar to the salicylate treatment of acute rheumatism, at the same time realizing that prolonged rest is still necessary after all movements have ceased if the heart mischief is to be reduced to a minimum. Dr. Stevenson's suggestion would be an admirable one if it had been satisfactorily proved that the production of a temperature of 103° to 106° F. for seven to ten days was as harmless to the child's heart as is the administration of salicylates in acute rheumatism.

Dr. Porter Sutton's series of twenty-four cases, Dr. Huxley Fish's case, and my own series of fourteen appear to be the only reports on the method as yet published. The amount of investigation, therefore, which has been done on this new method is still very limited, and the evidence accumulated is as yet far too little to justify the assumption that the pyrexial treatment is as harmless to the heart as it is beneficial to the movements. If one were to venture an opinion on this point at this early stage of the investigations, it would be that an induced pyrexia of 103° to 106° F., resulting in a pulse rate of 130 to 150 per minute, repeated daily for a week, together with the marked increase in choreic movements during the pyrexia, would counterbalance if not outweigh the advantage gained by cutting short the duration of movements from six weeks to a week or ten days. Even Dr. Porter Sutton, who originally advocated the method in 1931, said: "Most of the children have lost weight during the treatment, and sometimes have seemed worn out by it."

My object in publishing my own series of cases was to sound a note of warning against the general acceptance of the claims made by the pioneers of the treatment until further research had settled this vital question of its direct effect upon the heart.—I am, etc.,

Rainhill, Liverpool, Nov. 29th. J. W. CHEETHAM, M.D.

The Nutrition Report

SIR,—The B.M.A. Committee's report on nutrition in the *Supplement* to the *Journal* of November 25th makes interesting reading. As the rather large majority of the population have the misfortune not to live in Stockton (where things seem to be nearly given away), perhaps the committee will now reveal where, in England generally, bacon can be bought at 6d. a pound, flour at 5d. for four and a half pounds, ox liver for 6d. a pound, two-ounce eggs (required for human consumption) at 1d. each. And where is milk to be had at 3d. a pint, and what about the Milk Control Board and its penalties of £50 enforced in cases where milk is sold under its fixed minimum of 3½d. a pint? What is the use of quoting summer prices, in the case of milk and eggs, in a country favoured with a five-months' winter, unless the unemployed are now expected to hibernate? Outside of happy Stockton prices are two, three, and four times higher than those quoted by the B.M.A. Committee. This must be profiteering. Let us hope the Government will now regulate that.—I am, etc.,

Horsham, Sussex, Dec. 4th. E. K. MACKAY.

*** A reference to this criticism will be found at page 1132.—ED., *B.M.J.*

British Health Resorts

SIR,—The report of the annual general meeting of the British Health Resorts Association, which you published on November 18th, should receive careful and sympathetic consideration from the profession. Many of the profession have followed with interest the work of those who have given their time and money in order to try to place the new association upon a sound foundation and to ensure that its future will be successful and permanent. Its medical committee, which is strong and energetic, has the support of the Royal Colleges and other important medical bodies, and its aim "to interest the public and the medical profession in the health provisions and attractions of our home resorts" is of very great importance. Previous to its inception there was no body in existence to speak with authority in health resort matters for the profession, or to advise and assist local authorities impartially. Further, no association had impartially considered the medical aspect of the problems involved—and they are many—or was competent and willing to give unbiased advice and assistance to those requiring it.

It is obviously impossible for the association to succeed without adequate financial support. The secretary states that it is working "from hand to mouth," that unless it is guaranteed sufficient income it has no business to go on, and that if the association should fail for lack of financial or other support the "medical profession would not be likely to enter again into a movement to help the local authorities." It should be possible to form a small medical committee at each health resort and spa to discuss the problem and to collect subscriptions and donations from the local profession, and also to discuss with the local authority the points at issue and to obtain their financial and other support. It is probably correct to conclude that local authorities at health resorts and spas are generally willing to support any organization which they consider will be able to give them publicity or other advantage, sufficient to lead to eventual financial gain.

The report states that up to the present only "about a score of health resorts" have given financial support. It is probable that this lack of support is partly due to the difficulty which some local authorities have in estimating in what way a new association can be of more benefit to them than other associations of longer standing, or pos-

sibly to a dislike of giving support to a new association for fear of offending an old one. It is well, therefore, to stress the fact that the work which the B.H.R.A. is doing and intends to do has never been done before, and that, as stated in the report, "a conference had taken place with other associations concerned with the development of British resorts, and the conclusion had been reached that there was no duplication of aim, and that a joint consultative committee had been set up to ensure co-ordination and non-overlapping of effort." In some quarters at least there is a feeling that the computation of the amount of subscription from local authorities should not be upon a population basis. If sufficient support can be obtained forthwith to make the immediate future of the association secure, would it not be well for the B.H.R.A. to hold a meeting at Bournemouth in July next, when representatives from all health resorts and spas could attend?—I am, etc.,

Torquay, Dec. 5th. K. R. COLLIS HALLOWES.

Heartburn in Pregnancy

SIR,—Dr. Brian Rayner's useful observations on the heartburn of pregnancy prompt me to record my own experience with these cases. I find that small doses of thyroid (1/4 grain two or three times a day) abolish the symptom in most cases, except during the last three or four weeks of pregnancy, when even then some alleviation is noticed. May I suggest that the hypochlorhydria observed by Dr. Brian Rayner is but a part of a general hypotonia? The dyspepsia frequently complained of during the menopausal and post-menopausal periods is usually of hypotonic type, and this is readily abolished by thyroid. In both types we are dealing with a metabolic rate not equal to the occasion.—I am, etc.,

London, N.19, Dec. 4th. I. M. BENJAMIN.

Road Dangers

SIR,—Dr. George Jones's letter (November 25th, p. 998) voices the old, old fallacy that high speed *per se* is the cause of the large number of road accidents. I am certain that only a very few accidents are really due to high speed, many more to moderate speeds where slow driving is really needed; most are undoubtedly due to lack of consideration for other users of the road. These accidents would soon be largely reduced in number if the control of traffic were taken out of the present hands and placed in those of people who were themselves practical drivers and understood what constitutes "dangerous driving." Motor police are a move in the right direction, but many of our present magistrates are absolutely hopeless. Serious offences are often overlooked or met with a small fine, and technical or doubtful cases receive severe punishment because our magistrates cannot distinguish one from the other.

An important point we as a profession should draw attention to is the unreliability of ocular evidence in a large number of cases. The happenings at the critical moment are so sudden that they do not make a lasting enough impression on the human retina, and this explains the very contradictory evidence often given by truthful people. The police are so wedded to the need for "witnesses" that they quite ignore facts that in themselves are altogether convincing, such as the position of and injury to the cars, marks on the road, etc.—for example, a pillion passenger was thrown clean over the bonnet of a doctor's car in a collision with a motor cycle, and the magistrates believed the witness who stated that the motor cycle was going slowly.

Another point we should insist on is that paying a fee for medical services does not in any way admit liability as to the cause of the accident. It is this belief that prevents many people from paying fees; for instance, a patient of mine had a collision with a girl cyclist; she was hurt, and he sent for the nearest doctor and paid his fee, distinctly stating at the time that he was in no way to blame. This payment lost him the case, though it was only the action of a gentleman.

The re-imposition of a speed limit would not in any way make the roads safer; it would only lead to much persecution of motorists who were driving perfectly safely, and the present authorities would by these means ease their consciences for failing to stop the growing number of accidents.—I am, etc.,

November 27th. M.D.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Henry Albert Harris, M.D., D.Sc., B.S.Lond., M.R.C.P., has been elected to the professorship of anatomy as from October 1st, 1934. Dr. Harris is at present professor of clinical anatomy at University College and University College Hospital Medical School, London. In 1921 the Council of the British Medical Association awarded him the Ernest Hart Memorial Scholarship for research. He has been Arris and Gale Lecturer, and Hunterian Professor of the Royal College of Surgeons.

H. E. Tunnicliffe, M.A., has been appointed university lecturer in the Department of Physiology, and G. A. Millikan, Ph.D., university demonstrator, for three years from October, 1933.

UNIVERSITY OF LONDON

At its meeting on December 6th, with Lord Macmillan in the chair, the Court had before it a resolution of the Middlesex County Council making a building grant of £100,000, payable over ten years, towards the cost of erecting new university buildings on the Bloomsbury site, subject to certain conditions. The Court, in conveying most cordial thanks for the splendid gift, have stated that the terms and conditions attached thereto are entirely acceptable.

UNIVERSITY OF BIRMINGHAM

The following medical appointments are announced: Dr. J. F. D. Shrewsbury to be reader in bacteriology and director of the public health laboratory; Dr. E. Baylis Ash to be lecturer in bacteriology and assistant bacteriologist in the public health laboratory; Dr. W. Carey Smallwood to be a university clinical teacher and assistant lecturer in diseases of children.

UNIVERSITY OF BRISTOL

The following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—*Part I, including Forensic Medicine and Toxicology*: *V. T. Baxter, *Kathleen G. Brimelow, F. C. Collingwood, Theodora M. Crabtree, J. G. Field, P. N. Heron, A. E. Jowett, †S. D. Loxton, *A. W. Woolley. *Part II*: S. B. Adams. *Group II, completing examination*: Frances E. Powell.

* Distinction in Forensic Medicine and Toxicology.
† Distinction in Materia Medica and Pharmacy, Pharmacology and Therapeutics.

UNIVERSITY OF SHEFFIELD

Miss Beatrice D. Pullinger, M.D., B.S.Lond., has been appointed a demonstrator in pathology.

NATIONAL UNIVERSITY OF IRELAND

The Senate met on December 7th. Among those present were Mr. Eamon de Valera, President of the Executive Council of Saorstat Eireann, Chancellor of the University (in the chair), and Dr. Denis J. Coffey, Pro-Vice-Chancellor of the University, and President of University College, Dublin.

The Senate, having considered the reports of the examiners appointed to read published works, decided that the following degrees should be conferred:

M.D.—E. J. FitzGerald, M.B., B.Ch., B.A.O. (University College, Cork); W. M. Levitt, M.B., B.Ch., B.A.O. (University College, Dublin).

A report was received from the representative of the University on the General Medical Council upon the November session of the Council.

Medico-Legal

COMPLAINT AGAINST A NURSING HOME: JUDGEMENT OF COURT OF APPEAL

In the Court of Appeal on November 22nd, before the Master of the Rolls, Lord Justice Slesser, and Lord Justice Romer, judgement was given in an appeal in the case of Powell and Wife *v.* Streatham Manor Nursing Home. This was a case brought by William Norman Powell and Helena Powell against the nursing home for damages for personal injuries caused to the female plaintiff by reason of the alleged negligence of the defendants. The case was heard in the court below by Mr. Justice Horridge, who, sitting without a jury, came to a conclusion in favour of the plaintiffs, and made an order giving judgement for the husband in the sum of £977 in respect of special damage or expense, and in favour of the wife in a sum of £2,500 to compensate her for the pain and suffering she had suffered. From this order the defendants appealed.

It appeared that the plaintiff Helena Powell went into the nursing home in January, 1930, for the operation of hysterectomy. She had previously been examined by Dr. Kirkland, and on his advice went into the home, where he performed the operation. The ground of the plaintiff's claim was that a sister in the home so negligently attempted to pass a catheter as to perforate the patient's bladder, and a further breach was alleged in respect to the action of a night nurse, who, notwithstanding the patient's warning against attempting to lift her alone, negligently tried to lift her, and, dropping her, caused an umbilical hernia and the stitches closing her operation wound to burst.

The Master of the Rolls, in giving judgement allowing the appeal, said that in the court below it was the testimony of all the medical witnesses that they had never known in their experience the puncture of the bladder by a rubber catheter. Moreover, certain medical evidence had been called—notably that of Mr. Comyns Berkeley, consulting obstetric surgeon of the Middlesex Hospital, and Mr. Sydney MacDonald of the West London Hospital—to show that in the course of the delicate and difficult operation to which the lady was subject they had known cases in which an injury had been caused to the bladder. It was stated, the Master of the Rolls continued, that at the time when the catheter was being passed the patient felt pain, was sure that it was not being done in the right way, and protested to the sister who was doing it, and it was alleged that the sister then lost her temper, and with a prod forced the catheter and thus brutally injured the bladder. As against this, very high tributes had been paid to the sister concerned, who was trusted by the medical men attending at the home, and was described as experienced in passing catheters and kind in her dealings with patients. The Master of the Rolls also pointed out that the patient left the home in February, 1930, and the whole matter of the complaint was quiescent for two years until the nursing home pressed for payment of its account, which amounted only to eight guineas. The first clear and definite statement that Mrs. Powell had suffered as a consequence of what was alleged to be negligent treatment at the home was made in March, 1932, in a letter from plaintiffs' solicitors. Mr. Justice Horridge had not accepted the patient's story that her hernia was caused by negligence on the part of the night nurse, but he had accepted her testimony concerning the injury supposed to have been occasioned by the passing of the catheter. The evidence on behalf of the nursing home showed that the catheters had been properly prepared by being placed in boiling water, and the sister, finding an obstruction, had called in another nurse, and later on the doctor. After placing in its proper perspective the evidence given by the various witnesses the Master of the Rolls was unable to find that the charge was satisfactorily established, and said that the appeal would be allowed, and judgement entered for defendants with costs in both courts.

Lord Justice Slesser, who concurred, said that the expert witnesses had testified that there were cases in which the bladder had been punctured during such an operation, and the puncture had not been discovered at the time. There appeared to be a real danger of this mishap occurring, and without the knowledge of [illegible] perator unless he was very expert. It was also the expert testimony that if rubber catheters were used there was no danger of injury from these, and it was established that all the catheters in the home were of rubber. Although the patient said that she saw a stiff catheter being applied, her position in the bed and her physical state at the time were such as must have made her a poor observer. If there was failure to show that the catheter was other than a rubber catheter, the case was concluded on the evidence of the plaintiffs' own expert witnesses, corroborated by others, that a rubber catheter could not in any circumstances pierce the bladder. The Lord Justice also dismissed the evidence of the plaintiffs' own medical attendant as inconsistent and improbable in certain particulars. Further, the obstruction to the passing of the catheter which the sisters said they had found was consistent with a bladder punctured at operation. Mr. Comyns Berkeley had explained that on the supposition that the bladder was wounded at the operation and the urine was escaping, the bladder would be contracted, and the end of the catheter would impinge on the back of the contracted bladder and be obstructed. The sister against whom the charge was made, and the home, were in his view entirely acquitted of negligence or impropriety.

Lord Justice Romer also agreed, and commented on the fact that if the patient's story of what she endured at the hands of the sister was to be accepted, she and her husband must for two years have been labouring under a sense of grievous wrong; yet during those two years not a word of complaint was made to the owner of the nursing home.

A stay of execution as regards costs was refused.

The Services

DEATHS IN THE SERVICES

Lieut.-Colonel Lewis Albert Hodgkinson Lack, I.M.S., died in Edinburgh on November 30th, aged 53. He was born at Port of Spain, Trinidad, on September 27th, 1880, and was educated at the University of Edinburgh, where he obtained the M.B. and Ch.B. degrees in 1903, and was awarded the Ettles scholarship as the most distinguished graduate of the year. He then joined the staff of the anatomy department of the Extramural School in Edinburgh, and quickly gained recognition as a teacher and anatomy coach. At that time he published a small handbook on histology. Entering the I.M.S. as lieutenant on September 1st, 1905, he become lieutenant-colonel after twenty years' service. He served in the war of 1914–18, and was mentioned in dispatches in the *London Gazette* of October 19th, 1916. Much of his service had been spent in civil employ in Burma, where he held the posts of professor of anatomy, and then principal of the Medical School of Rangoon University. He was responsible for the original equipping and staffing of the anatomy and physiology departments, and for a time taught in both departments, then housed in temporary wooden buildings. The practical experience in surgery gained by him during his service as a civil surgeon was turned to good account in his anatomy demonstrations. Colonel Lack carried out extensive researches both in Rangoon and in Edinburgh on the skulls of the tribes of Upper Burma and of the Sino-Shan border. He was also [illegible] and medical warden of Rangoon University, being responsible for [illegible] supervision of the university sanatorium and of the health [illegible] the resident undergraduates. He was prominently identified [illegible] numerous charitable and public health activities in Burma, and took a leading part in various movements for housing and slum reform in Rangoon. Colonel Lack was secretary and treasurer of the Burma Branch of the British Medical Association until he left Burma on furlough in the spring of this year.

Lieut.-Colonel John Joseph Bourke, C.I.E., Bengal Medical Service (ret.), died at Hertford on November 23rd, aged 68. He was born on April 1st, 1865, the son of Michael Bourke of Kilkea, Athy, co. Kildare, and was educated in the Royal University of Ireland, where he graduated B.A. in 1886, and M.B., B.Ch., and B.A.O. in 1887. Entering the I.M.S. as lieutenant on January 30th, 1893, he became lieutenant-colonel after twenty years' service, and retired on April 1st, 1920. He served on the North-West Frontier of India in the Waziristan campaign of 1894–5 (medal with clasp), and in the China war of 1900 (medal). He received the C.I.E. on June 3rd, 1919. In 1902 he was appointed Deputy Assay Master of the Bombay Mint, and in 1905 transferred to the same post in the Calcutta Mint, being promoted to Assay Master in Calcutta in 1911 [illegible]d holding that post till his retirement.

Obituary

R. P. ROWLANDS, M.S., F.R.C.S.

Senior Surgeon, Guy's Hospital

We have to announce with regret the sudden death at his home in Wimpole Street, London, on December 7th, of Mr. R. P. Rowlands, senior surgeon to Guy's Hospital, and a former vice-president of the Royal College of Surgeons of England. He was recognized as one of the leading abdominal surgeons of his time, as a first-class teacher, and as a most kindly and warm-hearted man with an exceptionally wide circle of friends.

Robert Pugh Rowlands, who came of Welsh stock, was born at Towyn, in North Wales, in 1874. At Guy's Hospital Medical School he had a brilliant student career, winning the Arthur Durham and Michael Harris prizes in anatomy, and the treasurer's gold medals for medicine and surgery. He won also the gold medal in anatomy of the University of London, the exhibition and gold medal in medicine at the final M.B., B.S. examination in 1902, and he qualified for the medal in the M.S. examination in the following year. He had obtained the English conjoint diplomas in 1896, and the F.R.C.S. in June, 1901. After serving as house-surgeon at Guy's he held in succession the posts of demonstrator of anatomy, surgical registrar, assistant surgeon, surgeon in charge of the orthopaedic department, full surgeon, and lecturer on surgery. He was also for some years surgeon to the East London Hospital for Children at Shadwell. He was due to retire from the active staff at Guy's next year, on attaining the age of 60.



During the war Rowlands was surgeon to the 2nd London Territorial General Hospital, with the rank of captain R.A.M.C.(T.), and was also consulting surgeon to the Russian Hospital in London and the Sussex Lodge Hospital. For these services he received the honour of O.B.E. In 1922 he was elected to the Council of the Royal College of Surgeons of England, and in 1930 was re-elected for a further period of eight years. In 1929 he gave the Bradshaw Lecture before the College on "Surgery of the Biliary Tract," and this, together with a succession of clinical lectures and papers on surgical subjects, appeared in the columns of the *British Medical Journal* from 1910 onwards, the last in May, 1933. Mr. Rowlands was also editor of the fifth and sixth editions of Jacobson's *Operations of Surgery*, and co-editor with Mr. Philip Turner of the seventh edition.

We are indebted to Mr. PHILIP TURNER, surgeon to Guy's Hospital, for the following appreciation:

The sudden and unexpected death of Robert Pugh Rowlands came as a great shock and blow to his many friends; to his colleagues and those who knew him well it was overwhelming. I first made the acquaintance of R. P. Rowlands forty years ago, when, as a first-year student, I was, quite by accident, given a place next to him at a practical histology class. I last saw him in the late afternoon of December 5th—less than forty-eight hours before he died—at a meeting at the hospital, where we sat next to one another and shared agenda papers. He had just finished a busy day's work, and, though rather tired, appeared to be in perfect health. At our very first meeting he was exceedingly kind to me, who, as a newcomer preparing for a special science examination, felt very lost among a number of senior students, some of whom regarded a first-year man as something of an intruder. Our acquaintance soon ripened, and even in those early days I was greatly impressed by his intense devotion to his work, his boundless energy, his determination to succeed, and by his kindliness and willingness to help others. As the years passed these characteristics persisted, and my admiration and affection for him increased.

One instance of his energy and determination may be given. He entered the hospital as a Conjoint student, but he soon realized the advantage of obtaining a university degree. It was, however, necessary for him to obtain a qualification as quickly as possible. This he proceeded to do after a brilliant career in the medical school, but afterwards, while doing house appointments, and later on while holding teaching appointments on the junior staff, he proceeded, in addition to taking the primary and final F.R.C.S., to work for a London University degree. He had to start at the very beginning—the matriculation—and, taking examination after examination at the earliest possible date, he obtained the M.S. degree, with marks qualifying for the medal, about four years later. Many a man who attempted this would give way under the strain or become a recluse. Not so with R. P. Rowlands: with each appointment he added to his reputation as a surgeon and a teacher, and he also took an active part, not only in the work, but also in the general life of the hospital. He was always full of fun, and in his student days was ready for any harmless escapade.

Having held the appointments of demonstrator of anatomy and surgical registrar, he was elected to the surgical staff in 1906. Meanwhile his old teacher, Mr. W. H. A. Jacobson, had asked him to collaborate in the preparation of the fifth edition of the *Operations of Surgery*. This he did with striking success, and added to his already great reputation. He was intensely proud of his hospital and his medical school, and devoted himself whole-heartedly to their service. His work as a member of the hospital staff is known not only to men from his own hospital, but to surgeons throughout the country, in the British Empire, and beyond.

He was a true and loyal colleague, a surgeon of the highest skill and attainments; a great and stimulating teacher to whom many generations of his house-surgeons and dressers owe much of their success in life, a clear and thoughtful writer who, in addition to the *Operations of Surgery*, made many valuable contributions to medical literature; and a man whose charm of character, unselfishness, and attractive personality won for him a host of friends. These will mourn his loss, but all will treasure the remembrance of their guide, teacher, and friend, and will continue to think of "Mouse" Rowlands with gratitude and affection.

[The photograph reproduced is by Lafayette Ltd.]

THOMAS HOLMES, M.D., M.S.Lond.

Consulting Surgeon, Cheltenham General Hospital

We regret to announce the death, on November 15th, of Mr. Thomas Holmes, consulting surgeon to the Cheltenham General Hospital. For the following account of his career we are indebted to a former colleague, Mr. John Howell, F.R.C.S.

Mr. Holmes came to Cheltenham in 1911. He had been in consulting practice in Southsea for five years, after acting as surgical registrar at Guy's whilst he studied for his London M.S. The gold medal which he carried off at this examination in 1905 was only the climax to a distinguished hospital career; among numerous honours in his M.B. examinations he had qualified for the exhibition and gold medal in materia medica in the intermediate. So that he came to Cheltenham with a formidable reputation—formidable, that is, to those of us who were already in practice—and the departure of the senior surgeon, Mr. W. R. Buckell, F.R.C.S., for Canada, almost immediately after, opened the way for him to a place on the honorary staff of the General Hospital. His outstanding abilities, wide experience, and knowledge of the surgical literature of the day were a most valuable acquisition to the service of that institution; but more conspicuous than all these was the meticulous care with which he applied them to the diagnosis and treatment of his cases. Nothing ever flurried him, and no personal sacrifice was too great to carry out what he considered to be his duty. In his operations he was sound and faultless in his technique, cautious and deliberate—indeed, even slow, as it appeared to the onlooker—but the ultimate result was always a very fine piece of work. His kindness and gentleness to hospital patients was another striking trait; it was not a pose, it was natural to him, and in his large private practice the measure of the patients' confidence in him was also the measure of his affection. He had one fault—he was over-conscientious: he could never throw off his work; he thought about it all day, took it home with him, and (his colleagues used to say) dreamt about it. He had no interests whatsoever outside his work except one—his family. He was a most devoted husband and father. His younger son was killed in the German advance in March, 1918, soon after leaving Cheltenham College; he bore it uncomplainingly, but it left a mark. It was a sad day for his colleagues when "Tommy" (he was always "Tommy" to them) woke up one morning in 1925 to find himself paralysed on the right side and the hospital was to know him no more. In him they lost a loyal and true friend, kind and courteous, whose wise counsel had smoothed out many a difficulty, and the hospital a surgeon whose skill and distinguished work had enhanced its reputation in the West Midlands.

He retired to Somersetshire to be near his eldest son, who is in practice at Burnham-on-Sea, and recovered completely. He was on holiday in Lancashire when he was seized with a fatal attack of angina at the age of 65.

Dr. William Henry Parkes of Auckland, New Zealand, who died last September, had rendered exceptionally valuable services to the British Medical Association and to the Medical Council of New Zealand. He graduated M.B., C.M.Ed. in 1892, and obtained the diploma F.R.C.S.Ed. in 1907. He proceeded M.D. in 1919. Dr. Parkes had held the posts of honorary physician and surgeon to the Auckland Hospital, as well as conducting a large practice. For the last twenty years he had served almost continuously as a member of the executive of the Auckland Division of the British Medical Association, and was twice president of it, as well as once president of the New Zealand Branch. This last presidency coincided with the holding of the Australasian Medical Congress in New Zealand in 1914. As a member of the Medical Council of New Zealand he displayed a broad outlook, wisdom, and tact, which enabled him to be very helpful in the various general and individual problems which had to be faced. For many years before the war he had been an enthusiastic Volunteer officer, and at the outbreak of the war was A.D.M.S., Northern Command. He went out in command of No. 2 Stationary Hospital, first to Egypt, and later to Brockenhurst, from whence he was transferred to London as Director of Medical Services for the New Zealand Expeditionary Force. For the services he rendered in these capacities he was awarded the C.M.G. and the C.B.E. In 1919 he received the diploma M.R.C.P., and the University of Edinburgh conferred upon him its Honorary Fellowship of Surgery, a distinction which has only been granted on thirty-three occasions since 1671, and only twice to recipients coming from south of the Equator. He was also created a Knight of Grace of the Order of St. John of Jerusalem. His was a kindly, generous, and sympathetic nature, and his zest for hospitality was unceasing.

Dr. William Roulston of Wakefield, who died on November 29th, was born in 1850, and received his medical education at Queen's College, Belfast. He graduated M.D., M.Ch., M.A.O. at the Royal University of Ireland in 1880. After working in London in the small-pox epidemic of that year, he went to Wakefield to join a partnership in April, 1881, and later succeeded to the practice. Among his public appointments were those of medical officer to the county hospital, which he held for twenty-four years, and staff surgeon to the West Riding Constabulary. Dr. Roulston was a member of the Wakefield Panel Committee until his retirement from practice in 1925, and for some years acted as chairman. He joined the British Medical Association in 1887, was a member of the Executive Committee of the Wakefield Division for many years, and had held the posts of chairman and vice-chairman. He took an active interest in public life, and for some years represented Kirkgate Ward on the local council. He was appointed a justice of the peace in 1924. A keen golfer, he was one of the founders of the Wakefield Golf Club in 1891, and chairman of the management committee at its start. He leaves a widow and one son.

Medical Notes in Parliament

[From our Parliamentary Correspondent]

The House of Commons considered this week the Newfoundland Bill and the finance of the Unemployment Bill. On the latter Mr. Chamberlain proposed a readjustment of the share of the cost of unemployment relief distressed areas are to bear after the passage of the Bill. Housing was debated in the House of Lords.

A Protection of Dogs Bill "to prohibit the vivisection of dogs and for purposes connected therewith" was presented in the House of Commons on December 6th by Mr. John Lockwood.

Sir Francis Fremantle has joined the Joint Parliamentary Committee of the British Science Guild and the Association of Scientific Workers, which has been set up under the chairmanship of Sir Richard Redmayne. On behalf of this committee questions will be put next week to Mr. Baldwin, Lord President of the Council, concerning the provision of money for scientific research.

Dr. Howitt has given notice that on December 19th he will ask Mr. Baldwin to have an investigation made by the Medical Research Council of the possibility of producing cheap insulin under licence for use in the United Kingdom. Sir Francis Fremantle will, on the same day, ask Sir Hilton Young whether he can take steps to provide cheaper insulin for hospitals. A further question will be put to the Board of Trade by Dr. O'Donovan.

The Matrimonial Causes (Procedure in Suits for Nullity) Bill, which proposes to authorize the hearing of such suits *in camera*, has been passed by the House of Lords and sent to the House of Commons.

The Nutrition Report of the B.M.A.

During the debate, reported briefly last week, which occurred in the House of Commons on December 5th over the second reading of the Unemployment Bill, allusions were made to the B.M.A. Committee's report on diet. Dr. SALTER quoted from the Cumberland school medical officer and the medical officers of health for Burnley, Glasgow, Hammersmith, Preston, and Monmouthshire to show that the mothers and children were suffering physically from destitution. Sir FRANCIS FREMANTLE, *intervening*, asserted that favourable reports were thrice as many. Dr. SALTER said the House was in possession of the valuable report in which the special committee of the British Medical Association gave a scientifically worked out minimum scale of expenditure on food—admittedly not an ideal scale. The standard upon which Sir F. Fremantle relied had been condemned by this committee, and also criticized by the Chairman of the Council of the British Medical Association. Young children who were not properly fed, and not getting sufficient calories, could put on weight and yet get every day nearer and nearer to death's door. Children deformed by rickets, whose limbs were bowed, who would be knock-kneed for life, were actually over-weight for their age, and above the standard relied upon by the Minister.

Returning to the B.M.A. report, Dr. Salter said that since its publication there had been articles in the Press, letters from doctors and public administrators, and pronouncements on the platform from public officials, from authorities of the Church Army homes, representatives of orphanages, and other people engaged in social and philanthropic work, drawn from all ranks of life, declaring that even the British Medical Association ration was only barely sufficient to maintain life at the level of subsistence. For decent life at all it was hopelessly inadequate.

In replying for the Government Mr. ROBERT HUDSON did not refer to this report, and, as previously recorded, the Bill received a second reading.

The New Duty on Insulin

On December 11th Dr. BURGIN, replying to Mr. G. Hall and Mr. D. Grenfell, said a tribunal constituted under the Safeguarding of Industries Act, 1921, as amended by the Finance Act, 1926, had recently decided that insulin and its salts fell within one of the general descriptions of goods scheduled as liable to duty under that Act. Insulin, therefore, now became subject to the Key Industry Duty of 33⅓ per cent. ad valorem. No statistics of imports or of world prices of insulin were available, but he was informed that for some time past the retail price of insulin from one maker in this country had been 1s. 8d. per 100 units, and from the other makers 2s. per 100 units. An undertaking had been given on behalf of the British makers that their prices would not be raised as a result of the new duty, and the Minister of Health had the question of the price of insulin much in mind, and proposed to watch the position closely. Sir FRANCIS FREMANTLE asked if there was any assurance that there was a sufficient supply in quantity from the British manufacturers. Dr. BURGIN said that the Board of Trade had no assurance, but they had no reason to think that that was not the case.

Sweepstakes

In the House of Lords, on November 30th, the Duke of SUTHERLAND asked whether the Government would consider a change in the law relating to sweepstakes in view of the fact that other important countries permitted sweepstakes for the urgent needs of charity, and that it was practically impossible in these days to raise the funds needed for hospitals by ordinary methods. By the Irish sweepstakes hundreds of thousands sterling went from the United Kingdom to enrich the Free State hospitals, while their own hospitals were often hard up and growing poorer. Even if large British hospitals said they did not want sweepstakes or lotteries, money was needed for other objects. There was medical research, a problem comprising cancer research, for which a fund had been started, but not one adequate for its purpose. There was research regarding influenza and the common cold, about neither of which subjects did doctors appear to have any real knowledge. This year's issue of the *Hospital Year Book*, published by the British Hospitals Association, said:

"It is tolerably certain that the money required for the maintenance of the hospitals will be forthcoming, but it is equally certain that, with the decline in big fortunes, the money which is required in large blocks for capital purposes will be difficult and, indeed, almost impossible to obtain. It is this need which might well be met out of the Lottery Fund. The assistance, therefore, which these hospitals could obtain from King Edward's Hospital Fund or the Central Fund of the British Hospitals Association out of the block grants made to them from the general fund of the lotteries would be invaluable, and could be given without fear of alienating the sympathy of existing subscribers and donors."

A lotteries Bill was to come before Parliament early in the New Year. He hoped the Home Secretary, in drafting it, would consider the points put forward in this debate.

The ARCHBISHOP OF CANTERBURY, as one long associated with hospitals and charities, hoped the House would give no encouragement to the principle underlying the Duke of Sutherland's inquiry. He did not know what evidence there was for the Duke's statement that it was practically impossible to support the hospitals by voluntary means. He thought the voluntary hospitals were never in a more assured position than now. In spite of the stringency of the times most had increased their incomes from voluntary sources; King Edward's Fund had increased. The Hospital Saving Association contributed in ten years over £2,500,000 to the hospitals—a donation which represented not only the money but the genuine interest of working people. It would be desirable if money could be obtained for medical research, but the Archbishop would be surprised if the hospitals of this country were less adequately equipped for that than those of any other country. The BISHOP OF WINCHESTER pointed out that the recent Royal Commission on Betting and Sweepstakes had reported that relaxation of the prohibition of large lotteries was undesirable, and not called for. Though large sums were raised by the Irish lotteries, a small amount went to the hospitals for which they were supposed to be intended. In 1930 £800,000 was subscribed to the sweepstakes organized by the Hospital Trust, Dublin. Of this, £131,000 only went to the hospitals. In 1931 £3,300,000 was raised; only some £700,000 of that went to the hospitals. In 1932 £5,000,000 was raised by this lottery; out of that £774,000 went to the hospitals; and in the present year, on the Grand National, out of £3,700,000, only £580,000 went to the hospitals. If such lotteries were legal in England people who previously gave direct to hospitals would give to the lotteries, and only 4s. in the £ at the outside would reach the hospitals. Lord ONSLOW (Chairman of Committees) said voluntary support had been the basis of hospital finance and management ever since hospitals were established. To interfere with that basis would be dangerous. Lord SANDERSON said he would prefer the municipalizing of hospitals to either the sweepstake or the voluntary method. The former ruled in many parts of the Continent. They had it in the United States and in the Dominions. In this country Poor Law hospitals, the fever and small-pox hospitals, and many other hospitals were partly rate-supported. Lord LUKE said the Duke of Sutherland exaggerated the financial difficulties of hospitals. Hospitals with surpluses were more numerous than those with deficits. In London, and in the whole of Britain, the surpluses exceeded the deficits. The Irish sweepstakes might produce £1,000,000 or £2,000,000 a year for Irish hospitals. The voluntary hospitals now had to find £9,000,000 or £10,000,000 a year. London hospitals alone received about £3,000,000 with, in addition, free and generous services given by doctors and others. If subscribers felt that money could be obtained without their personal sacrifice they would leave the task to the lotteries.

Lord LUCAN, for the Government, said the matter was *sub judice*. The Government would give careful consideration to the opinions expressed that afternoon. Not only the Report of the Royal Commission, but the whole question

starvation type—small, hard, and dark in colour. They become normal as soon as the food begins to pass through the relaxed pylorus. I have no recollection of constipation following the total daily dose of one minim of nepenthe. I admit that surgery is good treatment for such infants when a children's hospital is available and a surgeon skilled in that operation is on the staff; but to the doctor in a back area, with no such facilities, I commend nepenthe (1/6 minim) before each feed.

Eugenics and the Doctor

Dr. B. DUNLOP (London, S.W.) writes: Lord Horder refers to persons who suffer from gross mental and "physical" defects which are proved to be transmissible and then says that compulsory sterilization of such individuals is not advocated here, and that at present the operation of sterilization, even if desired by the patient and his responsible relatives, is probably an actionable offence in Great Britain. I fear that this will further extend the widely held idea that even a sane adult may not be given the operation except on therapeutic grounds. Great benefit would accrue to many thousands of very poor families, and to the future quality of the race, if one or other of the parents was able to get sterilized. I submit that a Government pronouncement should be obtained that adults —or, at all events, adults with two children—may legally have their request for the operation acceded to.

Herpes and Varicella

Dr. SYLVIA G. CHAPMAN writes from Wellington, N.Z.: In view of recent reports in your columns regarding the coincidence of varicella and herpes in the same patient, the following case may be of interest to readers. A woman of 65 had an attack of neuritis in the region supplied by the second and third lumbar nerves on the right side. The pain was severe and kept her from sleeping at night. It was treated by rest, warmth, diet, mild sedatives, and, later, diathermy. No cutaneous eruption appeared. A week after the onset the patient had an attack of subacute glaucoma, which was treated in hospital by iridectomy. Both conditions did well, and a fortnight after the operation she was able to attend to her usual occupations. She remained in good health for two weeks; she then sent for me saying that she had again had severe pain for two days, this time in the right buttock and posterior aspect of the right thigh. On examination the areas supplied by the second, third, and fourth sacral nerves were found to be the site of an intense herpetic eruption. Next day my attention was called to a spot on the anterior aspect of the opposite thigh. It was a vesicle surrounded by a reddened zone, having the appearance characteristic of a varicella vesicle. Thereafter four other vesicles appeared, one on the right thigh, one on the left flank, and two on the neck. Their eruption, desiccation, and final disappearance were typical of varicella. The temperature did not rise above 99°. The attack of herpes followed the normal course, the disappearance of the eruption being succeeded by considerable neuralgic pain in the affected region and in the foot of the same side. No history of actual contact with a case of either varicella or herpes could be obtained, but during the interval between the two illnesses the patient had travelled a great deal in trams, and had attended meetings at a kindergarten school, so that numerous opportunities for infection may have occurred. The patient had had a very mild attack of varicella at the age of 5.

Recovery Wards

Mr. GEORGE WATTS (secretary-superintendent, North Ormesby Hospital, Middlesbrough) writes: A year ago, when we opened our new operation theatre suite, we provided in convenient proximity to the theatres two recovery wards of six beds each and two single-bed wards. All patients are transferred direct to these wards after operation. The medical and surgical staff of the hospital have nothing but praise for this innovation, which is of considerable benefit to the patient who has just been operated upon. It has made for peace and quietness in the general wards of the hospital, as the patients in these wards are not disturbed by the many noises incidental to the return of the patient to the ward after having undergone an operation.

Milk and Tuberculosis

Dr. G. WALKER (Dundee) writes: Dr. W. T. Munro, Glenlomond Sanatorium, has advised me that my last letter on this question (*Journal*, November 11th) is open to criticism, in that there is a definite morbidity and mortality from tuberculosis due to bovine bacilli which would disappear with the establishment of a milk supply free from viable T.B. In my anxiety to stress the error of attributing the spread of tuberculosis chiefly to milk I wrote that I doubted whether a clean milk supply would influence the morbidity rate of tuberculosis. The choice of the term "morbidity rate" was unfortunate, as I had intended to indicate that the incidence of *infection* in the community, bearing in mind the ubiquitous human type bacillus, would show no diminution. Our own isolations of virulent bovine bacilli from sputum, urine, cerebro-spinal fluid, etc., give ample evidence of the virulence of that organism for the human subject.

Tetanus and Toy Pistols

Mr. J. EWART SCHOFIELD (London, W.1) writes: I was interested to read in your issue of November 25th, apropos of the new Firearms and Imitation Firearms Act, of the danger of tetanus from toy pistol wounds. This prompts me to record that I attended the coroner's court in Sheffield concerning the death of two boys who had died from tetanus following wounds of the hands due to injury from toy pistols. These cases occurred in 1926, so that it is impossible to give further details. The coincidence was noted at the time and remarked upon by the coroner.

Driving In Fog

Dr. E. B. HAZLETON (Sheffield) writes: Infra-red photography has taught us certain facts which may be useful to motorists. Briefly put, it is found that by using an infra-red filter a negative may be taken which will show clearly objects which to the naked eye are merely blurred or indistinguishable. A very interesting photograph illustrating this will be found in Rawling's little book (Blackie and Sons), showing varicose veins beneath the surface of the skin. By using a modified infra-red filter objects may be seen more clearly when driving through fog and mist. An increasing number of motorists are now using the following method of driving at night: The near-side head-lamp is fitted with a clear amber filter, and is permanently focused on the left-hand kerb at twenty-five to thirty yards. This shows up all pedestrians and cyclists. A spot-light is fitted low down and focused on the kerb at five yards distance. The off-side head-light is not used except when overtaking and passing another vehicle. It is found by direct experiment that the best light filter for the spot-light is orange—not red.

Diaries

We have received from the firm of John Walker and Co., Ltd., Warwick Lane, E.C.4, a large assortment of diaries, appointment books, calendars, and date-pads for the coming year, in various sizes and styles of binding, at prices ranging from 1s. 3d. upwards.

Bale's Dental Surgeon's Daily Diary and Appointment Book for 1934 (John Bale, Sons and Danielsson, Ltd.) is arranged on a practical plan, and should prove serviceable to other professional men whose working day is divided into half-hour sections. The price is 6s. or 7s. 6d. The "*Datada Diary (No. 280) for 1934* (price, 6s., post quarto), issued by T. J. and J. Smith, Ltd., 26, Charterhouse Square, E.C., contains one page to each day, divided into quarter-hours for appointments.

Disclaimer

Lieut.-Col. P. JANVRIN MARETT (Jersey) writes: In *Reynolds's Illustrated News* of November 26th, 1933, there appears an interview with a "Professor," O. A. Newell, in which he says that "he made investigations in conjunction with Lieutenant-Colonel P. J. Marett, Medical Officer of Health for the Island" (Jersey). I should be grateful if you would publish this complete denial in your next issue. I do not know "Professor" O. A. Newell, and have never made any investigations in conjunction with him, nor have I ever corresponded with him. The statement objected to was brought to my notice in a letter sent to me requesting to be informed as to where a supply of this "cure" could be obtained. Had it not been for this letter I should have known nothing about the article in the paper, and I am unaware as to whether my name has not been made use of on previous occasions. I have called upon the editor of the newspaper in question to correct the false statement referred to and to apologize therefor.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 41, 42, 43, 44, 45, 48, and 49 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 312.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

432 Rheumatic Heart Disease in the Young

W. D Stroud *et al* (*Journ Amer Med Assoc* August 12th 1933, p 502) record conclusions derived from the observation for ten years of children with rheumatic heart disease They believe that in order to secure an efficient accurate, and valuable follow up of groups of children with rheumatic heart disease, the whole time services of a specially trained physician and of at least one social service worker are absolutely necessary They state that the average age of the primary manifestation of rheumatic fever in a group of 488 children, in a convalescent heart hospital in Philadelphia, was 7 3 years Of 307 cases followed up, 125 (40 7 per cent) were found to have died or to be totally disabled, while 182 (59 3 per cent) were able to work or go to school Measures to protect such children from colds and other infections of the respiratory tract seem to be the most essential form of prophylactic treatment The authors believe that the use of intravenous injections of preparations of haemolytic streptococci with the *hope of lessening sensitivity*, is a promising procedure, although still in the experimental stage Primary manifestations and remissions occurred in 61 per cent of cases between December and May, with a peak period during March It is urged that special prophylactic measures should be taken between these months in the case of all susceptible children between the ages of 6 and 10 There seemed to be a familial incidence at least as high as that in tuberculosis The routine removal of tonsils, together with careful examination for infection of the sinuses, is recommended The valve, or number of valves involved in *rheumatic heart disease* in childhood had little to do with prognosis as compared with the virulence of the infection, the resistance of the patient, and the number of reactivations

433 Isolated Venous Hypertension

V Tarsitano (*Il Morgagni* August 27th, 1933, p 1047) made a systematic examination of the peripheral venous pressure with Claude's manometer in 100 apparently healthy individuals, aged from 30 to 50 and found ten with a pressure above the normal (18 to 28 cm of water as compared with the normal 16 cm) without there being any of the usual causes to account for venous hypertension The arterial pressure in all these cases was normal The cases could not be classified in the group of venous hypertension of endocrine origin, or of constitutional venous hypertension, as they did not show the characteristic symptoms of the forms of hypertension Tarsitano suggests that isolated venous hypertension is caused by changes in the venous tone produced by some metabolic disorder It is possible, he states, that the isolated venous hypertension if it becomes permanent may constitute a determining cause of cardiovascular insufficiency

434 Electrocardiogram of Dying Heart in Angina

R L Hamilton and H Robertson (*Canadian Med Assoc Journ*, August, 1933 p 122) comment on the fact that electrocardiograms taken during attacks of angina pectoris are uncommon They hold that the case they report is unique in that electrocardiograms were secured before, during and after a fatal attack of this condition The patient was a man of 49 whose symptoms suggesting coronary disease were of two years duration Physical examination disclosed no abnormalities other than general arterial thickening while the electrocardiogram on admission showed a normal rhythm but evidence of coronary sclerosis During an anginal attack which developed in the hospital auricular fibrillation supervened, with inversion of the T waves and frequent premature ventricular contractions The latter became gradually more frequent and of variable origin After the cessation of the attack auricular fibrillation persisted but at a slow rate, the QRS interval being markedly increased Suddenly a second attack started and the first electrocardiogram taken in this showed the ventricles to be fibrillating The ventricular waves gradually became smaller and more rounded and flattened to a line below the iso electric level, after which no auricular or ventricular complexes occurred Heart sounds were audible at the apex for about three minutes following the onset of ventricular fibrillation A study of the electrocardiogram showed that cessation of the cardiac function was not simultaneous with clinical death, but followed this A necropsy showed coronary sclerosis but no evidence of infarction of the heart The authors consider that cessation of function precedes chemical changes, and that until the latter take place it is possible by stimulation to provoke a renewal of cardiac function The restoration of the heart's action by adrenaline in a patient apparently dead is presumably explicable on these lines

435 Prognosis in Constitutional Hypertension

G Hubener (*Klin Woch*, August 15th, 1933, p 1227) defines constitutional hypertension as a disease in which the raised blood pressure is the essential feature, and depends on a spasm of the small arterioles, it is unrelated to renal and arteriosclerotic hypertension Ten years ago the prognosis in this condition was considered grave, but cases are now accumulating to show that life is not necessarily shortened Patients have been observed who have lived twenty years with a blood pressure of over 200 mm Hg Hubener himself has collected eleven cases which he has watched for ten to seventeen years *with a pressure constantly above 200 mm* Prognosis is difficult to formulate the hypertension of adiposity and of the menopause is favourable, coexistent syphilis and hypertension is unfavourable For the remainder the prognosis depends on three factors the state of the kidneys, the state of the heart and the state of the vessels This latter is particularly important and not always easy to assess examination of the fundus oculi is of great importance and the response of the blood pressure to inhalation of amyl nitrite may help *Ceteris paribus* a variable pressure is of better import than a fixed one

Surgery

436 Fractures of the Clavicle

A H Trenn (*Surg Gynecol and Obstet* July 1933 p 118) recommends the Bohler splint—a piece of wood measuring 12 × 6 × 2 inches and rounded at the upper end to fit the axilla—as an efficient means of reducing upward displacement of the inner fragment He states that the maintenance of this reduction has hitherto never been accomplished satisfactorily except by open operation Two strips of malleable iron 20 inches long and 1¾ inches wide having two webbing belts attached, are used to fix the splint to the trunk A third webbing belt fixed to the bottom of the splint, is passed over the opposite shoulder, in order to raise the *injured shoulder* A fourth belt with buckle, introduced under the lower iron band is used to depress the inner clavicular fragment All these parts are well padded a felt pad being placed over the clavicle This apparatus counteracts reflex contraction of the trapezius, which raises the inner clavicular fragment while supporting the weight of the arm that draws the outer fragment downwards Trenn claims that this apparatus fulfils the following requirements (1) constant downward pressure on the inner fragment is maintained, (2) constant upward pressure is exerted on the outer fragment and (3) freedom of movement of the

shoulder- and elbow-joints is preserved. Prolonged immobilization causes muscular atrophy, which is often troublesome. Trynin quotes the case of a patient, aged 16 years, who fractured the acromial end of the right clavicle. Pressure over the inner fragment reduced the displacement, but this could not be maintained by the ordinary bandages. Böhler's splint was applied. A skiagram taken next day showed reduction of the displacement. The apparatus was worn for six weeks. Two months after the injury a final skiagram showed the fragments in good alignment with early callus formation.

437 Pre-operative Preparation in Graves's Disease

H. GISSEL (*Zentralbl. f. Chir.*, July 8th, 1933, p. 1591) alludes to a series of twenty-five thyroidectomies for Graves's disease, which, thanks to careful preparation (large doses of iodine, luminal, quinine, rest, and dieting), were without mortality. In the same period, however, he noted two deaths, in women suffering from Graves's disease, after operation for inguinal hernia and cancer of the breast respectively. These deaths, which were preceded by typical signs of thyroid intoxication, occurred two and fourteen days respectively after operation, done (like the thyroidectomies) in avertin-ether anaesthesia. Retrospectively, Gissel thinks that the first death might have been avoided had the iodine premedication been resumed after a suspension made necessary by a recent sore throat, the second if iodine had been given. It is suggested that careful pre-operative medication is just as necessary in Graves's disease, before operations remote from, as before those directly affecting, the thyroid.

438 Chronic Hoarseness

H. TILLEY (*Med. Journ. of Australia*, August 5th, 1933, p. 169) emphasizes the importance of performing a laryngoscopical examination in all cases of chronic hoarseness of doubtful aetiology. Citing illustrations of the mistakes which can thus be avoided, he states that the hoarseness sometimes met with in adolescence should by no means always be attributed to enlarged tonsils, while in aphonia physical causes can often be excluded at once and treatment by suggestio[illegible] effectively. The author points out that [illegible] first (and possibly for many months the only) symptom of cancer of the larynx—a condition in which early diagnosis and treatment may result in cure. He mentions a case in which the laryngological examination of a patient, thought at first to be suffering from a functional condition, led to an examination of the urine and a diagnosis of diabetes. Laryngeal papillomata have been known to set up symptoms strongly suggestive of diphtheria. Tilley remarks that in the case of a child suffering from stridor, with a preceding history of cough and hoarseness and no symptoms indicating general toxaemia, the laryngoscope should be used to reveal the presence or absence of papillomata in this situation. Moreover, an unsuspected foreign body may be the cause of the trouble. The occurrence of "teachers' nodes" or "singers' nodules" is far from uncommon, and their laryngoscopical recognition will enable treatment to be instituted which will obviate a long-lasting incapacitation. After reviewing the various causes of chronic hoarseness, the author summarizes the main lines of treatment in each case. He urges that medical practitioners should be able to recognize unfailingly whether any larynx is normal or abnormal, even though the finer points of diagnosis remain the province of the laryngologist.

439 Tonsillectomy or Roder's Operation?

JÄGERMANN (*Med. Welt*, August 26th, 1933, p. 1209) opposes the common view that tonsillectomy is harmless to the organism, believing that these glands stand in close relation to the growth and development of the body and to the endocrine system. Affections of the tonsils are regarded as a manifestation of a generalized disease, and the author quotes a case of peritonitis in which a septic tonsillitis developed. Röder's work is reviewed, and the evidence for regarding the tonsils as an organ for the excretion of lymph analysed. The latter observer believes that aspiration of the tonsils will lead to re-establishment of the excretory—and therefore toxin-excretory—function of these organs, whilst tonsillectomy will remove this important function for ever. John's results in improvement of angina pectoris after tonsillar aspiration are also considered, while in further evidence against the value of tonsillectomy in the treatment of rheumatism the figures of Ingermann and Wilson are quoted. These show that between one and eleven years after the operation there were as many recurrences as in an equal series without operation. The immediate and later complications of tonsillectomy—haemorrhage, abscess, glossitis, mastoiditis, pneumonia, empyema, etc.—make a formidable argument against it, and according to Weszler 80 per cent. of post-operative pulmonary abscesses follow tonsillectomy. Röder's conservative aspiration technique is described. Jägermann claims to have had great success with the method in many conditions other than affections of the tonsils—for example, rheumatism, sciatica, asthma, angina pectoris, psoriasis, Graves's disease, and chronic appendicitis. In acute tonsillitis there was a fall in temperature and general improvement after only one or two aspirations. In children somewhat longer treatment is necessary, but results are stated to be excellent.

Therapeutics

440 Suboccipital Serotherapy in Meningitis

CASSOUTE, MONTUS, and LEGRAND (*Marseille-Méd.*, June 25th, 1933, p. 836) describe a case of meningococcal meningitis in an infant of 4 months which was successfully treated by serum injected intramuscularly, and by the lumbar, suboccipital, and intraventricular routes. A total of 185 c.cm. of serum was administered. The improvement in the child's condition on the day following the suboccipital injection was very striking. J. ALLIÉZ and J. CARBONEL (ibid., p. 838) likewise record a case treated successfully by suboccipital injection of serum. Their patient was a boy of 6 years who, in spite of intensive serum treatment by the intramuscular and lumbar routes, was rapidly becoming worse. Fluid withdrawn by lumbar puncture consisted of the serum that had been injected previously. Suspecting that there was a blockage in the cerebro-spinal canal, they carried out the Queckenstedt-Stookey test (watching for increase in pressure in the spinal fluid when the jugular veins are compressed). It was found that while the manometer registering the pressure in the suboccipital region showed a rapid rise, the pressure in the lumbar region remained almost unaltered. An injection of 20 c.cm. of anti-meningococcal serum was therefore given by the suboccipital route, together with 40 c.cm. by the intramuscular route. General amelioration in the child's condition followed, the obstruction in the spinal canal disappeared, as judged by a fresh test of the rise in pressure of the cerebro-spinal fluid on compression of the jugulars, and recovery took place. SEPET, VAGUE, and HENRY (ibid., p. 843) describe two cases of meningitis treated by suboccipital injections of serum. Their second case was of interest in that three little relapses occurred, each lasting three days, and that an aseptic serum meningitis appeared to develop in the ventricles, the fluid in which was shut off from that in the spinal canal. The authors of these three papers are all impressed with the necessity of giving serum by the suboccipital route if a blocking develops in the spinal canal which prevents free circulation of the serum.

441 Serum Treatment of Cerebro-spinal Fever

J. CANTACUZÈNE (*Bull. Off. Internat. d'Hyg. Publique*, July, 1933, p. 1216) records the following results of anti-meningococcal serum treatment in Rumania: (1) Of forty-three cases treated in the Regina Elisabeta Military Hospital at Bucarest between 1924 and 1932, inclusive, only three died, a mortality of 6.9 per cent. (2) One hundred and twenty-two children were treated at the Bucarest children's clinic, of whom sixty were in the first year of life. Of the latter, fifty recovered and ten

died, a mortality of 16.6 per cent., and of the remaining sixty-two, aged from 1 to 17 years, twelve died, a mortality of 19.4 per cent. (3) Of eight cases in patients aged from 4 to 44 years treated at the isolation hospital at Jassy from 1930 to 1932, only one died. Cantacuzène attributes these good results to observation of the following rules: (1) intraspinal injection of serum as early as possible; (2) daily injection of 25 to 35 c.cm. preceded by microscopical examination of the cerebro-spinal fluid; (3) cessation of the injections as soon as the meningococci have disappeared and the purulent character of the fluid has changed; (4) injection of the serum as near as possible to the infected focus—for example, into the ventricles in the case of infants; and (5) association of intramuscular or intravenous with intraspinal injections.

442 O. RAGOTZKY (*Med. Welt*, September 16th, 1933, p. 1319) describes the successful treatment, during the last two years, of six unselected cases of meningococcal meningitis. Immediately after the demonstration of meningococci, which were found abundant in the cerebro-spinal fluid of all cases, the patients, whose ages varied from 1½ to 63 years, received 10 to 20 c.cm. of Behring's polyvalent meningococcal serum intrathecally. Although all of them had high temperatures, it was seldom necessary to give more than two or three serum injections. Subsequent examinations showed that five of the patients were entirely free from pain and that no mental or other meningitic sequelae occurred in any case. All had been ill for some days before admission with typical meningitic symptoms—headache, nuchal rigidity, retching, or vomiting. Two patients were somnolent on admission.

443 Novocain in Acute Pancreatitis

H. L. POPPER (*Zentralbl. f. Chir.*, September 2nd, 1933, p. 2050) gives further evidence that paravertebral anaesthetic injections of the eighth, ninth, and tenth left dorsal roots are of therapeutic and diagnostic utility in acute pancreatitis. In two cases of comparatively mild acute pancreatitis, verified by blood sugar and serum-diastase measurements, and in a third proved by subsequent development of a pancreatic cyst and fistula, the novocain injections were followed by lasting disappearance of pain. In two severe cases the injections were followed by relief of pain for two hours (fat necroses were found at operation), so that pre-operative diagnosis was facilitated by a treatment not devoid of utility. Injection of the corresponding roots on the right was without effect. In the patient with pancreatic fistula injection on the left was followed during two hours by notable diminution in the amount of juice secreted.

Ophthalmology

444 Tuberculous Iridocyclitis

F. TERRIEN (*Paris Méd.*, September, 1933, p. 175) believes that many cases of chronic iridocyclitis formerly labelled syphilitic are really tuberculous. In contradistinction to the classic nodular type, they have no local or general signs of tuberculosis, being indolent, painless, having at most a faint pericorneal blush, a dull iris, a slight reduction of vision, and whitish "K.P." of variable size. The latter may be observed over a period to change in number, size, and shape. The slit-lamp shows the iris to be covered in places with a whitish pellicle on which fine vessels are commonly found. The pupil is contracted, and hypertension may be present. Sometimes there are honeycomb macular changes which explain the poor vision in the absence of any gross anterior ocular lesions. The condition may be long ignored by the patient if, as is so frequently the case, it is unilateral. After the elimination of such conditions as syphilis, rheumatism, gout, and focal and *B. coli* infection, a diagnosis of tuberculosis is suggested by the vascularization of the iris, a slight hypopyon, the very slow progress, and the general appearance of the patient. This is supported by the happy results from the use of tuberculin. Uveal tuberculosis is always secondary to intrathoracic lymphadenitis, and is hardly ever associated with pulmonary tubercle. The author mentions various forms of tuberculin and cites cures obtained by gold preparations.

445 Primary Ocular Diphtheria in Young Children

H. ALAURENT (*Thèse de Paris*, 1933, No. 483), who records eight illustrative cases in children aged from 7 months to 4 years, states that though much less frequent than the faucial form, primary ocular diphtheria is not a clinical rarity during an epidemic, but it often requires laboratory methods for its detection. It is frequently unilateral. It is not accompanied by constitutional disturbance, at least in the catarrhal and superficial forms, which are the most usual. It is chiefly met with in infants, being most frequent between 1 and 2 years. Two factors at least are liable to make the condition serious—namely, (1) association with the streptococcus or staphylococcus, and (2) virulence of the diphtheria bacillus itself. Serum treatment should be employed as early as possible, and should be accompanied by local treatment in the form of instillations of antitoxin, 5 per cent. argyrol, boric acid, or a solution of 1 in 500 atropine sulphate when corneal lesions are present.

446 Protein Extract of Vitreous

C. HOBART (*Arch. of Ophthalmol.*, August, 1933, p. 237) states that the normal structure and composition of the vitreous is unknown. It contains four proteins: serum albumin, serum globulin, mucoprotein, and residual protein, the last being responsible for the gel, and being a product of the surrounding ectoderm. Knowledge of animal vitreous helps in the understanding of human vitreous, and most chemical analyses relate to animal vitreous. Hobart quotes such an analysis. In the human eye loss of vitreous may or may not be followed by inflammatory reaction. This may be due to infection or to auto-intoxication. Fifteen out of twenty-five patients taken at random gave a positive reaction to bovine vitreous. In such, an inflammatory reaction following vitreous loss would very probably result. Cataract cases should, it is stated, have a vitreous test before operation, and hypersensitive persons be desensitized. Loss of vitreous and retention of cortex may lead to sensitivity to both proteins. Desensitization should be accomplished by increasing doses, its presence being determined by an intradermal test. The length of immunity is unknown.

447 Herpes Zoster Ophthalmicus

J. H. DOGGART (*Brit. Journ. Ophthalmol.*, September, 1933, p. 513) states that there are two forms of this condition—the epidemic and the symptomatic. The epidemic form is equally distributed between the sexes, analogous to herpes zoster, occurs in middle life or later, and is unilateral. Second attacks are extremely rare; ocular symptoms are seen in half the cases. The principal features are: severe pain, sometimes with extreme malaise, and a vesicular rash three days later, the vesicles breaking rapidly. The second division of the fifth nerve may be partly affected. The corneal sensation is always impaired, while oedema of its epithelium means that keratitis will probably follow. The spreading rash is limited to one side, and, if extensive or present on the side of the tip of the nose, is usually associated with subsequent eye trouble. The treatment is rest in bed, sedatives, and a bland oily skin dressing. Ocular complications are warded off by the instillation of oil, and by really efficient nursing. The keratitis is characterized by irregular opacities at various depths, of which those superficial persist. Iridocyclitis is probably always present. A profuse exudate in the anterior chamber may cause glaucoma. Ocular palsies, usually clearing up within six weeks, are common. The persistence of the corneal anaesthesia depends upon the severity of the ganglionic changes, while cutaneous pains and paraesthesia may continue for years. There is evidence that the causal virus is closely related to that of varicella. Symptomatic herpes ophthalmicus is due to basal meningitis, cerebral neoplasm, or arsenical poisoning, occurs at any age, and may be bilateral.

Obstetrics and Gynaecology

448 Sex Hormone Therapy in Gynaecology

E. FELS (*Med. Welt*, September 9th, 1933, p. 1283), reviewing the present position of sex hormone preparations in practical medicine, states that the anterior pituitary hormones are of no avail when the ovaries are absent; in such cases the follicular and corpus luteum hormones are indicated. (Thus it was possible by means of 320,000 mouse units of folliculin and 90 rabbit units of lutein hormone to produce menstruation in a woman castrated five years before. Such doses are clearly of no practical importance.) In delayed menstruation the author uses 100 to 200 rat units of folliculin intramuscularly for eight to ten days. Improvement in adnexal inflammation is reported from treatment with prolan, the rationale being the reduced hyperaemia in the pelvic organ. Care should, he states, be taken in treatment of oligomenorrhoea or amenorrhoea that it is not associated with tuberculosis, Graves's disease, or diabetes, etc., in which diseases the hypofunction of the sex glands is a sort of sparing mechanism. Good results are obtained with folliculin in 40 to 50 per cent. of cases of secondary amenorrhoea; the doses are empirically found to be between 200 and 500 mouse units per day. When there is hypophyseal dysfunction as well, prolan (100 to 200 rat units) may be used. In primary amenorrhoea results are poor. Cases of excessive or irregular menstruation (not due to polypi, myomata, or thrombocytopenia, etc.) are treated by some authors with corpus luteum hormone; others recommend prolan in large doses in order to luteinize the ovaries and hence inhibit the haemorrhagic stage. Corpus luteum hormone is also used in cases of habitual abortions which may be attributable to hypofunction of the corpus luteum. In the series of affections associated with the climacteric—for example, pruritus, eczema, urticaria, arthritis, neuralgia, etc.—good results are obtained with the follicle hormone. Useful results are also reported in the treatment of premature infants with pituitary hormones.

449 Radiological Diagnosis in Metrorrhagia

C. HEUSER (*Semana Médica*, August 31st, 1933, p. 622) reports several cases where, with lipiodol and very simple technique, he succeeded in demonstrating by radiography the differential diagnoses of various metrorrhagias. He found it easy to ascertain the presence of serous and placental polypi, carcinomata of fundus and cervix, and submucous fibromata, as well as to estimate quite accurately the development and progress of cases treated by radium, no matter in what part of the internal genitalia the disease lay. The ten cases he reports are illustrated by unusually clear radiograms, and the writer claims that without radiography correct investigation would have failed.

450 Endocrine Factors in Amenorrhoea and Uterine Bleeding

Functional menstrual disorders may have an endocrine aetiology, and B. M. ANSPACH and J. HOFFMAN (*Amer. Journ. Obstet. and Gynecol.*, August, 1933, p. 147) commend, therefore, in these cases the employment of tests for the determination of the oestrin and anterior pituitary contents of the blood, as well as the histological study of endometrial curettings. Performed in the first place before treatment is instituted, they can be repeated subsequently with advantage, for some endometrial changes do not appear until after treatment has started. While valuable as a means of detecting the presence of intrauterine lesions such as polyps or commencing malignancy, curetting for diagnosis should not be used in young patients unless the symptoms are urgent and treatment on functional lines has failed. The test for oestrin is valuable as an index of follicular activity, but it does not always indicate whether the ovarian function is perfect; positive findings may occur in cases of endometrial hyperplasia associated with an absence of the lutein phase of the cycle. The presence of anterior pituitary hormone in the blood, except during pregnancy and at the menopause, is of grave prognostic import, and in only a few of these patients will the child-bearing function be restorable. The authors consider treatment along functional lines preferable for bleeding throughout the reproductive stage of life, and especially in the adolescent. This is often advisable also near the climacteric. Thyroid medication is apparently of service in a large proportion of cases of both amenorrhoea and uterine haemorrhage, and iodine is sometimes beneficial, but ovarian hormones have no value. The exhibition of the anterior pituitary luteinizing hormone for uterine bleeding seems to be effective in a fair proportion of cases.

Pathology

451 Demonstration of Br. abortus in Milk

KARSTEN and BISCHOFF (*Deut. Tierärzt. Woch.*, September 23rd, 1933, p. 593) find that the guinea-pig method is more sensitive than the direct cultural method for the demonstration of *Br. abortus* in milk. When the organisms are fairly numerous and the milk has been withdrawn from single animals under more or less aseptic conditions, cultural results are frequently positive. Either the whole milk, the gravity cream, or the deposit obtained by centrifugation should be seeded on to glycerin agar plates containing 10 to 15 per cent. of ox or horse serum. To inhibit the growth of other organisms, gentian violet and malachite green may be added to the medium in a concentration of 1 in 150,000 to 1 in 200,000. The plates should then be incubated in an atmosphere containing added carbon dioxide. Guinea-pig inoculation is best carried out by the use of a mixture of gravity cream and of the deposit obtained by centrifugation. Agglutinins often appear in the blood serum of the guinea-pig within four weeks, though when the milk contains very few *abortus* bacilli they may not be demonstrable for eight to eleven weeks. The excretion of *abortus* bacilli in the milk is variable. Sometimes they are present for months or years on end in comparatively large numbers, though more usually their excretion appears to be irregular and less intense. For this reason no attention should be paid to single negative cultural results, and apparently even the guinea-pig method cannot be relied upon when only small numbers are present. Useful information as to the probable infection of the milk can often be obtained by an examination of the blood serum and milk whey of the cow for agglutinins to *Br. abortus*.

452 Experimental Tetanus

L. WÁMOSCHER and J. VON VÁSÁRHELYI (*Zeit. f. Hyg. u. Infektionsk.*, September 15th, 1933, p. 535) have studied the production of tetanus in mice with small numbers of spores. Like previous workers, they found that the subcutaneous injection of toxin-free spores failed to give rise to tetanus. The spores were heated for three hours at 80° C. to destroy the toxin, and even when four to six million were inoculated they failed to give rise to tetanus. On the other hand, if an activating agent was introduced with the spores, such as quartz dust, tetanus sometimes followed when as few as 15 to 100 spores were injected. The most successful method of activation was found to be the introduction into a skin pocket of a tiny piece of sterile agar. The subsequent injection of a few spores into, or immediately around, the agar resulted in the development of tetanus quite frequently when sufficient spores were used. Thus, of nineteen mice injected with 8 to 60 spores, sixteen developed tetanus. With injections of 1 to 6 spores, however, only three out of forty-one mice became tetanic. Histological examination of mice that subsequently developed tetanus showed the presence of bacilli in and around the agar block twenty-four hours after the inoculation. The main object of these experiments was to find out why tetanus so often develops in man when it is quite clear that only minimal numbers can have been introduced into the wound. The authors conclude that toxin-free spores cannot develop in normal tissues, but that in damaged tissues, when the conditions for germination of the spores are suitable, even small numbers may prove sufficient, though by no means always, to cause disease.

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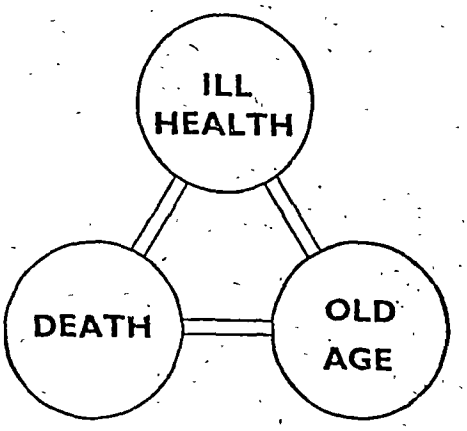
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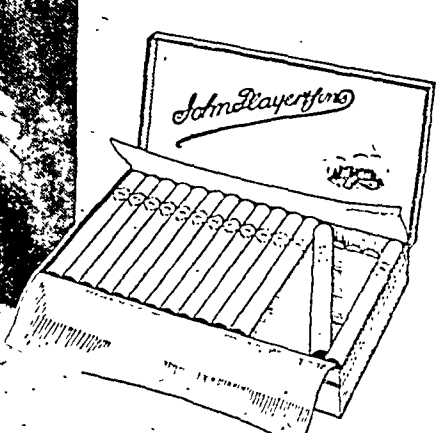
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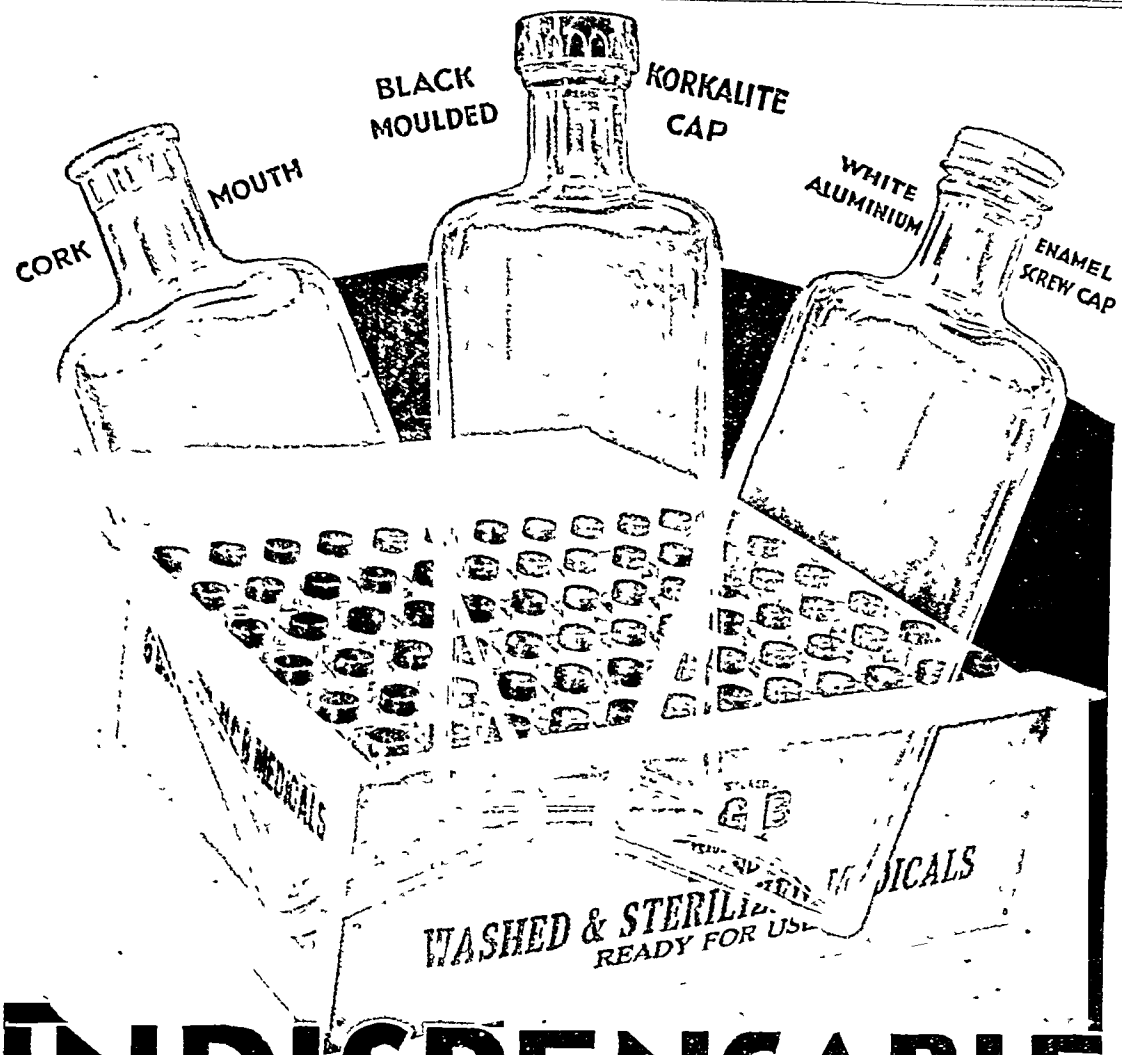
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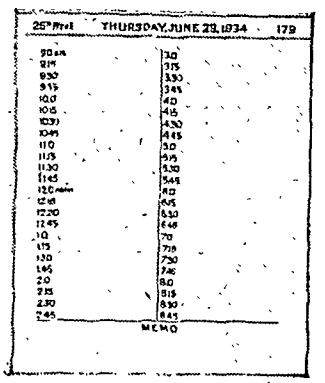
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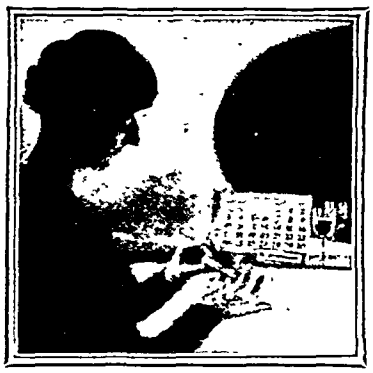
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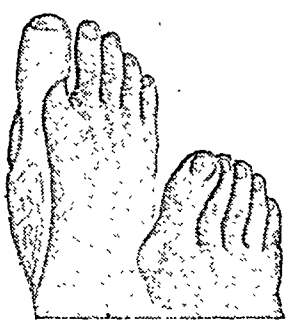
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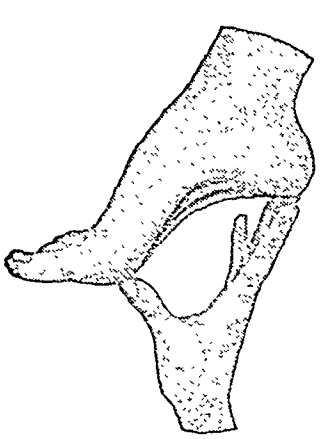
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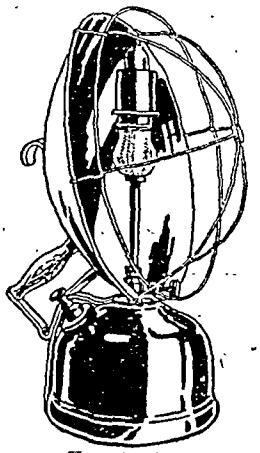
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A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L.M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary Boarders of both sexes are also received for treatment.

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Voluntary Patients received in the Villas. Large Mansion on outskirts of Bath, with 20 acres of grounds (see *Medical Directory*, page 2306).

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A few vacancies in 1st and 2nd Class Houses.

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Established 1816. For the TREATMENT of a few LADIES suffering from NERVOUS and MENTAL DISORDERS. Voluntary patients received. For terms apply to the Resident Medical Attendant. Telephone: Tamworth 109.

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ST. ANDREW'S HOSPITAL

FOR MENTAL DISORDERS,

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FOR THE UPPER AND MIDDLE CLASSES ONLY.

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary patients, who are suffering from incipient mental disorders or who wish to prevent recurrent attacks of mental trouble, temporary patients, and certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms, with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

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This is a Reception Hospital in detached grounds, with a separate entrance, to which patients can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical bath, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray room, an Ultra-violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

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Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.

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'Phone: 11 Ashton-in-Makerfield.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES suffering from mental and nervous diseases, either voluntarily or under Certificate. Patients are classified in separate buildings according to their mental condition.

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This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary and Temporary Patients received.

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Telephone: Teignmouth 289.

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Monks Orchard, Monks Orchard Road, Eden Park, Beckenham, Kent.

Reg. Tel. Address: Bethlem, Beckenham. *Telephone*: Springpark 1180–1181.
Station: Eden Park (Southern Railway).

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Every facility for specialized investigation and treatment is provided in the Lord Wakefield Science and Treatment Unit. In this unit is found the X-Ray and Dental Departments and the Bio-Chemical, Pathological, and Psychological Laboratories.
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CHEADLE, CHESHIRE.

This REGISTERED HOSPITAL, with a SEASIDE BRANCH at Colwyn Bay, N. Wales, is for the treatment and care of those of the Upper and Middle Classes suffering from MENTAL and NERVOUS DISEASES.
The Hospital is governed by a COMMITTEE, appointed by the TRUSTEES of the Manchester Royal Infirmary.
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For terms and further particulars apply to the Medical Superintendent, J. A. C. ROY, M.B., who may be seen in Manchester by APPOINTMENT.
Telephone: GATLEY 2231 (5 lines).

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." **Telephone: Rodney 4741-4742.**

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Certified voluntary and temporary patients are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis Courts. Entertainments, dances, and indoor amusements held throughout the year. Terms from £3 3s. per week.
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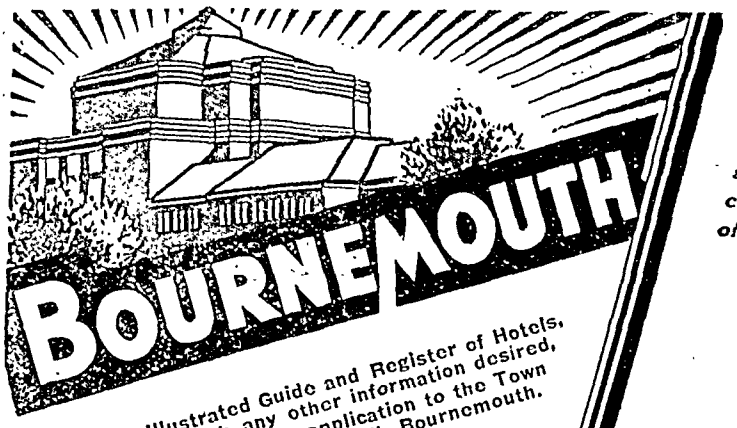
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FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS

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Southern aspect. Low rainfall. Pure bracing air. Sheltered grounds. Beautiful surroundings. All modern equipment for diagnosis and treatment, including operating theatre. **No extra charge for X Rays, Artificial Pneumothorax, Ultra-Violet Light, or other special treatment.**

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For particulars apply to the SECRETARY, Pendyffryn Hall, Penmaenmawr, N. Wales. ('Phone, 20.)

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THE NELSON HOSPITAL, MERTON, S.W.20
84 Beds (63 General, 21 Maternity).

Wanted, RESIDENT HOUSE SURGEON (male, unmarried. Applicants should have a good knowledge of obstetrics and gynaecology.

Appointment for six months in first instance. Salary at the rate of £100 per annum. Applications, with copies of two testimonials, should be sent to the Hon. Secretary not later than January 1st, 1934.

THE LONDON SCHOOL OF DERMATOLOGY

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, LEICESTER SQUARE, W.C.2

The CHESTERFIELD LECTURES, constituting a systematic Course in Dermatology, will be given at 5 p.m. on Tuesdays and Thursdays from January to March.

SYLLABUS—WINTER SESSION—1934

1934.			Subject.	Lecturer.
Jan.	2	Tues.	Acne. Rosacea	Dr. H. D. Haldin-Davis.
,,	4	Thurs.	Ringworm Infections	Dr. J. M. H. MacLeod.
,,	9	Tues.	Cicatricial Alopecia	Sir E. Graham Little.
,,	11	Thurs.	Stocking Erythroderma ...	Dr. W. J. O'Donovan.
,,	16	Tues.	Seborrhœa. Seborrhœic Dermatitis	Dr. G. B. Dowling.
,,	17	Wed.	Pathology Demonstration ...	Dr. I. Muende.
,,	23	Tues.	Affections of the Hair and Hair Follicles	Dr. S. E. Dore.
,,	25	Thurs.	Lichen Planus	Dr. M. Sydney Thomson.
,,	30	Tues.	Sarcoids	Dr. A. M. H. Gray.
Feb.	1	Thurs.	Streptococcal Affections of the Skin	Dr. J. A. Drake.
,,	6	Tues.	Diseases of the Buccal Mucous Membrane	Dr. H. C. G. Semon.
,,	8	Thurs.	Pruritus. Prurigo. Lichenification	Dr. H. D. Haldin-Davis.
,,	13	Tues.	Lupus Erythematosus ...	Dr. M. Sydney Thomson.
,,	14	Wed.	Pathology Demonstration ...	Dr. I. Muende.
,,	20	Tues.	Cutaneous Affections due to Cold	Dr. J. E. M. Wigley.
,,	22	Thurs.	Electro-Therapeutics	Dr. R. Sibley.
,,	27	Tues.	Eczema (1)	Dr. W. Griffith.
Mar.	1	Thurs.	Eczema (2)	Dr. W. Griffith.
,,	6	Tues.	Common Eruptions in Childhood	Dr. H. T. Barron.
,,	8	Thurs.	Benign Growths of the Skin	Dr. R. T. Brain.
,,	13	Tues.	Malignant Growths of the Skin	Dr. H. MacCormac.
,,	14	Wed.	Pathology Demonstration ...	Dr. I. Muende.

An Examination will be held at the end of the Course, and the CHESTERFIELD MEDAL will be awarded to the best candidate, provided the required standard is reached. An intensive Course will also be held during the month of May.

CLINICS.—Instruction will be given daily in the Out-Patient Department, as follows:

Monday, 2 p.m. ... Dr. Griffith.
6 p.m. ... Dr. Dore.
Tuesday, 2 p.m. ... Dr. Goldsmith.
6 p.m. ... Dr. Wigley.
Wednesday, 2 p.m. ... Dr. Brain.
6 p.m. ... Dr. Dowling.
Thursday, 2 p.m. ... Dr. Corsi.
6 p.m. ... Dr. Roxburgh.
Friday, 2 p.m. ... Dr. Sibley.
6 p.m. ... Dr. Brain.
Saturday, 2 p.m. ... The Medical Registrar.

LABORATORY.—Arrangements can be made for Classes, individual instruction, or for research work. Particulars and fees apply to the Dean.

FEES.—For Hospital Practice, including Lectures, One Guinea per month; six months, Five Guineas. *Registered Medical Students may attend the Lectures free on signing their names and giving the name of their Hospital.*

Medical Practitioners will be welcome as occasional visitors on presentation of their cards. For further particulars apply to Dean or Secretary.

LEONARD G. R. TURPIN, Secretary. J. E. M. WIGLEY, M.B., Dean.

WEST RIDING OF YORKSHIRE MENTAL HOSPITALS BOARD.

APPOINTMENT OF MEDICAL SUPERINTENDENT.

WAKEFIELD MENTAL HOSPITAL.

The West Riding of Yorkshire Mental Hospitals Board invite applications from duly qualified Medical Practitioners for the appointment of Medical Superintendent at the Board's Mental Hospital at Wakefield.

Candidates must have had previous experience as the medical superintendent or a senior assistant medical officer of a mental hospital, and (preferably) have obtained a Diploma in Psychological Medicine and have served the office of house surgeon and house physician at a general hospital.

The person appointed will be required to devote his whole time to the duties of the office, and act in conformity with the provisions of the Lunacy Acts, the general rules and regulations of the West Riding of Yorkshire Mental Hospitals Board (as approved by the Board of Control) and of the Visiting Committee.

The minimum and maximum salary fixed for the position is £1,200 and £1,500, the annual increments being £50. The salary to be paid will (within those limits) be according to qualifications and experience. The person appointed will be provided with an unfurnished house, which shall be deemed to be valued for superannuation purposes at the sum of £50 per annum. The salary and value of the unfurnished house will be subject to deductions under the Asylums Officers Superannuation Act, 1909.

Application must be made on a form which can be obtained, together with further particulars, from the undersigned, to whom the completed form should be returned not later than January 4th, 1934.

Canvassing in any form will be a disqualification.

(Signed) G. L. BANNER, A.S.A.A.,
Clerk and Treasurer of the Board.
Board Offices, Wakefield.
December, 1933.
Clerk of the Wakefield Visiting Committee.

CROYDON GENERAL HOSPITAL.

A vacancy occurs on the staff of the above Hospital for an HONORARY ANAESTHETIST, and candidates for the appointment are requested to forward their applications, together with statements of their qualifications, to the undersigned on or before Saturday, December 30th, with copies of three testimonials, from whom further particulars can be obtained upon application if desired.

GEORGE H. DAMS,
House Gov. & Secretary.
Dec. 11th, 1933.

APPLICATIONS ARE INVITED FOR THE appointment of HON. PHYSICIAN to THE BRITISH HOSPITAL FOR FUNCTIONAL MENTAL AND NERVOUS DISORDERS, 72, Camden Road, N.W.1. Full particulars of qualifications, etc., should be addressed to the Secretary, Miss D. IRVING.

COUNTY BOROUGH OF SOUTHPORT.

The Council of the County Borough of Southport invite applications for the post of DEPUTY MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER from gentlemen duly qualified, holding a Diploma of Public Health or a degree in State Medicine, and not over 35 years of age.

The salary will be at the rate of £600 per annum, with an increase of £75 per annum after two years' service, and a further increase of £75 at the termination of the third year.

The appointment will be subject to three months' notice on either side. The person appointed will not be allowed to engage in private practice.

An allowance of £50 per annum will be made for the maintenance of own motor car if used in the service of the Corporation.

The person appointed will be required to pass a medical examination and to contribute to the Corporation's Superannuation Scheme.

The candidate must have had experience in the treatment of external eye diseases and errors of refraction.

Applications on the prescribed form, obtainable from the undersigned, accompanied by copies of not more than three recent testimonials, should be addressed to me endorsed "Deputy Medical Officer of Health," and delivered not later than Friday, January 5th, 1934.

Canvassing, direct or indirect, will disqualify.

R. EDGAR PERRINS,
Town Clerk.
Town Hall, Southport.
December 7th, 1933.

THE RETREAT, YORK.

Applications are invited for the post of SENIOR ASSISTANT MEDICAL OFFICER (male) at this registered Mental Hospital. Previous mental hospital experience essential. Preference will be given to candidates who possess the Diploma in Psychological Medicine. If a candidate without this qualification is appointed he will be expected to obtain it within two years of appointment. Commencing salary based on experience and qualifications. Minimum £400 per annum for an unmarried Assistant, with full board, residence, and laundry; or £560 per annum for a married Assistant with house, rent, and rates free. Applications, with copies of testimonials, to be sent to the Medical Superintendent on or before January 4th, 1934.

THE GENERAL INFIRMARY AT LEEDS.
(628 Beds.)

RESIDENT SURGICAL OFFICER (male) required. Salary £200 per annum, with board, residence, laundry, etc.

Candidates must be qualified medical practitioners and registered, and have held a previous Resident Surgical post.

The appointment is for twelve months with eligibility for re-election.

Applications, together with copies of three recent testimonials, should be sent to the undersigned at once.

S. CLAYTON FRYERS,
House Governor & Secretary.

HUDDERSFIELD ROYAL INFIRMARY.
(220 Beds.)

Applications are invited from qualified gentlemen for the post of RESIDENT SURGICAL OFFICER, to commence duty as early as possible after January 1st, 1934.

Salary at the rate of £225—£250 per annum, with board, residence, and laundry.

The Hospital is officially recognized for the surgical practice required of non-members before admission to the Final Fellowship Examination of the Royal College of Surgeons of England.

Applications, with copies of three recent testimonials, to be addressed to the undersigned immediately.

H. E. G. HALL, Gen. Supt. & Secretary.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.

HOUSE SURGEON wanted. Ophthalmic experience preferred. Duties to commence early in January. There are 50 beds for In-patients and large Out-patient Department. Salary £150 a year, with furnished apartments, board, and laundry. Ladies and gentlemen applying should state age and experience, and send copies of three recent testimonials, to reach the Secretary not later than December 27th.

EUSTACE LEES,
Secretary.
December 8th, 1933.

THE BURSLEM HAYWOOD AND TUNSTALL WAR MEMORIAL HOSPITAL.

Wanted; JUNIOR RESIDENT MEDICAL OFFICER. Salary £150 per annum, with board and residence. Must be fully qualified. Experience in Ophthalmic and Ear, Nose, and Throat work will be an advantage. Applications, stating age and experience, together with copies of three recent testimonials, to be sent to me.

C. E. LOWNDES,
Secretary.
High Lane, Burslem, Stoke-on-Trent.

THE PRINCE OF WALES'S GENERAL HOSPITAL, London, N.15.

Appointments of HONORARY CLINICAL ASSISTANTS in the various Departments of the Hospital (Surgical, Medical, Gynaecological, Ear, Nose, and Throat, Eye, Skin, X-ray and Electrical) for the ensuing year will be made in January.

Applications for appointment to any of these posts should be sent to me on or before Wednesday, January 3rd, 1934.

J. C. BURDETT,
Director.
December 11th, 1933.

ROYAL ALEXANDRA HOSPITAL FOR SICK CHILDREN, BRIGHTON. (100 Beds.)

HOUSE PHYSICIAN (male) required. Salary at the rate of £100 per annum, with board, lodging, and laundry. No canvassing allowed. To commence duties on January 3rd, 1934.

Applications in writing, accompanied by testimonials, should be sent to PERCY P. SPOONER, Secretary, on or before Saturday, December 23rd.

December 4th, 1933.

INDIAN MEDICAL SERVICE

Recruitment of European Officers.

Applications are invited from medical men for permanent commissions in H.M.'s Indian Medical Service. The terms offered include a gratuity of £1,000 on retirement after six years' service, or £2,500 after 12 years' service, together with free return passages for those who no longer desire to remain in the Service. In other respects the terms will be as detailed below.

Candidates must be European British subjects under 32 years of age at the time of application, and must be registered under the Medical Acts in force in Great Britain and Northern Ireland

CAREERS.

The Indian Medical Service offers wide opportunities of medical experience including clinical, preventive, specialist, and research work. At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant Colonel, and by selection to the ranks of Colonel and Major General. An officer may apply after one year's Indian Service to have his name registered for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of civil officials and for general medical administrative purposes, to specialist (for example, public health and bacteriological) services, to research posts, and to professorships at the Medical Schools.

NOTE.—It is not possible to state at present what, if any, prospects of employment on the civil side will be open to Indian Medical Service Officers under the proposed new constitution for India.

PAY.

Owing to the state of the financial emergency at present prevailing in India the existing monthly rates of pay, which are as follows, are subject to a temporary reduction of 5 per cent.

Rank	Service in Rank	Basic Pay	Overseas Pay	Year of Total Service
		Rs	Rs	
Lieut	—	500	150	1st
			150	2nd
			150	3rd
Capt	(i) During first 3 years' service as Captain	650	150	4th
			£15	5th
			£15	6th
	(ii) With more than 3 and less than 6 yrs 'service as Captain	750	£25	7th
			£25	8th
			£25	9th
	(iii) With more than 6 years' service as Captain	850	£25	10th
			£25	11th
			£30	12th
Major	(i) During first 3 years' service as Major	950		
	(ii) With more than 3 and less than 6 years service as Major	1100		
	(iii) With more than 6 years' service as Major	1250		
Lieut Col	(i) Until completion of 23 years' total service	1500	£30	13th and over
	(ii) During 24th and 25th years service	1600		
	(iii) After completion of 25 years' total service	1700		
	(iv) When selected for increased pay	1850		

EXTRAS.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

ANTEDATES IN COMMISSION.

Any service rendered by an officer during the war as a medical or combatant officer, or in a position usually filled by an officer, may be counted as service for increments of pay, promotion, retirement and retired pay, but not for gratuity.

One half of any service in the ranks during the war may be counted as service for retirement and retired pay only.

Candidates possessing certain higher medical qualifications may be granted an antedate of one year in their commissions. Past service in certain hospital appointments may also render candidates eligible for an antedate of one year. Persons holding or about to hold resident posts at recognized hospitals may be seconded in those posts for a period not exceeding one year. The maximum period of antedate, secondment, or antedate and secondment combined, admissible under this paragraph, is limited to one year.

OUTFIT ALLOWANCE.

Officers on appointment will receive an allowance of £50 towards the cost of outfit.

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice, so long as it does not interfere with their proper duties.

LEAVE.

Leave can be taken at reasonable intervals, and adequate rates of leave pay are provided. Extra leave (known as study leave), which may not exceed 12 months in all during an officer's service, may be granted to officers desirous of pursuing special courses of study of a post graduate nature. During such leave, study allowance, at present fixed at the rate of 12s a day in the United Kingdom, £1 a day on the Continent of Europe, and £1 10s a day in the United States of America, is granted to an officer in addition to ordinary rates of leave pay.

PENSIONS.

The rates of pension are as follows:

	Per annum £
After 17 years' service for pension	400
,, 18 ,, ,, ,, ...	430
,, 19 ,, ,, ,, ...	460
,, 20 ,, ,, ,, ...	500
,, 21 ,, ,, ,, ...	540
,, 22 ,, ,, ,, ...	580
,, 23 ,, ,, ,, ...	620
,, 24 ,, ,, ,, ...	660
,, 25 ,, ,, ,, ...	700
,, 26 ,, ,, ,, ...	750
,, 27 ,, ,, ,,	800

These rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent in all. At present a reduction of 8½ per cent is being made on this account.

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

PASSAGES.

An officer on appointment is provided with free passage to India. The families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges.

Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot, lasting approximately six months, prior to their embarkation for India on first appointment. Information as to the rates of pay admissible during this period and subsequently up to arrival in India is contained in the memorandum referred to below.

A memorandum giving full details regarding these appointments and forms of application may be obtained from the Under-Secretary of State for India, Military Department, India Office, London, S.W.1. The Selection Committee will meet at the India Office early in January next, and the selected candidates will be required to join a course of instruction commencing early in February, 1934, prior to sailing for India in the Autumn of 1934. Applications should be submitted as soon as possible.

CHARTERED SOCIETY of MASSAGE & MEDICAL GYMNASTICS

President: LORD MOYNIHAN OF LEEDS, K.C.M.G., C.B., M.S., F.R.C.S.

Those requiring the services of

CHARTERED MASSEUSES & CHARTERED MASSEURS

can obtain full information from the Society's Bureau.

Hours 10-6.

Or from the—

Secretary (Dept. B.), C.S.M.M.G., Tavistock House (North), Tavistock Square, London, W.C.1. 'Phone: Euston 1676-7-8.

ROYAL VICTORIA INFIRMARY, NEWCASTLE-UPON-TYNE.

RESIDENT APPOINTMENTS.

The following Resident appointments will become vacant as from Thursday, February 1st, 1934.

The appointments are tenable for six months except the Skin and Venereal Department and the Out-patient Dressing Department, which will alternate for three months in each Department

FOUR HOUSE PHYSICIANS.
SIX HOUSE SURGEONS.
ONE HOUSE SURGEON to Throat, Nose, Ear, and Eye Departments.
ONE HOUSE SURGEON to Gynaecological Department.
ONE HOUSE SURGEON to Orthopaedic Department.
T[illegible] Accident Room.
T[illegible] to Skin and Out-patient Departments in each Department).
LEAZES HOSPITAL (Pay-Bed Section).
TWO HOUSE SURGEONS (may be eligible for re-appointment).

Candidates must be registered in Medicine and in Surgery, and must produce evidence of being able to administer anaesthetics.

Candidates must be prepared to take any appointment.

As regards applications for the appointment of (a) House Surgeons to Accident Room; (b) House Surgeon to Out-patient Department; and (c) House Surgeons to Special Departments, preference may be given to candidates who have previously held two Resident appointments.

Residents are remunerated at the rate of £50 per annum, except the Residents in the Leazes Hospital who are remunerated at the rate of £96 per annum.

Before making application, intending candidates are asked to apply to the undermentioned for a copy of the regulations governing the appointments, and form of application.

Applications, stating age, experience, and qualifications, and accompanied by copies of two testimonials, should be sent to the undermentioned not later than first post on Friday, December 29th.

S. DUNSTAN,
Dec. 8th, 1933. House Gov. & Secretary.

ROYAL VICTORIA INFIRMARY, NEWCASTLE-UPON-TYNE. (750 Beds.)

Applications are invited for TWO RESIDENT ANAESTHETISTS (open appointment) at a salary of £100 per annum each, with board and residence.

The term of appointment is for three months, commencing Thursday, February 1st, 1934, and may be renewed for further periods.

Candidates must be registered in Medicine and in Surgery.

Applications, stating age, experience, and accompanied by two recent testimonials, should be addressed to the undermentioned not later than first post on Friday, December 29th.

S. DUNSTAN,
Dec. 8th, 1933. House Gov. & Secretary.

MACCLESFIELD GENERAL INFIRMARY. (General Hospital—100 Beds.)

A vacancy for a SECOND HOUSE SURGEON will occur early in January for a period of six months. Salary £150 per annum, with board and residence. Candidates must have had experience in the administration of Anaesthetics.

Applications, with copies of three testimonials, should be sent to the undersigned.

A. E. HANRAHAN, Secretary.

HULL ROYAL INFIRMARY. (367 Beds.)

Applications are invited from registered Medical Practitioners for the post of HOUSE SURGEON (male) to the SUTTON BRANCH HOSPITAL, vacant the middle of January.

Salary at the rate of £160 per annum, plus residence, board, and laundry.

The appointment will be for six months, but will at any time be determinable by one month's notice on either side.

The Branch Hospital is not a Recovery Annexe but a general hospital of 100 beds, 55 of which are reserved for surgical cases.

The Infirmary is recognised by the Royal Colleges for the F.R.C.S. Examinations, and the post now advertised is approved by the University of London for the M.S. Branch 1 (Surgery) Examination.

Applications giving particulars of age, experience, and nationality, together with copies of recent testimonials, should be addressed to the undersigned.

R. J. CARLESS,
December 11th, 1933. House Governor.

WEST KENT GENERAL HOSPITAL, MAIDSTONE. (106 Beds.)

Applications are invited for the following posts:

ONE HOUSE PHYSICIAN;
ONE HOUSE SURGEON.

Salary in each case at the rate of £150 p.a., with board, apartments, and laundry.

Candidates must possess registered Medical and Surgical qualifications. Applications, with copies of testimonials, and stating qualifications and experience should be sent to the undersigned on or before December 23rd.

Elected candidates will be expected (if possible) to commence duties on January 1st, 1934.

EDWARD J. GREGG,
House Governor and Secretary.

ST. BARTHOLOMEW'S HOSPITAL, ROCHESTER. (126 Beds.)
Rochester, Chatham, Gillingham, and District.

The House and Finance Committee invite applications for the post of HOUSE SURGEON, who will act as Casualty Officer and have charge of the Orthopaedic Cases, which will become vacant on February 1st, 1934.

Candidates must be unmarried, qualified, and registered Medical Men. The appointment is for six months. Salary at the rate of £175 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, experience, etc., accompanied by copies of three recent testimonials, must be received by the Secretary not later than December 28th.

Canvassing the Honorary Staff will disqualify.

SALFORD ROYAL HOSPITAL.

Applications are invited for the post of HONORARY OPHTHALMIC SURGEON. Such applications, accompanied by copies of testimonials, certificate of age and of registration, should be delivered to the undersigned on or before the 28th instant, from whom further particulars may be obtained.

H. B. SHELSWELL,
General Supt. & Secretary.

RESIDENT MEDICAL OFFICER (BRITISH, male) required by the BIRMINGHAM GENERAL DISPENSARY. Commencing salary £450 per annum, with furnished quarters and attendance, but no board. No night work or midwifery. Applications, stating age, qualifications, and experience, accompanied by copies of three recent testimonials, should be sent immediately to the Secretary, General Dispensary, Steelhouse Lane, Birmingham, 4.

NORTH STAFFORDSHIRE ROYAL INFIRMARY, STOKE-ON-TRENT. (389 Beds.)

HOUSE SURGEON (ORTHOPAEDIC).

The Committee invite applications for the post of Orthopaedic House Surgeon for a period of either six or twelve months from January 6th next. Previous Orthopaedic experience not essential (fractures constitute 80 per cent. of cases). Salary £150 per annum, with board, residence, and laundry.

Applications, with two copies of recent testimonials, to be sent to the undersigned immediately.

By Order,
W. STEVENSON,
Secretary & House-Governor.

NOTTINGHAM CHILDREN'S HOSPITAL.

Applications are invited for the post of RESIDENT HOUSE SURGEON (Woman). The salary will be at the rate of £150 per annum, with apartments, board, and laundry. The appointment will be for six months. Duties to commence on February 1st, 1934.

Applications, together with testimonials, and stating age, qualifications, and experience, to be sent to F. PRAGNELL, the Honorary Secretary, 1, King John's Chambers, Bridlesmith Gate, Nottingham, by December 19th. Selected candidates will be required to attend at the Hospital for a personal interview on January 2nd, 1934, when the appointment will be made.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

The Committee invite applications for the post of PHYSICIAN in charge of the Skin Department (with charge of beds) and with supervision of Light Treatment. One attendance weekly required. An honorarium to cover travelling expenses will be paid. Candidates must be Fellows or Members of the Royal College of Physicians, England.

Applications, with copies of three recent testimonials, which may be printed or typewritten, should be sent as soon as possible to the undersigned from whom further particulars may be obtained.

CHARLES H. BESSELL,
December 1st, 1933. Secretary.

THE ROYAL PORTSMOUTH HOSPITAL, PORTSMOUTH.
(Five Resident Medical Officers.)

Applications are invited for the post of HOUSE PHYSICIAN (male) qualified. Salary at the rate of £130 per annum, with board, etc., to commence duty on January 1st, 1934. Six months' appointment. Eligible on completion of term for extension or other resident posts. Applications, stating age, nationality, etc., and copies of three recent testimonials, to be sent to the undersigned not later than December 19th, from whom all particulars can be obtained.

B. WAGSTAFF, Secretary.

LINCOLN COUNTY HOSPITAL.

Wanted, JUNIOR HOUSE SURGEON, male, unmarried. Salary at the rate of £150 per annum, rising to £200 per annum at the conclusion of six months' approved service. Board, residence, and washing will also be provided.

Every candidate for the appointment must be registered under the Medical Acts.

Applications, stating age and other particulars, with copies of not more than three testimonials, are to be sent to the undersigned, from whom further particulars may be obtained.

Lincoln. ARTHUR MOORE,
Dec. 9th, 1933. Secretary-Supt.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands.

Town or District	Town or District	Town or District
CONTRACT PRACTICE	**CONTRACT PRACTICE** *(contd.)*	**PUBLIC HEALTH**
EBBW VALE MON *(Workmen's Medical Society)*	MARDY, GLAMORGAN *(Workmen's Medical Scheme)*	GLOUCESTERSHIRE EDUCATION COMMITTEE *(Lady School Medical Inspector)*
GILFACH GOCH, GLAMORGAN *(Workmen's Medical Scheme.)*	NEATH AND DISTRICT *(Medical Aid Association)*	KENT COUNTY COUNCIL FARNBOROUGH INSTITUTION HOSPITAL *(Resident Assistant Medical Officer.)*
LLWYNPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN *(Workmen's Medical Scheme)*	OAKDALE, MON *(Medical Officer for Medical Aid Association.)*	
LOWESTOFT MEDICAL INSTITUTE *(Medical Officer)*	OGMORE VALLEY, GLAMORGAN *(Bynddham Colliery Medical Aid Society)* *(Workmen's Medical Scheme)*	CITY OF YORK *(Assistant Medical Officer of Health—Woman)*

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch
NEW SOUTH WALES. *(All Friendly Society Appointments)*	Dr. J. G. HUNTER (Medical Secretary, New South Wales Branch), 135, Macquarie St., Sydney, N.S.W.	**QUEENSLAND.** *(Brisbane Associated Friendly Societies Institute)*	The Hon. Sec. Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	**WELLINGTON, NEW ZEALAND.** *(Contract Practice Appointments)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand
VICTORIA. *(All Institute or Medical Dispensaries)*	Dr. J. P. MAJOR (Hon. Sec., Victorian Branch, British Medical Association, Medical Society Hall, East Melbourne, Victoria	*(Toowoomba Associated Friendly Societies Medical Institute, Toowoomba)*		**WESTERN AUSTRALIA.** *(Contract and Lodge Practices)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6 Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia

December 13th, 1933. By Order of the Council. G. C. ANDERSON, Medical Secretary.

WOOLWICH AND DISTRICT WAR MEMORIAL HOSPITAL, Shooters Hill, London, S.E.18
(General Hospital—112 Beds.)

(a) HOUSE PHYSICIAN,
(b) HOUSE SURGEON.

The Board of Management invites applications from suitably qualified male candidates for appointment as (a) House Physician, and (b) House Surgeon, for a period of six months from January 1st, 1934. In addition to his surgical duties the House Surgeon will have the care of a Maternity Unit of eight beds. An honorarium of £100 per annum will be paid in respect of each appointment, plus board, residence, and laundry.

Applications, accompanied by copies of not more than three recent testimonials, should be addressed to the undersigned (at the Hospital) to reach him not later than Saturday, December 23rd. The Appointments Committee will meet on Friday, December 29th, to interview short-listed candidates who will be advised of time and place to attend.

R. S. G. HUTCHINGS, Secretary.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.1.

Applications are invited from duly qualified and registered medical men for the following post.

RESIDENT CASUALTY OFFICER

Duties to commence February 1st, 1934, for six months. Salary £150 per annum. Candidates, who must have held previous resident Hospital appointments, should submit applications, stating age, and accompanied by copies of three recent testimonials, to the undersigned on or before January 6th, 1934.

REGINALD R. GARRATT, Secretary.

BRISTOL GENERAL HOSPITAL.

The Committee invites applications for the following appointments, which became vacant on February 1st next:

TWO HOUSE PHYSICIANS, TWO HOUSE SURGEONS, RESIDENT OBSTETRIC OFFICER, HOUSE SURGEON to the Special Departments, and a CASUALTY HOUSE SURGEON.

The appointments will be for six months at salaries at the rate of £80 per annum, and at the rate of £100 per annum for the Casualty House Surgeon and in the event of second appointments being held, at the rate of £100 per annum in each case with board, residence, etc., provided in the Hospital.

Candidates must be registered under the Medical Acts and produce testimonials of good personal character and ability and must have recent experience in the administration of anaesthetics.

Forms of application, etc., to be obtained from the Secretary must be returned completed with copies of testimonials, addressed to the undersigned on or before Monday, January 1st 1934, from whom further particulars may be obtained.

THOMAS W. GREGG, Secretary.

KING GEORGE HOSPITAL, ILFORD
(8 miles from London).

Wanted, a HOUSE SURGEON (male) to commence duty on January 1st, 1934, for a period of ten months, eight months as House Surgeon, and two months as Deputy Resident Medical Officer in charge of the Casualty Department. Salary £100 per annum, £10 bonus on completion of appointment, and two weeks' holiday. Forms of application may be obtained from the undersigned.

G. AUSTIN HEPWORTH, Secretary.

THE BOLTON ROYAL INFIRMARY.
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Applications are invited for the post of HOUSE PHYSICIAN. Salary £200 per annum, with board, residence, and attendance. Duty to commence February 1st 1934.

The Infirmary has a very well-equipped Pathological Department, and this post offers an exceptional opportunity for experience in clinical pathology.

Preference will be shown to applicants who have had experience in laboratory work.

Applications, stating age, nationality, and previous experience, together with copies of testimonials, should be forwarded to the undersigned not later than December 20th.

ALBERT E. BRISCOE, Secretary.

THE ROYAL INFIRMARY, SHEFFIELD
(500 Beds.)

The Weekly Board of Management invite applications for the undermentioned posts, which are tenable for six months from Jan. 1st, 1934:

TWO HOUSE SURGEONS,
HOUSE PHYSICIAN,
OPHTHALMIC HOUSE SURGEON,
ASSISTANT CASUALTY OFFICER and
ASSISTANT AURAL AND OPHTHALMIC HOUSE SURGEON.

The salary attached to each appointment is £80 per annum, with board and residence; after six months' service £100 per annum.

Applications, with copies of testimonials, to be sent to the undersigned forthwith.

INO. W. BARNES, F.C.I.S.,
Board Room, Gen. Supt. & Secretary.
December 4th, 1933.

(Appointments continued on p. 48)

British Medical Journal
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WANTED. — ASSISTANT, MALE, SINGLE, indoor, for general Practice in rapidly increasing area London environs. Definite view. Commence January 1st. English or Scots only. Midwifery essential. State full particulars.—No. 8374, B.M.A. House, Tavistock Sq., W.C.1.

WANTED. — ASSISTANT, MALE, UNmarried, indoor, small Practice, Bournemouth. Work very light. Particularly suit one taking further degree. Ample time for studies. Small salary. Photo. and refs., full partics.—No. 8373, B.M.A. House, Tavistock Sq., W.C.1.

WANTED.—ASSISTANTSHIP BY CONJOINT Graduate, single, aged 27. English, ex H.S., 3 years' experience of general practice. Reliable, abstainer, and well received. London preferred, though not essential. — Address, No. 8459, B.M.A. House, Tavistock Sq., W.C.1.

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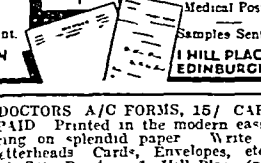
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APPOINTMENTS.—Contd.

ROYAL SUSSEX COUNTY HOSPITAL, BRIGHTON. (250 Beds.)
(Six R.M.O.s.)

HOUSE SURGEON (male) required at the end of January, 1934. Charge of beds, part casualties and anaesthetics. Salary £150 per annum, with board, residence, and laundry.
Candidates must hold Medical and Surgical qualifications of the British Empire, and be duly registered under the Medical Acts. They must be unmarried, and when elected under 30 years of age.
Applications, with copies of testimonials, should be sent to the undersigned immediately.
L. L. W. LANCASTER-GAYE,
Secretary-Superintendent.

LONDON HOSPITAL, E. 1.

There is a vacancy for the post of an ASSISTANT SURGEON, who shall also be Assistant Surgeon to the Orthopaedic Department.
Candidates must be Fellows of the Royal College of Surgeons, England.
Particulars of the appointment may be obtained on application to the House Governor.
The latest date for receiving applications is January 13th, 1934.
ARTHUR G. ELLIOTT,
December, 1933. House Governor.

HULME DISPENSARY, MANCHESTER.

HONORARY DENTIST required. Applications for the post of SECOND HONORARY DENTIST to the above, stating qualifications, and enclosing copies of three testimonials, must be sent on or before January 7th, 1934, to the Hon. Med. Secretary, Hulme Dispensary, Dale Street, Stretford Road, Manchester.

WEST LONDON HOSPITAL, Hammersmith Road, W.6.

Required, a RESIDENT ANAESTHETIST (male). The appointment is tenable from January 22nd next to June 30th, subject to one month's notice on either side. Salary at the rate of £100 a year, with board, lodgings, and laundry allowance.
Candidates must be registered under the Medical Act. Applications (which must be made on printed forms obtained from me) must reach me not later than the first post on Friday, January 12th, 1934. Selected candidates will be required to call upon such members of the Medical Staff as directed, to be in attendance at the Medical Council Meeting on Friday, January 19th, at 4.30 p.m., and the House Committee Meeting at 5 p.m. the same day when the appointment will be made.
H. A. MADGE, Secretary.

NATIONAL TEMPERANCE HOSPITAL, Hampstead Road, N.W.1.

A vacancy will occur some time in January for the post of HONORARY ASSISTANT PHYSICIAN.
Candidates must be Doctors of Medicine of a British University or Members of the Royal College of Physicians of London.
Applications, with copies of not more than three recent testimonials, must be forwarded not later than Thursday, January 4th, 1934, addressed to the Secretary.

NATIONAL TEMPERANCE HOSPITAL, Hampstead Road, N.W.1.

Applications are invited for the appointment of HONORARY ASSISTANT AURAL SURGEON.
Candidates must be Fellows of the Royal College of Surgeons of England.
Intending applicants should communicate in the first place with the Secretary for particulars. Applications, accompanied by copies of not more than three recent testimonials, must be forwarded not later than Thursday, January 4th, 1934.

SOUTHPORT GENERAL INFIRMARY. (150 Beds.)

Special Departments for Eye, Ear, Nose, and Throat, X-rays, Massage, Skin, Pathology, etc.

Wanted, to take up duties immediately, a JUNIOR HOUSE SURGEON, fully qualified and registered, unmarried. Salary £150 per annum, with residence, board, and laundry.
Applications, stating age, nationality, and experience, with copies of testimonials, to be sent in by December 22nd, to the Secretary, Infirmary Office, Pilkington Road, Southport.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Road, S.E.1.

CLINICAL ASSISTANT—OPHTHALMIC DEPT.

Applications are invited from qualified Medical Practitioners for the post of Clinical Assistant in the Ophthalmic Department of the above Hospital, to attend on Thursday mornings of each week. Applications should reach the undersigned not later than Wednesday, December 27th.
J. H. TEASDALE, Secretary.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH, 60, Grove End Road, London, N.W.8.

Applications are invited for the post of RESIDENT HOUSE PHYSICIAN (male). The appointment will be for six months from February 1st, 1934. Salary at the rate of £100 per annum, with full board.
Applications, together with copies of three testimonials, should reach the undersigned on or before December 30th.
F. DUDLEY HOBBS, B.A., Secretary.

MANCHESTER EAR HOSPITAL, Grosvenor Square, All Saints'.

The Board invite applications for the post of RESIDENT HOUSE SURGEON. Salary £120 per annum. (24 beds.) Candidates must be duly qualified and registered.
Applications, with copies of four recent testimonials, to be forwarded to Mr. REGINALD S. MILFORD (Hon. Sec., Manchester Ear Hospital), c/o Mr. W. J. Ellam, 33, Brazennose Street, Manchester, 2.

HERTFORD COUNTY HOSPITAL.

Applications are invited for the post of HOUSE SURGEON (male). Salary £200 per annum, with board, residence, and laundry. The appointment is for six months in the first instance, commencing January 15th, 1934.
Applications, with three recent testimonials, should be sent to the undersigned not later than Monday, January 1st, 1934.
PERCY G. BROOKS, Secretary.

COUNTY COUNCIL OF MIDDLESEX.
NORTH MIDDLESEX COUNTY HOSPITAL.

JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER.

The County Council invites applications for the above appointment. Candidates must be registered Medical Practitioners, and must have held resident appointments in a general hospital.
The gentleman appointed will work under the control of the Medical Superintendent, and devote his whole time to his official duties.
Salary £250 per annum, together with board, lodging, and laundry.
The appointment is for one year only, and is subject to one month's notice on either side. At the end of the period of one year's service, the successful candidate, if considered satisfactory in all respects, will be eligible, upon recommendation of the Medical Superintendent, for promotion to the post of Assistant Medical Officer. If not so appointed, he will leave the Council's service.
Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than December 22nd. Canvassing, directly or indirectly, will be a disqualification.
No special application forms are provided. Envelopes must be endorsed "Junior Assistant Medical Officer."
N.B.—North Middlesex County Hospital is a modern general hospital, with accommodation for 1,000 cases, chiefly acute; 315 beds in the adjoining Edmonton House also are under the care of the Medical Staff of the Hospital. The Hospital possesses a pathological laboratory, and radiological, radium, electro-therapeutic, actino-therapeutic, maternity, massage, ear, nose, and throat, ophthalmic, dental, and out-patient departments. (C.D/19.)
ERNEST S. W. HART,
Middlesex Guildhall, Clerk of the County
Westminster, S.W.1. Council.
December 5th, 1933.

SURREY COUNTY COUNCIL.

MENTAL HOSPITALS COMMITTEE.

APPOINTMENT OF JUNIOR ASSISTANT MEDICAL OFFICER (Male).

Applications are invited for the post of Male Junior Assistant Medical Officer (unmarried) in the Surrey County Mental Hospital Service.
Commencing salary, which will be subject to statutory deductions under the provisions of the Asylums Officers Superannuation Act, 1909, will be £350 rising by annual increments of £25 to a maximum of £450 per annum, together with apartments, board, laundry, and attendance, valued for superannuation purposes at £150 per annum. The person appointed will also be paid in addition to his salary the sum of £50 per annum if he holds the Diploma of Psychological Medicine.
Applicants should state whether they have had experience in the work of a Pathological Laboratory.
The appointment will be subject to termination by one calendar month's notice on either side.
Applications, stating age, accompanied by copies of three recent testimonials, and enclosed in an envelope, endorsed "Mental Hospitals, Junior Medical Officer," must reach me not later than 12 noon on Thursday, Dec. 28th.
County Hall, DUDLEY AUKLAND,
Kingston-upon-Thames. Clerk to the
December 11th, 1933. Committee.

UNIVERSITY COLLEGE HOSPITAL, Gower Street, W.C.1.

Applications are invited for the post of OPHTHALMIC REGISTRAR for one year, commencing January 1st, 1934, at a salary of £100 per annum.
Duties to include attendance in the Ophthalmic Out-patient Department on two sessions weekly, at Operations on two days per week, and in the Wards on the days immediately after operations.
Applications, accompanied by not more than three testimonials, must reach the Secretary by noon on Wednesday, December 27th.

DISTRICT INFIRMARY, ASHTON-UNDER-LYNE.
(General Hospital—200 Beds, mainly Surgical.)

Wanted, for January 1st next, a MALE HOUSE SURGEON. Six months' appointment. Salary at the rate of £150 per annum, with board, residence, and laundry.
The Resident Staff comprises a Resident Surgical Officer and three House Surgeons.
Applications, with testimonials, to be sent to the undersigned.
FRANK OLIVER,
General Superintendent & Secretary.

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MEDICAL REGISTRAR AND ASSISTANT PATHOLOGIST

Applications are invited for the above post. Candidates must be fully qualified and fully registered and should have held a previous resident appointment in a Teaching Hospital. The salary is at the rate of £100 per annum with board residence and laundry. The appointment is tenable for one year as from February 1st, 1934, and may be renewed with a maximum of three years.

Candidates must forward their applications with any testimonials which they may desire to offer, to the undersigned on or before December 30th, and from whom further particulars may be obtained.

HAROLD F. SHILSTON
December 1933 Hon. Secretary

PRESTON AND COUNTY OF LANCASTER'S ROYAL INFIRMARY

The Board of Management invite applications from unmarried gentlemen duly qualified and registered for the following posts vacant on January 12th next.

HOUSE SURGEON with duties under Consulting Surgeon.

SPECIAL HOUSE SURGEON with duties in the Maternity and Eye Ear Nose and Throat Wards under Consulting Surgeons.

Salary in each case at the rate of £150 per annum with board residence and laundry.

Applications stating age, qualifications and experience accompanied by copies of testimonials to be forwarded to the undersigned as soon as possible.

JOHN GIBSON
December 11th 1933 Supt. & Secretary

HARROGATE ROYAL BATH HOSPITAL

(Special Hospital for Rheumatic and Allied Diseases)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male) to commence duties beginning February 1st 1934.

The appointment will be for a period of six months. Salary at the rate of £156 per annum, with board residence and laundry.

Applications stating qualifications age, etc., with copies of recent testimonials to be forwarded to the undersigned on or before Wednesday, January 10th 1934.

E. P. L. DIXON, M.A., Secretary.

LIVERPOOL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Mount Pleasant, LIVERPOOL

Applications are invited for the post of HON. SURGEON to the Hospital. Candidates must be Fellows of the Royal College of Surgeons of England and have had special experience in Chest surgery.

Copies of not more than three recent testimonial should be sent in with application to the Medical Board as above not later than December 30th.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL

Wanted to commence duties early in January RESIDENT HOUSE SURGEON (*male or female* and unmarried) possessing a medical and surgical registerd qualification. Practical experience in the administration of anaesthetics is required. Salary £175 with apartments board, and laundry. All applications stating age etc. with copies of testimonials to be sent to me at once.

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Loughborough Secretary

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WANTED BY M.B., B.CH., MIXED PRACTICE with good panel. About £1,500 p.a. Midlands or South especially near Exeter. House, with at least 5 bedrooms. Capital to £6,000.—No. 2571.

WANTED — MIDDLE CLASS PRACTICE, about £1,000—£1,200 p.a. Small panel not objected to. London or Provincial Town—e.g. Birmingham residential part. Free in New Year. Ample capital.—No. 2702.

WANTED BY M.B., CH.B.ED., AN UPPER middle class PRACTICE of about £2,000 p.a. in Provincial or Country Town of say 15,000. House in quiet locality with good garden. Applicant has £3,000 cash ready.—No. 2792.

SOUTH COAST TOWN — NUCLEUS OF Woman's Practice. £170 in 1932, steadily increasing in 1933. Six roomed house, with good garden in commanding position. House and nucleus for sale at £1,000.—No. 9245.

MIDLANDS—£1,400 P.A. AVERAGE PARTNER age about 30, wanted to buy one-third share at £800. Exceptional opportunity owing to local developments.—No. 9244.

LANCS — £2,250 P.A., WITH PANEL OF 2,900. About 100 midwifery cases p.a., fees from 2 gns. Visits 5/. Two-thirds share for disposal at 2 years purchase or near offer, to include book debts, drugs, etc.—No. 9243.

LONDON EAST—AVERAGE OVER £2,200. Panel nearly 2,200. Midwifery declined, ample scope. Appointment worth £250 p.a. Semi-detached house, with 3 bed, 2 reception rooms, good surgery, etc. Price of house and practice £6,500.—No. 9240.

EASTERN COUNTY — ASSISTANT (UNDER 30) wanted with view to Partnership in old-established Town Practice. One third share worth nearly £1,000 p.a., at 2 years purchase after 6 to 12 months' assistancy at £400 p.a., plus allowance. Good modern house (specially built) with half acre of garden.—No. 9230.

EAST COAST WATERING PLACE. — OLD established dispensing non-panel PRACTICE averaging £2,000 p.a. Fees 5/6 to 10/6. Midwifery £2 2s. up. Premium 1½ years purchase. Good house and garden 6 bedroom, etc. For sale at £2,750 substantial mortg. Scope for surgery also panel if desired.—No. 9239.

NUCLEUS OF £200 P.A. IN WEST LONDON with panel of 60 and immense scope. Lock up premises at 27/- per week. First floor could be acquired if needed.—No. 9237.

LONDON, W.C. — OLD ESTABLISHED PRACTICE. Over £700 p.a., increasing with growing panel now 300. Practice mostly better class type (visits 5/- to 21/-, surgery 2/6 to 10/6) but ample scope for working and panel classes in new colony of flats. Small flat to rent.—No. 9236.

S. WALES TOWN—£1,050 P.A. INCLUDING panel of 1,468 and some contract and club work. House with 2 recep. 5 bed. bath, etc., 2 surgeries etc. Small garden and 2 garages. Freehold and goodwill £1,750, but might rent.—No. 9183.

EASTERN COUNTY—AVERAGE £1,190 P.A. with small panel. Very old-established Town PRACTICE. Fees 7/6 and 5/-. Midwifery £4 4s. House, with 3 recep. 4 bedrooms and dressing. Sep. Surgery etc. and garden. For sale. Premium £2,200 payable as agreed.—No. 9226.

LONDON N. — WELL ESTABLISHED INCREASING PRACTICE. Receipts last year £1,250. Panel 670. No midwifery but ample scope. Car not necessary. Visits 3/6 to 7/6. Surgery 2/6—3/6. Premises in main road comprise cons. and waiting rooms and 7 living room. Rent on lease at £130 p.a. or sell leasehold. Premium for goodwill £2,000.—No. 9224.

SUPPLY TOWN—ABOUT £600 P.A. APPOINTMENT at £100. Visiting fee 5/- to 21/-. Scope at lower fee. Midwifery £4 4 up. Some panel. Corner house with 3 recep. 4 bedroom. 1 acre of garden and good garage to rent. Premium £1,200.—No. 9223.

SPA PRACTICE—ENGLAND—AVERAGE NOW £380. Normally about £1,000 decreased through ill health etc. Fees £1 1s. and £2 2s. Corner house in good position 2 recep., cons., 5 bedrooms etc. Small garden. Rent £100. Premium £500.—No. 9222.

ASSISTANTS REQUIRED — HONG KONG £800 per month. Young man, 25/28, able to undertake Eye work. PEMBROKESHIRE (non-colliery) £300 p.a. Car provided.

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MIDDLESEX, WEST.—Old-established G.P., *situated in rapidly growing* residential country district. Excellent house to be rented at £130 p.a. Receipts approx. £1,700 p.a. Panel 1,450. Long introduction. Premium £3,400

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LONDON, S.W.—Old-established middle-class G.P., situated in pleasant residential locality. Excellent scope for energetic man with good personality. Detached corner house, garden and garage. Receipts *approx. £500 p.a. Panel 300. Premium for Practice and freehold* house £2,000.

LANCS.—Old-established Town PRACTICE with excellent house to rent, or may be purchased. Receipts nearly £1,600 p.a. Panel approximately 800. Premium 1¾ years' purchase.

MON.—O'd-established Colliery PRACTICE. Medium-sized house to rent at £60 p.a. Receipts approximately £900 p.a. (including Panel and appointments of £600 p.a.). Prem. 2 years' purchase or near offer.

MIDDLESEX, N.W.—Middle-class G.P. situated in rapidly growing residential locality. Charming modern house to be rented or freehold may be purchased. Large garden, with tennis lawn, fruit trees, etc. Average receipts £640 p.a. Panel 268. Excellent all round scope. Premium £950.

HAMPSHIRE (Coast).—Good-class PRACTICE, suitable for semi-retired Practitioner. Receipts average over £600 p.a. Panel 542. Excellent detached house with large garden and garage, for rental or leasehold may be purchased. Premium for Practice £1,000.

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3. LANCS. — Industrial PRACTICE. Receipts about £625 p.a. Panel about 500. Good house, 5 beds, garage, etc.
4. SOUTH WALES.—Well-estab. *mixed PRACTICE.* Receipts about £725. Suitable house, with garden and garage.

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NORTH EAST COAST —Better working and middle class PRACTICE in large town Cash receipts last year £1,509, including £850 from panel, club, and appointment Panel 1,200 Central Surgery, with good living accommodation Price (freehold) £1 150 Premium—Practice—best offer Long introduction if desired —No 511

LANCS TOWN, nr Manchester —Industrial and Country PRACTICE Cash receipts last year £1 256 Panel 1 504 Scope Good house, 2 reception 5 bedrooms, garage and small garden Rent £60 p a Prem £2,000 —No 522

SCOTLAND —MEDICAL WOMAN'S PRACTICE in Country District Cash receipts last year £565 Panel 100 Detached house, 2 reception, 4 bedrooms, garage, and large garden Premium—Practice—best offer —No 505

NORTH WEST COAST —PARTNERSHIP in middle and upper working class Practice in popular seaside resort Cash receipts last year £2 552 Panel 820 Scope for increase Good house (on sea front), 2 reception, 4 bedrooms, 3 professional rooms, garage, and small garden For sale or may be rented for two years Cottage Hospital Premium—one half share—2 years' purchase —No 512

LANCS TOWN, eight miles from Manchester — Old-established mixed PRACTICE, averaging £700 p a Panel 639 Scope for increase *District rapidly developing* Good house 2 reception, 3 bedrooms, garage, and garden (separate entrance to surgery) Premium—Practice and house—£1,350 —No 493

NEAR NORTH WEST COAST —Country PRACTICE of over £800 p a in beautiful district Panel 329 Scope Good Sport Premium, best offer —No 477

SCOTLAND — Upper middle-class (non dispensing) PRACTICE. Average cash receipts approx £500 p a No panel but scope for such work Good house, 2 reception, 5 bedrooms, garage, and garden For sale or may be rented Prem —Practice—best offer —No 498

SOUTH COAST —Established middle class PRACTICE in fashionable Seaside Resort Average cash receipts £625 p a Panel 542 Excellent detached house, 5 bedrooms 3 reception Garage and very good garden For sale or would rent on lease Premium—Practice—£1,000 —No 516

LARGE LANCS TOWN — Very old established middle-class PRACTICE, averaging last 2 years £3 047 p a *Panel 500 Appointments* £500 p a Partnership with succession in 12/18 months suggested Good semi-detached house 3 reception, 6 bedrooms garage, and garden For sale or would rent on lease Vendor retiring Premium 1½ years' purchase —No 464.

MANCHESTER —Old established mixed PRACTICE Cash receipts last year £660 Panel 788 Scope Good corner house, 2 recep, 4 bedrooms, garage Rent £60 p a Premium 1½ years purchase Could be worked along with another small Practice for sale, quite near, doing £300 p a with a panel of 350 —No 437

LONDON, S E.—PRACTICE between £400 to £450 p a Panel 125 Great scope Nice house in pleasant district, with garden and garage Rent £90 p a Suit retiring doctor or young man willing to develop Premium £450 —No 521

NR MANCHESTER —Small PRACTICE of over £500 p a Panel 778 *Scope for increase* House, 2 reception 4 bedrooms, and professional rooms Rent £35 p a Premium best offer —No 484

CO DURHAM —LARGE TOWN —Old-established mixed PRACTICE averaging over £800 p a Panel 600 Scope Good house 2 reception 4 bedrooms 3 *professional rooms* Garage and garden Premium £950 —No 422

DORSET — Old established mixed PRACTICE in good district Average cash receipts £1 200 p a exclusive appointments £100 p a Panel 1,256 Scope for increase Excellent semi-detached house, 3 reception 4 bedrooms, garage and garden Price £1 300 Premium—Practice—1½ years purchase —No 510

DERBYSHIRE —Small PRACTICE in beautiful district Cash receipts £300 to £400 p a Panel 80 Good scope House 2 reception 3 bedrooms, and nice garden Rent £68 p a, including rates Alternative accommodation available Premium £100 —No 514

MANCHESTER —Mixed PRACTICE averaging £1,000 p a. Appointments (transferable) £200—£250 p a Panel 850 Good corner house, 2 reception 3 bedrooms 3 professional rooms garage and small garden Premium—Practice—1½ years' purchase, or near offer —No 492

BEDFORDSHIRE —Country PRACTICE with £400 to £500 p a Panel over 100 Good house can be rented at £60 p a Premium £400 for quick sale —No 517

NORTH WEST COAST —Large residential and seaside town —Old established PRACTICE Cash receipts about £1 200 p a Panel 1 500 Excellent detached corner house (freehold), 3 professional rooms 5 bedrooms, and 2 reception rooms, garage, and good garden for sale Premium—Practice—1½ years purchase —No 417

DERBY —Small old-established PRACTICE capable of considerable increase Average cash receipts £530 p a Panel 509 Excellent modern house, 3 reception, 5 bedrooms, and garden For sale or rent Premium—Practice—£500 Vendor retiring —No 486

ASSISTANTS and LOCUMTENENTS (male and female) SHOULD REGISTER AT ONCE FOR ENGAGEMENTS.

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(FOUNDED 1880.)

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1 DEATH VACANCY, MID KENT. — COUNTRY PRACTICE IN pleasant surroundings. Cash receipts about £950 p.a., including appointment about £100 and panel about 550. Small modern house with surgery and garage attached, and about three acres of orchard and garden, for sale. Plenty of scope for increase. Sport of all kinds. Premium one and a half years' purchase.

2 W. OF ENGLAND.—PARTNERSHIP IN OLD-ESTABLISHED Practice over £2,200 p.a. in County Town. Panel about 1,000. Visiting fees 5/- to £1 11s. 6d. Suitable house available. Excellent educational facilities. Premium one-half share two years' purchase. Exceedingly good prospects for well-qualified physician (preferably a M.R.C.P.) with opportunity of getting on staff of Hospital in near future.

3 WITHIN 20 MILES OF LONDON.—PARTNERSHIP IN OLD-established Practice of about £4,850 p.a. in clean flourishing Industrial Town. Panel 2,850. Visiting fees 5/-, 7/6, 10/6, and few £1 1s. House (5 bedrooms, bathroom, etc.) to rent; others are available if desired. Applicant should be aged 30—35 and an Anaesthetist. Good Hospital in the town. Premium one-fifth share two years' purchase.

4 SCOTLAND. — OLD-ESTABLISHED PRACTICE IN COUNTRY Town of about £1,500 p.a., including good appointments and panel of 1,000.

5 ESSEX.—PARTNERSHIP IN WELL-ESTABLISHED PRACTICE averaging over £3,700 p.a. in an industrial area, within 15 miles of London. Good appointments and panel about 3,700. Visiting fees 3/6, and a few at 5/-. House contains 4 bedrooms, bathroom, etc., garage, and can be either purchased or rented on lease. One-third share at first at two years' purchase.

6 LONDON, N.W.—OLD-ESTABLISHED PRACTICE OF ABOUT £400 p.a. in good residential district. Visiting fees 5/- to 10/6. Non-basement house (6 bedrooms), standing back from the main road, with garage and garden. Rent £200 p.a. Scope for increase. Premium £500.

7 LONDON, S.W. — PARTNERSHIP IN OLD-ESTABLISHED Practice of about £2,600 p.a., in pleasant Suburban District. Small panel. Visiting fees 5/- to 7/6. Corner residence (5/6 bedrooms) with garage and garden. Good educational facilities. Premium one-half share, one and a half years' purchase.

8 S.W. OF ENGLAND.—WELL-ESTABLISHED PRACTICE IN Market Town. Receipts average £1,400 p.a., including good panel. Very good house (7 bedrooms) with good garden for sale. Premium two years' purchase.

9 SOUTHAMPTON.—NUCLEUS OF PRACTICE (HELD BY MEDical Woman) in rapidly growing area. Receipts 1932, £170; those for 1933 show considerable increase. Six-roomed house, with garden and garage, in good position on main road. Ample scope for increase. Premium—House and Nucleus—£1,000.

10 MIDLANDS.—PARTNERSHIP IN WELL-ESTABLISHED PRACtice of about £1,400 p.a. in a rapidly growing residential District. Panel over 1,600. Excellent chance for young energetic man. Premium one-third share, £800.

11 SHROPSHIRE.—WELL-ESTABLISHED PRACTICE AVERAGing £700 p.a., in pleasant Market Town. Panel 170. House to rent. Scope for increase. Premium one and a half years' purchase.

12 NORTHAMPTONSHIRE. — PARTNERSHIP IN OLD-ESTABlished Practice, averaging £1,718 p.a., in small town. Panel 1,930. Good scope for young energetic man. Premium for two-fifths share two years' purchase.

13 MIDLANDS. — VERY OLD-ESTABLISHED AND EASILY worked Country PRACTICE about 8 miles from the County Town. Cash receipts average between £650 and £700 p.a., including panel about 600. Suitable house, with 4 bedrooms, electric light, garage, and garden for sale. Price £1,300 freehold. Scope for young energetic man. Premium one year's purchase.

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14 LONDON, E.—OLD ESTABLISHED PRACTICE OF £250 P.A. in the Forest Gate district. Panel 60. No midwifery. Modern house (5 bedrooms) in good residential part. Electric light and heating and nice garden for sale or rent. Scope for increase. Premium £385.

15 N. DEVON — OLD ESTABLISHED PRACTICE IN PICTURESQUELY situated Watering Place. Receipts average £1,173 p.a. including panel 474. Excellently situated house in very good state of repair both inside and out containing 8 bedrooms, etc. Price of leasehold £800. The Practice is particularly suitable for one not too robust or young who needs country life. Salmon, river, and sea fishing, hunting etc. Cottage Hospital. Premium £1,850.

16 PARTNERSHIP IN OPHTHALMIC PRACTICE IN FIRST RATE town. Applicants should be well qualified, aged 30—40, and experienced.

17 BIRMINGHAM — PARTNERSHIP IN WELL ESTABLISHED and increasing Practice in good Suburb. Panel over 1,200 rapidly increasing. Suitable house to rent. Excellent scope and unrivalled prospects for the right man. Premium for share worth about £800 p.a., £1,350.

18 LONDON, S.W.—WELL ESTABLISHED OPHTHALMIC PRACTICE averaging £900 p.a. in Suburban District. Fee for consultation and examination £1 1s. Well situated house to be sold or let. Premium £1,200.

19 S. WALES — PRACTICE BETWEEN £250—£300 P.A. IN beautifully situated village about 4 miles from important town. Small panel. Nice house (6 bedrooms) electric light, gas and company's water. Garage and garden. Premium house and Practice only £1,500 for quick sale.

20 LONDON, S.E.—LOCK UP PRACTICE OF ABOUT £350 P.A. in Suburban District within 5 miles of Charing Cross. Panel 320. Premises consisting of Surgery and Waiting Room on ground floor, to rent on lease. Premium £500 or near offer.

21 N. OF ENGLAND—SPA PRACTICE AVERAGING £380 P.A. in famous Health Resort. Fees £1 1s. and £2 2s., occasionally 10/6. Semi-detached corner house (5—6 bedrooms) in best part which can be rented. Premium £500.

22 SHROPSHIRE BORDER — WELL ESTABLISHED PRACTICE in large Industrial Village amidst beautiful country. Income about £700 p.a., including panel rapidly increasing. Small detached modern house (4 bedrooms) with electric light, gas, for sale or rent. All kinds of sport. Cottage Hospital. Premium £800. Would suit either Medical Man or Medical Woman.

23 SURREY — PARTNERSHIP IN SOUND OLD ESTABLISHED good mixed class Practice about £2,650 p.a. in the Croydon area. Small panel. Very little midwifery. Scope for increase. Premium one half share 2 years purchase.

24 MIDDLESEX — MIXED WORKING CLASS PRACTICE OF about £1,020 p.a. in rapidly growing district within 10 miles of the Marble Arch. Panel about 1,120. Corner house (5 bedrooms), with garage and fair sized garden, for sale. Scope for increase. Premium £2,000.

25 S. COAST—NON DISPENSING PRACTICE AVERAGING OVER £350 p.a. in well known Health Resort. Visits 3/6 to 10. House in excellent position, facing sea and containing 6 bedrooms, etc. Price of freehold £1,950. Premium for Practice £350.

26 LONDON, E.C.—OLD ESTABLISHED PRACTICE OF ABOUT £1,650 p.a., including appointments, Parish, and Public Medical Service, worth over £500 p.a. Visits 2/6 to 7/6. Practically no midwifery. Introduction up to 12 months will be given. Premium £1,500.

27 N.E. COAST—OLD ESTABLISHED PRACTICE IN SEAPORT Town. Cash receipts average £1,260 p.a., including appointments worth £130 p.a. and a panel of 1,115. Corner house (4 bedrooms), with separate surgery accommodation. Premium for House and Practice £2,600.

28 S. WALES—SMALL PRACTICE IN A COLLIERY DISTRICT doing about £150 p.a. Accommodation to rent. Scope for young energetic man. Premium £150.

29 N. KENSINGTON—PRACTICE OF ABOUT £300 P.A. PANEL 200. Corner house to rent. Premium £475.

30 NOTTINGHAM—SMALL PRACTICE OF ABOUT £255 P.A. Panel 200. Corner house (4 bedrooms). Rent £60 p.a. Premium £500.

31 EASTERN COUNTIES—COUNTY TOWN—VERY OLD ESTABlished middle and upper class PRACTICE averaging £1,190 p.a. Panel 120. Visiting fees 7/6 to 15/6. Ten roomed house in good residential part with garage and garden for sale. Scope. Premium £2,200.

32 LONDON, S.W.—WELL ESTABLISHED EYE, EAR, NOSE AND Throat Connection in Suburban District. Cash receipts last twelve months £432 (mostly from Eye work) including appointment worth about £120 p.a. Corner detached non basement house (7 bedrooms) with garages and very nice garden. Price of freehold and Practice, £2,350.

33 GLOUCESTERSHIRE—PARTNERSHIP IN VERY OLD ESTABlished Practice of nearly £1,750 p.a. in small town in beautiful part of the country. Panel over 1,350. Fees average 7/6. Premium one half share 2 years purchase.

34 FAMOUS INLAND WATERING PLACE AND HEALTH Resort—Well established non-dispensing PRACTICE. Receipts last three years averaged £986 p.a., including a select Panel of 280. Fees 5/ to £1 1s. Particularly attractive house with large garden, for sale. Scope. Premium £750.

35 SUFFOLK AND NORFOLK BORDERS—PRACTICE OVER £300 in Market Town. Panel 87. Nice house (6 bedrooms) garage, and good sized garden. Price of freehold £850. Excellent schools. Plenty of sport. Cottage Hospital. Premium £450.

36 LONDON, E.—CASH AND PANEL PRACTICE OF OVER £600 p.a. in populous district. Panel 590. Small house to rent on lease. Premium £800.

37 LONDON, W.—GOOD MIDDLE-CLASS PRACTICE £400 P.A. in suburb within easy access of the West End. Panel over 100. Attractive double fronted house with nice garden for sale. Scope for increase. Premium 1½ years' purchase.

38 HOME COUNTIES — OPHTHALMIC PRACTICE BETWEEN £300 and £400 p.a. in desirable Residential Town under 15 miles from London. Good detached house (4 bedrooms) with large garden for sale. Good reasons for plenty of scope for increase. Premium £300.

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1. WITHIN TWENTY MILES OF LONDON.—PARTNERSHIP.—A share, representing £1,000 p.a. with increase later as agreed, is offered in a very sound old-established mixed-class Practice, situated in a very attractive residential district. The vacancy occurs through the retirement of the senior of three partners. Gross cash receipts average about £4,500 p.a. Panel of 3,300. Fees 2/6 to 21/-. Well-situated house, with 3 reception rooms, 4 bedrooms, 2 maid's rooms, bathroom, etc., and usual offices. Electric light. Garden. Can be rented at £95 p.a. or freehold can be purchased. Premium for share 2 years' purchase. Ingoing Partner must be well experienced and aged between 35 and 40 and preferably Scottish or English.
2. NORTH AFRICA.—Well-established good-class English general PRACTICE, situated in a delightful locality, with a perfect climate, within easy distance of London. Average gross receipts for past three years nearly £2,500. Practice includes a Nursing Home of 6 beds, which, as the bulk of the work is surgical, must be maintained. House is a large one and provides accommodation for the Doctor in a self-contained flat upstairs. Fees good, practically no midwifery. Living expenses exceptionally small. Rent of house and annexe for nurses and Moorish patients about £24 a month, on a five years' lease. A man who could do ear, nose, and throat and eye work (which Vendor does not touch) should add considerably, in time, to his income. It is essential for the purchaser to be an experienced surgeon. Premium, to include practically all instruments, equipment, appliances, etc., £3,500.
3. RESIDENTIAL TOWN WITHIN FIFTY MILES OF LONDON.—Well-established PRACTICE offering large scope for increase. Gross cash receipts for last 12 months over £600. Panel of approximately 350. Very low expenses. Fees from 3/-. Good sized corner house, with 2 reception rooms, 4 bedrooms, etc. Electric light. Small garden. Garage. Rent on lease £65 p.a. Premium £850.
4. WITHIN 15 MILES OF LONDON.—Old-established better middle-class PRACTICE, held by Vendor for the past ten years, situated in a prosperous market town. Good train service to town. Gross cash receipts average £1,300 p.a. Selected panel of 450. One appointment worth £180 p.a. Fees 3/6 to 10/6, few at a guinea. Very commodious house, with good garden, containing 4 rooms on ground floor, 5 bedrooms, bathroom, etc. Separate entrance to professional rooms. Good garage and stabling. Price for freehold £3,000, £1,500 on mortgage. Premium £2,000.
5. NORTHANTS.—PARTNERSHIP.—A one-third share (with increase later) is offered in a well-established Practice averaging £1,400 p.a., offering large scope for expansion, situated in a suburb of good residential town. Suitable house available. Premium £800.
6. NORTH LONDON.—LOCK-UP SURGERY.—Old-established panel and working-class PRACTICE, producing about £300 p.a., including panel of 466 patients. Fees 1/6 to 3/6. Suitable accommodation can be rented at £50 p.a., part sublet at £25 a year.
7. HOME COUNTIES. — PARTNERSHIP. — A one-fourth share (with guaranteed minimum income of £600 p.a., and increase later as arranged) is offered in old-established, good mixed-class Practice situated in attractive residential market town within 20 miles of London. Gross cash receipts average approximately £2,000 p.a. Panel of about 1,150. Visits and medicine from 5/- upwards. Suitable small house available on rental at £65 a year. Premium for share 2 years' purchase. Large scope for development. Ingoing Partner, who should be between 28 and 30 years of age, must be experienced in Midwifery.
8. KENT.—LARGE TOWN.—A one-third share is offered after a preliminary assistantship in a very old-established good mixed-class PRACTICE, averaging £3,279 p.a. Panel of nearly 3,000. Fees 3/6 to 1 guinea. Suitable house can be rented at £100 a year. Sport of all kinds. Good schools. Premium for share 2 years' purchase. Ingoing Partner should be married and have had at least five years' general practice, and be preferably English or Scottish.
9. NORTH DEVON.—FAVOURITE SEASIDE RESORT.—Very old-established PRACTICE held 10 years by Vendor. Cash receipts average £1,173 p.a., including appointment (transferable) worth over £100 and panel producing £340. House has ample accommodation (8 bedrooms, etc.). Vendor's leasehold property having about 56 years to run. Price £800. Premium £1,850.
10. WITHIN 150 MILES NORTH OF LONDON. — COUNTY TOWN.—Old-established mixed-class PRACTICE averaging nearly £1,100 p.a., including panel of 118. House contains consulting and waiting rooms (separate entrance), lounge, 2 reception rooms, 4 bedrooms (2 fitted with hot and cold water basins), dressing room, bathroom, etc. Garden of 1/4 acre. Large garage. Electric light. Vendor's freehold. Price £2,000, part on mortgage. Premium £2,200.
11. WESTERN SUBURB.—Old-established better middle-class non-panel PRACTICE, in well-populated area, averaging for the last three years over £2,200. One appointment worth £80 p.a. Visits from 3/6 to 10/6. Not much midwifery. Suitable house, with 3 reception, 6 bedrooms, etc. Rent on lease £90 per annum. Premium £4,000. Good introduction given.
12. PARTNERSHIP. — HOME COUNTIES.—A one-fourth share is for disposal (owing to the retirement of one of three Partners) in an old-established good mixed-class Practice, in beautiful residential district within easy reach of London. Gross cash receipts approximately £3,400. Panel of 1,400. Well-situated small modern house, with 2 reception, 3 bedrooms, etc. Garden. Rent £59 p.a. Premium two years' purchase.
13. IMPORTANT INLAND SPA.—Old-established better-class non-dispensing PRACTICE, averaging about £380 p.a. Receipts have been considerably more and the Practice could be increased, if desired. Fees 1 and 2 guineas and occasionally half a guinea. House is a corner one in good residential district with ample accommodation, newly decorated. Can be rented on lease at £100 a year. Garden. Excellent social and sporting facilities. Premium £500.
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17. EGYPT.—Well-established PRACTICE producing about £950 p.a., and offering scope for increase. Fees 10/6 to 2 gns. Excellent accommodation can be rented at £16 10s. monthly. Premium, to include all furniture, drugs, drug bottles, instruments, etc., £2,000.
18. EASTERN COUNTIES.—ASSISTANTSHIP with view to Partnership (after a preliminary period of six months at a salary of £440 p.a., with free house) is offered in an old-established good mixed-class Practice, situated in pleasant residential and agricultural district within about 15 miles of the coast. Gross cash receipts approximately £3,000. A third share is for disposal at a premium of 2 years' purch.
19. EASTERN COUNTIES. — FAVOURITE SEASIDE AND HOLIDAY RESORT. — Good mixed-class PRACTICE, established many years, producing for last twelve months £1,600. Panel brings in £300 p.a. and appointment worth £100 p.a. Fees 3/6 to 7/6, with medicine extra. Nice house, with 2 reception, 5 bedrooms, etc. Garage. Garden. Price for freehold £2,250. Golf, shooting, and other sport. Premium 1½ years' purchase.
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5. SOUTH COAST TOWN, or near locality.—PRACTICE averaging about £1,500 p.a., with panel of 1,000 or thereabouts. Small house, preferably on rental. Capital available.
6. LONDON OR SUBURBS.—PRACTICE, producing £1,400 to £1,600 p.a., with panel of 1,500. Good house, with garden.
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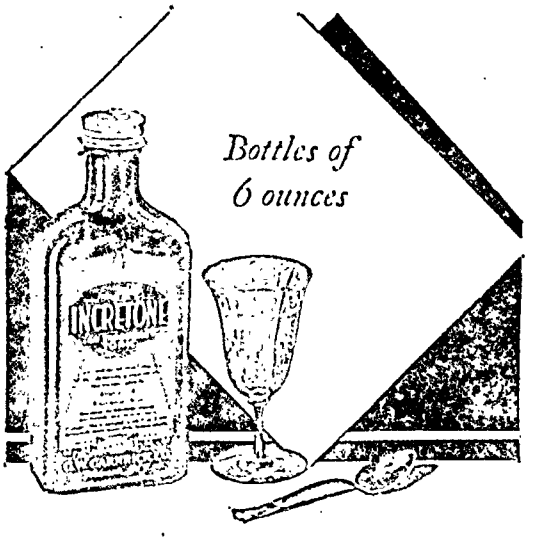
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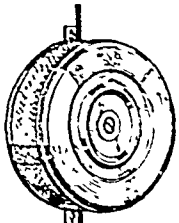
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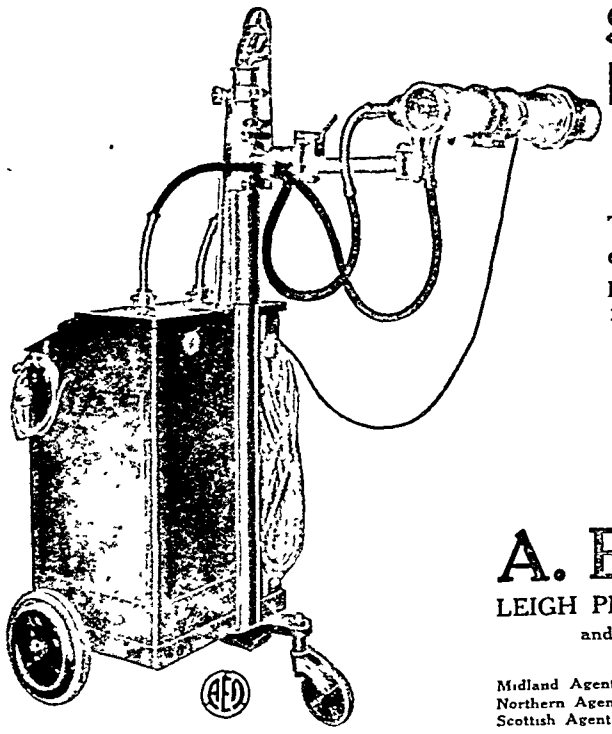
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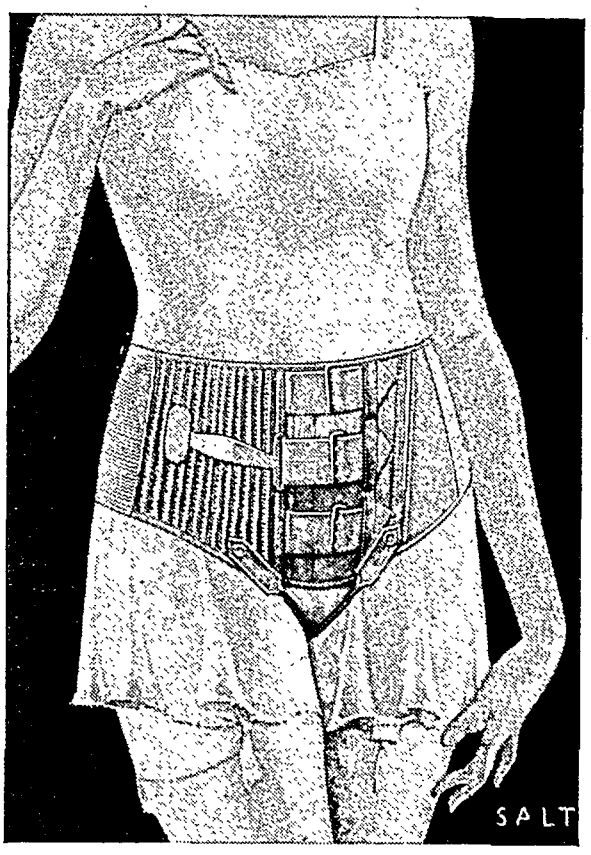
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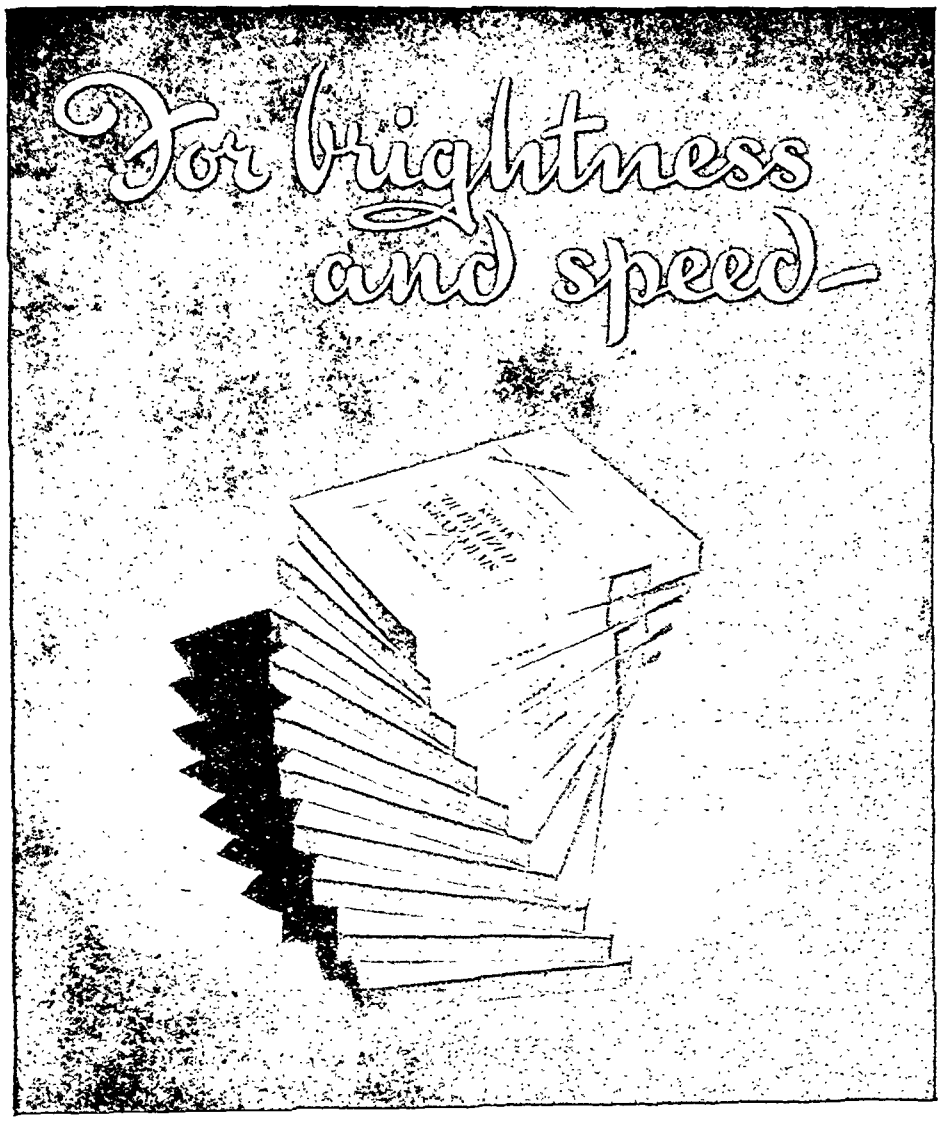
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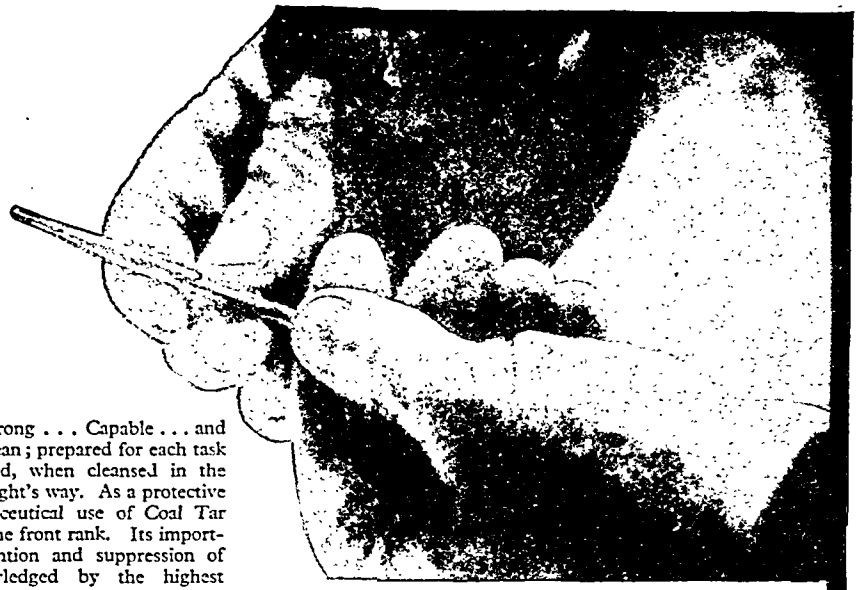
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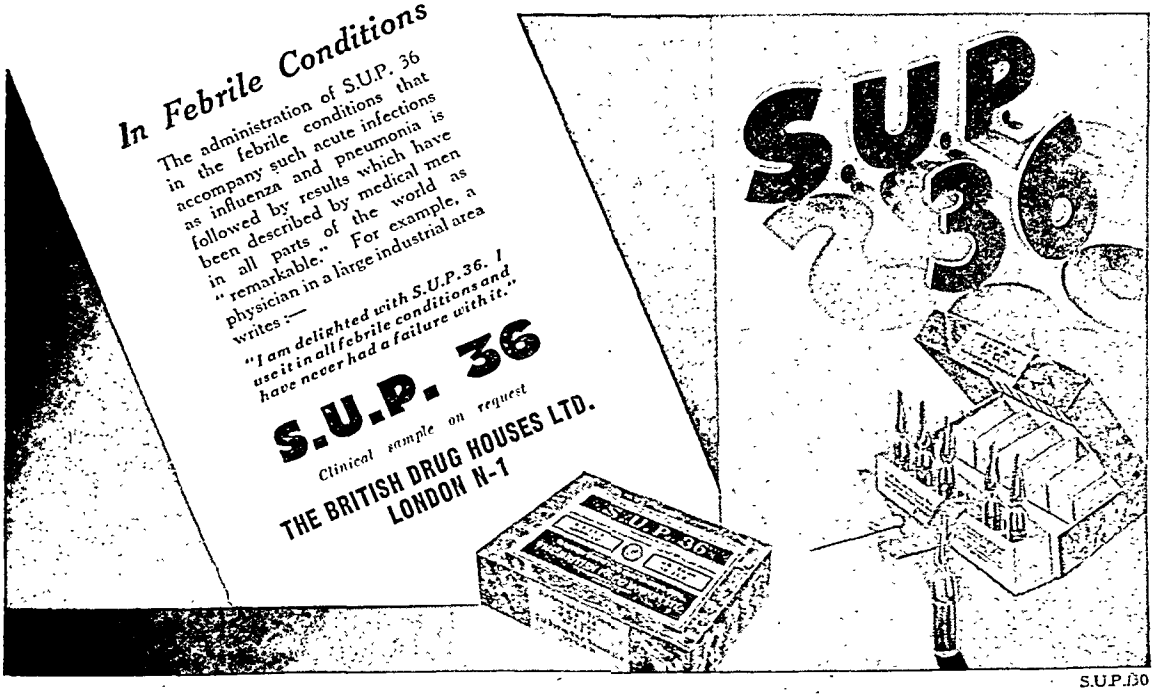
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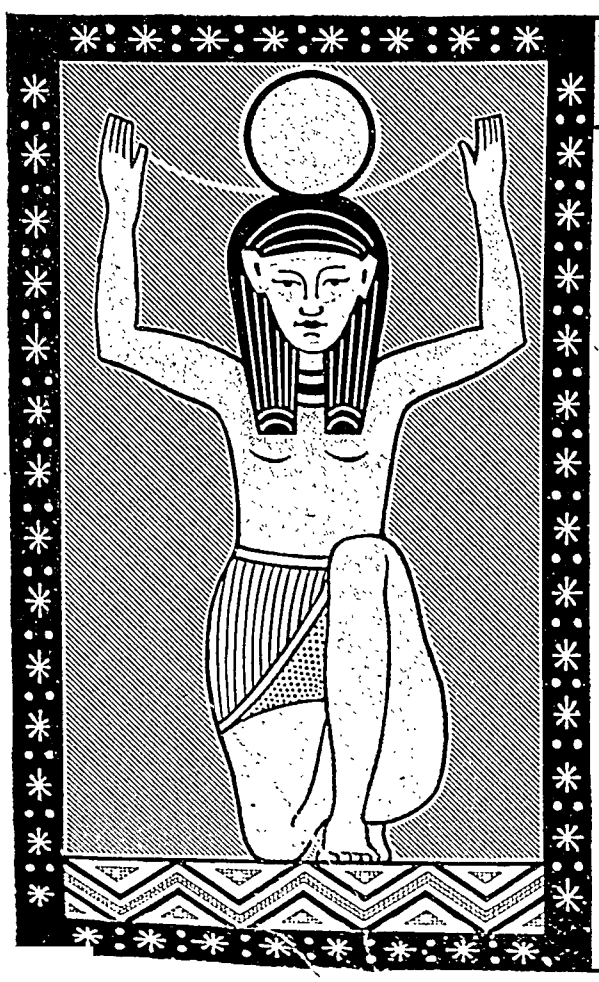
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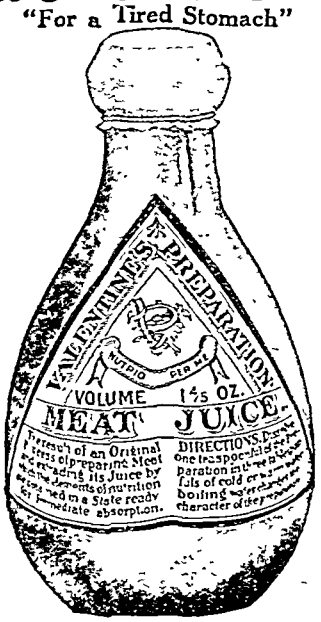
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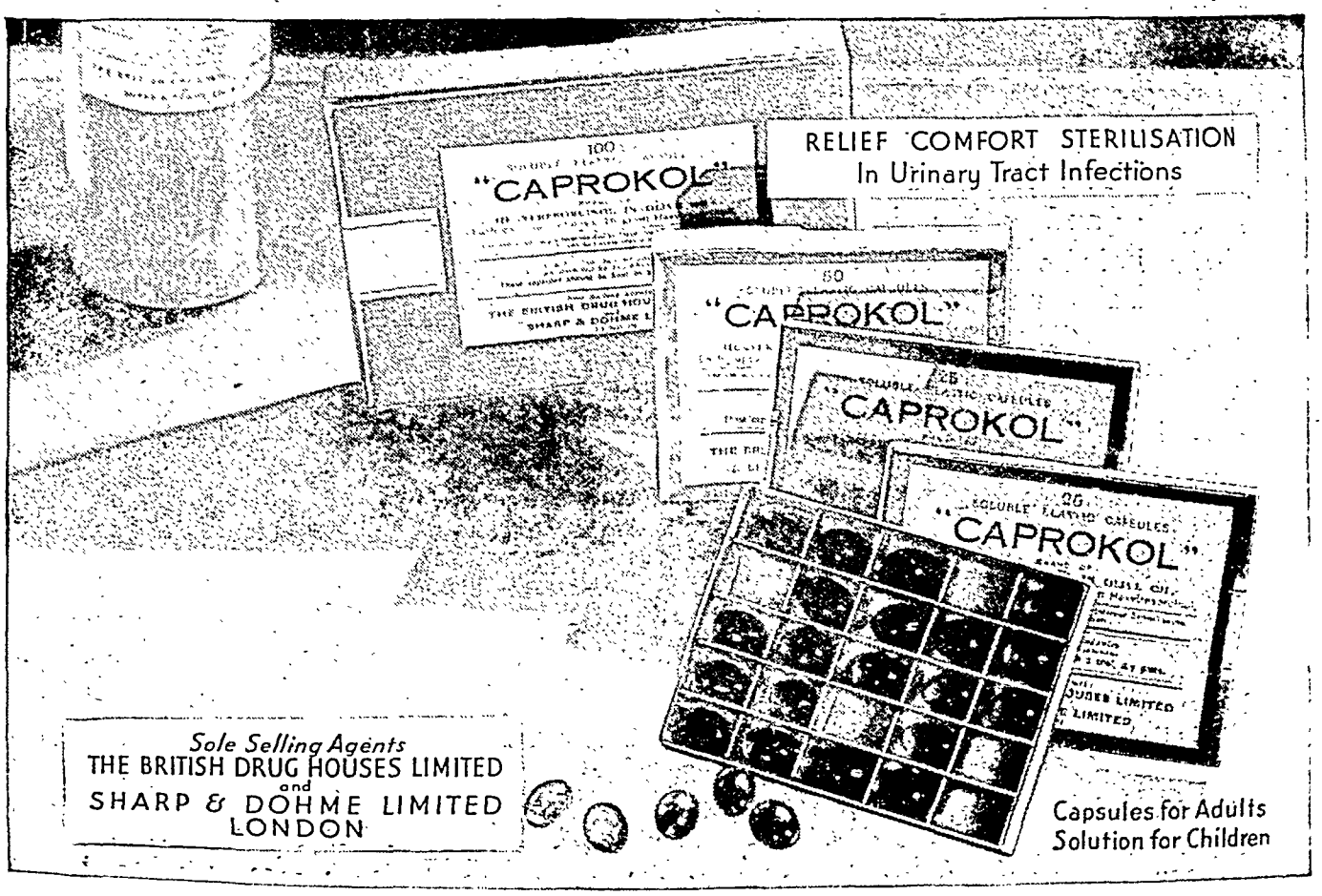
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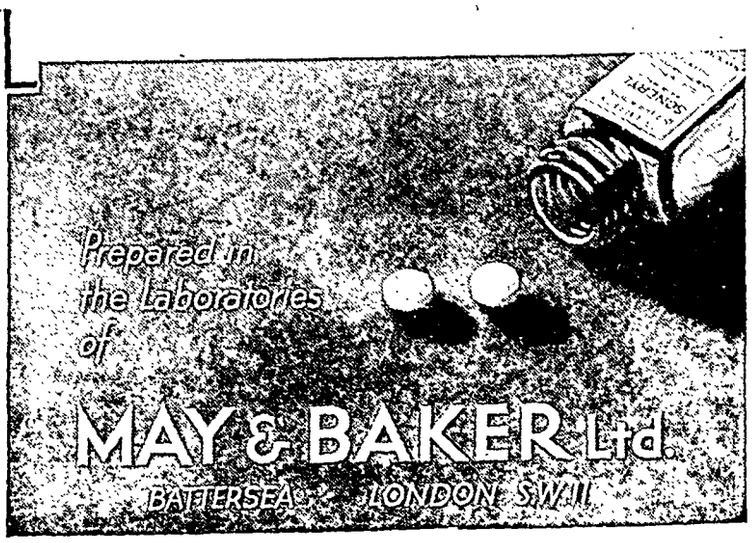
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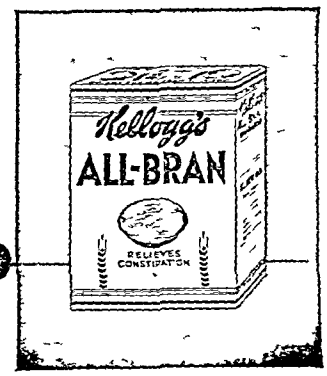
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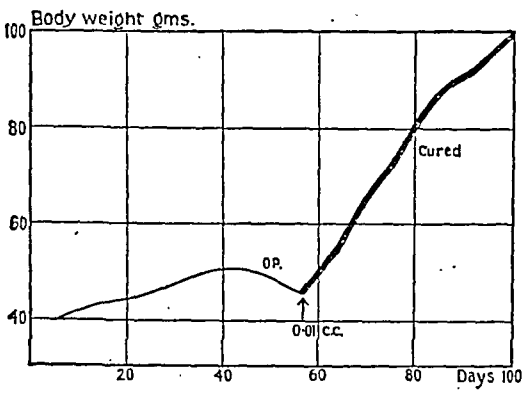
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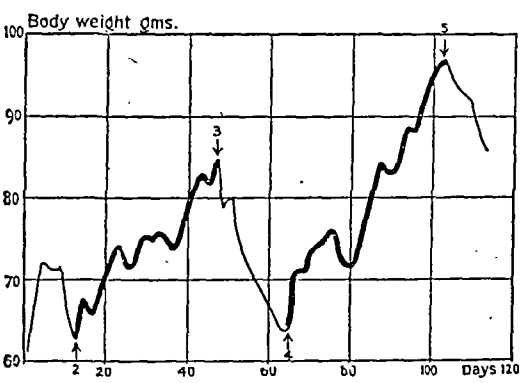
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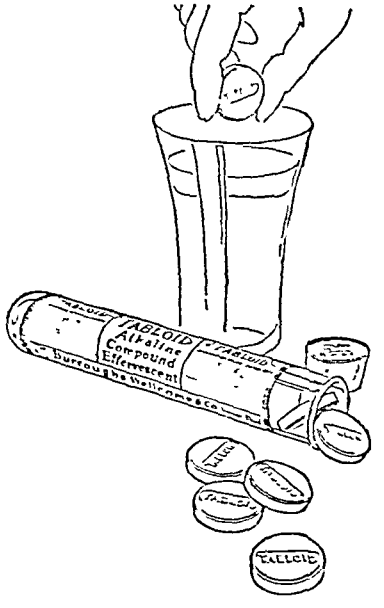
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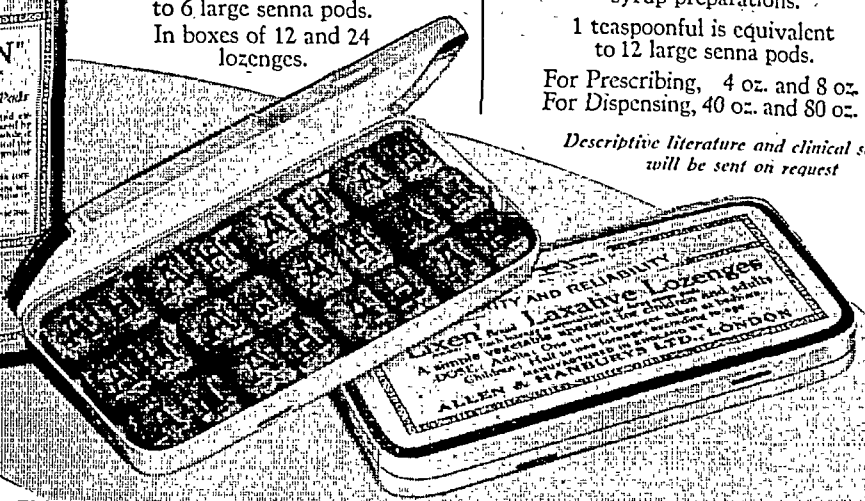
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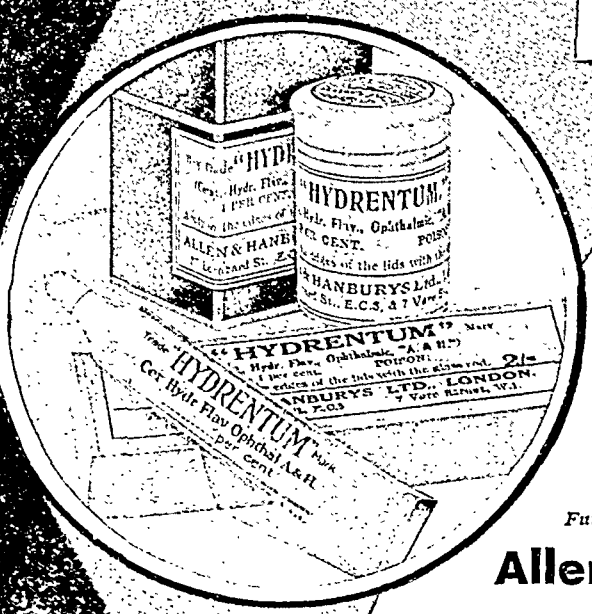


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ON
VISION OF BRIGHTNESS AND COLOUR *
BY
J. S. HALDANE, C.H., M.D., F.R.S.

We are at present accustomed to the conception that our sense organs, including those of vision, may be regarded as simply receptive of various kinds of impressions coming to us from an independent surrounding physical world. I shall try to demonstrate to you that this conception, very useful as it is up to a certain point, fails to cover the facts, and that in the visual relations between an organism and its environment the actively maintained organic unity which we call life is no less clearly implied than in what we regard as internal phenomena, such as co-ordinated growth, general metabolism, respiration, circulation, or excretion. I shall not attempt to justify here the fundamental conclusion, which I hold very strongly, that in any satisfactory scientific interpretation of these characteristic internal phenomena, that is to say, any interpretation which enables us to predict them, we must use the specific conception of life itself, so that biology is biology, and not merely physics and chemistry. For this justification I may refer to books which I have already published. What I shall endeavour to show is that in the physiology of vision—perhaps the chief of our senses—we must also make use of the conception of life, and thus regard what each of us sees around him as embraced in the active unity of his own life.

BRIGHTNESS AND DARKNESS

In visual activity we can distinguish vision of degrees of brightness from that of varieties of colour. I shall first discuss vision of brightness, apart from any coincident vision of colour. You now see before you the lantern screen illuminated by the light from three candles placed together on the table and level with one another. Across the illuminated surface is thrown the dark shadow of a stout horizontal bar. I will now throw on the same screen the additional light from an electric lamp giving about forty times the illumination on the screen, as measured physically by a photometer. You will see that the horizontal shadow thrown by the candles is now scarcely visible, though it stood out very strongly in the absence of the electric light. The electric lamp throws also on the screen a disk-shaped shadow, having about twice the diameter of the dim shadow, and being crossed by it. The disk-shaped shadow stands out strongly, just as did the shadow thrown by the candles in the absence of the electric lamp.

WEBER'S LAW

The extreme dimness of the candle shadow illustrates the application to visual phenomena of what is known as Weber's law, according to which the response to a difference in sensory stimuli depends on the ratio between the strengths of the two stimuli, and not on the arithmetical difference in their magnitudes. Thus though the arithmetical difference between the light thrown by the candles on the screen and that thrown by reflection from the walls of the room on their shadow remains the same, whether the electric light is also thrown on the screen or not, yet when the illumination from the electric lamp is added the candle shadow becomes almost invisible, and would become completely so if the light thrown by the candles were less than 1½ per cent. of that thrown by the electric lamp.

But now let us look more closely at the dim candle shadow. At the place where it crosses the disk-shaped electric lamp shadow it would, if Weber's law could be extended further, stand out strongly, since at this place the electric light is shaded off and the ratio of the light on the surrounding screen to that on the dim shadow is far higher than at other parts of the dim shadow. But you will see that on the shadow thrown by the electric lamp the outline of the candle shadow is no more visible than elsewhere. In this case, therefore, Weber's law does not hold. The truth is that so long as the illumination of the surrounding field of vision remains sensibly the same the outlines of brightness and darkness correspond not to ratios but to arithmetical differences in illumination; were it not so we should not be seeing brightness and darkness in correspondence with the manner in which we ordinarily measure them, assume them to exist objectively, and commonly see them. But the vision of them in this apparently objective manner depends on our own surrounding visual field. Thus what is apparently objective in the brightness perceived cannot be separated off from what is seen round it, so that separate or quantitative treatment of brightness is artificial and not "objectively" real. The brightness which we measure arithmetically with a photometer is only relative to a surrounding field which is artificially made constant at each reading of the instrument, and an objective measure of brightness by itself is something that always eludes us.

In order to demonstrate this experimentally I shall now turn on another electric lamp, about doubling the illumination of the screen, and giving a second disk-shaped shadow. You will see that in accordance with Weber's law the dim horizontal shadow is now completely invisible on either the disk-shaped shadow or the background of the screen. The two disk-shaped shadows are each illuminated by only one of the electric lamps. If now we leave the first lamp stationary, so that the illumination on the new shadow is constant, but move the new lamp backward and forward, you will see that the darkness of the new shadow is not constant, but increases or diminishes according as the new lamp is moved nearer to or further from the screen, thus increasing or diminishing the illumination round the shadow we are watching. We can see, therefore, that when, in using a photometer, we are bringing two surfaces into equal illumination, we are changing the brightness of both surfaces, and it is only with the surrounding illumination which exists when the two surfaces are equally illuminated that we make our reading, and calculate the illuminating power of a lamp in candle power or any other arithmetical unit. If we alter the illumination round either of the shadows the physical measurement is falsified; the brightness which we see round both of the shadows enters into the perception of what we commonly regard as their objective brightness. We shall see later the importance of the analogous fact relating to colour vision.

I will now throw on the screen a single, but large, shadow from one of the electric lamps. You will see that the dim candle shadow is now more visible in the middle of the large shadow than outside it. The brighter constant illumination must thus be close to the outline of a shadow if we are to elude entirely Weber's law in making photometric measurements, and if this brighter illumination is far enough away Weber's law becomes again almost completely valid, so that we can see arithmetical differences in illumination which are quite invisible near the brightly illuminated surface.

It has sometimes been remarked that the eye is a bad photometer. The truth is that except under the artificial conditions already specified the eye is not a photometer at all, since it has no fixed standard of illumination; but it has the marvellous capacity of immediately detecting

* Delivered before the Edinburgh Royal Medical Society, October 13th, 1933.

differences in illumination over a range which is not equalled by any physical apparatus. The illumination by which coal miners ordinarily see to do their work at present is only about a hundred-thousandth part of that commonly existing in shade daylight.

To return to the single disk-shaped shadow, half of it is still illuminated by the candlelight in which it previously appeared bright; yet even this half now looks black. Thus what looks dark or bright is only so relatively to what else appears to us bright or dark. Brightness and darkness are therefore determined, not by any physical standard outside us, but by a standard which we make for the occasion, and it is only in so far as this particular standard is constant that we distinguish arithmetically equivalent degrees of brightness in our existing visual field. When we consider further we can see that we, as living organisms, are always actively making or maintaining our own combination of brightness and darkness, and that Weber's law, where it holds good, is no more than an expression of this fact. Except for attempted mechanistic physiology, it is nothing anomalous or mysterious, but expresses the fundamental fact that in sensory phenomena an organism is always maintaining the co-ordinated unity of its own life. The persistence and wholeness of a life are, indeed, expressed in all sensory or afferent phenomena. So long as the surrounding illumination remains constant we can measure differences in brightness arithmetically, and we can attribute them to what we interpret as objective differences in illumination. But they only exist relatively to the existing brightness of the visual field at a particular time and place, and we are constantly making or renewing our standard of brightness, just as we are constantly making or renewing our own bodies.

Colour and Contrast

Before carrying this line of thought further I shall turn to vision of colour. Light from an ordinary electric lamp is now thrown on the screen. You will see that the screen is white. I will now turn off the ordinary electric lamp, and turn on a so-called daylight lamp, the bulb of which is sufficiently blue to give a light similar to daylight. You will see that though for a short time the screen looks somewhat blue, it rapidly becomes again white. I will now turn on the two lamps together, and it is again white. But when I place a small screen in front of the lamps, so that one-half of the lantern screen is illuminated by one lamp, and the other half by the other, you will see that one-half of the lantern screen is permanently light blue and the other half is light yellow. The effect is known as "simultaneous contrast," whereas the merely temporary colour seen on changing from the ordinary to the daylight lamp is known as "successive contrast." You will see also that the blueness and yellowness are most marked near the junction of the two colours.

Illuminated by itself, either side appears white, but when the two sides are separately and simultaneously illuminated one side is blue and the other yellow. The yellow and the blue are, however, complementary colours, together making what appears white, as you saw when they were superposed. If we reasoned on purely physical grounds we should expect one surface to appear yellow, since we know that electric light is yellow as compared with daylight, and the other a paler yellow, since we can easily show, from the fact that the daylight lamp throws a distinctly violet shadow in daylight, that even the light from the daylight lamp used is yellower in a physical sense than daylight. It is only in contrast with one another that the two colours of the screen appear as they do. What is this curious thing called contrast?

Here I wish to introduce to you two new ideas, first put forward in detail, so far as I am aware, in a paper by myself in the current number of the *Journal of Physiology*, though also outlined generally in my book *The Philosophical Basis of Biology* (p. 87). We are accustomed to assume that when we see what is coloured the appearance of colour depends simply on the quality of the light reflected from the object seen. Thus, according to the teaching of Newton's *Opticks*, light of a certain refrangibility, or of a certain wave-length to employ more usual modern terms, produces a certain definite sensation of colour. The eye was supposed to be purely passive or receptive in this process. One new idea which I wish to put forward is that in the perception of either colour or brightness our own vision as a whole is always active, so that there is no merely objective cause of sensation of colour or brightness. When, for instance, we see a surface as white, though in a physical sense it is yellow, physiological activity is implied in this fact. The other new idea is that in this active perception we can distinguish the co-ordinated maintenance of colour and complementary colour, as well as brightness and darkness, in the field of vision. This co-ordination is present whether we think about it and what causes it or not, just as co-ordinated assimilation and excretion of what passes into the body occurs whether we think about its nature or not. Thus the co-ordination belongs to physiology and not to psychology.

When the two sides of the screen are separately illuminated we do not see the two illuminations superimposed on one another, as they were when we saw the screen white; but we still, in terms of the theory, see them in complementary colours, making white when united, or a neutral grey when united with the field of darkness round the screen. We can say that the physiological effort to turn the yellow side white by adding blue to it, and the blue side white by adding yellow to it, is relieved when we see one side blue and the other side its complementary colour orange-yellow. The net result is to give, with the least physiological effort, what, when united, makes white. The conception of actively maintained co-ordination is embodied in this interpretation, just as we must embody it, as it seems to me, in all satisfactory scientific interpretations of any of the characteristic phenomena of life.

Coloured Shadows

I now wish to show you some much more striking examples of colour contrast, as exemplified by coloured shadows. I will place a thick upright tube in front of the screen. It throws two shadows, one from the ordinary electric lamp and one from the daylight lamp, and by varying their distances from the screen the two lights are so adjusted that they are about equal in intensity, and the shadows, therefore, about equal in depth. One shadow is evidently illuminated exclusively by one of the lamps and the other shadow by the other lamp. But you will see that the shadow illuminated by the daylight lamp is dark blue, and the other shadow dark orange-yellow. The orange-yellow shadow is illuminated by the ordinary electric lamp alone, and one might imagine, following the interpretation of Helmholtz's *Physiological Optics*, that the orange-yellow colour of this shadow is due to the fact that the light from the ordinary electric lamp is orange-yellow, while the blue colour of the other shadow is due simply to an error of judgement. But you will now see that even if, by placing a black screen over it, I blot out the yellow shadow, the other shadow remains blue, and you have already seen that either lamp by itself gives a white light. There is therefore no error of judgement.

Now let us substitute for the daylight lamp a green-coloured lamp. We can see that the shadow still illumin-

ated by the ordinary electric lamp is now purple-red or magenta. On substituting a red lamp (giving a deep magenta shadow on the other side) this shadow becomes green. With a yellow lamp (making the other shadow a somewhat orange yellow) it becomes violet-blue, and with a thin transparent green film over the yellow lamp (making the other shadow purer yellow), spectral violet —so called to show that, unlike the violet of the flower, it contains no red. All the time the background of the screen looks white. We can thus see that through the influence of what is somewhat loosely called contrast, the ordinary electric light reflected from the screen becomes of any colour of the rainbow we like. Even if we substitute for the ordinary light the almost pure spectral light of a sodium flame the result is practically the same when we make the experiment. The colours of the two shadows are complementary. This is shown by the fact that if, by taking away the upright rod, we restore to each shadow surface the colour which was absent in it, but present in the other shadow, the result is white. If we take two lamps of colours which are not complementary, the colours of their shadows are twisted round into complementary colours. Thus a yellow and an orange lamp give a yellow-green and a purple shadow.

As you have seen, we can blot out one of the coloured shadows by placing black paper over it, but the colour of the other shadow is unaltered. Thus the so-called contrast is between the colour of the shadow and that of the screen round it. But all the time the latter colour looks white, or very nearly so. Moreover, the colour of the shadow illuminated by the coloured lamp is much deeper than when the screen is illuminated by the coloured lamp alone. Indeed, with either the ordinary or daylight electric lamp alone the screen looks simply white. But this being so, why should the white screen produce a so-called contrast effect on both of the shadows, turning, for instance, one shadow blue and the other orange-yellow? The ordinary loose ideas about contrast do not help us here.

Before discussing this question I will show a further experiment. There is here a double white screen, with two layers a little distance behind one another, and so arranged that the front and back layers can be illuminated *independently, with different lamps.* A large hole is cut in the front screen, so that we can see through it to the back screen. An ordinary electric lamp is placed so as to illuminate the front screen from one side. In consequence of its side position the illuminated patch on the back screen, due to light which passes through the hole, is invisible to the audience; and you will see that when I turn on the front electric lamp the hole appears simply black, the front screen being white. I will now turn out the front lamp and turn on the lamp, a daylight one, illuminating the back layer of the screen. You will see that the hole is now white, the front screen being in darkness. I will now turn on the two lights together. You will now see that the hole is blue, and that as we vary the illumination of the back screen the blue becomes not only darker or lighter, but also more saturated or less saturated, while the opposite effect is produced by varying the illumination of the front screen. All the time the front screen looks white unless the illumination of the back screen becomes very strong. By transposing the two lamps we make the hole in the screen look orange-yellow; and by using differently coloured lamps for the front screen we can make the hole appear any colour we please. Thus with a red front lamp the hole becomes green.

The whiteness of the front screen—in spite of the fact that, in what we regard as the physical sense, the ordinary electric lamp illuminating it is yellow—illustrates, in accordance with the theory, the active influence of the retina in tending to produce a neutral balance of colour. But this influence is even more strikingly revealed in the fact that the physically whiter lamp of the back screen is turned towards blue, thus facilitating the physiological effort to produce a neutral balance in the manner already referred to. We shall see presently that the blueness of a clear sky, or of the sea beneath it, is due to the same causes as the blue seen in the double screen experiment. We may, indeed, call it a "blue sky" experiment.

But why does the colour seen in the hole, or in a coloured shadow experiment, not affect the white colour of the screen, and why does it become so much more saturated as it becomes darker? The answer to both of these questions is, I think, clear. The light on the very blue back screen, or on a shadow in the coloured shadow experiments when the two illuminations are about equal in intensity, is much weaker, as well as smaller in area, than on the front screen or the background in a coloured shadow experiment. Hence the contrast effect upon the front screen of the light coming through the hole, or from a coloured shadow, is weak and practically inappreciable; whereas the contrast effect of the brightly illuminated front screen on the light coming through the hole, or of the background on the shadows in a coloured shadow experiment, is very marked, and the more so the greater the difference in brightness of the two illuminations. In a similar manner you will see that when we make the light on the back screen of the same quality as on the front screen, the hole in the screen becomes dark or bright according as the front screen is, by moving the front lamp, made brighter or darker. Just as darkness is increased by brightness so is complementary colour increased by increased intensity of the other colour.

Relativity of Colour

The phenomena of coloured shadows and colour contrast generally show us clearly that the colours which we see depend on other colours in the visual field. The colours of things, just like their brightnesses, are thus relative to one another, and, as I shall point out more fully later, colour has no meaning except in relation to other colours, including white or grey, just as brightness has no meaning except in relation to darkness. By altering the surrounding colour we can completely alter the colour of a surface illuminated by light of any visible wave-length. On the other hand, we find that when light of a certain quality in the physical sense is well diffused over the field of vision this light tends to appear white wherever it is reflected from what we regard as a white surface. Thus light coming exclusively from a candle, an ordinary electric lamp, a daylight lamp, or diffused daylight, appears white, and even if the exclusive light is from a red, green, or blue electric lamp, it appears, when generally diffused in sufficient intensity, as white. With even deeply coloured blue spectacles a white surface is white as soon as the spectacles cover the field of vision, though when they only cover a small part of the field the same surface is intensely blue. The whiteness is therefore actively imposed.

This is further shown in the fact that when the general illumination of a white surface is of a given physical quality, but a shadow or patch is also present in which some quality of the light in the general illumination is deficient, the shadow is not simply altered correspondingly in colour, but coloured in such a manner as can be predicted on the assumption that the whole illumination is being more easily adjusted actively towards the co-ordinated combination of colour and complementary colour which together appear as white, even though the appearance does not correspond to any physical standard of white. Thus if the light on the shadow or patch is rela-

instructive piece of apparatus if you look through it with the eye, not merely of a sceptic or physicist, but of a physiologist. Through the tube a patch of clear blue sky or deep blue sea fades rapidly into pure white. At first the blue is still visible, owing to the influence of successive contrast. The light which comes to us through clouds or haze, or slantwise from the sun, has lost a disproportionate amount of its blue or violet constituents, since the light of shorter wave-length, towards the violet end of the spectrum, is more readily scattered than light of greater wave-length. But there is much less proportionate loss in the light coming direct from the overhead sky. This light is therefore much whiter in a physical sense, with the necessary physiological result that it appears blue in contrast to the much stronger other light.

It would take too long to discuss the various things which can be seen through a blackened tube. The distinctive colours of coloured shadows, for instance, disappear with the blackened tube. This fact, together with an excellent description of coloured shadows, was recorded by Count Rumford in 1794, in a paper published by the Royal Society, but practically disregarded and forgotten.

Young's Theory of Colour Vision

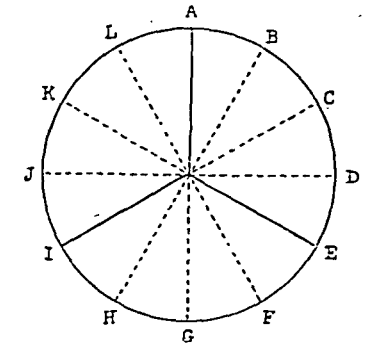
In accordance with Newton's conception, and the fact that all colour, including colourless white or grey, can be reproduced by suitable mixtures of three different kinds of light—violet or blue, green, and red—Thomas Young put forward the theory that there are three primary kinds of response to light, each kind being specially responsive to light of about a certain refrangibility or wave-length, and corresponding to violet or blue, green, and red. But if we compare this theory which was also adopted by Helmholtz and Clerk Maxwell, with the facts which have just been demonstrated, the theory is insufficient. Light of a given wave-length may be perceived by each eye separately as of various different colours according to the nature of accompanying colour: and perception of colour is meaningless apart from perception of accompanying colour. Young's theory by itself is inconsistent with these facts. It seems to me that we must assume that the actual response of the human retina itself to lights of different wave-lengths is accompanied by, and depends on, the response of other parts, so that no part acts by itself. Thus the retina always behaves, not only as a whole, but also as an active whole. The field of vision is a field in which co-ordinated physiological activity is everywhere manifested, and expresses itself in the active maintenance of physiological co-ordination between brightness and darkness, and between colour and complementary colour.

It seems probable, however, that, in accordance with Johannes Müller's conception of specific "energies" of nerve fibres, different fibres in the optic nerve are excited by different colour responses in the retina. If this is so we need only assume, in partial agreement with Young's theory, that there are three groups of nerve fibres, conveying respectively impulses exciting sensations which, as it seems to me, must be of violet, yellow-green, and red. In white or grey there would exist a balanced combination of these impulses, and differences in brightness would correspond, in view of Professor Adrian's recent investigations, to frequencies of impulses. It should be noted that none of these colour sensations is complementary to either of the others. The ordinary forms of colour-blindness could be attributed to imperfect differentiation in connexion with the fibres which excite yellow-green or red sensations, and the consequent abnormalities in appreciation of other colours.

Hering's Theory of Colour Vision.—I shall not attempt to discuss in detail Hering's theory of colour vision. This theory has the advantage that it gives an account of complementary colours, but it does not explain the variegated colours which may be given by light of one wave-length. Nor does it furnish a satisfactory theory of colour-blindness.

The accompanying diagram shows the primary and complementary colours as it seems to me that they exist.

Arrangement of colours, showing complementary colours at opposite ends of each diameter. Continuous radii indicate primary colours



A = Spectral violet. B = Mauve. C = Purple. D = Magenta. E = Red. F = Orange. G = Yellow. H = Greenish Yellow. I = Yellow-green. J = Green. K = Blue-green. L = Blue.

General Conclusions

I think I have brought before you good reasons for concluding that in our ordinary visual perceptions of brightness and colour in the world around us the distinction of an objective from a subjective element is illusory, but that we can nevertheless distinguish what, from a biological standpoint, is consistent and thus intelligible in these perceptions. It is in consistency that we find the mark of truth, and we do not find this in the supposed correspondence of our perceptions with an objective world existing apart from perception of it. Whatever we see embodies awareness of brightness and colour, and belongs to the biological world in which the distinction of objective from subjective does not exist. As regards the other senses through which we receive such experiences as those of touch, muscular exertion, heat and cold, or sound, a similar process of analysis can be applied as to experiences of brightness and colour. They are all relative experiences to which Weber's law can be applied, and throughout all of them we can therefore discover the maintenance of normal co-ordination similar to those of brightness and colour. Between what is seen and what is revealed through other senses a general biological co-ordination is always present, and the co-ordination between sensory phenomena and physiological activities of all kinds is still more evident, as we recognize in speaking of their reflex, emotional, or metabolic accompaniments. Brightness and colour, as well as all other sensory experiences, are charged with emotion. What we call overpowering brightness or colour of one kind is felt to be unpleasant, and it is instinctively avoided, while the complementary combinations of colour, such as those of coloured shadows or the colours of the sky or a rainbow, seem to us agreeable and restful.

Sense-experiences, and the surrounding universe which they reveal, embody, therefore, life, just as much as do the phenomena observed within the bodies of living organisms. The life of an organism extends over its environment. We neglect this fact when we refer to "living matter," and speculate as to how matter behaves in so peculiar a manner within the living body. We can neglect the maintained co-ordination revealed in biological interpretation, and this is what we do in physical description, or to a still greater extent in purely mathematical

description. But these are only partial or abstract interpretations, and all merely physical interpretation of our experience is of this partial or abstract character, though in matters of detail we may be, and commonly are, unable to reach a fuller interpretation.

We are accustomed to imagine that, however much our sense-impressions may be tinged with what is only subjective, there is nevertheless a purely objective physical world. In the case of brightness and colour this is a world of electro-magnetic vibrations and their wave-lengths. But the Ångstrom units in which we measure wave-lengths are, no less than the light-years in which we measure the distances of stars or the units in which we estimate their masses, only relative in themselves. It is only because we can refer them to a visible or otherwise sensible standard, such as a centimetre or a gram appears in ordinary life, that they appear to us as real. It is the same with measurements of velocity, as was shown by the famous experiments of Michelson and Morley. Nature only mocks at us, as she seemed to mock at them, when we try to demonstrate a physical universe independent of experience of it. We are thus, as Berkeley pointed out, driven back on sense-experiences and all that they imply, for a criterion of reality, so that a physical world out of relation to them is only an abstraction. A gigantic petitio principii was involved in Galileo's separation of subjective from objective.

We can nevertheless say that biological interpretation can only be extended through the preliminary asumption of self-existent entities or events capable of quantitative, and therefore mathematical, treatment. It is only through the experimental demonstration of inadequacy in provisional physical treatment of brightness, colour, and other sensory experiences that we are led to biological interpretation of them. It seems clear to me that in this sense the extension of physiological or biological interpretation is always based on provisional or superficial physical interpretation, whether we are dealing with the physiology of the senses or with any other part of biology. It is only, for instance, by measurement of what for the moment can be treated as self-existent differences in brightness and colour that we arrive at a physiological interpretation of Weber's law, and of so-called contrast phenomena generally. My own recent detailed study of this subject originated in photometric measurements of the brightness and colour of miners' lamps.

When we look in a still wider manner at our experience we find that all of what we see or otherwise apprehend belongs to a world any part of which implies reference to the other parts in both temporal and spatial order. Thus awareness or perception of this universe implies both memory and imagination, reaching out over both the temporal and spatial order, and not localizable within it. But when we consider what memory and imagination imply we find in what calls itself up in memory or imagination an expression of our interest, or of the co-ordinated and actively persistent whole which each of us calls his personality, and refers his conscious actions to. Ultimately, therefore, sense-experiences are manifestations of personality. Psychology regarded as a science deals with personality. If we neglect the psychological aspect of our experience we are dealing with a relatively abstract or imperfect aspect of it, just as we are doing when we neglect the biological aspect; and the biological aspect itself is only an abstraction from the psychological aspect. But if our universe is an expression of personality, it does not follow that this is mere individual personality. Were it so, science, beauty, and goodness would be merely subjective and fleeting. Actually they appeal to all men. For religion it is the all-pervading personality of God that is revealed in this appeal, and that is the ultimate guarantee of reality. Mathematical, physical, biological, and psychological knowledge are all divine revelations of reality, but in different degrees of incompleteness. It seems to me that in the religious conception of the universe as a progressive manifestation of eternal and omnipresent divine personality we reach what gives a measure of reality to every stage of interpretation.

In a scientific discourse it is usually neither necessary nor customary nowadays to make any reference to religion, but the questions raised in this address are so far-reaching that it might perhaps appear as if I were throwing doubt on the existence of a real and orderly universe. This is far from my intention. We find what is both real and orderly in our universe. It seems to me, however, that we can only realize this ultimately when we realize that it is a spiritual universe. Only then does it appear as real, and not, like the universe which is merely interpreted physically, a universe of artificial abstractions from their underlying reality.

THE KETOGENIC DIET IN THE TREATMENT OF INFECTIONS OF THE URINARY TRACT

WITH A REVIEW OF SIXTEEN CASES

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The treatment of infections of the urinary tract is still far from satisfactory. Only by rendering the urine bacteriologically sterile can success be claimed. It is especially important in such cases to distinguish between drugs which sterilize the urine and those which merely inhibit the growth of the organisms. It is comparatively easy, especially in cases of acute infection, to relieve the symptoms completely, and even to render the urine clear and apparently normal in character. The recovery may be so complete as to suggest to the clinician that the remedy he has prescribed is a disinfectant in the true meaning of the term, and yet, when examined bacteriologically, the urine is swarming with organisms. The acute case offers the greatest chance of success, and treatment should be continued until complete sterilization is achieved, irrespective of whether there are symptoms present or not. With the chronic case one must be prepared to persist with treatment for months on end if necessary, since the complete eradication of the infection is the only safeguard against recurrence of the symptoms. The large number of drugs in use to-day, and the common practice of changing the course of treatment from time to time, are alike a confession of the weakness of our resources against such infections. There is no drug, and no combination of drugs, which can be termed the ideal urinary antiseptic, and there is no means of determining what type of case is likely to prove successful or not except by trial. In these circumstances any new method of treatment of infections of the urinary tract, provided it is based on sound principles, is certainly worthy of thorough and prolonged investigation.

It is now generally agreed that the reaction of the urine is a very important point in urinary antiseptics, and many of the drugs in common use to-day owe their action almost solely to their property of rendering the urine acid. The acidifying power of various drugs—for example, ammonium chloride, ammonium phosphate, etc.—as indicated by the hydrogen-ion concentration of the urine, has now been worked out thoroughly. Scott,[1] Scott and Mitchell,[2] and J. M. Johnston[3] have conclusively shown that, despite a considerable degree of acidity obtained in the urine, the effect on the organisms was practically negligible. Kelsted and Schiodt[4] also found

no sterilizing power in urines which were merely highly acidified. The addition of hexamine is a routine practice, the urinary acidity being essential, since the hydrolysis of hexamine is wholly a function of the hydrogen-ion concentration of the urine (De Eds).[5] A measure of success is obtained with this treatment, but the combination of hexamine with an acidifying agent is apt to give rise to bladder irritation and even haematuria.

HISTORICAL

The ketogenic diet in the treatment of infections of the urinary tract was first tried in 1931 in America by A. L. Clark[6] and H. F. Helmholz[7] working independently. Their aim was physiologically to produce urine of so high acidity as to destroy infecting organisms or to inhibit their growth. This was achieved by providing a diet high in fat and comparatively low in protein content, with a minimum of carbohydrate—resulting in the appearance of acetone and diacetic acid in the urine. In one direction the idea was based on the findings of W. M. Clark[8] in his researches on the final hydrogen-ion concentrations of *B. coli* cultures—namely, *p*H 4.64 to 5.16—which were later substantiated by the work of Shohl and Janney[9] on urines of artificial hydrogen-ion concentration. But the assumption that the lowering of the urinary *p*H by this method would be effective without the addition of a disinfectant was against the weight of opinion and experimental evidence that therapeutically mere acidity does not cause sterilization. With regard to this point it is interesting to note that Helmholz,[10] one of the original observers, had stated emphatically four years previously that, despite the acidity produced in the urine—that is, with drugs—sterilization could not be obtained without the administration of sufficient methenamine. Subsequently, Helmholz[7] reported nine successful cases, three of which had anomalies of the urinary tract. Clark[6] published his findings in fifty cases treated with ketogenic diet. Of the fifty cases treated 66 per cent. were successful and 34 per cent. were unsuccessful, failure being regarded when sterile cultures were not obtained. Both observers were agreed that, in addition to low urinary *p*H values, the presence of ketone bodies was essential. Clark had shown that the presence of ketone bodies without low urinary *p*H was ineffective, but when the *p*H was lowered by the administration of ammonium nitrate the urine had a pronounced bactericidal action. By laboratory experiment Helmholz ruled out diacetic acid and sodium diacetate as the germicidal agent, and in conclusion he stated that "acidity in synergy with substances hitherto not determined probably accounts for the bactericidal action of 'keton-urine.'" Dick's[11] conclusions were similar. More recently A. T. Fuller[12] has shown that the principal inhibitory factor is laevorotatory β-oxybutyric acid, and that its activity increases in proportion to the acidity of the urine.

THE KETOGENIC DIET

The essential features of the ketogenic diet have already been mentioned. In order to avoid any untoward gastric upset following the sudden change of diet, a system of increasing by stages the fatty acid or ketogenic elements in the diet, at the expense of the anti-ketogenic elements, has been adopted. A similar practice is the routine in this method of treatment of epilepsy; and a modified scheme was employed by Clark in his work on urinary sepsis. Numerous schemes are given in the literature on epilepsy, and I have adopted that suggested by F. E. Warner[13] of New York, with some modifications which have proved useful.

The correct ketogenic-anti-ketogenic or F.A./G.L. ratio is too unwieldy a factor to be employed as a basis of calculation as a routine, owing to the fact that the protein, and to a less extent the fat, are made up of both ketogenic and anti-ketogenic elements. In this scheme all the fat is estimated as ketogenic and all the protein anti-ketogenic: and hence, for simplicity, the F.A./G.L. ratio is considered as: $\frac{\text{all the fat}}{\text{the sum of carbohydrate and protein}}$ weighed in grams. When the two factors are compared the error is so small as to be almost negligible from a clinical point of view.

For each diet the weight of the patient is taken and the necessary number of calories estimated. The total calories are estimated at about 50 per cent. above the basal requirement; for each kilogram of body weight 40 to 45 calories are allowed. The number of grams of protein, carbohydrate, and fat is calculated by application of a simple formula, by which the amounts of the three substances can be found readily and altered when the F.A./G.L. ratio is increased. Each gram of carbohydrate and each gram of protein equals 4 calories, and each gram of fat equals 9 calories. It is customary to allow 1 gram of protein for each kilogram of body weight, and the protein content remains constant irrespective of the F.A./G.L. ratio. The number of grams of protein being fixed, the next step is to calculate the number of grams of carbohydrate and fat. If F, C, and P represent the number of grams of fat, carbohydrate, and protein respectively, then:

$$(1)\ 9F + 4(C + P) = \text{total calories.}$$

For a diet of F.A./G.L., ratio 3:1, then:

$$(2)\ F : C + P = 3 : 1.$$

Let $x = C + P$, then:

$$F : x = 3 : 1$$
$$\therefore F = 3x.$$

Applying equation (1):

$$9F + 4x = \text{total calories.}$$

But $F = 3x$,

$$\therefore 31x = \text{total calories}$$
$$\therefore x = \frac{\text{total calories}}{31}$$

This gives the number of grams of fat and the sum of the carbohydrate and protein. But since the number of grams of protein is known, the carbohydrate is found by subtraction: $x - P = C$.

An example will illustrate more clearly.

Weight of patient = 142 lb. = 64 kilos. Allowing 40 calories per kilo, total calories = 2,560.

$$\therefore P = 64 \text{ grams.}$$

Let F.A./G.L. ratio = 3:1

$$\therefore F : C + P = 3 : 1$$
$$\therefore F = 3(C + P); \text{ or } F = 3x \text{ where } x = C + P$$
$$\therefore 9F + 4x = 2{,}560$$
$$\therefore 31x = 2{,}560, \text{ since } F = 3x$$
$$\therefore x = 83 \qquad \therefore C + P = 83$$
$$\text{Since } P = 64,\ C = 83 - 64 = 19$$
$$\text{Since } F = 3x,\ F = 249$$
$$\therefore F = 249;\ C = 19;\ P = 64.$$

Diets of different ratio can be easily calculated by substituting the desired ratio in equation (2) above. For example: F.A./G.L. ratio 3.5 : 1, then F : C + P :: 3.5 : 1, the equation being worked out similarly to the one quoted above.

After a little practice the diets are easily handled, and by this method one has a fairly accurate idea of the actual ratio the patient is receiving. Occasionally one finds that the patient cannot take the full diet, or that the diet is not sufficient. In such cases one can alter the total caloric value of the diet without altering the ratio. It is an advantage in some cases to have a high total caloric value of the diet in the higher ratios, since it permits of giving a few more grams of carbohydrate in the diet.

SPECIMEN DIET

A specimen diet is quoted in which the range of items is limited to those on the ordinary hospital menu. It was found necessary to make up the fat content by giving olive oil in emulsion form owing to the expense of cream and butter at the present time. It is not to be recommended if other substances are available, since I have often found that

any nausea that has occurred has done so shortly after taking the olive oil. On the other hand, it illustrates what can be accomplished without the aid of special facilities and with a minimum of expense.

Patient's weight = 142 lb. = 64 kilos. Allowing 45 calories per kilo, total calories = 2,880.
F.A./G.L. ratio = 3.5 : 1
∴ F in grams = 283, C in grams = 17, P in grams = 64.
Olive oil 3 ounces in half-ounce doses = F in grams = 84 and 756 calories.

∴ As diet ... ... F=199 C=19 P=64 Total calories 2,124

	Grams Fat		Grams Carbohydrate		Grams Protein		Total Calories
BREAKFAST:							
2 oz. bacon...	36	.....	0	.....	6	.....	348
1 egg	6	.....	0	.....	6	.....	78
½ oz. energen bread ...	0	.....	1	.....	0	.....	4
1½ oz. butter	34.5	.....	0	.....	0	.....	310
1 oz. milk	1	.....	1.2	.....	1	.....	19
Tea (no sugar).							
DINNER:							
4 oz. chicken	4	.....	0	.....	24	.....	132
1 oz. energen bread ...	0	.....	2	.....	0	.....	8
1½ oz. butter	34.5	.....	0	.....	0	.....	310
4 oz. cream	24	.....	4	.....	4	.....	248
½ oz. almonds	7	.....	2	.....	2.5	.....	81
TEA:							
Tea, with 1 oz. milk ...	1	.....	1.2	.....	1	.....	19
3 oz. fish	0	.....	0	.....	15	.....	60
1 oz. energen bread ...	0	.....	2	.....	0	.....	8
1½ oz. butter	34.5	.....	0	.....	0	.....	310
SUPPER:							
3 oz. cream...	18	.....	3	.....	3	.....	186
	200.5		16.4		62.5		2,121

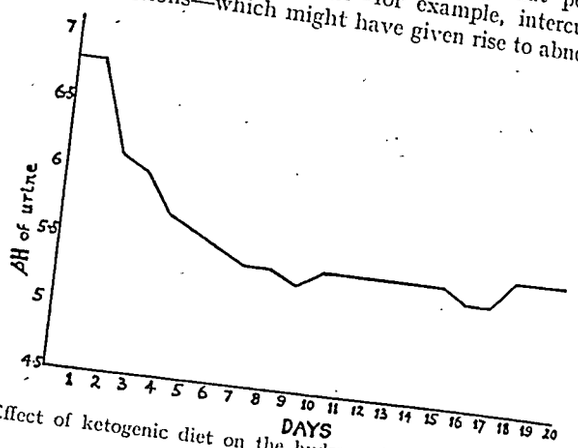
∴ F.A./G.L. ratio = 284.5 : 78.9 = 3.6 : 1 approximately.

As the diet is staged up it becomes increasingly difficult to vary the items. It is important to note that milk cannot be given in any quantity, since it contains almost equal amounts of protein, carbohydrate, and fat, and patients have frequently complained that they are not receiving sufficient. With regard to fluid intake, I have followed the recommendation of Cabot[14] in giving roughly the normal amount. An excess of fluid would be followed by an excess of urinary excretion, with consequent raising of the *p*H and dilution of the ketones.

This method of calculating and handling the diet has worked well in practice. The desired results were produced and maintained in the urine, and at the same time no trouble was caused by nausea and vomiting. I have found the following scheme of value. On the first day a diet ratio of 2 : 1 was given ; if that was well tolerated the diet ratio was increased to 3 : 1 on the following day. This diet was given for two days, since it was found that the urinary *p*H was now low and that acetone was present. On the fourth day the diet was increased to 3.5 : 1 in order to be certain that the *p*H would fall as far as possible, and also to prevent the small rise in the *p*H which had been observed in a few cases to follow the initial sharp fall. This increase also ensured a satisfactory production of acetone bodies where possible. By this method the urinary *p*H was brought down as low and as rapidly as possible, the lowest level being reached in nearly every case by the fifth day, although in some cases even sooner. I have not found it of any advantage to increase the diet ratio above 3.5 : 1. In only a single case was there any complaint of nausea and vomiting, while in several cases which suffered from chronic constipation the condition was entirely relieved. The patients were got up and allowed to walk about the ward as soon as they were considered fit.

The daily examination of the urine for acetone bodies and the estimation of the urinary *p*H are, of course, essential. With regard to the latter, the colorimetric method in a simple comparator is sufficiently accurate for clinical purposes, and with a little practice a series of urines can be examined in a short time. A range of indicators from *p*H 7.4 to *p*H 4.6 is desirable. Daily culture of the urine is desirable, although fairly good results can be obtained by culture twice a week. A single sterile culture is insufficient evidence of sterility, since occasionally growth has been obtained in a later culture. If cultures are sterile on three occasions, especially if spread over a period of a few days, success of the treatment can be claimed.

The effect on the urinary *p*H is well demonstrated in the composite graph prepared from the readings obtained in ten of the cases. All these cases were taking the diet well and were receiving no drugs during that period: there were no factors present—for example, intercurrent acute conditions—which might have given rise to abnormal



Effect of ketogenic diet on the hydrogen-ion concentration of the urine.

metabolism. The average urinary *p*H of these cases was taken before the diet was started: the average of the daily *p*H values was calculated for the first twenty days. All were cases of *B. coli* infection. It is noted that there was a sharp initial fall in the urinary *p*H, the low general level of *p*H 5.4 being reached on the seventh day. In individual cases there was some evidence to show that the fall was more rapid in cases in which the fat ratio of the diet was increased more quickly. After the initial fall the *p*H assumed a general level lasting about eighteen days, when there was a slight rise. This slight rise in the two final readings is of some importance, since it was invariably noted that towards the end of the third week of treatment the general trend of the *p*H rose, assuming a slightly higher level and tending to become more irregular. When the diet was not being followed strictly the result was clearly reflected in the *p*H graphs: in two such cases (Cases 10 and 11) the *p*H was more irregular than in any of the others. In another two cases, in which the value was about *p*H 6 before treatment was started, there was a fall to *p*H 5.1, which indicated that this diet had the power to render more acid urine which was already well on the acid side of neutrality—always a very difficult and uncertain operation.

PRODUCTION OF ACETONE BODIES

In every case treated with diet of high ketogenic ratio acetone bodies were produced in the urine, but in varying quantity in individual cases. The production of acetone was greatest during the first five days following the fall of the *p*H, but began to diminish in about ten days, and by the end of the third week had become scanty, in some cases only traces being demonstrable. These findings, together with the fact that the *p*H tended to rise after three weeks, appeared to show that the body was adjusting itself to the abnormal metabolism. There was no fixed relation between the *p*H and the amount of acetone present. In one case (Case 2) the *p*H never fell below 5.7, but an abundance of acetone was demonstrated over a

period of eight days. On the other hand, in Case 6, although the general level of the *p*H remained considerably lower—namely, *p*H 5.3—acetone was always scanty, never more than a trace being found.

STERILIZING EFFECT OF DIET

Sixteen cases of infection of the urinary tract were treated with ketogenic diet. Five of these were cured completely with no other treatment; five were cured completely with diet and drug treatment combined; in one case the result was left doubtful, since only a single final culture was proved sterile. Cases were regarded as cured when urinary cultures were repeatedly sterile. Of the five cases which failed, three left hospital before treatment was completed; one failed completely to take the diet; and one was suffering from chronic pyonephrosis, which, during treatment, showed acute exacerbations upsetting metabolism and interfering with the treatment.

Of the five cases sterilized by diet the figure had been maintained constantly at a low level—namely, *p*H 5.4 or lower; but in one case the *p*H was 5.7. All of them showed a satisfactory acetone reaction daily. The number of days on diet before the first sterile culture was obtained varied from eight to thirty-four days, but there was no relation between the chronicity of the infection and the time taken for sterilization—for example, Case 2, of three years' standing, cleared up in six days, while Case 1, of only three weeks' standing, took thirty-four days on treatment before the urine became sterile. Cases 6 and 7 became sterile after ammonium nitrate had been given. In both these cases the *p*H tended to rise after three weeks on treatment, and the ammonium nitrate overcame this tendency. In the second of these cases the *p*H had been irregular, but acetone bodies had been present in considerable amount, even when the urinary figure was *p*H 6. It is important to note that in both these cases, although the *p*H was steadied and slightly lowered by the administration of ammonium nitrate, no increase in the amount of acetone bodies was demonstrated. The two cases which were given hexamine were to be regarded as partial failures. The *p*H had been satisfactory, generally about *p*H 5.4, but acetone production was poor throughout. Since the *p*H was comparatively low the administration of hexamine appeared a reasonable procedure, as the hydrolysis of hexamine is entirely a function of the hydrogen-ion concentration. Both cases were sterile after ten days on hexamine treatment. Although the urinary *p*H was low, and free formaldehyde was demonstrable in the urine, there was no complaint of irritability of the bladder nor other untoward symptoms which have frequently accompanied hyperacidity of the urine and free formaldehyde obtained by the administration of drugs.

The last case reported was of some interest. Although given a diet of comparatively low fat ratio, severe nausea and vomiting occurred, and after two days the diet had to be stopped.

EFFECT ON SYMPTOMS AND URINE

In every case treated there was a very marked improvement in the symptoms and in the characters of the urine. By the end of the first week the symptoms had improved markedly, scalding of the vulvae, if present, generally being the first to disappear. In a fortnight's time complaints were few. Loin pain and tenderness had disappeared; a number of patients still complained of frequency, although this feature was also alleviated. The improvement in the characters of the urine was almost equally marked. By the end of fourteen days most of the urines were clear in a tall flask, with only a trace of deposit. Two cases which had cloudy urines within an inch of "pussy" deposit cleared completely in a week. In not a single case was there any complaint of irritability of the bladder due to the hyperacid urine, even in the two cases which were receiving hexamine. These findings are of considerable importance. Two cases were nursing mothers. Samples of milk showed normal carbohydrate and fat contents, while in neither case did the child suffer any gastro-intestinal symptoms which might have been attributed to abnormal composition of the milk. Both babies were healthy, and their weights increased at the normal rates. Chronic infection of the urinary tract sometimes succeeds the pyelitis of pregnancy; the fact that the child is on breast-feeding is no contraindication to the ketogenic diet. A few patients tended to put on weight, but every case without exception was in excellent health on discharge from hospital, a fact which must not be overlooked. It was found necessary to explain to the patients that nothing should be eaten except what was

TABLE OF RESULTS

Case	Diagnosis	Organisms	Duration	*p*H General Level	Ketonuria	Combined Drug Therapy	Result	Days Required	Remarks
1. E. L. ...	Pyelocystitis	*B. coli*	3 weeks	5.3	Satisfactory	—	Sterile	34	—
2. F. G. ...	Pyelitis	"	3 years	5.7	Good	—	"	6	—
3. A. D. ...	Cystitis	"	3 years	5.3	Good	—	"	17	Probably sterile on fourteenth day
4. M. C. ...	Pyelitis	"	5 months	5.4	Satisfactory	—	"	27	Solitary kidney
5. F. C. ...	"	"	2 months	5.3	Good	—	"	8	—
6. E. H. ...	"	"	14 days	5.3	Poor	Amm. nit.	"	25	Poor ketonuria
7. M. J. ...	Pyelocystitis	"	8 years	5.4	Satisfactory	"	"	23	*p*H irregular
8. D. G. ...	Pyelitis	*B. coli* and staph.	Indefinite	Irregular	Traces irregular	"	"	25	Not taking diet. *B. coli* sterile fourteenth day
9. J. W. ...	"	Staph.	3 years	Irregular	Poor	"	? Sterile	21	Single culture
10. C. B....	Pyelocystitis	*B. coli*	2 years	5.4 rising	Poor	Hexamine	Sterile	40	Poor acetone. Sterile tenth day
11. E. W...	Pyelitis	"	14 days	—	Poor	"	"	49	—
12. H. C....	"	*B. coli* and staph.	4 months	5.4 irregular	Poor	—	*B. coli*, unsterile Staph., sterile	—	Culture once sterile, then *B. coli* recurred. Left hospital
13. M. W...	Pyelocystitis	*B. coli*	5 months	5.5	Good	—	Unsterile	—	Improved. Left hospital
14. J. D....	Pyonephrosis	"	3 years	Irregular	Poor	—	"	—	Subacute condition; acute attacks
15. L. B....	Pyelitis	"	8 months	5.3	Satisfactory	—	"	—	Improved. Left hospital
16. E. D...	Pyelocystitis	"	6 weeks	6.8	None	—	"	—	Failed completely to take diet

given to them, and in most cases there was no difficulty in obtaining their strict co-operation. It was usual also to inform them before starting that the treatment was likely to take some time before good results could be expected.

The investigation of these sixteen cases showed that ketogenic diet is an unsuitable form of treatment for out-patients. Accurate preparation and administration of the diet was essential if the urinary *p*H was to be kept steadily at low levels. Two patients who were not taking the diet strictly, and which would be representative of the average out-patient receiving treatment without supervision, produced very irregular and high *p*H values, which were not contributive to success.

CONCLUSIONS

Sixteen cases of infection of the urinary tract treated with ketogenic diet are discussed.

1. Ketogenic diet had the effect of increasing the hydrogen-ion concentration of the urine in all cases except one. The effect on the urinary *p*H was characterized by a rapid initial fall, and a maintained low general level lasting till the end of the third week, when there was a tendency for the *p*H to become irregular and to stand at a slightly higher level.

2. Acetone bodies were produced in the urine in all cases, but varying greatly in amount in individual cases. Acetone appeared in greatest amount during the first five days after the *p*H had fallen, and by the end of three weeks had become very much diminished.

3. Five cases were cured completely by treatment with ketogenic diet. In these cases the urinary figure was maintained about *p*H 5.4 and acetone bodies were produced in satisfactory quantity. Four cases were cured following the addition of ammonium nitrate to the treatment. Five cases were improved, three left hospital before treatment was completed; one was suffering from a subacute condition which interfered with metabolism; and one failed completely to take the diet. Two cases were cured following the addition of hexamine to the treatment. Five cases were improved, but the urines were not sterile. Of these, three left

4. Treatment with ketogenic diet improved the symptoms and the characters of the urine rapidly. No symptoms were caused by the hyperacid urine.

5. It was found desirable to increase the diet by stages according to the ketogenic-anti-ketogenic ratio, in order to avoid nausea and vomiting. Only a single case had any gastric upset.

6. Two cases were nursing mothers. The milk was found to be of normal composition, and no gastro-intestinal symptoms were shown by the babies.

7. Every patient was in excellent health on discharge from hospital.

8. The results suggested that ketogenic diet was an unsuitable form of treatment for out-patient departments.

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ERYTHEMA NODOSUM

BY

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Three divergent views are to be found in the literature regarding the aetiology of erythema nodosum.

1. *The Rheumatic.*—Following the work of Mackenzie[1] some fifty years ago the theory that erythema nodosum was associated with the acute rheumatic process was formulated. This view was supported by clinical evidence which showed that certain cases of the disease were preceded by acute tonsillitis of the streptococcal type, associated with polyarthritis and sometimes followed by rheumatic valvular disease of the heart. The exact relation was never clearly defined. However, this view got into the English textbooks, where it has remained until the present day.

2. *The Tuberculous.*—For many years Continental workers have called attention to the fact that certain cases of erythema nodosum are closely associated with tuberculosis. Recently, due chiefly to the careful work of the Scandinavian school—particularly to the researches of Wallgren[2] and Ernberg[3]—the connexion between the disease and tuberculosis has been largely explained. These workers have shown that the great majority (95 per cent.) of patients with erythema nodosum are strongly positive to tuberculin, that tubercle bacilli may be found by the gastric lavage method in a high percentage of cases, and that a fair number of patients who have suffered from the disease develop frank tuberculous lesions within a year of the attack. They consider that erythema nodosum is a manifestation of primary tuberculous infection, such as phlyctenular conjunctivitis, "benign infiltration of the lung," and early pleurisy, which conditions they term "paratuberculous."

3. *The Acute Specific Disease.*—Neither the rheumatic nor the tuberculous school have ever been able to claim all the cases; hence Trousseau,[4] Lendon,[5] and Symes[6] put forward the view, at different times, that the disease was essentially an acute specific fever. Their arguments were plausible, and many were inclined to accept their views, including such careful clinical observers as Robert Hutchison. Their theory was based, however, on mere deduction, and was supported by no experimental evidence. A variation of this view was put forward more recently by Fornara,[7] who suggested that the disease was caused by a specific virus, but that the actual eruption only occurred when the patient was in a state of allergy to the tubercle bacillus.

AUTHOR'S OBSERVATIONS

Some two years ago I[8] published the result of certain investigations which had led me to conclude that "erythema nodosum is a type of hyper-reactive tissue response to different bacterial allergens, and that the allergens responsible for the disease in London are commonly tuberculin and haemolytic streptococcal endotoxin." The table given below, and reprinted, with permission from the *Quarterly Journal of Medicine*, gives in the briefest space the facts upon which this deduction was made.

The cases are seen to fall into two groups. The first five belong to the tuberculous type, the latter three to the streptococcal or rheumatic type. In the first group

all the patients are seen to be strongly positive to tuberculin and negative to the streptococcal extract; *x*-ray examination revealed lung lesions, tubercle bacilli were found in the gastric lavage in three out of five, and all gave a history of tuberculous contact in the home. While prognosis is grave and the tuberculous process tends to spread and become generalized.

The present report follows directly on the two quoted above, and gives the number and percentages of the different types of erythema nodosum as found in London

TABLE I

Case No.	Sex	Age (years)	Skin Tests: Mantoux	Skin Tests: Heem Strept Endotoxin	X-ray of Chest	Guinea-pig Inoculation	Family History of Tuberculosis	Past History of Rheumatism or Tuberculosis	No. of Attack of Erythema Nodosum	Type of Lesion	Throat Infection Preceding Attack	Joint Pains	Type
1	F.	3½	+++	0	Gross hilar shadows	Tuberculosis in three weeks	Mother, phthisis	Nil	First	Few small	Nil	Nil	Tuberculous
2	F	5½	+++	0	*Gross hilar* shadows	*Tuberculosis* in six weeks	*Mother*, phthisis	Nil	First	Very few small	Nil	Nil	Tuberculous
3	F.	5½	+++	0	Definite hilar shadows	Nil	Mother, phthisis	Nil	First	Many small	Nil	Nil	Tuberculous
4	F.	1½	+++	0	Suggestive enlargement	Nil	Mother, phthisis	Nil	First	Moderate	Nil	Nil	Tuberculous
5	F.	7	+++	+	Lung consolidation	Tuberculosis in six weeks	Aunt, phthisis	Nil	First	Small	Nil	Nil	Tuberculous
6	F.	10	0	+++	Normal	Nil	Nil	Sub-acute rheumatism, three years	Fifth	Few large indurated	Present	Severe	Streptococcal
7	F.	9	0	+++	Insignificant hilar shadows	Nil	Nil	Nil	Second	Large diffuse	Present	Present	Streptococcal
8	F.	8	0	+++	Normal	—	Nil	Rheumatic pains for one month previously	First	Large indurated	Present	Severe	Streptococcal

+++ = very strong positive 0 = no reaction + = weak positive reaction

in the second group all were negative to tuberculin and positive to haemolytic streptococcal extract, gave *no* history of contact, showed *no* lung lesions, and had a negative gastric lavage, in all these the attack was preceded by an acute pharyngitis of the streptococcal type and was accompanied by polyarthritis. Besides these cases certain further experiments were also reported—for example, a case was described in which erythema nodosum was twice produced in the same individual (a contact tuberculous patient) by the subcutaneous injection of old tuberculin; in another case (of the streptococcal type) the eruption was produced locally by the intradermal and subcutaneous injection of streptococcal extract

The publication of this report raised a number of inquiries. It was asked (1) whether the organisms in the gastric lavage were human or bovine in type, (2) how valuable and reliable the gastric lavage method was to be considered; (3) what was the prognosis in erythema nodosum, especially the tuberculous type A report dealing exhaustively with these points was published by me in collaboration with Dr. Brockington[3] in January, 1933 The report may be summarized as follows

The deposit of the gastric lavage from seventy children was inoculated into guinea-pigs Tubercle bacilli were obtained in five out of seventeen cases of erythema nodosum, in three out of seven cases of generalized tuberculosis, in three out of eleven cases of suspected tuberculosis, in one out of seventeen contact cases, and in none out of eighteen control cases Dr Stanley Griffith typed nine of the strains obtained, all being of the human type except one, which was recovered from a case of tuberculous peritonitis which had become generalized. The results of this investigation, together with a study of the literature, permitted us to conclude that the gastric lavage method is reliable and useful. A further study of the subsequent history of patients with erythema nodosum of the tuberculous type led us to agree with the teaching of the Continental schools that erythema nodosum may be part of the primary complex of tuberculous infection, and that hence the prognosis depends very largely on the line of treatment followed. If such patients are rested for a period of months, have good food and fresh air, and are protected from infection, the prognosis is extremely good. If, however, they are allowed to continue strenuous work, are exposed to intercurrent infection, or live in unhealthy surroundings, the

and Dublin up to date. Using the methods described above, thirty-eight patients with erythema nodosum were investigated in London and eleven in Dublin.

TABLE II—*Incidence of Erythema Nodosum Types*

	London		Dublin	
	Number	Percentage	Number	Percentage
Tuberculous	27	71	10	90.9
Streptococcal	7	18 4	1	9.1
Indefinite	4	10 6	—	—

If the above table is studied it will be found that in London 71 per cent of the patients were classified as tuberculous, 18 4 per cent. as rheumatic (streptococcal), and 10 6 per cent. as indefinite, while in Dublin up to the present all but one questionable case have been found to belong to the definitely tuberculous type The higher percentage of the tuberculous type in Dublin is partly explained by the recognized fact that tuberculosis is extremely common in Ireland, while rheumatic infection of all kinds is particularly common in London Also, the London streptococcal figure may be unduly high owing to the fact that I was engaged in an investigation into the cause of rheumatic fever when collecting the material for this report

Of the group given in the table termed "Indefinite," three of the cases were equally positive to tuberculin and streptococcal extract, and the other tests either could not be done or were indefinite, hence a clear diagnosis was impossible The fourth case was that of an adult aged 21 years He gave a mildly positive tuberculin test, but showed no other signs of tuberculosis. He was also "skin-tested" to extracts from a strain of *Streptococcus viridans*, gamma streptococcus, staphylococcus, pneumococcus, and *B. coli*. All these tests gave negative results except the *B. coli* extract, to which the patient was remarkably sensitive A possible significant fact in this case was a history of acute dysenteric infection some time previously. Though further detailed investigations are necessary in such cases before it may be more than tentatively suggested that other organisms beside the haemolytic streptococcus and the tubercle bacillus may cause the syndrome of erythema nodosum, the following case suggests that this is probably so.

CASE I

A girl, aged (?) 12 years, had a rigor and vomited on January 8th, 1932. Next day "spots" were noticed on the trunk. On January 13th she was able to return to school; on the 25th she had another rigor and "rash" on the trunk. On the 31st she complained of sore throat, and on February 1st was admitted to hospital. The patient had no definite complaint, but there was present an eruption on the legs, arms, abdomen, and back, in type being similar to that of erythema nodosum, except that the individual lesions were smaller. Tests for typhoid, paratyphoid, and undulant fever were negative.

On February 8th the eruption was more marked; on the 17th she complained of headache, and on the 18th of pain in the neck and photophobia, and vomited. Skin reactions to Dick streptococcal extract and tuberculin were negative. On February 19th meningococci were found in the cerebro-spinal fluid. She was treated by intrathecal, intramuscular, and intravenous injections of antimeningococcal serum. On April 6th she was discharged well. (The above case is published by kind permission of Dr. Troup, Municipal Hospital, Neasden.)

Dr. Robert Hutchison has described a similar case, in which an eruption indistinguishable from erythema nodosum was observed in a case of meningococcal infection. Such cases are medical curiosities, however, and are only of academic importance.

The present report amply supports the original view of the aetiology of erythema nodosum submitted in my first paper on the subject. For instance, after I moved to Dublin the gastric lavage method was continued, and it is noteworthy that the first two cases of the disease thus examined showed tubercle bacilli in their sputa, and both subsequently developed pleurisy. Equally confirmatory evidence in support of the view that certain cases are caused by streptococcal infection was given by a number of case histories, among which were the following.

CASE II

A girl, aged 10 years (previously reported as Case 6, Table I), developed a sixth attack of erythema nodosum in March, 1932. This attack was preceded, as before, by a very acute pharyngitis, throat culture yielding a pure growth of haemolytic streptococci. Skin tests before, during, and after the attack were again negative to tuberculin, while the intradermal injection of haemolytic streptococcal extract gave a very marked reaction, producing a lesion indistinguishable from the spontaneous node of the disease, took a week to fade, and left a bruised appearance of the skin.

CASE III

A woman, aged 50 years, who was suffering from a severe attack of the disease, was investigated in University College Hospital at the request of Sir Thomas Lewis. The eruption was of the large variety, covered all the extensor surface of the legs, was also present on the arms, and was associated with a polyarthritis particularly involving the ankle- and knee-joints. She stated that she had had a previous attack some thirty years before, and that the present attack was associated with an acute sore throat. Throat culture yielded a pure growth of haemolytic streptococci; skin tests gave a negative tuberculin and a strongly positive haemolytic streptococcal reaction. The latter injection produced a rise of temperature and a recrudescence of the eruption and polyarthritis.

The haemolytic streptococcal "endotoxin" (extract) was sent from our laboratory to certain investigators at their [redacted] among whom were Dr. Wallgren of Göteberg [illegible] H. F. [illegible] of Bristol, who have given permission [illegible] of the following facts. Dr. Wallgren [illegible] suffering from the disease with [illegible] streptococcal extract. All but [illegible] reactions to tuberculin, and [illegible] to the streptococcal extract; [illegible] both (no further details

given). Dr. Symes sent reports of four adult cases tested to haemolytic streptococcal extract: two were negative and two were positive. One of the negative cases clearly belonged to the tuberculous group, as subsequently she developed frank tuberculous symptoms. The other negative case was indefinite. The two positive cases are worth quoting in detail.

CASE IV

A medical woman, with a history of four previous attacks of erythema nodosum and occasionally nodes on the legs between attacks, was inoculated with haemolytic streptococcal extract, and within twenty-four hours had a severe typical reaction. At the end of forty-eight hours there was an enormous node at the site of inoculation on the leg, and she thought she would have to lie up; however, it then began to subside. She had infected tonsils.

CASE V

A woman admitted to hospital suffering from appendicitis: a very septic appendix was found at operation. A week later she developed the eruption on the legs (quite typical), slight fever, and inoculation with streptococcal extract gave a typical reaction in twenty-four hours. It was still evident at the end of forty-eight hours.

DISCUSSION

The present report confirms the view previously submitted that the disease syndrome of erythema nodosum may be brought about by more than one allergen. It necessary to stress the finding, however, that by far the commonest cause is tuberculous infection. Indeed, the streptococcal type is extremely rare, and even in London where streptococcal infection is common, it is doubtful if more than 15 per cent. can be placed in this group. It is not too much to say dogmatically that our attitude to erythema nodosum should be to regard every case as tuberculous till proved otherwise. The importance of this attitude has again and again been borne out by different cases in the above series. For instance, a girl, aged 10, was admitted to the ward with erythema nodosum, diagnosed, as usual, as acute rheumatism. Investigation showed, however, that she belonged to the tuberculous type, tubercle bacilli being found in her sputum. The mother denied all possible family contact infection. Examination of the whole family revealed subsequently that a brother, aged 17, was suffering from a progressive phthisical lesion (he died of tuberculosis later), and also a younger sister had a primary tuberculous lung lesion and a positive sputum. It is often difficult to locate the source of infection, and the physician may meet with angry denials which cover family secrets, only later to be proved correct in his suspicions.

From the academic point of view, the fact that the disease syndrome, with its prodromal period, febrile reaction, eruption, etc., can be brought about by different infections, provided the body is in a state of specific hypersensitiveness to the causal organism, is of very great theoretical importance to those studying bacterial allergy and its relation to immunity. Broadly speaking, it may be said to support the hypothesis as propounded by Rich that allergy is not part of a protective immune process, but a harmful tissue over-reaction. Possibly the suggestion once put forward to me by Professor Okell is nearest the truth—that such allergic reactions are a tissue response occurring in the evolution of immunity, which may be taking place too rapidly in the modern urbanized world for immediate correct adjustment.

My thanks are due to the staff of the Hospital for Sick Children at Great Ormond Street, London, for allowing me to quote their cases and for facilitating this investigation; particularly I wish to thank Dr. Robert Hutchison for his advice and encouragement. I also wish to thank my Dublin colleagues for sending me cases for investigation, especially

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RELATION BETWEEN RENAL HISTOLOGY AND THE CLINICAL PICTURE IN NEPHRITIS

BY

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All attempts to correlate histological changes in the kidneys with clinical symptoms involve the preliminary acceptance of some particular theory of renal function In this paper the filtration reabsorption theory of Cushny has been used as a basis There are difficulties in the unqualified acceptance of this view, but they do not seem to be insurmountable, and the theory accords sufficiently well with both physiological and pathological considerations to suggest that it is, at least in the main, correct While glomeruli, tubules, interstitium, and vessels are all affected in nephritis it appears likely that the *glomerular changes are at all stages the most important*

ACUTE AND SUBACUTE NEPHRITIS

The histological changes in the glomeruli in acute and subacute nephritis are such that we can postulate two *main effects on their function In the first place only* a smaller amount of blood than the normal can circulate through a given tuft per unit of time and, secondly, the filtration through it must be less selective The individual glomerulus cannot permit a normal amount of filtration, since insufficient blood passes through it and the filter permits the passage not only of crystalloids, but also of colloids, particularly of plasma albumin Diminished circulation is shown by the narrowing of the glomerular capillary lumina, due to the familiar hyaline thickening of the capillary basement membranes, to endothelial proliferation, and to deposit of hyaline material in the lumina In very early acute nephritis, when these phenomena may not be striking, the distended congested capillaries nevertheless indicate an inflammatory stasis which, in fulminant cases, may be practically complete Also, latterly, *in subacute nephritis, the presence* of epithelial crescents adds to the mechanical difficulties, both by compressing the tuft and by obstructing the neck of the tubule On the other hand, while such active inflammatory changes tend to diminish total filtration, they, here as elsewhere, naturally make the capillaries less selective membranes, and permit the passage of albumin from the plasma, as in inflammatory exudates

If we run through the chief clinical findings in acute and subacute nephritis we see that these key changes in the glomeruli account for the greater part of the whole picture

Albuminuria, first of all, is much too considerable to be *entirely accounted for by the cells and debris of the* deposit, and exudation of protein from the blood stream seems to be the only feasible explanation The inflamed hyperpermeable glomeruli are obviously the most likely site for this leakage In the same way *haematuria* is evidently chiefly *from inflamed glomeruli Some hyaline casts*, and the matrix of some other casts, doubtless represent coagulated exudate *from glomerular capillaries* Others, such as epithelial casts, bear evidence of their tubular origin, and even hyaline casts have been shown repeatedly in process of formation from desquamated tubular cells On the whole, casts are probably less predominantly of glomerular origin than is albuminuria

Where *oliguria* accompanies a rising blood urea, diminished filtration through the obstructed glomeruli is the probable cause Diminished total filtrate is bound to lead to proportionate oliguria, provided there is a normal degree of reabsorption in the tubules In the oliguria of acute and early subacute nephritis tubular reabsorption, as measured by the concentration of the urine, is often practically unimpaired, but at least it is *not more active than normally, so that excessive reabsorption* does not explain the oliguria In markedly oedematous cases, of course, the oedema and the diminished filtrate are related, but the exact nature of this relationship is one of the most difficult problems of nephritis Could inability of the kidneys to excrete water, or salt and water, of itself lead to oedema, in spite of the alternative routes of elimination by skin and bowel, etc? While established oedema can frequently be varied to a remarkable degree by altering the amount of available salt, retention of sodium chloride alone can scarcely be the sole cause of oedema, for cases with extreme salt retention may not show it[1], nor, indeed, does water retention necessarily lead to oedema, for complete anuria may occur without it These are suggestive facts, though Shaw Dunn,[2] in a recent paper, has shown that they are not conclusive evidence *against inadequate excretion of salt* and water by the kidneys being the cause of oedema Of other suggested factors altered permeability of the capillaries throughout the body and lowered colloid osmotic pressure in the blood due to albuminuria[3] are *prominent* Of the two, increased capillary permeability would seem to play the more important part in acute and subacute nephritis and it may be assisted by a raised capillary blood pressure The more highly albuminous content of the oedema fluid of acute nephritis and other active nephritis has been demonstrated,[3 4 5] and tends to show that the capillary wall is no longer permeable only to crystalloids That histological examination does not show generalized capillary changes[6] does not in itself disprove the view for abnormality of function is by no means always indicated by evident histological changes There is *some reason to think that there may be some* allergic effect on the glomerular capillaries in nephritis and, if that is so, it may well be that the capillaries generally also suffer a lesser degree of damage not obvious histologically, in the most active phases of *nephritis*

The raised *blood pressure* is another of the more difficult of the associated disturbances in nephritis, and perhaps it would be wisest simply to admit that we do not know its cause We know that, with a few exceptions, it is present in all sorts of cases of renal disease when there is some insufficiency, and is absent when there is none The exceptions include some cases of waxy disease with renal insufficiency, some cases of polycystic kidney, some prostate cases, cases of symmetrical cortical necrosis, etc We have to decide whether to emphasize the relationship itself or its inconstancy Are we to hold that the exceptions prove that hypertension cannot be the direct

result of renal insufficiency by itself; or are we to hold that extraneous factors, sometimes not detected, have cancelled in such cases a tendency to hypertension nevertheless inherent in renal insufficiency? It seems possible that such additional factors may indeed explain the apparent exceptions—for example, factors such as debility in waxy disease, vascular paresis in symmetrical cortical necrosis,[7] examination at a time when the kidneys were not yet insufficient in polycystic kidney, etc. Yet even if we grant that renal insufficiency is the direct cause of nephritic hypertension, we have at present no proof of the way in which the insufficiency produces it. The problem is probably closely allied to the question of the cause of uraemia. Both nephritic hypertension and uraemia appear to be due to insufficient renal excretion, though of what substance or substances we do not know, in spite of numerous investigations.

We can, of course, accept the hypothesis that nephritic hypertension is "compensatory." In other words, did hypertension not occur death from inadequate glomerular filtration—that is, from renal insufficiency—would probably take place earlier than it does. But to accept this as an explanation seems more likely to retard than to assist further progress, for it evades the real question of *how* the hypertension is initiated.[8]

CHRONIC NEPHRITIS ("CHRONIC INTERSTITIAL NEPHRITIS")

In chronic, as in earlier nephritis, the vital changes seem to be the glomerular ones. In the more insidious cases ("nephritis repens"[9]) the majority of the glomeruli are hyalinized or have disappeared. For a time the surviving glomeruli may compensate for this by hypertrophy, by a more or less continuous activity encroaching largely on the normal phases of rest of the tufts, and probably also by increased capillary pressure. Eventually, however, destruction of further glomeruli leads to inadequate infiltration and so to uraemia. As the surviving glomeruli are not acutely inflamed, and may, indeed, be healthy enough to hypertrophy, increased permeability of the tufts to albumin is not a prominent factor here, so that albuminuria is slight or absent. Whether the total filtrate is normal, as during the earlier period of successful compensation, or reduced, as later, it is coming from a small number of glomeruli, and has to flow more quickly and more continuously down a limited number of tubules, with the result that reabsorption is inadequate, and there is polyuria with low specific gravity of urine. Lack of heavy albuminuria means that there is no lowered colloid osmotic pressure in the plasma. Also, there is not very active inflammation even in the glomerular capillaries, so that one would not expect general capillary changes. For these reasons the lack of oedema in many cases is not surprising. In less insidious cases of chronic nephritis, where the non-hyaline glomeruli are more inflamed, and therefore permeable to colloids, more albuminuria and some oedema are natural.

PARENCHYMATOUS ("NEPHROTIC") NEPHRITIS

This group, ranging as it does from cases which might be termed "lipoid nephrosis" to others which are close to the less insidious cases of "chronic interstitial nephritis," has a very varied histology, but a marked permeability of the glomeruli to plasma protein is a constant feature. Some cases may show extremely little further evidence of glomerular inflammation, others a considerable amount, but there are always large enough numbers of permeable glomeruli to explain the prolonged absence of renal insufficiency, hypertension, and uraemia. The leaking glomeruli adequately explain the copious albuminuria, and the oedema in these cases seems to be more adequately explained as being related to the albuminuria and consequent lowered colloid osmotic pressure in the plasma than as being a result of alterations in the capillaries throughout the body.

It may be that tubular changes in nephritis are more important than one has suggested, for they are often striking, but one has the impression that, experimentally and in human tubular lesions, renal insufficiency of *tubular* origin occurs only when a particularly intense tubular damage—practically a widespread necrosis—has taken place. This fits in with the filtration-reabsorption theory, for one would expect the first evidence of tubular failure to be a failure to concentrate filtrate to a normal degree—a failure which would not in itself involve retention or uraemia, and would, indeed, result merely in polyuria. Only where damage was so intense as to allow mechanical and unselective seepage through the tubular cells back to the blood stream would uraemia set in.

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Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

MULTIPLE HYDATID CYSTS OF LIVER WITHOUT EOSINOPHILIA

This case of multiple hydatid cysts of varying size and apparently varying age, indicating a continued or recurrent infection, appears to me to be worth placing on record.

A female domestic, aged 27, was admitted to hospital complaining of jaundice, with epigastric and right-sided pain of sudden onset and fourteen days' duration. On admission her temperature was 100.6° F.; she was very restless, and her sleep was disturbed. Asthenia was prominent. Vomiting occurred on taking food, but this did not relieve the pain, which continued with severe exacerbations. Three years previously she had experienced a similar illness lasting a fortnight, but without jaundice. Apart from this and occasional bilious attacks as a child she had enjoyed perfect health and led a normal life. She was an only child.

On examination the abdomen was not distended; some tenderness was present in the right hypochondrium, and the liver was found to be enlarged. The lower border of the right lobe was one inch below the level of the umbilicus. The surface was smooth and apparently regular. A further mass was palpable in the left hypochondrium, dull on percussion, moving on respiration, and possessing a definite edge. This was thought to be probably splenic enlargement.

Bile was absent from the faeces and present in the urine; van den Bergh's test, direct with maximum colour change in twenty seconds; Wassermann reaction negative. The blood count was: red blood cells, 4,810,000 per c.mm.; white blood cells, 39,000 per c.mm.; haemoglobin, 75 per cent.; colour index, 0.8. Differential leucocyte count was: polymorphs, 74 per cent.; band forms, 12 per cent.; monocytes, 4 per cent.; lymphocytes, 10 per cent.; eosinophils, *nil*. The neutrophilia, slight left shift, and absence of eosinophils were suggestive of a myeloid reaction to an acute infective process. The patient's condition rapidly became worse, with a temperature rising to 102.5°. On the third day following admission she had a rigor, with severe exacerbation of pain and vomiting. The following morning she had a similar attack, and died two hours later.

At the post-mortem examination the liver was found to be grossly enlarged, and the seat of multiple hydatid cysts varying in size up to four inches in diameter. What was thought to be splenic enlargement was, in fact, left lobe of liver. Cardiac and diaphragmatic displacement were marked. The total weight of the liver was fourteen pounds. On section suppuration was found to have occurred in one cyst, the typical hydatid contents being replaced by a fetid purulent bile-stained material. Altogether the liver contained eleven or twelve hydatid cysts of varying size, which contained the typical daughter cysts. Hooklets and scolices of echinococcus were demonstrated on microscopical examination. No cysts were found in any other organ.

CONCLUSIONS

A single hepatic hydatid cyst is by no means a rarity, and multiple hepatic cystic disease is not uncommon, but the striking variation in age and size of the cysts found in the above case seems to point to more than a single chance infection, and rather to a continued or repeated infection over a number of years. The complete absence of eosinophils was no doubt due to the fact that suppuration was present on admission, the polynuclear leucocytoses serving to mask a condition doubtless present prior to the formation of the hepatic abscess. On questioning the mother she said that her daughter had always been fond of animals, surrounding herself during childhood by dogs especially, and receiving their caresses on her face and lips freely and frequently.

I am indebted to Professor Thomas Beattie, medical director, and to Dr. G. P. Harlan, medical superintendent, Newcastle General Hospital, for permission to publish the notes of this case.

ROBERT W. RIDDLE, M.B., B.S.,
House-Physician, Newcastle General Hospital.

TWO CASES OF PHARYNGEAL HAEMORRHAGE

The following two cases seem to me to be of sufficient interest to merit recording.

CASE I

In January, 1932, I saw a small boy, aged 4 years, who had complained of a stiff neck on the left side for four days. On examination I found an enlarged left tonsil, with a visible swelling the size of a hazel nut, of the left side of his neck anterior to the sternomastoid muscle. The swelling was hard, and did not fluctuate. The temperature was 100° F. and pulse 90. There was nothing else to note. I treated the case as one of simple tonsillitis with a glycerin and borax throat paint, and in two days the temperature and pulse were normal and the stiff neck had disappeared.

On the third day I received an urgent message at 9 p.m. to go and see the boy, and on arrival I found him happily playing, but with a blood stain on his pillow and some dried blood on his upper lip and nose. Examination of his nose and pharynx failed to show from where the bleeding had come, and as there was no rise of temperature or pulse I reassured the parents. The following day he was equally well, and the gland in his neck was smaller. That night I was called at 11 o'clock, when I found the child lying in a pool of blood, pulseless, and pale as his sheets, but with no present or demonstrable bleeding point. After giving saline and glucose, and applying hot-water bottles, I moved him into hospital. Examination revealed a perfectly normal nose and throat, a slightly smaller though softer cervical swelling, and no evidence of the origin of the haemorrhage. Blood count was: red blood cells 2,000,000 per c.mm., leucocytes 15,000 per c.mm., haemoglobin 40 per cent. A swab from the throat gave a haemolytic streptococcus.

Thirty-six hours after admission the child had another haemorrhage. No one saw it occur, but to quote the description of a man in the same ward, "He just choked and his bed was full of blood." There was no continuation of the flow, and by the time a nurse had reached him (approximately thirty seconds) and had cleaned his mouth and nose, there was no indication of where the haemorrhage had come from. I asked Dr. A. H. Douthwaite to see him, and we gave a blood transfusion, the mother acting as donor. After the last haemorrhage the temperature started to rise. The child had a further haemorrhage eleven hours after the transfusion, and his pulse and temperature rapidly rose, the latter reaching 108° F. just before he died in deep coma seven days after I first saw him.

A post-mortem examination showed a broken-down cervical gland forming an abscess round the internal carotid artery, into which it had ulcerated, there being a slough the size of a pea through the anterior wall. There was a communicating sinus from the abscess cavity to the pharynx, the opening being hidden by the tonsil.

COMMENT

1. The virulence of the infection without any constitutional disturbance at the beginning was remarkable; until the haemorrhage the child was "perfectly well in himself."

2. The amazing force of the haemorrhage and its short duration on each occasion. This was due, apparently, to the mechanical effect of the narrow sinus acting as a valve from the abscess cavity, only allowing an escape of blood after recovery had raised the blood pressure to a certain figure.

3. The hyperpyrexia before death. Presumably the abscess drained directly into the internal carotid and caused a basal meningitis. (Permission to open the skull was refused.)

CASE II

The second of my two cases had a happier ending. In May, 1932, a girl, aged 8 years, whom I had been attending for chicken-pox, suddenly had a violent epistaxis. Ordinary household remedies proving useless, I was asked to see her. When I saw her (the eleventh day of her disease), about two hours after the commencement of her epistaxis, she already showed signs of collapse. I plugged her nose with adrenaline-soaked gauze, and attended to her general condition. Ultimately the haemorrhage was stopped with post-nasal plugging, and her condition started to improve. Twenty-four hours later it recommenced; it became so severe that I decided to look to the bleeding point—which was not visible and was apparently far back in the posterior nasopharynx—under an anaesthetic, and to cauterize it. The bleeding point was a pock somewhere in the adenoidal tissue, and, although this was impossible to reach with any accuracy, either the cautery or the careful plugging ultimately stopped the haemorrhage.

Her brother meanwhile had developed measles, and had exposed her to infection. I gave her 5 c.cm. of serum from another child who was convalescent from measles, with a very satisfactory result. This was given on the eighth day after exposure to infection; she had twenty-four hours' rash, no cough or other catarrhal symptoms at all, and only twelve hours' temperature, rising to 99° F. one evening. An attack of measles of any severity would have killed her. She developed a dilated heart after her adventures, from which, however, she made a complete recovery with adequate rest.

I should like to express my thanks to Dr. Douthwaite for his great help in a very difficult case (Case I).

Bushey, Herts. P. SHACKLETON, M.R.C.S.

Reports of Societies

STAPHYLOCOCCAL INFECTIONS

At a meeting of the Medical Society of London on December 11th, with Sir JOHN THOMSON-WALKER in the chair, Mr. CLAUDE FRANKAU opened a discussion on staphylococcic infections.

He said that from the surgical point of view the general effects of the staphylococcus in an infected area were constant and characteristic—a tendency to produce thrombosis of the blood vessels and lymphatics and necrosis of the tissues infected. The blockage of the lymphatics ensured that the lesion was defined; there was little or no tendency for spread to occur by the lymphatics in these infections. In these ways the organism differed markedly from the streptococcus. He confined his remarks to two types of infection—namely, the carbuncle and perinephric abscess. He made no excuse for giving a definition of a carbuncle, because textbook definitions were

various and wrong: a true carbuncle was an acute infective process, staphylococcal in origin, starting in the subcutaneous tissue and proceeding to necrosis of the tissues infected; infection was presumably through a skin abrasion. Carbuncle formed one of the most painful of the so-called minor surgical maladies, and at times was extremely dangerous to life. There were three stages: invasion, necrosis, and resolution. The duration of the first stage was variable, and depended upon the resistance of the patient and the virulence of the infection. As a rule it lasted about four days, but might persist for seven or eight. In the second stage, as a result partly of the thrombosis of vessels and partly of toxins, the subcutaneous tissue necrosed. In the third stage—that of resolution—there was a free discharge of pus and the necrosed tissue separated and sloughed; healing rapidly followed. The separation of large sloughs might be associated with one or more rigors. During this stage, and this stage only, secondary glandular involvement might occur. As regards treatment, no one method was perfect, and all had dangers and disadvantages. The risks of too active intervention by excision were obvious if the pathology was considered. Masterly inactivity, on the other hand, might cause prolonged and unnecessary pain. A balance had to be maintained between these two extremes, and one should aim at relieving tension without causing too much disturbance locally or delaying ultimate healing. During the stage of invasion, provided the pain was not intense, heat seemed to be the most effective measure, coupled with various analgesic drugs. If too severe, surgical intervention was essential, and he had come to the conclusion that this was withheld too often in the early stages of carbuncle. The safest method to adopt was to make the so-called gridiron incision, a series of incisions about 3/4 inch apart over the affected area, but strictly confined to it, and in depth extending into but not going through the infected mass. Moderate haemorrhage resulted, but this could be checked by compresses of 1 in 200 carbolic, left on for two hours after operation. If, as was commonly the case, the condition was in the second stage when first seen, surgical intervention was again needed unless natural openings were already present. The simplest and safest treatment in the third stage, where there was necrosis and one had to operate, was to cut out with a scalpel or diathermy a circular or oval area of skin equivalent to about one-quarter of the affected area from the centre of the carbuncle and make peripheral radiating incisions out towards the boundary of the infection, not entirely reaching it. The whole process was necessarily slow, as it was dependent on the separation of sloughs. Vaccines in his experience were useless, if not dangerous. An antitoxin recently introduced appeared to have considerable value in the early stages of toxic cases. Of 119 patients with carbuncle admitted into hospital within his observation, three had died, two of them within twenty-four hours of admission—one of diabetic coma and the other of septicaemia; the third died of diabetes about three weeks after admission. With regard to perinephric abscess, the chief interest was in the obscurity of its pathology and the difficulty which might arise in its diagnosis. Pre-existence of boils in this condition was extremely common, though not invariable. It suggested that a mild blood infection had been present all the time. The commonest situation for the abscess was behind and somewhat below the kidney. A history of strain or injury was not uncommon. The onset was insidious, a few days of malaise and ill-health preceding the pyrexia and local symptoms. Treatment consisted in free drainage through an incision. Only a small amount of pus might be present in the centre of a dense mass of infiltrated fat. He had had thirty-three cases of perinephric abscess under his observation, and one death from septicaemia.

Dr. HUGH THURSFIELD said that staphylococcal infections belonged so largely to the surgeon and bacteriologist that it was extremely difficult for the physician to find anything to say which the surgeon or bacteriologist might not justly claim as their prerogative. The organisms, however, were of such wide distribution that it was practically impossible even for the physician to escape contact with them. They seemed to belong normally to our external enemies, and therefore, he supposed, confronted most frequently the dermatologist, but they took the opportunity rarely of entering the tissues of the body. Boils, arising from the sweat glands and hair follicles were the most common evidence of staphylococcal activity, but for some obscure reason the staphylococcus was normally an inhabitant of the internal organs, or even of the internal cavities, apart from the mouth and nose. He agreed that when the organisms gained a footing in the deeper tissues of the body they must get there by blood infection. In the more acute stages of a staphylococcal pyaemia or septicaemia, when an abscess was brewing in the body, one almost invariably got a positive blood culture. The moment that the abscess had been opened the organisms disappeared from the blood; a new abscess began, and the organisms reappeared, to go again when the abscess was found and opened. In the presence of staphylococcal septicaemia, always barring the fulminating case, he felt comparatively happy about the patient's ultimate chances as compared with a streptococcal pyaemia. Staphylococcal infections of the meninges or intestinal tract were to the physician nearly always secondary phenomena. He did not know of staphylococcal bronchopneumonia except as a secondary consequence of, for example, middle-ear disease, nor did he know of a true primary staphylococcal intestinal infection. From time to time one came upon infections of the urinary tract which were said to be primarily staphylococcal, but they were extremely rare, and very often when carefully examined it was found that the staphylococcal infection was not, after all, primary. There was one staphylococcal lesion which presented itself to the physician—namely, empyema—but this was not very common. It was probably more common in children and quite young infants than in other people, and them at any rate it was entirely divorced from any sl ear, or other antecedent infection. All the books decla that the prognosis of staphylococcal empyema was bet than the prognosis of streptococcal or even pneumococc That might be so if one was able to collect a lar number of cases of empyema in adolescents and your adults, but as regards young children it certainly wa not the case. As for treatment, he had never seen th remarkable successes claimed for mercurochrome or othe intravenous substances, and it was extremely improbable that any substance of antiseptic value could be put into the body in sufficient quantity and strength to produce a real antisepsis in the presence of a pyaemia. He pinned his faith to the antitoxic and antimicrobic defences of the body, and the methods by which these might be stimulated. He had a faith in vaccine treatment—he did not quite know why, except that it was a rational treatment, its experimental foundations were sound, and as regards the minor staphylococcal infections its undoubted curative power was firmly established. He drew attention to immuno-transfusion, which he had seen apparently work wonders. Nowadays many journals from America contained articles about bacteriophage and staphylococcal infections. Experimentally it could be shown that, given intravenously, bacteriophage diminished the number of staphylococcal organisms circulating in the blood of the experimental animal almost at once, and for a considerable period of time. Therefore he ventured to hope that in bacteriophage there might be another method of dealing with these infections.

Dr. LIONEL WHITBY, after discussing vaccines, and indicating his views that Besredka's theory of local immunity had more than a germ of truth, said that for the treatment of staphylococcal infections there had recently been made available, first, a potent and active antitoxic serum, made by immunizing the horse with toxin or with toxoid, and, secondly, a means of immunizing human beings actively—namely, by toxoid—a procedure comparable with that used for active immunization against diphtheria. A toxoid sample provided for him by Dr. O'Brien of the Burroughs Wellcome Company laboratories had, on intramuscular inoculation, in doses of from 0.05 c.cm. to 0.5 c.cm., proved quite non-toxic,

giving rise to nothing more than a local soreness in any of the sixteen cases in which he had used it, and it had resulted in marked clinical improvement in fourteen of them, some of which had previously tried the whole gamut of staphylococcal remedies The discovery of staphylococcal toxin which could be converted into toxoid offered a promising field for the active and passive treatment of staphylococcal infection, as well as an accurate method of controlling treatment He had no experience of bacteriophage therapy in staphylococcal lesions It would be very difficult to apply the laboratory findings in bacteriophage to ordinary clinical medicine, the reason being that the specificity of bacteriophage was an extremely awkward matter It was of no value to use bacteriophage on a given strain of organisms unless it was highly potent for that strain, and so to speak, wiped it out at the first shot, for if there were any survivors these would thereafter be phage resistant

Dr R A O BRIEN considered that staphylococcal toxoid and staphylococcal antitoxin offered a new hope in the handling of these various infections The evidence on the laboratory side was perfectly clear cut, with toxoid one could immunize animals against culture and with antitoxin one could protect These two methods of treatment had come to stay, though what their limitations were in clinical medicine remained for the future to settle The use of toxoid rested on three assumptions (1) that the anti staphylococcal titre of patients suffering from staphylococcal lesions was lower than it should be, (2) that the titre could be raised by the injection of staphylococcal toxoid, and (3) that clinical improvement would occur with that increase in titre The first assumption required a good deal more research yet, the second assumption could be accepted with reasonable confidence, and the third was for the future to determine, but there was distinct hope that it was a sound assumption

Mr ZACHARY COPE did not think that there was anything surgically wrong either theoretically or practically, in incising a carbuncle right beyond the inflamed edge In practice, at any rate it was not wrong, because one got a quicker healing if the incisions were made beyond the inflamed area He had seen only one death from a carbuncle in his practice Carbuncles involving the upper lip were said to be very fatal but in carbuncles on the lower lip good results were obtained by opening freely, and no scar was left One interesting phase of the subject was the reason why some people had an outbreak of boils, generally on the face, after partaking of pork or any pig product Those who had low resistance to the staphylococcus might have intervals of freedom but sometimes the low resistance continued throughout life What was the connexion between the appearance of boils and puberty?

Dr WARREN CROWE urged that small doses of the staphylococcal vaccine were just as important as they were known to be with the streptococcal vaccine If there had been a bacteriologist 2 500 years ago he would have been mentioned in the Bible During the war he had had to investigate a disease known as the "Nile boil" which was one of the "plagues" of ancient Egypt and that was found to be due to a white staphylococcus The Nile boil was the most appalling thing in staphylococcal infections He had seen one which was the size of a small coconut

Mr E D DAVIS spoke of staphylococcal infections in the nasal sinuses They occurred also in the lower jaw, and even in the upper jaw, in an infection following extraction of teeth, when they were extremely difficult to treat Dr R J V PULVERTAFT referred to cases which had followed the injection treatment for varicose veins with sodium morrhuate The infection resulted from imperfectly sterilized syringes and needles Dr J W MCNEE said that *Staphylococcus aureus* varied greatly in its virulence, and it was only the clinician who had the opportunity of noticing its variations He wondered whether there were certain strains which were more virulent as toxin producers than others Dr GORDON GOODHART took up Dr Thursfield's remark on immunotransfusion, and said that his experience of transfusions for *septicaemia was that they were not the slightest bit of* good in a patient who had got leucocytosis Dr C E LAKIN said that in quite a number of cases in which, on examination of the urine, perinephric abscess had been suspected, the *Staphylococcus aureus* was found to be present Dr WALTER BROADBENT asked for any experiences of the organisms in the sputum in pneumonia

Sir JOHN THOMSON WALKER referred to the aetiology of perirenal abscess A very small abscess in the cortex of the kidney might produce a localized or generalized perinephric abscess *A point that ought to be recognized* was the length of time elapsing between the original infection and the occurrence of the perinephric abscess He had seen an interval of apparent health of certainly more than a year after a crop of boils and then a perinephric abscess and he could not think but that it was the same infection which had invaded the patient all the time Another point was the prolonged convalescence in these cases With staphylococcal perirenal abscess, one was in for two or three months of illness

Mr CLAUDE FRANKAU, in reply, still thought it wiser, notwithstanding what Mr Cope had said to extend the incision only to the limits of the carbuncle and not beyond it Dr THURSFIELD said that the connexion between the organisms and diet opened up an interesting field He thought there was no doubt that staphylococcal infections in young adolescents were immensely improved and sometimes even cured by abstention from or by diminution of carbohydrates Dr WHITBY said that he believed the toxin producers were of the *albus* variety and those particular forms of the *albus* variety were usually obtained as variant "sports" from an *aureus* culture

AVITAMINOSIS

At a meeting of the Section of Tropical Diseases and Parasitology of the Royal Society of Medicine on December 7th, with Dr H S STANNUS in the chair, a discussion took place on avitaminosis (B group) in tropical and temperate countries

Dr HARRIETTE CHICK dealt with the relation of laboratory work on vitamin B deficiency to clinical experience For a long time the two constituents of the B group 1 and 2 which were very widely spread in foodstuffs, and had a roughly similar distribution were considered to be one substance In general, the highly nutritious foodstuffs were rich in them and the cereals were poor, but there were some marked differences in the distribution of B_1 and B Wheat embryo for example was very rich in B_1 and relatively poor in B while with egg white the reverse obtained A deficiency of B_1 was considered to be one of the causes of beri beri Lack of B_1 owing to the consumption of highly milled cereal, seemed to explain the epidemiology of human beri beri, as in the Philippine Islands, Java and Japan Beri beri had lately been reported from Iceland, where white flour was increasingly taking the place of rye When maize was the staple cereal consumed beri beri was not reported but pellagra was found The cereal lowest in B content was rice, not maize, even milled maize contained appreciable amounts of B. The foodstuffs which prevented pellagra were all highly nutritious, such as milk and eggs, the most potent of all was yeast Animals deprived of B. but provided with B_1 by means of cereal embryo which was rich in that substance, developed a condition considered to be analogous to pellagra The connexion between B. and pellagra was considered proved in the United States, just as beri beri was supposed to be due to a deficiency of B_1, but she did not think it entirely proved, and there seemed to be a good deal against the theory If it were so, then maize should be the cereal which had the lowest value of B., and careful experimental work had not proved that hypothesis as yet to be correct A deficiency of B_2 had been associated with many other diseases in recent years Two substances found to have an enormous therapeutic effect were liver

or liver extracts and yeast. A disease of infants known as acrodynia or Swift's disease, which once was considered almost incurable, had been cured in the last three years by the use of yeast, and liver had been given in one case with remarkable results. She suggested that a deficiency in vitamin B might bring in two different mechanisms: the substance might be absent from the diet or there might be inability to absorb it.

Professor R. A. PETERS, in dealing with vitamin B deficiency in temperate climates, said that the problem of B_1 and beri-beri had a history of at least forty years, and was so well worn that it might be thought somewhat impertinent to suggest that not all was known as yet about the therapeutic use of the vitamin. A significant new fact recently elicited was that really concentrated preparations of this vitamin could be obtained with relative ease. Therefore the time had come to devote serious attention to investigation of possible conditions in which it might be of therapeutic value. The view often expressed that there was no B_1 deficiency in temperate climates rested at present upon mere assertion, backed by the general clinical impression that beri-beri did not occur. But the question could not be answered until it had been shown whether patients suffering from any of the well-known clinical manifestations of beri-beri were in fact influenced or otherwise by vitamin B_1 therapy. He was well aware that controlled clinical experiments, for instance, in relation to oedema were difficult, but this provided no sufficient excuse for omission to perform them. He went on to sketch briefly the present position of research upon the chemistry of the vitamin B complex, directing his remarks mainly to vitamin B_1 to emphasize the main features of animal experiments, including some discussion of the function of the vitamin, of its possible exhibition, and of its application. There had been two main theories of the action of B_1 pursued rather energetically in the past, the first that B_1 was related to carbohydrate metabolism, and the other that it was an oxidative factor. Recent work had shown that the key to this problem lay in a biochemical investigation of the avitaminous pigeon's brain tissue, and that both theories had an element of truth. It had been definitely proved that in absence of the vitamin there was an oxidative lesion in the avitaminous pigeon's brain, which was in some way connected with the metabolism of lactic acid, and therefore with carbohydrate. Absence of vitamin led to increased lactic acid. Roughly speaking, the avitaminous brain had the metabolism of tumour tissue, and together with these specific effects in the brain there was apt to be a generalized increase of lactic acid in the blood and in the heart. He pressed for a proper trial of B_1 in clinical medicine. Its use should be looked for in the following conditions at least: loss of appetite, oedema, palpitation and breathlessness, and neurotic conditions. It would be manifestly absurd to suggest that all examples of these conditions were due to lack of this vitamin, but particular cases might be so due. Dried yeast, marmite, and so on were excellent sources of the vitamin for ordinary use, but relatively large amounts of these would be necessary.

Dr. LUCY WILLS spoke of vitamin B deficiency in the anaemias. She said that there was very little that was conclusive in the work on animals that had been carried out in connexion with the production of anaemia on vitamin B deficient diets. Only a certain percentage of animals developed skin lesions when on B_2 deficient diet, and on B_1 deficient diet they did not develop true anaemia. The condition could be prevented if yeast was included in the diet, but only cured with difficulty by the addition of yeast. It was cured far more readily with liver extract or beef muscle, which suggested that it was not the B component which was the active factor, but something associated with it. In the treatment of macrocytic anaemia, which occurred in India and the West Coast of Africa and other places, marked success had been achieved by the use of marmite. The disease was very similar to pernicious anaemia, though quite distinct from it in several ways. The majority of cases had perfectly good gastric secretion, and she had never seen a case showing nervous symptoms. She had studied the disease in Bombay, and had come to the conclusion that it was a dietetic disease. She had given marmite to two women who would not take liver, and the result had been very striking. With regard to the use of yeast in this connexion, it was essential for the extrinsic factor to be acted upon in the stomach itself. It seemed clear that vitamins B_1, B_2, and B_4 had no haemopoietic effect, and it was possible that the haemopoietic factor in the future would be labelled Bx.

Professor S. J. COWELL, dealing with vitamin B deficiency in relation to intestinal disorders, said that there was no clear evidence that the deficiency in itself caused in animals a retardation or stagnation of food in the intestine. Some kind of disturbed function of the gut was common in B deficiency, but specific stoppage was no characteristic. In beri-beri the onset of the disease was sometimes accompanied by acute diarrhoea and vomiting and not infrequently an attack of beri-beri followed an attack of diarrhoea. It was difficult to know which came first, whether diarrhoea caused a deficient utilization of the vitamin B or whether the diarrhoea was an expression of a lesser degree of vitamin B deficiency which finally was so pronounced that it led to nervous symptoms. In the case of pellagra some of the earliest symptoms were loss of appetite, dyspepsia, and vomiting. There was also a type of acute gastro-enteritis in children, with severe toxic symptoms, which might be traced to vitamin B deficiency, the evidence being that a large proportion of the cases yielded very promptly to the intravenous injection of a potent concentrate of vitamin B. With reference to the relation between vitamin B deficiency and intestinal stasis in man, the evidence that the deficiency was a common cause of constipation in this country was very meagre. The relation of vitamin deficiency to disorders of the gastro-intestinal tract might be an important practical problem in this country, but at present that was not proved. If the concentrate vitamin preparations of which Professor Peters has spoken were available for trial by large numbers of people it should be possible within a reasonable time to get accurate information on that point.

Dr. S. LEVY SIMPSON discussed the question of secondary pellagra, and gave a list of conditions following which secondary pellagra might occur. These included chronic gastritis, gastric carcinoma, and operations on the stomach. Dr. C. C. UNGLEY showed a case in which an extract derived from fresh yeast was effective in pernicious anaemia; autolysation did not increase the potency of the yeast. He also described an attempt to determine whether yeast preparations which were active by mouth were equally active by other routes. Rectal the extract of marmite was negative when by mouth was positive.

Dr. MARGARET BALFOUR said that while working in India she was struck by the large number of premature births, with no symptoms in the mother which seemed likely to cause the immaturity. The women, however had a diet deficient in vitamin B_1 compared with other classes of women who had given birth to full-time babies. She made a later investigation in Bombay on the diet of pregnant women, whom she followed through delivery. Among the 290 cases of pregnancy there were thirty-five premature deliveries. The women who gave birth to these immature babies had diets which were extremely poor—chiefly polished rice, with a little vegetable, and occasionally meat or fish. She found that where women had derived 50 per cent. of their calories from polished rice there was 20 per cent. of premature births, and where 50 per cent. of the calories were derived from wheat there were no cases of premature birth at all.

Dr. W. CRAMER said that the most outstanding thing found in rats which were kept on a vitamin B deficient diet was the widely dilated stomach filled with food. Another naked-eye change was the failing of the muscular of the intestinal canal. Dr. G. BRAY described his investigations of infantile beri-beri on the island of Nauru in the Central Pacific. After the infants were fed on half a teaspoonful of "toddy"—a yeast preparation

three times a day from birth, the infant death rate, which had been extremely high, dramatically declined.

The PRESIDENT, in closing the discussion, said that one thing that had worried him as a clinician ever since the theory of deficiency diseases was introduced was an inability to understand how the absence of anything could cause the positive symptoms seen in pellagra or beri-beri. One of the first indications towards a solution of that problem was forthcoming when Mellanby introduced the idea of there being a second active positive factor, and he himself felt convinced that the symptoms one saw were produced by a positive factor, doubtless acting in the absence of a vitamin.

AIR AMBULANCES

The subject of the air ambulance was discussed at a meeting of the United Services Section of the Royal Society of Medicine on December 11th.

Colonel E. M. COWELL, in tracing the brief history of the subject, said that as long ago as the 'nineties M. de Mooy, a Dutch doctor, was exploring this subject with balloons, and up to 1911 with aeroplanes. During the war, in 1915, successful air evacuations were made in Albania, and in the Morocco campaign, beginning in 1921, more than 4,000 casualties were successfully evacuated by air. The ideal front line treatment of wounded, Colonel Cowell continued, consisted in efficient first aid and rapid evacuation, and no method was quicker than air transport. Successful surgery, with subsequent nursing, must be carried out beyond the range of heavy artillery—that is, from twenty to thirty miles behind the firing line. The French authorities estimated that a division engaged in major operations sustained 600 casualties a day, about one-fifth of which required air evacuation, and on this basis three large ambulance machines were needed for each division. The forward landing grounds must be at least ten kilometres (between six and seven miles) behind the firing line—that is, in the region of corps headquarters. With regard to the civil use of air ambulances, he mentioned that these were largely employed in the French colonies, by the Swedish Red Cross, and by the Inland Air Mission of Australia. Such services had also been organized in Italy, Poland, and other countries. Coming to the physiological effects, Colonel Cowell said that in normal circumstances it was not necessary to fly above 7,000 feet, and this altitude would not produce any effects except those attending lower temperatures. The machine must be closed and provided with means of giving heat if required. High altitude encouraged bleeding, and in head injuries epilepsy had been induced, while in abdominal wounds the viscera tended to herniate. Cases with wounds of abdomen, chest, or head should not be carried without due consideration to the case, though in actual practice many hundreds of such cases had been successfully transported by air. When it was necessary to fly at great heights some simple method of giving oxygen must be arranged. He went on to describe the British Red Cross Society's scheme, in which air ambulance detachments were now sanctioned by the Air Ministry and a personnel of pilots was ready to volunteer for active service over-seas if called upon. It was not proposed to keep special machines for ambulance purposes, the expense of providing the machines and their upkeep being too great; but as new machines were designed and built the ambulance question would be kept in mind. The French found two types of machine useful, one the large ambulance, carrying from eight to ten cases, and the other a smaller machine, with two stretchers. In this country it was possible to adapt the larger commercial machines, while the smaller type was supplied by a machine, of which he showed a model, named Monospar S.T.4. He exhibited a cinematograph film of the Desoutter monoplane fitted to take two stretcher cases, which achieved a speed of 120 miles per hour.

Air Commodore HARDY WELLS mentioned that in 1923 in Kurdistan a total of 196 cases were evacuated by air to the hospital in Baghdad. He was sceptical of Colonel Cowell's figure of 20 per cent. of cases requiring air evacuation, and he was pretty sure that that proportion would have to be reduced to something like 10 or 5 per cent. In the R.A.F. all types of cases had been transported by air, including cases of pneumonia, tuberculosis of the lung, heart cases, and mental cases, and no ill effects had been observed. He believed that an ambulance plane would not have to fly direct from point to point, but would be given a definite route—a sort of air corridor.

Group Captain H. E. WHITTINGHAM said that the first organized air ambulance service in this country was used at the Halton Air Force camp in 1924-5, and having had also some experience of early French transport, he believed that this country had the historical priority.

Major-General P. H. HENDERSON strongly urged that machines used for air ambulances should be so constructed as to take the ordinary standard stretcher used in the service. It was very difficult indeed to transfer cases from one stretcher to another for the purpose of the air ambulance.

Major-General J. A. HARTIGAN thought that the weak link in the chain of evacuation would be that which connected the field ambulance to the casualty clearing station, a distance varying from seven to twenty-five miles. In the mobile wars of the future that distance would be very greatly increased, perhaps from 50 to 100 miles, and he could not see any means of getting over the difficulty except that of the air ambulance. He looked forward to the time when the D.M.S. of an army would have a squadron of air ambulances at his disposal, with suitable landing grounds in the immediate vicinity of the main dressing stations ten miles from the front.

Major-General WEST said that in the war the average time spent in getting a case of abdominal injury back to the casualty clearing station was eight hours, but six hours of that time was occupied in getting it from the field ambulance posts to the main dressing station, and after that the transport to the casualty clearing station was comparatively rapid. He was not convinced that they could yet eliminate from their organization an operating centre situated ten or fifteen miles behind the firing line, where a certain number of cases could be retained for some days before further evacuation.

Colonel COWELL, in reply, mentioned that the little machine he had demonstrated, the Monospar, would take the standard stretcher. A special stretcher had to be used in the big Imperial Airways machines.

TRAUMATIC ARGYLL ROBERTSON PUPIL

The Section of Ophthalmology of the Royal Society of Medicine held a clinical meeting at the Western Ophthalmic Hospital, Marylebone Road, on December 8th. There were twenty-seven demonstrations of clinical cases, among which was one of traumatic monocular Argyll Robertson pupil, shown by Mr. A. RUGG-GUNN. The patient, he said, was a male aged 9. He was knocked down by a car in May, 1933. He was probably unconscious for a short time, and was delirious for some days. On admission to hospital he was found to have a fracture of the vault, mainly involving the right frontal bone. As both tympanic membranes were ruptured there was probably a combined fracture of base and vault. After the accident all movements of the right eye were paralysed (third, fourth, and sixth cranial nerves). There was ecchymosis of the lids, no proptosis, and apparently subconjunctival haemorrhage. Distant vision was now 6·6 right and left: near vision—right < J 12; left = J 1. Visual fields were unaffected and the fundi normal. All power of upward movement of the right eye was lost, and there was no accommodation. The right pupil did not react to light directly or consensually, but reacted to convergence accommodation. There was no miosis and the pupil was mobile. The lesion might be either haemorrhages involving the oculomotor nucleus and adjacent terminal part of the colliculo-nuclear tract, or haemorrhage in the orbit (partial sphenoidal fissure syndrome) affecting the ciliary ganglion.

Reviews

THE SOCIAL PROBLEM GROUP

It is very difficult to assess the value of a book like *Heredity and the Social Problem Group*,[1] by Mr. E. J. LIDBETTER. It is the first of a series of volumes which are to consist mainly, as this does, of a number of pedigrees and statistical tables relating to the families of persons who frequently, or from time to time, have become chargeable to the funds administered by the Poor Law authorities, formerly the boards of guardians, now the public assistance committees. The data set out in the twenty-six pedigrees with which the present volume is concerned were gathered by the author in a district of the East End of London between the years 1910 and 1928. They are the result of very painstaking and difficult investigations for the conduct of which the author was very favourably situated and may be said to have been in some respects specially qualified. They are being published under the auspices of a special committee of the Eugenics Society, but it does not appear that the members of this committee have any responsibility for the character and method of the investigation itself, or, so far, offer any guarantee of its accuracy or scientific value. It is, however, implied that they may have more direct responsibility for a supplementary investigation in the nature of a control inquiry into the family history of one hundred children chosen at random from the rolls of elementary schools in the same district; but this control investigation appears to be only in a preliminary stage, and to have been conducted intermittently. No results are yet available with regard to it, even such as it is. Mr. Lidbetter himself says that "no attempt will be made, until all the material has been issued, to draw inferences or conclusions from the facts disclosed"; but this is not completely and exactly adhered to throughout his volume, though no doubt final inferences and conclusions are reserved. Indeed, the secretary of the Eugenics Society, in a covering letter, himself sets out what he describes as "the main conclusions reached by the author."

There is an introduction to the volume by Major Leonard Darwin. This gets us nowhere, but consists largely of tendentious platitudes. There is, however, one statement which, in this connexion and from this source, is gratifying: it should be elevated from its position as an incidental remark to one which would emphasize its importance as a fundamental consideration. "Let it be noted," says Major Darwin, "that all permanent improvements in surroundings should be welcomed by the eugenist, not only by reason of the benefits they confer on the community in general, but also because the more perfect the environment becomes the more likely will it be that inborn defects would be recognizable as being due to natural inferiority." This is to put the cart and the horse into their proper relationship; for, until environmental conditions in families such as those of Mr. Lidbetter's study have been immensely improved, it will be unsafe to draw conclusions even from the most elaborate pedigrees.

The pedigrees which Mr. Lidbetter sets out, and is still to set out, have their value, and ought to be carefully and impartially studied for what they are worth. Even though they bear some evidence of having been selected and compiled under the influence of a belief that there must be some inherent inferiority of stock in the families of those who are very poor, they may still yield some guidance in a difficult field when submitted to unbiased scrutiny. The description given of the circumstances and conduct of the investigation does not, however, inspire great confidence, and the absolutely essential control investigation has the appearance of being somewhat meagre and perfunctory—even if the material used is in fact relevant as a control at all. It may therefore ultimately be found that the accuracy and completeness of these pedigrees—without questioning in the least the immense trouble and considerable skill which have gone to their production—are not less vulnerable to criticism than the "Jukes" and "Kallikak" pedigrees. And any conclusions to be drawn from them may be as little justified in the eyes of scientific students of genetics as the conclusions which were at first confidently drawn from those famous pedigrees. Nevertheless, the complete series, of which those in this volume form the first instalment, will be awaited with curiosity and hope.

[1] *Heredity and the Social Problem Group*. By E. J. Lidbetter. Vol. i. London: Edward Arnold and Co. 1933. (Pp. 160. 21s. net.)

NASAL ACCESSORY SINUSES

Dr. FREDERICK LAW contributes the fifteenth volume to *Annals of Roentgenology*, under the title of *Nasal Accessory Sinuses*.[2] The author states that he has tried to consider both the roentgenologist and the rhinologist. He has been very successful in his attempt to show how the one should endeavour to provide the information which would help the other, especially if any operative treatment is contemplated. This information falls into two distinct divisions: anatomical and pathological. Few regions are more subject to anatomical variation without any external indication than the accessory sinuses, and the information of this order is at least as important as the pathological, and certainly more definite. The interpretation of films must be based on an accurate knowledge of the anatomical structure revealed, and the author has spared no trouble in the text and in the photographs (reproduced at the end of the book as a collection of plates) to make clear the anatomical interpretation of films. In another chapter he gives full technical directions for the production of constant views by using standard and invariable positions of the head and target. Pathological appearances are fully described and liberally illustrated, and the whole gives a complete account of that collaboration which it is his desire to cultivate. The author recalls that in America the pioneer work was initiated by such a collaboration between Dr. Caldwell and Dr. Coakley, following the work at Killian's clinic in Freiburg. The original paper by Dr. Caldwell is quoted at length, and it is remarkable how little it has been necessary to diverge from the principles which were there laid down. Much detail has been written and published since on this particular branch, but it requires a book to cover all the anatomical, technical, and pathological aspects. This volume is a magnificent contribution to both radiology and rhinology.

A POPULAR MEDICAL DICTIONARY

Dr. D. ELLIOT DICKSON explains, in his preface, that *Nelson's Medical Dictionary for Every Home*[3] is intended for the intelligent layman. It is a guide to enable him "to recognize the various diseases and disabilities, the importance of securing attention to these in their earliest manifestations, and the main lines of treatment to be carried out." Let us welcome so laudable an object as the enlightenment of the intelligent layman, but let us also give praise that someone has at last defined the target at which, from time to time, publishers are wont to direct their so-called popular dictionaries. We had

[2] *Nasal Accessory Sinuses. Annals of Roentgenology*. Vol. xv. By F. M. Law, M.D. New York: P. B. Hoeber, Inc. 1933. (Pp. 215; 225 figures. 10 dollars.)

[3] *Nelson's Medical Dictionary*. By D. Elliot Dickson, M.D., F.R.C.S. London: T. Nelson and Sons, Ltd. 1933. (Pp. 301. 2s. 6d.)

always been mystified by their objective. Advertisement hoardings suggested that the popular medical lexicographer was a real menace. We imagined the "home-doctor" professing to provide, after a hurried search through its pages, an efficient and inexpensive substitute for the family physician in person. We further pictured its use as a glossary to enable the pronouncements of the specialist to be translated into simple language. We even visualized the dangerous weapon such a dictionary might prove in the hands of a suspicious victim of disease, anxious to check, and even question, the practitioner's knowledge and skill. Dr. Dickson clarifies the position admirably, and we like to think that, even if the intelligent layman really did do any of these things, he will do so no longer. But what of the lower grades of intellect—as, for example, the "intelligent reader" of the popular daily newspapers? Will the prurient-minded discover in Dr. Dickson's work good material to brood on? This may at once be answered in the negative. Again, will the hypochondriac find fresh fields of endeavour open to him? Not, we think, unless he reads the dictionary from end to end, when he will discover tucked away under "kidney" the sinister facts of nephroptosis.

In his preface Dr. Dickson has much to say about preventive measures—particularly in children's disease. "A child who is feverish, restless at night, or in pain should immediately be put to bed and given a day's rest; should usually get a simple purgative, and if not right next day should be medically examined. By preaching and practising this simple procedure for many years the writer has satisfied himself that it has been the means of saving much serious illness in children." Here are real words of wisdom. It is difficult, however, to conceal a certain dissatisfaction as a result of reading the whole book, for though its object is praiseworthy in the extreme, and though many—and some useful—facts are here packed in small compass, we cannot escape the opinion that as a work it falls between two, possibly more, stools. It provides the intelligent layman with too much and too little information. It tells him how to treat conditions which he should not treat, and fails to emphasize the doctor's value in unravelling the difficulties with which it deals; it gives sketchy physiological knowledge; it flits here and flits there, but it does not tell the intelligent layman when to send for his medical man. Let us by all means encourage healthy living and prevent disease, let us tell the public about endocrine glands, vitamins, and diet, let us teach them to open their windows, to take sufficient holidays, to avoid being run down in health, not to over-eat and not to drink too much, let us satisfy their curiosity about buboes and ichthyosis, let us even smile on amateur therapeutics; *but* we would prefer not to attempt a project so comprehensive in a book of 300 pages arranged like a miniature encyclopaedia.

SPINAL INJURIES

Professors G. MICHEL and M. MUTEL and Dr. R. ROUSSEAUX of the Faculty of Medicine of Nancy have co-operated in writing a handbook on injuries of the spinal column without external wounds (*traumatismes fermés*).[4] In their introduction they comment upon the great progress in diagnosis wrought by the help of advancement in the power and precision of *x* rays, and by the greatly enlarged experience of the late war. (They might have added, the effects of the increased use and misuse of automobiles.) In an anatomo-physiological note the terms used are defined and explained and made precise, while the obvious value of recent knowledge of the importance of the architectural system of the vertebral column and of the nucleus pulposus is insisted upon. This latter structure has not received much attention from British surgical pathologists. The chapters devoted to consideration of the examination of the patient and the study of important medullary syndromes do not profess to be written for neurologists and physicians so much as for practising surgeons.

Separate sections of the book are devoted to lesions of the atlas and axis, lesions of the last five cervical vertebrae, and lesions of the dorso-lumbar region, which are not only the most frequent in the graver forms affecting the spinal marrow and the nerve roots, but also, in the latent forms, often overlooked until the appearance of syndromes such as are known by the name of Kümmell. The authors confine their attention almost exclusively to fractures of the vertebral bodies when writing of cervical or dorso-lumbar fractures. They draw attention to the importance of pulmonary and peritoneal complications, after severe injuries of the cranium and spine, and quote the works of Cornil and his school on the pathogenic mechanism of those visceral syndromes which follow injuries of the autonomous nervous system, especially frequent in injuries of the mid-dorsal region. Among special injuries that known as divers' fracture, resulting from a plunge into too shallow water, is well illustrated. In this injury the spinal canal is split, and widened from side to side. The authors remark that laminectomy is useless in such a case and no other operation offers hope of improvement. They do not describe details of operations, or of the application of plaster-of-Paris or spinal supports, but content themselves with discussion of the various injuries in various parts of the spine with an account of the groups of symptoms thus produced. They bear in mind throughout that in a severe spinal injury the state of the soft parts cannot be ignored, and that besides possible and probable injury to the medulla and nerve roots, the stability of the column may be impaired by the original injury or by the procedures of the surgeon. This book is a clear and useful guide to the subject.

[4] *Les Traumatismes Fermés du Rachis.* Par G. Michel, M. Mutel, et R. Rousseaux. Paris: Masson et Cie. 1933. (Pp. 330; 83 figures. 50 fr.)

WILSON OF THE ANTARCTIC

This memoir of *Edward Wilson of the Antarctic: Naturalist and Friend*,[5] by Mr. GEORGE SEAVER, may remind the reader of other medical naturalists and explorers, such as Sir Hans Sloane in the seventeenth century who went to Jamaica, Richard Bright and Sir Henry Holland to Iceland, and Sir John Richardson to the Arctic in the last century. Born in 1872, the son of a well-known physician at Cheltenham, Edward Adrian Wilson began to draw when he was but 3 years old, and very early became a field naturalist; at Cheltenham he was not a brilliant classic or mathematician, but he won the school prize for drawing on four occasions, and went up as an exhibitioner to Gonville and Caius, where he rowed in the first boat, won the university prize for diving, and was placed in the first class of the Natural Sciences Tripos in 1894. Of unselfish modesty, he combined with strict obedience to his own high principles "a curious indifference to academic rules and regulations"; and here a rather remarkable incident may be quoted: a keen fisherman, he got out of College at 3 o'clock on a summer morning and succeeded in catching in the pool below Grantchester Mill a well-known and much-fished trout, which he then presented to the Master of the College, who thanked him for the handsome present, and

[5] *Edward Wilson of the Antarctic: Naturalist and Friend.* By George Seaver, M.A., B.D. With an introduction by Apsley Cherry-Garrard. London: John Murray. 1933. (Pp. xxxiv + 209, illustrated. 10s. 6d. net.)

at the same time, as a strict disciplinarian, punished him for being out of College so early in the morning. From Caius he went up to St. George's Hospital, where his plans were upset by a rather severe attack of pulmonary tuberculosis. His recovery, however, was fortunately complete, so that after qualification he went on the first of the two voyages to the South Pole in 1901 with Captain Scott, who later wrote: "Words must always fail me when I talk of Bill Wilson. I believe he really is the finest character I ever met—the closer one gets to him the more there is to admire." It may be interesting to note that the Medical Board reported adversely against his acceptance, but Scott was determined to take the risk, and was fully justified by results.

Wilson was a reserved man, entirely devoid of ambition and self-seeking; he combined with an essential manliness and the highest moral and physical courage a sweetness of character unusual among men. But, as Mr. Cherry-Garrard says in an affectionate introduction, his companions in the Antarctic expeditions knew him as the man upon whom they threw their troubles and worries, their aches and pains, the happy companion, and "Bill the Peacemaker," but not as the man with the depths of religious feeling later revealed in his diaries and letters. It is now more than twenty years since Wilson met his death from starvation in the Antarctic, and his friends will welcome this tribute so splendidly illustrated by his own drawings, especially those of birds.

Notes on Books

In the volume on *General Medicine*,[6] in the Practical Medicine Series, GEORGE F. DICK, who succeeds G. H. Weaver in the editorship of the section of infectious diseases, points out that perhaps the most outstanding advance on this subject has been the growth of the virus of vaccinia in such a practical way as to make its use possible in pure culture for the prevention of small-pox. He also emphasizes the importance of recent work on the practical value of scarlet fever toxin and antitoxin in the prevention and treatment of the disease, and the importance of the haemolytic streptococci in the aetiology of arthritis. Diseases of the chest (excepting the heart, but including tuberculosis) are discussed by Lawrason Brown; and diseases of the blood and blood-making organs and diseases of the kidney by George R. Minot and William B. Castle, who remark that the knowledge of blood formation is being consistently increased by a better correlation between the morphological and physiological characteristics of the bone marrow and the result of its activities upon the blood stream picture. William D. Stroud deals with diseases of the heart and blood vessels, and George B. Eusterman has succeeded Ralph C. Brown in the editorship of the section on diseases of the digestive system and metabolism.

JOYCE DENNYS, with her witty pen and wittier pencil, must be regarded from the orthodox medical point of view (and in the idiom of the-day-before-yesterday) as "a definitely wicked person." Her humorous understanding of the trials of the doctor's wife goes with a merciless insight into the weak joints in the anatomy of the commercial kind of doctor, who is not really very common in one sense of the word, though all too common in the other. But *The Over-Dose*[7] disarms criticism, as did its two predecessors, and since the author and illustrator says it "really *is* the last one," we feel that the spirit of Christmas tolerance may allow us to mention this further piece of naughtiness which she has perpetrated at the expense of the medical profession. And it is not doctors alone that she laughs at, though they are her main butt.

[6] *General Medicine*. Edited by George F. Dick, M.D., Lawrason Brown, M.D., G. R. Minot, M.D., W. B. Castle, M.D., W. D. Stroud, M.D., and G. B. Eusterman, M.D. The Practical Medicine Series. Chicago: The Year Book Publishers, Inc. 1933. (Pp. 881; 100 figures. 3 dollars.)

[7] *The Over-Dose*. By Joyce Dennys. London: John Lane, The Bodley Head, Ltd. 1933. (Pp. 155. 5s. net.)

The fourth edition of Dr. A. T. CAMERON'S *Textbook of Biochemistry*[8] has appeared, two years after its predecessor, which had to be reprinted last year. The advance of research in this field of science is very rapid, and the discovery of new facts is continually leading to re-examination of old conceptions, some of which have as a result to be substantially modified. Such a textbook as this must therefore be repeatedly revised, and at short intervals, if it is to keep pace with progress and be of real assistance to students of medicine and science generally. Two features of the new edition are the thorough overhauling of the chapter on the internal secretions and the fresh information about the sterols. The survey of the endocrine glands is concise and reasonably detailed, and care has been taken to indicate, rather than to dogmatize about, certain new views which as yet are not substantiated. This is a satisfactory way of dealing with a subject which in the past has suffered from a far too hasty acceptance of conclusions drawn from suggestive but not conclusive data. Additions, corrections, and improvements have been effected throughout the book. In a volume of this size and outlook full references to current literature are obviously impossible, but the author's selection, while open to some criticism, is undoubtedly helpful to the student, if not fully satisfying to the teacher. In short, the *Textbook* is a wise summary of a rapidly developing subject, and its popularity is assured.

"Clear Lower Deck,"[9] by SIDNEY KNOCK, is one of the Nautilus Library Series of books about the sea and ships. The author joined the Royal Navy as a stoker in 1903 and served continuously until 1924. He is therefore particularly well qualified to describe life in the Service as viewed from the lower deck, and the manners and customs of the men who form the ships' companies of His Majesty's ships and vessels. He states his opinions with complete frankness, and, though some of his observations may cause a certain amount of surprise to those unacquainted with the Navy, there is no doubt that the author does faithfully reflect the views of many, if not most, of his messmates. It is gratifying to find, on the authority of so outspoken and critical a witness, that the medical branch of the present day has won the undiluted confidence and regard of the "matlow" for its high state of efficiency and excellence, a state of affairs which could not with any truth be claimed to exist at the time the author went to sea. This is largely, but not entirely, attributable to the sane and helpful attitude towards the prevention and treatment of venereal disease which medical officers have pursued during the last twenty years with every encouragement from My Lords and officers in high command. At the end of the volume there will be found a glossary of terms in vogue on the lower deck—that sailors' argot which the mere landlubber often finds so puzzling to understand.

"If ifs and ans were pots and pans, what would the tinker do?" If Charles Edward had not retreated from Derby and if the Highland Army had defeated Cumberland and if the Stuarts had regained the throne, things would doubtless have been other than they actually were. Many people will agree with Professor G. M. Trevelyan that "nothing but a fantasia of misrule could have resulted from a change of dynasty effected by Highland clans in defiance of Parliament and the laws, through the mere lethargy of the civilized world in defending its own institutions." The author of *Derby and the Forty-Five*,[10] Major L. EARDLEY-SIMPSON, presumably regrets the retreat. In investigating the subject he has collected much information and made available to the reading public much historical knowledge of the circumstances. One characteristic of the time which cannot fail to impress the reader is the widespread prevalence of that lethargy to which Professor Trevelyan referred.

[8] *A Textbook of Biochemistry*. By A. T. Cameron, M.A., D.Sc. Fourth edition. Churchill's Empire Series. London: J. and A. Churchill. 1933. (Pp. 556; 2 plates, 13 figures. 15s.)

[9] *"Clear Lower Deck."* By Sidney Knock. An intimate study of the men of the Royal Navy. London: P. Allan. 1933. (Pp. 189. 2s. 6d. net.)

[10] *Derby and the Forty-Five*. By L. Eardley-Simpson, M.A., LL.B. London: P. Allan. 1933. (Pp. 302. 15s. net.)

British Medical Journal

SATURDAY, DECEMBER 23rd, 1933

PSYCHO-ANALYTIC TREATMENT

In a recent number of the *Journal of the American Medical Association* there appeared an article on the value of psycho-analysis as a therapeutic procedure, by the late Dr. Leo Kessel and Dr. H. T. Hyman, which is of the greatest interest and significance.[1] In this a review is given of the therapeutic results obtained by competent and complete analysis of thirty-three patients. An editorial comment on Kessel and Hyman's paper in the same issue of our contemporary is probably correct in stating that this purely objective and unbiased study is almost, if not quite, unique in medical literature, and we may all hope that it will prove to be the precursor of other equally fair and judicial studies of this thorny subject.

The British Medical Association, it will be remembered, set up a committee in 1927 to investigate the subject of psycho-analysis. The report of that committee, presented in 1929, was largely definitive and explanatory, and may have done something to promote the much more tolerant attitude which has been presented during recent years towards this branch of medicine by the medical profession as a whole. Early in its deliberations the committee concluded that it was impossible to collect reliable statistics as to therapeutic results. At that time the heresy hunters were too determined that anything containing the syllable "psych" smelt of the pit, while it was considered that statistics compiled by the practitioners of this special form of therapy themselves were hardly admissible for a truly objective study. The article to which we refer, therefore, so far as it goes, is in a sense complementary to the report of the British Medical Association's committee. Only thirty-three cases are quoted, which of course is a small number; but when it is realized that each case takes an average period of sixteen months, working three to five days a week, and that a corresponding economic factor is involved, it becomes evident that large numbers cannot be collected within any reasonable time. These cases were submitted by the authors, who are themselves general physicians, to analysts approved by the New York Psycho-analytic Society. These approved analysts are qualified medical practitioners who, having held an internship, have submitted themselves to analysis by a previously accredited analyst, and have conducted at least two complete analyses under supervision. Patients suffering from frank psychoses were not benefited by treatment, and it would appear that psycho-analysts themselves are becoming more and more chary of accepting such patients for treatment, and in the case of those early psychotic persons who are accepted the object of the conscientious psycho-analyst is rather to attempt to arrest the development of symptoms than to cure the underlying conditions. Patients suffering from behaviour problems and maladjustments, from simple neuroses and psychoneuroses; or from visceral symptoms of a functional nature, were treated with varying success. Of the thirty-three cases submitted results were classified as bad in sixteen: of these seven were psychotics and the rest maladjustments of various sorts. Four results were classified as good, with qualifications. In these the patients became symptom-free, but the authors consider that the results might be attributed to sexual satisfaction as much as to the analysis. Since this sexual satisfaction was experienced outside marriage the beneficial nature of the cure, from the standpoint of society, may be called in question, although, as is pointed out in the editorial comment, improvement of marital relations is a more frequent outcome of analysis than is divorce Thirteen cases are classified as satisfactory specific results. Five of these were cured, and in the opinion of the authors this could not have been brought about by any other method. Five showed improvement though the cure was not complete, and in three instances of behaviour problems the analyst succeeded in producing the desired result without the conclusion of a formal analysis. It is interesting to note that the five cured patients were all of the intellectual class and all under 30.

The authors sum up the limitations of psycho-analysis as follows: (1) At the present time its practice is sharply limited to a small group of adequately trained physicians who cannot possibly handle more than a numerically trifling number of patients annually. (2) The more severe mental illnesses such as psychoses and drug addiction, in which the need for treatment is greatest, have least expectation of assistance. It is possible and even probable that the less severe varieties of mental illness are amenable to methods less complex and less expensive than complete analysis. (3) Further, those who can benefit from this method of therapy apparently require to be under 40 years of age, of a high standard of intellect, and economically well endowed. Although statistically the results reviewed in this paper are not impressive, it is probable that they would compare favourably with the results of any other technique employed, for the treatment of functional mental disorders was not conspicuously successful before the advent of Freudian methods. The actual treatment and cure of patients is, however, possibly not the most important aspect of the problem. Few, if any, will deny at the present day that the work of Freud and his pupils has been of immense consequence to modern thought. Not only have psychiatry and medicine as a whole been influenced, but sociology, criminology, education, and even politics are the richer for his teachings. The present tendency amongst psycho-analysts is to establish a "method," but whether the

[1] *Journ. Amer. Med. Assoc.*, 1933, ci, 1612.

methodological approach to the treatment of mental illness is ever likely to be successful remains for the future to decide, for in mental illness more than in physical illness it is the patient that we must treat and not the disease. Yet Freud has undoubtedly enriched our understanding, and it is not impossible that the future historian will regard him as one of the greatest influences on medical thought of all times, although most of his specific methods and theories may have passed into oblivion.

TUBERCULOSIS IN THE AMERICAN NEGRO

Observations by numerous workers in different parts of the world have made it clear that, when adults of native races are brought into contact with European civilization, they are particularly prone to develop a severe, generalized, and rapidly fatal form of tuberculosis. Numerous explanations of this phenomenon have been offered. Probably the one that has been most widely adopted refers the native's lack of resistance to an absence of childhood exposure to infection, with its accompanying partial immunization against superinfection. That this explanation is not wholly satisfactory is apparent from a study of one or two recent publications. The data published last year on tuberculosis in South African natives[1] show that tuberculous infection is by no means uncommon in the native villages ; 65 per cent. of the " boys " arriving at the mines reacted to a 1 in 5,000 dilution of tuberculin injected intradermally. Even more interesting and important, however, in relation to this particular problem, is the work of Drs. Max Pinner and Joseph A. Kasper[2] on the pathological peculiarities of tuberculosis in the American negro. Post-mortem examinations were conducted on 303 coloured and 219 white hospital and sanatorium patients in Michigan and Illinois who had died of tuberculosis. Comparison of the findings brought out certain points very clearly. Miliary tuberculosis was more than twice as common in the negro as in the white subjects, the figures being 37.3 per cent. and 15.5 per cent. respectively. In the negro group 84.2 per cent. showed haematogenous and 66.8 per cent. lymphatic metastases, while the corresponding figures in the white group were only 40 per cent. and 10.8 per cent. Qualitatively, massive caseation of the lymph glands, very large exudative lesions showing little respect for natural anatomical boundaries, and the occurrence of nodular foci scattered widely throughout the different organs, were characteristic features of tuberculosis at necropsies on adult negroes. The above observations have been to a great extent confirmed in a paper published in the *American Review of Tuberculosis* for May, 1933, by F. R. Everett. The summary of this author's conclusions, quoted by F. L. Hoffman in a recent statistical survey, emphasizes the frequency of the childhood type of pulmonary tuberculosis in the adult negro, and his relative immunity to latent apical tuberculosis when compared with the white man.

According to Pinner and Kasper, the very marked differences in the pathological lesions present cannot be ascribed to differences in the age grouping or in the length of time that the disease had been active. Four possible explanations are considered. The occurrence of an inherited acquired immunity with greater frequency in the white than in the negro population is discredited, mainly on account of the lack of evidence to support it. The suggestion that the negro escapes infection to a greater extent in childhood and is hence more susceptible to tuberculosis in adult life is not borne out by tuberculin tests made in different parts of the United States, which have shown that the proportion of reactors in childhood is appreciably the same in the coloured as in the white races. Environmental conditions are admittedly different, but while unfavourable surroundings may account for more rapid progress in the course of the disease, they do not explain why the pathological findings in white and negro patients who have actually died of tuberculosis should be so different. The authors are therefore driven to adopt the hypothesis that there is a true genotypic difference between the two races, which confers high resistance on the one and low resistance on the other. Positive evidence in support of this is meagre, and anatomical peculiarities such as the greater reputed size of the lymph channels and the smaller size of the spleen in negroes do not appear to afford a satisfactory explanation of the difference in the pathological changes that have been observed.

Before adopting this explanation it is essential to exclude the possibility that the different behaviour of the white and black races is not due to variations in length of contact with the disease. The analogy of measles and syphilis makes one hesitate before brushing this possibility aside. Even this explanation, however, is not the solution of the problem, but the definition of a new one ; for, granted that individuals of a race that has long been in contact with a disease are on an average more resistant than those of a race that has had only recent experience of it, it still remains to inquire how this increased resistance has been attained. Is it by elimination of the more susceptible members with breeding from the naturally more resistant? Is it by inheritance of acquired immunity? Is it by latent infection of the very young contracted from latent infection of the parents? These are difficult questions, and we strongly suspect that for their answer experimental epidemiological inquiries will be necessary. Meanwhile, field observations, both on human and on animal populations, are to be encouraged in order to obtain all the information possible on the occurrence of variations in resistance taking place under what may reasonably be described as natural conditions.

[1] *Pub. South African Inst. of Med. Research*, Johannesburg, 1932, No. 30.

[2] *Amer. Rev. Tuberculosis*, November, 1932, No. 5, xxvi, 463.

WHOOPING-COUGH

Despite the efforts of the clinician and the immunologist whooping-cough is still with us, always a grave disturber of family comfort and at its worst, the cause of between two and three thousand deaths a year in England and Wales. We have previously[1] called attention to the burden of the 40 000 annual cases in London alone. The clinician with modern sedatives can to a certain degree relieve the paroxysms, and Yandell Henderson[2] in 1932 led victims to hope much from breathing mixtures of 6 to 7 per cent of carbon dioxide and air or oxygen, but the makers of vaccines and serum have in the past, failed to provide consistently helpful materials. It was puzzling that killed suspensions of the Bordet microbe failed to provide dependable protection for there is good ground for believing that this bacillus, and not a virus, is the cause of the disease. Various observers have isolated the *H. pertussis* in 75 to 98 per cent of patients in the early stages, and pure cultures have produced true paroxysms in higher apes. Gundle and Schluter[3] differentiate Bordet's bacillus from the influenza bacillus by culture on glucose blood agar, by the production of necrosis in forty-eight hours when the live culture is injected intradermally in the rabbit, and by deviation with the serum of patients, they also use the latter reaction to indicate successful vaccination. Vaccination has yielded discrepant results. It may be that an explanation has been provided by the work of Bordet, and of Krumwiede, Leslie, and Gardiner. The bacillus may exist in several forms or phases: the smooth haemolytic colony, virulent to some laboratory animals and appearing in large numbers in cultures obtained directly from the patient's sputum, provides an efficient prophylactic vaccine, while the avirulent form which predominates in older cultures yields a less efficient vaccine. Madsen, in the earlier work reported from the Faroe Islands, claimed, not complete protection, but mitigation of the severity of the disease in the vaccinated. Later[4] he described a material reduction of incidence among the vaccinated. Of 1 832 people vaccinated 458 (25 per cent.) escaped infection while of 446 non-vaccinated controls only 8 (2 per cent.) escaped. The work of L. W. Sauer[5] offers new hope: after trying the Madsen type of vaccine without success he altered his methods. He obtains recently isolated strains, grows them on medium containing human blood, and in three weekly doses injects approximately three times as much vaccine as was used in the series reported by Madsen. 479 children from 8 to 28 months old were thus vaccinated and none became infected, though in some instances, at least, the exposure was intense and continuous. The only detail that will perturb the immunologist is that, while Madsen asks for the completion of the vaccination a week before exposure, Sauer reports that children do not develop proper immunity unless vaccinated four months before exposure. In virtually all instances in which the development of immunity after "vaccination" lends itself to measurement we know that protection is developed more rapidly than this. However, increasing experience may teach us, as it has done in modern preventive immunization against diphtheria, to reduce the period to a few weeks without causing disconcerting reactions during immunization. Sauer uses human blood in the medium to avoid allergic responses, and apparently met with few, though he mentions local tenderness with induration and rare "severe reactions." Jundell[6] in Stockholm reports an attractive investigation. He aimed at procuring immune human serum to treat infants already infected with whooping-cough. Failing to obtain favourable effects with "adult serum," he tried to raise the titre of antibody in the serum of adults with a previous history of pertussis by injecting three four-daily doses of vaccine and withdrawing blood five days later. The vaccination with the Scandinavian vaccine—much weaker than the Sauer vaccine—did not cause the slightest discomfort to the adult volunteers. Jundell is commendably conservative in his report: five cases are described in detail, and all the serum treated children experienced fewer and milder paroxysms than the non-treated controls. Jundell suggests that in suitable instances, immediately after the accidental exposure of a child, the incubation period should be employed to give the parents three four-daily doses of vaccine, followed by a bleeding a few days later to provide blood or serum in time to treat the earliest stages of the disease when it appears in the exposed child. Stores of serum thus obtained could be held in reserve by appropriate authorities. S. Inamori,[7] working in Manchuria, in a recent study of the histology of pertussis in man and "in the dog and monkey," describes the early congestion in the whole of the trachea with scattered pertussis bacilli in the mucous membrane, whence, in severe attacks, they may travel through the submucous tissue and finally into the interstitial tissue of the pulmonary alveoli. A survey of all this recent work leaves us with hope that this plague of the nursery and school, which in 1932 caused 300,000 infections in the United States and upwards of 6,000 deaths, will in time be as controllable as diphtheria now is to those who choose to benefit by methods at our command.

TEACHING METHODS IN MEDICINE

Dr. W. D. Reid of Boston has written a small book (privately printed)[8] upon teaching methods in medicine which is both valuable and timely. There has been much writing of late upon medical education, in some quarters its discussion has been upon far too narrow a basis. Only a small part of the problems involved has received consideration when an ideal curriculum has been propounded, which is the form that most contributions to the discussion have taken. Dr. Reid reminds us that it is of at least equal importance to consider the medical student as a human being and in what manner he can best be taught. Some who have had personal teaching experience will agree with the author that the question of how medicine should be taught is the primary one, the other question of what the student should be taught being only capable of answer after adequate discussion of the first. Dr. Reid has sat at the feet of the educational psychologist to

[1] *British Medical Journal* 1933, i, 26.
[2] *Journ. Amer. Med. Assoc.* 1932, xcix, 694.
[3] *Klin. Woch.* 1933, 1073.
[4] *Journ. Amer. Med. Assoc.* 1933, ci, 187.
[5] Ibid., 1933, ci, 1449.
[6] *Acta Paediat.* 1933, xv, 1.
[7] *Journ. Orient. Med.* 1933, xix, 45.
[8] *Teaching Methods in Medicine.* Written and published by William Duncan Reid, M.D., F.A.C.P., 510 Commonwealth Avenue, Boston, Mass. (1 dollar.)

his and his readers' great advantage. He draws attention to the fact that the science of education has undergone revolutionary changes of late years, one of the fundamental changes being that the scholar or student is not now thought of as a recipient so much as a partner in his own education. The teacher is no longer the pedagogue and imparter of masses of facts, failure to absorb which is held to be suitably corrected by punishment and the "plough." This time-honoured conception has been replaced by one of the tutor as a director of learning, stimulating and guiding the pupil in a process of self-education. There is a general agreement among those who have knowledge of methods founded upon both these ideas that those based upon the second produce results far superior to those based upon the older. Dr. Reid pleads for the application of this experience to the medical school. The idea that the teacher is "teaching, not subjects but pupils," is one which if worked out in medical schools would lead to revolutionary changes in many; it would, in the first place, demonstrate the folly of endeavouring to crowd into the curriculum a good deal of what it is now made to hold—of facts to be memorized. In this little book the author begins by reviewing the psychology of learning, and passes on from this to a discussion of teaching plans and technics, major, minor, and general; finally, he considers the specific application of such plans to medical teaching. He asks pertinently whether a good deal of the time at present devoted to didactic instruction might not be better occupied in guiding the student to teach himself medicine in the wards and clinics through the medium of the personal examination of patients. Something of this kind has long been the practice of British schools—the dresser and the clinical clerk have been trained mainly in this way—but even in the clinical part of the curriculum the method might, advantageously, be further worked out. Much of the remainder of the course would gain by a revision in the light of the new but well-founded principles which the author reviews. He has done this both clearly and temperately, and we commend his discussion and suggestions to the notice of all concerned in medical education.

SECRET POISONS

Last July the evening papers contained a variety of startling headlines, such as: "A drug that kills without a trace," "Terrible weapon for criminals," "Alarming possibility." This agitation was rather disturbing, because, although there are a certain number of lethal substances that are unlikely to be detected by any chemical analysis, yet these are not known to the general public. We believe, indeed, that the Crime Club classes undiscoverable drugs, unknown to Western science, along with mysterious Orientals with hypnotic powers as factors that are barred by their standards for detective novels. The elusive drug which caused the agitation mentioned turned out, however, to be dial (diallyl barbituric acid); and, since reliable methods are known for the estimation of barbituric derivatives, the accounts given in the Press were difficult to understand. We have now received a report from the Clayton Aniline Company, Ltd., who have investigated the fate of dial in the body. A dog (25 kilograms) was given 2.5 grams (100 mg. per kilogram) of dial by mouth, a dose which produced death within twenty-four hours. The following quantities of dial were recovered from the corpse: stomach contents, 0.0145 gram; urine, 0.0734 gram; kidney, 0.007 gram; blood, 0.0125 gram; liver, 0.0021 gram; brain, 0.0044 gram; total, 0.1134 gram. The total amount recovered was somewhat less than 5 per cent. of the dose administered, but from the point of view of the toxicologist it is important to note that more than half of the amount recovered was found in the urine and that a demonstrable quantity was recovered from the stomach contents, although the latter were not analysed until fourteen days after death. A control experiment was made on another dog. (19 kilograms), to which 7.6 grams veronal (diethyl barbituric acid) were given. In this case 1.06 grams were recovered from the urine and 0.082 gram from the stomach contents. Reiche and Halberkann[1] analysed the urinary excretion of dial in patients who were taking doses varying from 0.1 to 0.4 gram daily. Patients who received for several days a daily dose of about 0.2 gram of the drug excrete about 0.05 gram daily in the urine, and on cessation of the administration of the drug the excretion continued and took five to six days to fall to 0.01 gram. About 30 per cent. of the dose administered was recovered from the urine. These results agree with many other investigations that have been made on the fate of barbituric derivatives in the body. As a class these drugs are excreted slowly, and, even in the case of compounds that are detoxicated rapidly in the body, barbituric acid derivatives are excreted for several days after the administration of the drug. The results mentioned show clearly that in the case of a patient poisoned by dial it should be possible to identify the drug in the urine several days after it has been taken.

BORNHOLM DISEASE

In his monograph on the Bornholm disease[2] Dr. Ejnar Sylvest, who first gave the morbid condition its name in 1930, records his observations on ninety-three patients aged from 5 months to 59 years whom he has observed in the Island of Bornholm in the Baltic and in Copenhagen since 1930. The disease had been previously observed in Denmark in 1897, 1903, 1904, 1916, and 1927, as appears from the annual reports of medical officers to the Health Department and earlier still in other Scandinavian countries, such as Iceland in 1856 and 1863, by Finsen, who described it in 1874 under the name of "muscular rheumatism in the chest," and in Norway by Daae, who reported an "epidemic of acute rheumatism in Drangedal" in 1872. The outbreak resembling dengue reported by Dabney in the United States in 1888, and by Williamson in England of "epidemic pleurisy" in 1924, were also presumably of the nature of Bornholm disease. The disease usually occurs in the summer. It sets in abruptly after an incubation period of two to four days with pain in the epigastrium and hypochondriac regions accompanying respiration. The affected muscles are tender and swollen. The disease is accompanied by fever and headache, but rarely by vomiting, diarrhoea, or epistaxis. Examination of the

[1] *Münch. med. Woch.*, 1929, No. 6.
[2] *Den Bornholmske Syge.* With an English Summary. By Ejnar Sylvest. Copenhagen: Levin and Munksgaard. 1933.

chest is negative, the spleen is not enlarged, and the urine contains an abnormal amount of diastase and occasionally a trace of albumin. In about one-fourth of the cases one or more relapses take place. The tenderness and swelling of the muscles and pain on exertion may last several weeks or months after the acute attack has subsided. There is no special treatment. The complications are dry pleurisy, orchitis, pericarditis and pneumonia, and otitis media. Four fatal cases were reported in Denmark in 1931, but usually the complications take a mild course. Since the issue of the present work an article on the Bornholm disease was published in the *British Medical Journal* of November 4th, 1933 (p. 817) by Dr. W. N. Pickles of Aysgarth, Yorkshire; and a letter from Dr. A. H. Carter of Sedbergh, printed at page 1186 this week, describes an epidemic among schoolboys four years ago which fits the description given by Dr. Pickles.

HEALTH OF THE R.A.F.

The Air Ministry's report for 1932 on the health of the Royal Air Force[1] shows a further reduction of illness among the personnel. The incidence of all cases of sickness declined 48.8 per 1,000 of strength below the figure for 1931, good as that was.[2] For cases admitted to hospitals and sick quarters the incidence fell from 433.2 in 1931 to 398.7 in 1932—the lowest since the inception of these annual reports in 1920. The death rate was 3.6 per 1,000 of strength, which again compares very favourably with the rates for 1931 and 1930—namely, 4.4 and 4.2. As would be expected in view of these figures, there was less invaliding from the Service—from 7.4 in 1931 to 6.8 per 1,000 in 1932. It would appear that this improvement is more particularly associated with conditions at home, for the rate of invaliding to the United Kingdom from abroad scarcely changed. Another low figure is that in respect of the "constantly sick," which was 20.5 per 1,000, and the incidence of venereal disease fell from 14.7 in 1931 to 11.3 per 1,000 in 1932, which was the lowest rate yet recorded. The figures for the Air Force abroad are also encouraging, the total sickness incidence being 886.7 per 1,000 in 1932 compared with 1,079.6 and 1,606.4 in the two preceding years. Both abroad, with the exception of Iraq, and at home fewer cases were admitted to hospitals and sick quarters. Sandfly fever incidence in Iraq rose from 86.7 per 1,000 in 1930 to 110.1 in 1931, and 118.7 in 1932. In that country there was also a rise in cases of primary dysentery, mostly of the protozoal type, but a fall in primary malaria. As in former years the two chief causes of invaliding from the Service as a whole were pulmonary tuberculosis and psychoneurosis, followed by diseases of the heart. The principal causes of medical non-effectiveness during 1932 were injuries and gonorrhoea, though the number of those "constantly sick" on account of gonorrhoea was less than in the three preceding years. Of the principal foreign stations, Aden appears to be the most healthy, with the lowest all-disabilities incidence (excluding injuries) of 320.9 per 1,000. Research has been conducted into the factors affecting normal blood pressure, including the use of oxygen in high parachuting; design of supply gear (with particular reference to intermittence and constancy of flow); requirement at extreme height; limit of toleration at height; relation between rates of oxygen consumption and capacity for work; protection from gradual, and therefore insidious, oxygen-want; and duration and validity of consciousness in progressive oxygen-want. In regard to the physiological limitations of flying, evidence has been obtained suggesting that there is an upper limit of height, of the order of 45,000 feet (varying substantially with the individual and the occasion), beyond which no amount of oxygen will enable man to fly as an active agent without physical protection from the extremely low atmospheric pressure.

[1] *Report on the Health of the Royal Air Force for the Year 1932.* London: H.M. Stationery Office. 1933. (1s. 6d. net.)
[2] See *British Medical Journal*, January 28th, 1933, p. 154.

THE "PHARMACOPOEIA" LABORATORY

The laboratory which is now provided for the purpose of conducting investigations in connexion with the revision of the *British Pharmacopoeia* is situated in the same building as the offices of the General Medical Council and the Dental Board at 44, Hallam Street, London, W. A suite of rooms on the top floor of the Dental Board premises has been adapted and equipped for the purpose at a cost of about £1,250. The accommodation consists of a main laboratory with three smaller rooms opening from it, and the fittings throughout are of the most modern type. The equipment includes all the apparatus necessary for investigations in the chemistry of drugs, in pharmacy, and in pharmacognosy in relation to the *British Pharmacopoeia*. It is not intended that any biological work shall be undertaken. The equipment of the main laboratory includes centrifuge, balances, colorimeter, refractometer, tintometer, and viscometers, with other special chemical apparatus in accordance with the specifications of the *Pharmacopoeia*; autoclave, filters, and other apparatus for investigations on sterilization; refrigerator and hot-air chamber for determination of the changes taking place during the storage of drugs; and microscopes and other apparatus required for research work in pharmacognosy. One of the smaller rooms is furnished as a dark-room and contains a polarimeter fitted with electric sodium and mercury vapour lamps, and an apparatus for the use of ultra-violet light in the examination of drugs. The second small room is fitted up as a store-room, and the third has a working bench, desk, and bookcases, and is used as a combined writing-room and balance-room. The laboratory provides accommodation for several workers, and at present is used by the secretary and the research assistant to the Pharmacopoeia Commission. It is conveniently situated in relation to the other accommodation provided for the Commission at Hallam Street.

The centenary of the Munich Medical Society (Aerztlicher Verein) was celebrated on October 28th, in the presence of the Bavarian Minister-President, Dr. Siebert, and a distinguished company. The Minister-President conveyed the congratulations and good wishes of the Bavarian Government, and emphasized the important part which medicine plays in the modern State. Other speakers recalled the changes in the medical outlook since the society was founded, and the part played by the Munich school in the advance. The society then proceeded to elect twenty-two honorary members from various parts of Germany and from other countries. Among the latter were Professors Knud Faber, Naegeli, Wenckebach, and Sir Archibald Garrod.

KING EDWARD'S HOSPITAL FUND FOR LONDON

The Prince of Wales took the chair at the annual distribution meeting on December 12th of the President and General Council of King Edward's Hospital Fund for London, and read a message from the King congratulating the Fund on its being again in a position to devote £300,000 in grants and awards to hospitals and convalescent homes.

It will be recalled that in view of the special financial difficulties last year it was decided to raise the amount distributed from £275,000 to £300,000, the whole of which came out of the receipts from various sources during the year. The Prince of Wales announced that, although this amount was again being distributed, it was still uncertain whether the available income of the Fund for the present year would reach this total, certain legacy contributions which were still expected not having yet been received. A distribution of this magnitude, the Prince explained, was a very substantial factor in the finances of London hospitals, serving partly to steady hospital finance and partly as an equalizing factor. The greater part of it was used in making annual grants, which, though not fixed in amount, were in fact kept fairly constant, so that hospitals could estimate more or less closely what they were likely to get, the sums thus serving as a steadying factor. The relative extents of the grants to the various institutions varied, partly because of differences in respect of their size and work and partly because of differences in their financial and other circumstances—such, for example, as the neighbourhood in which they were situated, the amount of their capital, and their facilities for raising money. In this way the distribution was to some extent an equalizing factor between the different hospitals, due regard being had to the efforts each hospital was making for itself. In addition to this the actual amount received by any hospital might vary from year to year, owing to temporary fluctuations in its fortunes. An institution which had had a particularly bad year might need a larger grant; the distribution committee could not do this if it did not also make temporary decreases when an institution had had an exceptionally good year. In this way, also, the grant acted as an equalizing factor. The present financial stringency affected different hospitals in different ways; some normally suffered from bad circumstances, and had little or no financial margin for bad times, while others had been obliged to undertake expenditure of capital on a large scale in comparison with their means. The King's Fund could come to the rescue in such cases, making exceptional grants which were usually designed to encourage and to reward the efforts made by the individual hospitals. One of the great advantages of maintaining the increased distribution this year had been that such help had been made possible not only without reducing the grants to other hospitals, but even simultaneously with a general increase.

The Prince warmly commended the excellent way in which the hospitals had so far weathered the financial crisis. Each year there had been more surpluses than deficits, and where a hospital had been in serious danger, this had always been due to something exceptional in its circumstances. That an annual expenditure of over three million pounds in London alone should continue to be met in these hard times reflected the greatest credit on the hospitals for the efforts they had made, and on the public, including the patients, who had responded so nobly. His Royal Highness thought it was one of the most encouraging signs in the progress of London hospital administration that the payments of patients in 1932, including £340,000 from the Hospital Saving Association, came to £1,139,000. Voluntary gifts, including legacies, totalled nearly £1,700,000, and if receipts in the form of capital were added the sum of voluntary gifts to hospitals in London was £2,173,000. Another laudable phenomenon was the reduction of expenditure by the hospitals as a whole, although the number of the beds in them had increased. The League of Mercy had again contributed £20,000, and the British Charities Association £10,000. The capital of the Fund had been increased by two substantial gifts, one of freehold property valued at £18,000, to be known as the William and Francis Radford endowment, and the other a reversion of £136,000 on the death of Lady Mount-Stephen. Other forms of assistance rendered to London hospitals by the Fund included the action of its Parliamentary Committee in promoting legislation to secure to them more adequate payment towards the cost of treating motor-car accident cases. The Miniature Hospital was still being exhibited in England in aid of local hospitals jointly with the King's Fund, and would soon be going to Scotland. Standard forms for letters to hospitals by medical practitioners and replies by hospitals, and a memorandum on these and on hospital out-patient time-tables, had been circulated in the London area, the first item in the programme for reducing the time of waiting at out-patient departments along the lines recommended by Lord Onslow's Committee.

The treasurer of the King's Fund, Mr. E. R. Peacock, explained that since the estimates had been presented in November there had been a slight delay in the assessment of duties on certain legacies. If expectations were realized, legacies would bring in considerably more than the five-year average from that source, which was well over £60,000. In that event there would be enough to cover the distribution of £300,000, to which had to be added £20,000 for pension grants, part of which could be drawn from a special reserve created for the purpose in previous years. Annual subscriptions and donations showed a slight decrease, and no large unexpected donations had been received such as those which in former years had greatly assisted in making up the amount available for distribution. One legacy of peculiar interest had been the pearl tiara of the late Lady Mount-Stephen, which would be sold and the proceeds applied to the benefit of the hospitals. The increase of £154,000 in the capital of the Fund would materially strengthen its position in the future.

Nova et Vetera

JAMES BRYCE AND HIS PLAN FOR EXTINGUISHING SMALL-POX

There has recently come into the possession of the Royal Society of Medicine a pamphlet in folio entitled "Outlines of a Plan for extinguishing the Contagion of the Small Pox in the British Empire, by rendering the vaccine Inoculation general and effectual. By James Bryce, F.R.S.Edin., Member of the Royal College of Surgeons Edinburgh, and one of the Surgeons for the gratuitous Inoculation of the Cow Pox." The first ten pages contain the printed matter of the pamphlet and the eleventh is blank. The twelfth or back page has the title as given above printed on it crosswise, as in present-day parliamentary Bills. Here also is to be found the date—June 11, 1808. The printer's name is given on page 10: "Alex. Smellie, Printer, Edinburgh." The pamphlet is not bound, but the leaves are stitched together with white thread.

This pamphlet must be scarce, if not very rare. There is no copy in the libraries of the British Museum, the Royal College of Physicians of London, or the Medical Society of London. But though the pamphlet is scarce the matter it contains is not; for it was reprinted by Bryce as "Appendix V" to the second edition of his work *Practical Observations on the Inoculation of Cow-pox*, which was published in 1809.

James Bryce is a person of whom very little is heard nowadays. His name does not appear in the *Dictionary of National Biography*, but a few lines are allotted to him in the *Biographisches Lexikon der hervorragenden Ärzte aller Zeiten und Völker*, second edition, 1929.* Neither of his birth nor of his death is the date mentioned. Besides the pamphlet which is the subject of this notice Bryce published, (1) *An Account of the Yellow Fever with a Successful Method of Cure* (1795); (2) *Practical Observations on the Inoculation of Cowpox* (first edition, 1802, second edition, 1809); and (3) *Observations on the Foetal Liver, etc.* (in the *Edinburgh Medical and Surgical*

* This *Lexikon* calls him "James B. Bryce," but in his writings Bryce always calls himself "James Bryce."

Journal vol xi, 1815) From various statements made in his writings it appears that he was at one time surgeon to the *Busbridge* Last Indiaman, and was making his third voyage in 1792 when the outbreak of yellow fever which he describes broke out, that he was surgeon to the Orphan Asylum, and one of the surgeons to the Institution for the Gratuitous Inoculation of Cow Pox, and that he was a Member, and later a Fellow, of the Royal College of Surgeons of Edinburgh In 1803 he was elected an F R S Ed According to a list given in the *Transactions* of that society he died probably at some date between 1826 and 1832 He was educated at Edinburgh, and visited London, Bombay, Madras, and Bengal

If Bryce is remembered at all it is for his test for successful vaccination This consisted in vaccinating the patient again with vaccine lymph five or six days after the first inoculation If the first vaccination was successful then the lesions of the second ran their course more quickly and were smaller than those of the first The test, however, was given up a long while ago as being unnecessary In 1802 Bryce sent a copy of his book on vaccination to Jenner, with a letter A portion of this letter, together with Jenner's two letters in reply, will be found in Baron's *Life of Edward Jenner* (vol i, p 534) Bryce drew Jenner's attention to and requested the favour of his "sentiments' on the "two most favourable' features of his publication"—namely, a new mode for obtaining and preserving the virus of cow pox, and the test The new mode consisted in preserving, in a glass phial having a ground glass stopper, the crusts from a successful vaccination, and, when required, dissolving them in water and using the liquid as lymph In his replies Jenner writes favourably of both the new mode and the test though he is evidently of the opinion that the latter is unnecessary for the experienced vaccinator

DETAILS OF BRYCE'S PLAN

As Bryce's "Plan' never had the slightest chance of being put into operation it is not worth while to give a lengthy account of it It is just one of those schemes which are put forth from time to time by enthusiastic but hopelessly unpractical idealists On paper such schemes may appear perfect, but the framers of them invariably assume either that the subjects of a Government will do, without the slightest demur, exactly what that Government orders, or that if the subjects offer opposition they can be easily compelled to obey

In a somewhat lengthy introduction Bryce sets forth the reasons which have led him to frame and make known his "Plan" Small pox inoculation has failed and is often harmful, Jennerian vaccination is efficacious and harmless, but has not been widely adopted because of interested opposition and the ignorance and indifference of the public Moreover—and this he regarded as highly important—vaccination was often performed by those who were quite ignorant of the proper method, with the result that many persons were imperfectly (or not at all) protected and caught small pox, and so vaccination got a bad name In some remarks he makes towards the end of his account of the "Plan" Bryce states that if it were adopted "it would relieve many surgeons from a species of practice which to my certain knowledge they regard as troublesome and too trifling to study and attend to as they ought, or as its importance to society demands

Bryce would have liked to see his objects attained by legislation to abolish inoculation and make vaccination compulsory But he fears—and here he was a true prophet—that such a method would be incompatible with the liberty of the subject and concludes that recourse must be had to what he considers to be less severe methods

The two most curious features of the 'Plan are the use Bryce proposes to make of the clergy "of every persuasion throughout the United Empire"—for this was to be no parochial or sectarian business—and the method by which it was to be financed Vaccine boards, with inspectors, and principal and subordinate vaccinating stations, with vaccinators, were to be set up In 1808 the only sources of information of births were the registers of baptisms, kept more or less carefully by the clergy Consequently, Bryce proposed that the clergy should compile lists of the children whom they baptized, and in the first week in April and September should send copies of these lists to the stations So far so good, but on the first Sunday in May and October every clergyman was to read out after divine service the names of the children whom he had baptized, and to exhort the parents to take the children to the station to be vaccinated This exhortation was to be repeated on the three following Sundays, together with a notice that if the advice was not followed the recalcitrants would be deprived of their rights to receive the benefits they might desire from any charities, public as well as private, including relief from the poor rates That was one of the provisions of the "Plan" Apparently if a destitute person refused vaccination for his children he and they were to be left to starve By July and November the clergyman would have received from the station the list of the non vaccinated children, whereupon he was to read out their names in church and declare them and their parents to have forfeited the right to receive charitable benefits It seems that there was to be no other penalty for those who objected or were indifferent

PROPOSED REMUNERATION

As regards finance, it is to be remembered that all vaccinations were to be performed gratis—this is emphasized in the "Plan"—save in such cases as were done in private houses, for which the vaccinator might charge a fee The following is what Bryce himself says on this question With regard to the expence which must necessarily be incurred in carrying the above plan into effect, it is too trifling to deserve notice, considering the magnitude of the object to be accomplished" After referring to the pay of the inspectors the charges for accommodation, etc, he goes on to say This expence must be paid by Government for one or two years, until the plan has become effectual, but it might afterwards be defrayed by a general contribution, once in four or five years, in the established churches and other places of divine worship, throughout the united empire'

Bryce does not suggest any remuneration for the clergy who under the 'Plan" would certainly have been called upon to do a considerable amount of clerical work They were apparently to act gratuitously As regards the vaccinators who were all to be selected surgeons, he relies upon the regulation which allows the vaccinator to charge a fee for vaccinating in the patient's own house

> for the practice of inoculation [that is vaccination being confined to the corps of vaccinators the members of this corps must of course be employed to inoculate all the patients in the higher ranks of life and will receive from them a remuneration for their attendance and this remuneration will it is imagined be full compensation for the trouble to which by the adoption of this plan it is proposed to subject them without any additional burden being imposed upon individuals or upon the public and it may be remarked that as the employment of any inoculator even in his own district by persons in the higher ranks of life and from whom only he can expect to receive any remuneration for his trouble will in a great measure depend on the degree of celebrity he may have acquired in this important branch of medical practice that due degree of emulation amongst the members of the vaccine corps will be established which amongst the members of every profession is at all times desirable as a circumstance highly advantageous to the public

In a preface to the reprint of his 'Plan' Bryce states that he had sent copies of the pamphlet to His Majesty's Ministers and to many 'respectable clergymen' of various persuasions, he had also submitted it to the examination of men learned in the laws of our country and to others high in the medical profession According to his statement it had been received with approbation by all to whom it had been sent including, curiously enough, the clergy The "Plan" was also 'much approved of by Dr Jenner, but, like all others with a similar view, was rendered difficult of execution by the liberty claimed by the people of this country of following

the bent of their own inclination." (Baron's *Life of Jenner*, vol. ii, p. 154.)

One is strongly inclined to suspect that the approbation the "Plan" received was of that faint and damnatory character which such visionary schemes, when put forward by educated and responsible persons, usually encounter; for though Bryce in the preface referred to above asks for "such observations as may appear to be calculated for the improvement" of the "Plan," nothing further appears to have been heard of it.

E. W. G.

Scotland

Pasteurization of Milk

In an address to the Glasgow and West of Scotland Agricultural Discussion Society Dr. A. S. M. Macgregor, medical officer of health for Glasgow, outlined the advantages to be derived from pasteurization. Infections transmitted by milk, he said, might be derived either from human or bovine sources. The latter group included the bovine tubercle bacillus, and, occasionally, undulant fever. The experiences of the large centres showed that epidemics of milk-borne infection were found only where the milk supply had not been pasteurized. One of the practical difficulties in the way of controlling milk-borne infection was the fact that in thickly populated districts the distribution of milk had become more and more concentrated in the hands of large distributors, who collected supplies from numerous farms and mixed them wholesale. The spread of infection was thus increased, but the great practical advantages. Dr. Macgregor drew attention to the recent research in connexion with bovine tuberculosis, which had shown that the raw milk supplied to the four large cities of Scotland contained living bovine tubercle bacilli in 10 per cent. of samples. The pasteurization of milk, however, by exposure to a temperature of 145° F. for thirty minutes efficiently destroyed the bacillus. As an example of the importance of this matter to the public health he cited the investigations carried out in the Royal Hospital for Sick Children, Glasgow, where it had been found that 64 per cent. of tuberculous cervical glands, 80 per cent. of abdominal tuberculosis, and 35 per cent. of bone and joint tuberculosis were caused by the bovine bacillus. It had been objected that pasteurization impaired the nutritive qualities of the milk. This loss, however, was negligible when milk was not the sole food, and it could be easily remedied by the addition of orange juice and cod-liver oil.

Scottish Branch of Queen's Nurses

At the annual meeting of the Scottish Branch of the Queen's Institute of District Nursing, held in Edinburgh City Chambers, the Countess of Mar and Kellie said that the work of the Institute was a great national service, but required the publicity of the annual meeting to show how much was being done. In 1888 the Institute started with two nurses and a superintendent; during the past year 946 nurses had been supervised by the Institute with 503 district nursing associations throughout the country. The cost of the service was £180,000 yearly, which was raised partly by voluntary subscriptions and partly by the 1d. per week contributions of patients. The number of visits paid by nurses during the year was 2,198,717. Mr. John E. Highton, secretary to the Department of Health for Scotland, said that the Institute was making great progress towards providing a complete nursing service available to everyone. An important aspect of the work was the inculcation in the public mind of principles of general health and preventive medicine. The Institute was an outstanding example of the efficiency which voluntary institutions could attain. Lady Ruth Balfour drew attention to the ante- and post-natal work of the district nurses, and to the fact that the maternal death rate among mothers delivered by the Institute's nurses was considerably lower than the general maternal death rate for Scotland.

Edinburgh Slum Clearance

A five-year housing programme was considered and approved by the Edinburgh Town Council on December 7th, in which it is proposed to erect 750 houses each year for the next five years for the purpose of slum clearance and replacement, and a further 750 houses a year, which are to be provided by private enterprise, to meet the needs of other persons. The latter are to be three-apartment houses, and to be available for the subsidy of £15. The entire programme is subject to the subsidy rates remaining unchanged during the quinquennial period. It is pointed out that the corporation was under no obligation to submit a five-year programme to the Department of Health, and it had now powers to deal with isolated properties such as groups of houses or single houses. One councillor stated that as there were over 100,000 occupied houses in Edinburgh, the normal wastage was about 1,000 houses per annum requiring replacement. In addition many families were living in overcrowded conditions, and a large number of people were homeless or living in sublet apartments. Including rates, the rents for these houses would be 13s. 9d. per week, and he considered this was an impossible sum. Further, if houses were erected at the rate of only 750 each year, at the end of five years 5,000 houses already condemned would still be untouched. It was pointed out, however, that for reasons connected with the building trade it was impossible to erect houses at a greater rate.

England and Wales

The London Hospital

Several interesting matters were brought before the last quarterly court of governors of the London Hospital. A report from the House Committee stated that, after consultation with the staff, it had been agreed to adapt some thirty-five or forty rooms and cubicles for paying patients of moderate means. It was the view of the committee that this would constitute an entirely satisfactory pay-beds department, which would be a very real advantage to the unfortunate class for whom private operation and nursing home fees were prohibitive or almost so, and that it would not entail any appreciable diminution of the number of beds available for ordinary patients. No actual structural additions are necessary, but an operating theatre suite will have to be provided, and this, with certain other adaptations and alterations, is expected to cost about £10,000. Disappointment was expressed with the result of the year of quinquennial appeal now closing. The total received to date has amounted to no more than £66,000, and the committee felt grave anxiety about the future, and appealed earnestly for further support. A determined effort, in a large measure successful, has been made during the past year to reduce the waiting list and the length of time which patients have to wait for admission. Thanks were accorded to the Mildmay Mission Hospital and the Poplar Hospital for continued co-operation to this end. To these hospitals certain suitable patients, with their own consent, are drafted. A certain amount of delay, nevertheless, in the admission of non-urgent cases is regarded as inevitable. Another great need at the hospital is a well-equipped massage and

electrical department, and already £21,500 is available in cash and promises towards the estimated cost (£30,000) of a new building for this purpose Sir William Goschen, chairman of the hospital, remarked that recently he himself had been attending as an out patient the massage and electrical department, arriving there at 8 30 a.m. to undergo electrical massage in the same way as any other out patient, and he had had occasion to know how much in need of re equipment the department stood

A commemorative tablet to the late Viscount Knutsford, who for thirty five years was chairman of the London Hospital, has been placed over the main entrance It has been designed by Sir Edwin Lutyens, who has given the design to the hospital The tablet and supporting p llars, of polished Portland stone, form the top and lintels of the entrance doors At a simple little ceremony of unveiling Sir William Goschen, his successor in the chairmanship, mentioned that Lord Knutsford had left behind him an expressed wish that no memorial should be raised to him in the hospital, but the committee, after much deliberation, thought that for the sake of future generations his name and record should be placed above the main entrance, where it would be seen by thousands who made their way along the busy thoroughfare of the Whitechapel Road, that they might derive from the reminder something of the inspiration which those who had known him had drawn from his arresting personality

Diphtheria in Hull in 1932

In the City and County of Kingston-upon Hull diphtheria attained an incidence in 1932 higher than that reported at any time during the previous forty years The number of cases notified was 1,707, comparing with 1,145 in the previous year, 856 in 1930, and 852 in 1929 In 1906 as many as 1,253 cases were notified, but the outbreak in that year subsided within a short period Since 1924 the cases in the city have become more numerous each year, and the notification rate has for several years been much above the average for England and Wales The death rate has also been high, the infection generally being of the "gravis" type So swift was the onset of symptoms and the occurrence of profound toxaemia in many cases that effective therapy was often impossible, and in his annual report for 1932 *Dr. N Gebbie, medical officer of health, emphasizes* the necessity for more attention to prophylaxis in the future than has been the case in the past Despite the most careful inquiries no evidence was obtained of any out standing and continuing sources of infection Great efforts were made to induce parents to bring their children to the clinics for Schick testing and immunization A further immunization clinic was opened during the latter part of the year under review, and a scheme was adopted whereby children were permitted to attend the clinics during school hours The written consent of the parents was first obtained, and arrangements were made with the Education Department to allow a certain number of these children to visit the clinic at each session Dr Gebbie insists that it is imperative to secure for Hull a low rate of susceptibility to diphtheria, and that this can only be effected by immunization whenever necessary Antitoxin is kept at the various police stations, readily available at any time for medical practitioners In necessitous cases it is supplied free, payments being made in whole or in part when the patients or their parents can afford the charges The examination of contact cases was improved, and instructional leaflets were left at houses where a case of diphtheria had occurred These leaflets were also distributed through the schools in the areas chiefly affected by diphtheria Dr Gebbie reports a gratifying increase over previous years in the numbers attending the immunization clinics, there are now three of these centres, each having a weekly half day session The last quarter of the year was found to be the one most liable to a high diphtheria incidence This led to an intensification in December, 1932, of the prophylactic efforts, which Dr Gebbie hoped would be continued actively and lead to a relative reduction of the disease in the last three months of 1933

Disposal of Sewage

Dr L J Picton, medical officer of health for the Winsford district of Cheshire, closes his annual report for 1932 with a critical discussion of sewage methods He thinks the time has come to determine whether the water-carriage system which conducts the sewage of the town through tanks into the River Weaver is safe and is a desirable method to continue He believes that at present there is secured in the local sewage beds at a negligible cost the effective operation of the bacteria in the activated sludge process, especially since the trough like shape of the town facilitates passage to these beds, but he thinks it possible that the limits of this process may have been nearly reached. Apart from self contained sewage schemes to deal with new developments, he deems it desirable to exploit now by a new and enlightened conservancy system the activities of the aerobic organisms of soil Resolution of the material, he argues, when deposited in the surface soil, takes place without offence by nitrification, whereas all water carriage systems permit and encourage the organisms of putrefaction, which cause the grave nuisance of sewage gas and also destroy the value of the sewage as manure Dr Picton maintains, therefore, that any extension in the water-carriage system to at present unbuilt areas is an undesirable step, and that alternatives should be investigated In the Winsford district he favours trying the Vivian Poore system In a badly chosen site sewers might be necessary, but in a well chosen site there would be neither drains in the urban sense nor sewers, and the expense of water sanitation would be saved Dr Picton urges also the prosecution of researches into the phenomena associated with the disappearance of earth closet manure when freshly buried in the surface layers of cultivated soil, and refers to the investigation in process at the Rothamsted Experimental Station, which is somewhat analogous but has less hopeful economic possibilities Dr Picton is satisfied that the earth closets designed by Moule or by Vivian Poore meet all the needs of a generation which is more rightly fastidious as regards sewage disposal than its predecessors, but which is also as yet unaware that its requirements can be fully met in a far more economical way than the present expensive and wasteful water-carriage system

Radiologists at Dinner

The British Institute of Radiology and Röntgen Society held its annual dinner at the Trocadero Restaurant, with Dr Stanley Melville, the president, in the chair After the loyal toasts had been honoured Mr Thurstan Holland proposed the toast of "The Institute" in a brief and humorous speech, in which he made an oblique reference to the report of the B M A *Nutrition Committee, telling* how he had been trying to estimate the calorie value of boiled eggs in terms of whisky Theirs, he said, was one of the greatest radiological institutes in the world, and it was a great pleasure to them all to have in the chair Dr Melville, who had done so much to further its interests Dr Stanley Melville, in reply, said that in 1927 *the Institute of Radiology* had amalgamated with the old Roentgen Society He himself had taken part in that amalgamation and had never regretted it In their branch of medicine, he continued, there had been a most satisfactory co operation between the medical man, the

physicist, and the manufacturer, and in Great Britain they had every reason to be grateful to the manufacturer, who had helped so much in the solution of many problems, especially in that of protection against the dangers arising from *x*-ray work. Dr. Melville expressed his appreciation of the activities of the Society of Radiographers and its president, Dr. L. A. Rowden. The toast of "The Guests" was proposed by Mr. Cuthbert Andrews. In a series of biographical miniatures he referred to Sir Squire Sprigge as the doyen of the medical Press. In reply, Professor J. C. McLennan gave an interesting account of the history of Röntgen's discovery and of his own activities in connexion with it at Toronto. Sir Squire Sprigge, who also replied for the guests, said that he had joined the staff of the *Lancet* at the end of 1895, and in November of that year Röntgen made his discovery. He had therefore been present at the accouchement of radiology, and had watched this promising infant grow. The development of the science of radiology had been remarkable. Samuel Weller's statements about the opacity of doors at the trial of Bardell *v.* Pickwick had at the time been perfectly correct, but they were now out of date. Ending on a more serious note, Sir Squire said that the debt owed to the early workers in radiology must never be forgotten.

CORRESPONDENCE

Colour-Blindness and Traffic Signals

SIR,—The danger from colour-blindness may be greatly minimized by a careful selection of the colours used in traffic signals. With the exception of the rare class of the totally colour-blind, all the partially colour-blind recognize some colours with ease and certainty. The colours recognized are different with each class of the colour-blind. A certain variety may fail with one test, but a man who is much more colour-blind may pass it. A man may fail to distinguish a certain red light, but distinguish with ease another red light which looks exactly the same to the normal-sighted. Another variety may distinguish with ease a green light, but fail to recognize another green light which appears very similar to the normal-sighted.

The old terms "red blindness," "green blindness," and "red-green blindness" are quite erroneous, and should be discarded, as stated by a committee of the British Association. As is well known, 50 per cent. of the dangerously colour-blind pass the wool test. A similar result is found with other tests which are not constructed to detect all varieties of colour-blindness. I have often given a demonstration when I have shown that the candidate will fail with a number of tests and pass completely with several others. A colour-blind person does not guess unless he is in obvious difficulty, and this is at once apparent. Unlike at sea, the motorist is helped by the position of the lights, as he can note the order in which they come on or go off, and his distance from them is comparatively short.—I am, etc.,

Board of Trade, S.W., Dec. 9th. F. W. EDRIDGE-GREEN.

Chilblains

SIR,—The season tempts me to draw attention to the value of thyroid (extract. sicc. grain 1/4 to 1/2 t.d.s.) in the treatment of chilblains. Pages are devoted, in the appropriate textbooks, to a variety of elaborate and often unpractical measures for this malady, but almost without exception no mention is made of this simple and effective remedy. In the majority of cases a small dose suffices to relieve the patient, and this dose should be taken fairly regularly throughout the winter. I am not blind to the complexity of the factors which may contribute to the development of chilblains, but it has always seemed manifest to me—in clinical features, distribution, and seasonal incidence—that one important factor is a sluggish peripheral circulation. The effect of thyroid in non-toxic doses is to increase the rate of blood flow through the vessels. I believe that others will confirm my experience that this rational therapy gives eminently satisfactory results—which cannot be claimed for any other measure, including calcium therapy.—I am, etc.,

Leeds, Dec. 14th. JOHN T. INGRAM.

Eugenics and Mental Disease

SIR,—Lord Horder, in his address on genetics and the doctor, in the *Journal* of December 9th (p. 1057), propounds two questions, to which he himself replies, "Can there be much doubt that we would find the answer in the study of genetics?" I have grave doubts, and would suggest alternative answers which Lord Horder did not apparently consider in his address.

1. "Why does the neurasthenic state dog some people's lives from the very start?"—I would say it does *not* do so, if Lord Horder refers to "neurasthenic" in the psychopathological sense, and if by "the very start" he means infancy.

2. "What do they [patients] really mean when they say, 'I was always very highly strung'?"—I would suggest that they mean by *always*, "ever since I can remember." This may mean puberty or the age of first schooling; rarely does clear memory refer back to the era when character and primary interest-bents are formed. Further, these patients have a need to disclaim responsibility and awaken concern in others, so that the notion of themselves as struggling under an hereditary handicap makes a strong appeal, though it does not help them to get well.

The argument that a mental illness must be hereditary because (*a*) "it was always there," and (*b*) "there is *no* other known cause," is valid only on the assumptions that we have made a thorough investigation of the first five years of mental development and of the child's family environment, and that we know all the causes of mental illness. Such investigation as has been made does not point to the germinal inheritance of mental disease, while our aetiologies of mental disease certainly do not permit us to argue "by exclusion."

The eugenists in general seem to overlook the unique character of mental functioning, inasmuch as it is predominantly conditioned by the environment and life history of the individual, whereas the functions of all other organs are almost entirely conditioned by inheritance. The latter are certainly stimulated by a relatively small variety of nutritional influences; the former (mental function) is moulded by the infinite permutations of culture and social contacts. The brain does not excrete thought just as the liver excretes bile, and arguments based on the causation or inheritance of organic disease cannot be transferred to those individualities of social behaviour and interest which are metaphorically called mental "disease." The whole of the genetic study of mental disease has been vitiated by this oversight, for the specially high incidence of these troubles in certain families can be interpreted in two alternative ways, only one of which the eugenists appear to consider. As I have pointed out elsewhere (*Journ. Neurol. and Psychopathol.*, May, 1922), there is a psychic mode of transmission of mental characters by imitation, suggestion, faulty rearing, etc., which must cause a high percentage of psychotic reactions in certain stocks. Until this "family tradition" has been evaluated as a factor in psychopathogenesis, we cannot say that there is any evidence of the inheritance of mental disease.—I am, etc.,

London, W.C.1, Dec. 9th. IAN D. SUTTIE.

Dietary Factors in Haemopoiesis

SIR,—In connexion with some researches on the physiological role of vitamin B_2 we had observed in 1931 the presence of a heat stable factor in liver extracts which stimulates the formation of erythrocytes in normal as well as in vitamin deficient rats to a remarkable degree [1] We had first thought that the factor concerned might be vitamin B_2, but we were able to prove that it was not so by preparing a haemopoietic extract of liver in which practically all the vitamin B_2 had been destroyed by autoclaving in an alkaline region We succeeded, further, in producing supernormal erythrocyte concentration in the blood of rats, which were moribund owing to severe deprivation of vitamin B_2, by feeding vitamin B_2-free liver extracts We pointed out, therefore, that this heat-stable haemopoietic factor was different from vitamin B_2 Further, it has lately been shown that vitamin B in ox liver and ox kidney extracts is quite markedly heat labile when rendered alkaline [2]

Meanwhile, from results of clinical tests, Strauss and Castle [3] suggested that vitamin B_2 was probably the "extrinsic" factor concerned in haemopoiesis Wills [4] came to a similar conclusion from the encouraging results she obtained with marmite Recent clinical trials carried out by Wills [5] have shown, however, that this factor is different from vitamin B_2, thus supporting our original observation with rats This appears to be a striking illustration of the agreement between clinical and experimental results It indicates that Castle and Wills on the one hand, and we on the other, have probably been dealing with the same haemopoietic principle Work on this subject is in progress —I am, etc ,

Calcutta, Nov 23rd B C GUHA

A Plea for More Scientific Dieting

SIR,—Although it has been shown that the mineral content of diets cannot be safely left to chance, yet even in such long continued diets as those of diabetic patients it appears to be ignored Recently in estimating the minerals in a diabetic diet from a well known work on nutrition, I found the phosphorus and iron to be below Sherman's allowance, being 1 13 grams of phosphorus (Sherman 1 32), and 0 012 gram of iron (Sherman 0 015) Sherman's figures are not given as the optimum, but as 50 per cent above the indicated average minimum, corresponding to an allowance of 67 grams of protein Sherman himself says that if we would have as liberal a margin of safety here as in the case of a protein allowance of 100 grams per man per day, then his figures must obviously be increased by one half As the diabetic diet investigated was the most liberal given, it is quite probable that the remaining diets of lower calorie value contained deficiencies also That this is not an isolated example of deficiencies occurring in diets which have been made up without sufficient care is shown from the fact that when the ulcer diets of six leading American hospitals were analysed all were found to be deficient in iron, and all but one in vitamin C, and only at maintenance level in vitamin B and general mineral content

It seems to me that the time has come when all diets should have the mineral content estimated and attention given to the vitamins Then we may feel more certain that our patients are not running the risk of having their health impaired through deficiencies in the diets which we have prescribed for them —I am, etc ,

Auckland N Z, Oct 24th VIOLET E HASTINGS

[1] Guha *British Medical Journal* 1931, ii 53 Guha and Mapson *Biochem Journ* 1931 xxv 1674
[2] Guha and Chakravorty *Indian Journ Med Research* 1933, xxi 211
[3] *Lancet* 1932 ii 111
[4] *British Medical Journal* 1931, i 1059
[5] *Lancet*, 1933, i 1283

How Do Vitamins Act?

SIR,—In his interesting and instructive letter on the above subject in your issue of December 16th Dr Cramer has done valuable service to clinical medicine by clearly pointing out that it is not necessary to add preparations especially rich in vitamins to the dietary if the diet is built up sufficiently round an adequate amount of milk, butter, and bread which has not been deprived of its vitamin B content This is a valuable declaration from a distinguished vitamin worker which will make a wide appeal to a large group of practitioners, whose experience with medicinal vitamins over the past few years has probably prepared them to accept its truth

For a number of years past I have advocated that, so long as practitioners recognize the value of good fresh "live" food—which bulked so much more largely in our national dietary in former days than it does to day—they do not require to trouble about any individual vitamin In his last annual report Sir George Newman strikes a valuable warning note in pointing out the present tendency to the "debasement" of common foodstuffs, and the possibility of the need in the future for legislation in regard to this, examples quoted including the bleaching of flour and the addition to foods of laboratory-prepared 'vitamin" preparations There are, in my experience, very many practitioners who are frankly sceptical of the great clinical value of laboratory made vitamin preparations, and at the same time interested and puzzled by the discrepancy between the results obtained in the laboratory and those observed in daily practice This discrepancy is, in my view, likely to be explained only by a widening of the field of inquiry as to the nature of vitamins In the solution of this question the experience of clinicians must play a very important part The unsatisfactory state of the 'vitamin" subject to day in practical medicine has probably largely arisen from the failure of clinicians to adequately co operate, on the lines within their sphere, in the complicated problems in which the purely laboratory workers on vitamins are engaged —I am, etc ,

Edinburgh, Dec 17th CHALMERS WATSON, M D

Anaesthetic Deaths after Basal Hypnotics

SIR,—The advocates of basal anaesthesia will, like myself have sympathized deeply with Dr Herbert Charles when they read of the death under anaesthesia where nembutal had been administered previously I had the privilege of being taught anaesthetics by Dr Charles and I shall always remember him as the most careful administrator, who reduced the risk of anaesthetic accidents to the minimum It seems very bad luck therefore, that this should have happened to him, of all people

I have used nembutal pernocton, and evipan considerably during the past two years, and I have had three cases, all women, which gave me the gravest anxiety All three patients, two of whom were given pernocton and one evipan, had morphine administered previous to the barbiturate The first two patients, who had pernocton, left the operating theatre with profound respiratory depression and slight cyanosis, and remained completely unconscious for more than twelve hours Coramine intramuscularly and CO_2 were administered and the patients eventually recovered The third, who had evipan, developed cyanosis and expectorated frothy mucus immediately after the drug had been administered, the respiration being depressed and very "bubbly" The patient was sent back to bed without operation, and atropine, coramine, and oxygen were administered Recovery fortunately took place

I have administered nembutal, pernocton, and evipan intravenously to dozens of patients who did not have morphine previously, and have had no trouble whatever. I consider the intravenous far safer than the oral administration of nembutal, because a much more accurate dose is given by the former, whereas with the latter it is a matter of guesswork. I have given nembutal orally to many patients, some with morphine previously and some without. My dose has never exceeded 4½ grains. Those who received no morphine were quiet and peaceful, but not in the least unconscious, whereas those who received morphine beforehand were profoundly unconscious and remained in a state of unconsciousness for many hours after operation.

I feel sure that the barbiturate-morphine combination is a very dangerous one, and should never be employed except with very strong and muscular men. Where fatalities have occurred, I think it will be found that this combination has been employed. Idiosyncrasy to the drug is another reason why the intravenous route is preferable to the oral route. I had one case, that of a female, in which I administered 7½ grains of nembutal, without morphine, intravenously, with no effect whatever, the patient remarking, "Am I supposed to feel sleepy, because I don't." It seems reasonable to suppose that there are other persons who would be profoundly affected with the minimum dose.

I myself have received a basal hypnotic and must say that it is the most perfect and peaceful way of being anaesthetized. Nervous patients cannot speak too highly of it. It seems, therefore, a pity to discard this brilliant new method of anaesthesia, and my letter is written in the hope that it may help to reduce the risk to the barest minimum.—I am, etc.,

Graeme Bentlif, M.B., B.Ch.,
December 13th. Anaesthetist, Jersey Dispensary.

Bornholm Disease

Sir,—I was greatly interested in Dr. W. N. Pickles's article on Bornholm disease in the *Journal* of November 4th (p. 817). The description seemed to fit exactly an epidemic I had in this school in October, 1929. My cases were definitely less severe and were not alarming, though puzzling, because they did not fit in with anything I had seen or heard of before. There were in all about twenty-four cases, of which eighteen were in one of the boarding houses and the remaining few in one of the other houses.

The symptoms were: (1) Sudden onset of pain situated in the xiphisternum region, but extending over the lower ribs on both sides. The pain was aggravated by any deeper breathing, but the inspirations were not increased appreciably, nor was there any cough or any sign of a pleuritic rub. (2) Fever usually about 101° F., though in three or four cases 103° was recorded. In all the temperatures rapidly subsided, but there was a definite tendency to relapse in a day or two. (3) There was no vomiting, no rash, no diarrhoea, and no sore throat, and only in one case did signs of nasal catarrh develop subsequently. (4) The tongue was usually clean, and apart from the pain there was no complaint; in fact, after the first few hours, even before the temperature had reached normal and before the pain had entirely disappeared, the patients expressed themselves as feeling well. My cases all recovered in from three to seven days, and there were no sequelae. The cases, after the first one, appeared in batches of two and three daily after an interval of one to three days.

I came to the conclusion that it was some affection of the diaphragm—for example, a myositis—for I could never at any time detect the slightest sign of a pleuritic rub or any abnormal physical sign. I was so completely at a loss as to what to call it that I coined the name "Winderitis," Winder being the name of the boarding house in which it started, and in which most of the cases occurred. After reading Dr. Pickles's article I feel no doubt at all that my epidemic was an epidemic of "Bornholm" disease. Unfortunately after a lapse of four years, it is not possible to make inquiries as to where boys had spent their holidays, and in point of fact the epidemic did not start until a little over three weeks after the beginning of term.—I am, etc.,

Sedbergh, Dec. 14th. A. H. Carter, M.D.

Treatment of Fractures of the Spine

Sir,—In your issue of December 9th Mr. R. Broomhead quotes a circular which was sent in July by the General Infirmary at Leeds to ambulance teams at the various pits and works in the locality requesting them in future to remove in the prone position all cases of accident in which a fracture of the spine is suspected. He adds that one of these circulars was sent to the headquarters of the St. John Ambulance Association, and that he was "amazed to receive a letter which flatly refused to consider the advance in treatment that had been suggested."

The position is that a number of persons in and around Leeds holding St. John first-aid certificates wrote to this office to say that they received such instructions from the Leeds General Infirmary and, as they differed from those in the St. John textbook, they wished to know how they should act. After a number of such inquiries had been received in this office a copy of the circular in question was forwarded here by Mr. Broomhead, and I informed him that I was "sorry that we were not consulted before it was decided to send it to branches of our organization in the West Riding of Yorkshire," and I sent him a copy of a letter which was to appear in the next issue of our journal, the *St. John Ambulance Gazette*. That letter pointed out that the Textbook Revision Committee of the St. John Ambulance Association had carefully considered the matter of removal in the prone position when it was advocated in the *British Medical Journal* in February, 1931, that it had since discussed it on various occasions with others who advocated it, but had come to the conclusion that it would not yet be wise to alter the treatment laid down in the textbook. This hardly seems to me to constitute a "flat refusal" to consider the matter.

As regards Mr. Broomhead's further suggestion that it is "very reprehensible" for the St. John Ambulance Association to adopt such an attitude since "adequate first aid may mean the difference between life and death," it is evident to the St. John Ambulance Association that there is by no means unanimity in the medical world that removal in the prone position is preferable to removal on the back. This is clear from the letter in your issue of December 9th from Colonel Simpson, who, incidentally, is your first correspondent to look at this question from the point of view of the first-aider, whose main concern is the prevention of aggravation.

In these circumstances and until there is a more general consensus of opinion that removal in the prone position is preferable to removal on the back, the medical members of the Textbook Revision Committee consider it would be premature for the St. John Ambulance Association to alter its teaching on the subject.—I am, etc.,

A. N. Cahusac,
St. John's Gate, Clerkenwell, E.C.1, Dec. 13th. Chief Secretary, St. John Ambulance Association.

Sir,—I am in entire agreement with Mr. R. Broomhead as regards the removal of the above cases by ambulance men. I feel sure that if the suggestion of Mr. G. C. E. Simpson—namely, to approach the British Society of Orthopaedic Surgeons and the Orthopaedic Section of the

Royal Society of Medicine—*was acted upon, the Ambulance Department of the Order of St. John would give it favourable consideration.* As a lecturer to St. John and British Red Cross classes for the past fifteen years, I can state that the lecturers are only too anxious to incorporate up-to-date teaching in their lectures.

Incidentally, the treatment of burns with tannic acid jelly instead of by the older methods is also worthy of consideration by the ambulance department of the Order. —I am, etc.,

FRANK M. HUGHES,
Late County Surgeon, St. John Ambulance Brigade.

Walmer, Dec. 16th.

Compound Fractures of the Tibia

SIR,—As I read the article by Mr. Simpson-Smith on the reduction of fractures with the use of a special clamp, as described in the *Journal* of December 2nd, I was much surprised to see in one of the illustrations that a plaster has been put on the leg with the ankle well below a right angle. This is surely a sin against the best orthopaedic principles, of which I know Mr. Simpson-Smith is usually a follower.

I was also interested in the apparent ease with which Mr. Simpson-Smith states that he can take out from his wound, after *securing correct alignment of the bones*, the curved clamps of his instrument with the leg in a fairly tight plaster without having to make strong retraction of the surrounding muscle planes.—I am, etc.,

G. O. TIPPETT, F.R.C.S.

Kensington, W., Dec. 6th.

Congenital Dilatation of Colon Treated by Division of Lumbar Sympathetic Cord

SIR,—I am interested in the article of Dr. Hugh T. Ashby and Mr. D. M. Sutherland on the above subject in your issue of December 9th (p. 1069). Five years ago I operated on two advanced cases of congenital dilatation of the colon. In both cases a bilateral transperitoneal resection of the second, third, and fourth lumbar sympathetic ganglia was performed, and the results have been perfect. The patients—both girls, aged 9 and 15 respectively at the time they were operated on—never miss having regular daily motions without taking medicine or dieting.

At a joint meeting of the Manchester and Liverpool Medical Societies, held in Manchester in 1932, I demonstrated *x*-ray pictures showing that, in spite of the perfect functional result, the colon, as seen with a barium enema, remained very greatly dilated three and a half years after operation. On the other hand, a bismuth follow-through series of *x*-rays gave no suggestion of any abnormality or distension of the colon. This seemingly contradictory state of affairs has puzzled me and, for a long time, I have suspected that after sympathectomy the colon contracts down to the normal size, but is *easily distensible*. Dr. Ashby and Mr. Sutherland's observation that, in their case, the distended colon contracted down to almost normal calibre soon after the ganglia were excised, yet, subsequently, a barium enema showed it dilated and distended, seems to add weight to my suspicions. It would be interesting to know if similar observations have been made in other cases of Hirschsprung's disease.

I am of the opinion, both on anatomical grounds and from practical results, that the ideal operation is a bilateral ganglionectomy. A unilateral operation not only *fails to free completely* the colon from the activity of the sympathetic nervous system, but, in theory at least, there is a risk that the permanent vaso-dilatation might result in overgrowth of the left leg. I have had several very *satisfactory results* in cases of intractable constipation following removal of the presacral nerve and the inferior mesenteric plexus, according to the technique of Learmonth and Adson, but as this operation deprives the lower colon of its parasympathetic as well as its sympathetic nerve supply, I think some modification of it is required before it can be considered ideal.

In men presacral neurectomy would result in the loss of the power of seminal ejaculation. So far I have had no need to perform this operation on a male patient, but I have found no undesirable post-operative effects in any of my female patients.—I am, etc.,

J. B. OLDHAM.

Liverpool, Dec. 11th.

Milk: Raw and Pasteurized

SIR,—In a recent editorial (December 9th) you refer to a congress of the Food Group of the Society of Chemical Industry recently held in the British Medical Association House, and were good enough to describe my contribution to a discussion on milk as gay facetiousness, "calculated rather to belittle the knowledge we already had than to make use of or extend it," and "an attempt to please the agriculturists on the one side and the hygienists on the other." I can only conclude that the writer of the article had neither done me the honour of reading the full communication as published (*Journal of the Society of Chemical Industry*, November 24th, 1933, p. 364) nor had he been to the discussion itself, but had taken his views at second hand from some definitely prejudiced person who for some unknown reason had deliberately misled him. Had he been at the meeting he would have heard the contribution in question referred to, on the platform, by two distinguished members of your Association in very different terms from those used in your editorial.

I was not asked to give a paper on some specialized side of recent knowledge, which I would willingly have done if I had been asked to do so, but to give my views as to how the nation's milk supply could best be improved. The main points of my paper were: (*a*) that there is too little milk consumed in this country per head of the population (giving figures and reasons) and suggesting that there was room for an extension of knowledge amongst consumers (and amongst their advisers) of the specific nutritional importance of milk; (*b*) that the hygienic quality of our milk supply was still far from satisfactory, and that milk which does not come from properly inspected and tuberculin-tested herds, if to be used for liquid consumption, should be pasteurized or subjected to heat treatment in the home; (*c*) that there must be a prepasteurization standard of quality; (*d*) that all pasteurization must be carried out under licence and under the direct responsibility of a competent certificated plant manager; (*e*) that the chemical quality of our milk is not yet satisfactory; (*f*) that in the dairy industry in this country practice is lagging behind scientific knowledge. I do not think any of these statements can be accused of gay facetiousness, or of an attempt to please both the bacteriologists and the milk producers!

What, possibly, the writer of your article had in mind was a plea of mine for a sense of proportion amongst certain of the advocates of the compulsory pasteurization of *all* kinds of raw milk, even that from the cleanest tuberculin-tested herds, *as a way of avoiding the possibility of contracting undulant fever.*

These advocates, all men who had studied bacteriology but not nutrition or agriculture, perhaps saw one side of the question so intensely that they failed to realize that there were other sides to it as well—namely, the implication of their pronouncements either in the frightening

of the ignorant consumer, who looked to them for guidance, into a still worse nutritional condition as a result of his drinking still less milk of any kind, or in the bringing of the intelligent progressive farmer, who was turning out clean milk from tuberculin-tested herds, to despair. Two thousand deaths from bovine tuberculosis per annum was a very serious matter. Two deaths per annum from undulant fever (which may or may not have been contracted from infected milk) was, I submitted, in a population of 44,000,000 *not* of the same order of seriousness. Bovine tuberculosis was the principal enemy, and we must secure the consumer from the risk of infection by it by assisting every effort to produce tuberculin-tested milk and by effectively heating such milk as was not of this hygienic quality, before consumption.

These views of mine are, of course, open to argument, and may not be entirely in agreement with the opinions of some member of your editorial staff, but are, nevertheless, hardly open to gibe. If words have any meaning, my contribution to the " Bread and Milk " discussion was neither gay nor facetious nor an attempt " to belittle the knowledge we already had." I would suggest that editorial comments of this kind, based either on erroneous second-hand information or worse, are not in keeping with the reputation of the *British Medical Journal*.—I am, etc.,

Shinfield, nr. Reading, Dec. 13th. H. D. KAY.

*** Professor Kay has evidently misread the editorial in question. The expression " gay facetiousness " referred, not to his communication as a whole, but only to that part of it in which he cast ridicule on those persons who chose not to incur the risk of drinking raw milk. Our main criticism of Professor Kay's paper was that he dismissed, with an assurance hardly justified by his training or experience, a great part of the medical evidence on milk-borne disease. We would remind Professor Kay that other diseases besides tuberculosis and undulant fever are carried by milk, and that the death rate is not the sole criterion by which to judge the injury inflicted on mankind by pathogenic micro-organisms.—ED., *B.M.J.*

Serum Reaction for Malignancy

SIR,—I regret the choice of title of Dr. J. Patterson and Mr. J. Adler's paper in the *Journal* of December 9th (p. 1063), as personally I have referred to the reaction as the modified Bendien test or colloidal vanadium reaction, and feel that if any name is to be associated with it it should be that of Bendien. Neither can I agree that the original Bendien reaction does " not provide any basis for arriving at a diagnosis of malignancy." Although the criticisms against the spectrophotographic part of the test have not been disproved, the primary precipitation reaction has provided the basis for the modified technique adopted, which I consider does allow of diagnostic possibilities of considerable accuracy.

I have not employed the alternative method of protein estimation introduced by Patterson and Adler, and must, therefore, accept their assurance that it is of sufficient accuracy to be relied upon for the purposes of the test. If so, then the high percentage of clinical and reaction non-correspondence in these observers' findings suggests that the incorrectness may be due to some faulty detail of the reaction technique in spite of the fact that they are careful to emphasize that they have followed the details of the method described. My own experience now covers more than 1,700 examinations, and I recognize that the susceptibility of the test to adventitious disturbances constitutes a troublesome delicacy of the reaction and may prove in some hands a serious obstacle to its employment as a routine clinical test, unless such difficulties can be subsequently overcome. While regretting the unsatisfactory results of the fifty-five cases detailed by Patterson and Adler, one doubts whether they are justified in basing such dogmatic conclusions upon so small a number of tests.

The last 200 of my examinations have been carried out independently by P. H. Osmond, as regards both the reaction technique and the interferometer readings. After excluding all cases in which the diagnosis is not yet verified and all instances of " repeat " examinations of known cases of malignancy, it is possible to collect the reaction findings in 100 cases, in which the diagnosis has been verified by operation (8), biopsy (64), *x*-ray evidence (7), or clinical observations (21), and to present these for comparison as another small independent series of examinations employing the modified Bendien reaction in diagnosis. Although this group is nearly twice as large in numbers, it is composed of pathological cases fairly similar to those detailed in Patterson and Adler's series. No normal cases are included.

A.—*Malignant Cases* (80)

1.—65 Definite malignant reactions (frankly).
2.— 7 Indefinite malignant reactions (presumably).
3.— 3 Definite non-malignant reactions (frankly).
4.— 5 Indefinite non-malignant reactions (presumably).

B.—*Non-malignant Cases* (20)

1.—14 Definite non-malignant reactions (frankly).
2.— 2 Indefinite non-malignant reactions (presumably).
3.— 3 Definite malignant reactions (frankly).
4.— 1 Indefinite malignant reaction (presumably).

Definite reactions in 85. Correct in 79 = 93 per cent.
Definite and presumably correct reactions in 88 = 88 per cent.
Definite and presumably incorrect results in 12 cases.

Of the twelve incorrect results two in the A3 and two in the A4 group were of malignant cases associated with gross septic infection, while two in the B3 group and the one B4 case gave reactions in the normal tube but of malignant type.

The criticism as regards the absence of reference in my original papers to the type of reaction, which Patterson and Adler describe as " presumable," is a fair one. In practice, however, these have been recognized, and cases in which the difference between denominator and numerator has been less than five units have been reported as " indefinite " with a bias one way or the other, and subsequent examinations advised for confirmation. This point is detailed in a paper on the technique of the test, now awaiting publication in the next issue of the *Laboratory Journal*.

The technique of the test is also criticized in that " quite an arbitrary standard is chosen upon which to fix the reagent to be applied," and it is pointed out, as is known by all who have employed the method, that if weaker or stronger reagents are used different findings may be obtained. Is not delicate standardization of reagents essential in the performance of many other biochemical or biophysical reactions? And if the factors which make such careful standardization necessary are not readily explainable does this vitiate the practicability of the reaction? The choice of the reagent which gives with unheated serum the nearest precipitate value of 40 units was the result of numerous experiments, and the reasons for deciding upon it are that it obviously corresponds with Bendien's " first flocculation," and that as the result of making comparative graphs from the precipitate estimations of A, B, and C reactions in a large number of serums it was found that with the reagent that gives approximately 40 units in the A reaction the greatest difference is usually present in the corresponding B or C reactions, and that, the three curves not being parallel, there is a zone of greatest and apparently characteristic

divergence in the triple reaction which necessitates the employment of this critical or standard reagent for the purpose of the test There is another point which should be remembered when evaluating the correctness or otherwise of findings, as given in Patterson and Adler's series, and this is that negative histological findings and operative observations are not invariably correct Assuming that their reactions are right, this observation may possibly apply to Cases 4, 5 17, 36, and 56

The following three cases are typical of such mistakes, which only a sufficient time and "follow up" observations can correct

1 A case of chronic mastitis Modified Bendien test malignant Biopsy no malignancy found Six months later mass developed in scar and axillary glands Removed Biopsy result carcinoma present

2 A case of menorrhagia with suspicious hypertrophic endometritis gave a malignant serum reaction After hysterectomy however no pathological evidence of malignancy could be demonstrated and the serum test findings (repeated twice) were pronounced incorrect Twelve months later the patient was found to have a malignant mass in the pelvis involving the bladder

3 *On the other hand a case of intestinal obstruction* Lateral anastomosis performed for what was considered to be a carcinoma of the caecum The serum reaction was of the non malignant type and apparently wrong Two months later the mass much reduced in size was successfully removed and no evidence of malignancy found on examination

The serum tests in these three cases, although opposed to the clinical diagnosis of the moment, and therefore considered wrong, were eventually shown to be correct

In some cases a considerable time must elapse before the correctness or otherwise of the observations made can be finally evaluated, and it is unlikely that the last word upon this important aspect of cancer research will be spoken until more extensive observations have been made than can be expected from the short experience of fifty to a hundred examinations Incidentally during the past weeks, a private communication has been received from a worker in America, who hopes shortly to publish his results in some hundreds of examinations, which are described as being confirmatory of my original findings In any case, until a more simple or satisfactory method be introduced, the modified Bendien test gives an opportunity for serological observations upon clinical malignancy not previously available —I am, etc ,

Liverpool, Dec 12th E CRONIN LOWE

SIR,—We have read with much interest the article in your issue of December 9th (p 1063) by Dr J Patterson and Mr J Adler on the Cronin Lowe diagnostic test for cancer These authors have used a method essentially the same as that of Dr Cronin Lowe, but the final estimation of the protein was carried out not by means of the interferometer but by the Folin Wu phosphotungstic acid colour reaction, and they state that they have been completely unable to confirm Cronin Lowe's claims as to the high specificity of the test

We ourselves have carried out a series of observations in an attempt to confirm Cronin Lowe's results In our earlier experiments the amount of precipitate was estimated by observing the degree of turbidity produced in various tubes by means of the Zeiss stupho photometer As the results obtained in this way did not agree with the clinical findings we next carried out a series in which the final readings were made by means of the Zeiss interferometer of the type recommended by Dr Cronin Lowe, which was kindly lent us by Dr J A V Butler of the Chemistry Department, Edinburgh University A number of the tubes were read both on the photometer and on the interferometer Although on the whole the photometric and interferometric readings showed substantial agreement, in neither case did the critical ratio $\frac{C-A}{A-B}$ show agreement with the clinical findings beyond that to be expected as the result of chance During the course of the work we have been in communication with Dr Cronin Lowe, who kindly made various suggestions as to the possible causes of error In spite of all attempts to conform as far as possible to his conditions we have been quite unable to improve our results In fact, this circumstance that our last and most carefully carried out observations showed no indication of giving more satisfactory results than the earlier ones has led us to stop the work on the test till further information becomes available

In two points our work has been different from that of Dr Patterson and Mr Adler, in that we have for the most part used only normal blood and cancerous blood, and not blood from non cancerous pathological conditions , and, secondly, in that we have used the interferometer as recommended by Dr Cronin Lowe In the course of our work we have examined twenty normal and forty five cancerous serums, but as we have continually modified our procedure in successive sets of tests in attempting to attain optimum results they are not all strictly comparable with one another We realize that negative results would be of little importance if it were found that with proper technique the test could be shown to be specific and reliable Nevertheless, in view of the great practical importance of a diagnostic test for cancer, it seems desirable that those who have seriously attempted to confirm the claims of Dr Cronin Lowe should state their experience, so that a final decision may be more quickly arrived at It will be seen that our own experience of the test agrees substantially with that of Dr Patterson and Mr Adler, and that we have been unable to confirm the claims of Dr Cronin Lowe We are also in agreement with Dr Patterson and Mr Adler in their general comments on the test, and especially with the remarks in relation to the fact that the ratio depends very much on the particular tube of the Bendien series which is chosen for observation It is impossible for the tube chosen to exhibit always the same degree of precipitation and this fact alone seems to prove that the final ratio found will have a value determined within very considerable limits by fortuitous circumstances We hope that other workers who have tried the test and especially any who may have been successful in obtaining satisfactory results will state their findings on this important subject —We are etc

Research Laboratory Royal College of Physicians Edinburgh Dec 13th WM GLEN LISTON W O KERMACK

SIR —During the past nine months with the co-operation of the honorary staff of this hospital, we have examined the above reaction in about 220 cases While we do not feel justified in reporting our findings in detail at present in view of the paper by Patterson and Adler in your issue of December 9th a brief summary of the behaviour in the 161 cases where the clinical diagnosis has been satisfactorily established will be of interest

Briefly, we find correspondence in 132 of these cases leaving twenty nine apparently incorrect results, as given by the Cronin Lowe ratio This gives 81 per cent correct results Of those corresponding to diagnosis 82 were serums from malignant cases covering almost every stage in the disease, while fifty correct negative reactions were obtained from patients in whom possibility of malignancy was excluded as far as possible Of the twenty nine cases in which the test apparently failed, fourteen were from malignant cases and fifteen from non-malignant

On examining our results we find a higher percentage of non correspondence in our earlier tests, in view of

which we feel that a much larger number of serums should be examined before we give a final opinion as to the usefulness of the test.—We are, etc.,

R. EWART JONES,
Assistant Clinical Pathologist.
D. LEYTON WOODHOUSE,
Biochemist, Cancer Research Laboratory.

General Hospital, Birmingham,
Dec. 12th.

SIR,—Considerable doubt has been cast by the work of Dr. J. Patterson and Mr. J. Adler (*Journal*, December 9th) on the value of the Cronin Lowe modification of the Bendien reaction as a test for malignancy, and in view of the wide publicity the test has received it seemed desirable that any further experiences should be published. My results, which are in entire agreement with those of Dr. Patterson and Mr. Adler, are tabulated below in the same way as theirs. The protein determinations were made as in the original method, by means of an interferometer.

TABLE I.—*Malignant Cases*

Case No.	Reaction: Malignant	Reaction: Non-Malignant	Clinical Condition	Evidence of Disease
6	1 ++	—	Carcinoma of stomach	O
7	—	3. 5/23	Carcinoma of stomach	C
8	—	3. −6/.0	Carcinoma of ovary; secondaries in chest	P.M.
11	1. 48/17	—	Carcinoma of bladder	H
12	2. 63/6	—	Carcinoma of prostate	H
13	1 ++	—	Carcinoma of lung; pulmonary tuberculosis	P.M.

C = Clinical; H = Histological; O = Operation.

TABLE II.—*Non-malignant Cases*

Case No.	Reaction: Non-Malignant	Reaction: Malignant	Clinical Condition	Evidence of Disease
3	5. 6/26	±	Fractured femur	C
4	3. 2/13	—	Diabetes mellitus	C
9	3. 21/28	—	Abscess of neck	C
10	5. 7/16	—	Pernicious anaemia	C
16	—	2. 2·/7	Gastric ulcer: Haematemesis	C
17	—	c. 35/19	Sciatica	C
18	2. 15/13	—	Convalescent from pneumonia	C

My series of cases in which the diagnosis is certain only amounts to thirteen, but out of this limited number four were definitely wrong (Nos. 7, 8, 16, and 17); two (Nos. 6 and 13 of the malignant series) gave a complete precipitation in the first tube, so that without extension of the series beyond the first tube (which was not suggested by Cronin Lowe as ever necessary) an "index" cannot be calculated, though the reactions are presumably to be regarded as malignant; two of the non-malignant series (Nos. 10 and 18) gave non-malignant reactions, as shown, with tubes 5 and 2 respectively, but the next tube in each case gave a definite malignant reaction (6. 36/14 and 3. 35/26).

It does not seem necessary to make much further comment, as Dr. Patterson and Mr. Adler have already adequately done so; it is, however, worth mentioning that unless extraordinary care is taken to standardize conditions of precipitation differences of considerably more than 5 per cent. can arise in duplicate determinations. For example, the same serum was treated with the same reagent under conditions ide[illegible] except that in one case the reagent was added drop by drop, while in the other the reagent was run in rapidly and the mixture well shaken afterwards. The interferometer readings (20 mm. cells) for the two experiments, each carried out in duplicate, were 347 and 315 for the "drop-by-drop" addition and 420 and 423 for the rapid addition, giving an error of 28 per cent. if the lower value is taken as correct, and 22 per cent. calculated on the higher figure. Care was therefore taken in actual tests to standardize all conditions as far as possible.

My warmest thanks are due to Professor E. C. Dodds for the loan of the interferometer used, and to the medical superintendent and medical staff of Lewisham Hospital for suggesting suitable cases for the test.—I am, etc.,

E. N. ALLOTT, B.M., B.Ch.,
M.R.C.P.

Group Laboratory, Lewisham Hospital,
S.E.13, Dec. 11th.

Treatment of Early Rodent Ulcer

SIR,—Thirty years ago I adopted the method of treatment advocated by Dr. Adamson—not only for small, but also for extensive basal carcinomas of the skin. For the last twenty-five years it has been the method of choice at the Manchester and Salford Skin Hospital.—I am, etc.,

LOUIS SAVATARD.

Manchester, Dec. 12th.

Members of the Royal College of Surgeons

SIR,—It is to be regretted that the Council of the Royal College of Surgeons of England have for forty-four years refused the decision of their annual general meeting, passed by an almost unanimous majority, and decided not to give representation on the Council to Members.

It is especially to be regretted at the present time, when the question of medical education is so much under discussion, and also the extent and scope of general practitioners' work (largely done by Members of the College) is being reviewed and altered by outside bodies, official and otherwise, that the members of the Council should only be consulting surgeons, who naturally know little about these things. The Council of the College is consulted from time to time on these matters by the various authorities, and advice and information from Members would be most helpful, and of value both to the medical profession and to the public.

It is not desired by Members, nor would it be expedient, that they should rule the College, but they do consider that a membership of 90 per cent. gives them a definite right to have representation on the Council, especially as they originally constituted the Council, but were debarred from a seat on the Council by a charter in 1843, which the *Lancet* of that date described as "a mischievous and iniquitous charter," since when the agitation for representation has never ceased.—I am, etc.,

HOWARD M. STRATFORD,
President of the Society of Members of the Royal College of Surgeons of England.

London, W., Dec. 18th.

Carey Coombs Memorial

SIR,—The Carey Coombs Memorial Fund, which you kindly announced earlier in the year, is now approaching £1,300. As the committee are anxious to invest the fund, any of your readers still wishing to subscribe to it are requested to send their subscription to the Honorary Secretary, 13, Lansdown Place, Clifton, Bristol 8, at their earliest convenience.—I am, etc.,

H. ELWIN HARRIS, jun.,
Honorary Secretary.

December 13th.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The Edinburgh Corporation Bill, which had passed second reading in the previous week, was read a third time and passed by the House of Commons on December 18th This Bill includes proposals regulating superannuation allowances for officials, among them the chief officer of the city's mental institution

The Registrar-General's Statistical Review for 1932, Tables, Part I, Medical, was laid on the table of the *House of Commons on December 18th*, as also Methylmorphine and Ethylmorphine Regulations under the Dangerous Drugs Act, 1920

The Dyestuffs (Import Regulation) Bill "to amend and make permanent the Dyestuffs (Import Regulation) Act, 1920," was introduced in the House of Commons on December 13th by Mr Runciman

Road Traffic (Emergency Treatment) Bill

The House of Lords went into committee on December 14th on the Road Traffic (Emergency Treatment) Bill After drafting amendments had been made in Clauses 1 and 2, Lord SANDHURST moved to omit the word "motor," and so make the Bill apply to accidents caused by pedal bicycles and tricycles or by carts Lord HOWE said the committee which considered the same Bill last session recommended that doctors should receive payment, but could not suggest any satisfying way of ensuring payment to doctors and hospitals except by imposing a burden on the motoring community He submitted that that was an injustice not only to the motoring community but also to the hospitals The recent return of road accidents disclosed that over 900 fatalities and 40,000 cases of injuries were caused by vehicles and road users where no motor vehicle was concerned What was proposed for the doctors who were concerned about those accidents? If this Bill passed every motorist would have to pay for the remuneration of the medical profession, and insurance companies would have to raise their premiums It was difficult for a doctor to secure the remuneration to which he was entitled after treating accident cases but Parliament was not going the right way about the problem by placing the whole burden of compensating the doctor on one class of road users Lord ELIBANK said all members of the House agreed that medical practitioners should be recompensed for the work they had done The Bill had been originally remitted to a select committee for the purpose of considering accidents in connexion with motors and not with the other cases

Lord MOYNIHAN said he wished to secure all he could from all sources both for hospitals and for general practitioners The whole medical profession resented that so many of its members were employed in dealing with grave accidents and received very little or frequently no remuneration Until the motorists came upon the road no question of this sort arose He did not accuse motorists of negligence or carelessness or unskilfulness in driving The motor had introduced a new problem into man's environment and it was obviously taking time for man to develop the conditioned reflexes required for his own protection He opposed the amendment as not desirable and likely to prejudice the further progress of the Bill

Lord PLYMOUTH, for the Government said he thought the amendment would not bring in owners of horse drawn vehicles Doctors, under it would have as much difficulty in recovering their fees as at present Lord Sandhurst's amendment was defeated by 38 to 4

Lord HOWE moved an amendment to provide that the vehicle licensing authority should be the party from whom the doctors and hospitals would be entitled to recover payment for emergency treatment He agreed that the doctors and hospitals ought to receive payment and sympathized with the argument Lord Moynihan had put forward The doctors at present were out of pocket by £105 000 The total paid by road cars last year in motor vehicle duty, drivers licences and oil duty was £59 910 000 Could not the £105 000 required to right a wrong be found out of that general taxation?

Lord MOYNIHAN said he and the select committee had preferred that the money which was needed should come from compulsory insurance The amount was only a penny per month for each motorist The motorist's contribution was partly for his own succour in possible time of need The motorist was in some measure responsible for accidents The last report of the Ministry of Transport showed that the private driver was responsible in rather more than 50 per cent of cases He held no brief against motorists He had been one for many years He hoped that if the amendment did not pass and Clause 4 was accepted as part of the Bill the Government would undertake the financial responsibility attaching to it (Clause 4 proposes that the liabilities imposed by the Bill shall be third party risks to which Part II of the Road Traffic Act, 1930, applies)

Lord PLYMOUTH said the Government recognized that at present there was an abuse of the services rendered both by medical practitioners and by hospitals in the emergency treatment of victims of road accidents Lord Moynihan had justified his contention that in a high proportion of cases both received no remuneration, and were often put to substantial expense with no effective means of recovery The Government was considering the whole question of road accidents, and the subject matter of this Bill would be included in that review Pending an announcement of Government policy he could not give any undertaking about the further stages of this Bill, nor express preference for one remedy against another

Lord HOWE withdrew his amendment

Lord BERTIE OF THAME challenged the provision in the Bill that medical practitioners should be allowed to charge sixpence for each additional mile above two "in any direction" when travel is necessary for the rendering of emergency treatment Lord MOYNIHAN explained that the words were inserted to cover a journey to secure splints or other medical aids After another drafting amendment Clause 2 was agreed to Clause 3 was carried without amendment On Clause 4 Lord MOYNIHAN moved words applying the clause—"obligation to insure"—to injuries in a place to which the public had access He said he did this to extend the narrow definition of the word "road" Lord PLYMOUTH remarked that the amendment was unnecessary Lord MOYNIHAN then withdrew it The House agreed to add to Clause 4 the following proviso

"Provided that a payment under this Act shall not be deemed to be a payment by an authorized insurer or owner for the purposes of Subsection (2) of Section 36 of the Road Traffic Act 1930 as amended by any subsequent enactment"

In Clause 5— Application for remuneration —the House agreed on the motion of Lord MOYNIHAN, to insert the words 'unless full payment therefor has been previously received The clause was then agreed to On Clause 6 at the request of the Home Office Lord MOYNIHAN moved that the liability of officers of police to furnish information to persons seeking to recover fees under the Bill should be restricted to chief officers of police The House accepted the amendment, and agreed to Clause 6 On Clause 7 at the suggestion of the Ministry of Transport, Lord MOYNIHAN moved and the House agreed to insert that

"A medical practitioner or hospital recovering remuneration under this Act shall not be entitled to recover any other payment from any person in respect of the same treatment'

Subsection 2 of Clause 7 was amended to read

"When any payment is made under this Act in respect of an injury arising out of an accident for which the person by whom or on whose behalf the payment was made is not legally responsible that amount shall be recoverable from the person who is responsible"

Clause 7 and the remaining clause of the Bill were agreed to The long title of the Bill was amended to make it apply to 'roads and in places to which the public have access The committee stage then closed

The Bill does not apply to Northern Ireland

London Nursing Homes

Mr SHAKESPEARE has informed Sir Park Goff that the attention of the Minister of Health had not previously been drawn to the conversion of worn out residences into medical nursing homes in unsuitable districts within the London area As at present advised, the Minister did not think further

legislation was required. Under the Nursing Homes Regulation Act no person might carry on a nursing home unless he was registered by the local supervising authority in respect of the particular premises, and the fitness and situation of the premises were factors which had to be taken in consideration by the authority before agreeing to registration. In reply to Sir John Haslam, he said that as a decision on this matter was, under the Act, a matter for the local authority, subject to an appeal to the courts, the Minister of Health did not think he would be justified in calling for reports from local authorities in London on the condition of the nursing homes registered and inspected by them. Sir A. M. SAMUEL asked if Mr. Shakespeare had ever had a survey independently made of the nursing homes in the district between Wimpole Street and Baker Street quite apart from any report which the Ministry might have received from the London County Council. Mr. SHAKESPEARE replied in the negative. Sir A. M. SAMUEL asked if the hon. gentleman would call for such a report, but no answer was given.

Public Medical Service Schemes

Sir HILTON YOUNG told Mr. Joel on December 14th that he was unaware of a scheme in the Black Country under which the poorer residents of the middle class were arranging a system of medical attendance by weekly payments, whether well or ill. He knew that in certain parts of the country the medical profession had organized public medical service schemes for the medical treatment of persons for whom provision was not made under the National Health Insurance Acts. Such schemes were matters of voluntary arrangement, and he had no power to take steps with a view to their extension.

Petrol Fumes and Public Health

On December 11th Lieutenant-Colonel HEADLAM told Mr. McEntee that the possible effect of petrol fumes on the drivers and conductors of motor vehicles was considered incidentally by the Departmental Committee appointed by the Home Secretary to inquire into industrial diseases. He did not think there was sufficient evidence of injury to the health of drivers or of other users of the road from exhaust fumes to justify legislative action. Defects in exhaust pipes were looked for by the examiners in the examination of omnibuses and motor coaches. Similar defects in goods vehicles would come under the observation of examiners when occasion arose for the inspection of such vehicles under the provisions of the Road and Rail Traffic Act, 1933. Mr. MCENTEE asked if any regular research was taking place into the effect of these fumes on the health of the public, and whether the Minister had seen a statement issued by a number of highly qualified medical men that the fumes had a serious effect. Lieut.-Colonel HEADLAM said the matter was under close observation. He had seen some suggestions by doctors, but the latter were varied in their opinions.

Immunization against Diphtheria and Measles.—Sir HILTON YOUNG told Mr. Groves, on December 14th, that immunization against diphtheria was not applied to children in London County Council institutions without the written consent of a parent or guardian. Authority to give such consent on the part of the county council, when they were in the position of parent or guardian, was delegated to the education officer. In the case of the immunization of children in London County Council hospitals against measles, it was generally recognized that the parents' consent must be obtained whenever practicable, but he was informed that this course was not always feasible. If this form of preventive treatment (which was used only in emergencies) was to be efficacious it must be applied promptly.

Operation for Sterilization.—Replying, on December 14th, to Mr. Mitcheson, Sir HILTON YOUNG said he had seen a newspaper report on an inquest on a woman who died after an operation for sterilization in which the verdict recorded that sterilization had been medically advised owing to the physical incapacity of the patient to withstand the risks she would incur in undergoing confinement. He did not think it would be useful to ask coroners to tabulate such cases separately or to attempt to obtain statistics of the frequency with which such operations were performed in hospitals subject to his inspection.

Milk for Lancashire School Children.—Captain HUDSON has informed Mr. G. Macdonald that during the financial year ended March 31st, 1931, 228,976 pints of milk were supplied to 1,525 individual school children by the Lancashire County Council. In 1932, 211,913 pints were supplied to 1,876 children, and in 1933, 394,717 pints to 2,916 children. From April 1st to October 31st, 1933, 305,542 pints were supplied. The number of children who received milk in this period could not be given, but the largest number who received it in any one month was 2,848, in April last. All the milk provided by the local education authority was given free of charge. It was understood that in addition to the authority's arrangements under the Education Act, 1921, there was in operation in the area a voluntary self-supporting scheme for the supply of milk to children on payment, conducted under the auspices of the National Milk Publicity Council. No figures were available on the number of children receiving milk under this scheme or the quantity provided.

Disposal of Surplus Milk.— Mr. ELLIOT told Sir Percy Hurd that the National Milk Publicity Council was doing much useful work in the direction of extending the consumption of milk in schools. He would take note of Sir Percy Hurd's suggestion that part of the expected surplus of liquid milk in the spring should be available for schools and welfare centres.

Removal of Sane Woman to Lunatic Asylum.—Mr. SHAKESPEARE told Sir W. Davison on December 13th that the forcible removal to a lunatic asylum of a sane woman from her home in West London had been reported to the Minister of Health by the Middlesex County Council, the authority primarily responsible in the matter. The whole circumstances were being investigated by the council, and the result of the investigation would be reported to him without delay. If the circumstances as represented in the Press were found true, after due inquiry had been held, he was sure the whole House would desire to join with the Minister of Health in expressing deep concern and regret that an incident of such a grave nature should have taken place. The Minister must consider the report from the county council before deciding what action on his part was desirable.

Inspection of Pasteurization Plants.—In reply to General Clifton Brown, on December 14th, Sir HILTON YOUNG said he was aware of the remarks in the report of the Milk Commission on the condition of some of the smaller pasteurization plants in the country. Under the law there was no control of the process except in the case of milk which was sold under licence as "pasteurized milk." Establishments so licensed were subject to inspection by the officers of the local authority granting the licence, and it was one of the conditions for a licence that the type of apparatus and the methods employed should be satisfactory to the authority. An officer of his Department was making general inquiries into the efficiency of plants. He proposed to issue a memorandum for the guidance of local authorities and their officers in their inspection of such plants. Sir Hilton Young said he would consider a suggestion made by Sir Francis Fremantle that the veterinary surgeons to be appointed should include this as part of their training and responsibilities, so as to have only one inspector instead of two.

Highlands and Islands Medical Services.—In reply to Mr. Kirkwood, Mr. SKELTON has stated that investigation had been made on the air-ferries ambulance for the Western Isles in connexion with the Highlands and Islands medical services. Arrangements were being made to give assistance from the Highlands and Islands (Medical Service) Fund in cases of need and emergency towards costs incurred on the hire of aeroplanes to remove persons from the Highlands and Islands to central hospitals. The Department of Health was also in communication with the county council of Argyll on the possibility of organizing such a service for any parts of that county, including the islands, where conditions permitted.

Notes in Brief

The Minister of Transport proposes to revise the Highways Code in some respects, and thereafter will take steps to secure wider knowledge of its provisions.

The Secretary of the Treasury is not yet in a position to say what action will be taken on the report of the Committee of Industrial Assurance and assurance on the lives of children under 10 years of age.

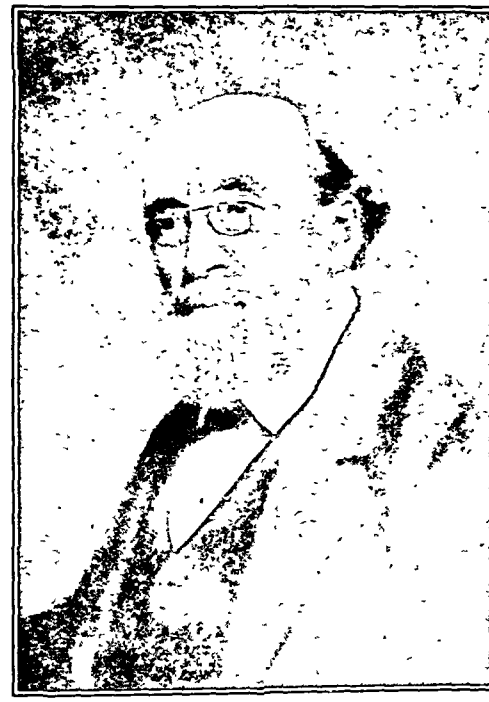
Obituary

SIR WILLIAM WHITLA, M.D., LL.D., D.Sc.

Emeritus Professor of Materia Medica and Therapeutics, Queen's University, Belfast; Consulting Physician, Royal Victoria Hospital; Honorary Physician in Ireland to the King

By the death of Sir William Whitla, on December 11th, at his home in Belfast, British medicine has lost a remarkable personality.

He was born in Monaghan in 1851. Shortly after leaving school he went to Belfast as an apprentice to the leading firm of dispensing chemists, Wheeler and Whitaker. He soon decided on reading for the medical profession, and when his apprenticeship was completed he entered Queen's University. His college career, a brilliant one, terminated in 1877, when he obtained his M.D., with first-class honours and a gold medal. Soon afterwards he became resident medical officer and superintendent of the Royal Victoria Hospital. His exceptional ability both as a physician and as an administrator soon became evident, and he quickly revolutionized the working of the whole institution. When his term of office came to an end he decided to commence practice in Belfast. He was already so favourably known that his success was instantaneous. Professor Gordon was so deeply impressed by his ability that he invited his assistance at all his private operations. At that time, indeed, his bent was chiefly surgical, but he rapidly developed an extensive general practice, and soon perceived that his future lay in medicine.



It is doubtful if any medical man ever gained and maintained the confidence, trust, and affection of his patients in a higher degree than William Whitla. His appointment as physician to the Royal Hospital gave him an opportunity to demonstrate his ability as a clinical teacher, and he soon attracted a large class of students. In the midst of his hospital work and an extensive and exacting practice he found time to write his *Materia Medica and Therapeutics*, which was at once a pronounced success. In this work the value of his early training as a chemist was very evident, and it met the requirements of the dispensing chemist, the medical student, and the qualified medical man. The section on non-official remedies proved a special attraction. The book had an enormous sale. The twelfth edition, revised and edited by Professor Gunn of Oxford, reached him about two months before his death.

The resignation of the chair of materia medica by Professor Seaton Reid paved the way for Whitla's appointment as a professor in Queen's College. He soon breathed new life into the teaching of the dry and difficult subject, and his fame and popularity rose still higher. An indefatigable worker, he next set out to write that remarkable book *The Dictionary of Treatment*. His versatility and the extent of his reading may be gauged from the fact that every article in the first edition was written by himself. The success of this work was immense. It was published simultaneously in England and America. The English edition of 8,000 copies was sold out within nine months, and 2,000 of the American edition were imported into this country to meet the immediate demand. The book supplied a definite want, and was soon to be found on the bookshelf of almost every general practitioner. A specially bound volume of the Chinese edition was among his most treasured possessions.

Apart from his medical knowledge Sir William Whitla was a widely read and cultured man, and a prominent Shakespearean scholar. The annual visits of Sir Frank Benson and his company to Belfast were almost red-letter days to him. Those who were privileged to participate in the suppers which he gave to the leading members of that company can never forget the charming atmosphere of that hospitable table. Appreciation of his merits by those best qualified to judge is indicated by the number of honorary degrees conferred upon him, which included M.A. R.U.I., LL.D.Glas., M.D.Dubl., D.Sc. Q.U.B., and by his knighthood in 1902. Sir William was an intimate friend of the late Sir Donald Currie, and was largely responsible for his magnificent gift of £20,000 to Queen's College, Belfast. On the difficult problems connected with education he was a recognized authority, and he was an early advocate of the establishment of a university at Belfast. It was a fitting tribute that he should have been elected first representative of the Queen's University of Belfast in the Imperial Parliament and one of its Pro-Chancellors.

Members of the British Medical Association will long remember his presidency on the occasion of the Annual Meeting in Belfast in 1909. His bounteous hospitality, a brilliant garden party, and a presentation of his recently published book, a *Dictionary of Medicine*, to each member who attended the meeting, are not easily forgotten. He had been vice-president and president of the Section of Pharmacology and Therapeutics at the Annual Meetings of 1884 and 1887, and from 1908 to 1911 he was a member of the Central Council of the Association. The Medical Institute, the home of the Ulster Medical Society, contains a bronze plate with an inscription recording that the building was erected, equipped, and presented to the Ulster Medical Society by Sir William Whitla, M.D. The foundation stone was laid by Peter Redfern, M.D., on April 12th, 1902, and the building was declared open by the Earl of Dudley, Lord Lieutenant of Ireland, on November 26th following.

[The photograph reproduced is by Elliott and Fry, Ltd.]

Mr A. B. Mitchell, F.R.C.S., consulting surgeon to the Royal Victoria Hospital, Belfast, to whom we are indebted for most of the foregoing memoir, adds: A man of deep religious conviction, his Bible was his constant companion. The tale of his private benefactions will never be known, but no one in real distress ever applied to him in vain. For almost four years he had been unable to leave his room; his mental powers and his

memory remained almost perfect to the last. His devoted wife, formerly Miss Ada Bourne, predeceased him by eighteen months. A great man, a very great man, has gone to his long rest—a rest which he earnestly desired and for which he patiently waited. William Whitla has not lived in vain.

Sir Thomas Houston, M.D., writes:

Although for a number of years Sir William Whitla, owing to failing health and increasing infirmity, had ceased to take any part in public affairs or in professional work, yet the announcement of his death, which took place on the morning of December 11th at his residence, Lennoxvale, Belfast, was received with the deepest sorrow by every section of the community, but especially by his professional brethren. It was felt that Ulster had lost an outstanding figure, whose lifework as a physician, a writer, and a philanthropist had made for him a name greatly honoured, not only in the province, but also throughout the medical world.

Sir William Whitla was a man of tireless energy, and had many activities apart from his medical work. Thus he took a prominent part in religious and philanthropic work, was very interested in literature, and was an ardent student of Shakespeare. In politics he was a strong Unionist, and he represented the University in the Imperial Parliament. His beautiful house at Lennoxvale, where he delighted to entertain his friends, contained a valuable collection of pictures and other works of art. His career as physician and teacher made him the recognized leader of the profession in Ulster, and when the British Medical Association met in Ulster in 1909 he was unanimously chosen as its president. Sir William was widely known as an author, and his medical books served a useful purpose and were greatly in demand. They were compilations rather than treatises, and he was one of the first to introduce the dictionary form of book into medical literature.

In private life Sir William was an interesting personality; his hospitality was unbounded, and he was a fascinating host. He had a most retentive memory, and was a dramatic storyteller. If he had not been a distinguished physician he might have been a great actor. He was a man of strong likes and dislikes, and detested meanness. When he was president of the Medical Benevolent Society with his characteristic energy he visited every medical practitioner in Belfast and the neighbourhood to increase the income of the society, and I can well remember his scathing remarks on some of the rich members of the profession who failed to respond to his appeal. Generosity, both in private and in public matters, was a striking trait of his character, and his name will ever be honoured in Ulster for his gift to the profession of the Medical Institute, built, he told me, out of the proceeds of his *Materia Medica*. Hereafter it will fitly be known as the "Whitla" Medical Institute.

ἦν γάρ παρῆ φιλανθρωπίη πάρεστι και φιλοτεχνιη.

The following well-known foreign medical men have recently died: Professor Max Zondek, the Berlin urologist, aged 65; Professor Joseph Imre, the Budapest ophthalmologist; Dr. Walter Gross, professor of general pathology and morbid anatomy, and director of the pathological institute at the University of Münster, aged 55; Dr. Artur Algar, a prominent dermatologist of Vienna, aged 67; Dr. Auguste Rickli, head of the Swiss Red Cross, aged 70; Dr. Johann J. Jörger, honorary member of the Swiss Society for Psychiatry, aged 72; Dr. Wilhelm Prausnitz, emeritus professor of hygiene at Graz, aged 72; Professor Edmund Forster, director of the university nerve clinic at Greifswald, aged 55; and Dr. G. Lemière, honorary professor at the Lille faculty of medicine.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on December 16th the following medical degrees were conferred:

M.D.—W. H. McMenemey.

M.B.—G. E. Scott, J. A. E. Scott, J. W. Litchfield, G. E. Godber, E. Starling, J. E. M. Ayoub, J. P. Child, P. J. W. Milligan, W. F. de C. Veale, the Hon. Mrs. Margaret Augusta Jennings.

UNIVERSITY OF CAMBRIDGE

The Appointments Committee of the Faculty of Biology "B" will shortly proceed to appoint a University Demonstrator in Pathology, the duties to commence on July 1st, 1934. Particulars may be obtained from Professor Dean at the Department of Pathology (Tennis Court Road, Cambridge), to whom applications should be sent by February 1st.

Amy Gertrude Dauncey, M.B., B.Chir., of Newnham College, has been approved by the M.D. Committee for the degree of Doctor of Medicine, in absence.

UNIVERSITY OF LONDON

Professor C. G. Seligman, M.D., F.R.S., has been appointed representative at the first session of the International Congress of Anthropological and Ethnological Sciences, to be held in London from July 30th to August 4th, 1934.

Mr. W. R. Moule, B.A., has been appointed secretary of the Board of the Faculty of Medicine.

London School of Hygiene and Tropical Medicine and Ross Institute

The Court and the Senate of the University have expressed their satisfaction at the agreement which has been entered into between the London School of Hygiene and Tropical Medicine and the Ross Institute, referred to in the following resolution which the Court of Governors of the school passed at the meeting of the Court on November 17th:

> The Court congratulates the Board of Management upon the outcome of the negotiations with the Ross Institute, and expresses its entire approval of the proposed scheme of amalgamation. The Court recognizes that the amalgamation will remove from the public mind a sense of overlapping and confusion in the aims and appeals for support of the two institutions, that a proper and permanent home for a memorial to Sir Ronald Ross will be found in the London School, that the work of the school in relation to tropical hygiene will be greatly strengthened by the transfer of the Ross Institute, and that generally the agreement has been well conceived in the public interest. The Court associates itself with the Board's expression of thanks to the Seamen's Hospital Society for the friendly and helpful spirit in which they have facilitated the execution of the agreement by establishing a Ross Ward in the Hospital for Tropical Diseases.

An extraordinary general meeting of the Ross Institute was held on November 27th, at which the decision to amalgamate was carried unanimously.

Lectures

A course of three lectures on "The Role of the Liver in the Metabolism of Carbohydrate and Fat" will be given by Professor C. H. Best, University of Toronto, at University College on January 11th, 15th, and 18th, 1934, at 5.30 p.m. At the first lecture the chair will be taken by Professor C. A. Lovatt Evans, F.R.S. Admission free, without ticket.

A course of three lectures on "The Surgery of the Nervous System, with Reference to the Use and the Elucidation of Physiological Phenomena," will be given by Professor J. R. Learmonth, University of Aberdeen, at St. Bartholomew's Hospital Medical College, on January 9th, 10th, and 11th, 1934, at 5.30 p.m. At the first lecture the chair will be taken by Sir Holburt J. Waring, P.R.C.S. Admission free.

The following candidates have been approved at the examination indicated:

Third M.B., B.S.—*‡E. G. L. Bywaters, *†‖Dorothy J. Healey, *†W. Mushin, *§A. K. Price, *§‖G. Qvist (University Medal), *‖E. B. Rotherham, H. Agar, D. A. Andersen, H. G. E. Arthure, A. Barber, Jessie G. Belilios, L. J. Bevnon, M. L. Bynoe, G. T. W. Cashell, R. F. M. Child, R. H. P. Clark, R. D. Clay, C. P. Collins, Dorothy C. J. Cookson, D. R. Crabb, S. W. Croome, J. R. Crumbie, Hilda M. S. Davidson, D. O. Davies, E. J. Dennison, A. D'Souza, G. E. Dunkerley, Mary Evans, S. T. Falla, H. F. M. Finzel, H. C. Fletcher-Jones, T. A. Gavin, W. F. T. George, G. H. Gibbens, R. G. B. Gilbert, V. Glass, H. Goldfarb, Nora J. Gould, Phyllis N. Greene, G. J. Griffiths, J. Grocott, H. W. Hall, H. A. R. Hamilton, E. H. C. Harper, R. V. Harris,

J. Hawkins W. A. Hyslop, Marie F. James, Elsie F. Johnson, W. B. Johnston, A. B. King, H. Kirman, Janet A. Laidlaw, R. A. Q. Lay, M. Lee, J. F. R. Lewis, R. I. Lewis, R. G. Macfarlane, Catherine B. Mackinlay, J. D. Macleod, G. W. May, R. J. G. Morrison, Irene P. Murray, T. S. Need, H. E. S. Pearson, E. S. Pope, F. W. Roberts, J. B. Robinson, Christine M. Rooke, Mary Scouloudi, M. Shun Shin, S. F. Smith, Cicely Steer, G. H. Stuart, S. C. Sweet, I. Taylor, W. N. P. Wakeley, Violet H. Whapham, P. R. Wheatley, J. C. Winteler, R. B. D. Wright *Group I* Mary A. C. Adams, F. R. Bannon, Jean W. D. Calman, P. E. Dipple, R. J. K. Fleming, J. M. Flower, J. C. Harvey, Alice M. Head, Alice M. Kaye, Gwendoline D. Knight, H. B. Lee, A. R. V. Patel, G. Phipps, Silvia W. Pyddoke, V. B. Reckitt, Margaret H. Scott R. Shackman, M. G. Stratford, B. A. Thomas, Fanny D. Wade *Group II* R. M. H. Anning, T. A. Baldwin, A. H. Barnett, Mary A. M. Bigby, C. F. R. Briggs, E. N. Brockway, R. H. Carpenter, B. S. Carter, J. A. Chivers, C. F. Critchley, O. G. Edholm, K. W. Hardy, S. T. Hayward, H. C. Hugh, Elizabeth M. James Ng Kong Kai, F. R. Kilpatrick, J. A. W. Miller, P. H. Nankivell, H. E. Offord, Doris E. Oxford, R. B. Peckham, E. Perutz, H. Rowe, B. F. B. Russell, J. A. Stenuit, G. J. Sophian, W. P. Stamm, T. P. Thamotheram, A. S. Thorley, G. L. Timms Kathleen M. Webster

* Honours † Distinguished in medicine ‡ Distinguished in pathology § Distinguished in surgery ‖ Distinguished in obstetrics and gynaecology.

UNIVERSITY OF EDINBURGH

A graduation ceremonial was held in the Upper Library Hall on December 15th, when the following degrees and diplomas were conferred.

M.D.—D. S. Cherry ‡W. S. M. Craig, E. J. C. Hewitt, Pauline *Klenerman,* **J. M. Michael, M. Melvin, J. D. W. Pearce,* ‡*R. B.* Phillips, H. R. Stubbins, ‡W. A. R. Thomson

PH.D. (*Faculty of Medicine*).—Ethel T. Stoneman

M.B., CH.B.—C. C. Barker, J. G. Bate, R. D. Bell, W. T. Black, Rosebery T. Bokwe, E. D. Caldwell, J. L. Carmichael, R. Carmichael, A. H. C. Carter, Chin Tiong Chia, H. M. Clark, H. Cohen, W. H. Derham, N. V. M. Dodds, J. A. Falconer, L. L. Freeman, H. G. Gibson, H. C. Hingst, C. L. Joseph, E. D. T. Lewis, R. S. B. M'Clean, S. K. Mangal, G. E. Menzies, H. Myers, R. W. Morrison, *T. D. Paton, G. R. Pile, T. F. Quin, D. A. H. Robson,* C. S. Sandeman, L. Schapiro, J. Stark, D. V. Summers, P. W. Tait, P. Taylor, G. Watt, Katharine H. Welsh, J. W. O. Will, C. M. Wilson

* Awarded gold medal for thesis
† Highly commended for thesis
‡ Commended for thesis

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary council meeting was held on December 14th, when the president Sir *Holburt Waring,* was in the chair

A resolution of condolence was passed on the death of Mr. R. P. Rowlands, a member of the council, and formerly a vice president of the College

Diplomas of Membership were granted to H. V. Corbett, J. F. Galloway, and A. V. House

Diplomas of Fellowship were granted to the following forty-two candidates

A. C. Lysaght, G. J. O. Bridgeman, E. J. Greenwood, G. S. Ferraby, N. I. H. Schafer, Muriel S. Hulke, *P. H. L. Playfair,* A. S. Rajasingham, J. A. White, E. E. Lewis, A. H. Baker, G. A. Bailey, F. H. H. Finlaison, K. K. Dalal, V. H. Riddell, H. E. *Harding, R. J. A. Battle, L. P. J. Evans, D. L. Lewis,* W. McA. Niblock, T. Schnire, J. H. B. Beal, G. W. Causey, B. Gilbert, C. L. Heanley, M. A. Mahmood, R. W. Nevin, *R. Barnes,* E. S. Lee, W. G. Campbell, T. L. Chapman, G. A. Clark, F. P. Furkert, A. D. Harper, B. T. Keon-Cohen, G. E. Larks, G. J. Lillie, A. J. Logie, C. P. Malley, K. M. Masani, M. P. Reddington, R. A. Rickard

Licences in Dental Surgery were granted to seventy-four candidates

Mr. Ernest W. Hey Groves was re-elected a member of the Court of Examiners

Mr. G. Gordon-Taylor was elected the examiner in anatomy, and Dr. G. A. *Buckmaster* the examiner in physiology, to conduct a primary examination for the Fellowship at Melbourne, Australia, in November, 1934, and at Dunedin, New Zealand, in December, 1934

The Council considered the resolution which was carried at the annual meeting of Fellows and Members on November 16th—namely

> That this forty-fourth annual meeting of Fellows and Members of the Royal College of Surgeons of England reaffirms that Members who constitute 90 per cent. of the College, should have some representation on the Council, a similar resolution having been passed forty-three times and never once lost

The following reply to the resolution was adopted

> The Council, having considered the report of the proceedings at the annual meeting of Fellows and Members on November 16th, 1933, is not prepared to reopen the question of altering the constitution of the College

Medical News

In connexion with the vacancy now existing for one of the Epsom College St. Anne's Scholarships, we are asked to state that the regulation regarding age has been amended to read: "That candidates be not less than 9 years of age on July 30th, 1934." The maximum age limit has been abolished. The final date for receiving applications has therefore been extended to January 7th, 1934. The necessary forms are to be obtained from the Secretary, Epsom College Office, 49, Bedford Square, W.C.1.

The house and library of the Royal Society of Medicine will be closed from to-day (Saturday) to Wednesday, December 27th, both days inclusive.

The *American Journal of Cancer* for November, 1933, includes an article on surgical measures facilitating radium implantation (by Dr. George S. Sharp of Pasadena), and one on radiation therapy in skin cancer (by Dr. Hayes E. Martin of New York).

The December issue of the *British Journal of Physical Medicine* is largely devoted to the consideration of short-wave therapy. Dr. Franz Nagelschmidt discusses diathermy, short diathermy, and ultra diathermy, each of which he maintains has its own special sphere of utility. Dr. T. Reiter records some personal investigations of the properties of short waves, and indicates how it has now become possible to employ for therapeutic purposes the induction of a graduated artificial inflammation, which can be concentrated in any part of the body at any depth required. In an editorial certain difficulties in regard to nomenclature are considered, and the view is expressed that an outstanding discovery has been made in physical medicine by rendering these rays available for therapeutic use. Articles on the same subject were also published in the September and November issues of that journal.

The West African Medical Staff List for November, 1933, has just been issued, and copies may be obtained from the Crown Agents for the Colonies, 4, Millbank, Westminster, S.W.1.

The King has granted Dr. R. St. A. Heathcote, lecturer in the University of Wales, authority to wear the Insignia of the Third Class of the Order of the Nile, conferred upon him by the King of Egypt, in recognition of valuable services rendered by him as Professor of Pharmacology in the Egyptian Faculty of Medicine.

The committee of the Nurses Fund for Nurses is in urgent need of help to supplement with a few shillings a week the tiny income of old nurses living alone in cheap rooms and unable to afford proper food and warmth. A report will be sent on application to the secretary of the fund at 95, Dean Street, W.1.

On Wednesday, January 17th, at 2.30 p.m., a practical demonstration of a variety of contraceptic methods will be given at the Constructive Birth Control Clinic, 108, Whitfield Street, Tottenham Court Road, W.1. Those attending will be enabled to practise on differing patients the use of various devices. Application for tickets (which will be supplied to medical practitioners only) should be made in writing to the honorary secretary, at the above address.

A resolution confirming the amalgamation of the Ross Institute with the London School of Hygiene and Tropical Medicine was passed unanimously at a meeting of the members of the Ross Institute on November 27th.

The following German professors have resigned their appointments: Professor P. Wohlwill, professor of surgery at Hamburg; and *Professor F. Janssen,* professor of surgery, and Professor P. Neukirch, professor of internal medicine, at Düsseldorf.

Dr. A. B. Williamson has been appointed medical officer of health and chief advisory medical officer to Portsmouth Corporation, in succession to Dr. Mearns Fraser.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Loss of Taste and Smell in Hay Fever

Captain H. G. ROBERTSON, R.A.M.C., writes: Up to five years ago a patient of mine suffered from severe attacks of hay fever and coryza, during which, as is common, he temporarily lost his sense of smell. After one of these attacks his smell (completely) and taste (partially) did not return, and though the hay fever was shortly afterwards cured by inoculation his senses of smell and taste remained absent. Three weeks ago he was admitted to hospital with a mixed infection of B.T. and M.T. malaria, and was treated in the usual way with quinine and plasmoquine. On his discharge he discovered that his senses of smell and taste had suddenly returned, and are now, if anything, more acute than ever before. Can any of your readers recall a parallel case, or can any explanation of the reasons for this be produced?

Income Tax

Obsolescence of Car—Assistant

"McK." bought a second-hand car on November 10th, 1930, for £110 and claimed depreciation on it as from that date to April 5th, 1932, thereby reducing the value by £9 plus £20 to £81. He was then out of employment, and sold the car for £57 in March, 1932. On May 31st, 1932, he took a permanent assistantship, and bought a second-hand car for £55. What can he claim?

** The "obsolescence" allowance would be £81 - £57 = £24, but it is doubtful whether it is technically due, because the car transactions were not based on any question of obsolescence of the car. The claim is equitable, however, and we recommend "McK." to make it. He is, of course, entitled to the depreciation allowance for 1932-3, which would be ten-twelfths of 20 per cent. of £55—that is, £9.

LETTERS, NOTES, ETC.

Seasonal Incidence of Eclampsia

Dr. GEORGE MAHOMED (Bournemouth) writes: Dr. R. E. Tottenham's paper (*Journal*, December 9th, p. 1067) on the seasonal incidence of eclampsia in Hong-Kong is very interesting to all, but especially to me, because in 1922 I read a paper on the relation of atmospheric electrical variations to the incidence of fits in epileptics. Dr. Tottenham finds puerperal eclampsia more frequent when the humidity and temperature are lowest. I found the fits at an epileptic colony were generally fewer when the atmospheric electricity was low, and vice versa. I found the fits corresponded with the inverted temperature, but not so closely as with the electrical variation. The month with the highest temperature (inverted the lowest) was a month later than the lowest fit month. There is probably no record of atmospheric electricity in Hong-Kong, but as a rule it is high in cold dry weather and low in humid weather. In one of my other papers ("Distribution of Deaths from Lighting Stroke") I summarized various analogies and arguments thus: "I believe a high positive potential stimulates mentation and other psychic operations, and that a lower or possibly a negative condition stimulates skeletal and muscular growth." In support of this I quoted a letter of Thackeray's from New York in 1855, which is very confirmatory. When you have rapid mentation and increased psychic activity I suppose an explosion—that is, a fit—occurs.

Pulmonary Tuberculosis in Childhood

Major P. HEFFERNAN, M.D. (Buxton), in the course of a letter on this subject, writes: May I, as a clinical tuberculosis officer, express my agreement with Dr. F. J. Bentley's letter in your issue of December 16th? I would further beg to be allowed to protest against some of your recent leaders and annotations on the subject of tuberculosis. The article to which Dr. Bentley takes exception is rivalled by the annotation entitled "Recovery from Tuberculosis" in the *Journal* of December 16th. Let me take one statement from the latter as an example: "To say that it [pulmonary tuberculosis] is not definitely recognizable in its early stages is wrong" (I presume that "wrong" means "inaccurate," and does not impute moral turpitude to the writer of the London County Council report). Well, if the methods advocated by Drs. Chown and Medovy, and supported by you, are to be regarded as definitive the diagnosis of early cases is in truth a simple matter. With such criteria from 50 to 75 per cent. of the total population of Greater London will remain permanently on the tuberculosis registers of the London County Council until released by death. In such circumstances the recovery rate from tuberculosis should show a gratifying improvement, provided that the eventual cause of death is correctly registered, and is not attributed to the early tuberculous infection, "shoved behind them, long ago and far away"! If, however, you will refer to the published work of consultants on the staffs of the chest hospitals, men who are occupied daily in sorting out and treating the various forms of chest disease, you may yet learn that the separation of tuberculous from non-tuberculous *disease* is not such a simple matter.

Silence in the Operating Theatre

"M.B." writes: Mr. Bankart mentions the talkative surgeon (December 9th, p. 1093), but there may be other offenders. I have in mind a super-efficient theatre sister who, whilst presiding at the instrument trolley, kept up a constant stream of loud instruction, admonition, etc., to her nurses. Strange to say, the same hospital showed a lack of cleanliness in the anaesthetic instruments, which is by no means uncommon elsewhere, and which possibly might be the cause of some post-anaesthetic chest complications.

Stone upon Stone

Dr. HENRY J. DEAN (Reading) writes: The following rather unusual inscription is to be seen on a tombstone at Stafford: "In loving memory of ——, who died of a stone in the bladder the size of below." Underneath is a hollow cut in the stone big enough to hold a duck's egg.

Constipation in Childhood: Correction

A mistake, for which we were not responsible, occurred in the report of the meeting of the London Association of the Medical Women's Federation at which Dr. Jean Smith read a paper on constipation in childhood (December 16th, p. 1119). The remarks made by Dr. A. H. Nicoll were incorrectly attributed to Dr. Octavia Lewin, and vice versa.

This year Cadburys have introduced many new boxes and novelties, among the most prominent being chocolate boxes designed by well-known artists, which make excellent gifts for Christmas. Bourn-vita, the food-drink introduced last year, is also finding a ready sale in this weather.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 30, 31, 32, 33, and 36 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 34 and 35.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 320.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

453 Typhoid Fever

C. E. LAKIN (*Practitioner*, August, 1933, p. 146) gives a useful review of the diagnosis and treatment of typhoid fever, and emphasizes the therapeutic importance of early recognition by blood culture. As soon as there appears any likelihood of typhoid infection the patient should be isolated and strictly confined to bed, the use of bed pans and urine glasses being essential. All discharges must be treated with an excess of 1 in 20 carbolic acid solution before being thrown down a drain. In the absence of a drain the excreta should be mixed with sawdust and turpentine and ignited. Clothing and feeding utensils must be effectively sterilized. The diet should be liquid, the calorific value of milk may well be reinforced by the addition of lactose, and sweetened lemonade may be used. Solid food should not be given until the evening temperature has been normal for several days. Whenever the temperature exceeds 102.5° F. the patient should be sponged with water at a temperature of 70° F. for about twenty minutes, the limbs being dealt with first in turn, and subsequently the body. If there is much collapse, water at 110° F. may be used. The mouth should be cleansed with gauze or linen moistened with glycerin of borax, alternating with a solution of sodium bicarbonate, which aids in detaching sticky mucus. Salol, given in 5 grain doses three times a day, deodorizes the stools, or a mixture of nascent chlorine and quinine may be continued through the illness. It is safer not to use purgatives by the mouth after the tenth day, and, when constipation is present, an enema should be given on alternate days. Profuse haemorrhage is to be controlled by withholding food for some hours and giving Dover's powder, or by the injection of haemoplastin. Collapse, if threatened, is treated with saline injections or blood transfusion. Meteorism, a sign of the utmost gravity, calls for the oral administration of turpentine in 20 minim doses at intervals of two or three hours, enemas of turpentine or rue may be employed.

454 C. DUBREIL (*These de Paris*, 1933, No. 492) records ten illustrative cases, in patients aged from 18 to 44, treated by intramuscular injections every other day of 3 c.cm. of an oily suspension of iodobismuthate of quinine as recommended by Sahli of Berne. The preparation used contains 24 per cent. of bismuth, 58 per cent. of iodine, and 18 per cent. of quinine. The effect of the drug was to lower the temperature, cause disappearance of diarrhoea, improve the general condition, and shorten the duration of the disease. Owing to the tendency of bismuth to produce renal irritation and stomatitis, it is important that a daily examination of the urine should be made, and that the buccal cavity and gums should receive attention at least twice daily.

455 Syphilitic Aortitis

H. SCHLESINGER (*Wien. klin. Woch.*, August 18th, 1933, p. 1030), discussing the present state of knowledge of syphilitic aortitis, states that fully developed mesaortitis is easy to recognize, its signs being a systolic bruit at the aortic base, a booming aortic second sound, with, radiologically, a circumscribed dilatation of the ascending aorta and frequently of the aortic arch, a positive serum reaction, and substernal pain. To these may be added signs of coronary artery disease and aortic reflux. Post-mortem statistics show a much higher incidence of aortitis than clinical experience suggests, hence the importance of early diagnosis. Schlesinger recognizes many variants of the classical picture of aortitis, which he has named "oligosymptomatic forms." These extend from aortic reflux with angina to the case which shows coronary artery insufficiency and a booming second sound. The high incidence of syphilitic infection is not always realized. Of 10,000 patients under the author's care between 1923 and 1932, 12.2 per cent. were infected, males being in a slight majority. Of these, 421 (31.9 per cent.) suffered from aortitis. Clinical and post-mortem figures show an increase in syphilitic aortitis and aneurysm during the last twenty years, aortitis has a much higher incidence in civilized countries, thus resembling neurosyphilis. Prognosis has much improved during recent years, there being an average survival period of six and a half years after onset of symptoms. Prognosis depends on various factors: on the localization in the aorta of the disease process, on the possibility of early diagnosis (and so of early treatment), on complications, and on the age at which symptoms first appear. Schlesinger starts treatment with moderate doses of iodides, after a week or two adding bismuth or mercury by injection. After another fortnight N.A.B. is started with doses of 0.05 to 0.075 gram once a week.

456 Rheumatism Attributed to Women's Clothing

R. MILNER (*Zentralbl. f. Gynäk.*, July 22nd, 1933, p. 1687) is convinced that since the war, in Germany, woman's clothing, especially outdoor, has been insufficient to keep her warm: that cold is felt is denied, he says, partly because of fashion and partly because a "hardening" process is thought to be healthy. Endeavouring to trace the consequences, he has found that two women in five, as compared with one man in ten, suffer from a partly latent nerve rheumatism, of which the principal signs are tenderness of the posterior tibial, sciatic, crural, intercostal, median, and radial nerves above the elbow. Rheumatic periostitis of the os calcis and of the posterior surface of the tibia in its lower third, and of the humerus, rheumatism, periarticular or capsular, of the acromio-clavicular joint, and rheumatism in the supraspinate, pectoral, triceps, lumbar and plantar muscles, are also frequently present. Articular and muscular rheumatism is worse when movements recommence after repose, is relieved by heat and is affected by changes in the weather. Rheumatism of the belly wall or of the pelvic internal fascio-muscular tissue may simulate pelvic organ disease. In rheumatism local tenderness is increased with increase of tension of the abdominal wall (as when the patient sits up without moving the arms); in visceral disease it is diminished. Backache is sometimes attributed to visceroptosis or prolapse when it is due to rheumatism of the sacro-iliac joint or lumbo-sacral nerves; the remoter signs of nerve rheumatism will be found if sought for, in these cases.

Surgery

457 Persistence of Pain after Gall-stone Operations

According to B. O. PRIBRAM (*Zentralbl. f. Chir.*, August 26th, 1933, p. 2003) persistence or recurrence of colicky pains after removal of gall-stones is less frequently due to new stone formation than to hepatitis. Hepatitis may have been present before operation or before stone formation after cholecystectomy; spasm of the sphincter of the common duct increases the pressure in the bile capillaries and may cause aggravation of latent hepatitis. (The function of the gall-bladder in equalization of pressure in the bile passages independently of the contraction or relaxation of the sphincter, has been lost.) Pribram therefore prefers to replace cholecystectomy by other procedures. Of these cholecystostomy is rejected as being undoubtedly followed in some cases by new stone formation, and cholecyst-duodenostomy or cholecyst-gastrostomy is fraught with the proved danger of entry

of food into the gall-bladder. In some cases the mucosa of the gall-bladder is destroyed by diathermy and its serous and subserous coats preserved. Recently Pribram has, after removal of stone, made a broad anastomosis between the gall-bladder and the common duct. By means of cholecyst-choledochostomy stasis in the gall-bladder is minimized, bile being afforded a wider outlet than that of the junction of the cystic and common ducts; for the same reason entry of new-formed stones, if any, into the duodenum is easier. Preservation of the gall-bladder and the neuro-muscular mechanism connecting it with the common duct sphincter tends, moreover, to protect the liver both from infection and from alterations of bile pressure. A favourable result of cholecyst-choledochostomy in a case of stasis without stone is described, but the ultimate results in gall-stone operations are not yet published.

458 Torsion of Spermatic Cord

V. J. O'CONOR (*Surg., Gynecol. and Obstet.*, August, 1933, p. 242) states that in 1920 he found only 124 reported cases of this condition. Since then he has questioned every patient who had complete or partial testicular atrophy. He believes that torsion of the cord is much commoner than has been supposed hitherto, and that testicular atrophy following "orchitis" is the end-result of torsion in a considerable percentage of cases. During the last decade twice as many cases of torsion have been reported as those in the entire literature preceding this period. This suggests more frequent recognition of torsion. O'Conor now reports nine additional cases. The diagnosis of "orchitis," "epididymitis," or "acute hydrocele" is, he believes, frequently made without proper correlation of history, symptoms, and clinical findings. Unless torsion is relieved quickly after its occurrence, testicular disorganization occurs; hence the importance of early diagnosis. Torsion occurs at any age: it has been recognized in the newborn, while one of the writer's patients was 68. The majority of reported cases occurred in childhood or adolescence, but it may be that in later life torsion is mistaken for gonorrhoeal epididymitis. It has been observed somewhat more frequently on the right side; in rather more than half the cases the testes are incompletely descended. Cremasteric contraction has been suggested as the probable cause, but the tunica vaginalis must be abnormally capacious. Strains—for example, running, coughing, straining at stool—are possible exciting factors. Detorsion should always be attempted in early cases. The testis is grasped between the forefinger and thumb and slowly rotated on its vertical axis from within outwards, as torsion occurs most frequently in the "anti-clockwise" direction. No force should be employed: if the pain increases, detorsion in the opposite direction should be attempted. If manipulation fails, an immediate open operation should be done. Some patients can be taught to perform detorsion themselves. Orchidopexy is indicated in recurrent cases.

459 Radio-diagnosis of Abdominal Masses

L. G. RIGLER (*Radiology*, September, 1933, p. 229) discusses the value of radiological examinations in distinguishing the varieties of abdominal masses situated outside the stomach and intestine. He enumerates four groups: upper abdominal intraperitoneal masses, including the spleen, liver, gall-bladder, and tumours in this region; pancreatic tumours or cysts, and retroperitoneal upper abdominal glands; retroperitoneal masses, including the kidneys; and masses of pelvic origin. Each of these groups exhibits certain characteristics in its displacement of the gastro-intestinal tract. Thus, an enlarged spleen, which may have been only obscurely suggested by palpation, will effect a characteristic displacement of the stomach to the right, and compress the greater curvature. It may even exhibit its notch by bringing about a curious formation of the greater curvature of the stomach. The fact that the spleen is always above and lateral to the colon, and that it displaces the cardiac end of the stomach as well as the middle portion, effectively distinguishes it from the left kidney. Again, downward enlargements of the liver push the stomach and duodenum downwards and to the left, while they compress the duodenal bulb and the lesser curvature. A lateral view of the patient will differentiate such an enlargement from pancreatic cysts or tumours. Each of the four groups is discussed in detail by the author, and cases are cited to indicate the value of barium meals or enemas in elucidating difficult diagnostic problems.

Therapeutics

460 Carbonic Acid Gas Therapy

Knowing the good results of carbonic acid gaseous baths in vascular spasms, C. LIAN and R. BARRIEU (*Presse Méd.*, September 23rd, 1933, p. 1465) have tested the efficacy of carbon dioxide subcutaneous injections in angina pectoris and intermittent claudication. Marked benefits resulted, especially after injections of carbonic thermal gases (those of Royat are specifically mentioned); associated with baths, the results were much better than from balneotherapy alone. Arterial tension and alkaline reserve are unaffected by the injections, and it is stated that they may be employed without any danger, and that no ill effects have followed their use. The mode of action of this gas may be due to its vaso-dilating action on the coronary arteries in angina and the arteries of the lower limbs in intermittent claudication, regions where vaso-constriction is especially marked. The importance of the hyperexcitability of the cardio-aortic plexus in angina is known, and the threshold of excitability may be raised by the injections. Also the anaesthetic action of carbon dioxide is notable; the better results obtained from thermal gases than from commercial carbon dioxide indicate that the radio-activity (with its known sedative and analgesic properties) of the former plays an important part. Treatment consists in the daily injection of one litre of the gas into the external part of the thigh; the pressure should not exceed 1.5 to 2 m. of water. To test the patient's susceptibility, smaller commencing doses of 500 to 600 c.cm., increased daily by 100 c.cm., are advised. The gas is rapidly absorbed in ten minutes. The injection of carbon dioxide is painless; that of thermal gases occasionally causes sharp sensations of burning, which last only a few minutes.

461 Coronary Thrombosis and Diabetes

H. ESCHBACH (*Münch. med. Woch.*, September 8th, 1933, p. 1392), discussing the frequent coexistence of diabetes mellitus and coronary thrombosis, states that in his series of cases of coronary thrombosis 20 per cent. were diabetic. The reason for this frequent association lies, he considers, in the hypercholesterolaemia of diabetes mellitus predisposing to atheroma. Treatment offers many problems, as insulin and alkalaemia diminish the coronary flow, while acidaemia and hyperglycaemia increase it. Eschbach considers that cases in coma should be treated as ordinary cases of diabetic coma. Incipient coma should be treated by small doses of insulin subcutaneously and intravenous glucose, and all other types by dietetic measures only until the cardiac damage is on the road to repair.

462 Treatment of Anxious States

As numerous types of anxiety exist, P. SILHOL (*Paris Méd.*, September 16th, 1933, p. 216) insists that anxiety should not be considered as a single entity but as "anxious states." Anxiety and, as it is termed, "moral anguish" are, it is stated, always accompanied by a disturbance of the organosympathetic system; hypertony or hypotony of the parasympathetic or orthosympathetic exists; most frequently both systems are affected. In anxiety a sympathetic instability is present, the result of a derangement of the humoral metabolism. The

primary importance of calcium ions in vital phenomena is well known Zondek has shown the influence of metallic ions on the organosympathetic system and attributes a regulating action to calcium He believes that the concentration of H and OH ions in the blood is important in the study of anxiety Other workers, studying the blood *p*H, have found a state of alkalosis during anxious crises From these findings and a study of his personal cases Silhol concludes that in anxious states hypocalcaemia and a lowered alkaline reserve are present This is exemplified by four cases he records in all of which improvement followed treatment, as evinced by an improved general condition and a return of the blood calcium and acidity to normal In one case reverse conditions were found but the treatment was equally efficacious In anxious states Silhol employs the sedative belladenal—a compound of bellafoline the total alkaloids of belladonna and phenylethylmalonylurate In the present cases 3 to 6 tablets were given daily but the amount of belladenal in each tablet is not stated

463 First Aid in Fractures

Prompt immobilization of fractured bones in order to avoid shortening and angulation, is emphasized by O C Hudson (*New York State Journ Med*, September 1st 1933 p 1029) as an essential of adequate first aid He enumerates the salient points as follows Pain must be relieved by morphine injection, and any shock must be treated by the application of warm blankets and the avoidance of unnecessary exposure All rough movements and attempts to elicit crepitus are contraindicated The splint applied must immobilize the joints above and below the site of injury, no vigorous attempts at reduction being allowed until they can be performed painlessly and under conditions permitting accuracy of reposition of the fragments Compound fractures should be covered immediately with sterile dressings the skin edges having been swabbed with tincture of iodine and any severe bleeding having been controlled Transport to hospital should be accelerated so that careful setting under full anaesthesia may be performed with the least possible delay In cases of severe shock the hypodermic administration of caffeine sodium benzoate, and adrenaline is, he believes, most effective The injection can be repeated if necessary

Laryngology and Otology

464 Ozaena

C Veits (*Med Klinik*, July 7th, 1933, p 948), dealing with the actiology of ozaena (chronic atrophic rhinitis), examines in some detail the theory of Halphen and Schulman, and Glasschieb's elaboration of it These theories relate ozaena to a disturbance of the endocrine-sympathetic systems Several authors have found parasympathetic hypotonia in cases of ozaena and have attributed the condition to a precapillary hypertonia or sclerosis arising from a central disturbance of the vegetative fibres supplying the nasal mucous membrane Further, functional tests by means of the Abderhalden reaction show that all the endocrine glands are in a state of hypofunction except the neurohypophysis, which is hyperactive Taking these views as a basis, several investigators have used various hormone preparations with varying success Periarterial sympathectomy of the carotid has also been attempted Glasschieb explains the imbalance of the vegetative and endocrine systems as due to a deficiency of the vitamins A and D during childhood, and even during foetal life It is known that A–D avitaminosis in the rat leads to atrophy of the epithelium of almost all the glands with external and internal secretions, to cornification of mucous epithelia as well as to other changes analogous to those found in ozaena In ozaena, as in A D avitaminosis there is a general tendency to alkalosis, the actual mucous membrane being alkaline Both the greater incidence of the disease in females and its appearance about the time of puberty are understandable on an endocrine basis The vitamin factor is apparent from the fact that the disease is most frequent in the less well nourished classes On these principles Glasschieb has proposed the following plan for treatment of ozaena stimulation of the atrophic or hypoplastic glands attack on the infective agents by neutralizing the alkalinity of the mucous membrane, and active immunization against the infective agents These objects are attained by giving vitamins A and D in the form of phosphorized cod liver oil or radiostoleum, by vaccination with Paul's "kutivakzine," and by feeding preparations of various endocrine glands The author writes very favourably of the method and describes cases in which very great success was attained

465 Hyperaesthetic Rhinitis

N Lox and N D Fabricant (*Arch of Otolaryngol*, August 1933 p 180) complain that the numerous terms applied to the syndrome characterized by nasal obstruction, sneezing nasal discharge, and a pale oedematous membrane do not describe sufficiently comprehensively the clinical or pathological variations of this disease The condition corresponds pathologically to hyperplastic sinusitis and it is suggested, therefore, that the so-called hyperaesthetic cases of which there are numerous types would be better termed "*hyperplastic*," with the possible addition of a word denoting the predominant symptom or finding such as non allergic allergic, neuralgic or vasomotor The authors discuss the pathology concerned and record two cases which show that treatment which is only directed locally ignoring the question of general sensitivity, is likely to fail and may eventually call for surgical intervention Patients revealing nasal sensitivity should be desensitized, but when the sinuses are secondarily involved they should be treated as non allergic In view of the hyperplastic actiological factor, alleviation of the symptoms should be sought by means of ventilation and drainage of the involved sinuses When conservative surgical intervention proves inadequate, the radical excision of all the diseased tissues should be effected through either the intranasal or the extranasal route In some cases there is a highly neurotic background and psychotherapy is indicated In chronic non allergic cases such procedures as removal of the middle turbinate with excision of the hyperplastic tissues, often affords lasting relief Temporary benefit results from the insertion of packings treated with a mild silver protein compound and medication of the sphenopalatine region

466 Antral Surgery in Bronchitic Asthma

W P Warner and G McGregor (*Journ of Laryngol and Otol*, September, 1933 p 595) record the treatment of thirty one cases of bronchitic asthma by a radical antral operation which included the removal of the thickened mucoperiosteum In only two instances were definitely favourable and permanent results obtained All the patients had freedom from asthma for a time after the operation but most relapsed in periods ranging from two weeks to twenty seven months, with an average of four months These results are taken to indicate great hesitation before radical antral surgery is recommended in such cases In the patients who benefited there were no peculiarities observable which would indicate the likelihood of a more favourable prognosis They had had asthma for a relatively short time previously however and the mucoperiosteum was markedly thickened The warning is given that a considerable period of observation should follow this operation before its benefit is accepted as a fact With one exception all the patients were relieved from asthma for a fortnight by the operation this led to its being employed as a life-saving measure in one instance Five cases of chronic bronchitis were treated without any benefit by the radical removal of thickened mucoperiosteum In the authors series negative protein skin sensitivity reactions were invariably obtained It is recalled that operations on other parts of the body also result usually in the temporary relief of coexisting asthma, the radical antrum procedure has probably no additional or specific effect in this connexion

Obstetrics and Gynaecology

467 Symptomatic Treatment of Artificial Menopause

L. BROUHA (*Gynécol. et Obstét.*, September, 1933, p. 243), considering symptomatology and treatment of menopausal symptoms, following surgical or radiological castration, from the histological standpoint, remarks that surgical castration suppresses all anatomical and functional manifestations of the oestrous cycle; castration by radiation may be so complete as to be equivalent to double ovariectomy, but it can also cause sterility while still allowing the secretion of folliculin. Surgical removal of four-fifths of the ovarian tissue does not produce castration, since the tissue regenerates, and folliculin is formed. Hysterectomy does not appear to have any effect on the normal secretions of ovaries left *in situ*. He states that the specific therapy of menopausal troubles consists of an ovarian graft, or the injection of ovarian hormones. Folliculin corrects all the troubles of castration. It can replace the ovary except in the phenomena of the lutein cycle. Since in a castrated female there can be no question of gestation, the sole treatment for menopausal symptoms which is logically consistent with experimental data is the administration of folliculin.

468 Stone in the Female Ureter

According to B. OTTOW (*Zentralbl. f. Gynäk.*, July 29th, 1933, p. 1755) stones in the ureter are most commonly found at the junction with the renal pelvis, the intersection of the ureter with the innominate line, or the vesical ostium. In the third situation a stone may be juxtavesical (just outside the bladder), intramural, or intravesical—that is, in a ureterocele which projects into the bladder; it is generally more easy than other ureteral stones to detect and remove. A stone at the lower end of the ureter is nearly always palpable in the lateral vaginal fornix, and only exceptionally contains insufficient lime to cast a shadow in a radiogram. Cystoscopically a ureterocele is easily recognized; a stone may be seen as the urine passes into the bladder, or felt by a ureteral sound. The stone endangers kidney function to such an extent that its removal is imperative. A suprapubic approach is unnecessary; removal by electro-coagulation or incision of a ureterocele by special cystoscopic scissors is simple and effective; usually the stone, having reached the bladder, is voided naturally, but the lithotrite may have to be used under cystoscopic control. Ottow believes that in certain cases the ureterocele is congenital and stone formation secondary; in others the conjunction of a stone and a small ostium causes formation of a ureterocele.

469 Ovarian and Uterine Grafts in Surgical Menopause

Referring to the troubles due to loss of the ovarian endocrine functions, caused in the majority of cases by the surgical menopause, M. CHEVAL and L. MAYER (*Bruxelles-Médical*, September 24th, 1933, p. 1358) state that these can be avoided by employing extraperitoneal ovarian and uterine grafts, and cite experiments on bitches. Beneficial clinical results have also been obtained by this method. After bilateral adnexectomy, the authors inserted ovarian grafts, either intramuscularly or subcutaneously, in sixteen cases with uterine conservation—in four after fundic hysterectomy, in three after subtotal or total hysterectomy, and in nine both ovarian grafts and grafts of the uterine mucosa were implanted following subtotal or total hysterectomy. In 70 per cent. of these cases endocrine troubles were absent and menstruation was conserved; the procedure is stated to be exempt from danger. In the operation, after removal of the ovaries, the healthier of the two is chosen; this is placed in a sterile compress, and small pieces are cut from it. Experiments have shown that the only portion of the graft which persists and develops is the superficial layer containing the germinative epithelium and primordial follicles, the centre merely necroses; thick grafts are therefore useless, and peeling of the surface is inadvisable. The superficial layers should be preserved and handled carefully. Two or three grafts are placed either in the superficial part of the right abdominal muscle under the aponeurosis or in the subcutaneous cellular tissue (preferably in the submammary furrow). Uterine grafts are cut from the removed uterus after swabbing it with 5 per cent. iodine and dividing it into anterior and posterior halves, and should include the mucosa, submucosa, and a small portion of the muscle. After incising the abdominal wall the operator makes a space with a sound in the cellulo-adipose tissue in which the graft is placed. This grafting also presents no danger or inconvenience. For three months following the operation patients still suffer from all the troubles of the menopause; these attenuate and disappear when menstruation is re-established, which occurs rarely before the fourth and usually at the eighth month.

Pathology

470 A Test for Infectious Mononucleosis

W. W. BUNNELL (*Amer. Journ. Med. Sci.*, September, 1933, p. 346) advises testing for an increased agglutinating power of the blood for sheep erythrocytes in cases of suspected infectious mononucleosis. He has found that such agglutination occurs in a dilution of at least 1 in 64, a reaction which differentiates this infection from the clinically similar conditions, such as acute, tuberculous, or syphilitic adenitis; Hodgkin's disease; acute, chronic, or myelogenous leukaemia; aplastic anaemia; purpura haemorrhagica; agranulocytic angina; and Vincent's angina. Bunnell employs the serum from 5 to 8 c.cm. of human blood, a 2 per cent. suspension of sheep's corpuscles, and a tube 100 mm. long and 10 mm. in diameter. He states that if the serum is inactivated properly and the procedure conducted on the lines previously indicated by him (ibid., 1932, p. 183), there should be no confusing haemolysis in the tubes. This marked increase in heterophil agglutinins for sheep cells has not been observed in conditions other than infectious mononucleosis, although a weak increase has been detected in acute rheumatic fever and rheumatoid arthritis. In serum disease (following the injection of horse serum) there is, however, a definite increase in these agglutinins, though not so high as in infectious mononucleosis. The author adds that the development of these agglutinins runs parallel with the pathological lymphocytosis. With the decrease in the titre goes a reduction in the number of pathological lymphocytes, which constitute the bulk of the increase at the height of the disease. The number of normal lymphocytes may remain rather high, however, for some months subsequently. The test has also a prognostic value.

471 A Simple Photo-electric Colorimeter

G. A. MILLIKAN (*Journ. of Physiol.*, September, 1933, p. 152) describes a simple photo-electric colorimeter which offers none of the disadvantages associated with the ordinary colorimetric examination. The instrument is especially well adapted to the measurement of the degree of oxygenation of haemoglobin solutions, and is not subject to the usual errors of the other optical methods (such as inaccuracies due to inactive haemoglobin) which have been used for this purpose. The colorimeter consists of light source, absorption trough, colour filters, photo-electric cell, and galvanometer. The photo-electric cell is the differential type of copper copper-oxide cell manufactured by the Cambridge Instrument Co., under Westinghouse patents. The author claims that this instrument has the following advantages: (1) elimination of eye strain and "subjective judgements," (2) speed and ease of operation, (3) linear calibration curve, (4) availability for small quantities of material, and (5) simplicity and low cost. It has been used to measure the degree of oxygen saturation of dilute haemoglobin solutions.



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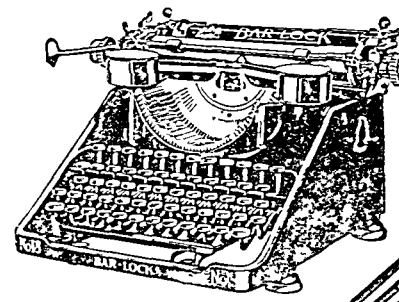
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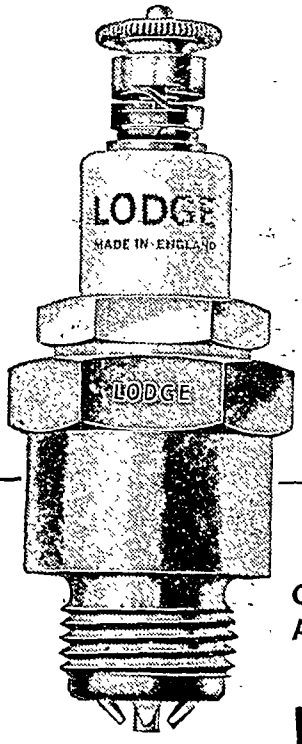
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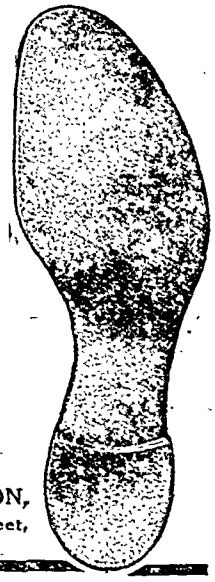
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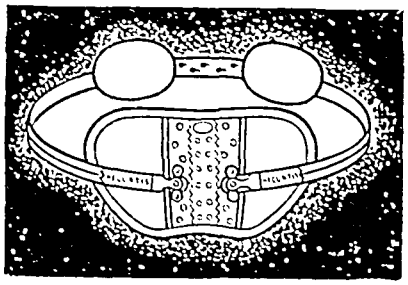
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FOR THE UPPER AND MIDDLE CLASSES ONLY.
President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.
Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.
This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary patients, who are suffering from incipient mental disorders or who wish to prevent recurrent attacks of mental trouble, temporary patients, and certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms, with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE.
This is a Reception Hospital in detached grounds, with a separate entrance, to which patients can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical bath, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray room, an Ultra-violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK.
Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.

BRYN-Y-NEUADD HALL.
The seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.
At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.
For terms and further particulars apply to the Medical Superintendent (Telephone No. 2356 and 2357 Northampton), who can be seen in London by appointment.

COURT HALL, KENTON, EXETER,
SOUTH DEVON.
For the care and treatment of Ladies suffering from Mental Diseases. Limited to eight patients. Telephone: Starcross 59.
CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for early and convalescent cases. Cliffden is a large well-appointed house, with lovely views of the South Devon Coast. It is beautifully situated in grounds of 24 acres. The gardens are very attractive, and there is a private road to the beach.
Resident Physicians: BERTHA M. MULES, M.D., B.S.; ANNIE S. MULES, M.R.C.S., L.R.C.P.
Telephone: Teignmouth 289.

TYKEFORD ABBEY, NEWPORT PAGNELL,
BUCKS.
FUNCTIONAL NERVOUS DISORDERS, MEDICAL & CONVALESCENT CASES.
An Approved Nursing Home for reception of Female Cases under the Mental Treatment Act.
The Home is a Mansion of Historical interest, standing in 9 acres of garden and grounds, and is situated 14 miles from Northampton, and 12 miles from Bedford on the main London to Northampton Road, fifty miles from London. Both sexes are accommodated. Psycho-therapeutic Treatment is used extensively in suitable cases. Radiant Heat, X-Ray, and Ultra-violet Light. Diathermy and Foam Baths. Billiards, tennis, etc. Fees from five gns. per week.
Apply, Dr. D. E. M. DOUGLAS-MORRIS. Telephone: Newport Pagnell 121.

HAYDOCK LODGE,
NEWTON-LE-WILLOWS, LANCASHIRE.
'Phone: 11 Ashton-in-Makerfield.
For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES suffering from mental and nervous diseases, either voluntarily or under Certificate. Patients are classified in separate buildings according to their mental condition.
Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

THE RESIDENTIAL TREATMENT OF ALCOHOLISM & DRUG ADDICTION

RENDLESHAM HALL

(Postal Address)—WOODBRIDGE, SUFFOLK

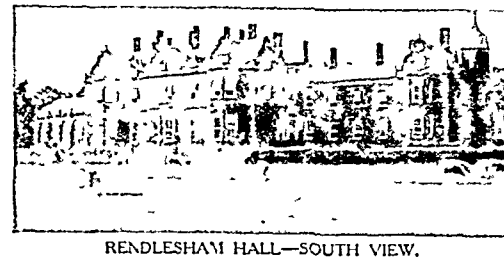
Rendlesham Hall which is open to receive patients, is essentially a Sanatorium Its daily life and routine are that of an ordinary comfortable holiday or health resort, or of a large country house. Each patient has all the privileges of a guest consistent with the prescribed medical treatment.

Rendlesham Hall has 45 bedrooms, and about 450 acres of gardens and park. It has also a private nine-hole golf course, tennis and croquet lawns, and bowling green.

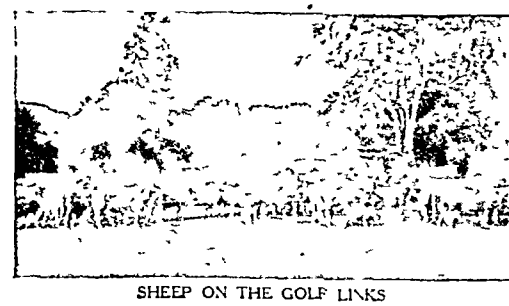
Illustrated booklet giving particulars as to terms, etc., can be had on application to the RESIDENT MEDICAL SUPERINTENDENT.

Telegrams and Telephone: Wickham Market 16. *(Toll Call from London)*

Proprietors The Norwood Sanatorium Limited



RENDLESHAM HALL—SOUTH VIEW.



SHEEP ON THE GOLF LINKS

The MAUDSLEY HOSPITAL

DENMARK HILL, S.E.5

Telephone RODNEY 2101—4

A CIVIC institution by the London County Council for Treatment of VARIOUS and CURABLE MENTAL DISORDER Voluntary patients ONLY received

NEW OUT PATIENTS MEN — Mondays and Thursdays, 2 p m WOMEN—Tuesdays and Fridays, 2 p m CHILDREN—Mondays and Fridays, 10 a m

IN PATIENTS (a) 229 beds (both sexes) in wards or separate rooms, including 35 beds in a ward of king's College Hospital, which is in use as a temporary annex of the Maudsley Hospital (b) 13 private rooms (for ladies) with special sitting rooms, garden, and dietary

TERMS

(a) £5 a week, but in case of patients with a legal settlement in the County of London a less sum may be charged according to means.

(b) £6 6s a week

Terms include (with rare exceptions) all forms of treatment, for which unusual facilities exist—there being a staff of consultant specialists, and the central laboratory of London County Mental Hospitals being attached to the Hospital

Inquiries of EDWARD MAPOTHER M.D., F.R.C.P. F.R.C.S., Medical Superintendent

ALCOHOLISM, DRUG HABIT, NEURASTHENIA, etc.

BAY MOUNT, PAIGNTON.

ESTABLISHED 1922 *Phone* PAIGNTON 5110

A comfortable private HOME charmingly situated overlooking Torbay, near Torquay Main line 3½ hours from Paddington Both Ladies and Gentlemen admitted as voluntary patients

The treatment is the outcome of many years experience and besides removing all craving for drink and drugs, it has a tonic action on the system, and the general health is improved Alcohol and drugs reduced gradually, without suffering

FUNCTIONAL NERVOUS DISEASES AND NEURASTHENIA are also treated with excellent results Cases with insomnia, depression, etc do especially well

Exceptionally good climate and ample and varied amusement Moderate inclusive term Prospectus etc., from STANFORD PARK M.B., Ch.B Res Med Supt Bay Mount Paignton

ALCOHOLISM & OTHER DRUG HABITS.

THE HARE NURSING HOME

As founded and established by the late Dr FRANCIS HARE, for 20 years Med Supt of the Norwood Sanatorium, and author of "Alcoholism," etc., for the treatment of ALCOHOLISM other Drug Habits, Insomnia, Neurasthenia, Functional Nervous Disorders

"THE OLD HILL HOUSE,"
CHISLEHURST, KENT.

Fees 5—10 guineas Ample amusements 25 bedrooms Annexe for mild cases. Quiet and pleasant situation

Ladies and gentlemen admitted for treatment

For prospectus, etc., write or 'phone WALTER F. MASTERS, M.D. M.R.C.S. D.P.H., Barrister at Law (Res Med Supt) Author of "The Alcohol Habit"

'Phone Chislehurst 451 *Telegrams* "Masters," Chislehurst

THE ROYAL EARLSWOOD INSTITUTION

FOR MENTAL DEFECTIVES, REDHILL, SURREY.

(Formerly the EARLSWOOD ASYLUM)

FOR THOSE REQUIRING CONTROL with EXPERT SUPERVISION and needing SPECIAL TRAINING in useful occupations *SCHOOLS FARMING and various TRADE WORKSHOPS*

Inclusive fees from £110 p.a *THOSE UNABLE TO PAY* admitted by votes of subscribers, with part payment towards cost

RECREATIONS ALL outdoor games, EXCELLENT BAND by Male Staff, for Concerts, Dancing, etc

Apply THE MEDICAL SUPERINTENDENT Earlswood, Redhill, Surrey, or to the Secretary, Mr. H. STEPHENS 14-16 Ludgate Hill E.C.4

Telephone REDHILL 344 *Telephone* CITY 4697

THE COPPICE, NOTTINGHAM.

HOSPITAL FOR MENTAL DISEASES.

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted Voluntary and Temporary Patients received.

Tel 64117 *For terms etc apply to the Medical Superintendent*

NORMANSFIELD

For Mental Defectives of either sex.

Under private management.

Apply to Dr. Langdon-Down.

Normansfield, Teddington.

FENSTANTON,

CHRISTCHURCH ROAD,

STREATHAM HILL, S.W. 2.

A Private Home for the Care and Treatment of a limited number of Ladies with Mental and Nervous Disorders Separate accommodation for Voluntary Patients. Large Mansion with 12 acres of ground (See *Medical Directory*, p. 2294) Apply, J. H. EARLS, M.D., Resident Physician Telephone: Tulse Hill 7181

CAMBERWELL HOUSE, 33, Peckham Road, London, S.E.5.

Telegrams: "PSYCHOLIA, LONDON." FOR THE TREATMENT OF MENTAL DISORDERS. *Telephone:* RODNEY 4731—4732.

Also completely detached Villas for mild cases, with private suites if desired. Voluntary patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Putting Greens, Bowls, Croquet, Squash Rackets, and all indoor amusements, including Wireless and other Concerts. Occupational Therapy, Callisthenics, and Dancing Classes, X-ray and Actino-therapy, Prolonged Immersion Baths, Operating Theatre, Pathological Laboratory, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician: Dr. HUBERT JAMES NORMAN, assisted by three Medical Officers, also resident and visiting Consultants.

An illustrated Prospectus, giving fees which are strictly moderate, may be obtained upon application to the Secretary.

The Convalescent Branch is HOVE VILLA, BRIGHTON, and is 200 feet above sea-level.

NORTHUMBERLAND HOUSE,

GREEN LANES, FINSBURY PARK, N.4.

Telegrams: "SUBSIDIARY, LONDON." *Telephone:* NORTH 0888.

A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses. Conveniently situated four miles from Charing Cross. Easy access from all parts. Six acres of ground highly situated, facing Finsbury Park. Private Suites. Voluntary Patients and Temporary Patients received without Certification.

Convalescent Home, **Kearsney Court, Dover.** For further particulars, apply to the **Medical Superintendent.**

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." Telephone: Rodney 4741-4742.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Certified voluntary and temporary patients are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis Courts. Entertainments, dances, and indoor amusements held throughout the year. Terms from £3 3s. per week.

Illustrated prospectus and further particulars can be obtained from the MEDICAL SUPERINTENDENT.

HILL END HOSPITAL

FOR MENTAL AND NERVOUS DISORDERS

(20 miles from London)

Ladies suffering from all forms of MENTAL ILLNESS are received for treatment, on modern lines, as Voluntary, Temporary, or Certified Private Patients at the Hill End Hospital. Convalescent or mild cases can be treated in a delightful country mansion, with extensive grounds, known as

HIGHFIELD HALL,

situate about a mile away from the Hospital.

FEES: TWO TO THREE GUINEAS PER WEEK.

For further particulars apply to the Medical *Supt.*, W. J. T. KIMBER, L.R.C.P., D.P.M.,

ST. ALBANS, HERTS.

BAILBROOK HOUSE,

BATH.

A PRIVATE HOSPITAL for the care and treatment of persons with mental and nervous disorders.

Voluntary Patients received in the Villas. Large Mansion on outskirts of Bath, with 20 acres of grounds (see *Medical Directory*, page 2306).

For terms apply S. J. GILFILLAN, O.B.E., M.B., C.M.Edin., Resident Physician.

Telephone No.: Bathcaston 8189.

CLARENCE LODGE,

CLAPHAM PARK, LONDON.

Situated in 3½ acres of secluded gardens.

HOME FOR TWELVE MENTAL PATIENTS (LADIES).

Well-appointed private house. Home comforts and Trained Nursing Staff. Eminent Mental Specialist Visiting Physician.

Station: Telephone: Tulse Hill 4913. Clapham Common Tube. Apply, Miss THWAITES.

SPRINGFIELD HOUSE,

Near BEDFORD. (Phone 3417.)

For Mental Disorders with or without Certificates.

Resident Physician: CEDRIC W. BOWER.

Ordinary Terms: Five Guineas per week.

(Including Separate Bedrooms where suitable.)

Interviews in London by appointment.

THE MOAT HOUSE,

TAMWORTH, STAFFS.

Established 1816. For the TREATMENT of a few LADIES suffering from NERVOUS and MENTAL DISORDERS. Voluntary patients received. For terms apply to the Resident Medical Attendant. Telephone: Tamworth 108.

MALLING PLACE, KENT.

For LADIES and GENTLEMEN of Unsound Mind, with or without certificates. Terms moderate. Apply Resident Physician.

Telegrams: Adam, West Malling.
Telephone: No. 2 Malling.

SMEDLEY'S

Great Britain's Greatest Hydro

Unrivalled suites of Baths for Ladies and Gentlemen, including Turkish and Russian Baths, Aix and Vichy Douches, Massage and Plombières Treatment, and Electric Installation for Baths and other Medical Purposes, Dowsing Radiant Heat, Infra-red Light, Artificial Sunlight, D'Arsonval High Frequency, Diathermy, Nauheim Baths, Soapless Foam Baths, etc. "Certified" Milk from own farm of 300 acres. Large Winter Garden. Permanent Orchestra. Special provision for Invalids. Night Attendance. Rooms well ventilated and all bedrooms warmed in Winter. A large Staff (upwards of 60) of trained Male and Female Nurses, Masseurs, and Attendants. Resident Physicians:

G. C. R. HARBINSON, M.B., B.Ch., B.A.O., (R.U.I.); R. MacLELLAND, M.D., C.M.(Ed.).

Terms 13/- to 18/6 per day inclusive board.

Illustrated Prospectus M.J. on request.

Telephone: No. 17 (2 lines).
Telegrams: Smedleys, Matlock.

MATLOCK

Among the Pine-clad Border Hills.

Peebles Hydro

In the winter garden of Scotland, facing the sun, 600 feet up. Tonic air, beauty in every landscape from sheltered balconies. Dancing, winter garden, swimming bath, tennis, badminton, golf, fishing. Fully licensed. Modern baths installation. Physio-therapeutic, massage, electrical treatment, ultra-violet radiation. Physician in attendance. Write for prospectus.

PEEBLES HYDRO, PEEBLES, SCOTLAND

BOURNEMOUTH HYDRO,

with Vita-glass Sun-loung and Marine Balcony.

Pyretic and
Every kind of Bath. Plombière Lavage.
Every kind of Massage. Ultra-violet Light.
Every kind of Electricity. Diathermy.
Every kind of Diet. Esseff Inhaler.
High Frequency. Electric Lift.

Propectus from Secretary. *Tele.* 341.

Resident W. JOHNSTON SMYTH, M.D.
Physicians: L. T. ROSE-HUTCHINSON, M.D.

A comfortable London Hotel, convenient for Harley Street and Nursing Homes.

THE CLIFTON HOTEL,

WELBECK STREET, LONDON, W.1,

gives comfort, service, and cuisine equal to larger hotels at less cost. Bedrooms with hot and cold water and telephones. Centrally situated, close to Harley Street and Nursing Homes.

Grams: Cliflinton, London. *Tel.*: Welbeck 6881.

Tel. and Telegrams: "Haynes, Brentwood, 45."

Littleton Hall, Brentwood, Essex.

Large grounds, 400 ft. above sea. HOME for ladies Mentally afflicted. Voluntary Boarders received. Station: Brentwood and Shenfield 1 mile. Liverp'l St. 26 min. Apply, Dr. HAYNES.

STRETTON HOUSE,

Church Stretton, Shropshire.

A PRIVATE HOME for the treatment of Gentlemen suffering from Mental or Nervous Illness, including the allied disorders of Alcoholism and the Drug Habit. All types of early Mental and Nervous cases are received without certificates as Voluntary Patients under the provisions of the Mental Treatment Act, 1930. Bracing Hill country. See *Medical Directory*, p. 2314.—Apply to Medical Superintendent. 'Phone: 10 P.O. Church Stretton.

THE GRANGE,

near ROTHERHAM.

A HOUSE Licensed for the reception of a limited number of Ladies suffering from Nervous and Mental disorders. Both certified and voluntary patients received. Approved for temporary Patients. This is a large country house, with beautiful grounds and park, five miles from Sheffield. Tel.: No. 40030 Ecclesfield. Res. Phys.: GILBERT E. MOULD, L.R.C.P., M.R.C.S., Sheffield. Station: Grange Lane, L. & N.E. Rly.

WYE HOUSE, BUXTON.

For the treatment of Ladies and Gentlemen *mentally afflicted.* Voluntary Boarders received. Situated 1,200 ft. above sea-level, facing S. 14 acres of grounds. — For terms, apply to the Resident Medical Superintendent, W. W. HORTON, M.D. Nat. Tel. 130.

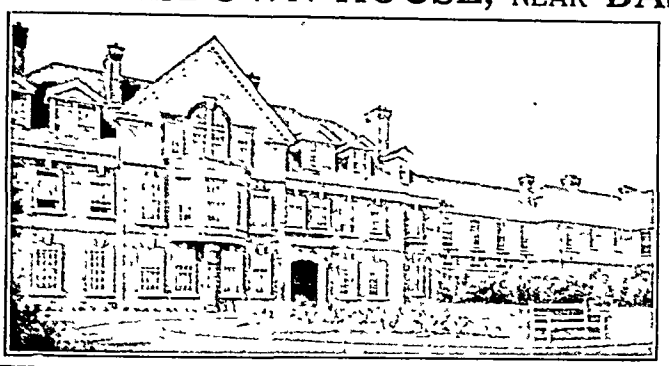
CITY OF LONDON MENTAL HOSPITAL, DARTFORD, KENT.

Ladies and Gentlemen received for *treatment* under certificates, and without certification, as either VOLUNTARY or TEMPORARY PATIENTS, at a weekly fee of TWO GUINEAS and upwards.

THE GROVE HOUSE, CHURCH STRETTON, SHROPSHIRE.

A *private Home for the care of* and treatment of a limited number of Ladies, mentally afflicted. Voluntary and Temporary Patients received under the New Mental Treatment Act, 1930. —Medical Superintendent, Dr. MCCLINTOCK.

ROOKSDOWN HOUSE, NEAR BASINGSTOKE, HANTS



FOR THE RECEPTION AND TREATMENT OF

NERVOUS AND MENTAL ILLNESS.

A Superior, Modern, and Attractive Building, situated in a charming and bracing locality, 400 ft. above sea-level.

Extensive pleasure grounds, with croquet, tennis, bowling, and putting greens

Occupational, Light, and Hydro Therapy.

ONE HOUR RAIL JOURNEY FROM LONDON.

Ladies and Gentlemen can be received as private patients on a voluntary basis or with certificates; written application alone is required for the former.

FEES, including all necessaries except clothing, from THREE to FIVE GUINEAS A WEEK.

Brochure and information may be obtained from the MEDICAL SUPERINTENDENT

Telephone 157 Basingstoke.

RUTHIN CASTLE, NORTH WALES

REDUCTION OF FEES

In view of the present economic position, the inclusive fees at Ruthin Castle, formerly from 17 guineas a week, have been reduced to from 15 guineas a week

The fees include medical attendance, all scientific investigations that may be needed such as analyses, bacteriological cultures, the ordinary x-ray examinations, and electrocardiograph readings, all treatment that may be prescribed, such as special diets, insulin, artificial sunlight, electrical treatment, baths, massage, nursing, medicines or vaccines, board, and lodging

The only extra charge is that for a complete alimentary x-ray examination, or for x-ray therapy.

All the usual forms of treatment are given at Ruthin Castle The climate is mild. The annual rainfall is 30 5 inches, that is, less than the average for England There is central heating throughout Should the accommodation in the Castle not prove sufficient, comfortable rooms can be obtained near by for those undergoing treatment.

Address—THE SECRETARY, Ruthin Castle, North Wales. Telegrams CASTLE, RUTHIN. Telephone RUTHIN 56

BOWDEN HOUSE,

HARROW-ON-THE-HILL.

A NURSING HOME OPENED IN 1911 FOR THE INVESTIGATION AND TREATMENT OF FUNCTIONAL NERVOUS DISORDERS OF ALL TYPES.

No cases under certificate Thorough clinical and pathological examinations Psychotherapeutic treatment, occupation, and recreation as suited to the individual case.

PARTICULARS FROM THE MEDICAL SUPERINTENDENT. *Telephone and Telegrams*: BYRON 1011.

WOODSIDE HOSPITAL

WOODSIDE AVENUE, MUSWELL HILL, LONDON, N.10

President THE RT HON THE EARL OF ATHLONE, K.G., P.C.

Fully equipped with every modern appliance for the diagnosis and treatment of

FUNCTIONAL NERVOUS DISORDERS

Private Rooms, Broad Verandahs, Physiotherapy and Psychotherapy X-ray and Dental departments, Laboratories for investigation and research For terms and particulars apply to the Physician in charge at the Hospital Telephone Tudor 4211

THE OLD MANOR SALISBURY

A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds. Detached Villas. Chapel Garden and dairy produce from own farm. Terms very moderate.

CONVALESCENT HOME at BOURNEMOUTH. Detached Villas standing in 12 acres of ornamental grounds, with tennis courts, etc., which Voluntary, Temporary or Certified Patients may visit, by arrangement, for long or short periods

Illustrated Brochure on application to the Medical Superintendent, The Old Manor, Salisbury. Telephone 51.

CHEADLE ROYAL MENTAL HOSPITAL,

CHEADLE, CHESHIRE.

This REGISTERED HOSPITAL, with a SEASIDE BRANCH at Colwyn Bay, N. Wales, is for the treatment and care of those of the Upper and Middle Classes suffering from MENTAL and NERVOUS DISEASES

The Hospital is governed by a COMMITTEE, appointed by the TRUSTEES of the Manchester Royal Infirmary.

In addition to the Main Building there are separate villas Extensive grounds Hard and grass tennis courts, cricket and croquet grounds, and a court for badminton There are also wireless installations Golf may be had within easy distance Occupational Therapy.

VOLUNTARY, TEMPORARY, AND CERTIFIED PATIENTS received

The Hospital is nine miles from Manchester, 50 minutes by rail from Liverpool, and 3½ hours from London

For terms and further particulars apply to the Medical Superintendent, J. A. C. ROY, M.B., who may be seen in Manchester by APPOINTMENT.

Telephone: GATLEY 2231 (3 lines)

The MUNDESLEY SANATORIUM

The newly opened central building makes the Mundesley Sanatorium the best equipped building in England for the cure of Tuberculosis. All the bedrooms have hot and cold running water, electric light, and wireless headphones. The new public rooms are spacious and comfortable.

Resident Physicians:
S. VERE PEARSON, M.D.(Cantab.), M.R.C.P.(Lond.).
ANDREW MORLAND, M.D.(Lond.), M.R.C.P.
E. C. WYNNE-EDWARDS, M.B.(Cantab.).

For all information apply:
THE SANATORIUM, MUNDESLEY, NORFOLK.
(Telephone: Mundesley 94.)

The buildings face S.S.W. and are sheltered from the sea by a pine-clad ridge. The sunshine record and dry air complete a perfect site. The medical equipment is of the latest kind, and there is a day and night nursing staff.

TERMS FROM 7½ GUINEAS WEEKLY.

TOR-NA-DEE SANATORIUM
MURTLE DEESIDE ABERDEENSHIRE
FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS

Managing Director: DAVID LAWSON, M.D., F.R.S.E.

Southern aspect. Low rainfall. Pure bracing air. Sheltered grounds. Beautiful surroundings. All modern equipment for diagnosis and treatment, including operating theatre. **No extra charge for X Rays, Artificial Pneumothorax, Ultra-Violet Light, or other special treatment.**

Day and Night Nursing Staff. All bedrooms have central heating, electric light, hot and cold running water, and wireless (headphones). Comfortable and airy public rooms.

Medical Superintendent: J. M. JOHNSTON, M.B., M.R.C.S., D.P.H. For full particulars and prospectus apply to the Secretary.

Inclusive Terms: SEVEN GUINEAS A WEEK.

LINFORD SANATORIUM,
RINGWOOD, NEW FOREST, HANTS.

Established 1898 for the treatment of Tuberculosis. Radiators and Electric Light throughout. Hot and cold water and shower bath in nearly all rooms. Powerful X-ray Plant. Ultra-violet Rays. Full Nursing Staff. All forms of treatment available. Farm of 120 acres, including 40 acres of wood. Herd of Tuberculin-tested Guernsey cows kept. Resident Physicians—ARTHUR DE W. SNOWDEN, M.D., B.Ch.(Cantab.), A. G. E. WILCOCK, M.R.C.S., L.R.C.P., COLIN CASSIDY, M.B., B.Ch.(Cantab.)

NORDRACH-UPON-MENDIP SANATORIUM

FOR THE TREATMENT OF TUBERCULOSIS, was opened in January, 1899, by ROWLAND THURNAM, M.D.

All modern forms of treatment are available. There are X-ray and ultra-violet ray installations. Full day and night nursing staff. The Sanatorium stands in gardens and private grounds of 65 acres, at an altitude of 862 feet above sea-level, surrounded by woods and moorland. All rooms are heated by hot-water pipes and electrically lighted.

GORDON TIPPETT, M.B., M.R.C.S., L.R.C.P., *Resident Medical Supt.*

For full particulars apply to *The Secretary*, Nordrach-upon-Mendip, Blagdon, Bristol. *Telegrams*: Nordrach, Blagdon. *Telephone*: Blagdon 23.

THE COTSWOLD SANATORIUM

First opened in 1898 and rebuilt in 1925. On the Cotswold Hills, seven miles from Cheltenham, for the treatment of Pulmonary and all other forms of Tuberculosis. Aspect S.S.W., sheltered from North and East, elevation 800 feet. Pure bracing air. Special Treatment by artificial Pneumothorax (X-ray controlled), Tuberculins and Ultra-violet Rays is available, when necessary, without extra charge. X-ray plant. Electric light. Radiators, hot and cold basins, and Wireless in all rooms. Up-to-date main drainage.

Full day and night Nursing Staff.

Medical Superintendent: GEOFFREY A. HOFFMAN, B.A., M.B., T.C.Dub. *Assistant Physician*: MARGARET A. HARRISON, M.B., B.S.Lond.
Consulting Laryngologist: SIDNEY BERNSTEIN, M.R.C.S.Eng., L.R.C.P.Lond. (Attends Regularly.)

Apply: The Secretary, The Cotswold Sanatorium, Cranham, Gloucester. *Telephone*: 41 WITCOMBE. *Telegrams*: "HOFFMAN, BIRDLIP."

HOSPITAL FOR CONSUMPTION
AND DISEASES OF THE CHEST, BROMPTON, and FRIMLEY SANATORIUM.

PAYING PATIENTS RECEIVED.

BOTH MEDICAL and SURGICAL CASES.

4 to 8 guineas per week at the Hospital. 3 to 4 guineas per week at the Sanatorium.

APPLY TO THE SECRETARY:—BROMPTON HOSPITAL, S.W.3.

GRAMPIAN SANATORIUM,
KINGUSSIE, INVERNESS-SHIRE.

Specially built for the Open-air Treatment of Tuberculosis, and opened in 1901. Bracing mountain air. Elevation 860 ft. above sea-level. Sheltered situation in pine wood. Graduated walks. Electric light throughout building and in shelters. Central heating. Fully equipped X-ray Plant. Inoculation Treatment available for patients—24 beds. Trained Nurse on duty all night. Terms £4 7s. 6d. to £6 6s. p.w. inclusive. No extras. Med. Supt.—FELIX SAVY, M.D.

For particulars apply to the Secretary.

MONTANA HALL, Montana, Switzerland

Built 1929-30

THE ONLY SANATORIUM IN SWITZERLAND UNDER BRITISH OWNERSHIP AND CONTROL, AND WITH A DAY AND NIGHT STAFF OF BRITISH TRAINED NURSING SISTERS

REDUCED INCLUSIVE TERMS——QUOTED IN STERLING

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COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on January 3rd and October 1st 1934 and for the Diploma in Tropical Hygiene on January 11th and April 26th 1934 (Candidates for the D T H must possess the D T M of this University)

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	Final	155
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D P H	(*Various*) 1906-32 (Completed Exam)	316
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The Surgical Tutors of the College all hold either the M S Lond or F R C S England or both, and are highly experienced teachers

The Postal Courses are thoroughly clear concise and up to date and the test questions are carefully selected from those set at previous Examinations so as to embrace all parts of the subject By working systematically through the Course the Student is brought up to the examination standard in the minimum time, and much unnecessary reading is saved

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ROYAL COLLEGE OF PHYSICIANS OF LONDON AND THE
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DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY

This Examination will commence on Friday February 9th 1934

Candidates who have complied with the necessary requirements and who desire to present themselves for Examination must apply in writing to the Examination Hall 8—11 Queen Square London W C 1 at least twenty one days before the date of the Examination

Applications for Part II are due at the same time as for Part I

HORACE H REW Secretary

ROYAL COLLEGE OF SURGEONS OF ENGLAND

LICENCE IN DENTAL SURGERY

Notice is hereby given that the First Professional Examination will commence on Wednesday January 31st 1934 and that the Final Professional Examination will commence on Friday February 16th 1934

Candidates are required to give not less than twenty-one days notice in writing of their desire to present themselves for either of these examinations to the Examination Hall 8—11, Queen Square, London W C 1

HORACE H REW
Director of Examinations

Preliminary Examinations.

The COLLEGE OF PRECEPTORS hold Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March June, September and December For Regulations apply to the Secretary, College of Preceptors Bloomsbury Square, London W C 1

MASTERY OF MIDWIFERY.

Examinations for the Diploma of the Mastery of Midwifery of the Society of Apothecaries of London will be held twice yearly beginning on the third Mondays in May and November

For regulations, apply to the Registrar of the Society, Water Lane, E.C 4.

Post-Graduate Teaching, West London Hospital.

Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave," and for those wishing to take a course under the "Grant-aided Scheme for Post-Graduate Study by Insurance Practitioners."—Anaesthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

Prospectus from the DEAN, West London Hospital, Hammersmith, W.6.

UNIVERSITY OF OXFORD.

PHILIP WALKER STUDENTSHIP IN PATHOLOGY.

The Professor of Pathology gives notice that an election to this Studentship will take place in the first week of June next.

The Studentship was founded "for the furtherance of original research in Pathology." It is of the annual value of £200, which may be increased at the discretion of the Managers to any sum not exceeding £300, and is tenable for one, two, or three years. If the work done by any student be of exceptional promise, the Studentship may be extended for a further period, provided that the total tenure of the Studentship shall not exceed five years. The Student may be of either sex, and need not necessarily be a member of the University of Oxford. While holding office the time of the Student must be devoted to original Pathological research. The place and the nature of the studies of the Student are subject to the approval of the Professor of Pathology, but the Student is bound to pursue these studies within the University during at least three Terms of his tenure of the Studentship. This requirement may, however, in special cases be dispensed with.

Intending candidates are requested to send letters of application, along with three testimonials (one of which should vouch for the candidate's personal character and general education), to "The Registrar of the University, University Registry, Oxford," so as to reach him on or before April 1st, 1934; ten copies of these papers must be submitted. In the letter of application the candidate should state age, training, and particulars of any post already held. Published records of work done may be submitted, but the previous prosecution of original research by a candidate is not an essential qualification. Candidates should also state in general terms the lines of pathological research they think of following if appointed. Candidates are further requested to give the names of persons to whom their work and capacities are well known, and to whom reference may be made by the Board of Managers.

The full text of the regulations relating to the Studentship will be found in the volume of Statutes and Decrees of the University of Oxford, and copies of these regulations can be had on application to the Registrar of the University.

Oxford. December 1st, 1933.

COUNTY BOROUGH OF OLDHAM.

BOUNDARY PARK MUNICPAL HOSPITAL.

RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners for the post of Resident Assistant Medical Officer.

Salary £200 per annum, with board, residence, and laundry.

Candidates should be unmarried.

The appointment will, in the first instance, be for a period of six months. The successful applicant, however, will be eligible for re-appointment for a further period of six months.

The Hospital comprises 375 beds, with facilities for gaining experience in medicine, surgery, midwifery, and diseases of children.

Applications, on forms to be obtained from the undersigned, endorsed "Resident Assistant Medical Officer," should be sent to the Medical Officer of Health, Town Hall, Oldham, and should be received not later than Thursday, January 4th, 1934.

JAMES B. WILKINSON, M.D., C.M., D.P.H.,
Medical Officer of Health.

Town Hall, Oldham.

THE WANDSWORTH BOROUGH COUNCIL invite applications from unmarried persons of either sex for appointment as ASSISTANT MEDICAL OFFICER OF HEALTH & MEDICAL OFFICER of the Maternity Home.

Salary £500 per annum, rising by £25 annually to £700 per annum subject to a deduction of £85 per annum for emoluments.

Further particulars and conditions of appointment and forms of application, may be obtained from and applications must be received by me not later than January 8th, 1934.

Council House, Wandsworth, S.W.18. December, 1933.

D. A. NICHOLL, Town Clerk.

COUNTY BOROUGH OF SOUTHPORT.

The Council of the County Borough of Southport invite applications for the post of DEPUTY MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER from gentlemen duly qualified, holding a Diploma of Public Health or a degree in State Medicine, and not over 35 years of age.

The salary will be at the rate of £600 per annum, with an increase of £75 per annum after two years' service, and a further increase of £75 at the termination of the third year.

The appointment will be subject to three months' notice on either side. The person appointed will not be allowed to engage in private practice.

An allowance of £50 per annum will be made for the maintenance of own motor car if used in the service of the Corporation.

The person appointed will be required to pass a medical examination and to contribute to the Corporation's Superannuation Scheme.

The candidate must have had experience in the treatment of external eye diseases and errors of refraction.

Applications on the prescribed form, obtainable from the undersigned, accompanied by copies of not more than three recent testimonials, should be addressed to me endorsed "Deputy Medical Officer of Health," and delivered not later than Friday, January 5th, 1934.

Canvassing, direct or indirect, will disqualify.

Town Hall, Southport. December 7th, 1933.

R. EDGAR PERRINS, Town Clerk.

THE RETREAT, YORK.

Applications are invited for the post of SENIOR ASSISTANT MEDICAL OFFICER (male) at this registered Mental Hospital. Previous mental hospital experience essential. Preference will be given to candidates who possess the Diploma in Psychological Medicine. If a candidate without this qualification is appointed he will be expected to obtain it within two years of appointment. Commencing salary based on experience and qualifications. Minimum £400 per annum for an unmarried Assistant, with full board, residence, and laundry; or £560 per annum for a married Assistant with house, rent, and rates free. Applications, with copies of testimonials, to be sent to the Medical Superintendent on or before January 4th, 1934.

EAST SUSSEX COUNTY MENTAL HOSPITAL, HELLINGLY, SUSSEX.

Applications are invited for the post of SENIOR ASSISTANT MEDICAL OFFICER AND DEPUTY MEDICAL SUPERINTENDENT (Male) at the above Hospital at a commencing salary of £650 per annum, rising by annual increments of £25 to £700 (subject to any general scale of temporary deductions from salaries in force at any time), with emoluments valued at £90 per annum for the purposes of the Asylums Officers Superannuation Act, 1909, subject to which and to the rules relating to the position which may be in force from time to time the appointment will be made, terminable by three months' notice expiring at any time of the year on either side.

Candidates must hold the Diploma of Psychological Medicine.

Forms of application may be obtained from the Medical Superintendent of the Mental Hospital at Hellingly, and should be returned to me, the undersigned, accompanied by copies of three recent testimonials not later than Tuesday, January 16th, 1934.

211, High Street, Lewes. Dec. 16th, 1933.

HAROLD M. BLAKER, Clerk to the Visiting Committee.

THE GENERAL HOSPITAL, BIRMINGHAM.

Applications are invited for the following resident appointments:

ANAESTHETIST, vacant January 1st, 1934.

ANAESTHETIST, vacant January 15th, 1934.

Salary at the rate of £120 per annum (£70 per annum if a first resident appointment).

Applications, giving full details of qualifications, and accompanied by testimonials (if desired) should be sent to the undersigned as soon as possible.

December 18th, 1933.

A. H. LEANEY, House Governor.

WEST RIDING OF YORKSHIRE MENTAL HOSPITALS BOARD.

APPOINTMENT OF MEDICAL SUPERINTENDENT.

WAKEFIELD MENTAL HOSPITAL.

The West Riding of Yorkshire Mental Hospitals Board invite applications from duly qualified Medical Practitioners for the appointment of Medical Superintendent at the Board's Mental Hospital at Wakefield.

Candidates must have had previous experience as the medical superintendent or a senior assistant medical officer of a mental hospital, and (preferably) have obtained a Diploma in Psychological Medicine and have served the office of house surgeon and house physician at a general hospital.

The person appointed will be required to devote his whole time to the duties of the office, and act in conformity with the provisions of the Lunacy Acts, the general rules and regulations of the West Riding of Yorkshire Mental Hospitals Board (as approved by the Board of Control) and of the Visiting Committee.

The minimum and maximum salary fixed for the position is £1,200 and £1,500, the annual increments being £50. The salary to be paid will (within those limits) be according to qualifications and experience. The person appointed will be provided with an unfurnished house, which shall be deemed to be valued for superannuation purposes at the sum of £50 per annum. The salary and value of the unfurnished house will be subject to deductions under the Asylums Officers Superannuation Act, 1909.

Application must be made on a form which can be obtained, together with further particulars, from the undersigned, to whom the completed form should be returned not later than January 4th, 1934.

Canvassing in any form will be a disqualification.

Board Offices, Wakefield. December, 1933.

(Signed) G. L. BANNER, A.S.A.A., Clerk and Treasurer of the Board.
Clerk of the Wakefield Visiting Committee.

ST. THOMAS'S HOSPITAL.

VACANCY.

The appointment of a SURGICAL REGISTRAR AND TUTOR. Candidates must be Fellows of the Royal College of Surgeons.

Applications, with full details of academic career and copies of testimonials, to be forwarded to Clerk to the Governors not later than December 30th.

ST. THOMAS'S HOSPITAL.

VACANCY.

The appointment of MEDICAL REGISTRAR to the Children's Department for one year, with possible extension for further three years.

Applications, with full details of academic career and copies of testimonials, to be forwarded to Clerk to the Governors not later than December 30th.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.

HOUSE SURGEON wanted. Ophthalmic experience preferred. Duties to commence early in January. There are 50 beds for In-patients and large Out-patient Department. Salary £150 a year, with furnished apartments, board, and laundry. Ladies and gentlemen applying should state age and experience, and send copies of three recent testimonials, to reach the Secretary not later than December 27th.

December 8th, 1933.

EUSTACE LEES, Secretary.

HERTFORD COUNTY HOSPITAL.

Applications are invited for the post of HOUSE SURGEON (male). Salary £200 per annum, with board, residence, and laundry. The appointment is for six months in the first instance, commencing January 15th, 1934.

Applications, with three recent testimonials, should be sent to the undersigned not later than Monday, January 1st, 1934.

PERCY G. BROOKS, Secretary.

INDIAN MEDICAL SERVICE

Recruitment of European Officers.

Applications are invited from medical men for permanent commissions in H.M.'s Indian Medical Service. The terms offered include a gratuity of £1,000 on retirement after six years' service, or £2,500 after 12 years' service, together with free return passages for those who no longer desire to remain in the Service. In other respects the terms will be as detailed below.

Candidates must be European British subjects under 32 years of age at the time of application, and must be registered under the Medical Acts in force in Great Britain and Northern Ireland

CAREERS.

The Indian Medical Service offers wide opportunities of medical experience including clinical, preventive, specialist, and research work At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant Colonel, and by selection to the ranks of Colonel and Major General An officer may apply after one year's Indian Service to have his name registered for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of civil officials and for general medical administrative purposes, to specialist (for example, public health and bacteriological) services, to research posts, and to professorships at the Medical Schools

NOTE.—It is not possible to state at present what, if any, prospects of employment on the civil side will be open to Indian Medical Service Officers under the proposed new constitution for India

PAY.

Owing to the state of the financial emergency at present prevailing in India the existing monthly rates of pay, which are *as follows, are subject to a temporary reduction of 5 per cent*

Rank	Service in Rank.	Basic Pay	Overseas Pay	Year of Total Service.
		Rs	Rs	
Lieut	—	500	150	1st
			150	2nd
			150	3rd
Capt	(i) During first 3 years service as Captain	650	150	4th
			£15	5th
			£15	6th
	(ii) With more than 3 and less than 6 yrs 'service as Captain	750	£25	7th
			£25	8th
			£25	9th
	(iii) With more than 6 years service as Captain	850	£25	10th
			£25	11th
			£30	12th
Major	(i) During first 3 years' service as Major	950		
	(ii) With more than 3 and less than 6 years service as Major	1100		
	(iii) With more than 6 years' service as Major	1250		
Lieut Col	(i) Until completion of 23 years total service	1500	£30	13th and over
	(ii) During 24th and 25th years' service ...	1600		
	(iii) After completion of 25 years' total service	1700		
	(iv) When selected for increased pay	1850		

EXTRAS.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service

ANTEDATES IN COMMISSION.

Any service rendered by an officer during the war as a medical or combatant officer, or in a position usually filled by an officer, may be counted as service for increments of pay, promotion, retirement and retired pay, but not for gratuity.

One half of any service in the ranks during the war may be counted as service for retirement and retired pay only.

Candidates possessing certain higher medical qualifications may be granted an antedate of one year in their commissions. Past service in certain hospital appointments may also render candidates eligible for an antedate of one year Persons holding or about to hold resident posts at recognized hospitals may be seconded in those posts for a period not exceeding one year The maximum period of antedate, secondment, or antedate and secondment combined, admissible under this paragraph, is limited to one year.

OUTFIT ALLOWANCE.

Officers on appointment will receive an allowance of £50 towards the cost of outfit

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice, so long as it does not interfere with their proper duties

LEAVE.

Leave can be taken at reasonable intervals, and adequate rates of leave pay are provided Extra leave (known as study leave), which may not exceed 12 months in all during an officer's service, may be granted to officers desirous of pursuing special courses of study of a post graduate nature During such leave, study allowance, at present fixed at the rate of 12s a day in the United Kingdom, £1 a day on the Continent of Europe, and £1 10s a day in the United States of America, is granted to an officer in addition to ordinary rates of leave pay

PENSIONS.

The rates of pension are as follows:

	Per annum £
After 17 years' service for pension	400
,, 18 ,, ,, ,, ,, ...	430
,, 19 ,, ,, ,, ...	460
,, 20 ,, ,, ,, ...	500
,, 21 ,, ,, ,, ...	540
,, 22 ,, ,, ,, ...	580
,, 23 ,, ,, ,, . .	620
,, 24 ,, ,, ,, ...	660
,, 25 ,, ,, ,, ...	700
,, 26 ,, ,, ,, ...	750
,, 27 ,, ,, ,, ...	800

These rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent in all At present a reduction of 8¼ per cent is being made on this account

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments

PASSAGES.

An officer on appointment is provided with free passage to India The families of officers who are married prior to the date of the officers embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges

Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot, lasting approximately six months prior to their embarkation for India on first appointment Information as to the rates of pay admissible during this period and subsequently up to arrival in India is contained in the memorandum referred to below

A memorandum giving full details regarding these appointments and forms of application may be obtained from the Under-Secretary of State for India, Military Department, India Office, London, S.W.1. The Selection Committee will meet at the India Office early in January next, and the selected candidates will be required to join a course of instruction commencing early in February, 1934, prior to sailing for India in the Autumn of 1934. Applications should be submitted as soon as possible.

URBAN DISTRICT OF SUTTON AND CHEAM (SURREY).

URBAN DISTRICT OF BANSTEAD (SURREY).

JOINT APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

Applications are invited for the appointment of Medical Officer of Health, subject to the provisions of the Public Health (Officers) Act, 1921, and the Sanitary Officers Order, 1926. Candidates must not be more than 45 years of age.

The person appointed will be required to perform all the duties imposed on a Medical Officer of Health under relevant Acts and Orders, and will also be required to carry out all such duties as the respective Councils may, with the consent (if necessary) of the Ministry of Health, from time to time direct.

The person appointed must reside within the area of these Urban Districts; must not engage in private practice, and must devote his whole time to the duties of the office.

The appointment will be subject to the approval of the Ministry of Health; will also be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, *and the successful candidate will be required* to pass a medical examination.

The salary will be £800 per annum, and £100 for travelling expenses; office accommodation, stationery, and clerical assistance will be provided.

Applications, stating age and date of birth, qualifications, and experience, accompanied by copies of not more than three recent testimonials, should be addressed to the Clerk of the Sutton and Cheam Council, Municipal Offices, Sutton, Surrey, so as to reach him not later than 12 o'clock noon on Friday, January 19th, 1934, endorsed "Medical Officer of Health."

Canvassing in any manner whatsoever is prohibited, and will disqualify candidates.

HARRY BOLTON,
Clerk of the Sutton and Cheam U.D.C.
F. H. WILTSHIRE,
Clerk of the Banstead U.D.C.
December 19th, 1933.

NORTH RIDING INFIRMARY, MIDDLESBROUGH.
(General Hospital—150 Beds.)

Wanted at once SENIOR HOUSE SURGEON and THIRD HOUSE SURGEON.

Candidates must be male, unmarried, and of British nationality.

The appointments will be for not less than six months and renewable.

Salary £200 and £125 per annum respectively, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should be sent to the undersigned.

GERALD A. KENYON,
Secretary-Superintendent.

ROYAL SUSSEX COUNTY HOSPITAL, BRIGHTON. (250 Beds.)
(Six R.M.O.s.)

HOUSE SURGEON (male) required at the end of January, 1934. Charge of beds, part casualties and anaesthetics. Salary £150 per annum, with board, residence, and laundry.

Candidates must hold Medical and Surgical qualifications of the British Empire, and be duly registered under the Medical Acts. They must be unmarried, and when elected under 30 years of age.

Applications, with copies of testimonials, should be sent to the undersigned immediately.

L. L. W. LANCASTER-GAYE,
Secretary-Superintendent.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH,
60, Grove End Road, London, N.W.8.

Applications are invited for the post of RESIDENT HOUSE PHYSICIAN (male). The appointment will be for six months from February 1st, 1934. Salary at the rate of £100 per annum, with full board.

Applications, together with copies of three testimonials, should reach the undersigned on or before December 30th.

F. DUDLEY HOBBS, B.A., Secretary.

MANCHESTER EAR HOSPITAL,
Grosvenor Square, All Saints'.

The Board invite applications for the post of RESIDENT HOUSE SURGEON. Salary £120 per annum. (24 beds.) Candidates must be duly qualified and registered.

Applications, with copies of four recent testimonials, to be forwarded to Mr. REGINALD S. MILFORD (Hon. Sec., Manchester Ear Hospital), c/o Mr. W. J. Elliam, 33, Brazennose Street, Manchester, 2.

COUNTY COUNCIL OF MIDDLESEX.

DISTRICT MEDICAL OFFICER AND PUBLIC VACCINATOR.

The County Council invites applications from duly qualified Medical Practitioners for the undermentioned appointments:

DISTRICT MEDICAL OFFICER, SUNBURY.

Salary £50 per annum, plus fees in respect of attendances at confinements and the cost of expensive drugs. The officer appointed will be required to carry out his duties in accordance with the Public Assistance Order, 1930, of the Minister of Health, to reside in the district, and to name to the Council some duly qualified Medical Practitioner who will, in the case of his absence or other hindrance to his personal attendance, act in his place.

PUBLIC VACCINATOR, SUNBURY.

The person appointed will be required to produce to the Council a certificate of proficiency in vaccination, unless such certificate was required as a condition of obtaining any diploma, licence, or degree which he possesses.

He will be required also to enter into a contract with the Council in accordance with the Vaccination Order, 1930, of the Minister of Health. *The contract will provide for the payment* of the minimum fees laid down in the order.

Applications, stating name, age, qualifications, and experience, accompanied by copies of not more than three recent testimonials, must be received by the undersigned not later than December 30th.

No special application forms are provided. Envelopes must be endorsed "District Medical Officer" or "Public Vaccinator" as the case may be.

Canvassing, directly or indirectly, will be a disqualification.

ERNEST S. W. HART,
Clerk of the County Council.
Middlesex, Guildhall, Westminster, S.W.1.
December 18th, 1933.

WREXHAM AND EAST DENBIGHSHIRE WAR MEMORIAL HOSPITAL.
(109 Beds.)

ONE RESIDENT HOUSE SURGEON (male or female) required by the above Hospital, to commence on February 1st, 1934. Appointment for a period of six months. Salary £150 per annum, with board and laundry.

Applications, stating age, nationality, experience, and qualifications, accompanied by copies of three recent testimonials, to be sent to the undersigned by the first post Monday, January 15th, 1934.

LESLIE SPENCER,
December 14th, 1933. Secretary.

WESTMINSTER HOSPITAL,
Broad Sanctuary, S.W.1.

Applications are invited for the post of ASSISTANT PHYSICIAN FOR DISEASES OF THE SKIN. Candidates must be Fellows or Members of the Royal College of Physicians of London. Each candidate will be required to transmit a certificate of his age, with forty copies each of application and testimonials, to the undersigned not later than Friday, January 19th, 1934, and to attend the House Committee on Tuesday, January 23rd, 1934, at 4 p.m.

By Order of the House Committee,
CHARLES M. POWER, Secretary.

AYR COUNTY HOSPITAL.

RESIDENT HOUSE SURGEON (Male) required for six or twelve months, to take up duty on February 1st, 1934. Particulars as to salary, etc., may be had from the Secretary.

Applications, with copies of testimonials, in duplicate, to be lodged with the Secretary, Ayr County Hospital, Holmston Road, Ayr, not later than Wednesday, January 10th, 1934.

THE LIVERPOOL EYE, EAR, AND THROAT INFIRMARY, Myrtle Street, LIVERPOOL.

Applications are invited for the post of OPHTHALMIC HOUSE SURGEON (male) to the above Institution. Salary £120 per annum.

Applications, with copies of not more than three recent testimonials, should be made by *January 1st, 1934, to the Chairman, CHARLES* W. WRIGHT, Esq., 9, Harrington St., Liverpool.

BRISTOL EYE HOSPITAL,
Lower Maudlin Street.

Applications are invited for the post of ASSISTANT RESIDENT HOUSE SURGEON. Salary £100 per annum. Vacant February 1st, 1934. Senior post available after six months. Applications and testimonials to be received by the Secretary not later than Monday, January 8th, 1934.

BRACEBRIDGE MENTAL HOSPITAL, near LINCOLN.

FOURTH ASSISTANT MEDICAL OFFICER.

The Committee of Visitors invite applications for the above whole-time appointment from ladies under 35 years of age, who are duly qualified and registered medical practitioners.

The commencing salary will be £350 per annum, plus the usual residential emoluments of board, lodging, laundry, and attendance, valued for Superannuation purposes at £125 per annum. Subject to twelve months' service satisfatcory to the Committee, an increase of £25 will be granted, and thereafter increases of £25 per annum, up to a maximum salary of £450 per annum. An additional £50 per annum will be paid on obtaining the D.P.M.

The successful candidate will be required to pass satisfactorily a medical examination, and to join the scheme under the Asylum Officers Superannuation Act, 1909. The appointment is subject to one month's notice on either side.

Preference will be given to a candidate who is interested in, and has had previous experience of, Pathology.

Forms of application may be obtained from the Clerk of the Hospital.

Completed applications should be received not later than first post on Saturday, Jan. 6th, 1934.

HUDDERSFIELD ROYAL INFIRMARY.
(240 Beds.)

MALE HOUSE SURGEON required to commence duty February 1st, 1934.

Salary £150 per annum, with board, residence, and laundry. Appointment for six months, subject to renewal at the discretion of the Board of Management.

The Hospital is officially recognised for the surgical practice required of non-members before admission to the Final Fellowship Examination of the Royal College of Surgeons of England.

Applications, with copies of three recent testimonials, to be addressed to the undersigned not later than January 13th, 1934.

H. E. G. HALL, Gen. Supt. & Sec.

HUDDERSFIELD ROYAL INFIRMARY.
(220 Beds.)

Applications are invited from qualified gentlemen for the post of RESIDENT SURGICAL OFFICER, to commence duty as early as possible after January 1st, 1934.

Salary at the rate of £225—£250 per annum, with board, residence, and laundry.

The Hospital is officially recognized for the surgical practice required of non-members before admission to the Final Fellowship Examination of the Royal College of Surgeons of England.

Applications, with copies of three recent testimonials, to be addressed to the undersigned immediately.

H. E. G. HALL, Gen. Supt. & Secretary.

HUDDERSFIELD ROYAL INFIRMARY.
(240 Beds.)

Wanted, LADY HOUSE SURGEON to commence duty as early as possible after January 1st, 1934. Duties mainly in Eye, Ear, Nose, Throat, and Medical Departments, with Obstetrics.

Salary £150 per annum, with board, residence, and laundry.

Appointment for six months, subject to renewal for a similar period.

Applications, with copies of three recent testimonials, to be addressed to the undersigned immediately.

H. E. G. HALL, Gen. Supt. & Sec.

THE MIDDLESEX HOSPITAL, W.1.

A vacancy is hereby declared for a PHYSICIAN to the Children's Department of the Hospital.

Applications for this office are invited to be sent to the undersigned by Saturday, January 13th, 1934, accompanied by diplomas and testimonials.

Candidates must be members (or have passed the qualifying examination for the membership) of the Royal College of Physicians of London.

By Order of the Board,
S. R. C. PLIMSOLL, Secretary-Supt.

THE BURSLEM HAYWOOD AND TUNSTALL WAR MEMORIAL HOSPITAL.

Wanted, JUNIOR RESIDENT MEDICAL OFFICER. Salary £150 per annum, with board and residence. Must be fully qualified. Experience in Ophthalmic and Ear, Nose, and Throat work will be an advantage. Applications, stating age and experience, together with copies of three recent testimonials, to be sent to me.

C. E. LOWNDES.
High Lane, Burslem, Stoke-on-Trent. Secretary.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B M A House Tavistock Square W C 1 (in the case of Scottish appointments with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh)

(a) British Islands.

Town or District	Town or District	Town or District
CONTRACT PRACTICE	**CONTRACT PRACTICE** *(contd.)*	**CONTRACT PRACTICE** *(contd.)*
EBBW VALE MON *(Workmen's Medical Society)*	MARDY GLAMORGAN *(Workmen's Medical Scheme)*	OGMORE VALLEY GLAMORGAN *(Wyndham Colliery Medical Aid Society)* *(Workmen's Medical Scheme)*
CILFACH GOCH GLAMORGAN *(Workmen's Medical Scheme)*	NEATH AND DISTRICT *(Medical Aid Association)*	**PUBLIC HEALTH**
LLWYNPIA CILFACH VALE PENYCRAIG GLAMORGAN *(Workmen's Medical Scheme)*		GLOUCESTERSHIRE EDUCATION COMMITTEE *(Lady School Medical Inspector)*
LOWESTOFT MEDICAL INSTITUTE *(Medical Officer)*	OAKDALE MON *(Medical Officer for Medical Aid Association)*	CITY OF YORK *(Assistant Medical Officer of Health—Woman)*

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B M A House, Tavistock Square, W C 1

Town or District.	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch
NEW SOUTH WALES *(All Friendly Society Appointments)*	Dr. J. G. HUNTER (Medical Secretary, New South Wales Branch) 135 Macquarie St., Sydney, N.S.W.	**QUEENSLAND.** *(Brisbane Associated Friendly Societies Institute)*	The Hon. Sec. Queensland Branch British Medical Association B.M.A. Building Adelaide St., Brisbane.	**WELLINGTON, NEW ZEALAND.** *(Contract Practice Appointments)*	Dr. G. F. V. ANSON (Hon. Sec. New Zealand Branch) British Medical Association P.O. Box 156 Wellington, New Zealand.
VICTORIA. *(All Institute or Medical Dispensaries)*	Dr. J. P. MAJOR (Hon. Sec. Victorian Branch British Medical Association Medical Society Hall East Melbourne Victoria.			**WESTERN AUSTRALIA.** *(Contract and Lodge Practices)*	Hon. Sec., Western Australian Branch British Medical Association No. 6 Bank of N.S.W. Chambers St. George's Terr. Perth Western Australia.

December 19th, 1933 By Order of the Council G. C. ANDERSON, Medical Secretary.

HULL ROYAL INFIRMARY
(567 Beds.)

Applications are invited from registered Medical Practitioners for the post of HOUSE SURGEON (male) to the SUTTON BRANCH HOSPITAL vacant the middle of January.

Salary at the rate of £160 per annum, plus residence board and laundry.

The appointment will be for six months but will at any time be determinable by one month's notice on either side.

The Branch Hospital is not a Recovery Annexe but a general hospital of 100 beds 55 of which are reserved for surgical cases.

The Infirmary is recognised by the Royal Colleges for the F.R.C.S. Examinations and the post now advertised is approved by the University of London for the M.S. Branch I. (Surgery) Examination.

Applications giving particulars of age experience, and nationality together with copies of recent testimonials, should be addressed to the undersigned

R. J. CARLESS
December 11th 1933 House Governor

HARROGATE ROYAL BATH HOSPITAL
(Special Hospital for Rheumatic and Allied Diseases.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male) to commence duties beginning February 1st 1934.

The appointment will be for a period of six months. Salary at the rate of £156 per annum, with board residence and laundry.

Applications stating qualifications age etc., with copies of recent testimonials to be forwarded to the undersigned on or before Wednesday, January 10th 1934.

E. P. L. DIXON, M.A., Secretary.

NATIONAL TEMPERANCE HOSPITAL
Hampstead Road N.W.1

A vacancy will occur some time in January for the post of HONORARY ASSISTANT PHYSICIAN.

Candidates must be Doctors of Medicine of a British University or Members of the Royal College of Physicians of London.

Applications with copies of not more than three recent testimonials, must be forwarded not later than Thursday January 4th 1934, addressed to the Secretary.

NATIONAL TEMPERANCE HOSPITAL
Hamp tead Road N.W.1

Applications are invited for the appointment of HONORARY ASSISTANT AURAL SURGEON.

Candidates must be Fellows of the Royal College of Surgeons of England.

Intending applicants should communicate in the first place with the Secretary for particulars. Applications accompanied by copies of not more than three recent testimonial must be forwarded not later than Thursday, January 4th 1934.

THE PRINCE OF WALES'S GENERAL HOSPITAL London N.15

Appointments of HONORARY CLINICAL ASSISTANTS in the various Department of the Hospital (Surgical Medical Gynaecological Ear Nose and Throat Eye Skin X-ray and Electrical) for the ensuing year will be made in January.

Applications for appointment to any of these posts should be sent to me on or before Wednesday, January 3rd, 1934.

J. C. BUDDETT
December 11th 1933 Director

WOOLWICH AND DISTRICT WAR MEMORIAL HOSPITAL Shooters Hill London S.E.18
(General Hospital—112 Beds.)

(a) HOUSE PHYSICIAN
(b) HOUSE SURGEON

The Board of Management invites applications from suitably qualified male candidates for appointment to (a) House Physician, and (b) House Surgeon for a period of six months from January 1st 1934. In addition to his surgical duties the House Surgeon will have the care of a Maternity Unit of eight beds. An honorarium of £100 per annum will be paid in respect of each appointment plus board, residence and laundry.

Applications accompanied by copies of not more than three recent testimonial should be addressed to the undersigned (at the Hospital) to reach him not later than Saturday December 23rd. The Appointments Committee will meet on Friday December 29th to interview short listed candidates who will be advised of time and place to attend.

P. S. G. HUTCHINGS Secretary.

KING GEORGE HOSPITAL ILFORD
(8 miles from London.)

Wanted a HOUSE SURGEON (male) to commence duty on January 1st, 1934 for a period of ten month eight months a House Surgeon and two months as Deputy Resident Medical Officer in charge of the Casualty Department. Salary £100 per annum, £10 bonus on completion of appointment and two weeks holiday. Forms of application may be obtained from the undersigned.

G. AUSTIN HEPWORTH, Secretary.

(Appointments continued on p. 35)

British Medical Journal
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WANTED.—ASSISTANTSHIP, WITH EARLY view to succession or partnership, London preferred, panel and working-class Practice, by B.M., B.Ch., B.A.O. (Q.U.B.), Cert. D.T.M. and H.Lond. (R.C.). Experienced, keen worker, and abstainer, married, with family, age 36 years. Applicant at present in Government service abroad. — Address, No. 8552, B.M.A. House, Tavistock Square, W.C.1.

WANTED, FOR LARGE COUNTRY PRACtice in Midlands, male ASSISTANT, single, live in, Public School, London degree, and own car essential. Partnership may be entertained later. — Address, No. 8559, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MALE ASSISTANT, WITH VIEW to *half partnership* at the end of six months. Salary offered £450—£500 p.a., according to qualification. House and car provided. State age, nationality, and quals.—No. 8454, B.M.A. House, Tavistock Sq., W.C.1.

WANTED IMMEDIATELY. — INDOOR AND Outdoor ASSISTANTS for town and country Practices, with and without view. Good salaries. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross St., Manchester, 2.

WANTED.—ASSISTANTSHIP BY M.B., B.CH. (Hons.), ex H.P., H.S., and A.H.S. Some experience G.P. Male, age 27, single.—Address, No. 8553, B.M.A. House, Tavistock Sq., W.C.1.

ASSISTANTSHIP WANTED, WITH OR without view (partnership or succession), or management of branch. Exper. G.P., English, 34. Own car. Accustomed to sole charge. —Address, No. 8555, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP, WITH OR WITHOUT VIEW, wanted by Medical Woman. Ten years' qualified; wide experience. Any part of country. Available for Locums now.—Address, No. 8557, B.M.A. House, Tavistock Square, W.C.1.

OPHTHALMIC ASSISTANT REQUIRED. Young Graduate, well educated. Some knowledge refraction desirable. Plenty material for experience. Possible view.—Address, No. 8451, B.M.A. House, Tavistock Square, W.C.1.

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DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeuse-Dispensers, are invited to write, wire, or 'phone Temple Bar 5858, THE DISPENSERS' BUREAU, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

MATRON REQUIRED FOR CONVALESCENT Home for men and women on South-East Coast (168 beds). Must be of sympathetic but strong personality and not exceeding 45 years of age. Preference will be given to one with experience in nursing, housekeeping, and administration. Commencing salary £150 per annum, with board, residence, and laundry. *Applications, by letter, not later than January 6th, 1934*, with full particulars of training, age, experience, and copies of recent testimonials. — Address, No. 8554, B.M.A. House, Tavistock Square, W.C.1.

REQUIRED FOR GROUP CLINIC IN COURSE of formation: OPHTHALMOLOGIST, RADIOLOGIST, and DENTAL SURGEON. Participants, who must be on staff of hospital, should apply for full details. — Address, No. 8053, B.M.A. House, Tavistock Square, W.C.1.

TYPEWRITING, DUPLICATING, AND TRANSlations. Experts in Medical work. TESTIMONIALS, THESES, etc., copied in style that commands attention. Accuracy guaranteed.—WOBURN BUREAU, 3, Upper Woburn Pl., W.C.1. (Adjoining B.M.A. House.) Euston 1775.

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PARTNERSHIPS.

WANTED.-PARTNER IN OLD-ESTABLISHED Practice in growing town in the Midlands. Share worth £600 p.a. at first.—Address, No. 8263, B.M.A. House, Tavistock Square, W.C.1.

DOCTOR, EXPERIENCED G.P., WITH POSTgraduate qualifications, would like to hear from colleague in Altrincham, Hale, or Wilmslow area, with a view to PARTNERSHIP-SUCCESSION in good-class non-dispensing Practice. No objection to small panel. Capital available.—No. 8560, B.M.A. House, Tavistock Sq., W.C.1.

PRACTICES.

WANTED ANYWHERE IN LONDON OR near, PRACTICES. Incomes £1,000 to £3,000 p.a. Small or large panels. Good premiums paid cash for same. Also many Partnerships wanted, ready capital available.—Apply, PEACOCK & HADLEY, LTD., 19, Craven Street, Strand, W.C.2.

COAST RESORT, EASTERN COUNTIES.— Very sound old-established private PRACTICE for sale. Largest in Town. Average cash receipts £2,000. Large freehold house in best part. Valued at £2,750. Suit man with surgical leanings. £1,000 *good book debts would* be sold if desired. — Apply, No. 9239, PERCIVAL TURNER, LTD., 4, Adam Street, London, W.C.2.

FOR SALE.—MEDICAL PRACTICE IN LARGE industrial town in Lanarkshire. Established thirty years. Good reasons for disposal. House, which is situated main thoroughfare, can be let. Rental £55. Premium £600 or near offer. — Particulars from BALLANTYNE & COPLAND, Solicitors, 2, Windmillhill St., Motherwell.

FOR SALE, WELL-ESTABLISHED PRACTICE, Scotland; panel 1,000; gross receipts £1,500. Good hospital. Excellent house.—Address, No. 8561, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL. — PRACTICE IN ATTRACTIVE Clyde Coast Town for sale. Average receipts £1,400. Good house for sale. Death vacancy. — Apply, CRAWFORD, HERRON & CAMERON, Writers, 257, West George Street, Glasgow, C.2.

NEAR HAMMERSMITH, W. — WELL-ESTABlished cash and panel PRACTICE. Receipts close on £600 a year, panel 600. Nice corner house, rent £120 p.a. Premium £800.—Apply, PEACOCK & HADLEY, LTD., 19, Craven Street, Strand, W.C.2.

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WIMPOLE STREET.—PART-TIME CONSULTING ROOM (large). Use of waiting room, £100. Also Bachelor Service Flat, very well furnished sitting-room, bedroom, and bathroom (constant hot water), lift, 3½ gns. per week.—No. 222, B.M.A. House, Tavistock Sq., W.C.1.

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APPOINTMENTS—Contd

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.3

The Committee of Management invite applications for the post of HOUSE PHYSICIAN (for which there are three vacancies). The duties include work in the Out-Patient Department as well as in the Ward. The appointment is for six months commencing on February 1st 1934 with an honorarium of £50

Applications with copies of testimonials must reach the undersigned not later than Saturday, January 6th, 1934

Brompton, S.W.3 FREDERICK WOOD,
December, 1933 Secretary

WEST LONDON HOSPITAL
Hammersmith Road, W.6

Required a RESIDENT ANAESTHETIST (male). The appointment is tenable from January 22nd next to June 30th subject to one month's notice on either side. Salary at the rate of £100 a year, with board lodgings and laundry allowance

Candidates must be registered under the Medical Act. Applications (which must be made on printed forms obtained from me) must reach me not later than the first post on Friday, January 12th 1934. Selected candidates will be required to call upon such members of the Medical Staff as directed to be in attendance at the Medical Council Meeting on Friday, January 19th at 4.30 p.m. and the House Committee Meeting at 5 p.m. *the same day when* the appointment will be made

H. A. MADGE, Secretary

DEVON COUNTY COUNCIL
(Medical Department)

DEPUTY COUNTY MEDICAL OFFICER

Applications are invited from duly qualified Medical Practitioners (male) under 40 years of age for the appointment of Deputy County Medical Officer under the Devon County Council

Applicants must possess a Diploma in Public Health and have had experience in County Public Health work

The appointment will be subject to the Local Government and Other Officers' Superannuation Act 1922

The salary will be £720 per annum, rising by annual increments of £20 to £800

Travelling and out-of-pocket expenses in accordance with the Council's Scale will be paid

Applications stating age, qualifications and experience together with copies of three recent testimonials shall be made on the prescribed form and forwarded so as to reach the County Medical Officer, 4 Barnfield Crescent, Exeter, Devon (from whom copies of application forms and full particulars of the appointment may be obtained) not later than the first post on Friday, January 12th 1934

NOBLE'S HOSPITAL DOUGLAS ISLE OF MAN
(112 Beds opened 1912. Extensions 1926 and 1931. Electro-Medical Hall 1928. Orthopaedic Block 1932.)

The Committee of Management invite applications for the post of MALE RESIDENT HOUSE SURGEON. Candidates must be single have double qualifications and be registered under the Medical Acts. The duties in addition to Ward and Dispensary work will comprise visiting patients in their own homes

Salary (with board and washing free) £175 per annum which is usually augmented to an average of £300 through opportunities which arise for special services

Applications stating age and experience with copies of recent testimonial as to professional ability etc. must reach the undersigned before Wednesday, January 3rd 1934

The candidate appointed will be required to begin his duties on February 1st 1934

Westmoreland Road E. K. KELLY,
Douglas, Isle of Man Hospital Secretary
December 14th 1933

PRESTON AND COUNTY OF LANCASTER ROYAL INFIRMARY (300 Beds)

The Board of Management invite applications from unmarried gentlemen doubly qualified and registered for the following posts vacant on January 12th next

HOUSE PHYSICIAN (duties in the Medical Wards)

HOUSE SURGEON (duties under Consulting Surgeon)

SPECIAL HOUSE SURGEON (duties in the Maternity and Eye, Ear, Nose and Throat Wards under Consulting Surgeons)

Total Resident Staff—six

The above posts are recognised by the Colleges of Physicians and Surgeons in connection with post-graduate examination

Salary in each case at the rate of £150 per annum with board, residence and laundry

Applications stating age, qualifications and experience accompanied by copies of testimonials to be forwarded to the undersigned as soon as possible

JOHN GIBSON
December 18th 1933 Supt. & Secretary

JENNY LIND HOSPITAL FOR CHILDREN NORWICH

Applications are invited for the post of RESIDENT MEDICAL OFFICER. Salary £120 with board, residence, laundry. Candidates (male or female) who must possess registered qualification should forward application stating age, experience etc. together with copies of testimonials to the undersigned not later than first post on Wednesday, January 3rd 1934

FRANK INCH
December 23rd 1933 Secretary

LINCOLN COUNTY HOSPITAL

Wanted JUNIOR HOUSE SURGEON, male unmarried

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10 LONDON, S.W. — PARTNERSHIP IN OLD-ESTABLISHED Practice of about £2,600 p.a., in pleasant Suburban District. Small panel. Visiting fees 5/- to 7/6. Corner residence (5/6 bedrooms) with garage and garden. Good educational facilities. Premium one-half share, one and a half years' purchase.

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15 MIDLANDS — VERY OLD ESTABLISHED AND EASILY worked Country PRACTICE about 8 miles from the County Town. Cash receipts average between £650 and £700 p.a., including panel about 600. Suitable house, with 4 bedrooms, electric light, garage and garden for sale. Price £1,300 freehold. Scope for young energetic man. Premium one years purchase.

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29 S. WALES—SMALL PRACTICE IN A COLLIERY DISTRICT doing about £150 p.a. Accommodation to rent. Scope for young energetic man. Premium £150.

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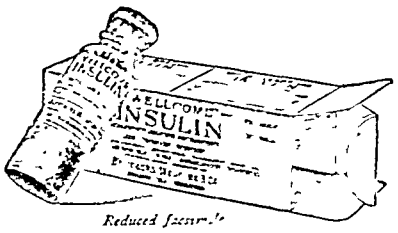
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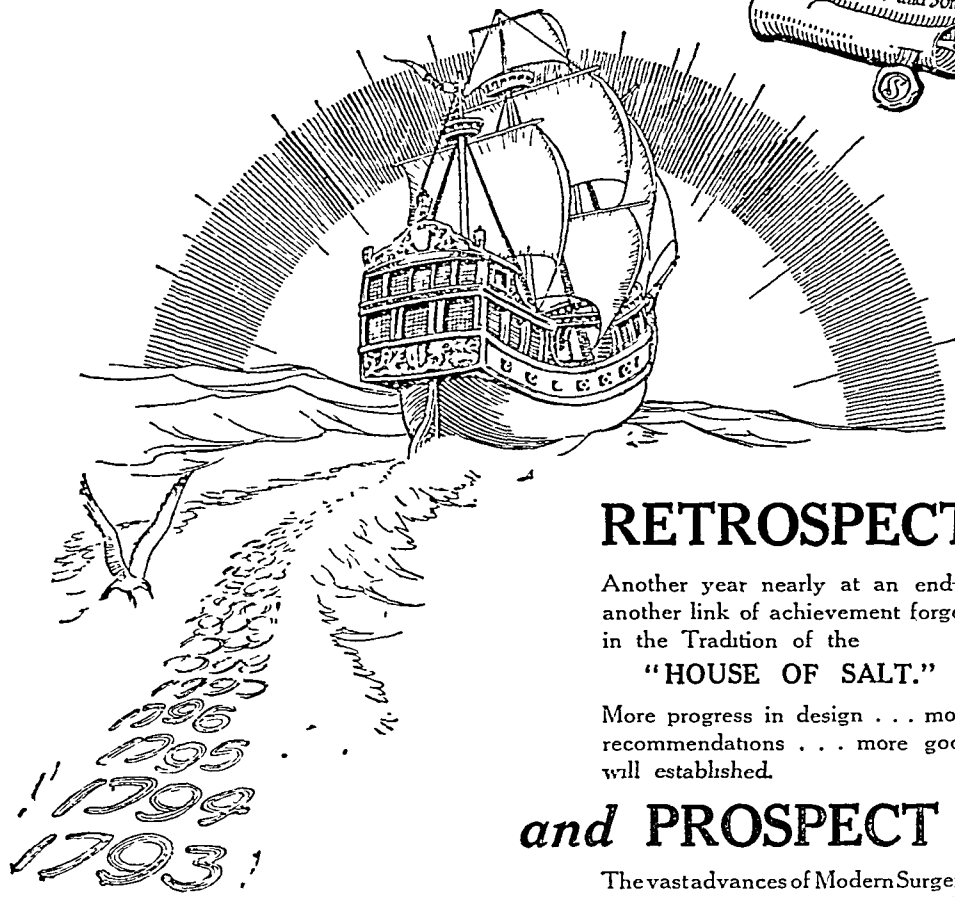
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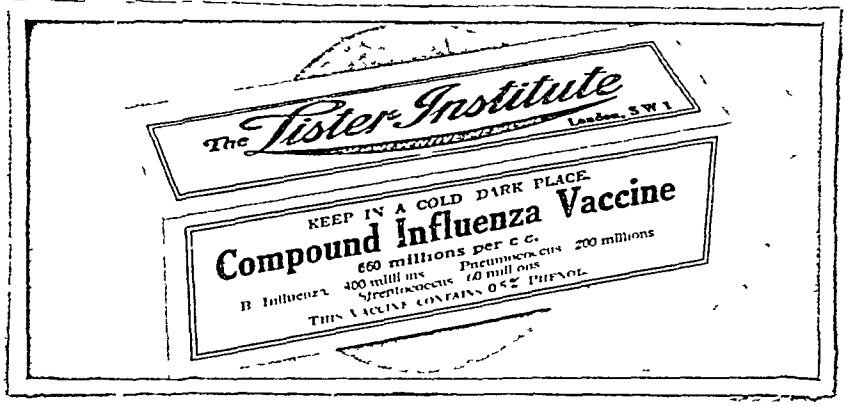
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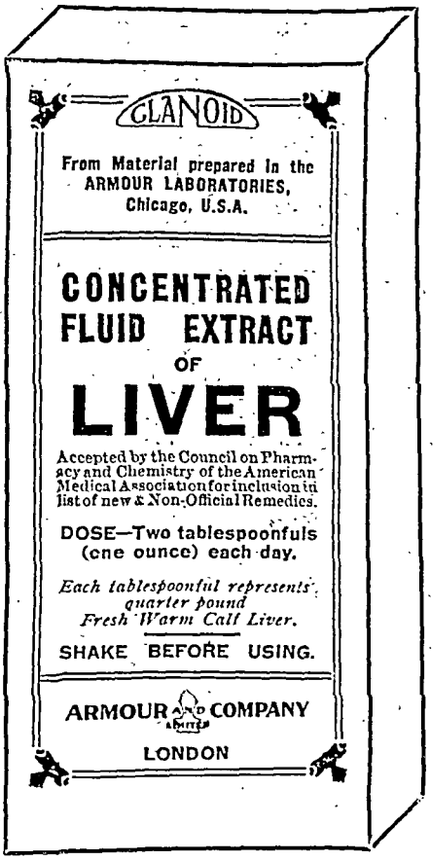
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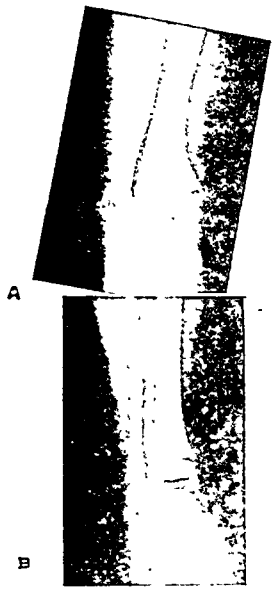
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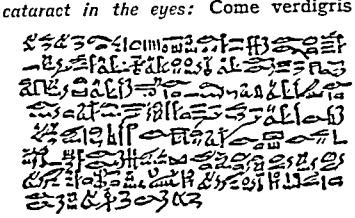
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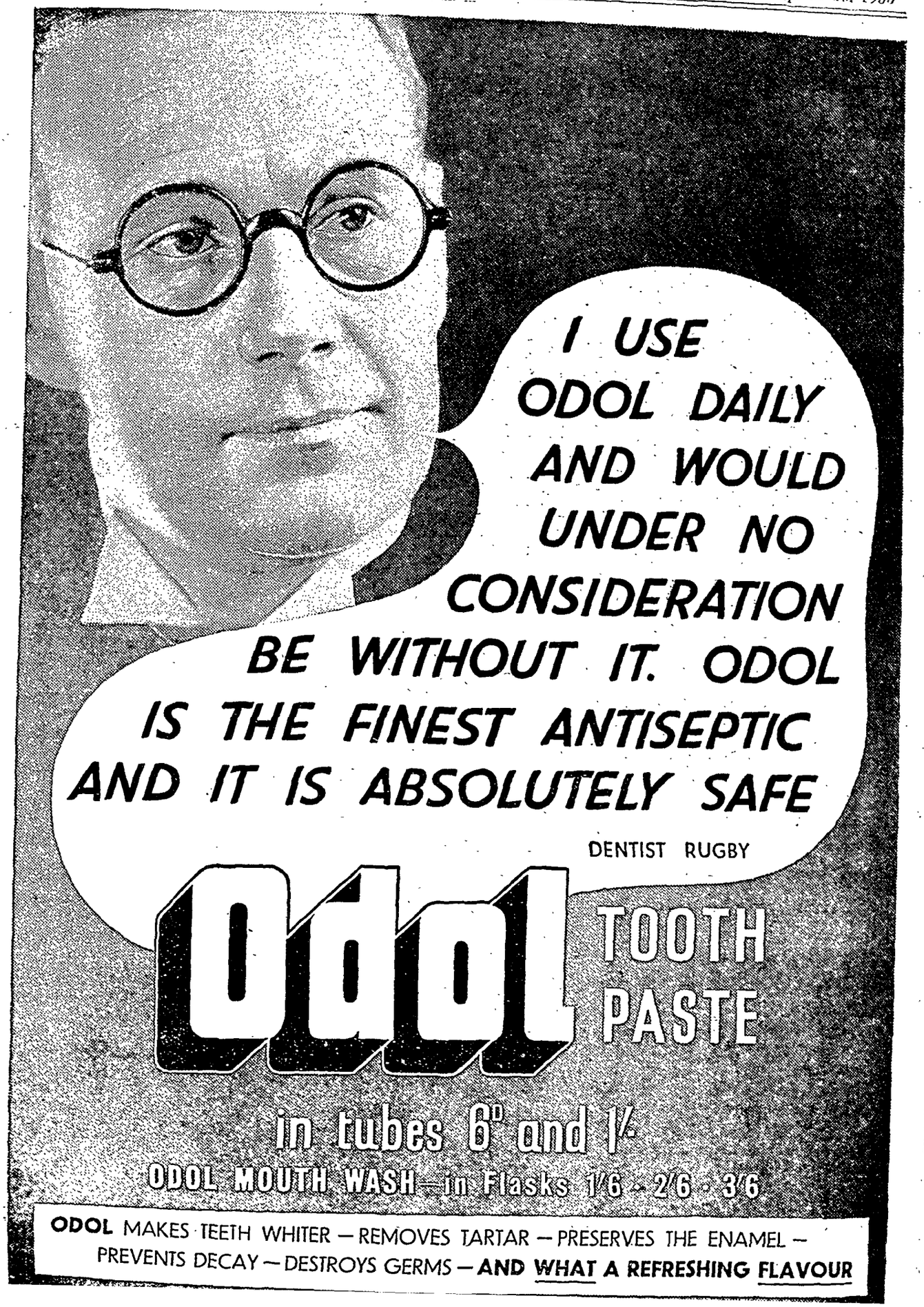
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A Paper
ON
POLIOMYELITIS*
BY

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PHYSICIAN, NATIONAL HOSPITAL, QUEEN SQUARE

A notable advance in knowledge may raise as many questions as it solves, and a period of intensive and fruitful research may at first sight seem to leave us as far as ever from the solution of the problem we are investigating. This might plausibly be said of poliomyelitis.

Few affections of the nervous system have been more closely or successfully studied within the past few years, yet fresh pathological and epidemiological factors appear for elucidation, effective therapy remains as remote as ever, and many of our earlier certitudes have gone by the board. Yet we must necessarily be nearer a grasp of the many problems presented by poliomyelitis, and the present time is appropriate for a review of some recent advances in our knowledge. A comprehensive summary of these is not possible within the limits of my present opportunity, and I propose, therefore, to confine myself to a brief consideration of the question of the specific treatment of the disease in the light of our rapidly changing conception of its nature.

By way of definition we may say that poliomyelitis is one of a small group of infections of the nervous systems due to the action of ultra-microscopic viruses, the morphological identities of which are unknown to us. Other examples of the group are epidemic encephalitis and rabies, and in all three it is the grey matter which is the point of attack, whence these viruses are spoken of as "polioclastic." Of the characteristics they have in common perhaps the most striking are that they multiply only in contact with the living cell, within which their life and activity appear to be very brief, for after a short period they disappear. To this disappearance the name "auto-sterilization" has been applied, and in consequence of it virus diseases may be spoken of as "self-limiting."

CHANGED CONCEPTION OF POLIOMYELITIS

Perhaps the simplest way of indicating the considerable modification that has taken place recently in our conception of poliomyelitis is to give a brief statement of the views generally accepted up to five years ago, and to follow it by a summary of the conception which is now in process of development.

Up to four or five years ago poliomyelitis was generally regarded as an acute specific fever which, in its complete expression, presented three distinct clinical and pathological phases. Clinically, there was an initial and short-lived phase of systemic infection with its constitutional disturbance, then the signs and symptoms of meningeal irritation, and finally those of involvement of the nervous tissue—namely, paralysis. Each phase was thought to have an underlying pathological substratum. A general lymphatic hyperplasia marked the general infection, the invasion of the subarachnoid space was shown by a meningitis and by changes in the cerebro-spinal fluid, while the invasion of the nervous system was signalled by the development of inflammatory lesions in the ventral horns of the cord.

The primary nervous lesion was thus believed to be a meningitis, which spread along blood vessels into the cord, affecting first the interstitial tissue and secondarily the nerve cells. The port of entry of the virus was believed to be the nasopharynx, whence by the olfactory perineural lymphatics the virus reached the subarachnoid space. In this the cerebro-spinal fluid acted as the vehicle for the further distribution of the virus through the nervous system.

Every item of this statement would now be challenged by workers at the problem of poliomyelitis, with the exception of that which regards the nasopharynx as the original port of entry of virus into the body.

Briefly, pathological investigation indicates that the virus reaches the nervous system by the axis cylinders of the olfactory nerve, enters the olfactory bulbs, and is spread thence within the nervous system by axonal channels. It has a special affinity for the nerve cells of the cervical and lumbar enlargements of the cord, within which it appears to multiply most easily. The primary nervous lesion is of the nerve cell, and not of the interstitial tissue. The cerebro-spinal fluid has been found to play no essential part in the carriage of the virus, while the meningeal reaction, the meningeal cellular infiltration, and the pleocytosis in the cerebro-spinal fluid have been found to be the results, and not the precursors, of the direct attack upon the nerve cell by the virus (Hurst, Hurst and Fairbrother).

It is to the study of the experimentally produced disease in the monkey that we owe the bulk of this new information. Such studies have many advantages over the clinico-pathological investigation of the human disease, for the inoculated animal can be destroyed at any stage of the infection, early or late, and the whole sequence of events can thus be observed. In man the initial stages of the disease process are necessarily hidden from us, and we can study only its end-results.

It may be argued that the mode of inoculation of the experimental animal is not comparable with the mode of infection in man, seeing that the former consists in bringing the virus into direct contact with nervous tissue, either by intracerebral or intrasciatic inoculation, whereas in man it appears likely that infection occurs through the olfactory mucosa. It will be remembered, however, that the olfactory nerve terminations lie exposed in this mucosa, and that here a direct contact of virus with nervous tissue is possible in man. Further, Faber and Gebhardt have infected monkeys by this route, and have traced the spread of the virus from the mucosa to its destination in the ventral horn cells.

We may therefore accept the train of events so closely studied in the monkey as reproducing with some fidelity the pathogenesis and progress of the human disease. With the mass of evidence in favour of the view that the carriage of the virus is axonal, and the nerve cell lesion the primary one, I shall not further deal, and we may now return to a clinical consideration of poliomyelitis in the light of these pathological observations.

CLINICAL BEARINGS OF EXPERIMENTAL WORK

It is clear that we are rapidly approaching a conception of poliomyelitis which regards it as primarily and exclusively an infection of nervous tissue, with no initial phase of systemic infection. Indeed, the strongest reason for assuming the presence of general infection has been the lymphatic hyperplasia found post mortem in fatal human cases, for the clinical manifestations of the disease are all readily capable of interpretation as nervous in origin. Hurst and Fairbrother have not found these lymphatic lesions in the experimental animal; in man the virus cannot be detected in them, and it may well prove that their constancy and significance have not been correctly assessed in the past.

A corollary of the pathological observations I have referred to is that the clinical division of poliomyelitis into preparalytic and paralytic stages does not correspond to distinct stages in the underlying pathological process. The development of paralysis does not—as we have assumed—indicate the entry of the virus into the nerve

* Read in opening a discussion in the Section of Neurology and Psychological Medicine at the Annual Meeting of the British Medical Association, Dublin, 1933.

cell or the onset of the attack upon this. It expresses no more than the climax of the action of the virus upon the cell, an action which has already been waxing in intensity for some hours or even days, prior to the appearance of paralysis. In other words, the attack upon the nerve cell has begun before diagnosis is possible, and we have no reason to assume that there is any clinically recognizable stage of the malady in which the nerve cell is intact and free from infection.

In a recently published critical analysis of the view that poliomyelitis is a general infection with secondary involvement of the nervous system, Faber has aptly quoted the clinical description of the opening phase of the disease given by Draper, himself one of the original and most authoritative exponents of the general infection theory. Draper's account is as follows:

"There seems little doubt in the minds of those who have seen much of the earliest hours of the disease that a very definite and characteristic clinical picture presents itself. But it is difficult by descriptive method to transfer an adequate impression of the subtle and striking difference between the onset hours of infantile paralysis and those of any other of the acute infectious illnesses of childhood. To say that the temperature is elevated, often as high as 103° or 104° and that the child is flushed and miserable; that vomiting occurs and that drowsiness supervenes, does not offer sufficiently distinguishing evidence of the special type of infection. Nevertheless, this common symptom-complex is shot through with delicate manifestations that are unmistakably specific, but which must still be viewed as clinical impressions—those helpful though indefinite aids to diagnosis. Now when infantile paralysis becomes epidemic in a locality which has been previously free from its presence, the physicians in that territory soon appreciate this difference from the usual illnesses of children . . . there is a look of mingled apprehension and resentfulness, quite unlike the alert, bright, and shining eye of other fevers. The psychic change responsible for this look finds further expression in a characteristically annoyed shrugging of the shoulder which occurs when the child is touched or simply spoken to. Indeed, there is frequently a snarling whine of resentment which is synchronous with this gesture of discontent . . . In cases of overwhelming infection . . . there are other striking phenomena. The child is restless, breathes rapidly, and seems to be busily and actively resisting some incomprehensible disturbance of its usual comfort. In these instances the irritability and resentful manner are not marked, but the whole organism seems to be composed of tensely drawn wires—a universal overstimulation. This pressor state of the nervous system is so marked that a sort of impulsive ataxic tremor is present in every motion, especially when that motion has intent. . . . It is interesting to recall at this point that the very earliest symptoms in the monkey are not at all unlike those just described, for the animal becomes highly excitable and seems to develop the same state of intense excitability of the entire nervous system. Usually a few cases are met with whose profound stupor masks all other signs and symptoms."

Comparable accounts have been given by Heine, Muller, and many other observers, and they certainly bear out the contention that the opening clinical phase of poliomyelitis is more consonant with a primary nervous involvement than with any theory of systemic infection. It may reasonably be submitted, therefore, that from their onset the symptoms betoken the actual invasion of nervous tissues by the responsible virus.

In elaborating this hypothesis Faber refers to some experiments carried out by Gebhardt and himself, and already mentioned. Having infected a series of monkeys by the intranasal route, an animal was destroyed and its nervous system examined for the presence of virus and that of lesions on each of the succeeding eight days. The virus was found to be successively present in the olfactory bulbs, the hypothalmic region, the medulla, the posterior horn cells, the posterior root ganglia, and the ventral horn cells. He attributes the preparalytic symptoms to the successive presence and action of the virus upon each of these regions. I cannot here follow his argument in detail, but though some of it yet lacks confirmation, at least in outline it is reasonably in accord with the facts of clinical observation, and is perhaps less speculative than the theory of an initial systemic infection.

A further clinical distinction may now be reconsidered—namely, that into *abortive* cases, in which only the symptoms of a supposed systemic infection are present, and *non-paralysed* cases, in which the symptoms of a supposed meningeal involvement occur, but in which recovery ensues without the development of paralysis. Clearly, this distinction ceases to have any meaning, for there are only paralysed cases and non-paralysed cases. The real distinction between the two is that in the latter the virus has been neutralized before it has damaged the ventral horn cells sufficiently to impair their function.

RESPONSE TO SERUM TREATMENT

In summary, then, we may say that the trend of recent work is to show that poliomyelitis is probably from the outset and exclusively an infection of the nervous system; that the evidence hitherto accepted as proving the occurrence of general infection is capable of another interpretation; and that the hypothesis of a primary meningitis which determines and precedes the invasion of the nervous tissue must be abandoned. The preparalytic stage of poliomyelitis is simply that stage of the disease in which the damage to the nerve cells has not yet destroyed them or paralysed their activity. This conception of poliomyelitis may explain much that has been obscure in the response of the disease to serum administration, and it may provide a clue as to the lines upon which the question of treatment may have to be approached.

For it seems clear that this problem of serum treatment is not what we have hitherto supposed it to be. It has been assumed that the preparalytic stage was a brief period during which we might hope to neutralize the virus before it reached and began to attack the nerve cell. There is probably no such period, and all we can hope for is to neutralize virus already in the cell before the latter is damaged beyond repair. The experiments of Flexner and Lewis hold out little hope that this is possible, for they showed that the intrathecal injection of convalescent serum had the power of preventing paralysis or of prolonging the incubation period only if given within twenty-four hours after the inoculation of the virus. Flexner[1] believes that in monkeys the suppression of the virus "is only possible when the immune serum is injected before symptoms of infection arise; once signs of infection are present, the serum is incapable of preventing the ordinary course of the disease from supervening."

There have always been observers who have failed to discover any efficacy in the serum treatment of the human disease, though their observations have been largely ignored by those who hold the opposite view, and on going through the published reports of the twenty-two-year period which has elapsed since Netter first employed convalescent serum certain very interesting and significant features emerge. They are as follows:

(i) The doses employed by the earliest workers were by present standards ludicrously inadequate, yet the results claimed for them have not been surpassed by those of the heavier dosage now in favour. Thus Netter, in 1911, gave from 5 to 15 c.cm. serum, some of his patients receiving but a single dose.

(ii) In most instances the serum employed has been of unmeasured and unknown neutralizing power. It has been assumed that every convalescent serum possessed this power in considerable degree, an assumption we now know to be unwarranted, for the blood of recovered individuals may be of feeble potency in this regard (Shaughnessy, Harmon and Gordon, and others).

(iii) Three methods of administration have been in use—intrathecal, intramuscular, and intravenous. Equally

favourable results have been claimed for all three, yet it is difficult to believe that all three can be equally effective. The earliest possible action of the serum upon the virus is of the very essence of the situation, yet intramuscular injection must involve maximal delay, while intrathecal injection can be little better, since it seems probable that re-absorption into the blood stream is a necessary preliminary to the reaching of the nerve cell. In the light of modern pathological conceptions of poliomyelitis the rational method is intravenous administration. If in fact, then, all these methods are of equal value it is possibly because this value is negligible and the method of administration therefore indifferent.

(iv) Adequate control of the results of treatment has only exceptionally been undertaken. There may be obvious reasons for not withholding serum from any case, yet, nevertheless, the omission to establish controls in this way has rendered a sound assessment of serum treatment impossible, and has left us for twenty years uncertain as to its value.

(v) It is significant that beneficial results of an even more striking character than those claimed for convalescent serum have been advanced by several observers on behalf of Rosenow's anti-streptococcal serum, for the use of which there is no scientific basis. The evidence for these now generally rejected claims is of the same order as that so widely accepted as valid in the case of convalescent serum. In both cases adequate controls are lacking. There is surely a lesion for us in this—namely, that the standards often adopted in evaluating therapeutic methods are of a kind that would not be accepted in any other field of scientific inquiry.

(vi) Finally, and of more positive significance, are two small series of cases treated by Schwarz and by Draper in which an equal number of control cases were observed, to whom serum was not given. In both series the untreated cases fared as well as those given serum, and in Draper's series definitely better.

We may conclude, then, that with the exception of these two series, and of a larger one now to be considered, serum treatment in the past has not been conducted on a basis that makes an assessment of its value possible, and that so far no convincing evidence of its value has been forthcoming.

Last year, however, some definite and reliable information emerged. In 1931 the beginning of an epidemic in New York led to a concerted effort by several observers to make a scientific study of serum treatment. In all, over a thousand cases of poliomyelitis were observed, half being given serum and half not receiving it. The figures are to be seen in the volume entitled *Poliomyelitis*, published at the instance of the International Committee for the Study of Infantile paralysis. I will only cite the conclusions expressed as the result of this experiment:

"A group of over a thousand cases, including those of Aycock and Kramer, diagnosed in the preparalytic stage, with approximately half treated by convalescent serum, shows nothing to indicate the therapeutic value of the serum, either in reducing case fatality or in preventing paralysis. Indeed, the slight differences between the treated and the untreated groups are against the use of serum. Since the same results were shown by three groups of workers it may be concluded that these cases were diagnosed and treated without personal bias. It is fair to say, however, that there is a belief that the percentage of moderately severe cases was a little greater in the treated children in the group studied under the direction of the Academy of Medicine. This number of cases seemed large enough to equalize in each group the individual differences that cannot be exactly measured in clinical medicine" (p. 240).

ASSESSMENT OF WORTH OF CONVALESCENT SERUM

If any still remain unconvinced that serum treatment *as hitherto employed* has proved a broken reed in our hands, there is yet another means by which we may seek to assess its worth. Let us compare it with the other specific treatments that have come into general use and acceptance during our own time. On the one hand we have the treatment of diphtheria and tetanus and the prevention of typhoid, on the other insulin treatment of diabetes and the liver treatment of pernicious anaemia. There are also the treatment of syphilis by the salvarsan compounds and other chemotherapeutic successes of more recent date. What stamps all these is the remarkable rapidity with which they established their efficacy. The exact indications for their use and the quantitative assessment of their actions may have required some years of experience, but their specific value was never long in doubt.

In the convalescent serum treatment of poliomyelitis we have, by way of contrast, a method that has been increasingly used for over twenty years. Belief in its value, never universal, has steadily waned, until it has reached its lowest point in the conclusions just cited. There could scarcely be a more impressive illustration of its inefficacy.

It is difficult to escape the conclusion that Flexner's observations as to the inability of immune serum to influence the course of the experimentally produced disease, unless it be administered before the onset of symptoms of infection, must apply equally to the treatment of the human disease. Park has also expressed the view that once the virus has produced within the nervous system changes sufficient to allow of diagnosis, it is already too late for serum to exert influence upon the course of events. But if, as now appears to be the case, we must regard *all* the symptoms of poliomyelitis, including those of the entire preparalytic stage, as indicating the action of virus upon the nerve cell, then it is always too late to combat infection. This may well be why serum treatment has failed us.

Therapeutic enthusiasm is notoriously proof against hard facts, and we may therefore expect this treatment to be continued by those who already believe in it. But something will have been gained if the lessons and disappointments of the past lead to the more scientific planning and administration of this mode of treatment in the future. We might almost say that convalescent serum has not had a fair trial. Unstandardized serums of unknown potency have been administered in varying dosage by varying routes in different stages of the malady, and control observations have almost uniformly been neglected. It would indeed be surprising if such haphazard methods allowed of any reliable conclusions.

It is known that the blood of most healthy adults possesses virus-neutralizing powers of considerable potency, and it seems clear that the method of choice in the administration of immune serum is the intravenous route. For these reasons Faber has suggested that the testing and standardization of blood transfusion donors in respect of virus-neutralizing powers, and the therapeutic employment of blood transfusion from donors of known potency and appropriate grouping, and in maximal amount, promises to be the most useful method of attack. It has manifest advantages over the use of convalescent serum or of foreign immune serums.

Seeing that the value of such treatment must for the present be regarded as problematical, there can be no sound objection to the making of proper control observations and to the careful selection of cases for treatment upon some consistent basis. Only an unwise publicity and the making of extravagant claims are likely to stand in the way of such a selection during the course of an epidemic. Where these errors have not already been made they can surely be avoided.

In this way the value of immune serum may be given a thorough trial during the next few years if—unhappily—further epidemics of poliomyelitis occur. The commonly adopted method of pooling convalescent serums, without any attempt at their standardization, can no longer be

regarded as an adequate provision for an outbreak of the disease, and the treatment must be put upon the same basis of precise measurements and employment as obtain with other modes of serum treatment. That this may entail technical difficulties is not a reason for continuing the present haphazard methods.

It is as well to look the situation in the face, and to realize that from the very nature of the disease with which we have to deal we cannot be very sanguine about any method of treatment that can come into action only after the nerve cells already harbour the virus and are suffering from its attack. It is for this reason that Flexner's recent suggestion of the production of an active immunity in the child, of the kind achieved in the case of small-pox, is so important, and it is to be hoped that further study may provide us with such a weapon against this most disabling of diseases.

A comprehensive summary of contributions to every aspect of the study of poliomyelitis is to be found in a volume referred to earlier and published by the International Committee for the Study of Infantile Paralysis, under the title of *Poliomyelitis* (Williams and Wilkins Company, Baltimore, 1932). It contains an exhaustive bibliography. A more critical survey has recently appeared from the pen of H. K. Faber in the review *Medicine* (publishers as above) for May, 1933. It is entitled "Acute Poliomyelitis as a Primary Disease of the Central Nervous System: a reconsideration of the pathology, symptomatology, and treatment, based on the hypothesis of axonal propagation of the infective agent."

REFERENCE

[1] *British Medical Journal*, 1933, i, 132.

THE BEARING OF RECENT WORK ON CERTAIN ASPECTS OF POLIOMYELITIS *

BY

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Nothing in recent work has been more important for the understanding of poliomyelitis—and of virus diseases of the nervous system as a whole—than the demonstration by Drs. Fairbrother and Hurst[6] that the infection is conveyed along the axis cylinders. The degree to which this doctrine of axonal transmission of the virus might alter the general conception of poliomyelitis is exemplified in Dr. Walshe's paper (see p. 1197), where he upholds the view that the disease is exclusively nervous. This argument, if carried to the implication that infection without nervous involvement does not commonly occur, would not only alter our general conception of the disease, but would be subversive of many of our ideas of its epidemiology. For to infection without nervous involvement we have attributed the immunity that is widespread among the general population. This immunity is acquired, and it does not depend merely on age, for it varies as regards its age distribution in different communities. To this immunity, in turn, we have attributed the low incidence of poliomyelitis on the population and its incidence on the younger members. Such ideas would have to be radically modified if Dr. Walshe's argument were to prevail.

Personally I do not feel that anything in the recently acquired knowledge justifies such a complete abandonment of our former views. I am convinced that the disease ordinarily consists of a *general* as well as a *nervous* infection, and, further, that in the majority of infected persons the nervous system is not involved.

* Paper read in the Section of Neurology and Psychological Medicine at the Annual Meeting of the British Medical Association, Dublin, July, 1933.

EVIDENCE FAVOURING GENERAL INFECTION

The evidence of general infection seems to me indisputable. The first striking fact is the enlargement of the lymph glands found post mortem in human cases. This has been emphasized by those who have had extensive pathological experience of the acute disease. Burrows,[2] who was resident pathologist at the Johns Hopkins Hospital during an epidemic of poliomyelitis in Baltimore in 1916, described a general lymphoid hyperplasia as the most marked pathological feature of the disease, and in a recent paper he has even argued that poliomyelitis may be more correctly classed with the diseases of the lymphatic system. The structures most affected are the solitary lymph follicles of the intestinal tract, Peyer's patches, and the mesenteric lymph glands, but the peripheral lymph glands may also be involved, and one may also see hyperplasia in the thymus and in the Malpighian corpuscles of the spleen. Smith's report on the 1931 epidemic in New York also stresses the changes in the lymphoid tissue, including the tonsils, thymus, and spleen (134 fatal cases, 81 examined completely). Flexner and Lewis actually demonstrated the presence of the virus in human mesenteric lymph nodes, and others have shown its presence in the mesenteric lymph glands of experimental monkeys, even when the infection of the animal has been by intracerebral inoculation. The virus has not been detected in human blood—a fact which is not surprising in view of the technical difficulties of demonstrating its presence—but Flexner and Lewis, Clarke, Fraser and Amoss, and others have been successful in finding it in the blood of experimental monkeys, following intracerebral inoculation.

A fact which is strongly suggestive of general infection is the development of immune bodies in the blood. It is apparent from many and various findings that a general immunity is developed, and it seems unlikely that any strong blood reaction of this kind would occur if the infection or noxious substances were confined to the nervous system and did not enter the blood itself. There are, moreover, occasional cases encountered clinically, which seem inexplicable by any other theory than that of general infection. These are instances in which the onset of poliomyelitis has followed an injury, and in which the paralysis has been maximal in the injured limb. I have seen one in which paralysis of the left leg in a young man came on seven days after an injury of the left buttock sustained at football. A few years ago (1926), at a meeting of the Association of Physicians, Dr. Abercrombie[1] described three cases in which children had been attacked by acute poliomyelitis after fractures. The intervals between the fracture and the onset of paralysis were respectively eleven, twelve, and about twenty days, and in each case the fractured limb sustained an extensive and severe paralysis, whereas the other limbs recovered. He quoted similar cases described by Charcot. In the subsequent discussion on that paper Professor Fraser referred to similar cases observed during an epidemic in New York. The injuries in these cases were not compound, and, in the light of to-day's knowledge, the only explanation of the determination of the paralysis to the injured limb seems to be that an infection circulating in the blood obtained entrance to a damaged nerve at the site of the injury, and that consequently the maximal dose of virus was transmitted to the corresponding portion of the spinal cord. It is a fair argument that in the absence of trauma some, at least, of these patients would have escaped nervous involvement.

RELATION BETWEEN GENERAL AND NERVOUS INFECTION

General infection undoubtedly occurs; but what is its relation to the all-important nervous infection, and does it influence the early symptoms?

If invasion of the nervous system usually takes place directly from the nasopharynx by way of the olfactory nerves we can no longer regard the nervous infection as secondary to the general, but as more or less concurrent with it. The time relation between the two probably varies somewhat from case to case, for once the virus becomes lodged in the nasopharynx several varieties or combinations of infection are possible. General blood infection may result and the nervous system not be attacked. Or again, if the nervous system is attacked (by way of the olfactory nerves), blood infection (by absorption from the pharynx or otherwise) may occur at the same time, or, presumably, invasion of the blood stream may be somewhat earlier, or later, than invasion of the nervous system. Finally, there may be cases, such as Dr. Walshe has postulated, in which the infection invades the nervous system but not the blood stream; general infection then probably occurs secondarily and late. This time relation between the general and nervous invasions is likely to have an important influence on the course and outcome of any individual case. If the general infection anticipates the nervous, the earlier development of immune substances in the blood will afford protection to the nervous system at an earlier stage of its invasion; but if, on the contrary, the general infection succeeds the nervous, or is actually secondary to it, then widespread havoc is likely to be wrought in the nervous system before immunity is developed.

Dr. Walshe maintains that the early symptoms of poliomyelitis—the preparalytic symptoms—are, from the beginning, the result of infection of the nervous system rather than of a general infection. In view of the indefinite character of these early symptoms such a distinction seems to me theoretical and largely artificial. Fever, headache, nausea, constipation or diarrhoea, irritability, or apathy and prostration form a complex of symptoms surely common enough with *general* infections. In a sense all symptoms are nervous, and the point at issue is whether, in the case of poliomyelitis, they are produced by actual infection of the nervous system or by the toxic action on the nervous system of a general infection. Obviously we cannot decide; both factors are at work, one or the other predominating according to the time relation I have spoken of, and in the present state of our knowledge it would be idle with such indefinite guidance to try to discriminate absolutely between their effects. If we take the most constant and definite of the symptoms as a criterion, the degree of fever seen in poliomyelitis is uncommon in encephalitis but common in general infections. It would thus be rash to deny to the general infection at least the major influence in producing the earliest symptoms.

CLINICAL FORMS AND THEIR ORIGIN

Our clinical description of poliomyelitis has become trammelled by a great deal of matter that is hypothetical and actually misleading, and I think the results of recent work bring us an opportunity of simplifying it.

All our textbooks of medicine or of nervous diseases, even the very newest, describe six or seven clinical types of the disease conceived on an anatomical basis—a spinal, a brain-stem, a cerebral, a cerebellar, a meningeal type, and, of course, an abortive form. We would do a good service to medicine by reducing this array to spinal and brain-stem forms, and abortive cases. The meningeal type died, as Dr. Walshe has mentioned, when Hurst showed that there was no primary meningeal infection, and we realized that the signs which had been called meningeal were, in fact, nervous. The description of a cerebral type has been a source of great confusion. Many have cast doubts on the existence of cerebral cases of the poliomyelitis infection, but it continues to hold its place in descriptive medicine and to provide a "funk-hole" for the beaten diagnostician: there was actually a period last year during which the Registrar-General's weekly return of infectious disease for England and Wales showed a greater number of cases of "polioencephalitis" than of poliomyelitis. Personally I have seen, in their acute stage, several cases of infantile encephalitis, all of which had been called polioencephalitis: none of them had clinical features or cerebrospinal fluid changes in any way similar to those found in poliomyelitis, so that there was no justification for attributing them to the same kind of infection. Still[1] long ago pointed out that these cases of encephalitis in children had not the seasonal incidence of poliomyelitis, and, finally, Hurst and Fairbrother have shown that even when it is injected into the brain the virus of poliomyelitis does not cause hemiplegia or other "cerebral" signs, but quickly travels down the descending tracts to attack the anterior horn cells of the spinal cord, and that, indeed, the cells of the cerebrum seem to have a particular immunity or resistance against this infection. Hence, even with cerebral infection, a spinal, and not a cerebral, form of the disease is produced. Let us therefore abandon the term "polioencephalitis" and the description of "cerebral" types of poliomyelitis, and let us describe and study the encephalitis of children without confusion with poliomyelitis. For the description of a cerebellar form there is little more justification in experimental work. There are doubtless various kinds of "cerebellitis," and no case could be accepted as due to the infection we are concerned with unless it were associated during the acute stage with lower motor neurone paralysis. I am not aware that such cases have been described.

SPINAL AND BRAIN-STEM FORMS

We are left then with spinal and brain-stem forms, and abortive cases. Hurst and Fairbrother's work has shown us that the spinal form is the usual result when the infection is primarily cerebral, and from results obtained by them and by others it seems likely, as Dr. Walshe has emphasized, that in most human cases the infection of the nervous system occurs by way of the olfactory nerves. In rare cases, as in those associated with fracture, to which I have referred, access of the infection to the spinal cord is apparently obtained along other nerves, and we should not shut our eyes to the possibility that the infection may, in some cases, be transmitted to the cord along nervous paths from the bowel. This, of course, is no new supposition, but it is not without support from recent findings, for Smith, in his report on the 1931 epidemic in New York, refers to striking lesions in the Peyer's patches of the ileum, which may attain a size and degree of ulceration equal to that noted in mild forms of typhoid fever! At such sites of ulceration the infection would have free entrance to nerve branches, along with which it would be transmitted to the sympathetic ganglia and thence to the spinal cord. We would, however, not be justified in postulating such a path of infection except in cases in which symptoms of intestinal disturbance preceded by several days the onset of nervous symptoms, and the maximal nervous lesion subsequently involved the lower dorsal region of the cord.

The vast majority of cases are of the spinal form: when the infection falls with selective severity on the brain-stem some unusual factor is evidently at work. There is considerable evidence that this factor is the entry of the virus into the nervous system by an unusual path and one which conducts it directly to the medulla. I refer to infection from the bed of the tonsil by way of the ninth (or possibly tenth) cranial nerve, and I think it is likely that in all cases where the incidence of the disease is exclusively or predominantly on brain-stem

structures infection has occurred by this route. Scott Brown[4] last year described three fatal cases of the bulbar form, in two of which the disease followed tonsillectomy. In one case the interval between the operation and the first definite signs of the disease was eleven days, and in the other the interval was fifteen days. Ayer,[3] in a recent address, has referred to nine cases of the bulbar type occurring at intervals of five to ten days after tonsillectomy. Aycock and Luther[2] in 1929 described sixteen cases of poliomyelitis in which the onset occurred between the seventh and sixteenth days after tonsillectomy, and in eleven of these the disease was of the bulbar type. In all these cases there was an unprotected surface, and presumably access for the infection to injured nerves; but in those bulbar cases in which there has been no tonsillectomy the similarity of the symptoms suggests that the route of infection has been the same. This argument by analogy is supported by the pathological description of Goodpasture, who examined a case of this kind histologically with the express purpose of trying to determine the portal of entry of the infection, and was convinced from his findings that the path had lain along the ninth or tenth cranial nerve, or both.

To summarize: I would recognize only spinal and brain-stem forms, and abortive cases. The ordinary spinal case results from infection by way of the olfactory nerves, but when there is a severe focal attack on one part of the spinal cord it is possible that the infection has reached the cord by another route, and when the brunt of the infection falls upon the brain-stem the virus has probably been transmitted to it from the tonsillar region by the ninth (or tenth) cranial nerve.

IMMUNE THERAPY

In the realm of therapeutics the whole of the period under review has been dominated by the introduction of convalescent serum, and it is impossible to avoid reference to it. Dr. Walshe's conclusion in regard to its value is unfavourable. It is important that we should recognize at the outset the limitations of serum—the most that it could do would be to arrest the disease, not to make good the damage already done to the nervous system, and nothing is to be expected from it unless it is administered at a very early stage. Unfortunately, great expectations were aroused when it was first used in epidemics, and I believe this happened because at the same time cases began to be recognized in the preparalytic stage. Many cases so recognized were mild or abortive, and would never have shown paralysis, but as all early cases were treated with serum, credit was given to the serum for the abortion or cure of these cases. Controlled observations, as Dr. Walshe has told us, have not established its merit, and it is apparent that, as it was used during those observations, serum treatment was of no value. Yet all our theoretical knowledge is in support of the use of serum. In ordinary circumstances the disease, we suppose, is arrested by the development of an adequate concentration of immune antibodies in the patient's blood.

I may digress slightly here to point out that this is the only sense in which the infection can be described as "self-limiting." It is not self-limiting outside the body. Spinal cord tissue preserved in glycerin has been found still infective after long periods—in one instance after eight years—while in the test tube also, adsorbed to the globoid bodies and probably in contact with living cells, the virus persists for a very long time. More puzzling is the demonstration of it in the cord of a human subject dying three months after the active phase of the disease has ended.

The development of immunity is the only natural arresting mechanism of which we have any knowledge, and it is a rational procedure to endeavour to provide the patient with a sufficiency of immune bodies at the earliest moment. Even though the nervous system be invaded early, the recent experiments of Faber and Gebhardt have shown that there is an interval of a day or two between the invasion of the brain and the attack on the anterior horn cells. It is not justifiable to conclude that, because serum does not check the disease in the very susceptible monkey which has received a large intracerebral inoculation, it cannot check it in the much less susceptible human subject who has received a much smaller dose.

A concentrated serum is greatly to be desired—and Dr. Fairbrother has begun the solution of this problem—but in its absence we must give larger quantities of serum of proved immunity or, what is equivalent, transfuse whole blood from an immune donor. Since it is known that immunity is common among the general population, such donors should not be difficult to find, and the testing of the blood of the usual professional blood donors against poliomyelitis should be undertaken. If serum is available it should be given intravenously. Some of Hurst's[7] work and other experimental results of Flexner and Amoss provide reasons against the injection of any foreign substance into the theca during the early stages of poliomyelitis, and in any case, as the nervous system is not nourished from the cerebro-spinal fluid it is doubtful whether direct absorption from the theca into the central nervous system is possible. The circumstances are not at all comparable to those of meningococcal meningitis, for there the infection is on the surface, and serum injected intrathecally can be brought into contact with it. The conditions are somewhat more comparable to those which obtain in tetanus, but there seems more chance of intravenous serum restraining or arresting the disease in poliomyelitis than in tetanus. More than arrest we cannot expect.

Even more to be desired than a concentrated serum is a means of producing immunity. The production of an active immunity, involving as it does the introduction of infective material into the body, is likely to be precluded for a long time to come by the risks attending it, but it seems probable that means of providing a temporary passive immunity may be found. In one epidemic use has already been made by Brebner of the injection of parents' blood for this purpose, and not one of 1,300 children so treated contracted the infection during the epidemic. Such a result cannot provide conclusive evidence of the protective power of the means employed, but the facts are encouraging, and further trial of the same simple means will be made. Another probable development in the future is a means of recognizing the susceptible members of our population, on the lines of the Schick and Dick tests for diphtheria and scarlet fever, since such a test would greatly simplify the problem of immunizing the community.

It is apparent that against a disease that may irrevocably paralyse in the night without preliminary symptoms or other warning—a disease the essence of whose attack is often surprise—no antivirus or any therapy, however efficacious, can provide an adequate defence, and while such therapy would save many lives and a still greater number of limbs, our only hope of real protection against poliomyelitis lies in the attainment of a means of adequate and lasting immunity.

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A METHOD OF CLOSED ANAESTHESIA

BY

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The method of inhalation anaesthesia which is in almost universal use is termed the "open method," so called because the *patient is free to expire into the open air.* In contradistinction to this is the "closed method," in which the patient's expirations are collected and breathed again. Clover's inhaler constituted an attempt to utilize the fact that anaesthetic agents are exhaled unchanged. About eighteen years ago D. E. Jackson first made use of the well-known chemical fact that sodium and calcium hydrate (soda-lime) would readily and rapidly absorb carbon dioxide. The application of this principle to anaesthesia makes the closed method a real possibility; for expirations containing anaesthetic agent unchanged plus carbon dioxide can be collected, cleansed of carbon dioxide, and used again.

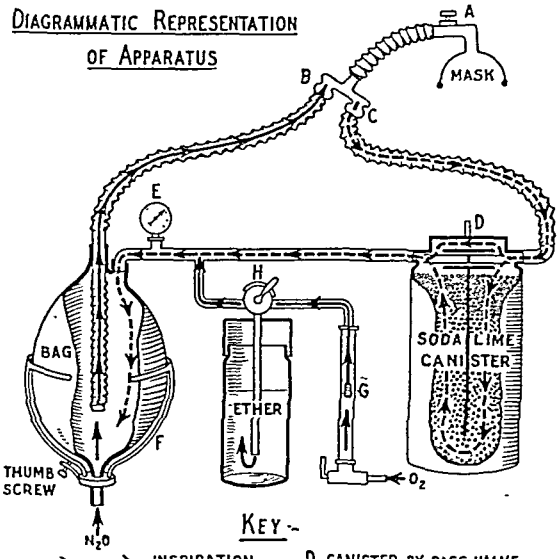
The apparatus illustrated here was constructed in an *endeavour to bring the principle of carbon dioxide absorption by* soda-lime into the realm of practical anaesthetics. The reasons which prompted this work were: economy of use, more exact regulation and control, and a greater freedom from the possibility of explosions. It must, of course, be used in a closed system. Its practical application depends on four facts:

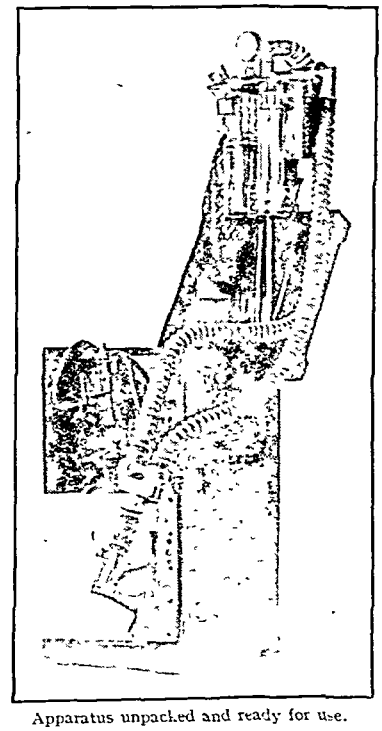
1. Anaesthetic agents are excreted by the lungs almost completely and in exactly the same form as that in which they are absorbed.
2. Carbon dioxide is absorbed by soda-lime.
3. Once anaesthetic equilibrium has been reached the patient's metabolic rate remains a practical constant, and consequently his oxygen demand will remain constant.
4. The only remaining variable—the depth of anaesthesia—depends on the partial pressure of the anaesthetic agent in alveolar air.

In a closed method of anaesthesia, if one is feeding into the apparatus just sufficient oxygen to satisfy the demands of the patient's metabolism, then with each unit respiratory effort this oxygen is completely used, and is excreted with each expiratory effort as carbon dioxide, to be completely absorbed by the soda-lime. In effect, the pressures of these two substances balance themselves out. The pressure in the apparatus can therefore be taken as an accurate measure of the pressure of the anaesthetic agent in the system. But in a closed system the pressure is a direct measure of the partial pressure in the alveolar air, so that the pressure as read on the manometer becomes a numerical measure of the depth of anaesthesia. Once anaesthetic equilibrium has been obtained at the depth of anaesthesia required, then, if means can be adopted to maintain this pressure constant, the depth of anaesthesia cannot alter.

THE APPARATUS

A two-phase machine is used. Expiratory gases pass from the mask (or endotracheal tube) through the expiratory valve to the canister, which contains soda-lime, and thence to the upper end of the reservoir, a one-and-a-half-gallon rubber bag. Inspiration is made from the bottom of the bag through the inspiratory valve to the mask. A bypass valve, set on the canister, allows the carbon dioxide of the expirations to be absorbed by soda-lime, or allows the carbon dioxide to be retained in the system should the physiological condition of the patient warrant it. This also allows the canister to be changed during the course of an anaesthetic. Nitrous oxide or ethylene, from a source of supply fitted with a reducing valve, enters the reservoir at the bottom of the bag. Its rate of flow is regulated by a system of levers on the bag, while a thumb-screw on this lever system allows the pressure to be adjusted to within 1/2 mm. Hg. A manometer provides a means of ascertaining the pressure. The oxygen from a source of supply fitted with a reducing valve is regulated by flow-meter control. It enters the bag at its upper end at such a point as to meet the expiratory flow after this has left the soda-lime canister. An ether reservoir is set between the flow-meter and the bag. The in-coming oxygen can be passed over, or through, ether, which is thus carried





Apparatus unpacked and ready for use.

into the apparatus. In a closed system all the ether fed in is retained, and it is essential that none should be inadvertently siphoned into the system. The valve guarding the ether reservoir opens or closes both the entrance and the exit to the reservoir synchronously. With the valve in the position to " bypass " the ether reservoir, no ether can possibly leave this reservoir. A common breathing-tube attaches the machine to the mask: it is as short as is mechanically convenient, in order to reduce dead space to a minimum, and carries a Magill expiratory valve.

METHOD OF USE

With the Magill expiratory valve open and the canister valve bypassing the soda-lime, nitrous oxide and then oxygen is fed in in the manner of an ordinary induction. As soon as is convenient an airway is inserted, and the mask accurately adjusted and fitted in position with Clausen's harness. When all the nitrogen has presumably been eliminated the system is closed by shutting the Magill expiratory valve tightly, and the canister valve is moved across to bring into play the carbon dioxide absorbing properties of the soda-lime. It is of the utmost importance to eliminate the nitrogen before closing the system, and this is usually achieved in about twenty expirations with the Magill expiratory valve open. The oxygen intake is now accurately adjusted to the metabolic rate of the patient. Once adjusted it does not alter, and so needs no further attention. The carbon dioxide is meanwhile being efficiently and completely absorbed by the soda-lime. Nothing now remains but to regulate the depth of anaesthesia. The pressure is gradually increased by means of the thumb-screw until the required depth has been reached. This valve is now noted on the manometer for future reference. The lever system can from this time on be relied upon automatically to maintain the predetermined pressure constant. In this manner —even in the presence of a slight leak, for instance, between the mask and the patient's face—the lever system will accurately maintain the predetermined depth of anaesthesia at a constant. Should relaxation be desired, ether is added until the required degree of relaxation has been reached, when the ether is bypassed. Because this ether is retained in the closed system the degree of relaxation will not alter. To lighten the degree of anaesthesia the Magill expiratory valve is opened and the thumb-screw adjusted to the new reduced pressure. When anaesthetic equilibrium has been reached the machine is absolutely self-regulating for the following reasons:

1. The oxygen supply is a fixed value.
2. The carbon dioxide is all being efficiently excreted.
3. The partial pressure of the anaesthetic agent in the alveolar air is being maintained at a constant pressure.

OBSERVATIONS DURING USE

Cost of Materials

This is reduced to an amazing degree. For induction, and until the nitrogen has been eliminated, about three gallons of nitrous oxide are used ; and when the machine has been closed the only fresh nitrous oxide required is that necessary to make up for the slight leakage which may occur. I have used as little as four gallons of nitrous oxide for an anaesthesia lasting for one and a quarter hours. Normal oxygen consumption is 5 to 6 c.cm. per kilo of body weight per minute, which is equivalent to 300 to 500 c.cm. per minute for a man from 10 to 13 stone in weight. Should the metabolic rate be high, more oxygen will be required. With this excessive consumption of oxygen there is a correspondingly excessive excretion of carbon dioxide, and consequently the canister charge of soda-lime is more rapidly depleted. A charge of soda-lime is not used for more than five anaesthetic hours, although it is capable of lasting for a longer period than this. A depleted canister charge shows itself clinically by cyanosis, hyperpnoea, and a rise of blood pressure, with, finally, a sharp fall of blood pressure and a failing circulation. This can occur insidiously. Should it take place during the course of an anaesthesia with this apparatus, by opening the expiratory valve on the mask and turning the canister valve to rebreathe, the anaesthesia can be completed as an open anaesthesia, or, should one so desire, the canister can be removed and recharged.

A difficulty met with was the presence of soda-lime dust. This dust is slightly alkaline in reaction, and is irritating to the skin and the mucous membrane of the respiratory tract. It presents a difficulty during induction, for it produces a troublesome cough. It was only when Siebe Gorman's soda-lime was used that this difficulty was completely eliminated. This soda-lime is slightly harder than the ordinary trade samples, and so has less tendency to pulverize. To make quite sure that no dust is present a blast of gas is blown through the machine immediately before use. The cost of 1 lb. of Siebe Gorman's soda-lime, which charge will last for five anaesthetic hours, is 1s. 6d.

The amount of ether used, even when a great degree of relaxation is required, is correspondingly small. Five ounces of ether for an anaesthesia lasting for one hour would be a fair estimate.

Pre-heating of Gases

The chemical action of carbon dioxide on soda-lime generates heat. If pure carbon dioxide be run through the canister a temperature of up to 100° C. is generated. Consequently, this is a practice not to be recommended. The maximum temperature which the amount of carbon dioxide in expired air has produced is 40° C. in the canister, 30° C. in the mask, and 32° C. in the bag. This chemical action, then, is of value in pre-heating the gases to be inspired, and it would seem that, except when pure carbon dioxide is used over an excessive period of time, this pre-heating is of value and does not err on the side of being excessive.

ANOXAEMIA AND POSSIBLE EXPLOSIONS

In the event of anoxaemia occurring the canister valve is turned to the position of " rebreathe " and the oxygen supply is increased. In this manner the carbon dioxide as well as the oxygen content of the system is built up. A possible danger lies in the production of an anoxaemia of the anoxic type, due to the lack of carbon dioxide. The excessive excretion of carbon dioxide by the soda-lime can, especially in very toxic patients, produce an anoxaemia in the presence of a normal supply of oxygen. This is due to the fact that in the presence of a lowered blood carbon dioxide content, oxyhaemoglobin gives off its oxygen with difficulty. The use of the canister bypass valve will correct an error in this direction.

To investigate the question of smell and combustibility ethylene was used, since, in addition to having a foul and penetrating odour, it is very explosive. After care had been taken to render the circuit airtight the patient was moved to the theatre. With a large bladder syringe samples of the theatre air were collected from round and under the head of the operating table. These were then transferred to small children's rubber balloons. Twenty samples were collected at various times and were fired with a hot electric spark in the open air as soon as possible after collection. None of these samples exploded. It is obvious that the results depend on the airtightness of the mask, but then the success of this form of anaesthesia depends on this same factor, and on these results it must be assumed that the apparatus was as airtight as possible. In the face of this series of experiments it would seem that such a method offers a large measure of protection from explosion.

Bacteriological Contamination

An obvious objection to any closed method of anaesthesia is the possibility of bacterial contamination. In the investigation of this problem the mask and common breathing tube were not washed or investigated bacteriologically.

In each of the four series of experiments the bag was washed out with 20 c.cm. of sterile broth solution. Then 0·25 to 0·5 c.cm. of this was plated on blood agar and incubated for three days. The broth washing was also incubated and examined. Five cases taken at random in the out patient department were anaesthetized in turn with the ordinary mask and bag, with the valve at "rebreathe." The outlet was plugged between cases with sterile cotton wool. We then had in the bag a perfect mixture of the expirations of these five patients. On examination of the agar plates and broth air borne organisms were present in both, but no pathological organisms were found.

Next, using the apparatus described above, a case was anaesthetized with the canister in circuit throughout, and no ether was used. The object was to ascertain to what extent the canister acted as a filter. This canister is equivalent to a tube 9 inches long with a calibre of 3 square inches. It is packed with soda lime granules, which have an alkaline reaction. It was anticipated that all bacteria would be caught or destroyed by such a filter, the more so because the gas flow through the canister is in one direction only. After an anaesthesia of one hour the bag was treated as above. On examination of the agar plates and broth, air borne organisms were present in both, but no pathological organisms were found.

The above experiment was then repeated, using the bypass valve at frequent intervals. This had the effect of abolishing at frequent intervals the filtering action of the canister. Again the same results were obtained.

These two experiments were repeated, and, during the anaesthetic, ether was used with similar results.

Dr. Elworthy reports on the series as follows:

> The total number of organisms found was very small. Pathological organisms from the mouth, throat, etc., were not seen. Organisms normally found in dust were alone noted. (These may have been in the bag previous to the anaesthetic.) The broth washings gave similar results.

This series of findings suggests that pathological organisms, if present, do not reach the bag, and, as the apparatus is a two phase machine, cannot therefore be inspired. It would, in fact, indicate the safety of the apparatus from a bacteriological point of view. The possible source of infection lies in the common breathing tube and mask, which, as in ordinary routine, can be removed easily and washed with an antiseptic solution. It would thus seem that this system of anaesthesia is, from the point of view of bacterial contamination, as safe as any other method now in use.

Conclusions

I have used this apparatus in its various modifications for a period of two years at the West London Hospital. It can be used for all closed methods of anaesthesia, including closed ether. With the canister valve by passing the soda lime and the Magill expiratory valve open, it can be used for all open methods of anaesthesia. It can also be employed in the manner of a Shipway apparatus.

To summarize briefly, the features of this apparatus are:

1. The bypass valve on the canister system, which allows carbon dioxide to be retained when the physiological condition of the patient warrants it. (This also allows the canister to be charged during the course of anaesthesia.)
2. The cost and weight of anaesthetic agents are reduced to very small proportions, as are also the odour of anaesthetic agents and possibility of explosions.
3. Bacterial contamination from patient to patient is not a real danger.
4. As a method of anaesthesia it is physiologically correct in principle and flexible of adjustment.
5. The apparatus enables one to use that very excellent anaesthetic agent ethylene, with a minimum of discomfort, whether this be due to anxiety on the score of explosion or on account of the delicate and susceptible olfactory organs of the normal theatre and surgical staff.

I wish to express my keen appreciation of the willing assistance afforded to me by Dr. R. R. Elworthy, O.B.E., and the staff of the pathological laboratory of the West London Hospital. This apparatus was assembled in its present form by A. Charles King, Ltd., 34 Devonshire Street, W.C.

PROTECTIVE GOGGLES FOR MOUNTAINEERING AND INDUSTRY*

BY

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There is need for a mountaineering and industrial goggle which, while affording protection from a scientific point of view, also fulfils certain psychological and physiological requirements.

In mountaineering of the more ambitious type the tint of the glass has, at very high altitudes, a pronounced effect on the psychology—a fact which has hitherto been overlooked, and yet which may make all the difference between success and failure. The protection against ultra violet light must be as complete as is possible and compatible with difficult and dangerous climbing in foggy conditions. A compromise must thus be attempted between what is scientifically the best protective glass and what is, from the practical point of view, the glass giving the best vision for climbing. It may be mentioned here that snow blindness, which in certain situations is a matter of life and death, is more likely to supervene in conditions of mist and fog than in bright sunlight: for the fog, or white darkness, due to myriads of ice particles in the air, reduces the sense of perspective and stereoscopic vision, thus increasing the difficulties under which the eyes are used. Again, the field of vision must be the fullest possible in order to eliminate any strained attitude of the head when watching the ground near the feet and to avoid the need of frequent head movements. Finally, in both mountaineering and industrial goggles, the cost of production must be reasonable.

With these facts in view an investigation was carried out, with the assistance of Messrs. Theodore Hamblin, Ltd., to provide the Everest Climbing Expedition with goggles conforming as nearly as possible to the above criteria—an investigation which also resulted in the evolution of an industrial goggle which may be adapted to any type of occupation. Not the least of the difficulties encountered in the investigation was the fact that a glass affording the best protection was either too depressing to the mentality or too expensive in production.

Protective Measures at Present Used

The Eskimos, who, despite the fact that they travel only comparatively short distances and take shelter when conditions are unfavourable, are nevertheless subject to snow blindness, use slotted wooden spectacles. These do not afford absolute protection. The Tibetans employ "tourmaline," a semi precious stone, which blocks

* Paper read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Dublin, 1933. (For report under Sectional Proceedings see *Journal*, August 19th, p. 347.)

polarized light. Unfortunately, it is extremely difficult to obtain even a small portion of this material which does not contain a flaw. Various substances transmit very slight amounts of ultra-violet light. Some solutions, such as peptone and amino-benzoic acid, act as absorbents, but have several obvious drawbacks in their use to protect the eyes—goggles incorporating such solutions would be fragile and impracticably heavy. Tinted glass of the right colour will afford protection, and in this connexion should be mentioned Crookes's glass, fieuzal glass, and the various red, amber, and green tinted glasses.

It has also been found that thin sheets of various metals, while permitting of useful vision through them, prevent, mainly by reflection, the passage of ultra-violet light. Such metals are gold, platinum, magnalium (an alloy of magnesium and aluminium), and silver. The first two form the basis of the "Imre" glass and welders' glass. When such glasses are held under a light it will be seen that they form an effective mirror, though good vision may be obtained when looking directly through them. Objects are coloured faintly blue by platinum and faintly green by gold films. I have been unable to obtain specimens of magnalium for investigation. Its physical properties prevent it being easily handled, though it is said to transmit less ultra-violet light than the other metals mentioned. Both gold and platinum are expensive, and, moreover, are at the moment difficult to obtain. The deposition of a gold film requires a very high voltage with suitable amperage, necessitating special apparatus. Gold leaf, such as is used in gilding, was tried in several thicknesses, but was found to have too many pinholes and defects to form an adequate protection. Having in mind that a suitable metallic film will afford protection against other harmful rays—for example, the infra-red rays—encountered in industry, and realizing that before any protective goggles could be of practical utility cheapness must be a necessity, I turned my attention to silver films. A silver film can be easily and cheaply deposited upon glass, while its thickness is capable of regulation.

PRESENT INVESTIGATION

As a preliminary, instantaneous photographs of a naked carbon arc were taken at a distance of six feet with the various glasses or tints to be examined in the aperture of the camera. The lens of the camera had been previously removed, since the glass of the lens does, of itself, prevent the passage of some ultra-violet light. The carbon arc was chosen for these experiments because, of all easily obtainable arcs, its spectrum approximates most closely to that of sunlight, and because the emission of ultra-violet light is maintained at a steady level. The photographs merely recorded the total transmission of actinic light, and gave no indication as to which part of the spectrum was being transmitted. (The above procedure would be a simple method of checking the visual usefulness of a batch of specimens of a glass whose characteristics were already known from more detailed analysis.)

Starting with these findings, certain glasses were chosen as being best suitable for the purpose of the investigation, and more detailed analysis of the spectral transmission was made. The glasses analysed were of two kinds: (*a*) *laminated*, with a coloured material—or with silver—between the laminae (except in one control, which had two plates of plain glass to represent lamination, with no material between); and (*b*) one *non-laminated* glass. The former type included "salvoc orange," "salvoc yellow,"* laminated silver, and laminated clear glass. The non-laminated glass was from a Swiss mountaineering goggle, green in colour. The specimens, with one exception, were examined photometrically in the ultra-violet, visible, and infra-red regions of the spectrum. The readings in the first two were obtained by a Judd Lewis sector photometer in alignment with a Hilger quartz spectrograph. In each case correction was made for reflection. The infra-red region was explored by a spectrometer fitted with a fluorite prism and thermopile in circuit with a Broca galvanometer, the specimen being placed immediately in front of the collimator slit. The thermopile used was 20 × 1·5 mm. The ratios of the deflections obtained with the specimen in the beam, and the beam clear (the latter being taken as 100), were used to plot the points in the making of a graph. The readings where the visible and the infra-red regions meet did not exhibit such continuity as could be wished. This was due to the change over from one method of analysis to another, and to the energy at 6,000 Angström units being too small to be readily measured by the infra-red spectrometer. The readings by the optical method are consequently more reliable.

The following are comments on the results obtained by this method of analysis:

Laminated Silver Glass.—Omitting the doubtful readings at 6,000 A.U., the optical and infra-red curves harmonized very well.

Swiss Green Glass.—At 6,000 A.U., the transmission of visible light being 38 per cent. and the infra-red 43 per cent., agreed fairly well. The decreased transmission of infra-red at 7,000 A.U. was probably an expression of the high absorptive properties of the glass for deep red rays.

Salvoc Orange.—Disregarding the doubtful infra-red figure for 6,000 A.U., the optical and infra-red curves met quite well, transmission being 80 per cent. at 6,080 A.U. and 84 per cent. at 7,000 A.U.

Salvoc Yellow.—As in the above case, with 89 per cent. at 6,050 A.U. and 91 per cent. at 7,000 A.U. the curves showed fair continuation.

Salvoc yellow and silver combination was also examined by the National Physical Laboratory.

Examination of the absorption curves of the above materials showed that salvoc yellow, which was subsequently chosen for the Everest goggle, gave the maximum protection against ultra-violet light compatible with adequate transmission of light in the visible region of the spectrum.

For purposes of this paper absorption curves are shown in two graphs. Fig. 1 shows transmission in the visible and ultra-violet regions by (1) Crookes's A2, (2) Crookes's B2, (3) green (Swiss mountaineering) glass, and (4) Everest glass ("salvoc yellow"). Fig. 2 shows transmission in the infra-red region by the industrial glass (salvoc yellow and laminated silver) referred to later in the text.

DETAILS OF THE EVEREST GOGGLE

Lightness is essential in mountaineering, especially in the final stages of a high ascent. Consequently the glass, which is of the salvoc yellow type, is held in a narrow frame of aluminium, while the body of each "eye-cup" is formed of waterproof material stretched on a spring frame made of wire. This wire frame is of a triangular form, only attached at its apex to the nasal part of the aluminium frame, and thus permitting comfortable adjustment to varying facial contours (see Fig. 3). The goggles are held in position by an elastic band bearing an adjusting device passing backwards to a point just behind the back of the ear. At this point the band becomes double, one limb passing below the external occipital protuberance and the other slightly upwards to the level of the lambda. This arrangement prevents any possibility of slipping, and enables the goggles to be put up on the forehead when under shelter. The essential point of this

* "Salvoc orange" and "salvoc yellow" are the trade names given to salvoc non-splintering safety glass. In these glasses the central lamina is composed of a celluloid-like material which has been coloured yellow (or orange) in order to absorb in different degrees the unwanted rays from certain portions of the spectrum.

method of attachment is entirely new, in that the elastic springs from the goggles on the level of the glass, and not, as is usual, from the part of the "cup" in contact with the face. By this means the spring frame of the "cup" can adapt itself to the shape of the face, and the snugness of the fit can readily be altered within large limits by the wearer while perfect stability is still preserved. No metal is in contact with the face, otherwise severe frost-bite would result. The glass can easily be adapted for ametropia, and where no cylindrical correction is used the bridge is constructed of leather, but where cylinders are necessary the preservation of the correct axis is obtained by a protected metal staple hinge, which allows of antero-posterior movement, but no rotation of the axis of the cylinder.

The glass itself is composed of two thin laminae of glass with a layer of the coloured material ("salvoc yellow")

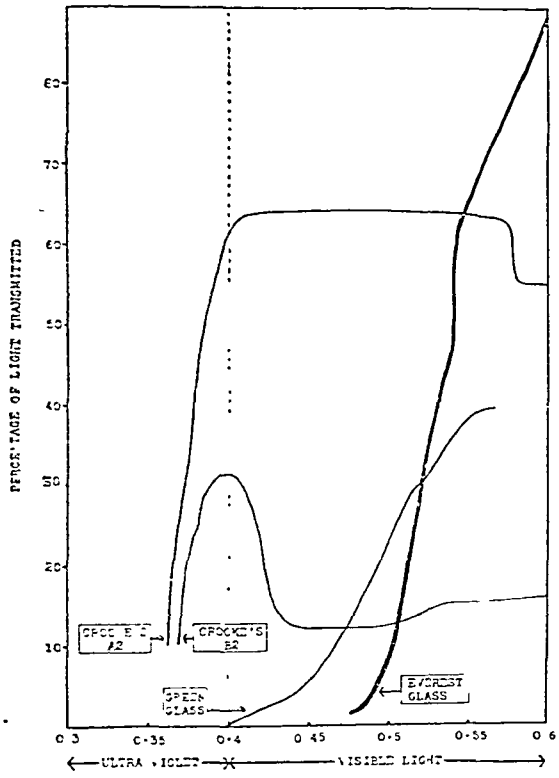


FIG. 1.—Absorption curves of various glasses.*

between. It is thus of the non-splinterable type, affording protection against flying bodies. The beauty of this method of obtaining the tint is that, though the correction required by ametropic eyes is ground on the anterior and posterior surfaces of the glass, the actual thickness of colour is constant. The alteration in depth of colour due to the varying thicknesses of different strengths of lens, and various thicknesses in different parts of the same lens, seen in glass which has been ground after tinting, is thus eliminated. The colour chosen by the leader of the expedition can thus be reproduced faithfully in every pair of goggles. The question of ventilation is very important, since any misting of the glass is most difficult to remove when actually climbing. The ventilation holes, as at first designed, were made through two thicknesses of material on the same principle as a valvular wound. These, though apparently adequate, were insistently vetoed by those experienced in the conditions likely to be encountered, and direct communication with the interior of the "cup" by means of large holes cut in the waterproof material was demanded by the leading members of the expedition. Though this procedure should, from a theoretical point of view, be fraught with some danger, the comfort of the wearers must be considered, or the goggles may be discarded when most required. To eliminate steaming still further a thin film of soap should be kept on each surface of the glass. The reduction of vision, as already stated, is a most important factor. A silver film alone gives a rather grey, depressing outlook, and reduces vision too much for difficult climbing in conditions of "white darkness" amounting to fog. A too deeply tinted glass would render dangerous climbing suicidal, and, since such conditions are exactly those pertaining when snow-

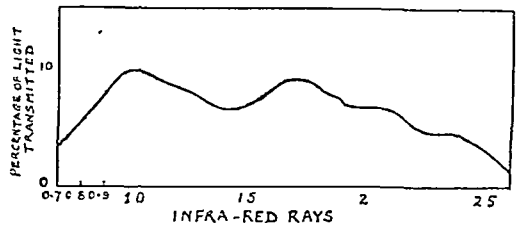


FIG. 2.—Absorption curve of "industrial glass" (salvoc yellow and silver) in infra red region of spectrum



FIG. 3.—The goggles in use on the expedition. (Printed by courtesy of the *Daily Telegraph*.)

blindness is most prevalent, removal of the goggles would have most serious results. It was therefore decided to rely solely upon tinted glasses, which merely reduce 6/4 vision to 6/5 (monocular). The combination glass—that is, silver and tint—was supplied in one case, however, and proved both comfortable and satisfactory.

It has been found that the particular tint chosen facilitates vision in foggy atmosphere. This effect was compared with Crookes's A2 and B2, fieuzal 3 and 5, platinum 3, green Swiss mountain goggle glass, softlite 4, and silvered glass, by asking impartial lay observers, who were not acquainted with these types of glass, to pick out that one which gave best definition in a foggy atmosphere out of doors. The salvoc yellow was eventually chosen as giving better contrast of outline against the background. The edges of objects did not have the slightly blurred outline seen through the other glasses or by the naked eye, though the salvoc yellow did not permit of objects being seen which were more distant than those visible

* Curves of Crookes's A2 and B2 are taken from a graph published in a paper ("Tints and their Value") by Sir Arnold Lawson, in the *Proceedings of the Royal Society of Medicine*, November, 1924.

to the naked eye. This property is of the greatest utility, not only in mountaineering, but also in other pursuits which necessitate correct orientation under foggy conditions. In order to obtain as large a visual field as possible, the glass, instead of being the usual round or oval shape, was triangular in form, thus giving an increased field of vision downwards and laterally.

The goggles described above have had a thorough and prolonged practical trial. They were used by the whole of the recent Everest expedition, which numbered, with porters, about ninety persons. Conditions were particularly severe, and it was difficult, if not impossible, to remove the goggles for the purpose of wiping them when the men were fully dressed for climbing. Whereas on previous expeditions cases of snow-blindness arose, in this attempt there was not a single case. Since, in climbing, snow-blindness is more likely to occur when continual efforts have to be made in glancing downwards at the feet, a goggle which extends the field of vision in a downward direction is of particular advantage. The extra field given by the "full-field" shape of the eye-cups in the Everest goggle fulfilled this purpose, and rendered it unnecessary for the climber to remove the goggle in order to search for a good foothold. In all, the expedition was supplied with 200 pairs of goggles by Messrs. Hamblin Ltd. The same goggle has been extensively tried by motorists, who report better visibility in fog and great reduction in glare from the lights of oncoming traffic. This, added to the fact that the visibility is not sensibly affected, gives them a great advantage over other forms of "anti-glare" goggles.

PROTECTION IN INDUSTRY

The ill-effects of infra-red rays are well exemplified by "glass-blower's cataract." Glass-blowers, tinplate roller men, welders, and others working under similar conditions are all subject to this disease. In certain trades the process involves the production of ultra-violet light in addition to infra-red rays. In industry the type of glass must be varied to meet the needs of each particular kind of work. Thus the welder will require a different type of glass from the grindstone worker, who does not need the elimination of any part of the spectrum. While it is the simplest matter to devise protective goggles, as is evidenced by the vast selection already on the market, it is the most difficult thing in the world to induce workmen to wear them. This unwillingness can be attributed mainly to the serious defects in present-day glasses. These defects, which render the most scientifically efficient goggle useless from a practical point of view, are: (1) curtailment of the field of vision; and (2) poor ventilation, a truly definite handicap to a worker in a warm temperature. Poor ventilation not only reduces the comfort with which the eyes are used, but also reduces vision and the possibility of doing fine and accurate work through steaming of the glass.

For protection the goggles must be light, must be adapted in their transmission of visible light to the particular process in hand, and must have maximum ventilation and a maximum field of vision. These criteria can be obtained in the goggles under consideration above, fitted with a glass different from that supplied to the mountaineering expedition. Furthermore, they can be manufactured at a price which is very moderate. A heavy goggle cannot be worn with comfort for long. If too much of the visible spectrum be excluded, workers on piece rates lose in wage-earning capacity, and those engaged in accurate work in efficiency. The cooler the goggle the better it is in the estimation of the worker, and the more likely to appear to him to give adequate protection, since he judges the bad effects of heat rays mainly by cutaneous sensation, even although this be mainly produced by bad ventilation. The usual form of round-glassed goggle restricts the field, and consequently mobility; those providing a fuller field will be of greater usefulness, and more readily worn by workers. Perhaps not all the damage is done by the infra-red rays; some blame may attach to the ultra-violet radiations. Full protection, therefore, is only obtained from a glass which prevents rays from both the ultra-violet and the infra-red ends of the spectrum from reaching the eye.

Experiments were performed with laminated protective glass containing a congenial tint and a deposit of silver forming a mirror. It was found that the combination of the tint and the silver eliminates the defects present in each singly. The final glass, of which the analysis in the infra-red region is shown in Fig. 2, permits better visual acuity than the welder's glass in common use and that used by operators in ultra-violet light clinics, since it only reduces 6/4 vision to 6/9 (monocular). The depth of silvering can easily be varied to suit the requirements of different occupations, certain trades requiring no silvering or tinting at all, but only the protective lamination. With regard to ventilation, rather more can be obtained by a modification of the lower part of the goggle, a feature now being perfected. The maximum coolness will be given without seriously reducing the amount of protection afforded, by removing the sides of the eye-cup above, laterally, and below. The glass is eminently suited to the prevention of flying particles from entering the eyes. The silver mirror, protecting from infra-red by reflection rather than by absorption of the glass, should ensure the maximum coolness of these goggles. Finally, the spring fitting and the enlarged field should render the goggles as comfortable and as useful as is possible.

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THE PROGNOSIS OF SYMPTOMLESS GLYCOSURIA

BY

P. J. CAMMIDGE, M.D.

In many cases of glycosuria the presence of the classical symptoms of diabetes mellitus, thirst, polyuria, and wasting, or the onset of one or other of the complications to which diabetics are liable, is an unmistakable indication of the nature of the disease, but in others the existence of sugar in the urine is discovered accidentally, and clinical symptoms attributable to defects of carbohydrate metabolism are lacking.

The prognosis in cases of the latter type is always difficult to decide, yet it is often a matter of serious importance, since a considerable proportion are detected in the course of a routine examination for life insurance, upon which much may depend. Biochemical tests may be helpful in some instances, but for the majority experience is the only available guide, and as statistical evidence is very scanty, differences of opinion are liable to arise, maybe to the detriment of the patient. Seeing that I have now records extending over more than thirty years, the following data, originally prepared for a discussion on glycosuria by the Assurance Medical Society, may help to fill the gap.

REVIEW OF MATERIAL

Taking a series of 1,200 cases of which I have complete clinical and chemical records, I find that 780 were of the classical diabetic type and that in 420 the glycosuria was discovered accidentally, either in an examination for life insurance or in the course of a routine test of the urine for other purposes. Dividing the symptomless cases into groups according to the frequency and severity of the glycosuria, we have, first, a group of 69 cases in which sugar was found on only one occasion (uni-occasional); secondly, a group of 248 in which sugar was passed intermittently, and a third group of 103 with persistent glycosuria. All the patients in the uni occasional group, some of whom have been under observation for fifteen or sixteen years, are still alive. The amount of sugar passed was always small, and, in some instances, was apparently due to a nervous cause. In the intermittent group the glycosuria was slight or moderate—that is to say, under 20 grams in the twenty-four hours—in 105, and severe—more than 20 grams in the twenty-four hours—in 21. Of those with moderate glycosuria 9 have died—2 of malignant disease, 1 from cardiovascular disease, 1 from pneumonia, 1 from tuberculosis, 1 from acute pancreatitis, 1 from disease of the liver, 1 from an accident, and another, with a history of glycosuria for eighteen years, from old age at 81. None of these cases have developed to such an extent as to call for the use of insulin, and all have been kept under control by dieting. Of the 21 cases of severe intermittent glycosuria, 1 has required insulin, and 3 have died—1 case from heart disease, 1 from pneumonia, and 1 following an operation. Moderate persistent glycosuria was found in 43 cases, and 3 of these have died—1 from malignant disease and 2 from cardiovascular disease; of this group 1 patient is now on insulin. Severe persistent glycosuria was met with in 36 cases, and 13 of these are now taking insulin regularly, while 11 have died—4 from cardiovascular disease, 3 from septicaemia, 1 from malignant disease, 1 from diabetic coma, 1 from an accident, and 1 committed suicide. It will thus be seen that out of 420 cases of symptomless glycosuria 26, or 6 per cent., have died, although death was due to diabetic coma in only one instance.

A more satisfactory way to study the influence of symptomless glycosuria on longevity is to divide the cases in decades, according to the age when sugar was discovered, and consider them from the point of view of the sugar content of the blood. Of the 420 cases under review 172 gave a normal, or subnormal, blood sugar curve after a test meal of glucose. Twenty-three were under 10 years of age; in 5 the glycosuria was uni-occasional, in 16 intermittent, and in 2 persistent. Twenty were aged from 11 to 20 years, and in 5 sugar was found only once, in 11 it was intermittent, and in 4 persistent. Twenty-one fell in the next decade; 5 showed uni-occasional, 12 intermittent, and 4 persistent, glycosuria. Forty-one patients were between 31 and 40 years of age; of these 5 passed sugar once; in 33 there was intermittent, and in 3 persistent, glycosuria. Thirty-three were between 41 and 50 years of age; 4 were uni-occasional, 23 intermittent, and 6 persistent glycosurias. Twenty-one were between the ages of 51 and 60, with 1 uni-occasional, 15 intermittent, and 5 persistent glycosurias. Over the age of 60 there were 13 cases, 1 being uni-occasional and 12 intermittent. A moderate amount of sugar—under 20 grams a day—was passed by all the patients in this group except 2—1 in the third and 1 in the fifth decade; but all are alive and well, and most are taking a normal diet, some with added glucose to prevent the hypoglycaemic symptoms from which they suffer. The other 248 cases showed a more or less pronounced hyperglycaemic blood sugar curve after a test meal of glucose when they were first seen.

CASES BY AGE GROUPS

Considered in decades, the noteworthy points which emerge are as follows:

First Decade.—There were 8 cases in this group, all of moderate severity. One was discovered accidentally in a routine examination, 7 were the children of glycosuric patients, and their urine and blood were investigated as a consequence. Six are now on a normal diet; 2 where sugar was present practically from birth are on restricted diets, but are alive at the ages of 13 and 15 years respectively.

Second Decade.—In this decade there were 16 cases—14 moderate and 2 severe. Two have died, one of the mild intermittent type, from heart disease, after thirty-five years, the other, a severe persistent case, after twenty-four years from septicaemia.

The second patient was accidentally found to be passing sugar when she was 14 years of age, but apparently suffered no ill effect until she became pregnant at the age of 21; she was then gravely ill, and the pregnancy was terminated. Two subsequent pregnancies were attended by less grave metabolic disturbance, and went to term. In the intervals, and after the last pregnancy, the patient refused to diet, and lived a normal life; eventually a carbuncle developed and gave rise to general septicaemia, from which she died, in spite of the free use of insulin.

Two other cases, both females, are of interest, for they were hyperglycaemic when first seen, but after a period of dieting were gradually able to resume a normal diet; now they are hypoglycaemic and are taking daily doses of glucose, one ten years and the other thirteen years after the onset of the glycosuria. Other cases in this group have passed sugar for sixteen, nineteen, and twenty-one years, and are apparently in good health, without the use of insulin.

Third Decade.—Of the 34 cases in this decade, 29 had moderate and 5 severe glycosuria. One has died from cardiovascular disease, at the age of 70, after being under treatment for mild glycosuria for forty years. All the others are still alive, one thirty-six years and another thirty-two years after the discovery of the glycosuria. One patient, after sixteen years' treatment by diet alone, is now taking insulin.

Fourth Decade.—In this decade there are 45 cases, 32 moderate and 13 severe, with two deaths, both from accident; one, a mild case, was killed in an aeroplane crash, and the other, a severe case, in a motor accident. Five are now on insulin, one of these after being treated by diet for twenty-three years, and others for shorter periods. Dietetic treatment has kept the disease under control for twenty-eight and thirty years in other cases in this decade.

Fifth Decade.—The number of patients falling into this group is 56, and of these 41 were moderate and 15 were severe cases. Five of the former and 3 of the latter have died. Three of the moderate cases died of malignant disease, one three months, another twelve months, and the third eighteen months after the glycosuria was discovered; a fourth patient died at the end of a year from disease of the liver, and a fifth from tuberculosis after fifteen years. The three severe cases succumbed, to cardiovascular disease after seventeen years, septicaemia after eighteen years, and pneumonia after twenty-four years, respectively. None of the patients in this decade were treated with insulin.

Sixth Decade.—In this decade there were 62 cases. Out of 44 of the moderate type 3 have died—1 from acute pancreatitis, after two years, 1 from pneumonia, after six years, and 1 from heart disease, after eleven years. Of the 18 severe cases 5 have died—1 following an operation, after eleven years, 1 from septicaemia following carbuncle after twenty years, 2 from cardiovascular disease after

twenty and twenty-three years respectively, and 1 from malignant disease after twenty-two years. The last-mentioned, and one of the heart cases, was treated with insulin for five years. Four others in this decade who are still alive are taking insulin.

Sixty Years of Age and Over.—Of the 29 cases 24 were moderate and 5 severe. One of the moderate cases died after eighteen years' treatment at the age of 81. Four of the five severe cases are also dead; one committed suicide within a week of the discovery of his glycosuria; one died of heart disease after three years' dietetic treatment and three on insulin, another died of diabetic coma after two years' diet and five years on insulin; the fourth, after eleven years' diet, died from heart disease. The fifth, a severe case, is now on insulin.

PSEUDO-GLYCOSURIC CASES

In addition to the cases of symptomless glycosuria already considered I have records of a number of patients who were referred to me because their urine gave a positive reaction for sugar, but further investigation showed that this was due to some other reducing substance than dextrose. Taking 200 of these, I find that in 60 the sugar was true laevulose, in 67 it proved to be pseudo-laevulose (iso-glycuronic acid), 30 were cases of pentosuria, 11 being of the true or essential type and 19 of the alimentary variety; 16 passed lactose, and were all either pregnant or lactating; in 16 the reducing action of the urine was due to an excess of glycuronic acid; one patient, a middle-aged man who was consuming very large quantities of milk, passed galactose; and another, who was a heavy beer-drinker, excreted maltose. Although these cases are not, strictly speaking, examples of "symptomless glycosuria," they have some bearing on the question under discussion, since the response given by the urine to the ordinary reduction tests for sugar resulted in an incorrect diagnosis of glycosuria being made, in the first instance, and in all the classical symptoms of diabetes were lacking. The abnormal condition of the urine was discovered accidentally in every case, some during examination for life insurance. Several of the cases of pentosuria and laevulosuria had been on anti-diabetic diets for considerable periods before they came under my care.

DISCUSSION

The more thoroughly the family history of cases of glycosuria is investigated the more evident does it become that heredity plays an important part in the aetiology of the condition, and it would seem probable that the way in which the abnormality is inherited, as a familial or direct character, has some bearing on its severity, and therefore on the prognosis. In a series of 800 cases of diabetes mellitus I published in 1928 (*Journal*, 1928, ii, 738), 28 per cent. were found to give an ancestral or family history of the disease, but in the present series the proportion is 38 per cent., taking the classical diabetics alone, or, including the symptomless glycosurias, 36.5 per cent. Considering the 420 cases of symptomless glycosuria separately, a history of glycosuria in a blood relation was obtained in 142 (33 per cent.). Of the 248 who showed a hyperglycaemic curve after a test meal of glucose, 88 (35 per cent.) gave a family history of glycosuria, while a positive history was obtained in 54 out of 172 (31 per cent.) of those who gave a normal or subnormal blood sugar curve. A dominant, or direct, history was found in 126 (16 per cent.), and a recessive, or familial, history in 171 (22 per cent.) of the classical diabetic cases; but in the symptomless glycosurias there were 124 (29 per cent.) dominant and only 18 (4 per cent.) recessive. Of the eighteen symptomless cases with a recessive family history 15 were of the severe persistent type, and gave a hyperglycaemic curve after a test meal of glucose. All required treatment with insulin—although not until after the lapse of some years in most instances—and two have died, one from malignant disease of the colon twenty-two years later, and the other from heart disease after six years' treatment. The other three gave hypoglycaemic blood sugar curves with a moderate amount of urinary sugar, and are now living normal lives.

SUMMARY

These results seem to suggest that:

1. The prognosis in symptomless glycosuria is usually good.

2. Most patients live for many years after the onset of the glycosuria, although limitation of the diet, and eventually insulin, may be necessary in some.

3. Death is generally due to some intercurrent condition, but complications such as septic infection, pregnancy, and surgical operations are liable to increase the metabolic disturbance, and may bring about a fatal termination.

4. Patients with a recessive (familial) history are more likely to develop a severe glycosuria, and require the use of insulin, than those with a dominant (direct) family history, which is the most common type.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

NEMBUTAL IN ETHER CONVULSIONS

I am tempted to put the following case of ether convulsions on record because, in an exhaustive search of the literature, I have been unable to find any case in which either spinal anaesthetic or nembutal has been used as a form of treatment. In the literature as a whole there is an absence of any definite recommendation as to treatment, but it reveals a very high mortality rate. There is no doubt that the case here recorded was a typical example of the condition, and one likely to have proved fatal.

The patient, a well-developed boy aged 12, was admitted to the Prince of Wales's Hospital on June 19th, 1933, with a history of four days of abdominal pain, localizing finally in the right iliac fossa, together with vomiting and constipation. There had been a marked intermittency in the symptoms during the four days. His previous history contained nothing of note, except "sunstroke" at the age of 2 for one week, "nightmares" attributed to threadworms from the age of 5 to 8, and a fall on the head producing a wound requiring suture at the age of 10. There was no history of fits, petit mal, chorea, enuresis, or asthma. The boy was one of a healthy family of three; no blood relatives had suffered from epilepsy, and there was nothing significant in the family history.

Examination of the patient showed that he was very t the tongue being dirty and breath offensive. Respi was mainly thoracic, the temperature 101° F., and the 120. The abdomen was generally rigid, and the marked tenderness over the right lumbar region fossa. Rectal examination revealed peritoneal Lungs, heart, and urine appeared normal. A di made of acute obstructive appendicitis with peri the appendix probably in the retrocaecal positio

OPERATION

After a hypodermic injection of 1/100 gra the patient was taken to the theatre. A he progress, and the temperature of the theatre combination of a hot day and a toxic pat favourable for ether convulsions). The pa thetized first with ethyl chloride and the The anaesthetic was not satisfactory; t settle down, and was breathing in a manner, with the result that he was time. General peritonitis was presen

perforated appendix was coaxed out of the retrocæcal position with some difficulty and after rather a long time. About thirty minutes after the commencement of the anæsthesia, and just as the closure of the wound was begun, the anæsthetist noticed a deterioration in the patient's condition, the pulse becoming weak and rising to 160; almost at the same time twitchings started in the eyes, both eyes rolling up to the left as the eyelids and mouth twitched. The patient's face was congested and cyanosed, the pupils dilated and immobile, and the ocular conjunctiva very blood-shot and chemotic; the corneal reflex was absent. The convulsions spread to the neck, and the head was constantly jerked to the left; the diaphragm became affected and the abdominal muscles followed, making closure of the wound extremely difficult. By the time the operation was completed the patient was having the most violent convulsions, and his whole appearance was ghastly in the extreme. Opisthotonos was marked, and it was noticed that the skin was dry and burning, all sweating appearing to have ceased.

The patient's head was raised, and oxygen with 5 per cent. carbon dioxide was administered, but with no improvement in the convulsions or in the respiration, which by now was irregular (Biot type), and was considerably hampered by the convulsions. The patient still remained cyanosed in spite of the oxygen. Thinking that it might reduce cerebral congestion lumbar puncture was performed, although with some difficulty because of the opisthotonos and movements of the patient. Clear fluid was obtained under increased pressure, and approximately 10 c.cm. was run off; this had no effect upon the convulsions, and 140 mg. of planocain in 20 per cent. solution were injected in the hope of stopping the opisthotonos and leg movements. This was quite effective, and in three minutes all the spasms below the costal margin had gone, but the others above continued without remission and the patient's appearance remained the same. At this moment Dr. J. T. Hunter saw the case, he agreed that it was a case of ether convulsions in the worst possible form, and gave the gloomiest prognosis. He passed a tracheal tube, and oxygen was then administered by this route.

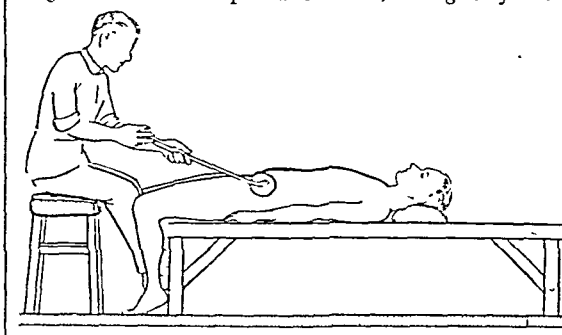
Having seen amazing results in the convulsions of meningitis I decided to give nembutal. This was after three-quarters of an hour's practically continuous convulsions, and 3 grains in 10 per cent. solution were slowly administered intravenously. The effect was dramatic. Before the injection was finished the convulsions ceased abruptly and never recurred, and soon the respirations became regular, with pulse stronger and the pupils contracted down. The rectal temperature was then taken, and since it was 106·8° F. the patient was covered with wet towels, the windows and doors were opened to create a draught, and blocks of ice were placed against the neck to cool the carotid blood, when the temperature came down to 101° F. these measures were stopped. After one hour the temperature was 98° F. and the pulse 144, and one hour later the pulse was 100. Convalescence was normal except for severe conjunctivitis, worse in the right eye than in the left, and considerable blepharospasm and photophobia. It was not surprising, either, that his urine contained a quantity of blood and albumin for twenty-four hours after the convulsions and hyperpyrexia.

A. DICKSON WRIGHT, M.S., F.R.C.S.,
Assistant Surgeon, St. Mary's and Prince of Wales's Hospitals.

LITHOLAPAXY SIMPLIFIED

It is customary for the surgeon, when passing catheters and bougies, to stand upon the left side of the patient; when manipulating a lithotrite, however, this position places the surgeon at an obvious mechanical disadvantage. For many years I have adopted a central position. The table used is 1½ ft. high and 6 ft. long. The patient lies with his knees apart and bent over the end of the table, and his feet resting on the ground. The anæsthetist sits on the other end of the table, beyond the patient's head. The surgeon sits on a stool, which is somewhat higher than the table, with his knees between those of the patient, and his feet resting on a crossbar of the table six inches above the ground.

After the usual preliminaries the litrotrite is passed (see figure). With his left hand the surgeon grasps the shaft, and with his right he controls the screw wheel. In the case of a large stone, requiring time and patience, the surgeon can, by resting his forearms or elbows on the front of his thighs, obtain increased steadiness and freedom from fatigue. By this method the movement of lifting the stone off the floor of the bladder before crushing is easy and precise. Turning movements of the beak of the instrument to right or left, and search for fragments in a retroprostatic recess, are greatly facilitated. The management of the evacuator, held in the same manner, is also easier.



The ideal position for lithotrity.

This method undoubtedly gives more precise control, permits a more accurate estimate of the exact position of the crushing blade of the lithotrite, and greatly assists in the search for scattered fragments. It relieves the surgeon of fatigue, and contributes to steadiness, gentleness, and meticulous care in manipulation—the important factors in success.

ERNEST F. NEVE, M.D., F.R.C.S.,
Senior Surgeon, Kashmir Mission Hospital.

Reports of Societies

TOXAEMIAS OF PREGNANCY

At the last ordinary meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine a discussion was held on the investigation and treatment of the toxaemias of pregnancy.

Dame LOUISE MCILROY recalled that the London Committee on Eclampsia found that the mortality was 22·1 per cent. She showed tables demonstrating the percentage mortality at the Royal Free Hospital over ten years, during which time toxaemia and eclampsia had been responsible for 20 per cent. of the deaths. Discussing the investigation of early pregnancy toxaemias, she pointed out that the ovum might be looked upon as a temporary endocrine organ. Greater activity of the endocrine organs occurred during early pregnancy, and this had an influence more especially on carbohydrates and calcium metabolism. Morning sickness, present in about 50 per cent. of cases, might be taken as evidence of Nature's attempt at balancing, by providing an extra channel for excretion. Chronic intestinal stasis was an important factor, and when Nature discovered a defective excretory apparatus she aided the elimination of poisons by putting on vomiting as an excretory function. Deficiencies in diet were responsible factors, and if the supply of iron and calcium was not kept up the foetus drained the maternal tissues, as shown by the softening of the teeth in pregnancy. Carbohydrate deficiency caused acidosis. Anxiety neurosis or fear was of the greatest importance; it was mainly to be found among primigravidae and early in pregnancy, and the patients themselves might be entirely unconscious of it. Deficiencies in the function of the placenta might lead to the passage of toxins from the foetus to the mother, thus increasing the work of the liver, and resulting in the circulation of protein poisons and substances such as bile in the blood stream. There was always a tendency to acidosis in every pregnancy. In later pregnancy raised intra-abdominal pressure had to

be considered as a factor in the causation of toxaemia. Treatment, therefore, was mainly directed to making up for defective excretions by means of baths, colon lavage, enemata, etc., and the toxins could be diluted and neutralized by fluids and proper dieting. The diet should be mixed—green vegetables, fresh butter, fish, and chicken—and in many cases it should be supplemented directly by calcium, glucose, or alkalis. If the progress of the patient was disappointing surgical intervention might be required. It was formerly advised that abortion should be induced if severe vomiting of early pregnancy did not yield to treatment within three or four days. This was very rarely considered necessary nowadays. Induction of premature labour was essential in some cases for two main reasons: if the toxaemia was prolonged the ultimate damage to the liver and kidneys was very serious, and permanent chronic ill-health was the result; the second consideration was that the foetus not infrequently died *in utero* if induction of labour was deferred for too long. It was of importance to remember that the worst types of eclampsia were those which had had a spontaneous labour, the convulsions occurring post partum. Caesarean section seemed an ideal method in cases of severe toxaemia, but the greater the surgical intervention the greater the risks and the higher the maternal death rate. There was a place for Caesarean section, and it had its advocates. In conclusion, the speaker wished to refute the loose statements which were made with regard to the failure in the results of ante-natal care. If this was properly carried out there was not the slightest doubt that we would in time reduce the maternal death rate to its minimum. Out of 8,000 in-patients at the Royal Free Hospital, only thirty had eclamptic convulsions. Of these, seven were admitted as emergencies, and fifteen had not attended the ante-natal department regularly.

Dr. A. A. OSMAN discussed the late results of pregnancy toxaemias in relation to two forms of persistent high blood pressure: first, associated with primary disease of the kidneys; and, secondly, that in which there was no evidence of kidney disease. The former he called chronic nephritis wth hypertension, and the latter primary or essential hypertension. The recent work of Gibberd, Young, Stander, and others had, he said, drawn attention to the frequency with which pregnancy toxaemias were followed by chronic nephritis, and pregnancy and its complications were a most frequent cause of nephritis in adult women of the child-bearing age. He found that a considerable number of cases referred to him as having chronic nephritis following pregnancy toxaemia were not really suffering from that disease at all, but from chronic hypertension, and that the kidneys were either not primarily affected, or if they were had since recovered. He next considered cases of late pregnancy complicated by albuminuria with anasarca in which the output of urine was so low as to constitute a direct menace to life. In most cases the concentrating powers of the kidneys for substances normally excreted was not seriously impaired, so that although the total volume of urine passed was small, its concentration was high, and the blood urea often not raised. In chronic nephritis complicating pregnancy the concentrating ability of the kidney for all substances might be grossly impaired, and in such circumstances it was imperative that a correspondingly large volume of urine should be passed. If oliguria was sufficiently prolonged the volume passed might be insufficient to permit of the necessary total amount of extractives being eliminated—amongst them urea and other nitrogenous bodies—and again a condition of uraemia resulted. This temporary uraemia was never sufficiently marked to endanger life until some further factor caused an extra load to be suddenly placed on the already overtaxed excretory powers of the organism. This additional factor was nearly always the onset of labour and the physical exertion accompanying it. It was therefore vitally important that an adequate output of urine should be maintained throughout labour. The speaker stressed the value of alkalis in the treatment of these cases.

Mr. J. BRIGHT BANISTER based his paper on the consideration of 2,213 cases between the years 1908 and 1932, and distributed over a wide area. There were among them 1,502 cases of albuminuria occurring in pregnancy and associated with toxaemic symptoms; 115 cases of acute and subacute nephritis not associated with convulsions, and 596 cases of toxaemia associated with convulsion to which the title of "eclampsia" was applied. There were 125 fatal cases, giving a mortality for toxaemia occurring in the later months of pregnancy of 5.6 per cent. There were ninety-two fatal cases of eclampsia—a mortality of 15.4 per cent. In addition, there were eighteen cases said to be fatal by reason of the nephritis conditions primarily, and fifteen cases in which death was ascribed to acute toxaemia without convulsions. He divided the eclampsia cases into two series. In the first twelve years there were 206 cases with thirty-six deaths—a mortality of 17.4 per cent. In the second twelve years there were 390 cases with fifty-six deaths—a mortality of 14.3 per cent. He asked whether the deduction from these figures was that the management of these cases was improving, and whether an increasing diminution in the death rate might be expected as time went on. There were thirty-six Caesarean sections, with eight deaths. It was interesting to note that there had not been a Caesarean section for eclampsia for seven years in any of the institutions whose records he had reviewed. In eight of the fifteen fatal cases attributed to acute toxaemia without convulsions there was a history of prolonged administration of chloroform, and in most of them a difficult delivery. The question arose as to whether it was not meet once more to call attention to the danger that might follow prolonged administration of chloroform in a case of toxaemia complicating pregnancy, although it was given as a routine in Professor Stroganoff's most successful treatment of the condition. The speaker suggested that it was advisable to be careful in such administration, and to reduce to a minimum the amount of chloroform given to these patients. Incidentally, it could not be denied that poisoning by chloroform produced post-mortem appearances which were indistinguishable from those of acute eclampsia. This series also provided evidence of the value of ante-natal care in the prevention of the condition of eclampsia. Unfortunately, up to recent years cases in the reports of the maternity hospitals had not been divided into "booked" and "emergency," but 225 cases occurred since such discrimination was generally made. Of these, twenty were booked cases, and the remaining 205 were emergency cases. This showed that the importance of ante-natal care was fully justified. In this connexion a statement had been made that eclampsia was a preventable disease. He stressed the adoption of, and perseverance in, a purely medical line of treatment in cases where the institution of treatment was followed reasonably soon by a definite improvement in the clinical picture rather than the employment of an arbitrary time limit during which such medical treatment should be continued. There was too much pessimism in the tendency to adopt more radical procedures if at the end of seven to ten days the patient was not immeasurably better than she was when the treatment was instituted. He would persevere with a patient in whom the blood pressure remained steadily under 170 mm. systolic, whose urine output remained good, and whose skin continued to act well even when albumin did not diminish or oedema disappear. The impression gained from reading these cases was that practically every case which was described as profound toxaemia without convulsions ended fatally. Most of these presented the clinical signs of jaundice, persistent vomiting—sometimes with haematemesis and increasing coma—which often supervened upon a maniacal state. These cases suggested profound primary disturbance of liver function, and served to strengthen a growing suspicion that a breakdown of hepatic efficiency would profoundly affect the prognosis in the presence of toxaemic symptoms in pregnancy. A totally different problem was presented by those cases in which the introduction of eliminative and purely medical treatment was not followed by any improvement. It was just possible that there might after all be a place for Caesarean section in cases where eclampsia had already developed, though here one was treading on dangerous ground. He could not but

suggest that if a patient developed an eclamptic fit after eliminative treatment had been used for some time, if her general condition was good, and if the child had a reasonable chance of survival, Caesarean section should certainly be considered.

HYPNOTIC DRUGS: USES AND DANGERS

A special discussion on "The Uses and Dangers of Hypnotic Drugs other than Alkaloids" took place at a combined meeting of the Sections of Therapeutics and Psychiatry of the Royal Society of Medicine on December 12th. Dr. E. MAPOTHER presided.

Sir WILLIAM WILLCOX said that in treating a case of insomnia one should aim at treating the cause, and hypnotic drugs should be resorted to only when general measures had failed. He proceeded to a classification of hypnotic drugs on a purely pharmacological basis. Hypnotic drugs of low toxicity were the inorganic bromides, alcohol, phenazone and its derivatives, aspirin, and salicylicaine derivatives. Combinations of these with opium preparations or codeine were often effectual. Other hypnotic drugs of varying degrees of toxicity were the alcohol-chloral group. Chloral was a really good hypnotic, which had dropped out of use undeservedly. Paraldehyde was quite a good hypnotic, but not used to anything like its former extent. Avertin was one of the new drugs to be used with care, but it had come into extensive employment as a basal anaesthetic. Urethane was a mild and safe hypnotic, useful for children. Bromural was a safe hypnotic, quite useful, and not appreciably toxic. Coming to the barbituric acid group, Sir William Willcox said that twenty years ago, at the annual meeting of the British Medical Association in Brighton, he had opened a discussion on this subject. At that time veronal, medinal, luminal, and dial were almost the only members of the group in use. Since then the barbituric acid derivatives had grown to a formidable list. Sometimes barbituric acid drugs were combined with analgesic drugs, but this he regarded as dangerous. These drugs were the most commonly used hypnotics to-day, because they were very certain and acted quickly, and had few unpleasant after-effects. As to their dangers, if taken on an empty stomach or with alcohol the effect was accelerated. Idiosyncrasy might be acquired. In cases of a latent pyelitis or cystitis a very exaggerated effect was obtained. Defective liver function and hyperthyroidism were danger signals. The barbituric acid drugs acted on the nervous system. They might produce facial or visual paralysis and speech defects. Habit formation undoubtedly occurred. The great risk with these drugs was a predisposition to suicide. Numbers of these psychical cases had an obsession of insomnia, and no drug at all would produce sleep because the patient was determined not to sleep. This obsession of insomnia in some cases of mental disorder rendered all hypnotics ineffectual unless given in dangerous toxic doses. He urged that hypnotics of low degree of toxicity should be prescribed where possible; there was need for control of the prescription of hypnotic drugs of relatively high toxicity, and such drugs should only be obtained on prescription from the medical adviser, and the prescription should be retained by the pharmacist, while the total quantity supplied should be well under a possible fatal dose.

Dr. F. L. GOLLA said that two considerations should govern the employment of hypnotics—the first being the determination of which function of the nervous system was primarily responsible for the syndrome requiring hypnotic treatment, and the second, by which hypnotic this function was most readily affected. For the latter purpose hypnotics might be classified as those acting primarily on the mesencephalic sleep centres, on the parapyramidal system, on the sensory system, and on the voluntary motor system. No hypnotic, if pushed sufficiently far, confined its action to any one system, and hence the evidence of histology where maximal doses were required to produce anatomical changes was of little value. The method of approach must be by clinical and physiological investigation of the specific modes of action of the hypnotics on nervous function considered apart from their gross hypnotic value.

Professor J. A. GUNN mentioned that this was the third discussion on hypnotics that he had attended. In all these discussions he had thought that the scope of the subject to be discussed was far too wide to allow of a definite decision being reached on any particular point. To take the treatment of insomnia alone, the causes of the condition were so various and the actions of hypnotic drugs so different that it was futile to consider the value of the latter unless in relation to a particular type of insomnia. Sleep might be regarded as a rhythmic condition of depressed excitability of the brain, and insomnia as an absence of this depression or a failure of the rhythm, or, on the other hand, as being due to abnormal afferent stimuli. If the insomnia was due to the latter cause, the treatment was to remove such stimuli if possible. The distinction between insomnia due to cerebral afferent stimuli and that due to increased excitability of the recipient brain cells themselves might be an artificial one, but it was practical. Increased excitability of the brain might be artificially produced—for example, by caffeine—or it might be secondary to high blood pressure. There were brains of normal excitability—even congenitally sleepy brains—that might be kept awake by such abnormal cerebral stimuli as worry, and it was for this condition that bromides were specially available. Aspirin or phenacetin, by damping the afferent stimuli of the brain, might produce sleep by themselves, or might be the means of diminishing the required dose of a drug that acted as a cerebral depressant. He agreed that it was a bad plan to have these two things combined in a fixed proportion; it was far better to prescribe them separately. But a small dose of morphine might, when combined with chloral, be more effective in producing sleep than either drug would be alone. If the site of the insomnia and the site of the action of the hypnotics were known more narrowly it would be easier to fit the key into the lock. There were fine differences in the action of the brain shown by drugs which at the present time were grouped together as pharmacologically identical. Therapeutics would gain by a more accurate knowledge of fewer hypnotics. One factor which ought to be better controlled was dosage, and he thought that before long dosage would be calculated per kilogram or stone of body weight.

Dr. P. K. MCCOWAN said that cases of poisoning from paraldehyde were extremely rare. The only cases under his notice were patients who had taken large amounts in mistake for an ordinary draught. Outside India addiction to chloral was rare, but of all drugs of addiction it was the most likely to produce serious pathological changes. Sulphonal had fallen into an unmerited disrepute. If its tendency to accumulation was duly recognized, it was a useful drug, but he never used it for periods longer than about a week. Its special value was in acute exacerbations of excitement in chronic psychoses. Trional was rather less cumulative. As to the barbituric acid group, the chief differences between its members were in the intensity of excitement before and after sleep and in the duration of their action. Recent reports were favourable to nembutal in psychiatric practice. This drug could be used either as a sedative or as a hypnotic, the usual dose being 3 to 6 grains. It acted quickly, was excreted fairly rapidly, and was markedly free from unpleasant after-effects. Used intelligently, it could be fairly described as a comparatively safe hypnotic. With regard to the barbiturates in general, there was a consensus of opinion that as sedatives, and occasionally as hypnotics, they were eminently safe. While certain of the toxic symptoms of the barbiturates were due to peripheral causes and others were due to the action of the drugs on the central nervous system, there were some which were due to the disturbance of the carbohydrate metabolism, which set up a condition of ketosis. He had been investigating the carbohydrate metabolism of patients taking sedatives in the usual way, and he found that a certain proportion of them sooner or later showed symptoms of glycosuria, which could quickly be cleared up by glucose and insulin. Where special care was necessary in using sedatives and hypnotics it was advisable to administer glucose and insulin simultaneously with the drug. The cases he had particularly in mind were toxic exhaustion psychoses, and here glucose and insulin might well be

given as a routine measure when a hypnotic was used prior to surgical anaesthesia. The danger of addiction did not appear to be greater in the barbiturates than in others. The chief danger in the use of the barbiturates was not to the person taking the drug but to the person prescribing it!

Sir JAMES PURVES-STEWART gave three cases within his experience to illustrate the occasionally unexpected toxic effects of barbituric acid compounds in ordinary doses, and he pointed out that, while in full doses these narcotic drugs exercised very widespread toxic effects on the whole brain, from the cortex right down to the medulla, in smaller and repeated doses they might have a selective action upon special groups of nerve cells—for example, on the cortex, or the mid-brain, or the cerebellum, or even on the spinal cord. Why were there such differences in the clinical symptoms? The reason was to be found in individual variations in the vulnerability of different nuclei of the central nervous system.

Dr. R. D. GILLESPIE strongly contested the views which had been put forward as to the danger of therapeutic doses of these drugs. After allowances were made for duplications, the number of cases recorded in literature indicating that these drugs in therapeutic doses were dangerous was extremely small. He did not believe that there was a case on record where either a single dose of the barbiturates or a repeated dose of therapeutic magnitude had caused death in the absence of complicating factors. There was no foundation for Sir William Willcox's assertion that the repeated administration of the barbiturates in one or more daily therapeutic doses was dangerous, although, of course, there were idiosyncrasies such as Sir James Purves-Stewart had just pointed out. With regard to the statement that the barbiturates predisposed to suicide, this was contradicted by a study of suicide statistics. During 1931—the latest year for which figures were available—there were 5,147 recorded deaths from suicide, and in only thirteen of this number were the barbiturates the means adopted. The barbiturates stood eighth on the list of poisons taken by suicides. He defied anyone to say that the barbiturates had influenced the suicide rate in this country.

Dr. G. W. B. JAMES said that the attitude of practitioners themselves towards the prescribing of hypnotics usually passed through three stages. They could all recall the anxiety which they experienced as young physicians after having prescribed the first full dose of ordinary hypnotics. In the second stage the practitioner lost his early fears and often entered upon a somewhat indiscriminate use of hypnotics, "stimulated by a constant supply of free samples and desk blotters from the manufacturers." In the third stage, which usually endured to the end of his professional life, the physician showed an adherence to a comparatively short list of well-tried hypnotics with which he himself was thoroughly familiar, and devoted a much greater attention to the innumerable factors that went to make up the problems of insomnia or psychomotor excitement. Dr. James added that he could recall only one medinal addict in his experience. He stressed the necessity for vigilance. Some years ago, while he himself was in the second of the three stages which he had outlined, he was taking charge of a patient who was suffering from severe alcoholism. The patient, being suspicious, insisted that his doctor should share his treatment. Accordingly, on their first night together, they each swallowed a 15-grain cachet of medinal. It gave the patient six hours' sleep, but he, the doctor, had to be forcibly turned out of bed in the morning by the attendant. The next night, and afterwards, his cachet contained only milk and sugar, but it was several days before he lost an unpleasant diplopia.

Professor ALFRED MAYER said that carbon monoxide, cyanide of potassium, ether, and other narcotics, however much their chemical structure and specific action might differ, led to brain changes identical as to quality and distribution. The same could happen after morphine intoxication.

Dr. D. CURRAN gave some results of observations over a large number of cases in which nembutal was used. At first it was administered to the exclusion of all other drugs, and it soon became apparent that in the doses given its value as a sedative for continuous effect was limited. It was, however, beneficial for episodic or periodical outbreaks of excitement and restlessness. It was also of distinct value for the performance of such minor operations as were required at the Maudsley Hospital, such as taking blood for examination and doing lumbar puncture in apprehensive or actively resisting patients. It was necessary to give it in concentrated solution on an empty stomach. In the large series mentioned a commencement was made with 3 grains, increased by 1½ grains until the desired effect followed. A single dose was never larger than 6 grains. The most profound action of the dose was short-lived, and was followed by a light sleep or drowsiness. Patients were easily awakened by external noises. Different patients showed a wide range of susceptibility to the drug. Only twice were there any alarming results.

Sir MAURICE CRAIG said that it was almost incredible that two physicians, both practising in London, like Sir William Willcox and Dr. Gillespie, could have had experiences with the drugs in question so widely different from each other as appeared to be the case. As Sir William did not himself prescribe the barbituric acid group, his opinion could have no great value. The speaker considered it a most unscientific course to condemn drugs on five or six unfortunate cases. One found that the same cases cropped up year after year; yet these drugs had been given successfully to many thousands of patients. It was an astounding statement by Sir William Willcox that those who took sedative drugs were prone to commit suicide. That must be untrue, otherwise the newspapers would be full of deaths from this cause being inquired into at coroners' courts. He had himself prescribed drugs of this group to people in high positions, who continued their work, and were healthy members of society. He had not seen one of them become an addict.

Sir WILLIAM WILLCOX, in reply, complained of the serious warnings he had uttered being ridiculed by Dr. Gillespie. He had spoken out of sad experience of many cases during his long specialization in toxicology. Both Dr. Gillespie and Sir Maurice Craig had failed, in their remarks, to realize the dangers connected with these drugs, and in support of his contentions he offered to give access to his notes of cases, which were undeniable. Though he did not prescribe drugs of this group, he did not forbid them in consultation. When taken over long periods there was always the danger of overdosage.

PURPOSE IN NEUROSES

At a meeting of the Medical Society of Individual Psychology on December 14th, with Dr. JAMES YOUNG in the chair, Dr. F. G. LAYTON read a paper entitled "Purpose and Some Neuroses," in which he said that it was the job of the unconscious mind to keep its host going. Upon that text he built his thesis that, all neuroses being purposeful, they were in essence protective. That was made clear, over and over again, in the consulting room of a general practitioner practising in an industrial district, where the ordinary problems of sickness and accident were tangled constantly with problems of poverty. More particularly was the protective character of a neurosis demonstrated in the unravelling of the twisted threads of industrial accident when, after the effects of physical trauma had passed, there remained the effects of the mental trauma. If this were unrecognized much injustice was likely to be done, and not infrequently was done. Those to whom the dogma of purpose in neurosis was distasteful preferred to regard the post-accident neurotic as often a malingerer, and talked of "compensation neurosis." This was dangerous, and should be regarded with suspicion. The doctor's job was to ask constantly "Why?": to seek the purpose underlying the train of symptoms presented. Thus would he learn something of the patient as a whole, and get nearer to being able to help him.

Dr. O. H. WOODCOCK, in a paper on "The Tyranny of the Invalid," pointed out that the inconvenience and suffering of illness was rarely confined to the patient,

and there was no surer method of dominating a sympathetic household than by the exhibition of disease. Not only the neuroses but the attacks and exacerbations of disease, with discoverable pathological changes, occurred opportunely when the patient craved extra attention, or wished to evade a duty or to excuse faulty performance or failure. Even infants soon learned to play upon the fears of an anxious mother by sudden variations of the action of the bowels or the development of convulsions when thwarted. At the school age, colds and fever might be opportune for the evasion of examinations, and difficult menstruation might be an excuse for neglect to take a share in housework. A normal pregnancy was a useful lever to secure dominance over a husband, and the ills of the puerperium could be exploited to maintain his enslavement. Men could and did advertise headaches and exhaustion in order to be petted and comforted at the end of a business day or to explain a lack of success in it. Old age all too frequently imposed on the next generation a yoke by virtue of its decrepitude, and many a devoted son and daughter had declined into soured middle age, too preoccupied with the care of the parent to take his or her rightful place among contemporaries. The demand of the invalid for attention rarely allowed solitary suffering—there must be an audience to suffer too. So tenacious was the hold of the invalid on his imagined rights that he would, in some cases, die rather than surrender them. Various cases illustrating these contentions were given, and Dr. Woodcock ended by submitting that the doctor was justified in asking himself in every case of illness, "What is the patient gaining by this?"

ANTITOXIN: USE AND MISUSE

At the December meeting of the Fever Group of the Society of Medical Officers of Health Dr. H. STANLEY BANKS delivered his presidential address on "The Use and Misuse of Antitoxin."

Dr. Stanley Banks said that revision of textbook teaching as to dosage and route of administration of diphtheria antitoxin was indicated as a result of the operation of two new factors: (1) increasing experience of routine intravenous injection of antitoxin, and (2) the production of a highly concentrated and refined product, largely free from extraneous protein. *Since 1895 there had been* a gradual tendency to the use of larger doses, often without due discrimination as to the needs of (*a*) the mild non-toxic case and (*b*) the hypertoxic or malignant case. In the former it was sufficient to combat toxin which might be absorbed from the lesion after treatment was instituted. A dose of 2,000 to 8,000 units intramuscularly was enough in experienced hands for such cases. The hypertoxic or malignant case with extensive or rapidly spreading membrane and periglandular infiltration of the neck was entirely different. In such cases an attempt should be made to neutralize not only circulating toxin, but also the toxin which had already become loosely bound to tissue cells. There was ample experimental and clinical evidence that this was possible provided that combination with tissue cells was recent and not too far advanced. A large excess of antitoxin everywhere available throughout the tissues was, however, necessary for this effect to be achieved. The dose recommended for this purpose was a single intravenous injection of 50,000 to 150,000 units. Repeated injections were unnecessary. Nothing was achieved by giving any part of the dose intramuscularly unless for any reason the intravenous route failed. The technique in young children was not easy, but could be much simplified by the use of a suitable needle and syringes with peripheral nozzles. Antitoxin was often wasted in fever hospitals on cases erroneously certified as diphtheria. Although these formed as much as 25 per cent. of diphtheria admissions, it was right and proper that cases under suspicion of diphtheria should be sent into hospital. Provided they were maintained under expert supervision in hospital, antitoxin could safely be withheld and the Schick test performed. This did not apply to the medical practitioner, who should always give antitoxin or send the patient into hospital if diphtheria was suspected. Passive immunization of contacts should not be undertaken lightly, without Schick, swab, and virulence tests.

Scarlet fever could be very advantageously treated by intravenous injection of scarlatinal antitoxin. In two different fever hospitals, by this means, the scarlet fever work had been improved beyond all recognition. A preliminary intradermal test with horse serum should be done, and all cases with a history of asthma, eczema, or previous serum injections should be excluded. Not only toxic symptoms were neutralized, but septic complications were almost totally prevented. Even in late septic cases, so long as faucial oedema was present, quite dramatic results could be obtained. In cerebro-spinal fever, antimeningococcal serum should be given intravenously in large dosage—for example, 100 c.cm.—as well as intrathecally. A highly specific antimeningococcal serum had not been produced since the war, so generally, large doses were necessary. Good results reported from Rumania appeared to be associated with special methods used in the production of the serum as well as with intensive therapy by all routes. Meningococcus toxin had recently been produced in the United States of America, and a meningococcus antitoxin prepared by means of it was at present on trial in this country.

UROCHROME

At a pathological meeting of the Liverpool Medical Institution held on December 7th, with the president, Dr. H. R. HURTER, in the chair, Dr. C. L. G. PRATT read a paper on "Urochrome in Health and Disease."

Dr. Pratt referred to previous efforts to identify urochrome, and briefly described methods of isolation. After summarizing the present knowledge of the chemical composition of the pigment, evidence was presented to show that the amount excreted per day was fairly constant and independent of the diet. The question of the precursors of urochrome in the body was discussed, its origin from haemoglobin being dismissed as improbable. Evidence was brought forward in support of the view that the suprarenal gland, and possibly the liver, were concerned in the metabolism of the pigment. It was shown that, in general, the daily output rose with any physiological or pathological increase in metabolism. Attention was called to the lack of interest in a problem which was easily susceptible of approach from a clinical standpoint.

In the discussion which followed, Professor J. HENRY DIBLE suggested a possible relationship between fat pigment and urochrome, pointing out that the speaker had referred to cyclical vomiting and other conditions involving *starvation as being associated with an increased* urochrome excretion. Since increased breaking down of fat was also common to these conditions, Professor Dible asked if the speaker had considered the possibility of urochrome having such an origin.

PITUITARY ADENOMA

At a meeting of the Pathological Society of Manchester held on December 13th, Dr. W. SUSMAN discussed the significance of adenomata of the pituitary. He had found twenty-three such growths in twenty-two out of 260 glands obtained at routine necropsies. The growths varied in diameter from 0·2 to 2·5 mm. The numbers of each type were: basophilic 8, acidophilic 6, chromophobe 5, unclassified (in pars nervosa) 3, columnar-celled (in pars glandularis) 1. Symptoms of pituitary disorder had been recognized in only two of the twenty-two patients. Evidence of a characteristic syndrome associated with basophil adenomata had not been obtained. In the whole series of 260 glands there was no significant variation in the basophilic cell content with age or sex. The basophilic cell content was high in twenty-one cases, but symptoms of pituitary disorder had not been recognized in these. Dr. Susman considered that the cell type in pituitary adenomata was determined by the functional state of the gland.

Reviews

PAEDIATRICS

A third edition of *The Diseases of Infants and Children*,[1] by Professors J. P. CROZER GRIFFITH and A. GRAEME MITCHELL marks a notable achievement, for the authors have succeeded in making one volume out of what was previously contained in two, and without, so far as can be judged, in any way detracting from the usefulness of this well-known work. The particular value of "Griffith and Mitchell" has always been the very full list of references given in each section, and there is evidence that these have been overhauled, with the deletion of some of doubtful historical interest and the discriminating introduction of new material. The general production leaves nothing to be desired, for the binding is sound, the paper of good quality, and the illustrations mostly of a high standard.

Random exploration of the book has furnished little ground for criticism. The methods of artificial respiration for resuscitating the newborn (illustrated on pages 230 and 231) look far more drastic than modern views would allow, while the steam tent depicted on page 188 seems distinctly a dangerous structure, especially as no warning is given in the text about the control of the temperature of the air inside. There is also a regrettable confusion in the section beginning on page 607 and dealing with "chronic intestinal indigestion in older children." Here, as subtitles, the terms "mucous disease" and "celiac disease" are given, and throughout the section there is complete confusion between what are regarded in this country (the birthplace, so to speak, of both disorders) as entirely distinct maladies having nothing in common save an abdominal localization. Such matters are of some importance, for the reputation already won by this publication as almost a standard work of reference demands that strict accuracy shall be maintained. Other sections which we have read convey a remarkably well balanced outlook on paediatric problems, and in this more compact one-volume edition the book should find a welcome place on the shelves of those concerned with the health of the child and his care in sickness.

AN OBSTETRIC TEXTBOOK

The third and revised edition of the *Queen Charlotte's Textbook of Obstetrics*[2] (hitherto *Practice of Obstetrics*), compiled by all six members of the obstetrical staff, is sure of the same welcome as its predecessors; it has a special appeal because of its sound practical teaching, backed by the experience of the largest maternity hospital in London. This edition shows that most of the recent advances in its practice—such as paracentesis of the amniotic sac in hydramnios, early drainage by abdominal incision in cases of puerperal sepsis showing signs of peritoneal infection, and the use of crushable capsules of chloroform by midwives to obtain analgesia during the late stages of labour—are duly noticed. The Kielland forceps achieves a similar distinction, although it was described twenty years ago, apparently because its designer paid Queen Charlotte's the compliment of coming there to give a demonstration of its previously unappreciated advantages.

The chief characteristic of this book is its sound clinical teaching, of which a few illustrative examples may be noted. The management of the pre-eclamptic state, and how long medical treatment should be continued, leads up to the scheme of treatment adopted in the hospital in the eclamptic state, and so to the indications for obstetric intervention—which, incidentally, are drawn within very narrow limits. Again, the selection of cases of placenta praevia for the available forms of treatment is clearly set out. But perhaps the most instructive feature is the discussion on the many therapeutic measures for puerperal infection that have been tried out in the new Isolation Hospital, and their respective merits in the light of the experience so gained. The chapter on Caesarean section gives a judicial review of the indications and results, ending with an analysis of the 373 operations performed in the hospital during the eight years ending 1931, and a brief comparison with the figures of the collective investigation of 1921.

The explanations of the why and wherefore of things are not, however, always so convincing as the strictly clinical teaching. Thus an otherwise excellent article on ante-natal care fails to impress on the student that it is primarily a constructive effort to procure the physiological throughout child-bearing. It is surprising to find Queen Charlotte's adopting an old definition of Watson's, to the effect that the purpose of ante-natal care is the search for early evidence of the pathological, the "institution of appropriate treatment whenever the least departure from the normal is detected," and, still more, that "the whole art of preventive obstetrics" is thereby summed up. This statement is not only out of accord with modern thought, but may give a wrong impulse to the novice. "Let him seek physiology and ensue it" is the first duty of a doctor undertaking ante-natal care, and after that he must watch for the pathological. Advice is given on the investigation into the state of the grosser parts of the woman's body, but without mention of the state of mind in which she approaches child-bearing and all it implies. Despite this, however, under "Simple Delay in Labour," *fear* is italicized to stress its importance as a cause of disordered function, and reassurance during pregnancy is advocated to counteract it. Other instances occur of a similar failure to emphasize principles. But a little polishing will soon remove these small blemishes from an excellent piece of work that brings great credit to the hospital from which it comes.

EXPERIMENTAL WORK ON INSULIN

Diabète et Insulinémie,[3] by JEAN LA BARRE, is a book which takes a long time to read and to review, and indeed it merits prolonged thought from the serious student of carbohydrate metabolism. It is full of material, the results of the author's numerous experiments, and also contains a review of existing literature. The latter is not good, because it epitomizes too many results without giving the reader any clue to the relative merit and truth of the facts mentioned in the literature. To be told that three experiments seemed to establish one fact and another two to contradict it is far from helpful to the ordinary reader. We feel that Dr. La Barre, with his wide experimental experience and definite point of view (or so it seems), might, and should, have weighed the relative value of the literature considered, and not left the reader to be blown from north to south with the veering wind of multiple experiments. We wish also that the author would abandon the essayist's style, typical of French medical literature, for the more concise and scientific writing of other countries.

There is, however, no lack of clarity in describing the author's own experimental work on insulin and its excre-

[1] *The Diseases of Infants and Children.* By J. P. Crozer Griffith, M.D., and A. Graeme Mitchell, M.D. London and Philadelphia: W. B. Saunders Company. 1933. (Pp. 1155; 280 figures. 50s. net.)

[2] *The Queen Charlotte's Textbook of Obstetrics.* By A. W. Bourne, I. B. Davies, L. Carnac Rivett, L. G. Phillips, C. S. Lane-Roberts, and L. H. Williams. Third edition. London: J. and A. Churchill. 1933. (Pp. 679; illustrated. 18s.)

[3] *Diabète et Insulinémie.* Par Jean La Barre. Paris: Masson et Cie. 1933. (Pp. 284; 45 figures. 40 fr.)

tion from the pancreas under different conditions and stimuli This is concerned with the well known cross transfusion experiments in dogs associated with La Barre's name The outflow of blood from the pancreatic vein of one dog is transfused directly into the jugular of another, and the changes in glycaemia in the latter receptor is an index of the amount of insulin secreted by the donor dog under varying conditions The technique is admirable many clear results have been obtained, but some require confirmation by other workers with the same technique Indeed, the whole subject is so important in its physiological implications of insulin action and stimulation that confirmatory work from another laboratory would be of enormous value The technique is elaborate, and without corroboration in other hands the vast possibilities and suggestions offered must legitimately remain in the balance Of these the most interesting is the finding that secretin, the usual extract from duodenal mucosa, causes insular secretion and hypoglycaemia in these experiments A further purification of secretin removes this hypoglycaemic action But two fractions have been separated from secretin one (incretine) has a hypoglycaemic action, *the other (excretine) is a pure succagogue The former* has no hypoglycaemic action on the diabetic dog with its pancreas removed However, "incretine" is mentioned in the section on diabetic therapy without any obvious reason Indeed, it seems a pity that a section of some seventy pages on diabetic treatment has been included, as it is quite valueless, and detracts from the exposition of much serious experimental work

This book must be read by all experimental workers on insulin, if only to stimulate them to prove or disprove its important hypotheses

INSANITY AS A LEGAL DEFENCE

The Faculty of the University of Chicago Law School, feeling the need for a comprehensive survey of the state of the law governing insanity as a defence for crime, undertook to prepare one with a grant from the Commonwealth Fund In the course of the work all the reported American cases were read, and also the leading and representative English cases together with the American and English legislation on the subject The common law rules hold good in most if not all, of the American States, *though they have been modified in different directions* by legislation, the underlying principles are identical with those observed in this country and the whole of Mr WEIHOFEN'S essay[4] is valid as a *serious opinion not only* to the American but also to the English lawyer The volume deals in detail with the law in each State and its historical development, the rules of burden of *proof* and of evidence for or against insanity the procedure when the defence of mental irresponsibility is used, and the manner in which proved insanity is dealt with

The author agrees with Dr S F Glueck that the four main weaknesses of the present system are the almost universal lack of proper expert examination of accused persons before trial, narrow and artificial tests of responsibility, failure to put expert evidence on the accused's condition before the jury and the fact that discharge from institutions of persons committed to them by the court is not governed by scientific principles or informed judgement He makes many constructive suggestions for repairing these defects, and looks forward to a day when the State will treat criminals as social problems rather than as sinners, and when the duty of distinguishing between the sane and the insane will be placed on the shoulders of psychiatrists, penologists and criminologists

[4] *Insanity as a Defense in Criminal Law* By Henry Weihofen New York Humphrey Milford Oxford University Press 1933 (Pp 524 17s 6d net)

The book contains, besides its concise statements of rules of law, a number of valuable digests of all the cases and statutes in each State governing each of the matters with which it deals, and an analysis of recent arguments, decisions, and legislation It is a textbook which will assist the English and the American reformer alike

THE ORDER OF ST JOHN OF JERUSALEM

Mr H W FINCHAM, who among other offices holds those of curator of the Museum of the Order of St John of Jerusalem in England, and Custodian of the Priory Church, presents us with a second edition of the history of the Order in England,[5] which he produced in 1915, excluding, however, any account of the work of the St John Ambulance Brigades and the war work of the Order This book professes to give a concise account of the history of the ancient Order and a full description of the ancient buildings of the Grand Priory of England at Clerkenwell Among recent acquisitions the Order has been entrusted with the care of the ancient parish church of St John, Clerkenwell, which now forms its chapel The Hospitallers, like the Templars, some of whose property they inherited, at one period favoured the construction of round naves to their churches of which the Temple Church in London and the Round Church at Cambridge are outstanding examples, and St John's at Clerkenwell still shows the remains of the foundations of a circular nave

The history of the Priory in Clerkenwell is well known up to the time of the dissolution of the monastic orders by Henry VIII Soon after that event the extensive buildings, all except the gatehouse, were pulled down and the materials used by the Protector Somerset in building the first Somerset House in the Strand Under Queen Mary the Priory was revived, but after the accession of Elizabeth it was finally dissolved Mr Fincham gives us much information as to the fortunes of the Order in England up to the Dissolution, but he does not explain how it has come about that the present peaceful philanthropic Order (which most of us associate with St John's Ambulance Brigades, and their treatment *of fainting women and other casualties on occasions* of great concourses of people) makes claim to represent the fierce and combative Order of Hospitallers, whose chief *functions were to protect pilgrims* to the Holy Land and to war relentlessly with the Saracen and the Turk In the list of Priors in England given by Mr Fincham, *Thomas Tresham who died in 1559, is succeeded in 1831* by the Rev Sir Robert Peat, Bart without any statement as to how he came to this honour and became Prior after a lapse of 272 years *We must turn to* other sources of information for enlightenment That well known archaeologist and scholar, the late Mr Cecil Torr, in his fascinating work, *Small Talk at Wreyland,* has furnished an explanation It appears that long after the Knights of St John had been dispersed from Malta and all corporate existence had ceased, an English cleric, the Rev Dr Peat, convinced himself that he was entitled to succeed to the dead (or at least dormant) office of Prior, and accordingly in the year 1834 he took an oath to observe certain regulations in the conduct of the Order But, according to Mr Torr, he only bound himself to discharge the duties of an impossible office under an imaginary statute It was not until 1888 that the society obtained a charter, not as a branch of the ancient Order, but as a charitable society of fifty years' standing In 1873 Sir Edmund Lechmere acquired the freehold of

[5] *The Order of the Hospital of St John of Jerusalem* By H W Fincham F S A London The Grand Priory in the British Realm of the Venerable Order of the Hospital of St John of Jerusalem 1933 (Pp 85, illustrated 7s 6d and 3s 6d)

the ancient gatehouse and transferred it to the society. No doubt this topographical association of the charity with the remnant of the once great priory added much to its prestige. The gatehouse was already famous by its connexion with the publisher Cave and the *Gentleman's Magazine*, and the traditions of Dr. Johnson's early poverty and later fame.

The society's valuable work in aid of the sick and injured in time attracted the attention and secured the patronage of royalty, and at the present day the Duke of Connaught holds the office of Grand Prior. Its position is well assured, even if, as Mr. Torr has pointed out, it confers Knighthoods of Grace and of Justice under a misapprehension of the language and customs of the ancient Order of Knights Hospitallers. Be that as it may, Mr. Fincham's brochure contains a great deal of antiquarian interest, presented in a most attractive form.

MUIR'S PATHOLOGY

The rapid appearance of a third edition of Professor MUIR'S *Textbook of Pathology*[6] is a sure indication of the popularity of the work among students. In this edition the author has endeavoured to incorporate the numerous recent advances in pathology; considerable additions have been found necessary, and parts of the work have been entirely rewritten. The sections on renal oedema, idiosyncrasy and atopia, and on pernicious anaemia have been revised. Those on rickets and endometrial hyperplasia have been rewritten, and we find considerable additions in the descriptions of the epiblastic tumours of the nervous system and the gliomata. New articles have been added on leucocytic anaemia, agranulocytosis, asbestosis, the Aschheim-Zondek test for pregnancy, lipaemia, the intra-epithelial spread of carcinoma, the vascular mechanism of the spleen, Lewis's triple response, hypervitaminosis, and Lindau's disease. A brief account is given of Ayerza's disease, which is characterized by the presence of an obliterative arteriolitis, which might readily be mistaken for a syphilitic lesion but which is independent of that disease; and of the recent work of American pathologists on rheumatic lesions of the arteries. It has been found that lesions occur both in the aorta and in the smaller arteries, in which, as in syphilis, the infective agent is distributed through the perivascular lymphatics. An infiltration of the adventitia with lymphocyte and plasma cells occurs in the first instance, and typical Aschoff bodies are occasionally present. The media may be invaded to some extent, but the formation of aneurysms, through weakening of the vessel walls, has not been observed. The lesions are said to resemble somewhat those of polyarteritis nodosa. The additions and alterations made by the author in the present edition contribute greatly to the completeness of the work as a textbook for students.

Notes on Books

The twelfth edition of Dr. Thomas L. STEDMAN'S *Practical Medical Dictionary*[7] reaches us less than three years after we published a notice of the eleventh. In revising his work on this occasion Dr. Stedman has taken note of all the changes in the *British Pharmacopoeia*, 1932, and he observes with interest in the course of a brief preface that the two *Pharmacopoeias* (British and United States) are growing closer together both in the names and in the strengths of the official preparations. The new edition of this excellent dictionary, which first appeared in 1908, contains about a thousand new titles, without counting several hundred subtitles—"that is to say, the prolific medical jargon has grown by an average of more than one new word a day during the past three years." The admission of so many new words has added thirty-three pages to the book "despite the editor's frantic efforts at condensation."

How the Mind Works[8] contains three series of talks broadcast by Dr. WILLIAM MOODIE, Dr. EMANUEL MILLER, Dr. ERNEST JONES, and Professor CYRIL BURT, revised and enlarged for publication. A considerable portion of the book is concerned with child psychology, this subject being considered one of the most important and useful branches of psychological research. Among other subjects chosen as offering topics of popular interest are the mental differences between nations, social groups, and the two sexes, and the broader questions of politics, art, and religion.

The small book *Diabetes: Reasons and Recipes*,[9] written by a doctor and a diabetic patient, should be really useful to diabetics. It commences with a clear and simple account of what diabetes is, and the rest of the book contains full details for arranging weighed diets. Most of the questions arising in illness and varying exercise are dealt with in a most helpful way. The system of diets advocated is the same as in *The Diabetic Life*, and the food tables are taken from it with slight rearrangements. The illustrations of insulin injections are excellent.

A committee composed of teachers in the University of Glasgow has sponsored a little book, entitled *Notes on Clinical Laboratory Methods*,[10] designed to help the student in the performance of the tests that are carried out in the sideroom of a hospital ward. Thus it gives a description of the simpler methods of examining urine, blood, pus, sputum, etc. The book is of convenient size. It has a number of blank pages at the end for additional notes, and seems in every way excellent for its purpose.

Messrs. Roberts and Co. of 76, New Bond Street, W.1, have issued, for professional circulation only, a fourth edition of their *Prescriber's List*, giving in alphabetical order the chief proprietary preparations in common use, with the names of their makers, their composition, price, dosage, etc.

[6] *Textbook of Pathology*. By Robert Muir, M.A., M.D. Third edition. London: Edward Arnold and Co. 1933. (Pp. 957; 546 figures. 35s. net.)

[7] *Practical Medical Dictionary*. By T. L. Stedman, A.M., M.D. Twelfth edition. London: Baillière, Tindall and Cox. 1933. (Pp. 1,256; illustrated. 35s.)

[8] *How the Mind Works*. By C. Burt, M.A., D.Sc., E. Jones, M.D., E. Miller, M.D., and W. Moodie, M.D. London: G. Allan and Unwin. 1933. (Pp. 335. 7s. 6d. net.)

[9] *Diabetes: Reasons and Recipes*. By E. E. Claxton, M.B., and Lucy Burdekin. London: John Lane, The Bodley Head, Ltd. 1933. (Pp. 188. 5s.)

[10] *Notes on Clinical Laboratory Methods*. Standing Committee on Laboratory Methods, University of Glasgow. Second edition. Glasgow: J. Smith and Son, Ltd. 1933. (Pp. 80. 2s.)

New Preparations

LIVER EXTRACT FOR INTRAMUSCULAR INJECTION

Hepastab (Boots Pure Drug Company, Ltd., Nottingham) is a preparation of liver extract which can be injected intramuscularly. The makers announce that every batch of hepastab is clinically tested and proved to be haemopoietically active before issue. This is a very valuable guarantee, for the preparation is especially indicated in patients who are severely ill or who have proved refractory to the ordinary forms of liver administration, and in such cases it is of the greatest importance that the preparation given should be of full activity. The makers state that doses of from 4 to 6 c.cm. of hepastab are sufficient to initiate complete remissions in pernicious anaemia. They suggest an initial dosage of 10 c.cm. given in several divided doses, followed by a dose of 2 c.cm. every few weeks.

BISMURUNG OINTMENT

Bismurung (The Blythswood Chemical Co. Ltd., Glasgow) is an ointment which contains oxychloride of bismuth in a state of colloidal dispersion. Mackenna (*Lancet*, 1931, i, 126) found local application of this ointment useful in the treatment of lupus erythematosus. He also investigated the question whether inunction with the ointment produced bismuth absorption, but found that very little bismuth appeared in the urine after such treatment. The ointment is recommended for treatment of inflammatory skin conditions in virtue of its mild antiseptic and soothing actions.

TREATMENT OF DELINQUENCY

SCIENTIFIC ASPECTS

At a recent meeting of the Institute for the Scientific Treatment of Delinquency, Sir HERBERT SAMUEL, M.P., in his introductory address from the chair, said that a hundred and fifty years ago it had been thought proper to chain insane persons up in cells on straw bedding and to whip them when they misbehaved. Nowadays it was realized that proper treatment, though more expensive and troublesome, was not only more humane but more successful. Fifty years hence the community might look upon present-day penal systems with as much surprise as it looked upon the mental treatment of a century ago. Crime was now recognized to be associated with every degree of mental abnormality and perversity, from frankly insane to practically normal minds. The new attitude towards crime asked in each case how far the offender was a pathological subject and how far not, and an individual investigation was needed to decide this question. The new tendency was to make the punishment fit not the crime but the criminal. The movement for penal reform which had proceeded actively during the nineteenth century had received great impetus towards its end when Mr. Herbert Gladstone had been chairman of a committee on penal systems. In 1906 he had become Home Secretary, and had been able to put that Committee's recommendations into practice. Sir Herbert, as his Under Secretary, has seen the establishment of the probation system, the Borstal system, the Juvenile Courts, and all the changes effected by the Children Act, 1908—"the Children's Charter"—and afterwards legislation which had enabled fines to be paid more easily and imprisonment in default to be awarded more sparingly. At the same time, the personnel of the Prison Commission had been a good deal modified to include men who were keenly interested in penal reform for its own sake, and were prepared to operate a more enlightened, progressive, and scientific policy. As a result of these measures, together with the better education of the population and the diminution of drunkenness, the prison population had been reduced to a quarter of what it had been. He urged the reformers to proceed with caution lest an increase in crime should set their reforms back. The scientific treatment of crime needed co-operation between those who devoted their lives to it in this country and abroad; facilities for meeting and for research; and the investigation and treatment of cases. A clinic was needed, and to secure a clinic it was essential to have common action, and to secure common action it was necessary to have an institute.

Professor W. LANGDON BROWN said that lack of adjustment led in the child to disorders of conduct and in the adult to disorders of health, but when childish reactions persisted they were apt to be expressed in crime. The monster of unscrupulousness was not a great dare-devil, but merely a person who had lied to himself so thoroughly and persistently that he had made all other human beings and his whole environment mere shadows of his own egotism. As the seeds of crime were sown in childhood, education in the responsibility of parenthood would ultimately be the best preventive of crime. Rational treatment of the criminal meant the education of magistrates and judges not only in the psychological basis of crime but in its physical basis, such as the disorders of the ductless glands. Many criminals who owed their crime to deep-seated defects of the mind were utterly undeterred by imprisonment, and to imprison them without appropriate treatment was mere cruelty, which would excite horror in future generations. It was a pity, he thought, that reason had become discredited as a result of its overvaluation in the nineteenth century. The human mind needed sufficient reason to realize how unreasonable man was. The Institute was pleading for the scientific study of all the factors that made for crime and for more sympathetic understanding of, in Dr. Grace Pailthorpe's phrase, what we put in prison.

Dr. J. A. HADFIELD described several cases of persons who had been charged with acts of sexual perversion, indecent exposure, and theft, and had been investigated and treated by the Institute. Most of them, he said, were incapable of benefiting from imprisonment, which did not even protect society, for when they were released they would promptly commit another similar offence. The first service which the Institute wished to render was that of reporting on offenders referred to it by magistrates, and an honorary member of its panel of psychologists was on duty every week-day at the West End Hospital for Nervous Diseases. Patients were examined from the physical, psychological, and psychiatrical points of view, and all the reports were sent back to the magistrate. The Institute was scientific, not sentimental, and its aim was to find out the real causes of crime. It did not desire to interfere with magistrates, but only to help them. It hoped in the future to investigate the causes of deliberate crime where no apparent mental disorder was present.

Dr. JOHN RICKMAN inquired whether a new institution had ever made such modest claims and so few promises. It did not desire to be large, for its work could be done by a small society. It would not take any responsibility from the shoulders of those who were handling or treating the criminal, and it would not act in rivalry with any other body. It wished to provide a permanent centre where magistrates could send difficult cases for report; this service would require several hundred pounds a year. It was proposed to establish a scientific centre for handling criminal problems, a clinic, and, later, branch clinics throughout the country—for, difficult as it was to remember the fact, there were such things as provinces. In short, the Institute existed to make a technical and scientific contribution to the work which many other bodies were already performing admirably along other lines.

Mr. CLAUD MULLINS, a Metropolitan magistrate, urged the necessity for educating the magistrates to require scientific reports. He pointed out that reports would not make a magistrate's problem any easier, but rather more difficult, for it might preclude him from giving three months' imprisonment and suggest no alternative. Unless offenders could be treated he did not expect to receive much help. (Dr. Hadfield replied that a number of exhibitionists were at present undergoing treatment, and Dr. Rickman explained that the Institute would approach magistrates, but not "arrogantly.") Canon DONALDSON declared that the parish priest, who was often confronted with cases of exhibitionism and the infuriated public opinion of parishioners—especially mothers—was the person who, when he had been instructed in the scientific aspect of the case, could do as much as anyone to educate the public.

Sir FRANCIS FREMANTLE suggested that the new mental defective colonies were the proper bodies to investigate delinquency, and asked if the Institute could bring them into closer co-operation with the magistrates. Commissioner LAMB of the Salvation Army remarked that science had reached the point which the Army had reached sixty years before, and urged the Institute not to underrate the value of sentiment. Mr. CHAPMAN suggested that panels of specialists attached to the courts would be of more value than a clinic for a magistrate who had to deal, possibly, with twenty or thirty cases a day. Mr. BISHOP described the growth of a similar movement in Australia, which now had twenty-five branches and received a Government subsidy of £5,000 a year, and suggested that the Institute should hold monthy conferences with magistrates. Mrs. LE MESURIER warned the Institute of the difficulty of making its facilities known to magistrates, and recalled that in spite of every effort the staff with which she had worked at Wormwood Scrubbs Boys' Prison, and which had been ready to furnish the fullest reports on every aspect of a young person's life, had only been consulted in about one-fifth of all the possible cases.

Dr. HADFIELD, in reply, said that delinquents who were mentally defective would be sent to colonies, and those who were not would be sent to appropriate places for treatment. Although the Institute had not been founded long enough to claim any cures of psychological delinquents, its individual members could probably all point to such successes.

THE COMPLEMENT-FIXATION TEST FOR GONORRHOEA

It is to be hoped that the medical profession in general and venereologists in particular will show some interest in a recent publication, *The Complement-fixation Test for Gonorrhoea*, by I. N. Orpwood Price, issued under the auspices of the London County Council. Venereal disease has ever been the Cinderella of medicine and the gonococcal complement-fixation test (G.C.F.T.) her youngest daughter, and it is time that the medical profession realized that such a valuable reaction as this is at least worth while investigating. In this country McDonagh and Klein, Harrison, Priestley, Thomson, Osmond and Oliver, and Price have done much work on the subject, with the result that we now have a test for gonorrhoea comparable in specificity and sensitivity with the Wassermann test for syphilis. Yet every medical man makes frequent use of the latter, whilst those who carry out the former to any extent might almost be numbered on the fingers of two hands.

Price, working first at St. Thomas's Hospital and later at the L.C.C. (Whitechapel) Clinic, has recently evolved a technique which is very much on a par with the Medical Research Council's No. 1 method for the Wassermann reaction. The method is straightforward and reasonably simple, and could be carried out by any trained pathologist. The most important points are the preparation of a suitable antigen (full details of which are given), and the employment of neat, instead of diluted, serum; the accurate reading of results may give rise to some difficulty at first, but is soon acquired with practice. The author has set out his technique very clearly, including the preparation of the reagents, the order in which they are added, and the reading of the results; in an appendix he explains, with diagrams, the use of the "dropping" method, by which a great amount of time and labour is saved when dealing with large numbers of specimens. As to the specificity of the test there can be little doubt. Pathologists working independently in various parts of the world are almost unanimous in recording the absence of false positives, and consistently find the test positive in well-established gonorrhoea and all its complications; the cause of an otherwise obscure arthritis or epididymitis is revealed with a reasonable degree of certainty if the G.C.F.T. is positive.

INTERPRETATION OF THE TEST

It is over the interpretation of the test that the greatest difficulty arises, and much of what the author says is somewhat controversial. It is generally agreed that a positive reaction means a gonococcal infection in the present or in the immediate past. But what of a negative? This no more means that a patient has not got gonorrhoea than a negative Wassermann means a patient is not suffering from syphilis, but should be interpreted in much the same way. A positive reaction is not to be expected before the end of the first week, and it is not till the third or fourth week that a high percentage of cases show a well-marked reaction. Occasionally a negative result will occur in a well-established case, due presumably to a failure on the part of the tissues to respond to the presence of the toxin; but such results are uncommon. The author thinks that a positive reaction always indicates a "closed" infection, such as a littritis, epididymitis, or vesiculitis; but his arguments in favour of this are not altogether convincing.

In diagnosis the value of the test seems to be undoubted, but opinions differ as to its value as a "test of cure." What must be stressed is the fact that a single negative no more means cure of gonorrhoea than a negative Wassermann reaction means cure of syphilis: it is only presumptive evidence, and must be read in conjunction with the clinical findings. What is valuable and almost conclusive evidence is a number of negatives at varying times after the disappearance of all signs, more especially when the reaction has previously been positive. Generally speaking, a positive reaction will give place to a negative within about two months of cure. Vaccines undoubtedly cause a positive G.C.F.T., even in persons who have not got gonorrhoea, but this falls to negative about six weeks after the injections are discontinued. It should be borne in mind that cross-fixation (giving rise to a false positive result) may conceivably happen in infections with organisms other than gonococcus—such as meningococcus, *Micrococcus catarrhalis*, and *Micrococcus flavus*. The author's experiments and those of other workers indicate that the only danger is in the case of a serum containing a very large amount of *catarrhalis* antibody, and even here the difficulty may be overcome by titrating the serum in the presence of both kinds of antigen: at all events the occurrence of cross-fixation is comparatively rare, though a great deal more work needs to be done to elucidate the problem thoroughly.

To sum up, Dr. Price has made out an unanswerable case for the routine use of the G.C.F.T. in the diagnosis and management of gonorrhoea, and every venereologist should include the reaction in his armamentarium, because failure to do so will reduce his efficiency. It is much to be hoped that this work will be widely read, that it will stimulate a greater use of the reaction, and that more pathologists will make themselves acquainted with its technique and interpretation. A helpful and representative bibliography is appended.

BURSARIES FOR DENTAL EDUCATION

The Dental Board of the United Kingdom has decided that bursaries awarded by it for dental education from the beginning of 1936 will be limited to a maximum rate of £30 a year, provided that awards may be made at a higher rate to candidates who are the sons of dentists, or who have previously received such tuition in dental mechanics as will entitle them to a reduction of one year in the length of the curriculum required to be taken by them in a dental school. With these exceptions, the Board will only be prepared to entertain applications for bursaries payable after January 1st, 1936, from persons who can satisfy the Board that their financial circumstances are such that a bursary at a rate not exceeding £30 a year will enable them to enter upon the curriculum for dental students. Subject to the foregoing modification of the present scheme of awards, bursaries will continue to be awarded to those candidates who, in the opinion of the Board, are the most suitable for the profession of dentistry, and cannot enter it without financial assistance.

Meetings for the selection of candidates will usually be held in March and September of each year. It should be noted that students who have entered upon professional study in a dental school are not eligible for awards, and that all candidates must produce evidence that they have satisfied the general educational requirements of the General Medical Council, and that they have, in addition, passed the requisite preliminary science examination of the licensing body whose qualification they intend to obtain. Prospective candidates should make inquiries well in advance of the date at which any formal applications are submitted, by applying for further particulars to the Registrar of the Dental Board, 44, Hallam Street, Portland Place, W.1.

British Medical Journal

SATURDAY, DECEMBER 30th, 1933

POLIOMYELITIS

The last ten years have witnessed considerable advances in the study of experimentally induced poliomyelitis, and during the same period the disease has been treated with "convalescent serum" on a scale previously unattempted. The importance and complexity of the subject necessitates a careful and unbiased consideration. Dr. F. M. R. Walshe, in opening the discussion on poliomyelitis which we publish in this issue, considers the bearing of recent experimental work upon existing conceptions of the disease and upon its treatment with immune serum. His argument may be summarized as follows. The causative virus reaches the nervous system from the nose by passing along the olfactory nerves. It then spreads within the nervous system along the axones of the fibre tracts, reaching in this way the anterior horn cells of the spinal cord, where its destructive effect results in muscular paralysis. Therefore the stage of general or systemic infection with the virus, which has previously found a place in descriptions of the disease, does not exist, and "the clinical division into preparalytic and paralytic stages does not correspond to distinct stages in the underlying pathological process." It follows that there is probably no stage in the disease in which the virus can be neutralized before it has reached and attacked the nerve cells. Hence serotherapy is likely to be ineffective, and has in fact been so. Dr. Walshe anticipates the criticism, actually made by Dr. Macnamara, that experimental work carried out on monkeys with a virus which has been repeatedly passed from one animal to another and hence is probably highly neurotropic, may not be applicable without reserve to the spread of the "wild" virus in man, and Dr. J. P. Martin presents evidence in favour of the view that a general or systemic phase of the infection does in fact occur in human poliomyelitis. Dr. Martin mentions cases in which poliomyelitis has followed injury and in which the paralysis has been maximal in the injured limb, and he believes that this sequence of events is inexplicable by any other theory than that of general infection. It could, however, be equally well explained on Dr. Walshe's hypothesis by assuming that the injury to the limb led to retrograde changes in the corresponding anterior horn cells which lowered their resistance to the virus reaching them through the nervous system. There is some force in Dr. Macnamara's criticism, but the question whether the virus reaches the nervous system in man by way of the olfactory nerves, or by the blood stream, or in other ways, seems at the moment to have little practical importance, for it is clear that probably in all cases diagnosed during the preparalytic stage the virus has already reached the nervous system, a fact which is proved by the presence of a pleocytosis in the cerebrospinal fluid.

In what sense does this imply that "the clinical division into preparalytic and paralytic stages does not correspond to distinct stages in the underlying pathological process"? This is true if it means that in the preparalytic stage the virus has already invaded some cells of the central nervous system—according to Faber, those of the hypothalamus—and that the invasion of the anterior horn cells is the result of an increase in the extent, and not of a change in the character, of the pathological process. But to be content with this limited anatomico-pathological description is to neglect a factor which may prove to be of the greatest practical importance. The recent study of preparalytic cases on a large scale has shown that in certain epidemics over 70 per cent. of individuals whose nervous systems are invaded make a complete recovery without at any time developing paralysis. It may be true that at present no mode of treatment can prevent the virus from reaching the anterior horn cells when once it has entered the nervous system, but nature is capable of achieving this without external assistance in three cases out of four. This fact encourages the hope that an increase in our knowledge of the natural process by which immunity is rapidly acquired may enable us to intervene more successfully with treatment.

The value of serotherapy as at present employed will not, however, be proved or disproved by theoretical considerations; as Dr. Benjamin Waterhouse said in the early days of vaccination against small-pox, "one fact in such cases is worth a thousand arguments." In the light of the most recent investigations it is difficult to refute Dr. Walshe's contention that "serum treatment, as hitherto employed, has proved a broken reed." Dr. W. H. Park,[1] whose cases are among those included in the large group studied under the direction of the Academy of Medicine in New York, found that, when both treated and untreated cases were observed from the preparalytic stage onwards, serotherapy neither lowered the mortality rate nor reduced the incidence of paralysis in the treated cases. In certain respects the advantage lay with the untreated cases. Moreover, when patients received serum treatment, the route of administration, whether intrathecal, intravenous, intramuscular, or a combination of these, did not appreciably affect the results, nor did those patients who received treatment on the first day of the preparalytic stage do any better than those whose treatment was delayed for several days. How, then, are the favourable results reported by earlier workers to be

[1] *Journ. Amer. Med. Assoc.*, 1932, xcix, 1030.

explained? The explanation appears to be that whereas the treated patients received treatment in the preparalytic stage, the "controls" were patients in whom paralysis had already developed when they came under observation. Since, as already mentioned, three out of four patients seen in the preparalytic stage may recover completely without developing paralysis, and since the mortality rate of those seen at this stage is much lower than in the case of those who are not observed until they are paralysed, it is clear that the treated patients and their "controls" are not comparable. Only when treated and untreated patients were under observation from the preparalytic stage onwards could the value of serotherapy be scientifically assessed.

The practical conclusion may be drawn that at present there is no evidence that a doctor who withholds convalescent serum is acting contrary to the interests of his patient. If he decides to administer serum, there would seem to be no theoretical grounds for utilizing the intrathecal route, and there is no evidence that serum administered by this route yields better results than when it is given intravenously or intramuscularly. If the verdict upon serotherapy must be "Not proven," it is just to add that the enthusiasm of the advocates of serotherapy has already added greatly to our knowledge of the early stages of poliomyelitis, and their work may well be a necessary step on the road to an effective method of treatment. What this will be is a matter of speculation. That a concentrated serum, as suggested by Dr. Martin, will be of more value than ordinary convalescent serum seems improbable, since it is not the neutralizing power of the serum which is lacking, but a method of bringing it into contact with the virus. The discovery of an effective method of prophylaxis would be the ideal solution of the problem. Passive immunization by the administration of normal adult whole blood or serum to susceptible children, though possibly of temporary value, does not meet the real need. It is reasonable to expect that vaccination by means of a virus of modified virulence will ultimately be practicable, and we understand that work on these lines in America has already reached a stage of some importance. In this connexion Dr. S. D. Kramer's[1] recent observation is of interest. He has shown that a group of individuals previously non-immune to poliomyelitis may become immune as a result of intimate contact with a person harbouring the virus—for example, a convalescent—but without themselves developing any recognizable symptoms of the disease, even of its preparalytic stage. This phenomenon may throw light upon the process by which a large proportion of an urban population normally becomes immune to the disease before reaching adult life. How the immunity is developed without the occurrence of an abortive form of the disease, and whether this depends upon some modification of the virus in the convalescent, are questions of great importance in connexion with prophylaxis.

[1] Kramer, S. D.: *Journ. Amer. Med. Assoc.*, 1932, xcix, 1048.

THE MEDICAL CHARITIES

The substantial and satisfactory basis on which to rest an appeal for co-operation in the work of a charitable enterprise is best provided by the facts of the situation. Not that sentiment is to be entirely excluded; on the contrary, it has its place and opportunity. Yet in the end the questions of need, of methods, of efficiency, and of management are rightly asked by those who are invited to contribute to a purpose which is admittedly one of charity or benevolence. Goodwill by all means, but goodwill summoned by a real need and wisely and prudently directed. To inquiries of this order the medical charitable funds as they exist to-day may advance sufficient and satisfactory answers. The need is real and not infrequently urgent. It concerns colleagues who, under the stress of misfortune, are in difficulties and often in despair; in many instances it is expressed by widows and children suddenly and unexpectedly brought to poverty; and sometimes the individual appeal is for some small measure of assistance which will give a chance for the re-establishment of opportunity.

Such experiences in concrete form are the positions which the committees of the several medical charities have repeatedly to face, and they cannot be redeemed by smooth words. Equally true is it that the financial support given to these funds is inadequate to the need, and that it is provided by a relatively small percentage of the profession. More annual subscriptions are essential if the work of assistance is to be continued, and the circumstances call not merely for continuance but for enlargement. Hence we readily lend our columns to an appeal to our readers to take some part, even if it needs must be only a small part, in the endeavour to lessen privation and suffering among colleagues and the dependants of colleagues on whom fate and mischance have pressed with a heavy and relentless hand. Disabling accidents and illnesses inflicting permanent incapacity take their toll in the medical profession as they do in other professions, and in some instances the breakdown of health is a direct consequence of risks accepted in the discharge of professional duty. Not yet in this direction are the effects of the war fully exhausted, and there are other events which call for sacrifice and demand a penalty. Without the possibility of personal activity the medical practitioner is of course financially helpless, and it will hardly be questioned that there lies a duty on the profession to relieve, at least in some measure, so pathetic a situation. Perhaps it may be said that provision can be made for such contingencies by schemes of insurance, and undoubtedly there are excellent schemes of this order which may well engage the attention of the younger members of the profession; in their support no one can be more earnest than those who through the charitable funds are in contact with personal misfortune and suffering. Wisdom, however, is apt to come after the event, and there is no help in face of disaster in the remark that

prudence ought to have been practised in earlier years The situation is what it is and as such it has to be met

One part of the work of the charitable funds cannot profess to do more than mitigate positions which are quite beyond redemption Elderly practitioners, or their widows or daughters, may be saved from actual privation by a modest annual grant though nothing can restore the promise of the years, even this, however, means much to the elderly, the sick, and the lonely, some of whom, before disaster fell upon them, enjoyed comfortable and sheltered lives A different note is possible in reference to children Here money spent in support and education may readily in time secure an abundant economic justification A Foundation Scholarship at Epsom College means a public school education without expense, and restores to the boy the chance in life of which family misfortune had robbed him ; and in similar fashion the Royal Medical Benevolent Fund, through the Ladies Guild, is able to secure educational and training opportunities for girls and young women. Thus, not only is the individual helped, but good and effective citizens are given to the community For those broken by age and illness, and loss, both Epsom College and the Royal Medical Benevolent Fund have pensions and grants and annuities which bring to many unfortunates both practical help and a sense of fellowship It is in these deserving and appealing enterprises that we invite our readers to take some share And we may remind them that to the efficient, economical, and impartial administration of these funds a large contribution is made by the voluntary service of members of the medical committees of management, who accept responsibility and give freely their time, and thought, and good will, while the beneficial effects of all this work are to be seen in individual homes and lives which otherwise would have been without help and without hope Contributions can be sent direct to any one of the Funds, but a convenient arrangement is to send a cheque or other payment to the B M A , Tavistock Square, W C 1 , the donor can mark his contribution for the Royal Medical Benevolent Fund or for Epsom College as he wishes, or he can pay the money to the Medical Charities Committee of the Association, leaving the committee to distribute it as circumstances seem to indicate In the form which members will receive next week for the payment of their annual subscriptions are vacant columns which invite attention However sent, help will be welcome , it is needed, and it will be used to good purpose

A NEW THEORY OF STATUS LYMPHATICUS

The presence of some enlargement of the thymus and of other lymphoid tissue in the body of a person dying suddenly and unexpectedly still requires some explanation, despite the findings of the special committee of the Medical Research Council a few years ago that a causal connexion was not proved In a recent article[1] Dr W N Kemp of Vancouver brings forward a novel theory which certainly explains some of the facts, and whether completely valid or not, it at any rate seems to offer scope for prophylactic measures He bases his remarks mainly on the striking occurrence in young infants of sudden attacks of dyspnoea or " choking spells," accompanied by ashy pallor and collapse loss of consciousness, and a not infrequent fatal ending At necropsy the condition of " status lymphaticus " is found, and at this age period and in the usual circumstances—in which the child has previously been lying quietly in bed—it cannot be said that the term is being used to cover any awkward occurrence under an anaesthetic. Dr Kemp's view is that such cases represent acute adrenal insufficiency secondary to dysfunction of the thyroid The enlargement of the thymus is held to be a result of this thyroid disorder, which, in turn, is attributed largely to an inadequate iodine intake The evidence for this is traced step by step, and while not always conclusive it is at any rate suggestive For example, it is pointed out that in dogs dying after adrenalectomy it is usual to find an enlarged thymus gland and marked enlargement of the mediastinal and mesenteric lymphatic glands In one experiment, in which large portions of the cortex of the adrenal were removed, the animal was killed accidentally after four and a half months, and necropsy revealed a large thymus, enlarged lymphatic glands in chest and abdomen, enlargement of Peyer's patches in the intestine, and hypertrophied tonsils Dr Kemp points out further that the post-mortem findings in young adults dying of Addison s disease also include enlargement of the thymus and of the lymphatic glands To explain the frequency of the occurrence of " status lymphaticus " in infants he invokes a description by Boyd of the development of the adrenal cortex, whereby it appears that immediately after birth the entire foetal cortex degenerates, and what is termed the " adult cortex " begins to enlarge, not reaching the same size as the foetal cortex until about 12 years of age The time of occurrence of the vast majority of cases of ' status lymphaticus," according to this author, therefore coincides with the period of degeneration of the foetal cortex and early growth of the corresponding " adult " tissue Coming to the relation between the thyroid and the thymus, Dr Kemp points out, first, the close anatomical and developmental connexion between these two glands, also stressing the fact that in Graves's disease enlargement of the thymus is a very frequent finding Next he discusses the question of the cause of thyroid dysfunction, particularly in reference to the possibility of " thyroid strain " in the presence of certain hygienic and dietetic factors which are likely to cause some disorder of the thyroid in the absence of adequate iodine in the diet Dr Kemp deals with this last factor, quoting figures which indicate that in Vancouver a recent analysis of the milk supplied by the largest milk-distributing firm reveals absolutely no trace of iodine, and an investigation of the incidents leading up to the fatalities in infants showed a remarkable connexion with a diet of modified or whole cow's milk Thus briefly summarized, the theory of adrenothyroid insufficiency as a cause of the symptoms in " status lymphaticus " presents many attractive features

[1] *Canadian Med Assoc Journ*, November, 1933, p 506

as well as certain difficulties. Treatment based upon the theory, however, may be well worth while, and is divided into prophylactic and curative. For the former Dr. Kemp urges an adequate supply of iodine to the mother during pregnancy and lactation and to the bottle-fed infant. For the latter it is suggested that the application of x rays to the thymus gland has proved successful in the past, and that no other method of treatment can at the moment replace this. The experimental use of suprarenal cortex, thyroid extract, or iodine is also suggested. In some respects this may be regarded as a tame finish to an otherwise stimulating paper, but a consideration of the facts as at present understood leaves very little alternative. The problems of death after anaesthesia and of the proneness to infection shown by "status lymphaticus" patients are also faced and pieced into Dr. Kemp's theory.

PNEUMOCOCCAL INFECTIONS

The greater part of the *Guy's Hospital Reports* for October (vol. lxxxiii, No. 4) is devoted to a symposium on pneumococcal infections. The first and largest individual contribution, by Drs. J. A. Ryle and R. L. Waterfield, deals with lobar pneumonia, for which the title "pneumococcal fever" is employed, the implication being that pneumonia is the main clinical manifestation of a disease which is essentially a septicaemia. Whether this title is a good one must depend on whether we regard septicaemia as the primary condition or only as the effect of an escape of pneumococci from an already affected lung, and this involves determining the mechanism by which infection of the lung arises; the authors here content themselves with stating the main alternative hypotheses—those of blood-stream infection and of lymphatic spread from a point of entry in the bronchi—without explicitly favouring either. Since no experimental data traversing the work of Blake and Cecil have been forthcoming, it would seem that the latter hypothesis is favoured by the balance of present-day evidence. A study of the disease as seen in Guy's Hospital during the years 1922–30 shows a total mortality rate of 16 per cent., or only 10 per cent. if cases are excluded in which other conditions existed that would unfavourably influence the prognosis. These results, which are fairly representative of practice in this country, are, of course, much more favourable than those obtained in America, and it may well be asked whether the lessons of serum treatment from across the Atlantic are really applicable in a country where the disease wears so different an aspect. The authors of this paper are inclined to reserve serum treatment for certain cases "giving cause for undue anxiety at an early stage." In a discussion of pneumococcal infections in childhood Dr. H. C. Cameron refers to the greater frequency of these infections in childhood and the greater liability to such complications as empyema, arthritis, and peritonitis. Emphasis is laid on the prognostic contrast between synpneumonic and metapneumonic empyema; in the former almost all patients die, and in the latter almost all recover. Nephritis in pneumococcal infections is considered by Dr. Geoffrey Rake, who has studied the kidneys in ninety-five cases of disease due to pneumococci, of which nine showed an acute diffuse nephritis. He has also produced glomerular and tubular lesions in rabbits by repeated intravenous injection of a pneumococcus autolysate. A highly unorthodox hypothesis is developed in this paper: that in pneumococcal infections may be sought the origins of lipoid nephrosis. The occurrence of pneumococcal peritonitis in such patients is mentioned as evidence in support of this. It need hardly be said that such infections are more generally regarded as late secondary, and are in fact too often only terminal, phenomena: to suggest that the same bacteria may have originated the renal condition is a mere flight of the imagination. Dr. R. L. Waterfield also contributes an analysis of thirty-three cases of pneumococcal meningitis: of these most were secondary to pneumonia or disease of the ear, but six are classified as "primary." It is, however, frankly confessed that in none of these six cases do the post-mortem records refer to any examination being made of the ears. The uncertainty in which the true nature of these cases must therefore remain illustrates a serious defect in this method of obtaining data: the wholesale analysis of past records, which are always imperfect in some particular, cannot furnish information of the same reliability as an *ad hoc* investigation in which the observer himself studies the cases and records the findings with the specific subject of inquiry constantly in mind. Other contributions to this symposium are those of Mr. W. M. Mollison on pneumococcal infections of the nose, throat, and ear, and of Mr. C. H. Fagge on pneumococcal arthritis.

TUBERCULOUS INFECTION IN MILK

An investigation organized by the Department of Health for Scotland into the extent of tuberculous infection of the milk supply is described in a report to the Medical Research Council.[1] The cost of the inquiry was met partly by the local authorities of Aberdeen, Dundee, Edinburgh, and Glasgow, and partly by a grant from the late Empire Marketing Board. Though the full scheme originally contemplated had for reasons of economy to be curtailed, a sufficiently large number of examinations were carried out to ensure its success, and to prove once again the extraordinary value of co-operative investigation in the field of preventive medicine. The general plan consisted in an attempt to ascertain the frequency with which tubercle bacilli could be detected by the guinea-pig inoculation method in different types of liquid milk intended for human consumption. Milk coming into and distributed in the four cities already mentioned was examined by the staffs of the respective local authorities, with the exception of graded and tank milk samples, all of which were sent for testing to the Hannah Dairy Research Institute. An aggregate of 5,483 samples was examined. Composite churn samples of raw milk coming from individual farms were infected to the extent of 10 per cent. Raw tank milk samples yielded a figure of 37.5 per cent., flash-pasteurized milk one of 8.2 per cent., milk pasteurized by the holding method one of 2.8 per cent., and retailed milk an estimated figure of rather over 5 per cent. Of 714 samples of Certified and Grade A (T.T.) raw milk examined, only one sample was found to be infected. In order to avoid misunderstanding it is

[1] Medical Research Council. Special Report Series, No. 189. Tuberculous Infection in Milk. A Report by the Department of Health for Scotland. H.M. Stationery Office. (9d.)

necessary to comment on these figures. The proportion of positive results was found to depend to a considerable extent on the actual quantity of the milk sampled. This is especially noticeable in the difference between the figures for churn and for tank milk: the churn samples represented an average volume of about forty gallons, tank samples one of about 500 gallons. But even in the churn milk the effect of bulking was manifest, for example 7·9 per cent. of samples taken from volumes up to forty gallons were infected whereas of samples taken from volumes of 60 to 100 gallons 17·8 per cent. were infected. The heat-treated milks fell into two main classes—namely, that pasteurized by the flash and that by the holding method. Of the samples treated by the unofficial flash method 8·2 per cent. of those treated by the holding method 2·8 per cent. contained tubercle bacilli. These results merely confirm previous findings as to the superiority of the holding over the flash process of heat treatment. Investigation revealed that the whole of the positive samples in milk pasteurized according to the officially recognized procedure were taken from three types of plants, the remaining five types yielding perfectly satisfactory milk. Further analysis of the results rendered it probable that faulty pasteurization was due, in some instances to improper design of the plant, and in other instances to inefficient operative procedure. Since milk for pasteurization is previously bulked it is necessary to compare the incidence of tubercle bacilli in pasteurized with that in tank milk. It will be seen that a figure of 37·5 per cent. in tank milk is reduced to one of 2·8 per cent. in holder-pasteurized milk. The actual reduction in the infectivity of the milk was probably very much greater than is represented by these figures. That is to say, if the numbers of living tubercle bacilli could have been estimated the percentage reduction would probably have been far more striking. The guinea-pig test is qualitative, not quantitative, and can distinguish only roughly between slightly and heavily infected milk. Examination, however, of the animal results showed that while 93 per cent. of guinea-pigs inoculated with tank milk showed tuberculous lesions in four weeks, only 27 per cent. of those inoculated with holder-pasteurized milk did so, the remainder being discovered only in the animals killed after eight weeks. Nevertheless the fact that nearly 3 per cent. of holder-pasteurized samples of milk were infected is disquieting and reveals the necessity for rigid control by the local authority of the types of plant and the method of their operation. The extent of infection of retail milk for sale to the consumer was rather over 5 per cent. Much of this had, of course, been heat treated, thus explaining the reduction over the incoming supply figures. Summing up, the main findings of the report are that an average of 10 per cent. of the raw milk in churns was infected, that bulking of milk increased the infection, that heat treatment reduced it, that a little over 5 per cent. of the retail milk was infected, and that only one out of 714 samples of Certified and Grade A (T T) milk contained living tubercle bacilli. These figures afford as strong an indictment as could be desired of the system that permits the contamination of our milk supply with one of the most serious of the pathogenic micro-organisms known to man. Nothing but sheer familiarity could blind us to their significance.

SMALL-POX IN 1932-3

The September–October issue of the Epidemiological Report of the Health Section of the League of Nations contains an instructive survey in alphabetical order of the incidence and mortality of small pox throughout the world. In Africa, during 1932 and the first six months of 1933 Nigeria, the Belgian Congo, and Nyasaland were the principal foci. In Morocco an intensive vaccination campaign led to decline of an epidemic which began at the end of 1931 and reached its maximum in January, 1932. In Egypt sporadic cases occurred at Suez between March and May, 1932, and in November an outbreak took place at Alexandria and lasted until the following May, the fatality being 21·6 per cent. In Nigeria the disease was much more prevalent in the northern than in the southern provinces. The Belgian Congo, where 2,287 cases were notified in 1932, is still one of the most important foci in Africa. Most of the cases however, are of the mild type. In Asia the principal foci are British India, French India, Iraq, Persia, French Indo-China, China, Japan, and the Asiatic territories of Soviet Russia. In Europe no cases were reported in Scotland, the Irish Free State, Holland, Austria, Hungary, Czechoslovakia, Bulgaria, and Yugoslavia, and only sporadic cases occurred in France, Germany, Belgium, Italy, Poland, Finland, and Greece. The most important foci in 1932 were European Soviet Russia, where 12,790 cases occurred, the areas of greatest prevalence being the Ural region, the Middle Volga Province, and the autonomous Bashkir Republic; Spain, where there were 1,005 cases (90 per cent. of which were variola), Portugal, where 4,226 cases, with 1,030 deaths were reported, and England and Wales, where there were 2,039 mild cases in 1932. In America there has been a decline in the incidence of small pox in the United States and Canada in 1932 and 1933, and the fatality rate remains low. In Mexico, on the other hand, the severe form of small pox is still prevalent, and the number of deaths is relatively high. In Central America the disease is still frequent, but its incidence is irregular. In South America the number of cases reported was very low in Colombia, low in Chili, Brazil, and the Argentine Republic, was *nil* in Venezuela, but was fairly high in Ecuador, Peru, and Bolivia. There were no cases of small pox in 1932 and in the first nine months of 1933 in Australia, New Zealand, and the Pacific Islands.

Mr Herbert J. Paterson, C.B.E., F.R.C.S., has been co-opted to the governing body of the British Post-graduate Medical School. Mr Paterson was a member of the committee appointed by Mr Neville Chamberlain in 1925 to draw up a practicable scheme of post-graduate medical education centred in London, and is chairman of the executive committee of the Fellowship of Medicine and Post-Graduate Medical Association.

On January 9th next the Stationers' Company propose to admit Sir Henry Brackenbury, LL.D., M.D., to the Honorary Freedom and Livery of the Company. Sir Henry Brackenbury recently resigned the chairmanship of the Governing Body of the Stationers' School for Boys, a post he had held for over eighteen years.

Nova et Vetera

MEDICAL ADVERTISING IN 1798

[FROM A CORRESPONDENT]

It is, of course, well known that formerly members of the medical profession thought no harm of advertising themselves and their favourite treatments in the public Press and in other ways. During a summer holiday in a northern part of England recently I came across a copy of the *Times* of October 3rd, 1798, chiefly of interest as containing the announcement of the Battle of the Nile (fought a few weeks previously), with Nelson's own dispatches, in which the news of the victory was contained. A number of medical and semi-medical advertisements attracted my attention, and I transcribed some of them. They give a good idea of the lengths to which Members of the College of Surgeons and others permitted themselves to go in their attempts to establish a practice.

The front page of the newspaper consists entirely of advertisements, among which are three or four of medical interest, including the following:

THE excellence of that invaluable Medicine, SPILSBURY'S ANTISCORBUTIC DROPS, is displayed in the following wonderful cures:—The remarkable case of Mary Esdale, who went on crutches, and was discharged from St. Bartholomew's Hospital, as incurable, was restored to her health by these drops, and walked without even the assistance of a stick. During the cure 30 splinters of bone worked out. Witness Mr. Croft, taylor, No. 65, Fleet Street, London.—Jonathan Roberts, of Wellington, Somersetshire, cured of a scorbutic humour on his body by these drops. The Revd. Mr. Joshua Toulmin, and Mr. John Poole, Printer, both residents in Taunton, and Mr. Abraham Shorland, of Wellington, have attested the case. A Gentleman resident in Barnstaple, Devonshire, who for two years had laboured under a violent Rheumatic Fever, was cured by taking eight 5s. bottles of these drops. Witness, Mr. Murch, bookseller, in Barnstaple. John Mitchell, at Mr. Glover's cornmills, Mitcham, Surrey, cured of a leprosy. Mr. William Barber, of Wooton, in Norfolk, near Bungay, cured of a bad scurvy. Witness, James Sexton, in Bungay, Suffolk. A private gentleman at York, afflicted with the gout, scurvy, rheumatism, etc., cured by these drops. Witness, W. Tesseyman, bookseller, in York. The remarkable case of the son of Jonathan and Mary Winn, of Pawlet, near Bridgewater, Somerset, aged 14 years, afflicted with scurvy from head to foot, cured with these drops. Witness, Richard Ody. The above drops, by the King's Patent, are sold at the dispensary in Soho Square, and by all the vendors of patent medicines in Great Britain and Ireland.

SURGICAL LECTURES

Mr. Pearson, Surgeon of the Lock Hospital and Asylum, and of the Public Dispensary, will begin his Course of Lectures on the Principles and Practice of Surgery, in which he will deliver a copious account of Scrofula and Lues Venerea, on Monday next, at 7 o'clock in the evening, at his House, in Golden Square.

MIDWIFERY

MEDICAL THEATRE, LONDON HOSPITAL

On Wednesday, October 10, at 11 in the forenoon, RICHARD DENNISON, M.D., F.A.S., Man-Midwife to the City of London Lying-In Hospital, and Lying-In Charity for Delivering Poor Women at their own Habitations, will commence his lectures on the THEORY AND PRACTICE OF MIDWIFERY and the DISEASES of WOMEN and CHILDREN; and for the convenience of students residing in, or westward of the City, DR. SQUIRE, Physician and Man-Midwife to the Lying-In Hospital for Delivering Poor Women in their own Habitations, will commence a course on the same subject, at Hatton House, No. 10, Cross Street, Hatton Garden.

Further particulars may be known by applying to the Apothecary, at the London Hospital; or at Dr. Dennison's, No. 37, Broad Street Buildings; and at Dr. Squire's, No. 7, Ely Place, Holborn.

On the same front page are also advertisements of Maillardet's Anatomical Exhibition, Spring Gardens, and of Mr. John Braidwood's Academy for the Instruction of the Deaf and Dumb at Hackney Terrace. Almost the whole of the next page is taken up by the reprint from the *London Gazette* of Nelson's dispatch announcing the Battle of the Nile and its results, with other naval information concerning the war at sea. Page 3 is taken up by news of various sorts, especially a long article on the rebellion in Ireland; with some bombastic abuse of Napoleon, some political gossip, and several accounts of highway robberies in and around London. On the back page are law reports, and then three more columns of advertisements, including three long ones of a medical tenor. The first strikes a note still familiar in quackery:

TO THE PUBLIC. The increasing Sale of DR. BRODUM'S NERVOUS CORDIAL and BOTANICAL SYRUP, sufficiently evinces their efficacy in the cure of those complaints for which they are recommended. To the afflicted with Nervous Disorders, to those suffering from change of heat or climate, and to those who labour under weakness and relaxations, originating in a variety of causes, this medicine is recommended as a powerful restorative; and to thousands of young people, growing old before their time, by having unguardedly plunged themselves into the commission of a solitary and deluding vice, they have happily been the means of recovery to the mind as well as the body, and exalted them from a state of melancholy and despair, to one of health, peace, and happiness. This delusive habit, here alluded to, is not confined to the gay, the giddy, and the vain, for alas! the rich, the poor, the young, and those of riper years, nay even those of a serious and religious disposition, are often drawn, by an unaccountable infatuation, to the commission of this melancholy practice. All such should seriously attend to the observations and cases described in Dr. Brodum's Guide to Old Age, price 5s., the eleventh edition of which is this day published. In that mirror they will behold the dreadful consequences they are producing to themselves, and may then perhaps be persuaded to retire from that road, which though strewed with flowers, is sure to lead them only to destruction.

The abominable practice that is the present subject of reprobation, produces those disorders in age that lurk unseen in the constitution until they have derived strength to occasion the most destructive effects, and when these baneful evils make their appearance, the valetudinarian is at a loss to ascertain the cause of his maladies.

The Botanical Syrup and Restorative Nervous Cordial may be had at the Doctor's, No. 9, Albion Street, in bottles of £1 2s., 11s. 6d., and 5s. 5d., duty included, and of Mr. Robinson, Tunbridge-ware manufacturer to their Royal Highnesses the Princess of Wales and Duchess of York, next to York House, Piccadilly; E. Newberry, corner of St. Paul's Churchyard; Ward, No. 234 Holborn, opposite Gray's Inn —(here follow a dozen or so provincial agencies). It may also be had by giving orders to the Newsmen.[1]

Then we come to a notice inserted by a qualified practitioner. It is inscribed: "To T. Taylor, Surgeon, No. 9 New Bridge Street, No. 25 Water Lane, Fleet Street." (Apparently the *Times* printer confused the address from which the testimonial was written with a second professional address of Dr. Taylor.)

Sir,

WITH the blessing of God having received a great cure in a Scrofulous case, by taking your SCAKE'S PATENT PILLS, I deem it a duty incumbent on me to give you an account of it, begging that, for the good of others, you would make it as public as possible. About four years ago, I observed a small swelling on one side of my neck, soon after which another appeared *on the other*; *in consequence* I applied to various practitioners, and took a number of medicines, all to no purpose; I also went two seasons to the seaside, using the water in all the ways recommended, which, the first time seemed to take a little effect on the disorder, and which was the only good I received from the medicines and advice I could procure, during a space of two years and a half; for, instead of getting better, the swelling increased to such a degree as to distress me exceedingly; they at last broke, and spread so much that they became one deep ulcer, which reached round my neck from ear to ear; finding everything ineffectual, either in mitigating the dreadful pain and soreness, or in stopping the progress of the ulceration, which now threatened to eat into my throat and deprive me of existence, I was fortunately prevailed upon in 1796 to take your pills and advice; you administered them with reluctance on account of the season being so unfavourable, and my circumstances not permitting me to give up my business for a time; but as the case was desperate, I continued the use of them until the February following, encouraged by the soreness gradually growing off, the ulcer filling up, and at last healing entirely, without leaving any swelling or hardness behind, as anyone may see on inspection. My reason for not making my case known sooner, was the fear of the return of the

[1] In his recent book *Lettsom* Johnston Abraham describes Lettsom's attack on Brodum and his "cordial" which appeared in the *Medical and Physical Journal* for January, 1805.

complaint; but as the cure was performed in the middle of a very severe winter (about 12 weeks' continuous frost), without my losing a day's work on account of the medicine, and 14 months have elapsed since it was compleated, without the least appearance of return, I have every reason to subscribe myself, your ever grateful and affectionate servant,

JOHN COLLINS, Box Maker.

April 5, 1798.

WITNESS TO THE CURE.—The above young man having served his apprenticeship, and worked and lived with me during the last seven years, enables me to testify the truth of the above, and that no other medicine was used during his course of the pills.

EDWARD WILKINSON,
No. 25 Water Lane, Fleet Street,
and THOMAS BRANCH,
The Crown, Crown Court, Fleet Street.

Prepared and sold by the sole Proprietor, Thomas Taylor, Member of the College of Surgeons, London, at his house, No. 9, New Bridge Street; where he will give advice, without a fee, to persons taking these pills, and will answer patients' letters, if post paid, on the same terms, observing in all cases the most inviolable secresy. They are sold by his appointment, for the convenience of those living at a distance, at the Perfumers, No. 35, St. Albans Street, Pall Mall; Mr. Robertson's toyshop, No. 103, Oxford Street; Mr. Steel's, Bookseller, No. 1, Union Row, Little Tower Hill; and by one person in every considerable town in England, in boxes of only 2s. 9d. each, with plain directions, whereby persons of either sex may cure themselves with safety.

Last of all comes an equally long and highfalutin advertisement of Dr. James' Analeptic Pills, in the course of which it is stated that "the celebrated Inventor of the Fever Powder composed his Analeptic Pills . . . and . . . by the constant use of them, though a free liver, he attained to the age of 75." Apparently the price of these pills, which are recommended for fevers, colds, obstructions, insomnia, rheumatism, headache, paralytic affections, and "those complaints to which the Female Sex is particularly liable," was 4s. 6d. each pill; while the prudent could secure a very considerable discount by purchasing "the quantity of six in one large box, for £1 2s. 6d." It is also explained that those in search of Mr. Francis Newberry's house, where they were sold, should note that it is a large white house at the end of St. Paul's nearest to Cheapside, with a bust of Dr. James, and an inscription. It seems likely that the E. Newberry mentioned at the foot of Dr. Brodum's advertisement is a misprint for F. Newberry.

Ireland

Irish Medical Committee

A meeting of the Irish Medical Committee was held recently in the Royal College of Surgeons, Dublin, when Dr. R. J. Rowlette presided. The General Council of Medical Associations, consisting of six members of the British Medical Association nominated by the Irish Committee and six members of the Irish Medical Association, was elected as the executive of the Irish Medical Committee. In connexion with a resolution received from the County Wexford dispensary doctors, it was agreed that the Irish Medical Committee should convene, at a suitable date, a meeting of delegates of Poor Law medical officers to consider the present state of medical organization. The protest, which was made at a meeting on May 9th, against the reduction in the salaries of medical officers under the terms of the Local Authorities (Temporary Economies) Bill, was approved, and doctors who are affected by the Bill were urged to bring every legitimate influence to bear upon their local member of the Dail and upon senators to oppose the proposed cuts. It was decided that a meeting of the medical staffs of voluntary and other hospitals should be summoned immediately to consider the interests of hospital medical staffs under the Workmen's Compensation Bill, 1933, which is at present going through the Dail and Senate. (This meeting has since been held, and counsel has been engaged to draft suitable amendments to the Bill.) The question of clinics for maternity and child welfare and for school children was considered, and it was agreed that all patients should, in the first instance, be referred to their family practitioner; where special treatment was required by poor persons whose medical attention was supplied under the Medical Charities Acts the county medical officers of health and their assistants should make all necessary arrangements with the responsible Poor Law medical officers. On the suggestion of Dr. Maguire, county medical officer of health (Roscommon), who was present with other members of that body, it was decided to bring this matter to the notice of the Association of Medical Officers of Health. A letter was received from Dr. C. H. Foley, County Galway, concerning the establishment of medicinal herb farms in the Free State, and it was decided to forward the letter to Dr. R. J. Rowlette, professor of materia medica in Dublin University, so that he might deal with the matter in the Dail. It was agreed that the medical examination of applicants for blind pensions should be conducted only by ophthalmic surgeons who were engaged daily at such work. The committee passed a resolution recommending the Royal Medical Benevolent Fund to the support of the Irish medical profession, and urging that collections in aid of the Fund should be made at all medical meetings held throughout Ireland. Promotion in the medical services was considered at some length, and the committee expressed the opinion that adequately long, efficient, and generally meritorious service should count automatically for promotion in departmental and local medical services. In the case of dispensary medical officers of unusually extensive and inaccessible areas applications for transfer or promotion to districts in which the duties were more in keeping with age and physical condition should receive special consideration.

Laboratory for Mental Diseases

The Medico-Psychological Association has asked the Minister for Local Government and Public Health of the Irish Free State, Mr. S. T. O'Kelly, to receive a deputation which will put forward a case for the establishment of a national laboratory for the pathological investigation of mental diseases on the lines of the central laboratory maintained in connexion with the Asylums Board in London. This is not a new demand; in fact, the British Government was pressed more than thirty years ago for the establishment of such an institution in Ireland. Moreover, frequent reference to the necessity for a laboratory of this kind has been made by Dr. J. O'C. Donelan, resident medical superintendent to the Grangegorman and Portrane Mental Hospitals in reports to his Board. All that is necessary, stated an eminent Irish authority on mental diseases with whom the suggestion was discussed, is that the provisions of the British Mental Deficiency Act and Mental Treatment Act should be embodied in legislation in this country. It was interesting to recall, he continued, that a strong campaign was launched by the Irish Division of the Medico-Psychological Association to induce the British Government to include Ireland in the scope of the Mental Deficiency Bill when that Bill was introduced in Parliament in 1912, but Mr. Augustine Birrell refused to accept the proposal. In the report of a Royal Commission it was estimated that in 1906 Ireland had 25,415 mental defectives outside lunatic asylums, of whom 66.06 per cent. were in need of immediate provision, as against 44.45 per cent. in England and Wales and 34.57 per cent. in Scotland. It would be interesting to see what the figures would be if a Commission were set up in this country now; they would probably be startling.

With regard to the demand for a pathological laboratory, he pointed out that a great deal of pathological work had to be undertaken in connexion with the treatment of the insane, and that pathologists had to be called in for the purpose. Biochemistry and the study of heredity, he said, would be the lines likely to yield most results. There would have to be a full-time director, working solely for the mental hospitals. The cost, however, would not be great. As an indication of the scope that existed for research in this sphere, he recalled the epoch-making discovery of the causation of general paralysis of the insane, as a result of which many cases were now being cured which previously were considered to be incurable. Dr. Donelan, with whom the subject was also discussed, stated that not only was the admission rate at Grangegorman and Portrane growing, but that last year's increase was the biggest yet experienced. He attributed the fact largely to the hardships caused by increasing poverty. He was convinced that all mental disturbance was due to bodily conditions. In some instances it was due to faulty action of the thyroid glands; this could be treated, but there were other causes still to be investigated. For years he had been trying to get something done in the matter of pathological investigation. He had been told that investigations conducted in other countries had not achieved much; it was not known, however, whether those countries were on the right track. Speaking of the necessity for a pathological and biochemical laboratory to deal exclusively with mental disease, Dr. Donelan said experience had shown that where the interests of the sane and the insane were dealt with together the insane were neglected, and attention was concentrated on bodily disease. A great many people had advocated that mental cases should be treated in general hospitals, but he had yet to find the general hospital which was suitably equipped for the purpose. The physical condition of patients had to be ascertained, but that was accomplished in a fortnight or so, after which it was generally harmful to keep the patients in bed. Moreover, he did not know any general hospital having the necessary facilities for recreation.

Vital Statistics for Northern Ireland

The report of the Registrar-General for Northern Ireland states that the marriage rate for 1932 was lower than that for the previous year. The number of marriages registered was 6,959, representing a rate of 5.51 per 1,000 of the estimated population. There were 25,107 births during the year, giving a birth rate of 19.9 per 1,000 of the population; this rate, although the lowest recorded for Northern Ireland as a separate administrative unit, is still the highest in the British Isles. Deaths registered during the year numbered 17,812, representing a crude death rate of 14.1 per 1,000. This rate is only very slightly in excess of the record low death rate for 1930. According to the usual experience, heart disease exacted the heaviest toll, the mortality from this cause being especially high among persons of fairly advanced ages. Other diseases responsible for a large proportion of deaths were cancer, tuberculosis, cerebral haemorrhage, pneumonia, congenital debility, and bronchitis. The death rate from all forms of tuberculosis, which has declined steadily since 1901, showed a pronounced fall in 1932, the rate of 1.12 per 1,000 being the lowest recorded for Northern Ireland. For the first time in a considerable number of years the cancer death rate fell, though only very slightly; as in 1931, however, the number of deaths from this disease exceeded that from tuberculosis. Infant mortality increased appreciably in 1932, the rate being 83 per 1,000 live births; the corresponding rates for Scotland, the Irish Free State, and England and Wales were 86, 72, and 65 respectively.

England and Wales

Vital Statistics for 1932

Part I (Medical Tables) of the *Registrar-General's Statistical Review for 1932* is now on sale at H.M. Stationery Office, price 6s. net. Its principal features are as follows. The number of births registered was 613,972, giving a rate of 15.3 per 1,000 persons living. This rate is 0.5 below that for 1931, hitherto the lowest on record, and constitutes a new low record. The death rate was 12 per 1,000 persons living, 0.3 below the rate for 1931 but 0.6 above that for 1930. The rate for 1930 was, however, the lowest ever recorded, and was largely due to the exceptionally mild weather in the first quarter of that year. The higher rate for 1932 is almost wholly occasioned by an excess in the first quarter of the year, the rates for the other three quarters showing very little variation. Infant mortality was similarly affected, and the deaths of children under 1 year of age numbered 65 per 1,000 live births against 66 in 1931, and 60 in 1930: 1930 is, however, the only year showing a lower infant mortality than 1932. Cancer showed a death rate of 1,510 per million persons living against 1,484 in 1931. If, however, allowance is made for differences in the age constitution of the population the comparative mortality from cancer shows a much smaller increase. Tuberculosis again furnished a new low record of 837 per million living. Puerperal sepsis caused the deaths of 1.55 women per 1,000 live and still births, 0.04 less than the rate for 1931, and 0.29 less than 1930. "Other accidents of pregnancy and childbirth" showed a rate of 2.49 per 1,000 live and still births compared with 2.36 in 1931. The death rate from suicide was 143 per million persons living, a new high record, the rate for 1931 (the previous highest) being 129. A slow increase in this rate has been continuous for a number of years. Road accidents, due to mechanical vehicles, were responsible for 5,671 deaths. The figures for the last five years were 4,452, 5,196, 5,752, 6,342, and 5,892 respectively.

Annual Health Services Returns

The Minister of Health has issued to county and county borough councils, other maternity and child welfare authorities, and tuberculosis joint committees the forms required for rendering the annual returns in respect of maternity and child welfare, tuberculosis, venereal diseases, and hospital treatment, together with a commentary (Circular 1359). As compared with those used in previous years, there are only slight alterations in the forms relating to maternity and child welfare and hospital treatment. In regard to the treatment of tuberculosis, the forms of return are those prescribed in Memorandum 37/T (revised). The completion of the supplementary return in the form prescribed in the third schedule of the memorandum is optional, but it is hoped that chief administrative tuberculosis officers of councils will do their best to complete it. The returns prescribed in respect of counties or county boroughs which are included in the area of a tuberculosis joint committee will be furnished by the medical officer of that committee. The form for the notification of tuberculosis is similar to that issued last year, but the period covered by it is now the calendar year, as with other tuberculosis returns. The returns from venereal diseases treatment centres will be required, as last year, on the form enclosed with Circular 1164 of December 17th, 1930; copies of this form will be sent to these centres. The necessary returns as to pathological examinations will be obtained from the approved laboratories. It is requested that each local authority will

arrange for its returns to be transmitted to the Minister of Health as soon as possible, and in no case later than February 28th, 1934. Sometimes the completion of these returns necessitates information being obtained from one or more voluntary bodies. In such cases it is urged that steps should be taken at once to secure that the information is in the possession of the local authority immediately after the end of the year.

Medical Society of London

The programme has now been issued for the second half of the 161st session of the Medical Society of London. On January 8th there will be a pathological evening, at 8 o'clock, followed by discussions on January 22nd, on the value of pre-operative investigations; February 12th on the present position of the vaccination question; February 26th, on arterial disease of the extremities; March 12th, on the treatment of cancer of the uterus; March 26th, on functional disorders of the bowel; on April 23rd, on failures of gastric surgery. All these discussions begin at 8.30 p.m. at 11, Chandos Street, W. The Lettsomian Lectures, on disturbances of the body temperature, will be delivered by Dr. C. E. Lakin, on February 19th, February 28th, and March 5th, at 9 p.m. The annual general meeting of the Society will be held on May 14th, when the annual oration by Sir Charles Sherrington at 8.30 p.m. will be followed by a conversazione. The annual dinner has been fixed for Tuesday, March 6th, at the Trocadero Restaurant, with the president, Sir John Thomson Walker, in the chair.

India

Bombay Municipal Maternity Homes

In his annual report for 1932 on the health of the city of Bombay Dr. J. S. Nerurker, executive health officer, has included an interesting account of the development of the municipal maternity homes. In 1914 the executive officer, the late Dr. Turner, recommended that the corporation should take active measures to reduce the appalling infantile mortality rate. He asked for the appointment of a woman medical practitioner to supervise the work of district nurses, health visitors, and the untrained native midwives, and for the establishment of a maternity home with six beds where poor women might go for their confinements, and where these midwives might learn to conduct confinements. A maternity home was accordingly opened in the following year in Bellasis Road, and two years later there were three such homes in the city, the two new ones being opened and maintained by the Lady Willingdon Scheme of the Bombay Sanitary Association. The last two were taken over by the municipality in 1918, and at the close of that year, as the result of a legacy, two larger maternity homes were erected and the original home was enlarged to sixteen beds. In 1922 the then sheriff of Bombay gave one lakh of rupees for the construction, equipment, and maintenance of a maternity home for the poorer classes in Parel. Another generous donation enabled a home to be opened at Khetwady in 1931. Dr. Nerurker states that these five homes have become very popular, and have been of outstanding value in dealing with infant mortality. In 1932 they comprised a total of 134 beds, and accommodated 3,898 cases. There are now 986 beds available in the sixty-four municipal, government and private institutions doing maternity work, and the total number of confinement cases dealt with has risen from 12,712 in 1928 to 19,633 in 1932. Out of 30,914 births (including stillbirths) registered in the city in 1932 63.51 per cent. took place in maternity homes. The need of continuing and extending this accommodation for patients and for the training of midwives is indicated by a note elsewhere in the report that the ratio of percentage of deaths among infants under the age of 12 months to the total mortality was higher in 1932, as in previous years, than in the case of any other age group. There was, however, a definite fall in the infant mortality rate, expressed as the number of deaths in infants per 1,000 registered births, and the figure was the lowest yet recorded in the official statistics for the city. Of the total deaths among infants 24.8 per cent. occurred in the first week of life, and 15 per cent. in the age period of 1 to 4 weeks. This represents a death rate of nearly 40 per cent. in the first month of life, debility and prematurity being the most frequent factors, while respiratory diseases exacted a very heavy toll during the remaining eleven months of infancy.

The Central Provinces and Berar

Although comparison with the vital statistics of other provinces in India shows that there is still scope for improvement in the public health of the Central Provinces and Berar, yet the returns for 1932 are encouraging. Lieut.-Colonel W. J. Powell, I.M.S., officiating Director of Public Health, reports that, in spite of the great increase in population during the last decade, the total number of deaths in 1932 was lower than any recorded since 1925, and the death rate (26.89 per 1,000) was the lowest since 1931. The birth rate was slightly higher, yet infant mortality was exceptionally small, reaching the lowest level in the history of the province. The general economic condition was not very satisfactory, but no evidence was obtainable that it exercised any deleterious effect upon the health of the community. No severe epidemic occurred. Colonel Powell admits that some improvement has taken place in the system of registering vital statistics, but he insists that even better results would be obtainable if a proper periodical comparison of the registers maintained by police and municipal agencies could be instituted and defaulters could be dealt with appropriately. While the increase in motor transport has markedly influenced the spread of epidemic cholera, it has also made possible the more speedy provision of medical assistance in the affected areas. After the close of a fair the pilgrims return to their homes chiefly by road, and, consequently, outbreaks of the disease occur suddenly in a number of scattered villages and towns at about the same time. For some while deaths from plague have been on the increase in both urban and rural areas, but, compared with past years, an appreciable decline is now evident, a result which is attributed to preventive measures, such as evacuation, inoculation, and systematic rat-destruction. The statistics reveal also that the measures to stamp out leprosy are becoming increasingly popular. The total attendances for treatment rose by about one-seventh over the number for the previous year, despite the fact that nine centres had to be closed down for administrative reasons. There was a highly satisfactory increase in the number of symptom-free and improved cases. An apparent rise in the incidence and death rate of tuberculosis is attributed to the change in the system of classification, which came into force on January 1st, 1931.

Burma Government Medical School

Special attention is being directed to improving the education of medical students in Burma, and Colonel C. A. Gill, I.M.S., Inspector-General of Civil Hospitals, records in the annual report for 1932–3 of the Burma Government Medical School at Rangoon certain definite advances which have been made in the year under review. Various steps were taken to raise the standard of teaching, and more especially to intensify the clinical training of students

The Burma Medical Examination Board was enlarged by co-opting the lecturers in medicine, surgery, midwifery, and pathology as *ex-officio* members of it. Clinical tutors in medicine and surgery were also appointed, and arrangements were brought into being for students to be accommodated in the Dufferin Hospital during their practical training in midwifery. Annual test examinations were reintroduced, and students who seemed unlikely to reach the final pass standards were dismissed from the school. The percentage of passes in the March, 1933, examination was considerably higher than in the previous year, but the failures in Part II of the final examination (nineteen out of forty-two) were still high. The school examinations were inspected by visitors appointed by the Burma Medical Council. At the beginning of the year there were 149 students on the rolls. Training is conducted in the Medical College buildings, but the hostel still remains in the old General Hospital buildings. Noteworthy progress was made in the teaching of physiology and anatomy. In view of certain criticisms which have been advanced in the past as regards the physical impairment of Indian students in some provinces, it may be mentioned that special attention was paid to stimulating prowess in athletics, with good results.

Scotland

Weild Lecture on Cancer

A lecture, under the terms of administration of the Miss Weild Fund for Cancer Research, was given recently in the Hall of the Royal Faculty of Physicians and Surgeons of Glasgow by Dr. J. A. Murray, Director of the Imperial Cancer Research Fund, who took for his subject "The Bearing of the Experimental Induction of Cancer on our Conceptions of its Nature and Causes." Referring to the successful transplantation of the malignant growths of the mouse, Dr. Murray said that the processes took place inside limited groups of cells, and, once begun, were restricted to their progeny; neighbouring cells did not join in. The cells which had undergone the malignant change varied very little in structure and behaviour in many years of propagation. They differed from cancer as it occurred in man and animals in being introduced ready-made into the host animal which for the time being bore them, whereas natural cancers arose from the cells of the subject of the disease and were therefore native to the organism. This distinction introduced a difference in behaviour which had been eliminated by the discovery of methods of inducing primary cancer experimentally. Although it had been possible by selective inbreeding from cancerous mice to obtain strains in which cancer was very common, this hereditary character was of the nature of a predisposition to develop the disease. The work of Yamagiwa and his colleagues had shown that repeated application of coal tar to the skin set up the cancerous process in the tarred area. The tumours produced were true malignant new growths, and were indistinguishable from those occurring in man and animals in the same situations. They began in a limited area, and increased in size by cell multiplication until they invaded and destroyed structures essential to life. The length of time taken to set up this process, even under the most favourable circumstances, was considerable, and in relatively refractory individuals might extend to more than half a lifetime. This fact afforded a satisfactory explanation of the increase in the incidence of cancer with age. Age of itself did not predispose to cancer. It was thought that in cancer of unknown origin substances from without or within the body, acting slowly in the same way as tar in the experiments, set up the same process ending in cancer. The component or components of tar responsible for producing the cancerous growth had not been identified with certainty, but it was known that they belonged to that part which had a high boiling point. Pure substances belonging to the anthracene series had been prepared which acted in the same way as tar when applied to the tissues repeatedly over long periods. Their chemical structure was closely related to that of certain natural secretions of the body, such as the oestrus-producing hormone. As these anthracene compounds could also elicit oestrus in immature animals, the suggestion had been put forward that otherwise non-specific chronic irritation might induce cancer by the production of similar chemical substances in the cells. The exact nature of the change set up by these and other cancer-producing agents was still obscure. The relative impermeability of the cell membrane, which at first was thought to be peculiar to cancer cells, was not restricted to them. When it occurred it made a very precise distinction from the accompanying normal cells. In the same way the metabolic difference of partial utilization of carbohydrate, at first thought to be restricted to cancer, occurred in many proliferating tissues which were not cancerous, and even in some normal tissues. In fact, no single structure or functional difference had been discovered which was peculiar to cancer. A combination of several differences, each in itself insufficient to account for the distinctive behaviour of malignant growths, might reinforce each other when present in unusual proportions, giving apparently new and disproportionate properties.

CORRESPONDENCE

Female Sex Hormones and Gonadotropic Substances

SIR,—Judging by your short account of my remarks following the important paper of Professor Aschheim, read before the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on December 8th, which was published in the *British Medical Journal* (December 16th), I fear that I must have left too much to be inferred, or that your reporter was economical in regard to space.

Since we are still seeking light on almost all of the scientific aspects of the subject, I may perhaps be permitted very briefly to summarize my discussion of one problem—namely, the origins and identities of "prolan A and B," so called. I stated, in agreement with Professor Dodds, that *I believe there is only one "prolan" of pituitary* (pars anterior) *origin*, and that this is effecti in regard to the integrity of the genitalia and th functions, including the natural sequence of maturat of the follicles and luteinization, both in menstrua and in pregnancy—phenomena mutually co-ordinated antagonistic as Loeb declared many years ago. I mentioned that certain cases of malignant disease a positive reaction to the "pregnancy test," probab accordance with my view of the nature of this dis namely, that it is, in general terms, a reversion towards the chorionic epithelium. Hence it suggested that syncytial elements are responsibl further effects attributed to the substance " prolan B."

Lastly, I demonstrated with lantern slides " phenomena of the pituitary body in various ca and I expressed my belief that, so far as the is concerned, the different staining affinitie represent phases of secretory activity rat

production of different secretions I also illustrated, *inter alia* the effects of certain operations on the pituitary on the secretory elements of the ovary —I am etc ,

West Felton Salop Dec 18th W Blair Bell

Pulmonary Tuberculosis in Childhood

Sir —Will you kindly allow me to comment on two or three points raised in the letter from Dr F J Bentley in the *Journal* of December 16th (p 1140) in which he refers to the leader in your issue of December 2nd (p 1035)

Dr Bentley states Nor should it be accepted as proved that continuous contact and superinfection is the chief factor in the production of gross disease Search as we may we cannot obtain a definite history of contact with a case of pulmonary tuberculosis either recent or remote, in approximately two thirds of such cases Yet Chown and Medovy say that in Canada ninety five out of every 100 children infected with tubercle bacilli receive that infection from adults with whom they have come in contact and who are suffering from tuberculosis often undetected or erroneously considered as cured In France H Lemaire (*Rev de la Tub* 1925 vi 228) in an investigation of 100 children under 21 years old with a positive von Pirquet test, found family contact in eighty two As regards older children, R Debre and F Cordey *Rev Franç de Pédiatrie*, 1925 i 16) who made an inquiry into the histories of 230 children aged 5 to 15 suffering from undoubted tuberculous disease (pulmonary and surgical) found in 66 3 per cent definite family contact, in 14 6 per cent probable contact and in 19 3 per cent no history of contact at all They quote Armand Delille and Famin who in an investigation of 215 children with pulmonary tuberculosis found family contact in 65 per cent On the other hand, Debre and Cordey, among fifty children with a positive von Pirquet test and no evidence of tuberculous disease, found definite family contact only in 30 per cent and doubtful contact in 10 per cent

It seems to me that the incidence of family contact in these inquiries must depend not only on the thoroughness with which the history is taken (and subsequent investigations in the family carried out), but also on the amount of tuberculosis of bovine origin in the country under review The less tuberculosis of bovine origin the greater the percentage of home contact found Thus in France, tuberculosis of bovine origin is said to be rare owing to the national custom of boiling all milk before consumption Dr R H Hazmann medical inspector of the Office Publique d Hygiene Sociale, tells me that in an inquiry in a district consisting of villages and small towns he found among 600 babies (all consecutive births of over a year taken from the births register) that only 4 7 per cent of the 442 infants who had not been breast fed had not had their milk boiled

The impression gathered from perusal of Chown and Medovy s article does not quite correspond with that obtained on reading Dr Bentley s letter In the first place, the authors infer that their conclusions are based on conditions in Canada Secondly, they plead their purpose in view as justification for their dogmatism Thirdly, they emphasize the relative benignity of pulmonary tuberculosis in infancy and childhood although they do add, " provided the infecting source is removed early " But what is most important is that their arguments are not " based largely on the familiar plea for earlier diagnosis, ' this earlier diagnosis to be founded on x ray examination of every child who reacts to tuberculin " , for they say, ' except in the later stages of pathological groups three and four, which we repeat are rare, cough, fever, and loss of weight are inconspicuous the average infant or child with tuberculosis of the lung is well nourished, afebrile, happy, vigorous " That is, x ray examination is required to make a diagnosis even in the child with the well developed lesion, not merely to detect the " early case '

Where Chown and Medovy err is in not accentuating sufficiently the distinction between the infant, the young, and the older child For the younger the child the greater the importance to be attached to a positive tuberculin test (cf Hart, and Blacklock, Medical Research Council Special Reports, Nos 164 and 172), the more likely is home contagion to play a part, and disease lead to a fatal issue, and the more important, therefore, is separation from the source of contagion It is in the infant *par excellence* that the positive tuberculin test requires further investigation and prompt measures of treatment For the belief that repeated doses and superinfection play an important part in prognosis does at least give us a line of conduct—ensure separation — I am, etc ,

Pan Dec 16th G Gregory Kayne

Heartburn in Pregnancy

Sir —I have been interested in the recent correspondence in the *Journal* on heartburn in pregnancy Our experience has been that, in emesis and hyperemesis gravidarum, achlorhydria and hyperchlorhydria are frequent findings Thus, in a series of twenty eight cases of emesis gravidarum six had achlorhydria, while in seventeen the maximal concentration of free hydrochloric acid throughout the course of fractional test meals did not exceed 30 per cent Investigation of a series of twenty two cases of hyperemesis gravidarum disclosed achlorhydria in ten and maximal concentration of free hydrochloric acid not exceeding 30 per cent in eight Grouping the cases of emesis and hyperemesis gravidarum (fifty) achlorhydria occurred in 32 per cent of them

Liver extract and dilute hydrochloric acid were employed in the treatment of these conditions Fractional test meals on the disappearance of symptoms showed that in those patients who previously had been of the achlorhydric class, there was a return of free hydrochloric acid while in patients who had been suffering from hypochlorhydria there was an increase in the percentage of free acid However, in those patients who recovered without the administration of dilute hydrochloric acid and liver extract similar results were obtained Details are given in the *Journal of Obstetrics and Gynaecology of the British Empire* (1932, xxxix, 558) —I am, etc ,

Glasgow Dec 12th David Fyfe Anderson

Rest in the Treatment of Neuroses

Sir —May I be allowed a brief space to call attention to what I believe to be a common error in the treatment of that *bête noire* of the general practitioner the neurotic of the anxiety type—namely insistence on the patient s going on trying to do his or her work, or, if not working to take as much physical exercise in the open air as possible, and to occupy his or her mind as much as possible with the idea of diverting their minds from their fears anxieties and functional ailments

I generally find that such patients, when they come under my care, are showing all the indications of mental and physical exhaustion—namely, tremors loss of appetite, loss of weight, restlessness insomnia, loss of interest (in everything but their own troubles), inability to concentrate In view of the fact that the mental conflicts and their accompanying emotional disturbance which usually underlie these symptoms always result in

a greater or less degree of mental and physical unrest, such indications of exhaustion are to be looked for. Yet again and again when I tell such a patient I am going to put him or her to bed, I am told, "But my doctor has told me I must buck up, get as much outdoor exercise as possible, and occupy my mind as much as possible ; and, besides, doctor, you will drive me stark staring mad if you put me to bed. I am always tired, but I can't rest ; and I can't sleep at night as it is ; and it will be worse if I am in bed all day." Notwithstanding this I usually put such a patient to bed on arrival, sometimes for a fortnight, sometimes for a month or even more, giving some such sedative as luminal in small doses, regular attention to the bowels, massage in lieu of exercise, and a full diet of easily digested nourishing food. Talking, writing, and reading are limited. Simple games may be played with the nurse, and the nurse may read aloud for half an hour or so at intervals. At bedtime a prolonged warm bath followed by a mild hypnotic taken with hot milk, ovaltine, or cocoa finishes the day, and generally ensures a good night's sleep.

After a day or two of such treatment one hears no complaint that " I shall go mad, doctor," but usually, instead, " Why didn't my doctor send me to bed months ago? Oh, how tired I have been! You will have to kick me out of bed, doctor, when you want me to get up." As a matter of fact these patients are quite ready to get up before I am prepared to let them. By this means is the patient made ready for whatever form of psychotherapy, if any, may be necessary to complete the cure, but which would not have been possible without the preliminary rest.

One finds it difficult in the face of the indications these patients give of mental and physical exhaustion to understand why they should, so many of them, have been allowed and even encouraged to exhaust themselves still further. Is it perhaps explained by another error, the hard-dying belief that a neurotic patient's complaint of fatigue and inability to do this and that must be strenuously discouraged at all costs, or he or she will lie down and do nothing and become a hopeless invalid? That one does come across cases of *malade imaginaire* where the patient has taken to her bed and believes it impossible to get up and waxes fat and flabby in consequence, we all of us know, but all neurotics are not of this type. Weir Mitchell, many years ago, recognized the exhaustion accompanying and maintaining a neurosis, and by means of enforced rest, feeding, and massage managed, without the present application of our knowledge of the psychogenic causes of the neuroses, to give numbers of such patients a renewal of physical health that enabled them to get a fresh grip of themselves and at least try again.—I am, etc.,

J. W. Astley Cooper.

Middleton St. George, Co. Durham, Dec. 16th.

Acidosis in Children

Sir,—Dr. Reginald Miller, in his extremely interesting article in the *Journal* of December 16th, makes no mention of the type of diet given to a case of cyclical vomiting prior to treatment. It will generally be admitted that the disorder is more common in children of the " hospital " class than in those of the well-to-do. A careful investigation of the diet administered to the poorer child will reveal a high proportion of fat. The frying-pan is in constant use, and fried meat and fish are daily items of the menu. Further, in this class of patient, old-fashioned ideas still prevail, and a child who needs " fattening " is encouraged to gain weight by liberal supplies of milk, cocoa, etc., while sugar is cut down to a minimum on account of possible damage to teeth and what was advised by the medical profession thirty years ago!

In my experience glucose therapy in cyclical vomiting and glycopenia is completely successful, but we should be wise to refrain from advocating it in every case of debility, owing to the danger of overlooking a more serious condition. There are some children who will stand enormous quantities of milk and cream without their physical condition being affected.

I should like humbly to suggest that the cyclical vomiter and the glycopenic child may simply be cases of fat intolerance due, not to disease or abnormality of liver or bowel, but to some inherited defect in a constitution which tends readily to exhaust its glycogen reserve.—I am, etc.,

London, W.1, Dec. 18th. C. K. Colwill.

Rheumatism and Blondness

Sir,—Lord Horder, in the course of his address at the Hampstead General Hospital (*Journal*, December 9th, p. 1057), asks "Why is the rheumatic child, *par excellence*, a blonde?" More than twenty years ago, in a paper I read at the Annual Meeting of the British Medical Association, and in papers published since in your columns and elsewhere, I have offered an explanation of this phenomenon—an explanation which I have seen no reason to alter, nor have I come across any alternative hypothesis. It is that blondness is a racial trait produced during the long period of evolution and characterization of the Nordic type on the sandy plains situate, roughly, between the Baltic and the Black and Caspian Seas, where the annual rainfall is much lower than in North-Western Europe, the winter cold and dry, often with abundance of sunshine. Furthermore, during that period of characterization the Nordics had no experience of anything approaching urban conditions, their life being spent almost entirely in the open. This is to be contrasted with the close-set villages of the Neolithic folk, who form the matrix of our population, and with the lacustrine dwellings of early Central Europeans—the Alpine race.

When the blonde type is exposed to climatic or other conditions not represented in the region of its evolution, stress proportioned to the degree of difference is experienced. Such conditions encountered in this country are: (1) the more humid pelagic as distinguished from the continental climate ; (2) alluvial soils, often impervious to rain, such as clay ; and (3) urban or suburban conditions commonly associated with (2). The effect on blondes appears to be a lowering of resistance to infective organisms, especially certain streptococcal groups. It is well to remember in this connexion that Pasteur could not infect fowls with anthrax till he kept their feet in cold water. It is interesting to note also the popularity of the High Alps in winter among our upper classes, who present a considerable degree of Nordic derivation. They find there conditions not dissimilar from the winter of their remote ancestors.

If the hypothesis I have set forth holds good, its application to other intrusive types in this country and the subject of migration generally will be apparent.—I am, etc.,

Sandgate, Dec. 16th. J. Stewart Mackintosh, M.D.

Milk: Raw and Pasteurized

Sir,—Pressure of work has prevented an earlier comment on the editorial remarks in your issue of December 9th upon Professor Kay's paper, a contribution which I feel you have not treated with the consideration it merits. I write this after having read it before the meeting and after hearing the author's remarks when introducing it. As director of the Reading school, so intimately connected with and supported by agricultural

interests, it is obvious that Professor Kay had to emphasize the agricultural side of the milk problem, but he also fully admitted the importance of the public health aspect. Instead of the belittling attitude to which we have been accustomed from any body associated with agriculture, we had a statesmanlike appreciation of the need for effective control. The old attitude that pasteurization might be detrimental to milk was abandoned, and he accepted the view that "as regards human nutrition, the effect of heat treatment is probably not very great." The necessity of pasteurization under present conditions was accepted, and Professor Kay advocated

"the necessary machinery should be set up so that as soon as possible no milk should be sold for liquid consumption in the raw state which does not come from herds tuberculin-tested at not more than six-monthly intervals, and which undergo a competent veterinary inspection four times per annum. Only producers with such certified herds should be allowed to sell their milk for liquid consumption without pasteurization by an approved method."

It is a welcome advance to have the Reading school conceding so much, and Professor Kay is to be congratulated on his fair and courageous contribution. I cannot agree with your remarks that it found no favour in this gathering of scientific workers, for the references to it were appreciative, and certainly my own were sincere. We need, and need urgently, effective control over the milk supply, and to obtain that control a *rapprochement* with agricultural interests is all to the good. Professor Kay's paper is a most welcome advance in that direction, and I regret that your editorial has belittled his useful and valuable contribution.—I am, etc.,

Weston-super-Mare, Dec. 19th. WILLIAM G. SAVAGE.

*.** Dr. Savage's letter was received before the publication of Professor Kay's letter, with an editorial footnote, in last week's *Journal*.

Radiological Diagnosis of Cardiac Enlargement

SIR,—Dr. Crighton Bramwell, in his paper published in the *Journal* (September 30th, p. 597) refers to the apex beat and to the apex of the heart as if they corresponded. That is to say, he leads one to believe that the position of the apex beat as determined by palpation indicates the anatomical situation of the apex of the heart. Over eighty years ago my father, the late Professor G. B. Halford, proved by experiment that these points do not coincide. The so-called apex beat is nothing more than the impulse that is felt on contraction of the walls of the left ventricle and not the tap of the apex, the position of which is constant throughout the cardiac cycle. If I am correct in assuming that the measurements given are based on correspondence, will Dr. Bramwell kindly tell me if the facts I submit vitiate his conclusions in any way? It is inaccurate and confusing for radiologists to take no cognizance of this measurable difference, especially when those to whom I have referred the question claim to be aware of it.—I am, etc.,

A. C. F. HALFORD, M.D., F.R.A.C.S.

Brisbane, Nov. 8th.

British Health Resorts

SIR,—The letters of "Spartan" and Dr. Collis Hallowes dealing with this subject embolden me to ask for a little space in which to emphasize some of the points made by your correspondents.

The official support which the British Health Resorts Association has received from the Royal Colleges, the British Medical Association, the Society of Medical Officers of Health, and the British Spas Federation has given us great encouragement. It is the medical side of this movement which is its principal attraction for me and many others of its workers. We see opportunities for educating our profession in the virtues and claims of our home health resorts, and of doing something to increase the efficiency and status of these places, thereby enabling them to overtake the very attractive propaganda of our friends on the Continent. I am certain that, even yet, many doctors in this country know far more about some of the famous Continental spas than they do about those at home. And yet those who know both and are well qualified to speak say that for many cases the Continent has nothing to offer that cannot be obtained at home, and that our bath establishments and attendants are quite as good as anything that can be found abroad. And I have the temerity to add that we have as good physicians at our British health resorts as can be found anywhere. It is time that we abandoned the false modesty so commonly displayed when we Englishmen talk about our country and our home products.

This association is gradually convincing the local authorities of our health resorts that we are offering them a new kind of organization and a new form of publicity, and another year of steady work ought to see us firmly established. Such propaganda takes time to sink in; but I have personally been much disappointed with the lack of appreciation shown by the individual members of the profession practising in the resorts. I had innocently supposed that they at any rate were able to take the long view, and to see that propaganda such as ours must inevitably tend to increased prosperity of the enterprising health resorts—and incidentally of the doctors practising there. It seems that that also will take time to sink in.

We are grateful to those who, like the profession in Torquay, have given us encouragement; and we hope it will not be long before we can take the line suggested by Dr. Hallowes, and ask the doctors in the respective areas to form local committees. We have refrained up to the present because we were not sure that the response from the local authorities (who, after all, are mainly concerned, and must be expected to provide the bulk of our income) was going to be such as would justify our continuance. Dr. Hallowes's useful suggestion about a meeting at Bournemouth will receive the careful consideration of our Medical Advisory Committee.

I may say that we have accepted invitations to hold conferences in the coming year at Harrogate in May and at Cromer in June, at both of which places we are assured of the cordial co-operation of the local profession.—I am, etc.,

ALFRED COX,
General Secretary, British Health Resorts Association.

199, Piccadilly, W.1,
Dec. 16th.

The Testimonial Farce

SIR,—It is only in the correspondence column that your readers get together or grapple with one another, and it is there we must look for evidence of human emotion, be it irritation or humour.

Some twenty-odd years ago I had the honour of seeing Sir James Barrie and the late Charles Frohman in Paris, and I took the opportunity of telling the former that I had a first edition of what was perhaps his earliest book. He looked puzzled, but when I said "*Better Dead*," a slow smile spread over his face.

Better Dead, which I strongly recommend to all who may have missed it, is the story of a young Scot, Andrew Riach, who came to England with the intention of becoming private secretary to a Cabinet Minister. If time permitted he proposed writing for the Press. He had been nearly rusticated from the university for praying at a debating society for a divinity professor who was in the

chair. When he reached King's Cross it was the first time he had set foot in England, and he naturally thought of Bannockburn. Mr. Gladstone was at home, but all his private secretaryships were already filled. Mr. Chamberlain would not even see him. He offered to take a pound less than any other secretary in London, but, although he had brought *fifty-eight testimonials* with him, not a Cabinet Minister would read or listen to them. He could not fasten a quarrel on London, for it never recognized his existence. What a commentary on our vaunted political life!

Sir James goes on to say that his testimonials were his comfort and his curse. He would have committed suicide without them, but they kept him out of situations. Have you space, Sir, for one? The moment Andrew found himself in a great man's presence he began (for he knew all the fifty-eight by heart):

"From the Rev. Peter Mackay, D.D., Author of 'The Disruption Divines,' Minister of Free St. King's, Dundee—I have much pleasure in stating that I have known Mr. Andrew Gordon Cummings Riach for many years, and have been led to form a high opinion of his ability. In the summer of 18— Mr. Riach had entire charge of a class in my Sabbath School, where I had ample opportunity of testing his efficiency, unwearying patience, exceptional power of illustration, and high Christian character," and so on.

However, he seldom got as far as that. He had two pounds with him when he came to London, and in a month they were almost gone. And yet he must have dined with Lord Rosebery, for the latter told a story of how Andrew complained that one got "no forrader" on claret. In a word, he had to join the S.D.W.S.P.—the Society for Doing Without Some People—hence the book's title.

This is a long comment on testimonials, and it is obvious that the fault lies, not with those who ask for them—as, in our day, we all have done—but with the system that requires them. We must shoot, not the man at the piano, but those who provide the instrument—and that is not so easy. Even the last suggestion (*Journal*, December 16th, p. 1140) hardly meets the case, for the referees do not know all the candidates. It looks as if testimonials were one of the inevitable farcical accompaniments of to-day; let us worry about more important things.—I am, etc.,

Cannes, Dec. 17th. A. A. WARDEN.

Road Dangers

SIR,—Dr. R. J. Clausen (*Journal*, December 9th, p. 1097) has done good service in drawing attention to the neglect by the medical profession of that important branch of preventive surgery—the prevention of road accidents. Most will agree with him that it is time the profession took more active steps to remedy conditions which bring such harm to the community and so much onerous work to medical men. There is great need for systematic and scientific investigation into the causes of fatal accidents. Such an investigation has never yet been undertaken, for however much one may admire the work of the Safety First Association one must admit that the facts upon which they based their figures were not subjected to scientific criticism. Further, it is to be hoped that the British Medical Association will take steps to ensure that the medical profession shall be represented upon any future committee of inquiry, for not only are doctors directly concerned in treating the results of all accidents, but the medical man is often in a position to say whether evidence as to speed tallies with the damage sustained by the injured person. Until facts concerning fatal accidents are more accurately ascertained the relation of speed to such accidents will probably remain a controversial point.—I am, etc.,

London, W.1, Dec. 19th. V. ZACHARY COPE.

SIR,—"M.D." appears to share the opinion, apparently widely held in certain circles, that safety on the road can be assured by some mysterious action on the part of the "authorities," without any effort on the part of the individual driver, and without any restrictions on speed, which are classed as "persecution." I would suggest, however, that there is for all practical purposes no control of road traffic at present, and that without a degree of control so drastic as to be quite unlikely, safety can only be brought about by the good will of the individual driver, and by his skill and care. The responsibility rests, in fact, with the individual, and cannot be deputed to others, and the conscience of the driver cannot be eased by blaming the "authorities." The chief guide to conduct at present appears to be fear of penalties, and not consideration for others.—I am, etc.,

London, N.W.8, Dec. 18th. R. J. CLAUSEN.

Obituary

PROFESSOR IRVING H. CAMERON

We regret to announce the death, on December 15th at Toronto, of the distinguished Canadian surgeon Emeritus Professor Irving Heward Cameron, in his seventy-ninth year. He was one of the founders and early editors of the *Canadian Journal of Medical Sciences*, a past president of the Canadian Medical Association, and in 1922–3 president of the Toronto Branch of the British Medical Association. For many years he was professor of surgery and clinical surgery in the University of Toronto Faculty of Medicine, and surgeon to St. John's Hospital, to the Toronto General Hospital, and to the Hospital for Sick Children. In 1900, when the Royal College of Surgeons of England celebrated the centenary of its charter granted by George III, Professor Cameron, with other eminent surgeons, was elected an honorary Fellow; he was also an honorary LL.D.Ed., F.R.C.S.Ed., and F.R.C.S.I., a member of the Société Internationale de Chirurgie, and a charter Fellow of the American College of Surgeons.

Dr. J. T. PRANGNELL, medical officer of health for the burgh of Falkirk, died on December 20th. Born at Gartness, Islay, in 1862, John Thomson Prangnell took his medical course at Glasgow University, where he graduated M.B., C.M. in 1883, proceeding to the M.D. in 1889. He engaged for a time in practice at Tarbert on Loch Fyne, but in 1890 settled in private practice at Falkirk, and shortly afterwards was appointed part-time medical officer of health to Falkirk Burgh; from 1906 he relinquished private practice and conducted the medical officership as a whole-time appointment. In 1895 he had taken the D.P.H. of Cambridge. During his period of private work Dr. Prangnell was an active and popular practitioner. In addition to his public health duties at Falkirk he held several other appointments, and for many years was medical officer of health for Callander, Doune, and Dunblane, and also medical officer to Falkirk Post Office, as well as medical officer to the Falkirk School Board. At the time of his death he had held for over forty years the appointment of certifying surgeon under the Factory and Workshops Act for the important industrial area of Falkirk, and the medical officership of health. He is survived by a widow, two sons, and three daughters, of whom one is a member of the medical profession practising in Yorkshire.

The death took place, on December 16th, of Dr. ALEXANDER DINGWALL KENNEDY, a well-known practitioner in Wick, Caithness-shire. Dr. Kennedy studied medicine at Anderson's College, Glasgow, and Glasgow University, where he obtained the M.B., Ch.B. degrees in 1903, proceeding to M.D. in 1906. After graduation

he acted for a time as house-surgeon and anaesthetist in the Western Infirmary, Glasgow. During the South African war, while still a medical student, he acted as clinical assistant in the Scottish National Red Cross Hospital, which was largely officered by medical men from the West of Scotland. During the great war Dr. Kennedy held a commission as major in the R.A.M.C.(T.), and after the war he was an examining medical officer under the Ministry of Pensions. In addition to a busy practice, he was medical superintendent of the Wick Town and County Fever Hospital, and he found time for occasional contributions to medical periodicals. Dr. Kennedy was an active member of the British Medical Association, which he joined in 1913, and he was chairman of the Caithness and Sutherland Division from 1923 to 1926, and again in the present year.

Dr. JOHN REYNOLDS of Brixton Hill, S.W., died at the age of 86, on December 14th, after a short illness. He had practised in Brixton for over fifty years. He was born on December 21st, 1846, and studied medicine at Guy's Hospital, qualifying as M.R.C.S.Eng. in 1869 and obtaining the diploma of L.R.C.P.Ed. in 1871 ; ten years later he became M.D.Brux., gaining honours in all subjects of the first doctorate examination. For many years Dr. Reynolds acted as medical *referee for the Lancashire* and other assurance societies. He was a Fellow of the Royal Geographical Society, and retained to the end a keen interest in general science. His son, Dr. Russell J. Reynolds, is physician-in-charge of the department of radiology and electrotherapeutics at Charing Cross Hospital.

The Services

COLONEL COMMANDANT, R.A.M.C.

The King has approved the appointment of Major-General W. H. S. Nickerson, V.C., C.B., C.M.G., M.B., as Colonel Commandant, R.A.M.C., in succession to Major-General Sir S. Guise Guise-Moores, K.C.B., K.C.V.O., C.M.G., who has attained the age limit for the appointment.

DEATHS IN THE SERVICES

Colonel Edward Warren Webber Cochrane, D.S.O., late R.A.M.C., died in London on November 29th, aged 61. He was born at Lifford, co. Donegal, on May 2nd, 1872, and was educated at Trinity College, Dublin, where he graduated M.B., Ch.B., and B.A.O. in 1895, also taking the D.P.H. in 1906. Entering the R.A.M.C. as lieutenant on July 29th, 1896, he became lieutenant-colonel on March 1st, 1915. He served in the war of 1914–18, when he was A.D.M.S. in Iraq, was mentioned in dispatches in the *London Gazette* of August 27th, 1918, and received the D.S.O. He was employed at Woking after retirement.

Lieut.-Colonel Michael O'Halloran, R.A.M.C. (ret.), died at Folkestone on November 19th, aged 72. He was born on February 18th, 1861, was educated at Queen's College, Cork, and took the M.D., M.Ch. of the Royal University of Ireland in 1884. Entering the R.A.M.C. as surgeon on August 1st, 1885, he became lieutenant-colonel after twenty years' service, and retired on December 26th, 1917. He served on the North-West Frontier of India in the Tirah campaign of 1897–8, receiving the Frontier medal with two clasps ; and in the South African war of 1899–1902, receiving the Queen's medal with a clasp and the King's medal with two clasps.

Lieut.-Colonel Lyttleton Francis Forbes Winslow, R.A.M.C. (ret.), died at Hastings on December 2nd, aged 61. He was born on April 16th, 1872, was educated at Charing Cross Hospital, and took the L.S.A. in 1896, and later the L.M.S.S.A. in 1911. Entering the R.A.M.C. as lieutenant on July 27th, 1899, he became lieutenant-colonel in the long promotion list of March, 1915, and retired on August 2nd, 1919. He served in the South African war in 1899, taking part in the operations in the Transvaal, in the Orange Free State, and in Cape Colony, and received the Queen's medal with three clasps ; and also in the war of 1914–18.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation held on December 19th the following medical degrees were conferred:

M.D.—*J. B. A. Wigmore, W. J. H. Montgomery Beattie, W. E. Mashiter, P. G. Bentlif.

M.B., B.CHIR.—B. C. Murless, A. D. Briscoe, A. B. Eddowes, J. Howell, G. A. Clarke, A. B. MacGregor, C. R. L'E. Orme, G. A. Miller.

M.B.—H. B. Trumper.

B.CHIR.—M. P. Morel.

* By proxy.

UNIVERSITY OF LONDON

At a meeting of the Senate held on December 20th the title of Emeritus Professor of Eugenics in the University was conferred on Dr. Karl Pearson, F.R.S., on his retirement from the Galton Chair of Eugenics at University College.

The D.Sc. in Odontology was conferred upon Mr. E. C. Sprawson, a recognized teacher at the London Hospital Medical College.

Sir Cooper Perry and Sir Holburt Waring have been appointed members of the Board of Management of the London School of Hygiene and Tropical Medicine.

Dr. G. F. Still and Mr. C. P. G. Wakeley, F.R.C.S., have *been appointed Fellows of King's College.*

A course of six lectures on "Factors in Nutrition" will be given in the Physiological Department, Bedford College, Regent's Park, N.W., by Professor S. J. Cowell, on Wednesdays, January 10th to February 14th, at 5 p.m. Admission free, without ticket.

A course of ten lectures on "Comparative Physiology" will be given at University College, Gower Street, W.C., by Mr. G. P. Wells, on Fridays, January 12th to March 16th, at 5 p.m. Admission free, without ticket.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

A meeting of the Royal College of Surgeons of Edinburgh was held on December 18th, when Dr. A. H. H. Sinclair, President, was in the chair. The following candidates, having passed the requisite examinations, were admitted Fellows:

R. Bewick, J. B. Birch, L. Brill, D. W. Boucher, C. T. I. Clarke, D. C. Dickson, G. E. Foreman, F. P. Forrest, A. F. Hobson, R. W. H. Jarvie, G. R. Kingston, R. Laird, H. P. Lawson, A. Leech-Wilkinson, T. J. B. A. McGowan, W. A. Mair, D. K. Sabhesan, A. F. Shahin, A. N. Slater, A. M. Soliman, G. A. B. Walters, F. H. Ward.

UNIVERSITY OF BIRMINGHAM

The following degrees were conferred at a congregation on December 15th:

M.B., CH.B.—M. I. Ghattas, Joan F. M. E. Lamplugh, F. W. H. McMurdo, Bertha Marston, K. Watson-Jones.

PH.D. (*Faculty of Medicine*).—J. C. Hawksley.

VICTORIA UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—W. E. Bowden, P. V. Cant, H. W. Clegg, S. A. Cohen, F. T. Dodd, J. Holme, R. S. Hynd, H. Marshall, Helen E. Rogerson, T. P. Sewell. *Part I (Forensic Medicine and Hygiene and Preventive Medicine)*: J. Boardman, E. G. Dryburgh, R. E. Hirson, Eileen M. Hughes, T. S. B. Kelly, H. D. B. North, R. Spencer, J. Starkie, Marjorie Swain.

THIRD M.B., CH.B.—*Pathology and Bacteriology*: J. Charnley, Eleanor B. Clarke, Mary A. C. Cowell, T. F. Davey, F. P. Ellis, W. Fielding, F. I. Firth, S. Franks, E. Greenhalgh, E. H. Heilpern, K. H. Higson, A. D. Hoffman, L. L. Husdan, I. I. A. Jamieson, W. E. Kershaw, A. F. Mackay, R. Mallinson, J. L. Morgan, Annie Nelstrop, R. L. Parish, C. S. Parker, J. N. Parker, G. R. Rhodes, L. Margaret Ross, C. Rayle, H. L. Settle, J. N. Shepherd, D. Shute, R. Thornley, H. J. Wade, J. R. Wardley, Margaret I. Williams. *Pharmacology*: S. G. Abelson, Beryl A. Barlow, Helene E. K. Booth, J. C. Brundret, P. J. Burke, J. H. B. Cantley, Caroline J. Chalmers, Violet Cohen, G. D. Dawson, B. Flacks, J. Goldman, *D. Halpern, A. B. Hamer, B. P. R. Hartley, I. Hesford, J. Hilton, G. M. Komrower, V. T. Lees, Evaleen N. A. Milligan, Eleanor M. Mills, E. J. Mitchell, J. R. Monks, W. S. Parker, *B. Portnoy, D. A. Richmond, *E. N. Rowlands, A. Shashoua, R. M. Shaw, Nina Shtetinin, H. B. Slater, A. M. L. Smith, F. W. Smith, N. Taylor, D. J. Walker, M. B. D. Welland, E. P. Whitaker.

* With distinction.

UNIVERSITY OF WALES

The following candidates have been approved at the examination indicated:

M.B., B.CH.—D. R. Hughes, P. C. Lewis, D. M. Roberts, A. E. Williams, M. R. P. Williams, Nellie M. Williams.

NATIONAL UNIVERSITY OF IRELAND

UNIVERSITY COLLEGE, CORK

The following candidates have been approved at the examinations indicated:

M.D.—G. H. Mahony, D. J. O'Connell, J. A. O'Sullivan.
M.B., B.CH., B.A.O.—J. O'Connell (second-class honours), C. J. Cantillon, N. A. Flaherty, M. Flavin, P. J. Geoghegan, F. C. Hyland, M. J. Kennefick, J. P. O'Leary. *Part I*: B. Hutch. *Part II*: R. T. Ahern, R. A. Coughlan.
D.P.H.—D. Desmond.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following candidates have been approved at the examinations indicated:

FINAL MEDICAL EXAMINATION, PART *II.—Medicine*: K. O'Toole, Helena G. G. Bennett, J. A. McIlveen, Alice V. Cunningham, R. H. Simon, S. G. O'Neill, Marion A. G. Kennedy, Eva E. Moore, W. N. Whiteside, P. B. Hafner, S. M. Freedman, W. A. Clarke, G. N. Taylor, E. G. Ashton, Sheila K. Henderson. *Surgery*: D. S. Torrens, P. G. Daly, I. T. F. Wiley, G. S. S. Harty, D. T. Annesley, G. C. V. O'Driscoll, E. G. Ashton, S. H. R. Price, S. G. O'Neill, W. H. E. McKee, E. Howitt, J. A. Mallie, E. S. A. Ashe, A. W. Callaghan, N. Jackson, J. J. Martin, Mary J. Ahern, Marion A. G. Kennedy, Elizabeth G. Graham. *Midwifery*: *A. C. Pilkington, *N. Weinstein, *H. D. McGorry, *D. S. Quill, D. J. Bradley, P. St. G. Robinson, F. P. E. Smith, I. A. Walsh, H. L. Connor, T. A. Cunningham, J. F. Harbinson, P. O'Brien, R. C. Tyner, G. Hannigan, P. A. McNally, H. F. T. Deane, W. G. B. Halliden, E. B. McEntee, Doris E. Morton, C. O. Greer, A. F. J. Delany, D. J. O'Shaughnessy, J. J. Martin, Charlotte F. Pike, H. S. J. van Niekerk, C. M. T. Adamson.
M.CH.—F. W. G. Smith.
D.P.H.—*Part II*: R. P. Pollard.
DIPLOMA IN PSYCHOLOGICAL MEDICINE.—*Part II*: O. W. S. FitzGerald.

* Passed on high marks.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

Before adjourning over Christmas till January 29th the House of Commons read the Newfoundland Bill a third time and the Dyestuffs (Import Regulation) Bill a second time. The Money Resolution for the Unemployment Bill was reported, and a time-table approved for the committee stage of that Bill. An Order controlling the marketing of potatoes was also approved. The House of Lords discussed a Bill proposing to reform its own constitution, and also passed the Road Traffic (Emergency Treatment) Bill.

In the House of Lords, on December 19th, the Edinburgh Corporation Order Confirmation Bill was considered on report.

Before Parliament adjourned for the Christmas Recess on December 21st the Royal Assent was given to the Edinburgh Corporation Order Confirmation Act, Agricultural Marketing (No. 2) Act, Newfoundland Act, and other measures.

Mr. Ernest Brown, the Secretary for Mines, introduced in the House of Commons on December 21st the British Hydrocarbon Oils Production Bill and the Mining Industry (Welfare Fund) Bill.

In the House of Lords on December 20th Lord Dawson of Penn introduced a Bill to restrict the sale and display and advertisement of contraceptives. The Bill was read a first time.

The Ministry of Health Provisional Order (North Buckinghamshire Joint Hospital District) Bill was reported with amendments to the House of Commons on December 20th, and formally passed through the report stage on December 21st.

In reply to Mr. Lovat-Fraser on December 20th, Mr. Stanley stated that he was informed by the London Passenger Transport Board that accidents in which the Board's vehicles (omnibuses) were concerned increased in 1933 as compared with 1932 by 0.061 per 10,000 miles. As compared with 1931, a normal year operated at the old speeds, accidents had decreased by 0.036 per 10,000 miles.

On December 20th Mr. Stanley informed the House of Commons that he was considering whether additional safeguards were required to ensure that, so far as possible, all legitimate claims for compensation in connexion with motor accidents were met.

Mr. Stanley told Dr. Salter on December 21st that during the first six months of 1933 eighteen people were killed while boarding or alighting from tramcars. Parliament had during recent years consistently refused clauses designed to allow local authorities to make by-laws prohibiting motorists passing stationary tramcars while passengers were boarding or alighting.

Sir Hilton Young announced on December 21st that though there was need for economy in the use of water, owing to the exceptional shortage of rain, there was no ground for general alarm. A measure would shortly be laid before the house to promote the proper use of surpluses of water now going to waste. This approaching legislation would also provide for the better protection of water supplies required for rural areas.

The Minister of Transport has issued an Order bringing into force on January 1st Part I of the Road and Rail Traffic Act, including Section 33, which concerns payments to hospitals for treatment of road casualties.

Dye Dermatitis

Dr. BURGIN moved the second reading of the Dyestuffs (Import Regulation) Bill. He said that the measure was to place on a permanent basis the prohibition of importation into the United Kingdom of dyestuffs and intermediary products, a prohibition which had been enforced since January 15th, 1921.

Dr. O'DONOVAN said that between 1913 and 1932 there had been a rise in the incidence, in workers and wearers, of dye dermatitis. We had not yet reached that approach to perfectly safe manufacture that the foreigner seemed to have reached. Both dyes and explosives had internally and externally grave risks. Internal risks were shown in sometimes fatal toxic jaundice, which was notifiable to the Home Office. External risk consisted of irritable, painful, disfiguring, and disabling dermatitis. This was found to-day among workmen too frequently, and also on those who wore the products of the dye industries. In Wigan Dr. Prosser White had made an international reputation by his writings on industrial dermatitis. Dr. Ingram, at Leeds University, was drawing attention to this problem. In London Dr. Parsons of the Ministry of Health had issued an official memorandum on the subject of fur-dye dermatitis. Last July he (Dr. O'Donovan) had to preside in Dublin over the Section of Dermatitis of the British Medical Association, which was devoted largely to the consideration of dye dermatitis, because the heavy incidence of this disease was a source of trouble to the doctors and of most expensive litigation to those who were engaged in the manufacture and trade. He asked for consideration by the Government of Clause 3 of the Bill and Subsection 6 of the principal Act which was referred to, where they found the words: "Any Government Department which appears to the Board to be specially concerned with such development" might be asked to nominate a representative. He hoped that in committee "Government Department" might be made into "Government Departments," so that the experience of the Ministry of Health, and even more so the special experience of the Medical Department of the Home Office, in maintaining health in industry might be drawn upon to ensure a reasonable degree of security for worker and user. Dr. BURGIN said he wondered whether Dr. O'Donovan really meant that on a patient suffering from dermatitis being brought into a hospital he could tell at sight whether the

dermatitis was caused by a foreign or by a home-made dye. A dye containing injurious ingredients, wherever made, might produce dermatitis, and as often as not the disease was due to something in the skin and not to something in the dye.

The Bill was read a second time.

Price and Production of Insulin

Mr. RUNCIMAN, on December 19th, told Dr. O'Donovan that he understood that British makers had for some time supplied a large part of the home demand for insulin and maintained a considerable export trade, that they now had large stocks, and that their output could be readily increased if necessary. Dr. HOWITT asked the Lord President of the Council if he would direct the Medical Research Council to investigate and report on the possibilities of the manufacture of insulin under licence and its cheaper supply in this country. Mr. BALDWIN said he understood that the production of insulin had been brought to a high state of efficiency, not least in this country, and that insulin of British manufacture was available to the public here at a small fraction of the original price of ten years ago. He was advised that there was no present prospect of scientific research leading to further material decrease in the economic cost of production. As there were no longer any patent rights in the process, licences in this particular respect were not required by manufacturers. Sir FRANCIS FREMANTLE asked if it was not the fact that British insulin was being sold at 2s. per 100 and foreign insulin at 1s. 5d., and that there was a promise of that going down from 1s. 5d. to 1s. 3d. if the tax was removed. Therefore there was a prospect of it being lowered.

Mr. BALDWIN said that he would require notice as to prices.

Sir H. BETTERTON informed Mr. Bernays that he could not state the number of men engaged in the production of insulin in Great Britain. Mr. BERNAYS asked if it was a fact that not more than 100 men were so engaged in this country. Sir H. BETTERTON said that that might be so; he did not know. Sir FRANCIS FREMANTLE asked whether Mr. Shakespeare would bear in mind that at present the cost of foreign insulin was 1s. 5d., while that of British insulin was from 1s. 8d. to 2s. Mr. SHAKESPEARE said he would not accept that as a fact. Mr. D. R. GRENFELL asked why the House should not be informed of the relative prices of foreign and home-produced insulin. Mr. SHAKESPEARE suggested that the hon. member should put down a question on that point.

University of Durham

In the House of Commons on December 20th Mr. MARTIN asked the Chancellor of the Exchequer whether his attention had been called to the controversies within the University of Durham, which had persisted for a number of years and had caused much public attention in the North of England; and whether the Government proposed to take any action in the matter. Mr. CHAMBERLAIN, in reply, said that the answer to the first part of the question was in the affirmative, and as regarded the second part that the Government had decided to set up a Royal Commission to inquire into the organization of the University of Durham and its constituent colleges. The terms of reference of the Commission and its personnel would be announced in due course. On being asked by Mr. Martin whether any time limit would be set on the work of the Commission, the Chancellor replied that he did not think so.

Alcohol in Flavouring Essences

Replying to Dr. Salter on December 20th, Mr. HORE-BELISHA said he had seen a Press report that so-called flavouring essences sold by Messrs. Woolworth had been analysed by four independent chemists, and had been found to contain in some cases 86 to 90 per cent. of ethyl alcohol, in others 80 per cent. of iso-propyl alcohol, in others 20 per cent. of normal propyl alcohol, and in others 20 to 40 per cent. of fusel oil and higher alcohol. Further samples of these essences had been analysed by the Government chemist, who found no sample contained 86 to 90 per cent. of ethyl alcohol, but two samples of "rum essence" were composed of about 35 parts each of ethyl alcohol, iso-propyl alcohol, and flavouring containing fusel oil. Fusel oil contained normal propyl alcohol, butyl alcohol, and amyl alcohol. Ethyl alcohol was not found in any "brandy essence"; and in the great majority of the rum, and all the brandy, essences examined iso-propyl alcohol was the solvent, being present to the extent of about 70 per cent. He was unable to accept Dr. Salter's statements that iso-propyl alcohol was two and a half times as intoxicating as ethyl alcohol; that normal propyl alcohol was still more intoxicating; and that fusel oil was a deadly poison; he understood there was no reason to apprehend any danger of toxication or intoxication from the presence of the substances mentioned in flavouring essences. The Iso-propyl Alcohol Regulations, 1927, did not apply to Messrs. Woolworth, who sold, not iso-propyl alcohol, but articles manufactured with iso-propyl alcohol. An excise licence was not required for the sale of flavouring essences. Mr. Hore-Belisha said he was not aware when publicity was given to the case that the whole stock of so-called essences, which were made with denatured ethyl alcohol, was withdrawn and new stock issued made with iso-propyl alcohol, nor that his own Department informed the perfumery section of the London Chamber of Commerce a month ago that it suspected that something of this sort was going on, and thereupon forbade the issue of any further denatured ethyl alcohol for the manufacture of perfumes. He repeated that these essences were undrinkable, and that none of them had the exhilarating qualities which spirit drinkers considered essential.

Osteopathy

Sir WILLIAM DAVISON asked the Minister of Health if his attention had been called to the increase in the practice of osteopathy in this country, and if he would institute an inquiry into the principles and practice of osteopathy to protect the public from treatment by untrained practitioners. Mr. SHAKESPEARE said that the Minister had considered this matter, but, as indicated in a reply given on November 30th, did not think that an inquiry on the lines suggested would serve any public interest. Sir W. DAVISON asked if Mr. Shakespeare did not realize the danger to the public in having unqualified practitioners practising this skilful art, and if he did not think it desirable that these men should form their own college and give their own certificates to people whom they considered qualified to act. Mr. SHAKESPEARE said he did not know that any more harm was being done to the public by allowing the practice of osteopathy than by allowing unqualified medical practitioners to practise.

School Children's Meals

Mr. RAMSBOTHAM told Sir W. Jenkins, on December 20th, that the Board of Education recognized for grant, in addition to milk meals, expenditure on ordinary meals, which were usually dinners, but in some cases breakfasts or teas, and expenditure on cod-liver oil, dried milk, and certain concentrated foods. The average cost of all types of such meals in England and Wales in 1931–2 was 2.36d., of which 1.66d. represented cost of food only. Daily figures of the number of children receiving milk meals in schools in England and Wales were not available. He gave the following table for the month of October, 1933.

	England	Wales	Total
Number of children provided with milk meals	148,166	17,544	165,730
Number of children provided with ordinary meals (breakfasts, dinners, or teas)	93,096	13,258	106,354
Number of children provided with other types of meals (for example, cod-liver oil)	17,862	522	18,384

The numbers in the table were rather larger than the numbers receiving meals daily, owing to children being added to or removed from the feeding list during the month. The total of these figures was somewhat larger than the total number of children receiving meals of any kind during the month, as some children received meals of more than one type. In addition to the number of children provided with milk under arrangements made by local education authorities, it was estimated that over 1,000,000 children received one-third of

a pint of milk daily under schemes established by the National Milk Publicity Council. In the case of milk provided by local education authorities, the quantity varied from one-third of a pint to one pint per meal. The usual provision was half a pint per meal.

Vagrancy in England and Wales

Sir HILTON YOUNG told Sir A. Wilson, on December 21st, that the hostels referred to on page 203 of his annual report were specially set up for the purpose of reclaiming young men from a life of vagrancy. These were not suitable for, or available to, other classes. They were provided by voluntary associations, and his sanction to their provision was not required. He was aware of fourteen such specialized hostels, the majority of which received some financial help from local vagrancy authorities. The recommendation in the report of the Departmental Committee on Housing did not contemplate hostels of this kind. He gave the following particulars concerning the relief of casuals during the last three years:

	Average Number of Casuals in Receipt of Poor Relief	Highest Number Relieved during Year	Lowest Number Relieved during Year
1930-1	10,873	12,831	7,879
1 31-2	12,982	16,911	12,313
1932-3 (11 months, Jan. to Nov.)	14,497	16,243	11,889

He was satisfied that the establishment of joint vagrancy committees had secured improved administration. Nine administrative counties and three county boroughs were still not included in any combination, but except as regarded three counties, in which there were special difficulties, there was every reason to hope that satisfactory combinations would shortly be effected. It had not been found practicable to arrange for a central record of certain classes of persons frequenting casual wards, as recommended by the Departmental Committee.

The Home Secretary has stated that he hopes to limit the application of Section 4 of the Vagrancy Act—which makes sleeping out a penal offence—to ensure that proceedings shall only be taken in the interest of the community or of the individual concerned.

Committee of Inquiry on Firearms

Sir J. GILMOUR told Sir A. Pownall that he proposed to appoint a committee to consider the various types of firearms and similar weapons capable of being used for the discharge of missiles or noxious substances, and ammunition therefor, and to inquire and report whether, in the interests of public safety, any amendment of the existing law was necessary or desirable in their definition or classification. Sir Archibald Bodkin had consented to act as chairman of the committee.

The Firearms Bill introduced by Sir Assheton Pownall to regulate the sale of firearms and imitation firearms was read a second time on December 18th without debate, and sent to a Select Committee.

Maternal Mortality and Child Marriage in India

Sir SAMUEL HOARE has told Miss Rathbone that he has received from the Government of India reports which show that the recommendations of the Age of Consent Committee have been carefully considered by the Government of India and by local Governments. There is a consensus of opinion that educative propaganda regarding the evils of child marriage is desirable, and a general agreement that such propaganda is best left to non-official agencies. With regard to the other administrative measures recommended by the committee, local Governments will take such action as may appear to them feasible, but most of the specific proposals are, in present conditions, not practicable. He has promised Miss Rathbone that he will communicate to the Government of India her suggestion that, in view of the fact that the number of deaths in childbirth in India was estimated by Sir John Megan, late Surgeon-General for India, at 200,000 per annum, the Government of India should set up a Commission to inquire into the reason for, and methods of reducing, this maternal mortality. Miss Rathbone has asked if the right hon. gentleman is aware that, according to the same authority, the excess of maternal deaths is associated with child marriage, and if nothing is to be done either by the central or the provincial Governments to deal with this social evil. Sir SAMUEL HOARE said that Miss Rathbone was raising a much wider issue than that in the question.

Nutrition of London School Children.—Mr. RAMSBOTHAM informed Mr. Duncan that he understood that 1,281 children in the 10-year-old age group were examined in the recent inquiry by the London County Council into the nutrition of school children. The schools selected were mainly in poor areas. Of these children, 93.5 per cent. were found to be well nourished and 6.5 per cent. poorly nourished. Only two children were grossly ill nourished. The poorly nourished children were not found to be principally the children of the poorest parents; the percentage of poorly nourished children of parents in full-time employment was found to be higher than the average for the whole group. In view of the prolonged economic depression, the result of the inquiry was regarded by the London County Council as reassuring.

Expenditure on Scientific Research.—Mr. BALDWIN told Sir Francis Fremantle that the amount provided in the Estimates for the current year for expenditure by the Department of Scientific and Industrial Research on its own Research institutions was £392,932, representing 76 per cent. of the total grant of the Department; the amount allocated by the Department to research associations in the same Estimates was £67,000, representing 13 per cent. of the total grant. The total sum expended by grant-aided research associations in their own laboratories in the last financial year of the associations was £225,061, and on research undertakings extraneously £37,910. These sums represented 350 per cent. and 60 per cent. respectively of the total of the grants made by the Department to the industrial associations in those years.

Water Supply Surveys by Regional Committees.—Mr. SHAKESPEARE has told Mr. Levy that six regional committees have been formed covering the areas: South-West Lancashire (22 authorities), West Riding of Yorkshire (142 authorities), Sherwood area of Nottinghamshire (22 authorities), Isle of Wight (11 authorities), Holland, Lincolnshire (12 authorities), and South Buckinghamshire (6 authorities). The Sherwood Area Committee has issued its report, including an agreed plan for the allocation of the water resources. The other committees are surveying needs and resources and formulating plans. The survey of the water resources of the country, begun in 1923, is made through the regular accumulation of information by officers of his Department in the course of their duties. The majority of the existing water undertakings have been investigated. Much of the information obtained is confidential, and it is not proposed to publish it.

Lighting in Mines: New Regulations Promised.—Mr. ERNEST BROWN, Secretary for Mines, stated that he proposes to make, early next year, regulations in respect to lighting in mines. These may involve the replacement of a large proportion of the safety lamps now in use at and about the coal-face by lamps of much higher candle-power. Draft regulations will also be prepared dealing with the use of flame-lamps or other detectors for gas in mines.

Indian Medical Officers' Leave.—Sir FRANCIS FREMANTLE has asked for what reason privilege leave out of India to all medical officers and nurses in military employment has been stopped except on urgent compassionate grounds, and why the combined leave already granted to certain medical officers in India is being held in abeyance without reasons being given. Sir SAMUEL HOARE has replied that he has received no information to the effect that leave has been stopped, but he will make inquiries.

Physique of Navy and Air Force Recruits.—For the first financial year 41 per cent of applicants for recruitment in the Royal Navy were rejected on physical and medical grounds This is approximately the normal figure for recent years Of would be recruits for the Royal Air Force including applicants for apprenticeships 40 per cent were rejected on the same grounds during the first eleven months of 1933

Housing Subsidy in Scotland.—In reply to Dr McLean on December 21st Mr SKELTON said he did not propose to alter the rate of subsidy payable under the Housing (Scotland) Act, 1930, by the Department of Health for Scotland towards the rehousing of persons displaced from uninhabitable houses The present rate of subsidy would continue until the next statutory review after October 1st 1936

Slum Clearance.—Of 1 717 housing authorities in England and Wales 1 512 have made returns about their proposals for slum clearance The Minister of Health has confirmed 653 slum clearance orders submitted by 153 local authorities

Notes in Brief

Mr Elliot has stated that he hopes it will be possible to introduce a Diseases of Fish Bill this session The Bill will deal with furunculosis

The Minister of Transport hopes to make a statement soon after the Christmas Recess regarding the steps he is taking to deal with the problem of road accidents

Sir Hilton Young is not yet in a position to make a statement on the subject of legislation on the recommendations of the Milk Reorganization Commission about a revision of the designations of milk

Sir Hilton Young told Mr Lambert he was aware that 528 000 cwt of butter had been imported from Soviet Russia during the first eleven months of this year The importation of Russian butter and of other foods was controlled in the interests of public health by the Imported Food and the Preservatives Regulations, and all such foods were subject to examination at the ports

Medical News

Dr. L Rajchmann, director of the Health Organization of the League of Nations, has been sent to China for a year to assist the Government in co ordinating the activities of the League's experts, and to act as liaison officer between the Chinese Government and the League

Professor J. R Learmonth, University of Aberdeen, will give a course of three lectures, illustrated by lantern slides, on "The Surgery of the Nervous System, with Reference to the Use and the Elucidation of Physiological Phenomena," at St Bartholomew's Hospital Medical College, West Smithfield, E C on January 9th, 10th, and 11th at 5 30 p m In his first lecture Professor Learmonth will describe the pathological physiology of the circulation of the cerebro spinal fluid, in the second, the physiological basis for operations on the sympathetic nervous system, and in the third, the physiology of pain, with reference to operations for its control The chair will be occupied at the first lecture by Sir Holburt Waring, President of the Royal College of Surgeons of England Admission is free, without ticket

International post graduate medical courses will be held in Berlin next year as follows internal medicine, from March 5th to 17th, radiology in March and April, a continuation course for surgeons, from April 9th to 14th, malignant diseases with special reference to early diagnosis, in March and April, and special monthly courses in various spheres of medicine Programmes and full particulars may be obtained from the office of these international courses, Kaiserin Friedrich Haus, Robert Koch Platz, 7, Berlin N W 7 Special railway facilities are obtainable in Germany

Dr Julius Tandler, professor of anatomy at Vienna, has been invited by the Chinese Government to lecture at the Universities of Pekin and Shanghai in the present winter session

The nineteenth Franco Belgian cruise will be held next Easter, when the Mediterranean and the Black Sea will be visited on the steamship *Leopoldville* Starting from Marseilles on March 24th, the itinerary will include Malta, Piraeus for Athens, Stamboul, Constanza (permitting visits to Bucarest and the heart of the Carpathians as far as Sinaia), and Odessa, returning to Marseilles on April 10th The cost is estimated at about 3,900 Belgian francs There will be only one class Medical practitioners and their families, as well as recommended non medical passengers, may take part Further particulars are obtainable from the Section des Voyages de Bruxelles-Medical, 29, Boulevard Adolphe Max, Brussels

The Central Information Bureau for Educational Films has just issued the first number of the first volume of its *Bulletin* in the new series

The Oxford University Press have sent us a series (Nos 54-6) of "Old Ashmolean Postcards" depicting Oxford men of science of the eighteenth century These include James Bradley, John Wall, Gilbert White, Thomas Pennant, Edmund Cartwright, and James Sadler, the accredited "Father of British Aeronautics," who in 1784 "made a record flight of fourteen miles in seventeen minutes from the Oxford Botanic Garden" The postcards are sold at 6d the half dozen

Messrs H K Lewis and Co, Ltd, announce a new volume in their General Practice Series for early publication—*Rheumatism in General Practice A Clinical Study*, by Dr Matthew B Ray, with a foreword by Lord Horder

The Home Secretary gives notice that, in conformity with the provisions of the International Convention of 1931 for limiting the manufacture and regulating the distribution of narcotic drugs, he has made regulations in pursuance of sub section (3) of Section 2 of the Dangerous Drugs Act, 1932, for controlling the manufacture, possession, and wholesale distribution of methylmorphine (commonly known as codeine), ethylmorphine (commonly known as dionin), and their respective salts The Regulations, which are dated December 15th, 1933, come into force on January 1st, 1934, and are in substantially the same form as the draft regulations, of which notice was given in the *London Gazette* and *Edinburgh Gazette* of November 3rd, 1933 Copies may be obtained on application to the Under Secretary of State (Room 212), Home Office, Whitehall S W 1

Sir George Makins, who died on November 2nd, left estate valued at £61,031 He bequeathed £1,000 to St Thomas's Hospital Medical School War Memorial Fund

The following bequests are included in the will of Mr Charles Lane, of Hall Green, Birmingham £1 250 each to the Queen's Hospital and the General Hospital, Birmingham, for the maintenance of a bed in each in memory of his mother, £1 250 to the General Hospital, Birmingham, for the maintenance of a bed in memory of his brother, Thomas Richard Lane, and £1,250 in recognition of services rendered to his niece, Emily Lane, £500 each to the Birmingham Royal Institution for the Blind and Dr Barnardo's Homes

Geh Med -Rat Professor Uhlenhuth of Freiburg has been awarded the Paul Ehrlich Gold Medal

A chair of endocrinology has recently been founded at Bucarest, with Dr Parhon, professor of neurology and psychiatry at Jassy, as its first occupant

There has recently been an outbreak of plague in Northern Manchuria, where 600 deaths from the disease have occurred in a fortnight

Dr Karl Landsteiner of the Rockefeller Institute has been awarded the gold medal of the Dutch Red Cross for his discovery of the blood groups

Dr Alexander von Lichtenberg, professor of surgery at Berlin, has been made a foreign member of the Swedish Medical Society, Dr Max Heinrich, Fischer professor of cerebral investigation at Berlin, a corresponding member of the Royal Medical Academy at Rome, and Dr Erich Lexer, professor of surgery at Munich, a foreign member of the Lombardy Surgical Society

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

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QUERIES AND ANSWERS

Chronic Ulceration of Mouth

"ABROAD" (Trinidad) writes: I should be very glad to obtain advice on the diagnosis and treatment of the following case. A woman, aged 30, married and with one child, suffers from an almost continuous ulceration of the mouth, aggravated by excitement or depression, and unaffected by dieting. She is also subject to hay fever. All her teeth were removed years ago.

Artificial Menopause

Dr. C. C. ANDERSON (Invercargill, New Zealand) writes, in reply to "M.B.'s" inquiry (*Journal*, September 9th, p. 516): I suggest that he should consult some radiological colleague anent the use of *x*-ray therapy along the lines suggested by Heinz Langer in the *American Journal of Roentgenology and Radium Therapy*, vol. xxviii, p. 747. I have not access to the article at the present moment, but I fancy that Langer specifically mentions menopausal symptoms in his discussion of the irradiation of the vegetative nervous system. I certainly consider a course of radiation to the lumbar glands worth while, followed, if necessary, by irradiation of the cervical region. The technique laid down by Langer should be adhered to strictly.

Scarlet Fever Immunity

Dr. F. A. BELAM (medical officer of health and school medical officer for Guildford) writes: I was much interested to read the letter of Dr. C. J. Hill Aitken in the *Journal* of December 9th (p. 1101). In view of what he thinks possible, he might be interested to hear of the following cases. (1) Miss B. was admitted to the isolation hospital with a typical attack of scarlet fever, for which she was treated with antitoxin on November 8th. She was discharged perfectly fit on December 5th. On December 8th she was readmitted with a typical attack of scarlet fever, for which she was not treated with antitoxin. (2) A child was admitted to hospital with a typical attack of scarlet fever on October 16th, treated with antitoxin, and discharged on November 10th. She was readmitted with a typical attack of scarlet fever on November 18th, and was discharged on December 15th. It would definitely appear that immunity to scarlet fever has not been attained in either of these cases, and this can only be ascribed to the complete neutralization of the toxin produced by the disease by the antitoxin given. In the case of Miss B. the rash was vivid and typical on each occasion.

Income Tax

Liability of Medical Society

"S. C." asks whether his local medical society is liable to pay income tax.

*** So far as ordinary income is concerned—for example, interest on war loan, bank deposit, etc.—the society is liable to assessment (General Medical Council *v.* Commissioners of Inland Revenue). There is no legal liability to account for tax on the excess of the society's income from *subscriptions* over its expenditure, but if that is done the deduction by the members of their subscriptions when calculating their own income tax liability is facilitated.

LETTERS, NOTES, ETC.

Herpes Generalisatus

Professor J. A. NIXON, C.M.G. (Bristol), writes: Dr. Sylvia G. Chapman's note published in the *Journal* of December 16th (p. 1152) reads like a classical account of the rare condition herpes generalisatus. I have seen five cases of this form of herpes, all in patients of 65 years of age or over. The first instance was in a colleague who walked into my consulting room one day and asked me if I had ever seen a case of "generalized herpes." I never had, but when he stripped he displayed a typical herpes on the flank and thigh with isolated vesicles in various other places, just as described by Dr. Sylvia Chapman. He remarked to me that if he had not known what it was he might have thought he was starting an attack of chicken-pox in his old age. Since then I have seen four other patients similarly affected with herpes. I have discussed this point several times with colleagues, who have described to me cases of herpes with varicella in elderly patients, but without exception none of them have known that such a condition as herpes generalisatus existed.

Herpes and Varicella

Dr. A. H. SPICER (London, W.) writes: The following note of a case of varicella contracted from a case of herpes zoster which had already had varicella may be of sufficient interest to publish. I have recently had in my practice a second case of varicella in a lady which started exactly three weeks after her husband had had herpes zoster. It is a point of interest that the husband had previously had varicella.

Poliomyelitis and Distemper

Lieut.-Colonel HENRY SMITH, C.I.E. (I.M.S. ret.), writes (from Sidcup): Has acute anterior poliomyelitis in the human subject any relation to distemper in dogs? Cow-pox and small-pox appear to be different diseases, though we know them now to be one and the same disease. The causative agent of any of the above-named diseases has not yet been discovered. I have seen all varieties of distemper symptoms in dogs. I had recently a pair of bull-terrier pups, which at six weeks of age showed general malaise for a day or a day and a half, and the day following were paralysed in the radial nerve of both forelimbs. I looked up the best authority on the subject and found that this occurred in distemper, though *very rarely*. The pups were apparently all right in a few days, with no other symptoms but a general malaise, and presumably a rise of temperature for a day or two. I treated them as I would acute anterior poliomyelitis, and the paralysis was all right in a couple of months. If the same set of symptoms recurred in the human subject, how many of us would have diagnosed it as acute anterior poliomyelitis? I should think 100 per cent. It would be worth while for those with facilities to infect a ferret—an animal very susceptible to distemper—with blood from a case of infantile paralysis in the early stages, and in case no symptoms followed, infect it with distemper later to see if this produced any distemper symptoms. If it did not, we would by this means learn if the two diseases were in any way related, and, if so, the fact might lead us in a very important direction.

The Card

"RUSTICUS" writes: I received to-day (December 19th) a handsome Christmas card from a presumably well-known London surgeon. He is unfortunately unknown to me either personally or professionally, so I am driven to the conclusion that the card, with its printed message of greetings, is a trade-advertisement in a new guise. Times must be hard in the West End if consultants are driven to this form of touting.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 34, 35, 36, 37, and 39 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 38 and 39.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 324.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

472 Lead Poisoning

H Engelsen (*Tidsskr f d Norske Laegefor*, August 15th, September 1st and 15th, 1933, pp 866, 929, and 985) gives an account of twelve cases of chronic lead poisoning observed among workers in the naval docks of Horten The true state of affairs had at first been overlooked Yet most of the men presented the characteristic picture of lead poisoning with, in some cases, up to twenty different morbid conditions in one and the same patient Engelsen believes that, in the detection of such cases, too much importance has hitherto been attached to the lead line in the gums If the patient keeps his mouth clean the lead line is apt to be absent, and in none of the twelve cases investigated was it found on the first examination, although the gums were unhealthy and the teeth represented by only a few blackened stumps A constant symptom was an unpleasant, sweet taste in the mouth, which in some cases persisted years after the work with lead had been discontinued The involvement of the nervous system was extensive and varied, there were neuralgic pains in the arms, legs, and back, with headache, giddiness, loss of memory, nervousness, and irritability It is probable that this wide distribution of the nervous lesions was associated with the variety of the occupations on which the patients had been engaged Had these patients done nothing but paint with the right hand their nervous lesions might well have been limited to the textbook radial palsy Having kept his patients under observation for up to two years, the author is very guarded as to the prognosis

473 Primary Staphylococcic Pneumonia

H A Reimann (*Journ Amer Med Assoc*, August 12th, 1933, p 514), who records six sporadic cases in patients aged from 3 months to 38 years, maintains that primary staphylococcic pneumonia occurs more frequently than is generally assumed In sporadic cases, and probably in most epidemic cases, the infection is autogenous, arising when the resistance is lowered by some other illness The disease is characterized by gradual or sudden onset, chills or chilliness, sweats, high remittent fever, increased pulse and respiration rates, marked cyanosis, and the signs and symptoms first of bronchopneumonia and later of pulmonary abscess The sputum is yellowish green, often pinkish, purulent, and odourless, and varies greatly in amount Overwhelming numbers of staphylococci are present in smears and cultures of the sputum, and from the lung The leucocytes in the blood vary greatly in number Skiagrams are of great assistance in the detection of abscess formation before it is extensive enough to be diagnosed by ordinary physical examination The mortality is high, especially in the epidemic case, but four of Reimann's cases recovered

474 Liver Therapy—a Seven Years' Review

R Seyderhelm (*Deut med Woch*, August 4th, 1933, p 1193) considers the problems of pernicious anaemia seven years after the introduction of liver therapy by Minot and Murphy He stresses the fact that this treatment does not attack the cause of the disease, that subacute combined degeneration has become much more common, and that it is now the usual termination for the sufferer from pernicious anaemia The author discusses the question of whether the disease is due to chronic intoxication or the deficiency of some haematinic principle He inclines to the view that both factors are at work He suggests that subacute combined degeneration is related to vitamin B_1 deficiency and is similar to the postero lateral sclerosis of pellagra Castle considered that vitamin B_2 was identical with his "extrinsic factor" [L Wills has since shown this to be untrue] Seyderhelm distinguishes between constitutional pernicious anaemia occurring in individuals with congenital and frequently familial achylia gastrica and conditional pernicious anaemia resulting from intestinal stenosis, sprue, *Bothrio cephalus latus* infestation, and other factors In the familial type *B coli* is frequently obtainable from the gastric juice, and this is due to the absence of a bactericidal substance normally present in the secretion Ordinary doses of liver, he finds, have little effect on subacute combined degeneration, though massive doses appear to benefit it This he attributes to the vitamin B_1 content, of which he recommends concentrated preparations

475 Silicosis and Tuberculosis

I Bellander (*Hygiea*, September 15th, 1933, p 655) gives a preliminary account of investigations recently conducted in smelting works in Sweden Among the workers examined were forty four in whom no definite signs of silicosis could be found In twenty nine cases the disease was demonstrable, and it was noteworthy that in as many as twenty one of these cases it was combined with some other morbid condition such as heart disease, tuberculosis, or general debility It is suggested that heart disease, tuberculosis, etc, predispose to silicosis, and that special care should be taken to prevent workers suffering from these ailments from being exposed to quartz dust With another preventive measure—the wearing of masks—it should prove possible to lengthen by some years the "incubation period" of silicosis, which, in the author's cases, was about six to eight years In fourteen cases it was probable that the silicosis was associated with pulmonary tuberculosis, but only in one case were tubercle bacilli demonstrable in the sputum In ten of these the tuberculosis may well have existed before work was begun in the foundry and it is quite possible that the quartz dust had had a beneficial action on the course of the tuberculosis by favouring fibrosis ("A certain degree of silicosis may perhaps be of such therapeutic value that it can be put on a level with pneumothorax treatment") But though silicosis may hasten cicatrization about a tuberculous focus and thus reduce the opportunities for the spread of this disease, Bellander finds the reverse process—that is the action of tuberculosis on silicosis—quite another matter

Surgery

476 Perforation of the Gall-bladder

E Judd and J Phillips (*Ann of Surg*, September, 1933 p 359) state that perforation of the gall bladder is unusual and is most frequently confused with inflammation of a high lying appendix, perforation of an ulcer of the stomach or duodenum, or acute pulmonary disease The gall bladder rarely perforates during the first attack, but adhesions form, and when the perforation does occur the process usually remains localized about the viscus Perforation is probably always due to ulceration or local gangrene of a part of a wall The author reviews sixty-one cases, in only two of which was there extravasation of the contents into the general peritoneal cavity The majority of patients were over fifty years of age, and forty three of them were women All the patients had had symptoms referable to the biliary tract, and eight had undergone cholecystostomy Colic was the most common symptom and occurred in fifty four cases, whilst jaundice was present in sixteen Tenderness in the right upper abdominal quadrant was a common finding, and localized peritonitis was present in fifty four cases Stones were found in the gall bladder in fifty six cases The

authors state that when the perforation of the gall-bladder allows fluid to run free into the peritoneal cavity immediate surgical intervention is imperative. When the infection is localized and a palpable mass can be felt in the right upper quadrant of the abdomen, cholecystostomy or cholecystectomy, with free drainage of the abscess, is indicated. In the series reviewed cholecystectomy was performed in forty-eight cases with five deaths, and cholecystostomy in thirteen cases with one death. Half of the deaths were associated with pulmonary complications due to the close proximity of the infected gall-bladder to the diaphragm.

477 Spondylolisthesis

S. KLEINBERG (*Arch. of Surg.*, September, 1933, p. 565) is of the opinion that spondylolisthesis is primarily the result of a congenital cleft in the laminae of the neural arch. Although trauma is an important contributory factor, *x* rays and necropsies show that there is no callus or bony irregularity suggestive of a fracture and that therefore the injury is not the essential cause of the spondylolisthesis. In the characteristic case the forward dislocation of the vertebral body is the predominant disability. A bilateral cleft in the neural arch has been found in every case of spondylolisthesis studied. The break in the osseous ring is always between the articular facets, and as a result the superior facets remain attached to the body and the inferior facets to the laminae. The conditions which favour dislocation are abnormal lordosis, convexity of the superior surface of the sacrum, obesity, and excessive continuous strain on the pelvic structures—such as pregnancy. Spondylolisthesis is rarely seen in adolescence and usually does not occur until adult life, when the physical stresses become marked. A diagnosis of pre-spondylolisthesis is made by finding a defect in the laminae of the lumbar vertebra without any displacement of the body. When this is established fusion of the vertebrae should be carried out to prevent an actual dislocation. Dislocation may exist for several years without causing any symptoms or disability, but the condition is now recognized as an important cause of back disability. When symptoms are present they may be relieved by external support of the back or by fusion of the vertebrae. Kleinberg reviews nineteen cases, in the majority of which operative treatment brought about the relief of symptoms. In all cases in which operations were performed the posterior arch was found to be abnormally movable, and connected to the vertebral body by fibrous tissue only.

478 Pruritus Ani

A. BASSLER and R. CONNORS (*Med. Journ. and Record*, September 6th, 1933, p. 145) describe pruritus ani as one of the important items of focal infection concerning the anal region. The two principal bacterial factors are the *Streptococcus faecalis* and *Staphylococcus albus*. The method by which these two organisms may be isolated is given in detail. It is considered that the chronic infection, which is the essential cause of the pruritus, always results in changes in the rectal mucous membrane, such as a weakening in its protective action against the passage of organisms, or a break in its continuity. This allows the infective secretion of the rectum to burrow behind the mucous membrane and to work its way into the perianal and perineal tissues, thus causing the hypertrophied oedematous condition of the skin seen in cases of pruritus. Treatment should be by the subcutaneous administration of autogenous vaccines and also by the operative removal of all infected parts. Operation is carried out under local anaesthesia and the external sphincter is divulsed with a Pratt bivalve speculum. Where a crypt exists this is excised, care being taken that the incision is extended externally to allow for drainage. Butessin crystals are laid directly on the wound, and an external dressing applied which keeps the buttocks tightly strapped. These dressings are removed the day after operation to allow of a bowel movement. Great relief from itching follows operative treatment, but it may sometimes be necessary to inject any remaining haemorrhoids.

Therapeutics

479 Medical Treatment of Cholecystitis

As a result of a study of the histories of 200 patients with cholecystitis who were not subjected to operative treatment, J. M. BLACKFORD, R. L. KING, and K. K. SHERWOOD (*Journ. Amer. Med. Assoc.*, September 16th, 1933, p. 910) conclude that 37 per cent. of such patients derive satisfactory relief from medical therapy for an average of more than eight years. In 48 per cent. of the patients with chronic cholecystitis who were not operated on at first it was found that surgical intervention was required later, owing to the continuation of the symptoms. Death occurred in 15 per cent., but only 1 per cent. of the patients died in direct consequence of the gall-bladder disease. The authors maintain, therefore, that a patient with uncomplicated cholecystitis should be given a trial period of medical treatment. If marked relief does not occur promptly, an operation should be performed, for a large majority of medical failures may thus be avoided, and complications be prevented. It is added that the development of malignancy consequent on the delay is a definite, though small, risk. The preliminary clinical study of the patient will obviate also the too common errors of removing the gall-bladder (even though it contains calculi) with poor results in attempting to cure unrecognized mucous colitis, renal calculi or pyelitis, functional dyspepsia associated with enteroptosis, the spinal root pains of arthritis or tabes, and various neuroses, with abdominal manifestations.

480 Serotherapy of Lobar Pneumonia

E. FILO (*Bratislavské Lekárske Listy*, September, 1933, p. 416) records a series of 108 out of 400 cases of lobar pneumonia treated with pneumococcal serum with, on the whole, fairly satisfactory results. He finds that susceptibility to infection is most apparent in the third decennium of life. Men are more frequently attacked than women (63 per cent.), but the death rate is higher in women (26 per cent.). The right lower lobe of the lung is the one mostly affected; in 273 cases in this series one lung alone was involved. Filo found that in the group of 108 patients treated with serum the mortality rate was 18.5 per cent.; the remainder, acting as controls, gave a rate of 24 per cent. He points out that the prognosis depends on how far the inflammatory process has extended. This appears to be the same whatever form of treatment is undertaken, but serotherapy is shown in a statistical table to have a special influence on reducing the mortality in cases in which only one lung is involved.

481 Treatment of Pleural Empyema

A. RÜTZ (*Klin. Woch.*, September 9th, 1933, p. 1414) discusses the physiological factors upon which the modern treatment of empyema [illegible] is based. He states that the three chief therapeutic indications are: removal of pus, obliteration of the pathological intrathoracic cavity without disturbance of the heart or lungs, and re-expansion of the lung with a return to the physiological *status quo ante*. For meta- and para-pneumonic empyema he advocates repeated aspiration, followed, if necessary, by closed intercostal drainage. Rib resection he confines to localized empyemas and to those of long standing. Mediastinal and interlobar empyemas should, he considers, not be needled. They should first be accurately localized by skiagrams, then a portion of rib immediately suprajacent should be resected. If the subjacent pleural layers be adherent, the empyema may then be opened with the cautery; if not, the cavity between the endothoracic fascia and the parietal pleura should be packed with paraffin wax to produce adhesions and the empyema opened a fortnight later. Tuberculous empyema is treated by repeated aspiration unless secondarily infected, when intercostal drainage becomes necessary. When a chronic empyema with a sinus is present, respiratory exercises may cause the lung to expand; if not, there is the choice of Sauerbruch's extrapleural paravertebral thoracoplasty, phrenic avulsion, or Schede's operation.

Radiology

482 Radiology of the Ampulla of Vater

J. FRIEDENWALD and M. FELDMAN (*Radiology*, August, 1933, p. 162) remark that duodenal diverticula, although rare, have been found more frequently in recent years. Their relation to the ampulla of Vater is important. The commonest type occurs in the ampullar region and is visible occasionally in skiagrams. They are usually single, and situated on the inner and posterior aspect of the second part of the duodenum. Normally, the sphincter prevents the passage of barium into the ampulla. Although the size of the filled ampulla varies, its site never changes. The mouth of the pouch is usually large; thus it sometimes reveals barium retention. Diverticula seldom present inflammatory changes though duodenal regurgitation may induce gall-bladder and pancreatic infections. Many of the writers' cases exhibited signs of subhepatic and duodenal adhesions, sometimes associated with abnormal intraduodenal pressure and gall-bladder disease; there may be some aetiological relationship. Anatomical weakness of ampullar tissues is probably an important factor. It may be particularly difficult to differentiate filled *ampulla from a true diverticulum*. Only thirty-four cases of the former were observed among many thousands of routine examinations of the gastro-intestinal tract. In recent years, however, diverticula have been observed with greater frequency. Dyspeptic symptoms of some kind were present in all the authors' cases.

483 Prevention of Breast Cancer Metastasis

While admitting that radiation therapy, however modified and improved, may never be an ideal weapon against metastasis, the principal cause of death in mammary carcinoma, F. HERNAMAN-JOHNSON (*Brit. Journ. Radiol.*, August, 1933, p. 468) thinks that its possibilities in this direction should be more fully explored, since at the moment it is the only line of treatment which holds out any hope of lessening the death rate from this cause. Apart from some cases of *cancer-en-cuirasse* which defy treatment, there are very few local manifestations of recurrence of malignant growth which cannot be dealt with effectively by radium, or *x* rays, or radiotherapy combined with surgery or surgical diathermy. It is not possible to kill all malignant cells, widely scattered as they may be, by any form of radiation, but suitably applied *x*-ray treatment will help to stimulate the body to deal with them. The fact that the method of attack is indirect makes it imperative that the response of the body tissues should not be exhausted. No effort should be made to achieve finality by a single course of radiation, but this treatment should be continued from time to time over a period of years. Exposure of the whole body to ultra-violet light is commended as a valuable procedure in this respect, and also general radiation similarly by small quantities of very hard rays generated by a tube kept several feet away from the body. The author has found that patients exposed to wide fields of low intensity radiation, with frequent dosage, experience considerable systemic improvement so long as the treatment is carefully adjusted to the individual case, overdosing and undue prolongation of the radiation being avoided.

484 Encephalography

M. SILBERMANN (*Wien. klin. Woch.*, August 4th, 1933, p. 970) records the experiences of the Vienna neurological clinic with encephalography between 1928 and 1932. Encephalography was performed seventy-one times in 446 cases of cerebral tumour. Injection of air by the cisternal route was the method of choice, and ventriculography was only used once. This method of investigation is only employed when a tumour cannot be localized clinically. Typical and atypical reactions to air injection are distinguished; the former consists of slight headache with possibly some rise of temperature; the latter varies—high fever, hemiparesis, transient cranial nerve palsy, or death may occur. Atypical reactions followed in 17.5 per cent. of cases, and death occurred twice in this series. The danger of encephalography in posterior fossa tumours appears to be exaggerated provided there are no localizing signs. Both deaths occurred with middle fossa tumours. Atypical reactions were particularly common with anterior fossa tumours. Cases without papilloedema were followed by atypical reactions more frequently than those with—18 per cent. as opposed to 10 per cent. The quantity of air injected varied from 10 to 90 c.cm., and apparently bore no relation to the subsequent type of reaction. In this series of seventy-one cases, ventricular filling did not occur in twenty; in twenty-three the diagnosis by encephalography was confirmed by operation or necropsy; in eighteen the clinical diagnosis was confirmed by encephalography, and in nine the encephalographic diagnosis was not verified. In twenty-one cases the procedure gave no help at all.

485 Tissue Tolerance in Diathermy

A. BESSEMANS and L. VANHOUTEGHEM (*Bruxelles-Médical*, August 27th, 1933, p. 1226) find that tolerance to diathermy differs greatly in respect of wave-length, the shorter waves being borne better. The direct measurement of intracellular temperature is, they state, the only safe criterion of thermal action, as ordinary physical methods and subjective sensations are unreliable. The actual temperature of the tissues is now determined by means of (1) the "depth-thermometer," a very slender mercurial thermometer introduced to the required depth by means of a cannula, or (2) the thermo-electric needle, connected with a mirror-galvanometer. Thermic curves obtained by either method coincide very closely. The writers describe numerous experiments which demonstrate the following facts. (1) The advantage of dry, bare electrodes—preferably thin malleable metal plates—which ensure close contact. (2) The definite differences existing in the general systemic tolerance of diathermy and that of each tissue, not only in various animal species but also in individuals of the same species, and also according to the region affected. (3) That the intensity of heating tolerated shows a definite inverse ratio between the duration of application and the wave-length—that is, that prolonged duration reduces the degree of the temperature tolerated and that waves of 200 to 300 metres permit, without inconvenience, a higher intracellular temperature than those of 600 metres. (4) That the local intracellular temperature cannot be estimated by (*a*) the general body temperature, (*b*) the amperage employed, or (*c*) any similar indirect measurement.

Obstetrics and Gynaecology

486 Pregnancy Serum for Premature Infants

According to H. SIEGMUND (*Zentralbl. f. Gynäk.*, August 26th, 1933, p. 2000), Kj. v. Oettingen attributed the good effects obtained by adding blood serum from pregnant patients to the food of premature infants chiefly to its content of stimulant and growth-producing factors—probably hormonic. Good results have been reported also from parenteral and rectal injections, and from injections of follicular hormone and/or prolan. It appears that the active bodies, though present in the serum of pregnancy, are absent from the milk. In an extensive series of cases Siegmund has fed to premature infants for some weeks 10 to 20 c.cm. daily of fresh serum from non-syphilitic pregnant subjects. In addition to a favourable effect on the weight curve he has noted an immediate stimulant effect. The serum loses its activity after the first day. For this reason, and also because prolan and ovarian hormone appear somewhat less effective when added to the diet, and because the serum of non-pregnant persons possesses in some degree the same properties, he thinks it improbable that the success of the treatment is to be attributed solely to the effects of known hormones.

487 Uterine Enlargement following Injections of Follicular Hormone

C. CLAUBERG (*Zentralbl. f. Gynäk.*, August 26th, 1933, p. 1991) publishes radiograms showing by means of lipiodol the greatly increased size of the cavum uteri in response to injections of 160,000 mouse-units of follicular hormone given during eighteen days. The patient, who was 36 years old, had had amenorrhoea for four months and had had both adnexa removed. Similar results were obtained in five other cases, from doses reaching to 270,000 units. An oily preparation was used.

488 Climacteric Oedema

HANS CURSCHMANN (*Med. Klinik*, September 15th, 1933, p. 1270) deplores the absence from textbooks of clinical descriptions of the temporary oedema of the menopause. This oedema was first described by the author in 1909 as "a temporary diffuse oedema in normal parts of the skin, which gradually and almost unnoticeably disappears: the oedematous part is pale, sometimes of normal tint, unusually bluish or reddish." The sites affected are usually the hands and the ventral aspect of the arms; sometimes the legs and feet. The swellings often appear in the morning, and after a short time are seen to have disappeared; they recur again and again. Generally the condition is associated with the other psychological, vegetative, and vasomotor disturbances of this period of life, but the oedema may continue to recur long after the menopausal symptoms are gone. The physician is frequently misled into a diagnosis of cardiorenal disease. In the present contribution two cases are described with full clinical details. Special attention was paid to the criteria of cardiac, renal, or endocrine disease. Of the two former no evidence at all was obtained, and of the latter hypothyroidism was definitely excluded, the patients having normal basal metabolism, normal pulse and blood pressure, increased activity of the sweat glands, and no symptoms of physical or mental depression, etc. Curschmann, definitely discarding the hypothyroid theory, believes that the condition is related to ovarian insufficiency. Injections of progynon produced a considerable diuresis (in one case with a loss of 1.5 kilos in one day) and disappearance of the oedema. Ordinary diuretics are, he states, ineffective in menopausal oedema.

489 X-Ray Treatment of Metrorrhagia

E. HUSTED (*Ugeskrift for Laeger*, September 14th, 1933, p. 971) re-examined, early in 1932, 150 of the 157 women treated in a Danish hospital between April, 1924, and January, 1931, for irregular glandular hypertrophy of the endometrium. In every case this diagnosis depended on a microscopical examination of the endometrium. He notes incidentally that, in the same period and hospital, the total number of patients suffering from metrorrhagia unassociated with pregnancy or a tumour was 799. As many as 112 of the 157 patients were between the ages of 41 and 50. Most of them were parous, there being only twenty-seven nulliparae. In as many as 143 cases there was no other associated gynaecological lesion. The only symptoms were excessive loss of blood and a considerable degree of anaemia and lassitude. Of the fifty-four patients treated by curetting alone, forty-eight were re-examined, and twenty-four of them were found to have kept well ever since. There was another group of thirty-four patients who, having relapsed shortly after a therapeutic curetting, were given *x*-ray treatment. The experience with these two groups showed that curetting alone is followed in many cases by a relapse. Of the 103 patients given *x*-ray treatment, one discontinued it prematurely. All the remaining 102 were re-examined from one to eight years after treatment. Two of them developed cancer, in the ovary and uterus respectively. Of the remaining 100, as many as ninety-seven were found to be well; there were only two relapses, and one case in which a relapse seemed imminent. The discomforts of the treatment were small in comparison with the success achieved; only in three cases were there complications which prevented the treatment being carried out under ambulatory conditions. The author concludes that when a histological examination has confirmed the diagnosis of hypertrophia irregularis glandularis endometrii in women nearing the climacteric and suffering from metrorrhagia, *x*-ray treatment is indicated.

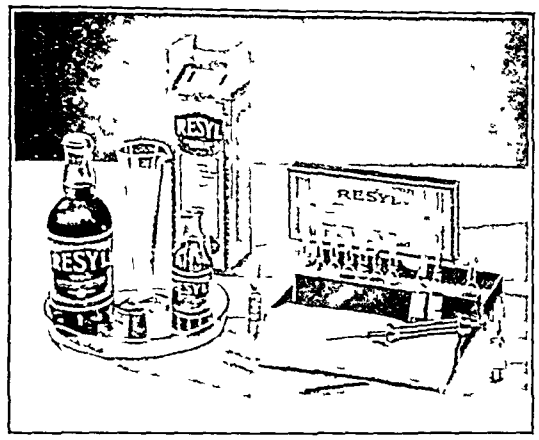
Pathology

490 Pyuria in Infants

M. FRANK (*Med. Klinik*, August 4th, 1933, p. 1074) reaffirms and produces further evidence for his previously published view that *B. coli* pyuria in the infant is usually an ascending infection, while staphylococcal pyuria is haematogenous. On this view colipyuria is due to a primary pyelitis and coccal pyuria is due to a septic metastatic nephritis. Histological examination of ten cases of colipyuria showed inflammatory changes in the renal pelvis in eight of them. Haemorrhages were also seen in the renal pelvic mucous membrane, whilst the renal parenchyma showed no inflammatory changes, the bladder being rarely affected. Similar changes could be produced in rabbits by infection of the bladder with *B. coli*. These and other facts lead the author to regard an ascending infection as certain, but the pathogenesis of the condition still seems in doubt. Whilst certain cases reported by Haber showed cortical abscesses from which members of the coli-typhoid group were cultured, the present author is disinclined to regard them as arising from the circulation. Experimental results are described which show that bacteria introduced into the ligatured ureter may ascend to the convoluted tubules and glomeruli. The relatively infrequent colipyuria seen in the first days of life may be related to the peculiar properties of the infantile intestinal mucous membrane at this period, and cannot without more evidence be attributed to a purely ascending process. Such factors as the longitudinal folds of the ureter and anti-peristalsis in the ureter must also be considered. The influence of the autonomic system on the musculature of the urinary passages on the ascent of infections has recently been considered by Noeggerath. The frequent association of the vegetative neuroses (Feer) and pyuria is strongly suggestive. Of nine male children with vegetative neurosis, two had pyuria, whilst of ten females seven had an accompanying pyuria. Cases of this type with *x*-ray evidence are described. Abnormal mobility of the detrusor vesicae as well as the sphincter by an unstable condition of the double innervation of the bladder could, it is stated, readily start a process of ascending infection.

491 Skin Reactions with Vaccines

M. DE BRUIN and A. VEDDER (*Nederl. Tijdschr. v. Geneesk.*, September 23rd, 1933, p. 4340) as the result of observations on 300 persons came to the following conclusions. Infants under three months of age show little or no reaction to intracutaneous injection of dead pneumococci or streptococci. In older infants and children the proportion of positive reactions increases. There are no specific differences between the reactions to pneumococci, *Streptococcus viridans*, or haemolytic streptococci. On the other hand the reaction is specific for the group, for the reaction to cholera or typhoid vaccine is different. Children who have had bronchitis, bronchopneumonia, or similar infections due to pneumococci or streptococci show a positive reaction more frequently than other children, and possibly these infections convert a negative reaction into a positive one. Older children and young adults such as students very frequently show a positive reaction. Children who have had lobar pneumonia, rheumatic fever, or chorea rarely show a positive reaction. After one attack of erysipelas negative reactions are frequent in those liable to a relapse, whereas a positive reaction indicates immunity. A negative reaction after an attack of lobar pneumonia or rheumatic fever also suggests an absence of immunity. The possibility of changing negative reactions into positive by vaccination should thus be considered in such cases.



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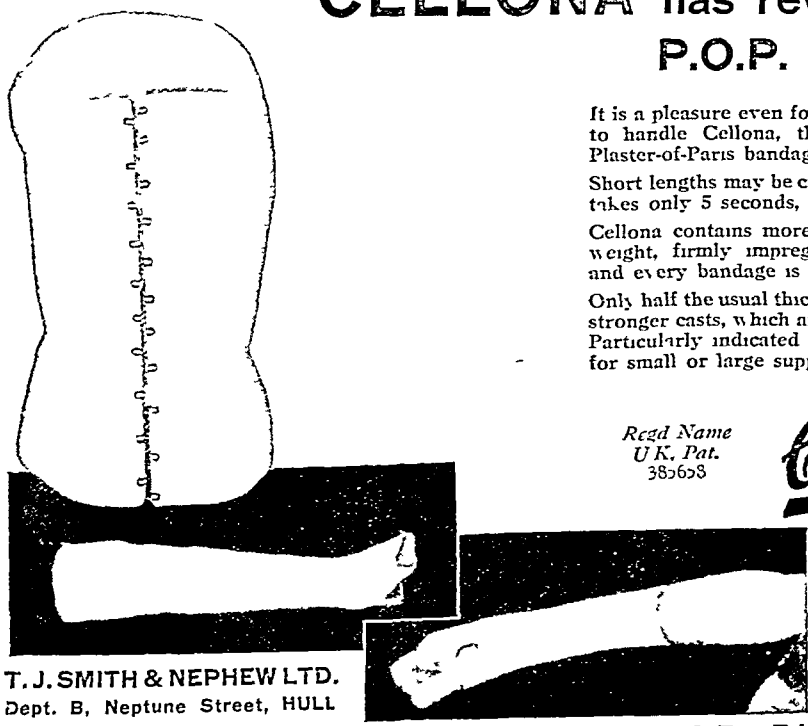
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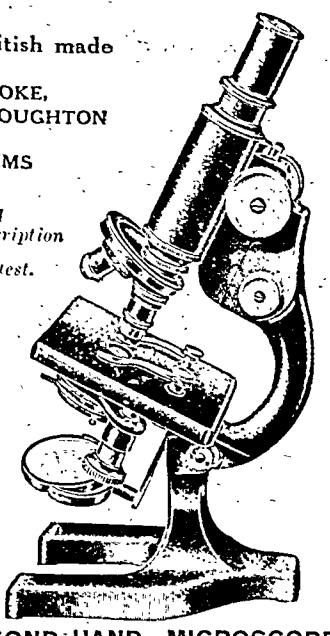
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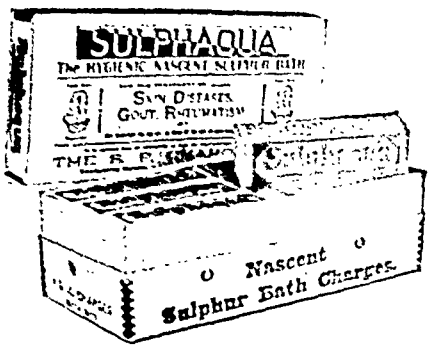
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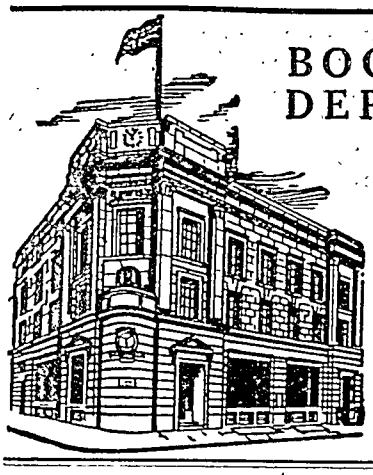
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FOR THE UPPER AND MIDDLE CLASSES ONLY.

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For terms and further particulars apply to the Medical Superintendent (Telephone No 2356 and 2357 Northampton) who can be seen in London by appointment

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'Phone: 11 Ashton in Makerfield.

For the reception and treatment of *PRIVATE PATIENTS of both sexes* of the UPPER AND MIDDLE CLASSES suffering from mental and nervous diseases, either voluntarily or under Certificate Patients are classified in separate buildings according to their mental condition.

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BETHLEM ROYAL HOSPITAL, for Nervous and Mental Disorders,

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Reg. Tel. Address: Bethlem, Beckenham. *Telephone*: Springpark 1180-1181.
Station: Eden Park (Southern Railway).

President: LORD WAKEFIELD OF HYTHE, C.B.E., LL.D.
Treasurer: SIR LIONEL FAUDEL-PHILLIPS, Bart.
Physician-Supt.: J. G. PORTER-PHILLIPS, M.D., F.R.C.P.

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For forms and further particulars apply to the Physician Superintendent at the Hospital.

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This REGISTERED HOSPITAL, with a SEASIDE BRANCH at Colwyn Bay, N. Wales, is for the treatment and care of those of the Upper and Middle Classes suffering from MENTAL and NERVOUS DISEASES.
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EPSOM COLLEGE

EPSOM COLLEGE [illegible] with a view to becoming the centre of Higher Education in Downs. The Buildings and [illegible] the Wyatt Memorial Chapel, Laboratories, Science Buildings, with Lecture Theatres and Scientific Laboratories for Physics, Chemistry, Biology, Natural History, Human Anatomy and the Practice of Medicine. Examinations will be held throughout the year in London and in Epsom. The Hall and Library, a magnificent new Sanatorium (50 feet) with every department of Medicine, Surgery, etc. There are also a Museum, Laboratories, Lecture Rooms, Gymnasium and fives courts, a pavilion and a library. Extensive playing and bathing waters have recently been installed. There are over [illegible] acres of playing fields and 7 acres of woodlands.

In order to keep abreast of the times and realising the importance of biology in any Public School curriculum, the Council have recently erected a new building devoted entirely to the study of this subject. In the building are a laboratory for 25 students (additional to the existing biology laboratories), two large museum rooms, a museum, taxidermists room and offices for the Biology Master and Curator of the Museum. The building was opened by Professor D'Arcy Thompson, LL.D., Int. Members Day, July 20th, 1933.

The College is recognized by the General Council of Medical Education and Registration of the United Kingdom and by the Royal Colleges of Physicians and of Surgeons and the First Medical Examination of London University may be taken at the College itself.

Boys are also prepared for the Royal Navy, the Army, Air Force, Civil Service, the Universities, and for Professional or Mercantile Careers.

SCHOLARSHIPS—ENTRANCE.—The Council offer annually two Open Entrance Scholarships of £100 p.a. (for which boys already in the School may not compete) and two Open Scholarships of not more than £60 p.a. (for which eligible boys already in the school may compete *pari passu* with these from outside).

In the years when they are vacant the Thomson Brighten Scholarship of £120 p.a., and the Dorrett Stone Scholarship of £110 p.a. are offered in place of a £100 Scholarship.

In addition there are many other Scholarships tenable at the School among them being 4 Leopold Salomons Entrance Scholarships of £50 a year each. Full particulars are given in the College Blue Book, obtainable on application to the Head Master or the Bursar at the College.

SCHOLARSHIPS—LEAVING.—There is also a large list of valuable Leaving Scholarships. Ten Medical Scholarships differing in value and one Dental Scholarship are awarded annually by London Hospitals and 18 Leaving Scholarships ranging in value from £15 to £105 are awarded under various conditions.

ANNUAL FEES.—Sons of Medical Men £135. Those who are not the sons of Medical Men £195. Day Scholars £57. These fees are *inclusive* covering all such items as books and stationery, medical attendance for boarders, bed linen, laundry, boxing, fencing, shooting, swimming, physical training, O.T.C., Scouts. In short a parent when considering the cost of education at various Public Schools has something most definite to go on at Epsom College.

ROYAL MEDICAL FOUNDATION

The objects of the Founder—namely to provide (*a*) pensions for aged disabled or impoverished medical men or their widows and (*b*) scholarships for the sons of needy or deceased medical men—have been faithfully carried out, indeed the Council are most anxious not only to maintain the full number of pensioners and Foundation Scholars but to increase the number of beneficiaries as in these anxious times the calls for help are more numerous and more urgent.

Out of endowed funds there are also a number of pensions and annuities available for medical practitioners and the widows and daughters of medical men, certain scholarships for daughters of medical men and the Council are able to admit at a reduced fee 12 Exhibitioners, being sons of less fortunate members of the Profession. There will be two or three vacancies for these Exhibitions in 1934. Full particulars of which and of the Foundation generally, may be obtained on application to the Secretary at the Union Office.

FOUNDATION SCHOLARSHIPS.—Fifty Foundation Scholars receive an education of the highest class at Epsom College and are boarded clothed and maintained at the expense of the Foundation. They must be elected from among the sons of necessitous or deceased Medical Men or Women who have been registered practitioners for five years. No boy is eligible to stand as a candidate who is under 10 or over 13 years of age on May 31st in the year of election. Subject to the By-laws a Foundationer may remain in the School until he is 17, or even until 19 on the recommendation of the Head Master.

PENSIONERSHIPS.—Fifty Ordinary Pensioners receive £70 a year from the funds of the Foundation and £10 a year from an endowed fund. Candidates must be Medical Practitioners who have been registered for five years or the widows of medical men so qualified and must not be less than 60 years of age at the time of their application for admission as candidates.

EXTENSION OF THE BENEFITS OF THE FOUNDATION AND CHANGE IN METHOD OF ELECTION.—The benefits of the Foundation are open to applicants from all parts of the Empire and under the Parliamentary Scheme which received the Royal Assent recently are now extended to Medical Women and their sons. This Scheme also abolished the voting system so that the Pensioners and the Foundation Scholars are elected by the Council or a Committee appointed by it annually. This Committee at present consists of twenty Governors, ten of them being members of the Council. The ten non-Councillor Governors are representative of all parts of England, Scotland, and Wales.

URGENT NEED OF FUNDS.—The Conjoint Committee has recently elected four additional Foundation Scholars, bringing the total up to fifty-four. This is the highest number ever maintained by the College and the Council trust that sufficient financial support will be forthcoming to enable this number to be permanently kept up. Indeed in view of the large number of deserving candidates who cannot stand owing to age for more than one election the Council appeal for additional help so that they may increase still further the number of the scholarship.

A sum of over £10,000 is now required annually to maintain fifty-four Foundation Scholars and fifty Pensioners, yet the leaves much destitution in the Profession unrelieved. The Council earnestly plead for more and larger subscriptions so that they may extend the work to the relief of this distress.

The Profession and the Public are therefore asked to make the Royal Medical Foundation attached to the College a refuge in time of trouble for all the members of a great profession and their children who fall on evil days.

Donors of ten guineas and collectors of twenty guineas are Life Governors of the College; subscribers of one guinea annually are Governors during the continuance of their subscriptions.

W. L. GIFFARD (Major), Secretary.

Office: 47 Bedford Square, W.C.1.
December 1933.

UNIVERSITY OF LONDON.

A COURSE OF SIX LECTURES on "*Factors in Nutrition*" will be given by Prof. S. J. COWELL, M.B., M.R.C.P. (University Professor of Dietetics), at BEDFORD COLLEGE (Regent's Park, N.W.1) on WEDNESDAYS, JANUARY 10th, 17th, 24th, 31st, and FEBRUARY 7th and 14th, at 5 p.m.

A COURSE OF TEN LECTURES on "*Comparative Physiology*" will be given by Mr. G. P. WELLS at UNIVERSITY COLLEGE, LONDON (Gower Street, W.C.1), on FRIDAYS, JANUARY 12th, 19th, 26th, FEBRUARY 2nd, 9th, 16th, 23rd, and MARCH 2nd, 9th, and 16th, at 5 p.m.

A COURSE OF THREE LECTURES on "*The Surgery of the Nervous System, with reference to the use and the elucidation of Physiological Phenomena*" will be given by Prof. J. R. LEARMONTH, Ch.M., F.R.C.S.E. (Regius Professor of Surgery in the University of Aberdeen), at ST. BARTHOLOMEW'S HOSPITAL MEDICAL COLLEGE (West Smithfield, E.C.1) on JANUARY 9th, 10th, and 11th, at 5.30 p.m. At the first Lecture the Chair will be taken by Sir HOLBURT J. WARING, President of the Royal College of Surgeons of England. Lantern illustrations.

A COURSE OF THREE LECTURES on "*The Role of the Liver in the Metabolism of Carbohydrate and Fat*" will be given by Prof. C. H. BEST (Professor of Physiology in the University of Toronto) at UNIVERSITY COLLEGE, LONDON (Gower Street, W.C.1), on JANUARY 11th, 15th, and 18th, at 5.30 p.m. At the first Lecture the Chair will be taken by Prof. C. A. LOVATT EVANS, D.Sc., F.R.C.P., F.R.S., Jodrell Professor of Physiology in the University. Lantern illustrations.

Admission free, without ticket.

S. J. WORSLEY, Academic Registrar.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.

(UNIVERSITY OF LONDON.)
Denmark Hill, S.E.5.

ADVANCED MEDICINE COURSE.

A Course in CLINICAL MEDICINE, PATHOLOGY, MORBID HISTOLOGY, and BIOCHEMISTRY suitable for M.D. and M.R.C.P. examinations will be given for seven weeks commencing on February 13th, 1934.

Further particulars can be obtained on application to the Dean, King's College Hospital Medical School, Denmark Hill, S.E.5.

GRAHAM SCHOLARSHIP IN PATHOLOGY.

The Senate of the University of London invite applications for the GRAHAM SCHOLARSHIP IN PATHOLOGY, value £300 per annum, in the first instance for two years, founded under the will of the late Dr. Charles Graham to enable "a young man to continue his pathological researches and at the same time to secure his services to the School of Advanced Medical Studies connected with University College Hospital as a Teacher under the direction of the Professor of Pathology."

The successful candidate will, if possible, take up the scholarship as from April 24th, 1934. The Scholarship is in no way restricted to students of Medical Schools of the University. Applications must be made to the undersigned before January 31st, 1934.

Further particulars should be obtained from the Academic Registrar, University of London, South Kensington, S.W.7, or from Prof. A. E. BOYCOTT, at University College Hospital Medical School, Gower Street, W.C.1.

EDWIN DELLER,
University of London. Principal.

HARLOW WOOD ORTHOPAEDIC HOSPITAL, near MANSFIELD, NOTTINGHAMSHIRE. (120 Beds.)

Applications are invited for the posts of TWO HOUSE SURGEONS (male). The salaries are at the rate of £175 per annum, with board, residence, and laundry. The duties may include attendance at the affiliated out-patient clinics.

The appointments will be for six months, and may be renewed for a further six months.

Applications, stating age and experience, with copies of testimonials, should be received on or before January 16th, 1934, by the Secretary.

THE JESSOP HOSPITAL FOR WOMEN, SHEFFIELD. (145 Beds.)

The Board of Management invite applications for the post of HOUSE SURGEON (male) for a period of six months, commencing March 1st, 1934.

Salary £100 per annum, together with board, residence, and laundry.

Applications, stating age, together with copies of testimonials, should be addressed to the undersigned not later than January 9th, 1934.

DAVID OSWALD, Secretary.

COUNTY COUNCIL OF MIDDLESEX.

ASSISTANT DENTAL OFFICER.

The County Council invites applications for the above appointment. Applicants must be fully qualified and registered Dental Surgeons.

The duties of the post are the dental inspection and treatment under the Education and Maternity and Child Welfare Acts.

The officer appointed, who will be entitled to one month's holiday annually, will be required to devote his or her whole time (including Saturday mornings) to the duties of the post, will not be allowed to engage in private practice, will be under the supervision of the County Medical Officer and the Senior Dental Officer, and must be prepared to reside in such district as may be required.

Salary £500 per annum, rising by annual increments of £25 to £700.

The appointment will be during the pleasure of the Council, and subject to one month's notice on either side.

The successful candidate will be required to pass such medical examination as the County Council may direct, and to contribute to the County Council's Superannuation Fund.

Applications, stating name, age, qualifications, and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than January 13th. Special application forms are not provided. Envelopes must be endorsed "Assistant Dental Officer."

Canvassing, directly or indirectly, will be a disqualification.

ERNEST S. W. HART,
Middlesex Guildhall, Clerk of the County
Westminster, S.W.1. Council.
December 18th, 1933.

COUNTY BOROUGH OF BLACKBURN.

PUBLIC ASSISTANCE COMMITTEE.

RESIDENT JUNIOR ASSISTANT MEDICAL OFFICER.

Applications are invited from Medical Practitioners (male) for the appointment of a Resident Junior Assistant Medical Officer at Queen's Park Institution and Infirmary. The applicants must be registered as Medical Practitioners.

The staff consists of a Resident Medical Officer, a Resident Assistant Medical Officer, a Consulting Surgeon, a Laboratory Assistant, and X-Ray Attendant.

There is a separate Infirmary, separate Mental Block, and a separate Sanatorium for children, and there is opportunity for experience in all departments, including medical, surgical, and midwifery cases. An X-ray apparatus is installed.

The person appointed will be required to devote his whole time to the duties, and also to act as may be directed by the Resident Medical Officer.

The appointment will be limited to a term not exceeding one year.

Salary for the first six months at the rate of £150 per annum (subject to an economy deduction to be fixed by the Council) and thereafter at the rate of £200 per annum (subject to an economy deduction to be fixed by the Council), together with board, apartments, and attendance.

Applications, stating age, qualifications, and experience, accompanied by copies of not more than three recent testimonials, must be sent so as to reach the Public Assistance Officer, Public Assistance Offices, Cardwell Place, Blackburn, not later than January 6th, 1934.

Town Hall, BRIGGS H. MARSDEN,
Blackburn. Town Clerk.
December 23rd, 1933.

THE RETREAT, YORK.

Applications are invited for the post of SENIOR ASSISTANT MEDICAL OFFICER (male) at this registered Mental Hospital. Previous mental hospital experience essential. Preference will be given to candidates who possess the Diploma in Psychological Medicine. If a candidate without this qualification is appointed he will be expected to obtain it within two years of appointment. Commencing salary based on experience and qualifications. Minimum £400 per annum for an unmarried Assistant, with full board, residence, and laundry; or £560 per annum for a married Assistant with house, rent, and rates free. Applications, with copies of testimonials, to be sent to the Medical Superintendent on or before January 4th, 1934.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS, Victoria Park, E.2.

The Committee of Management invite applications for an appointment of ANAESTHETIST. Attendance on Tuesday mornings is essential. An honorarium is attached to the post.

Applications, accompanied by copies of testimonials, should reach the undersigned not later than Monday, January 8th, 1934.

GEORGE WATTS, Secretary.

CITY OF NOTTINGHAM.

ASSISTANT MEDICAL OFFICER AT CITY INFIRMARY.

Applications are invited from qualified medical practitioners for a position as Assistant Medical Officer (Resident, male) at the City Infirmary, Nottingham.

The hospital contains about 880 beds for the treatment of all classes of sick persons. It is a recognised training school for nurses, and is equipped with all modern requirements.

Candidates must have held the post of House-Physician and House Surgeon in a general hospital, and preference will be given to those having had experience in a Poor Law Institution. Experience in the administration of anaesthetics is also desirable.

The salary will be £350 per annum, rising by *annual increments* of £25 to £450, with rations and furnished apartments. Quarters for married men are not available. The successful candidate will be required to pass a medical examination, and to contribute to the Corporation's Superannuation Fund.

Forms of application, together with particulars of duties, may be had from the undersigned, to whom the application, with copies of not more than three recent testimonials, and endorsed "Medical Officer" should be forwarded not later than January 13th, 1934.

Guildhall, W. J. FOARD,
Nottingham. Town Clerk.
December 23rd, 1933.

DEVON COUNTY COUNCIL. (Medical Department.)

DEPUTY COUNTY MEDICAL OFFICER.

Applications are invited from duly qualified Medical Practitioners (male) under 40 years of age, for the appointment of Deputy County Medical Officer under the Devon County Council.

Applicants must possess a Diploma in Public Health, and have had experience in County Public Health work.

The appointment will be subject to the Local Government and Other Officers Superannuation Act, 1922.

The salary will be £720 per annum, rising by annual increments of £20 to £800.

Travelling and out-of-pocket expenses in accordance with the Council's Scale will be paid.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, shall be made on the prescribed form, and forwarded so as to reach the County Medical Officer, 4, Barnfield Crescent, Exeter, Devon (from whom copies of application forms and full particulars of the appointment may be obtained), not later than the first post on Friday, January 12th, 1934.

CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE, WITHINGTON, MANCHESTER.

RADIUM THERAPY SERVICE.

Applications are invited for the post of RESIDENT MEDICAL OFFICER at the above hospital and institute for duty with the Radium Therapy Department.

The appointment is for a period of six months but will be renewable. Previous resident appointments essential. The appointment offers an excellent opportunity of acquiring experience in all branches of radium therapy.

Salary is at the rate of *£150 per annum*, plus residence, board, and laundry. Applications, with full details of previous experience, together with copies of testimonials, should be sent to the Secretary at the above address not later than Monday, January 8th, 1934.

CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE.

Required, RESIDENT RADIOLOGICAL ASSISTANT (male) for duty in the X-Ray Department (diagnostic and therapeutic) and for duty as resident. Candidates must possess the D.M.R.E. or other Radiological diploma. Salary at £275 p.a. (£125 *in respect* of Radiological duty and £150 as Resident), with residence, board, and washing. Appointment for six months, renewable. Applications, with copies of testimonials, to reach the Secretary, 38, Barton Arcade, Manchester, by Monday, January 8th, 1934.

LONDON COUNTY COUNCIL.

Applications invited for two whole-time positions of ASSISTANT MEDICAL OFFICER, chiefly in connection with the Council's school medical work. Special experience of the medical examination of children essential. Age limit for candidates not already in the Council's service 40. Salary £600 by £25 to £750 a year. Scale and conditions subject to review.

Forms of application (stamped addressed envelope necessary) obtainable from Medical Officer of Health (S.D.5), County Hall, Westminster Bridge, S.E.1, and must be returned by January 13th, 1934. Canvassing disqualifies.

INDIAN MEDICAL SERVICE

Recruitment of European Officers.

Applications are invited from medical men for *permanent commissions* in H.M.'s Indian Medical Service. The terms offered include a gratuity of £1,000 on retirement after six years' service, or £2,500 after 12 years' service, together with free return passages for those who no longer desire to remain in the Service. In other respects the terms will be as detailed below.

Candidates must be European British subjects under 32 years of age at the time of application, and must be registered under the Medical Acts in force in Great Britain and Northern Ireland.

CAREERS.

The Indian Medical Service offers wide opportunities of medical experience, including clinical, preventive, specialist, and research work. At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major-General. An officer may apply after one year's Indian Service to have his name registered for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of civil officials and for general medical administrative purposes; to specialist (for example, public health and bacteriological) services; to research posts; and to professorships at the Medical Schools.

NOTE.—It is not possible to state at present what, if any, prospects of employment on the civil side will be open to Indian Medical Service Officers under the proposed new constitution for India.

PAY.

Owing to the state of the financial emergency at present prevailing in India the existing monthly rates of pay, which are as follows, are subject to a temporary reduction of 5 per cent.

Rank.	Service in Rank.	Rate Pay.	Overseas Pay.	Year of Total Service.
		Rs.	Rs.	
			150	1st
Lieut.	—	500	150	2nd
			150	3rd
Capt.	(i) During first 3 years' service as Captain	650	150	4th
			£15	5th
			£15	6th
	(ii) With more than 3 and less than 6 yrs.' service as Captain	750	£25	7th
			£25	8th
			£25	9th
	(iii) With more than 6 years' service as Captain	850	£25	10th
			£25	11th
			£30	12th
Major	(i) During first 3 years' service as Major	950		
	(ii) With more than 3 and less than 6 years' service as Major	1100		
	(iii) With more than 6 years' service as Major	1250		
Lieut.-Col.	(i) Until completion of 23 years' total service	1500	£30	13th and over
	(ii) During 24th and 25th years' service	1600		
	(iii) After completion of 25 years' total service	1700		
	(iv) When selected for increased pay	1850		

EXTRAS.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

ANTEDATES IN COMMISSION.

Any service rendered by an officer during the war as a medical or combatant officer, or in a position usually filled by an officer, may be counted as service for increments of pay, promotion, retirement and retired pay, but not for gratuity.

One half of any service in the ranks during the war may be counted as service for retirement and retired pay only.

Candidates possessing certain higher medical qualifications may be granted an antedate of one year in their commissions. Past service in certain hospital appointments may also render candidates eligible for an antedate of one year. Persons holding or about to hold resident posts at recognized hospitals may be seconded in those posts for a period not exceeding one year. The maximum period of antedate, secondment, or antedate and secondment combined, admissible under this paragraph, is limited to one year.

OUTFIT ALLOWANCE.

Officers on appointment will receive an allowance of £50 towards the cost of outfit.

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice, so long as it does not interfere with their proper duties.

LEAVE.

Leave can be taken at reasonable intervals, and adequate rates of leave pay are provided. Extra leave (known as study leave), which may not exceed 12 months in all during an officer's service, may be granted to officers desirous of pursuing special courses of study of a post-graduate nature. During such leave, study allowance, at present fixed at the rate of 12s. a day in the United Kingdom, £1 a day on the Continent of Europe, and £1 10s. a day in the United States of America, is granted to an officer in addition to ordinary rates of leave pay.

PENSIONS.

The rates of pension are as follows:

	Per annum £
After 17 years' service for pension	400
,, 18 ,, ,, ,, ...	430
,, 19 ,, ,, ,, ...	460
,, 20 ,, ,, ,, ...	500
,, 21 ,, ,, ,, ...	540
,, 22 ,, ,, ,, ...	580
,, 23 ,, ,, ,, ...	620
,, 24 ,, ,, ,, ...	660
,, 25 ,, ,, ,, ...	700
,, 26 ,, ,, ,, ...	750
,, 27 ,, ,, ,, ...	800

These rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent. in all. At present a reduction of 8¼ per cent. is being made on this account.

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

PASSAGES.

An officer on appointment is provided with free passage to India. The families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges.

Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot, lasting approximately six months, prior to their embarkation for India on first appointment. Information as to the rates of pay admissible during this period and subsequently up to arrival in India is contained in the memorandum referred to below.

A memorandum giving full details regarding these appointments and forms of application may be obtained from the Under-Secretary of State for India, Military Department, India Office, London, S.W.1. The Selection Committee will meet at the India Office early in January next, and the selected candidates will be required to join a course of instruction commencing early in February, 1934, prior to sailing for India in the Autumn of 1934. Applications should be submitted as soon as possible.

COUNTY BOROUGH OF OLDHAM.

BOUNDARY PARK MUNICPAL HOSPITAL.

RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited from registered *Medical Practitioners for the post of Resident* Assistant Medical Officer.

Salary £200 per annum, with board, residence, and laundry.

Candidates should be unmarried.

The appointment will, in the first instance, be for a period of six months. The successful applicant, however, will be eligible for reappointment for a further period of six months.

The Hospital comprises 375 beds, with facilities for gaining experience in medicine, surgery, midwifery, and diseases of children.

Applications, on forms to be obtained from the undersigned, endorsed "Resident Assistant Medical Officer," should be sent to the Medical Officer of Health, Town Hall, Oldham, and should be received not later than Thursday, January 4th, 1934.

JAMES B. WILKINSON, M.D., C.M., D.P.H.,
Medical Officer of Health.

Town Hall, Oldham.

THE WANDSWORTH BOROUGH COUNCIL invite applications from unmarried persons of either sex for appointment as ASSISTANT MEDICAL OFFICER OF HEALTH & MEDICAL OFFICER of the Maternity Home.

Salary £500 per annum, rising by £25 annually to £700 per annum subject to a deduction of £85 per annum for emoluments.

Further particulars and conditions of appointment and forms of application, may be obtained from and applications must be received by me not later than January 8th, 1934.

Council House, D. A. NICHOLL,
Wandsworth, S.W.18. Town Clerk.
December, 1933.

THE ROYAL INFIRMARY, SHEFFIELD.
(500 Beds.)

OPEN APPOINTMENT.

Applications are invited for the post of CLINICAL ASSISTANT (male) to the Aural Department, attached to which are 32 beds and a large Out-patient Department.

Salary £300 per annum. The appointment will be held for one year subject to notice, and the officer elected will be eligible for reappointment.

Letters, stating age, and giving full qualifications, previous Hospital experience, etc., should be submitted to the undersigned forthwith.

JNO. W. BARNES, F.C.I.S.,
Board Room, Gen. Supt. & Secretary.
December 20th, 1933.

NORTH RIDING INFIRMARY, MIDDLESBROUGH.
(General Hospital—150 Beds.)

Wanted at once SENIOR HOUSE SURGEON and THIRD HOUSE SURGEON.

Candidates must be male, unmarried, and of British nationality.

The appointments will be for not less than six months and renewable.

Salary £200 and £125 per annum respectively, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should be sent to the undersigned.

GERALD A. KENYON,
Secretary-Superintendent.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

The Committee invite applications for the post of PHYSICIAN in charge of the Skin Department (with charge of beds) and with supervision of Light Treatment. One attendance weekly required. An honorarium to cover travelling expenses will be paid. Candidates must be Fellows or Members of the Royal College of Physicians, England.

Applications, with copies of three recent testimonials, which may be printed or typewritten, should be sent as soon as possible to the undersigned from whom further particulars may be obtained.

CHARLES H. BESSELL,
December 1st, 1933. Secretary.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.3.

The Committee of Management invite applications for the post of HOUSE PHYSICIAN (for which there are three vacancies). The duties include work in the Out-Patient Department as well as in the Wards. The appointment is for six months, commencing on February 1st, 1934, with an honorarium of £50.

Applications, with copies of testimonials, must reach the undersigned not later than Saturday, January 6th, 1934.

Brompton, S.W.3. FREDERICK WOOD,
December, 1933. Secretary.

BRISTOL ROYAL INFIRMARY.

Applications are invited for the following Medical appointments for the six months commencing March 1st, 1934:

THREE HOUSE PHYSICIANS.
FOUR HOUSE SURGEONS.
ONE HOUSE SURGEON to the Ear, Nose, and Throat Department.
ONE HOUSE SURGEON to the Gynaecological and Skin Departments.
ONE OBSTETRIC HOUSE SURGEON.
ONE CASUALTY HOUSE SURGEON.
ONE HOUSE SURGEON to the Ophthalmic Department and to the Junior Assistant Surgeon.

Salaries at the rate of £80 per annum, with board, apartments, and laundry, except in the case of the Casualty House Surgeon, when the salary will be at the rate of £100 per annum, with board, apartments, and laundry.

Candidates, who must be duly qualified, to send in their applications, stating age, together with copies of not more than three testimonials, to the undersigned on or before January 8th, 1934.

The elected candidates must become members of the Medical Defence Union before taking up their appointment.

ELLIS C. SMITH, F.C.I.S.,
Secretary & House Governor.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham Road, S.W.9.

The Committee of Management invite applications for the post of ONE HOUSE PHYSICIAN which will become vacant on January 31st next. Applicants (men) must be fully qualified and registered. The appointment is for six months, with board, residence, and washing provided. Salary at the rate of £100 per annum. Applications, with copies of testimonials, stating age, should be forwarded on or before Friday, January 5th, 1934, to the Secretary.

CONNAUGHT HOSPITAL
(115 Beds, with Four Resident Medical Officers), Walthamstow, E.17.

RESIDENT HOUSE PHYSICIAN (male) required. Salary £100 per annum. Appointment for six months, from February 1st, with board, residence, and laundry. Applications, stating age, nationality, qualifications, and experience, accompanied by copies of not more than three recent testimonials, should be received on or before Saturday, January 6th.

KENELM S. ELLISON, Secretary.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFRMARY.

HOUSE SURGEON wanted. Ophthalmic experience preferred. Duties to commence in January. There are 50 beds for In-patients and large Out-patient Department. Salary £150 a year, with furnished apartments, board, and laundry. Ladies and gentlemen applying should state age and experience, and send copies of three recent testimonials, to reach the Secretary not later than January 3rd, 1934.

EUSTACE LEES,
December 29th, 1933. Secretary.

NORTH LONSDALE HOSPITAL, BARROW-IN-FURNESS. (150 Beds.)

RESIDENT CASUALTY OFFICER (male appointment) wanted immediately. Applications are invited for the above resident appointment from fully qualified practitioners experienced in the administration of anaesthetics. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, experience, and nationality, accompanied by copies of three recent testimonials, should be sent to the Secretary as early as possible.

ALL SAINTS' HOSPITAL (FOR GENITO-URINARY DISEASES), Austral St., West Square, Southwark, S.E.11.

A vacancy exists for an HONORARY ANAESTHETIST at this Hospital, for duty on Thursday mornings. Applications, with full particulars and copies of testimonials, should reach me not later than January 9th, 1934.

D. H. EADE, Secretary.

METROPOLITAN HOSPITAL, Kingsland Road, E.8.

There is a vacancy for ONE CASUALTY OFFICER (male). Salary £100 per annum. The appointment is for a period of six months commencing on February 1st, 1934.

Candidates must possess a registered Medical and Surgical qualification of the United Kingdom.

Applications, with copies of three recent testimonials, and a certificate of ability to administer anaesthetics, to be sent forthwith to the undersigned.

GEO. W. COOLING, Secretary.

EAST SUSSEX COUNTY MENTAL HOSPITAL, HELLINGLY, SUSSEX.

Applications are invited for the post of SENIOR ASSISTANT MEDICAL OFFICER AND DEPUTY MEDICAL SUPERINTENDENT (Male) at the above Hospital at a commencing salary of £650 per annum, rising by annual increments of £25 to £700 (subject to any general scale of temporary deductions from salaries in force at any time), with emoluments valued at £90 per annum for the purposes of the Asylums Officers Superannuation Act, 1909, subject to which and to the rules relating to the position which may be in force from time to time the appointment will be made, terminable by three months' notice expiring at any time of the year on either side.

Candidates must hold the Diploma of Psychological Medicine.

Forms of application may be obtained from the Medical Superintendent of the Mental Hospital at Hellingly, and should be returned to me, the undersigned, accompanied by copies of three recent testimonials not later than Tuesday, January 16th, 1934.

HAROLD M. BLAKER,
211, High Street, Clerk to the Visiting
Lewes. Dec. 16th, 1933. Committee.

NORTH STAFFORDSHIRE ROYAL INFIRMARY, STOKE-ON-TRENT.
(389 Beds.)

HOUSE SURGEON (ORTHOPAEDIC).

The Committee invite applications for the post of Orthopaedic House Surgeon for a period of either six or twelve months from January 6th next. Previous Orthopaedic experience not essential (fractures constitute 80 per cent. of cases). Salary £150 per annum, with board, residence, and laundry.

Applications, with two copies of recent testimonials, to be sent to the undersigned immediately.

By Order,
W. STEVENSON,
Secretary & House Governor.

HUDDERSFIELD ROYAL INFIRMARY.
(240 Beds.)

Wanted, LADY HOUSE SURGEON to commence duty as early as possible after January 1st, 1934. Duties mainly in Eye, Ear, Nose, Throat, and Medical Departments, with Obstetrics.

Salary £150 per annum, with board, residence, and laundry.

Appointment for six months, subject to renewal for a similar period.

Applications, with copies of three recent testimonials, to be addressed to the undersigned immediately.

H. E. G. HALL, Gen. Supt. & Sec.

LONDON HOSPITAL, E. 1.

Applications are invited for the post of SURGICAL FIRST ASSISTANT AND REGISTRAR. There are two vacancies. Candidates must be Fellows of the Royal College of Surgeons. The salary is £300 per annum, payable by the Hospital and Medical College jointly.

The appointment is for one year, but is renewable annually, on application, for two further periods of one year. Applications should arrive at the Hospital not later than by the first post on Saturday, January 13th, 1934.

Further particulars may be obtained from the House Governor.

ARTHUR G. ELLIOTT, House Governor.

THE BURSLEM HAYWOOD AND TUNSTALL WAR MEMORIAL HOSPITAL.

Wanted, JUNIOR RESIDENT MEDICAL OFFICER. Salary £150 per annum, with board and residence. Must be fully qualified. Experience in Ophthalmic and Ear, Nose, and Throat work will be an advantage. Applications, stating age and experience, together with copies of three recent testimonials, to be sent to me.

High Lane, C. E. LOWNDES,
Burslem, Stoke-on-Trent. Secretary.

ROYAL SURREY COUNTY HOSPITAL, GUILDFORD. (184 Beds.)

Wanted, February 1st, 1934, HOUSE SURGEON (male). Salary £150 per annum, with board, residence, and laundry. Applications, stating age and essential particulars, with copies of not more than three testimonials, to be sent to the Secretary-Superintendent on or before January 9th, 1934.

RESIDENT MEDICAL OFFICER REQUIRED for STOKE NEWINGTON DISPENSARY, High Street, Stoke Newington. Whole-time, lady preferred. Salary £200 a year, with residence, light, and fuel free. A further £120 will be paid to her for keeping a resident housekeeper and a non-resident charwoman to attend to the premises and for their sundry requirements. Applications should be addressed to the Hon. Sec. of the Dispensary, and should reach him not later than January 15th, 1934.

APPOINTMENTS.—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands.

Town or District.	Town or District	Town or District.
CONTRACT PRACTICE	**CONTRACT PRACTICE** *(contd.)*	**PUBLIC HEALTH**
EBBW VALE, MON. *(Workmen's Medical Society.)*	MARDY, GLAMORGAN *(Workmen's Medical Scheme.)*	GLOUCESTERSHIRE EDUCATION COMMITTEE *(Lady School Medical Inspector.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	KENT COUNTY COUNCIL. *(Resident Assistant Medical Officer, Medway Institution, Hospital.)*
LLWYNPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	
LOWESTOFT MEDICAL INSTITUTE. *(Medical Officer.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.) (Workmen's Medical Scheme.)*	CITY OF YORK. *(Assistant Medical Officer of Health—Woman.)*

(b) Overseas.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District	Hon. Sec. of Division or Branch	Town or District.	Hon. Sec. of Division or Branch	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. J. G. HUNTER (Medical Secretary, New South Wales Branch), 135, Macquarie St., Sydney, N.S.W.	**QUEENSLAND.** *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	**WELLINGTON, NEW ZEALAND.** *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.
VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. J. P. MAJOR (Hon. Sec., Victorian Branch, British Medical Association, Medical Society Hall, East Melbourne, Victoria.			**WESTERN AUSTRALIA.** *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.

December 27th, 1933. By Order of the Council. G. C. ANDERSON, Medical Secretary.

JENNY LIND HOSPITAL FOR CHILDREN, NORWICH.

Applications are invited for the post of RESIDENT MEDICAL OFFICER. Salary £120, with board, residence, laundry. Candidates (male or female) who must possess registered qualifications, should forward applications, stating age, experience, etc., together with copies of testimonials, to the undersigned not later than first post on Wednesday, January 3rd, 1934.

FRANK INCH,
December 23rd, 1933 Secretary.

NATIONAL TEMPERANCE HOSPITAL, Hampstead Road, N.W.1.

A vacancy will occur some time in January for the post of HONORARY ASSISTANT PHYSICIAN.

Candidates must be Doctors of Medicine of a British University or Members of the Royal College of Physicians of London.

Applications, with copies of not more than three recent testimonials, must be forwarded not later than Thursday, January 4th, 1934, addressed to the Secretary.

NATIONAL TEMPERANCE HOSPITAL, Hampstead Road, N.W.1.

Applications are invited for the appointment of HONORARY ASSISTANT AURAL SURGEON. Candidates must be Fellows of the Royal College of Surgeons of England.

Intending applicants should communicate in the first place with the Secretary for particulars. Applications, accompanied by copies of not more than three recent testimonials, must be forwarded not later than Thursday, January 4th, 1934.

WREXHAM AND EAST DENBIGHSHIRE WAR MEMORIAL HOSPITAL. (109 Beds.)

ONE RESIDENT HOUSE SURGEON (male or female) required by the above Hospital, to commence on February 1st, 1934. Appointment for a period of six months. Salary £150 per annum, with board and laundry.

Applications stating age, nationality, experience, and qualifications, accompanied by copies of three recent testimonials, to be sent to the undersigned by the first post Monday, January 15th, 1934.

LESLIE SPENCER,
December 14th, 1933 Secretary.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH, 60, Grove End Road, London, N.W.8.

Applications are invited for the post of RESIDENT HOUSE PHYSICIAN (male). The appointment will be for six months from February 1st, 1934. Salary at the rate of £100 per annum, with full board.

Applications, together with copies of three testimonials, should reach the undersigned on or before December 30th.

F. DUDLEY HOBBS, B.A., Secretary.

BRISTOL EYE HOSPITAL, Lower Maudlin Street.

Applications are invited for the post of ASSISTANT RESIDENT HOUSE SURGEON. Salary £100 per annum. Vacant February 1st, 1934. Senior post available after six months. Applications and testimonials to be received by the Secretary not later than Monday, January 8th, 1934.

WEST LONDON HOSPITAL, Hammersmith Road, W.6.

Required, a RESIDENT ANÆSTHETIST (male). The appointment is tenable from January 22nd next to June 30th, subject to one months notice on either side. Salary at the rate of £100 a year, with board, lodgings, and laundry allowance.

Candidates must be registered under the Medical Act. Applications (which must be made on printed forms obtained from me) must reach me not later than the first post on Friday, January 12th, 1934. Selected candidates will be required to call upon such members of the Medical Staff as directed to be in attendance at the Medical Council Meeting on Friday, January 19th, at 4.30 p.m., and the House Committee Meeting at 5 p.m. the same day when the appointment will be made.

H. A. MADGE, Secretary.

HUDDERSFIELD ROYAL INFIRMARY. (240 Beds.)

MALE HOUSE SURGEON required to commence duty February 1st, 1934.

Salary £150 per annum, with board, residence, and laundry. Appointment for six months, subject to renewal at the discretion of the Board of Management.

The Hospital is officially recognised for the surgical practice required of non-members before admission to the Final Fellowship Examination of the Royal College of Surgeons of England.

Applications, with copies of three recent testimonials, to be addressed to the undersigned not later than January 13th, 1934.

H. E. G. HALL, Gen. Supt. & Sec.

(Appointments continued on p. 39)

NOT CLASSIFIED.

CHANNEL ISLES. — EXPERIENCED PHYSICIAN, having delightful, small, and modern home, has VACANCY for ONE LADY ONLY, suffering from mild nervous trouble (e.g., Climacteric). Middle-aged or elderly. No other patients. Fees from seven guineas weekly, according to requirements.—Address, giving full details, when refs. may be exchanged, No. 8370, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANCIES.

WANTED.—ASSISTANTSHIP, WITH EARLY view to succession or partnership, London preferred, panel and working-class Practice, by B.M., B.Ch., B.A.O. (Q.U.B.), Cert. D.T.M. and H.Lond. (R.C.). Experienced, keen worker, and abstainer, married, with family, age 36 years. Applicant at present in Government service abroad. — Address, No. 8552, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANT, OUTDOOR, UNmarried, English or Scotch, for mixed Practice in large Midland City. Salary £360, with rooms and attendance, petrol allowance if own car.—Address, No. 8665, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANTSHIP, PREFERABLY with Psychologist in London, by woman Doctor. *Moderate salary. Failing this would* accept any assistantship in London. Free now. —Address, No. 8660, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MALE, OUTDOOR ASSISTANT for branch, middle and working-class Practice in modern industrial village. £400 and car, or allowance, and permanency to right man. — Address, No. 8655, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — ASSISTANTSHIP BY WOMAN Doctor. Six years' experience in private and panel practice. Dispensing. Able to drive car. — Address, No. 8670, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY. — INDOOR AND Outdoor ASSISTANTS for town and country Practices, with and without view. Good salaries. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross St., Manchester, 2.

WANTED IMMEDIATELY, MALE, SINGLE, indoor ASSISTANT, for mixed Practice, North of England. Salary £300, all found. —Address, with particulars, to No. 8667, B.M.A. House, Tavistock Square, W.C.1.

WANTED. — INDOOR ASSISTANT WITH view, British, male, rural area, Midlands. £300 and motor allowance. Usual bond. Photo. and references. — Address, No. 8661, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP OR LOCUM WANTED AT once by experienced man. T.T., in or out. Town or country. Preferably live Branch Surgery; keen midwifery; all anaesthetics. Prospects write for engagement. — Address, No. 8669, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP OR LOCUMS WANTED BY Medical Woman, L.R.C.P.S., L.M., D.P.H., 8 years' experience, good midder and anaesthetics. Now in town. Interview arranged. Free end January. Excellent references.— No. 8668, B.M.A. House, Tavistock Sq., W.C.1.

ASSISTANTSHIP WANTED; FREE FIRST week January. Experience private and panel practice. Abstainer. Willing.—Address, No. 8658, B.M.A. House, Tavistock Sq., W.C.1.

WOMAN DOCTOR WISHES TO HEAR OF light ASSISTANTSHIP or part-time work, preferably in South. Experienced panel and private practice, reliable, well received. Excellent testimonials.—Address, No. 8659, B.M.A. House, Tavistock Square, W.C.1.

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M.R.C.S., L.R.C.P., RECENTLY RETIRED, would like LOCUM TENENS work or ASSISTANTSHIP. Teetotal. Live in.—Address, No. 8653, B.M.A. House, Tavistock Sq., W.C.1.

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WANTED. — PARTNER IN OLD-ESTABlished Practice in fashionable South Coast Town. Share worth £1,100 to begin with, at two years' purchase. Cottage Hospital. Panel about 1,400. Practice mainly middle and upper class average fees 7/- and 10/6. Excellent house, with large garden available. Price £3,000. Incoming man should be married not under 30, London, Oxford, or Cambridge, and have held House appointments.—Address, No. 8673, B.M.A. House, Tavistock Sq., W.C.1.

WANTED.-PARTNER IN OLD-ESTABLISHED Practice in growing town in the Midlands. Share worth £600 p.a. at first.—Address, No. 8263, B.M.A. House, Tavistock Square, W.C.1.

DOCTOR, EXPERIENCED G.P., WITH POSTgraduate qualifications, would like to hear from colleague in Altrincham, Hale, or Wilmslow area, with a view to PARTNERSHIP-SUCCESSION in good-class non-dispensing Practice. No objection to small panel. Capital available.— No. 8560, B.M.A. House, Tavistock Sq., W.C.1.

F.R.C.S.ENG., REQUIRED TO JOIN *MULTIPLE PARTNERSHIP in East Anglia*; to do its surgery in conjunction with general practice. Extensive operative experience essential. Adequate share available. Communicate, with photo. if possible. — Address, No. 8651, B.M.A. House, Tavistock Square, W.C.1.

THIRD PARTNER REQUIRED, RESIDENTIAL town, West England. Share £850. Two years' purchase. Good old-established general practice. Large panel and appointments. Married preferred.—Address, No. 8672, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

WANTED. — ASSISTANT NURSE, UNDER 30, good appearance, phthisis; willing undertake some secretarial work. State wages. —Write, FENWICK, Manor, Brightlingsea.

A Course of Training in Dispensing and Pharmacy is given at **GORDON HALL SCHOOL OF PHARMACY,** and Secretary-Dispensers can be supplied to Doctors. Sessions: January, April, and September.—Apply Principals, School of Pharmacy, Drayton House, Gordon Street, W.C.1. 'Phone: **Museum 3930.**

A LADY DISPENSER - BOOKKEEPER supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations. — Write, wire, or 'phone (Bayswater 0969), Secretary, 7, Westbourne Park Road, W.2.

DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeuse-Dispensers, are invited to write, wire, or 'phone Temple Bar 5858, THE DISPENSERS' BUREAU, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

EXPERIENCED, ACTIVE, ELDERLY, BUT keen Practitioner, requires PART-TIME ENGAGEMENTS or LOCUMS. Moderate terms. Own car.—Address, No. 8666, B.M.A. House, Tavistock Square, W.C.1.

EXPERIENCED DOCTOR SEEKS APPOINTMENT that will allow evenings and Sundays free. Excellent references. Remuneration is not the principal consideration. — Address, No. 8675, B.M.A. House, Tavistock Square, W.C.1.

PART-TIME WORK, IN OR NEAR LONDON (evening, night, or week-end) wanted by woman recently qualified. Conjoint, working for further qualification.—Address, No. 8674, B.M.A. House, Tavistock Square, W.C.1.

REQUIRED FOR GROUP CLINIC IN COURSE of formation: OPHTHALMOLOGIST, RADIOLOGIST, and DENTAL SURGEON. Participants, who must be on staff of hospital, should apply for full details. — Address, No. 8053, B.M.A. House, Tavistock Square, W.C.1.

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WANTED BY M.D., D.P.H., PRACTICE OR PARTNERSHIP Succession in London or South. Income at least £2,000, including panel. Necessary capital. Confidential.— Address, No. 8652, B.M.A. House, Tavistock Square, W.C.1.

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BOURNEMOUTH.—OWING TO ILL HEALTH, PRACTICE, over £600 p.a., panel about 240, exceptional scope. Premium £1,050, or best offer, quick sale. Suitable modern freehold residence, sep. professional rooms, for sale.— No. 8663, B.M.A. House, Tavistock Sq., W.C.1.

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NORTH WALES. — UNOPPOSED COUNTRY and industrial PRACTICE for sale, panel 890, poor law and vaccination appointment. Rent £40, plus rates. Average receipts £1,100 p.a. E.l., garage.—"CHEMICALS," 40, Hamilton Street, Hoole, Chester.

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TO PURCHASERS. — DO NOT BUY without expert assistance. With 50 yrs.' experience Mr. PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St., Strand, W.C.2. Telephone: Temple Bar 9011. Telegrams: "Epsomian, London."

WEST RIDING PRACTICE, 1,450 PANEL, *and private. House (rent and rates £65).* Premium £2,000. Vendor would resign panel, but practise privately different area of town.— Address, No. 8664, B.M.A. House, Tavistock Square, W.C.1.

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WIMPOLE STREET.—PART TIME CONSULTING ROOM (large). Use of waiting room, £100. Also Bachelor Service Flat, very well furnished sitting room, bedroom, and bathroom (constant hot water), lift, 3½ gns. per week.—No. 222, B.M.A. House, Tavistock Sq., W.C.1.

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Practices and Partnerships for Disposal (continued).

12 MIDLANDS — VERY OLD ESTABLISHED AND EASILY worked Country PRACTICE about 8 miles from the County Town Cash receipts average between £650 and £700 p.a., including panel about 600. Suitable house with 4 bedrooms, electric light, garage and garden for sale. Price £1,300 freehold. Scope for young, *energetic man. Premium one year's purchase.*

13 LONDON E.—OLD ESTABLISHED PRACTICE OF £950 P.A. in the Forest Gate district. Panel 60. No midwifery. Modern house (5 bedrooms) in good residential part. Electric light and heating and nice garden for sale or rent. Scope for increase. Premium £385.

14 S. DEVON — OLD ESTABLISHED PRACTICE IN PICturesquely situated Watering Place. Receipts average £1,173 p.a. including panel 474. Excellently situated house in very good state of repair both inside and out containing 8 bedrooms etc. Price of leasehold £800. The Practice is particularly suitable for one not too robust or young who needs country life. Salmon river and sea fishing, hunting, etc. Cottage Hospital. Premium £1,850.

15 PARTNERSHIP IN OPHTHALMIC PRACTICE IN FIRST RATE town. Applicants should be well qualified, aged 30–40 and experienced.

16 BIRMINGHAM — PARTNERSHIP IN WELL ESTABLISHED and increasing Practice in good Suburb. Panel over 1,200 rapidly increasing. Suitable house to rent. Excellent scope and unrivalled prospects for the right man. Premium for share worth about £800 p.a., £1,350.

17 LONDON S.W.—WELL-ESTABLISHED OPHTHALMIC PRACTICE *averaging £900 p.a. in Suburban District. Fee for consultation and examination £1 1s.* Well situated house to be sold or let. Premium £1,200.

18 S. WALES — PRACTICE BETWEEN £250—£300 P.A. IN beautifully situated village about 4 miles from important town. Small panel. Nice house (6 bedrooms) electric light, gas and company's water. Garage and garden. Premium house and Practice only £1,500 for quick sale.

19 LONDON S.E.—LOCK UP PRACTICE OF ABOUT £350 P.A. in Suburban District within 5 miles of Charing Cross. Panel 320. Premises consist of surgery and waiting room on ground floor to rent on lease. Premium £500 or near offer.

20 S. OF ENGLAND—SPA PRACTICE AVERAGING £380 P.A. in famous Health Resort. Fees £1 1s. and £2 2s., occasionally 10/6. Semi-detached corner house (5—6 bedrooms) in best part which can be rented. Premium £500.

21 SHROPSHIRE BORDER — WELL-ESTABLISHED PRACTICE in large Industrial Village amidst beautiful country. Income about £700 p.a. including panel rapidly increasing. Small detached modern house (4 bedrooms) with electric light etc. for sale or rent. All kinds of sport. Cottage Hospital. Premium £800. Would suit either Medical Man or Medical Woman.

22 SURREY — PARTNERSHIP IN SOUND OLD ESTABLISHED good mixed class Practice about £2,650 p.a. in the Croydon area. Small panel. Very little midwifery. Scope for increase. Premium one half share 2 years purchase.

23 MIDDLESEX — MIXED WORKING CLASS PRACTICE OF about £1,020 p.a. in rapidly growing district within 10 miles of the Marble Arch. Panel about 1,120. Corner house (5 bedrooms) with garage and fair sized garden, for sale. Scope for increase. Premium £2,000.

24 S. COAST—NON DISPENSING PRACTICE AVERAGING OVER £650 p.a. in well known Health Resort. Visits 3/6 to 10/. House in excellent position facing sea and containing 6 bedrooms etc. Price of freehold £1,950. Premium for Practice £350.

25 LONDON E.C.—OLD ESTABLISHED PRACTICE OF ABOUT £1,650 p.a., including appointments, panel and Public Medical Service worth over £500 p.a. Visits 2/6 to 7/6. Practically no midwifery. Introduction up to 12 months will be given. Premium £1,500.

26 S. WALES—SMALL PRACTICE IN A COLLIERY DISTRICT doing about £150 p.a. Accommodation to rent. Scope for young energetic man. Premium £150.

27 NOTTINGHAM—SMALL PRACTICE OF ABOUT £255 P.A. Panel 200. Corner house (4 bedrooms). Rent £60 p.a. Premium £500.

28 EASTERN COUNTIES—COUNTY TOWN—VERY OLD ESTABlished middle and upper class PRACTICE averaging £1,190 p.a. Panel 120. Visiting fees 7/6 to 15/6. Ten roomed house in good residential part with garage and garden for sale. Scope. Premium £2,200.

29 LONDON S.W.—WELL-ESTABLISHED EYE EAR NOSE AND Throat Connection in Suburban District. Cash receipts last twelve months £432 (mostly from Eye work) including appointment worth about £120 p.a. Corner detached non-basement *house (7 bedroom) with garages and very nice garden.* Price of freehold and Practice, £2,350.

30 GLOUCESTERSHIRE—PARTNERSHIP IN VERY OLD ESTABlished Practice of nearly £1,750 p.a. in small town in beautiful part of the country. Panel over 1,350. Fees average 7/6. Premium one half share 2 years purchase.

31 FAMOUS INLAND WATERING PLACE AND HEALTH Resort—Well established non-dispensing PRACTICE. Receipts last three years averaged £986 p.a. including a select Panel of 280. Fees 5/- to £1 1s. Particularly attractive house with large garden, for sale. Scope. Premium £750.

32 SUFFOLK AND NORFOLK BORDERS—PRACTICE OVER £300 in Market Town. Panel 87. Nice house (6 bedrooms), garage and good sized garden. Price of freehold £850. Excellent Tools. Plenty of sport. Cottage Hospital. Premium £450.

33 LONDON E.—CASH AND PANEL PRACTICE OF OVER £600 p.a. in populous district. Panel 500. Small house to rent on lease. Premium £800.

34 LONDON W.—GOOD MIDDLE CLASS PRACTICE £400 P.A. in suburb within easy access of the West End. Panel over 100. Attractive double-fronted house with nice garden for sale. Scope for increase. Premium 1½ years purchase.

35 HOME COUNTIES — OPHTHALMIC PRACTICE BETWEEN £300 and £400 p.a. in desirable Residential Town under 15 miles from London. Good detached house (4 bedrooms) with large garden for sale. Good reasons for plenty of scope for increase. Premium £300.

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1. SOUTH AFRICA.—Within 100 miles of East London on main line of Railway.—Well-established PRACTICE, situated in a township (population with district 3,000 Europeans and large number of Natives) in the midst of a wealthy sheep and agricultural district 4,000 feet above sea-level. *Cash receipts about* £1,150 p.a. Excellent Hospital in the place. Living very cheap. Premium only £500, to include furniture, drugs, etc. Future prospects good. Sport of all kinds.
2. YORKS. — LARGE TOWN.—Very sound old-established PRACTICE, easily worked and offering good scope. Average gross cash receipts for last three years over £1,500, including panel producing £485 p.a. and appointments worth £368. Fees 3/6 to 10/-. Very low expenses. Very suitable surgery premises with living accommodation above Price for freehold £1,000, £700 on mortgage. Private residence can be rented at £52 p.a., if desired. Sport of all kinds. Within easy reach of sea and moors. Premium £2,650.
3. ESSEX.—WITHIN 25 MILES OF LONDON.—Well-established working-class PRACTICE *averaging about* £1,100 p.a., *including private club* producing about £300 (net) and panel of 1,000. House contains surgery, *waiting room*, etc., *2 reception rooms, 4 bedrooms, bathroom*, garden, and garage. Rent £46 13s. p.a. Premium £1,700.
4. *LONDON SUBURB, NORTH-WEST.*—Old-established PRACTICE situated in a residential suburb and averaging for the past three years £637 p.a., *including* selected panel of 268. Visits 5/- upwards. Midwifery not encouraged. House contains 3 reception rooms, 6 bedrooms, etc., with a quarter of an acre of garden. Large garage. Price (freehold) £2,500. Premium £950. Investment offers exceptional *scope for increase as the district is developing.*
5. SOUTH CORNWALL.—Old-established unopposed PRACTICE situated in small seaside town (much augmented by good-class visitors in the summer) in a very delightful district averaging for the past 3 years £945 p.a. (last year £989), including panel of 256. Nearest opponent 6 miles. Bungalow residence, with a quarter of an acre of garden. Garage, etc. Rent £60 a year. Premium 1½ years' purchase.
6. WITHIN TWENTY MILES OF LONDON.—PARTNERSHIP.—A share, representing £1,000 p.a. with increase later as agreed, is offered in a very sound old-established mixed-class Practice, situated in a very attractive residential district. The vacancy occurs through the retirement of the senior of three partners. Gross cash receipts average about £4,500 p.a. Panel of 3,300. Fees 2/6 to 21/-. Well-situated house, with 3 reception rooms, 4 bedrooms, 2 maid's rooms, bathroom, etc., and usual offices. Electric light. Garden. Can be rented at £95 p.a. or freehold can be purchased. Premium for share 2 years' purchase. Ingoing Partner must be well experienced and aged between 35 and 40, married, and preferably Scottish or English.
7. NORTH AFRICA.—Well-established good-class English general PRACTICE, situated in a delightful locality, with a perfect climate. Average gross receipts for past three years nearly £2,500. Practice includes a Nursing Home of 6 beds, which, as the bulk of the work is surgical, must be maintained. House is a large one and provides accommodation for the Doctor in a self-contained flat upstairs. Fees good, practically no midwifery. Living expenses exceptionally small. Rent of house and annexe for nurses and Moorish patients about £24 a month, on a five years' lease. A man who could do ear, nose, and throat and eye work (which Vendor does not touch) should add considerably, in time, to his income. It is essential for the purchaser to be an experienced surgeon. Premium, to include practically all instruments, equipment, appliances, etc., £3,500.
8. RESIDENTIAL TOWN WITHIN FIFTY MILES OF LONDON.—Well-established PRACTICE offering large scope for increase. Gross cash receipts for last 12 months over £600. Panel of approximately 350. Very low expenses. Fees from 3/-. Good sized corner house, with 2 reception rooms, 4 bedrooms, etc. Electric light. Small garden. Garage. Rent on lease £85 p.a. Premium £850.
9. WITHIN 15 MILES OF LONDON.—Old-established better middle-class PRACTICE, held by Vendor for the past ten years, situated in a prosperous market town. Good train service to town. Gross cash receipts average £1,300 p.a. Selected panel of 450. One appointment worth £180 p.a. Fees 3/6 to 10/6, few at a guinea. Very commodious house, with good garden, containing 4 rooms on ground floor, 5 bedrooms, bathroom, etc. Separate entrance to professional rooms. Good garage and stabling. Price for freehold £3,000, £1,500 on mortgage. Premium £2,000.
10. NORTHANTS.—PARTNERSHIP.—A one-third share (with increase later) is offered in a well-established Practice averaging £1,400 p.a., offering large scope for expansion, situated in a suburb of good residential town. Suitable house available. Premium £800.
11. NORTH LONDON.—LOCK-UP SURGERY.—Old-established panel and working-class PRACTICE, producing about £300 p.a., including panel of 466 patients. Fees 1/6 to 3/6. Suitable accommodation can be rented at £50 p.a., part sublet at £25 a year.
12. KENT.—LARGE TOWN.—A one-third share is offered after a preliminary assistantship in a very old-established good mixed-class PRACTICE, averaging £3,279 p.a. *Panel of nearly 3,000.* Fees 3/6 to 1 guinea. Suitable house can be rented at £100 a year. Sport of all kinds. Good schools. Premium for share 2 years' purchase. Ingoing Partner should be married and have had at least five years' general practice, and be preferably English or Scottish.
13. NORTH DEVON.—FAVOURITE SEASIDE RESORT.—Very old-established PRACTICE held 10 years by Vendor. Cash receipts average £1,173 p.a., including appointment (transferable) worth over £100 and panel producing £340. House has ample accommodation (8 bedrooms, etc.). Vendor's leasehold property having about 56 years to run. Price £800. Premium £1,850.
14. WITHIN 150 MILES NORTH OF LONDON. — COUNTY TOWN.—Old-established mixed-class PRACTICE averaging nearly £1,100 p.a., including panel of 118. House contains consulting and waiting rooms (separate entrance), lounge, 2 reception rooms, 4 bedrooms (2 fitted with hot and cold water basins), dressing room, bathroom, etc. Garden of 1/4 acre. Large garage. Electric light. Vendor's freehold. Price £2,000, part on mortgage. Premium £2,200.
15. WESTERN SUBURB.—Old-established better middle-class non-panel PRACTICE, in well-populated area, averaging for the last three years over £2,200. One appointment worth £80 p.a. Visits from 3/6 to 10/6. Not much midwifery. Suitable house, with 3 reception, 6 bedrooms, etc. Rent on lease £90 per annum. Premium £4,000 Good introduction given.
16. PARTNERSHIP. — HOME COUNTIES.—A one-fourth share is for disposal (owing to the retirement of one of three Partners) in an *old-established good mixed-class Practice, in beautiful residential* district within easy reach of London. Gross cash receipts approximately £3,400. Panel of 1,400. *Well-situated small modern house*, with 2 reception, 3 bedrooms, etc. Garden. Rent £59 p.a. Premium *two years' purchase.*
17. IMPORTANT INLAND SPA.—Old-established better-class non-dispensing PRACTICE, *averaging about* £380 p.a. Receipts have been considerably more and the Practice could be increased, if desired. Fees 1 and 2 guineas and occasionally half a guinea. House is a corner one in good residential district with ample accommodation, newly decorated. Can be rented on lease at £100 a year. Garden. Excellent social and sporting facilities. Premium £500.
18. LADY DOCTOR'S PRACTICE. — LONDON, SOUTH-EAST.—The half share is offered in a well-established middle and working-class Practice averaging for the last three years £1,188 p.a. Panel of about 600. Two appointments worth about £130 a year. Fees from 2/6. Small house, containing 1 reception room, 3 bedrooms, bathroom, etc., and professional rooms. Price for freehold £750. Premium for share 2 years' purchase. Ill health reason for sale. Preliminary assistantship of one to two months offered.
19. EGYPT.—Well-established PRACTICE producing about £950 p.a. and offering scope for increase. Fees 10/6 to 2 gns. Excellent accommodation can be rented at £16 10s. monthly. Premium, to include all furniture, drugs, drug bottles, instruments, etc., £2,000.
20. EASTERN COUNTIES. — FAVOURITE SEASIDE AND HOLIDAY RESORT. — Good mixed-class PRACTICE, established many years, producing for last twelve months £1,600. Panel brings in £300 p.a. and appointment worth £100 p.a. Fees 3/6 to 7/6, *with medicine* extra. Nice house, with 2 reception, 5 bedrooms, etc. Garage. Garden. Price for freehold £2,250. *Golf, shooting, and other sport.* Premium 1½ years' purchase.
21. *OPHTHALMIC PRACTICE.—Within eighty miles of London.—Practice* is increasing, and offers good scope for further development. Average *gross cash receipts for the past three years* £554. Last year over £700. Fees 1 to 2 guineas. Opposition slight. Choice of houses. *Premium* £700.

ASSISTANTS REQUIRED.—(1) LEICESTERSHIRE. Indoor, £300 p.a., *with car allowance.* Must be English or Scottish. (2) SOUTH WALES. Indoor, 300 p.a. Car provided. (3) SOUTH WALES. *Indoor*, £300 p.a. Irish, R.C. preferred. (4) DORSET. Two Indoor Assistants required. Salary £300 p.a., with view to Partnership. (5) LIVERPOOL. Indoor, £300 p.a., with half midwifery fees. Must be Protestant or North of Ireland. (6) LEICESTER. Indoor, £300 p.a., with increase later. Preferably Englishman with some experience.

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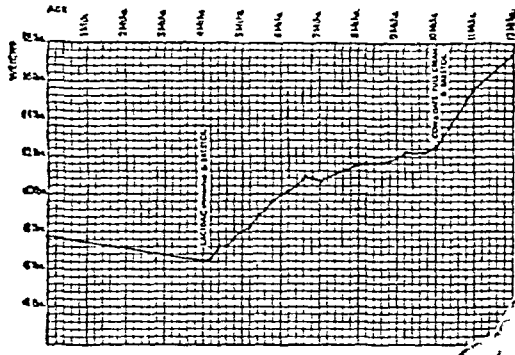
1. CORNISH OR EAST COAST.—Unopposed PRACTICE, producing £750 to £1,000 p.a. Small house required. Capital available.
2. LONDON OR MANCHESTER. — Well-established private and panel PRACTICE, producing £1,200 upwards, with nice house.
3. BUCKS, BERKS, or near locality.—Better-class PRACTICE, averaging about £1,500 p.a., with good scope. Panel not necessary. Ample capital for purchase of house and Practice.
4. SOUTH OF ENGLAND.—Good town, with educational facilities. Income £1,200 to £1,800, with substantial panel. *Fair-sized house* with garden.
5. SOUTH COAST TOWN, or near locality.—*PRACTICE averaging about* £1,500 p.a., with panel of 1,000 or thereabouts. Small house, preferably on rental. Capital available.
6. LONDON OR SUBURBS.—PRACTICE, producing £1,400 to £1,600 p.a., with panel of 1,500. *Good house, with garden.*
7. GOOD LONDON SUBURB or RESIDENTIAL DISTRICT within 3 miles. Well-established PRACTICE producing about £1,500 p.a., with moderate panel. Small convenient house sufficient.

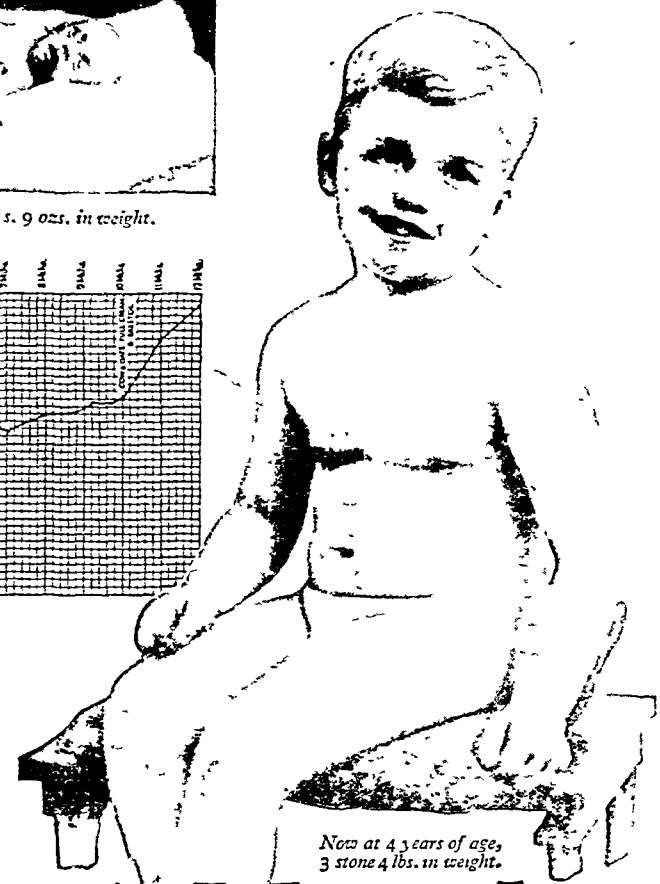
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